Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

ETE Sanitation and Landfill Site
Gainesville (T), Wyoming County
Site Number 9-61-005

March 1999

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

DECLARATION STATEMENT - RECORD OF DECISION

ETE Sanitation and Landfill Inactive Hazardous Waste Site
Town of Gainesville, Wyoming County, New York
Site No. 9-61-005

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the ETE Sanitation and Landfill 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 ETE Sanitation and Landfill 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 significant 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 ETE Sanitation and Landfill Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected a remedy to contain the wastes by installing a modified part 360 landfill cap, manage landfill gas by installing a gas vent system and reduce leachate production by permanently draining the South Pond. The components of the remedy are as follows:

- Waste consolidation, site regrading and covering the areas that contain waste with a modified Part 360 cap. The cap will minimize the production of leachate and prevent surface exposures. The cover system will include a passive landfill gas venting system.

- Permanently drain South Pond. Draining the South Pond will significantly reduce leachate production and reduce the threat to downgradient residents. Wastes currently under South Pond will be excavated and consolidated under the final landfill cover.

- Excavate contaminated sediments from the North Pond and place them under the landfill cap. Expand the North Pond by approximately one acre to partially compensate for the loss of aquatic habitat and/or wetlands.

- Install and monitor two additional well clusters downgradient of the site to detect any future off-site migration of groundwater contamination towards residences.

- Attempts will be made to place land use restrictions to prevent the use of groundwater on site and immediately downgradient off site where groundwater is contaminated.

- Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. The monitoring program would include periodic sampling of the groundwater, surface water, private wells, and landfill gas vents. This program will allow the effectiveness of the landfill cap to be monitored and will be a component of the operation and maintenance plan for the site.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

March 31, 1999
Date

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

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RECORD OF DECISION
ETE Sanitation and Landfill Inactive Hazardous Waste Site
Town of Gainesville, Wyoming County, New York
Site No. 9-61-005

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected a remedy to address the significant threat to public health and/or the environment created by the presence of hazardous waste at the ETE Sanitation and Landfill Site. The site is classified as a Class 2 Inactive Hazardous Waste Disposal Site. As more fully described in Sections 3 and 4 of this document, landfill operations have resulted in the disposal of a number of hazardous wastes at the site including leaded paint sludge and industrial solvents. Some of these wastes were released or have migrated from the site to surrounding areas, including the tributary to Cotton Creek. These disposal activities have resulted in the following significant threats to public health and/or the environment:

- a significant threat to public health posed by the migration of contaminated groundwater towards residential properties.

- a significant environmental threat associated with the impacts of contaminants to groundwater, surface water, soils, and sediments in the vicinity of the site.

In order to restore the ETE Sanitation and Landfill inactive hazardous waste disposal site to predisposal conditions to the extent feasible and authorized by law, but at a minimum to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the site has caused, the following remedy was selected:

- Waste consolidation, site regrading, and covering the areas that contain waste with a modified Part 360 cap. The cap will minimize the production of leachate and prevent surface exposures. The cover system will include a passive landfill gas venting system.

- Permanently drain South Pond. Draining of the South Pond will significantly reduce leachate production and reduce the threat to downgradient residents. Wastes currently under the South Pond will be excavated and consolidated under the final landfill cover.

- Excavate contaminated sediments from the North Pond and place them under the landfill cap. Expand the North Pond by approximately one acre to partially compensate for the loss of aquatic habitat and/or wetlands.

- Install and monitor two additional well clusters downgradient of the site to detect any future off-site migration of groundwater contamination towards residences.

- Attempts will be made to place land use restrictions to prevent the use of groundwater on site and immediately downgradient off site where groundwater is contaminated.

- Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. The monitoring program will include periodic sampling of the groundwater, surface water, private wells, and landfill gas vents. This program will allow the effectiveness of the landfill cap to be monitored and will be a component of the operation and maintenance plan for the site.

The selected remedy, discussed in Section 7 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD), in conformity with applicable Standards, Criteria, and Guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The ETE Sanitation and Landfill site is located in a rural agricultural area on Broughton Road in the Town of Gainesville, Wyoming County, New York, as shown in Figures 1 and 2. The twenty (20) acre site is surrounded by woodlands which separate the landfill from undeveloped agricultural land on all sides. Broughton Road runs east to west to the south of the landfill and Route 19 runs north to south to the west side of the landfill. Two ponds are located within the study area. South Pond is located along the southern property line. North Pond (also known as the leachate collection pond) is located between the landfill and the northern property line. The landfill accounts for seven (7) acres of the twenty acre site. The Town of Gainesville Highway Department Garage is located in the southeast corner of the investigation area.

SECTION 3: SITE HISTORY

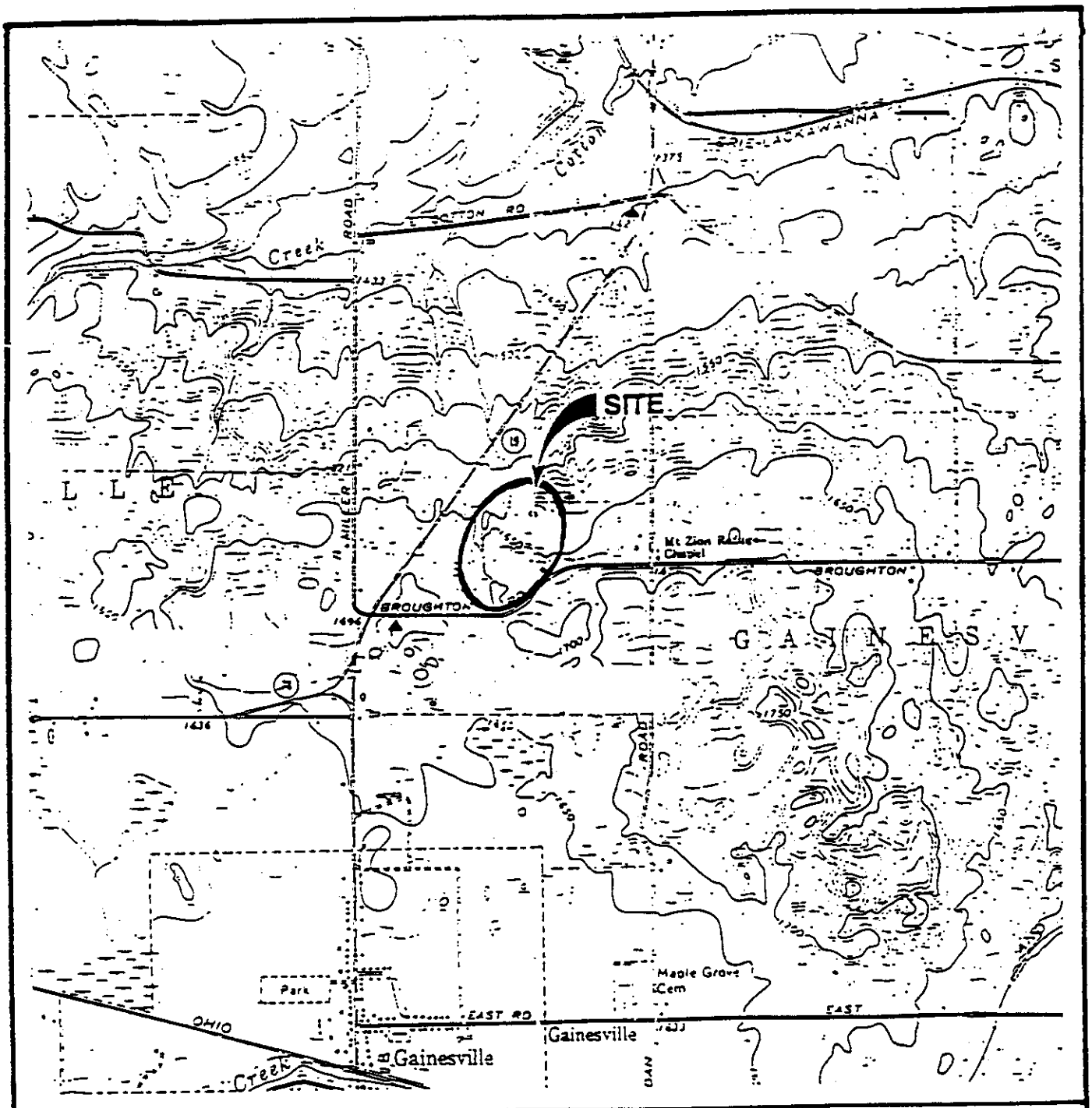
3.1: Operational/Disposal History

According to the 1994 Preliminary Site Investigation Report, the ETE Sanitation and Landfill Site was owned and operated by ETE Corporation from 1972 to 1979. The site may have been in operation prior to 1972. The ETE site was a non-permitted private landfill which accepted municipal and industrial waste from surrounding towns in Wyoming County. The ETE Corporation declared bankruptcy in 1979. A number of violations cited by NYSDEC included refuse burned on site; refuse not spread, compacted, or covered; refuse protruding through the cover soils; insufficient grading; uncontrolled release of leachate; and blowing papers.

Almor Corporation of Warsaw, New York, disposed approximately 150 tons of leaded paint sludge on site. Plating wastes may also have been disposed on site. Additional industrial waste included halite (salt) and possibly other salts produced by Morton Salt.

3.2: Remedial History

The NYSDEC and NYSDOH conducted a number of site inspections between 1987 and 1990 during which soil, surface water, waste, and tap water samples from nearby residences were collected and analyzed for hazardous waste compounds. A Preliminary Site Assessment (PSA) of the site was performed in 1990. As a result of the PSA, approximately 25 drums were removed in a drum removal activity completed in September 1991. Drums were found to contain leaded paint sludge and industrial solvents including 1,2 dichloroethane, carbon tetrachloride, trichloroethane, and 2-butanone. A Second Phase PSA was completed in February 1994. The PSA

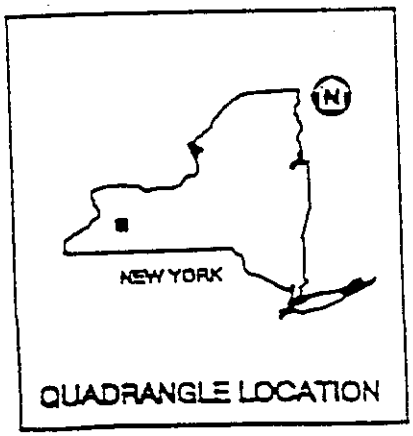


SOURCE: U.S.G.S. 7.5 MINUTE SERIES TOPOGRAPHIC MAP; WARSAW, NY 1972, CASTILE, NY 1972.

SCALE

0 2000 4000 FT.

2000 FT.



QUADRANGLE LOCATION

N

LONGITUDE: 78°07'30"
LATITUDE: 42°38'58"

Figure 1

SITE LOCATION MAP
ETE SANITATION
GAINESVILLE, NEW YORK

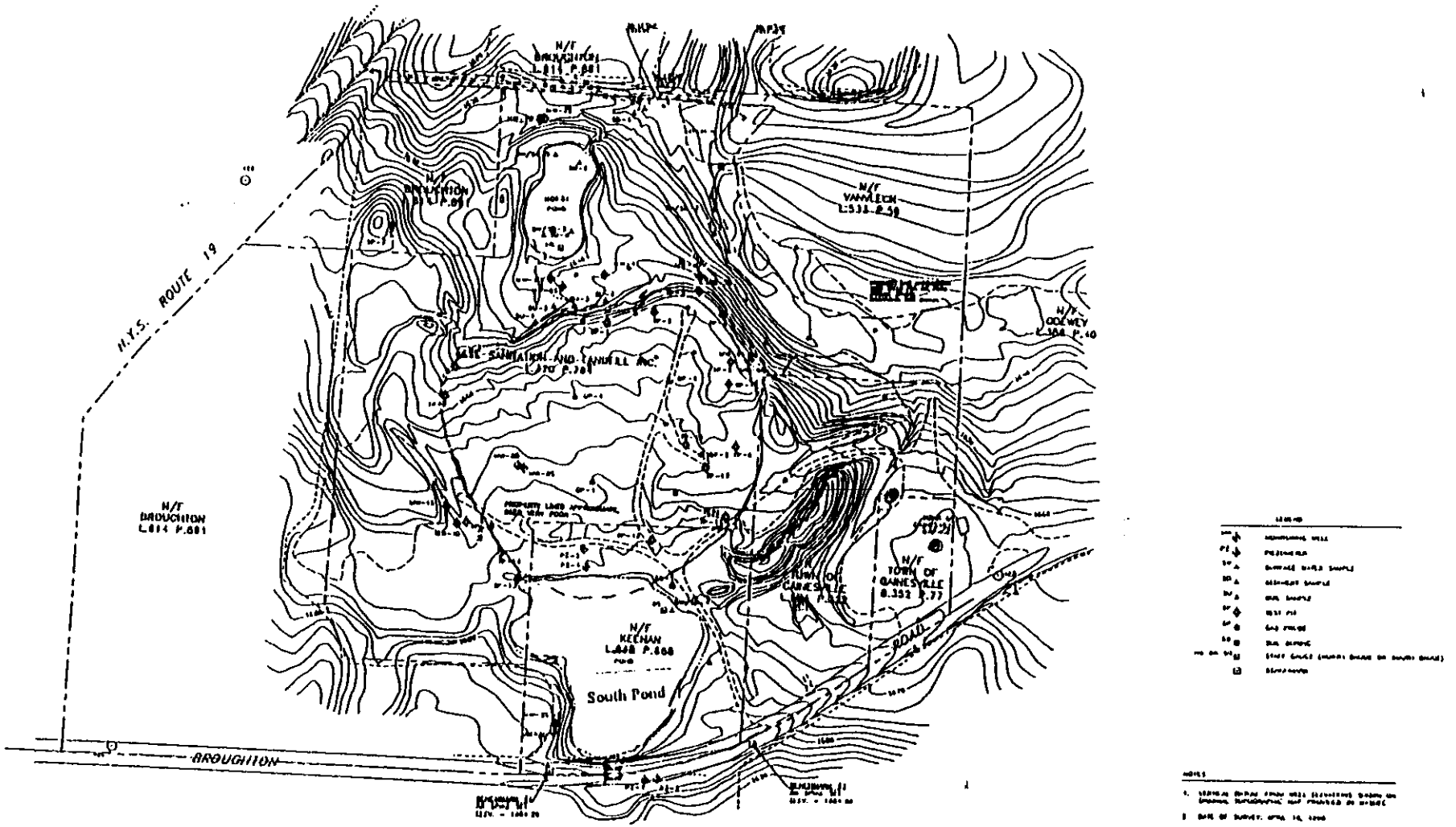


Figure 2

CDM Camp Dresser & McKee	ETS SANITATION AND LANDFILL WYOMING COUNTY, NEW YORK	FEASIBILITY STUDY	SITE PLAN SHOWING TB SAMPLE LOCATIONS

included collection of on-site sediment, leachate, and soil samples in addition to the installation and sampling of seven groundwater monitoring wells.

Overall, the investigations confirmed the presence of hazardous waste and that waste constituents are being released to the environment. In addition, groundwater is used for drinking by people in the area. Because of the continuing releases to the environment and potential threats to public health, the site was listed as Class 2 (indicates a significant threat and the need to take action) in March, 1995. Since the Department was not able to identify responsible parties who could undertake additional investigations, work was begun using the State Superfund in August, 1997.

SECTION 4: SITE CONTAMINATION

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

4.1: Summary of the Remedial Investigation

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

The RI was conducted between March and June, 1998. A report entitled Final Remedial Investigation Report, ETE Sanitation and Landfill Site, dated September, 1998 was prepared describing the field activities and findings of the RI.

The RI included the following activities:

- *Geophysical survey to locate any additional buried drums;*
- *Installation of soil borings and monitoring wells for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions;*
- *Excavation of test pits to search for buried drums and to determine the nature and extent of solid waste;*
- *Collection and analysis of sediment and surface water samples from north and South Ponds and drainage ditch;*
- *Private groundwater well survey to confirm that nearby residents are not immediately threatened; and*
- *Soil gas survey to evaluate the production of landfill gases.*

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data were compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the ETE Sanitation and Landfill site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of N.Y.S. Sanitary Code. For soils, NYSDEC TAGM

4046 provides soil cleanup guidelines based on the protection of groundwater, background conditions, and health-based exposure scenarios. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments."

Based on the RI results, 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, where applicable, SCGs are provided for each medium.

4.1.1 Nature of Contamination:

As described in the RI Report, many soil, groundwater, surface water, and sediment samples were collected at the Site to characterize the nature and extent of contamination. The main categories of contaminants which exceed SCGs are inorganics (metals), volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs).

4.1.2 Extent of Contamination

RI data indicate that approximately seven acres of the site contain landfilled waste. The maximum thickness of the waste is approximately 15 feet at the center of the landfill and tends to thin towards the perimeter of the landfill. A portion of the landfilled material is believed to extend under the northern portion of the South Pond. This waste would be addressed under the proposed remedy.

The majority of VOCs detected within the site have been associated with paint manufacturing and paint solvents and may be attributed to the documented disposal of drummed paint sludge. The high levels of sodium and other inorganic contaminants present within leachate, groundwater, and surface water may be attributable to waste salt landfilled at the site.

Tables 1-1, 1-2, 1-3, and 1-4 summarize the contaminants of concern in soil, sediments, groundwater, and surface water, and compares the data with the SCGs for the Site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

Seventeen test pits were completed to investigate potential drum disposal areas and to define the limits of the landfill. Four surface soil samples were also taken near leachate seeps. Both municipal and industrial wastes were found in the test pits. The northern portion of the landfill contains co-mingled wastes whereas the southern portion appears to be predominantly municipal wastes. One drum containing solidified paint and a solvent odor was sampled but did not fail the Toxicity Characteristic Leaching Procedure (TCLP) test for hazardous wastes.

Four soil samples were collected during the completion of the test pit investigation. VOCs were detected in all samples at concentrations below SCGs. VOCs detected above SCGs in the soil samples included acetone, 2-

Table 1-1: Concentration Range of Organic Compounds in Groundwater

Parameter	Screening Standard for GA Water (ppb)	Concentration Range Observed		Location of Maximum Detection
		Minimum (ppb)	Maximum (ppb)	
TCL Volatile Organics				
Vinyl Chloride	2.0	ND	16.0	MW-3S
Methylene Chloride	5.0	ND	56.0	MW-8S
Acetone	50.0	ND	1009.0	MW-8S
1,2-Dichloroethene(total)	0.6*	ND	108.0	MW-3S
2-Butanone	50.0	ND	3379.0	MW-8S
Trichloroethene	5.0	ND	50.0	MW-3S
Benzene	1.0*	ND	15.0	MW-8S
4-Methyl-2-Pentanone	50.0	ND	316.0	MW-8S
Toluene	5.0	ND	245.0	MW-8S
Ethylbenzene	5.0	ND	60.0	MW-8S
Xylenes(total)	5.0	ND	219.0	MW-8S
TCL Semivolatile				
Phenol	1.0	ND	100.0	MW-9S
4-Methylphenol	50.0*	ND	995.0	MW-8S
TCL Inorganics				
Arsenic	25	9.8	9.8	MW-7S
Barium	1000	10.7	5217	MW-9S
Chromium	50	1.2	19.1	MW-3S
Iron	300	105.51	181040	MW-8S
Lead	25	2	51.92	MW-8S
Manganese	300	1.41	10200	MW-4
Sodium	20000	1126.1	31054500	MW-9S

Note:

ND: Not detected.

SOURCE: New York State DEC TOGS 1.1.1,"Ambient Water Quality Standards and Guidance Values," 10/93

*New 1998 standard, NYSDEC Revised Parts 6 NYCRR Parts 700-706, "Groundwater Standards," March 1998.

Table 1-2: Concentration Range of Compounds in Surface Water

TCL Inorganics	NYSDEC Standard for Class C Water* (ppb)	Concentration Range Observed		Location of Maximum Observed Concentration
		Minimum (ppb)	Maximum (ppb)	
Aluminum	100	15.9	511.77	SW-3
Chromium	11	ND	1.69	SW-1
Iron	300	66.68	4,798.9	SW-2
Manganese	300**	ND	2460	SW-7 (II)
Sodium	20000***	199.83	2,020,000	SW-7 (II)
Zinc	30	13.46	46.4	SW-3 (II)
Lead	NA	ND	66.2	SW-8 (II)

Notes:

Standards taken from NYSDEC, T.O.G.S 1.1.1, "Ambient Water Quality Standards and Guidance Values," 10/93

*Cotton Creek is classified by New York State as a class C water body.

Cotton Creek receives all surface water discharging from the ETE Sanitation and Landfill site.

**Standard is for class A water. A class C water standard does not exist.

***Standard is for class GA water. No surface water standard exists.

ND: Compound not detected

NA: Compound standard varies based upon sample specific hardness concentration.

(II): Collected during Round II surface water sampling.

Table 1-3: Concentration Range of Compounds in Sediments

Parameter	Concentration Range Observe		Location of Maximum Detection
	Minimum (ppb)	Maximum (ppb)	
TCL Volatile Organic			
Methylene Chloride	ND	14	SD-4
Acetone	ND	538	SD-6
2-Butanone	ND	104	SD-6
Ethylbenzene	ND	56	SD-5
Xylenes(total)	ND	254	SD-5

Note: Screening criteria is sample specific based upon organic carbon content. Therefore, no criteria is listed for this parameter.

Parameter	Effect Level		Concentration Range Observed		Location of Maximum Detection
	Lowest Level (ppm)	Severe Level (ppm)	Minimum (ppm)	Maximum (ppm)	
TCL Inorganics					
Arsenic	6.0	33.0	3.07	22.19	SD-7
Cadmium	0.6	9.0	ND	1.46	SD-2
Chromium	26.0	110.0	15.20	32.38	SD-2
Copper	16.0	110.0	20.36	50.52	SD-4
Iron	20,000.0	40,000.0	25194.10	61220.69	SD-7
Lead	31.0	110.0	12.75	32.70	SD-4
Manganese	460.0	1,100.0	594.95	23608.28	SD-7
Nickel	16.0	50.0	18.87	38.00	SD-2
Zinc	120.0	270.0	91.85	687.88	SD-2

Table 1-4: Concentration Range of Compounds in Surface Soils

Parameter	NYSDEC-Soil Cleanup Objectives (ppm)	Concentration Range Observed Minimum (ppm)	Concentration Range Observed Maximum (ppm)	Location of Maximum Detection
TCL Inorganics				
Arsenic	7.5	6.80	16.28	SU-4
Copper	25.0	17.38	165.82	SU-1
Iron	2,000	22,922	126,366	SU-1
Sodium	7,000	1,302	17,539	SU-1
Zinc	20.0	81.00	1,889	SU-1
TCL Volatiles				
	(ppb)	(ppb)	(ppb)	
Xylenes(total)	1,200.0	ND	1,224	SU-1

Note:
*NYSDEC , TAGM 4046,"Determination of Soil Cleanup Objectives and Cleanup Levels" Jan 24, 1994

butanone, ethylbenzene and xylene. Inorganic contaminants including arsenic, beryllium, copper, iron, nickel and zinc.

Surface soils along the northern toe of the landfill near leachate seeps are contaminated above SCGs with organic compounds (e.g., xylenes, ethylbenzene, acetone) and metals (e.g., aluminum, iron, nickel, sodium, and zinc) (see Table 1-4).

Groundwater

Groundwater in the area of the site generally moves from south to north. Although groundwater under the landfill (e.g., MW-8S) is significantly contaminated, wells immediately downgradient of the landfill (e.g., MW-7S) contain only low level contamination, with the exception of sodium. Sodium was found in all wells at medium to high levels. Monitoring well MW-8S, screened in the shallow water table aquifer and waste, exhibited the highest volatile organic concentrations with a total VOC concentration of 5,394 ppb. Site contaminants were not found in residential wells that were sampled by NYSDOH in the vicinity of the landfill. Likely reasons for the lack of significant northerly migration of groundwater contamination include, a) natural degradation and dilution; b) partial containment of wastes in the landfill; c) low groundwater flow rates; and d) discharge of groundwater to the North Pond and stream.

Exceedances of NYSDEC GA groundwater standards were noted in all monitoring wells which were screened within the landfill wastes and shallow water table aquifer. Table 1-1 summarize the contaminants of concern within site groundwater. Clay-rich glacial tills which comprise a majority of site soils appear to limit the downward vertical migration of groundwater contamination within the site. However, several VOCs were observed in all deep, downgradient monitoring wells, indicating that some vertical contaminant migration is occurring. The principal contaminants of concern in the groundwater include: acetone, 2-butanone, benzene, 4-methyl-2-pentanone, 2-hexane, toluene, trichloroethene, 1,2-dichloroethene, chlorobenzene, ethylbenzene, xylenes, phenol, 2-methylphenol, 4-methylphenol, and 2,4-dimethylphenol.

Inorganic contaminants found in excess of NYSDEC GA groundwater standards included: antimony, barium, cadmium, iron, lead, magnesium, manganese, sodium, and thallium (refer to Table 1-1). Heavy metals such as lead and cadmium would not be expected to migrate off site within the groundwater environment due to their relatively low mobility.

The concentrations of 2-butanone, iron, manganese, and sodium in monitoring well MW-7S exceeded the NYSDEC criteria for groundwater slightly (with the exception of sodium). Well MW-7S is located near the northern property line (downgradient) of the site.

Surface Water and Sediment

In the North Pond, surface water is highly contaminated with iron and sodium. It also contains aluminum, manganese, and zinc at moderate to low levels. North Pond sediments are highly contaminated with iron and zinc. Contaminants found at moderate to low levels include chromium, copper, manganese, and nickel.

RI data indicate that landfill contaminants have impacted surface water quality immediately down stream (north) of the site primarily by inorganic contaminants including aluminum, iron, and zinc. A summary of surface water

contaminant concentrations observed during the RI is provided in Table 1-2. Further downstream from the Site, sampling of Cotton Creek and a small unnamed tributary of Cotton Creek which drains an area that includes the ETE Landfill site indicated no impact by landfill contaminants.

Sediment in the North Pond (downgradient of the site) is impacted by volatile organic compounds (VOCS), including acetone, methylene chloride, 2-butanone, ethylbenzene and xylene, and inorganic contaminants, including iron, manganese and zinc. Contaminants of concern in sediments are summarized in Table 1-3.

Surface water and sediment samples collected approximately 600 feet downstream from the landfill indicate the presence of sodium above guidance levels. Additionally, acetone at a concentration of 3.4 to 7.8 ppb was detected within surface water sediments at this location.

Landfill Gas

The west-central portion of the landfill appears to be actively producing gas. VOC analysis of four soil gas samples indicated VOCs to be present within landfill gas. The highest concentration was observed at GP-4 with a total VOC concentration of 113,490 parts per billion by volume of air (ppbv).

4.1.3 Site Geology

The boring logs from monitoring well installations indicate that the subsurface material is primarily composed of poorly stratified glacial till comprised of poorly sorted very fine sands, silts, gravels and occasional clay lenses. Bedrock was not encountered during drilling. A well log from a municipal well, located 3 miles west of the site, indicates that overburden is approximately one hundred and sixty feet (160 ft) thick near the site. Field studies and laboratory tests show that the ability of groundwater to move through soils at the site is moderate to low (permeability ranges from 10^{-3} cm/sec to 10^{-5} cm/sec).

4.1.4 Hydraulics and Groundwater Model

The key to understanding this site is understanding how water moves (hydraulics) through the landfill. As shown in Figure 3, the water table in the landfill is shallow, keeping almost all of the wastes saturated. This leads to the leachate and groundwater problems. The ETE landfill is situated between two groundwater fed ponds. One is upgradient and the other is downgradient of the landfill. The upgradient pond (South Pond) was originally a small pond and appears to have been enlarged during landfill activities. To gain a better understanding of the site hydrology, a 3-dimensional groundwater flow model was constructed. This computer model was used to simulate how water levels and leachate production would change under the different remedial alternatives. The overall conclusion was that by itself, an engineered cover system over the landfill would do almost nothing to solve the leachate and groundwater contamination problems. Therefore, the proposed remedy discussed below includes permanently draining South Pond to address leachate and groundwater issues.

4.2 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 6 of the RI Report.

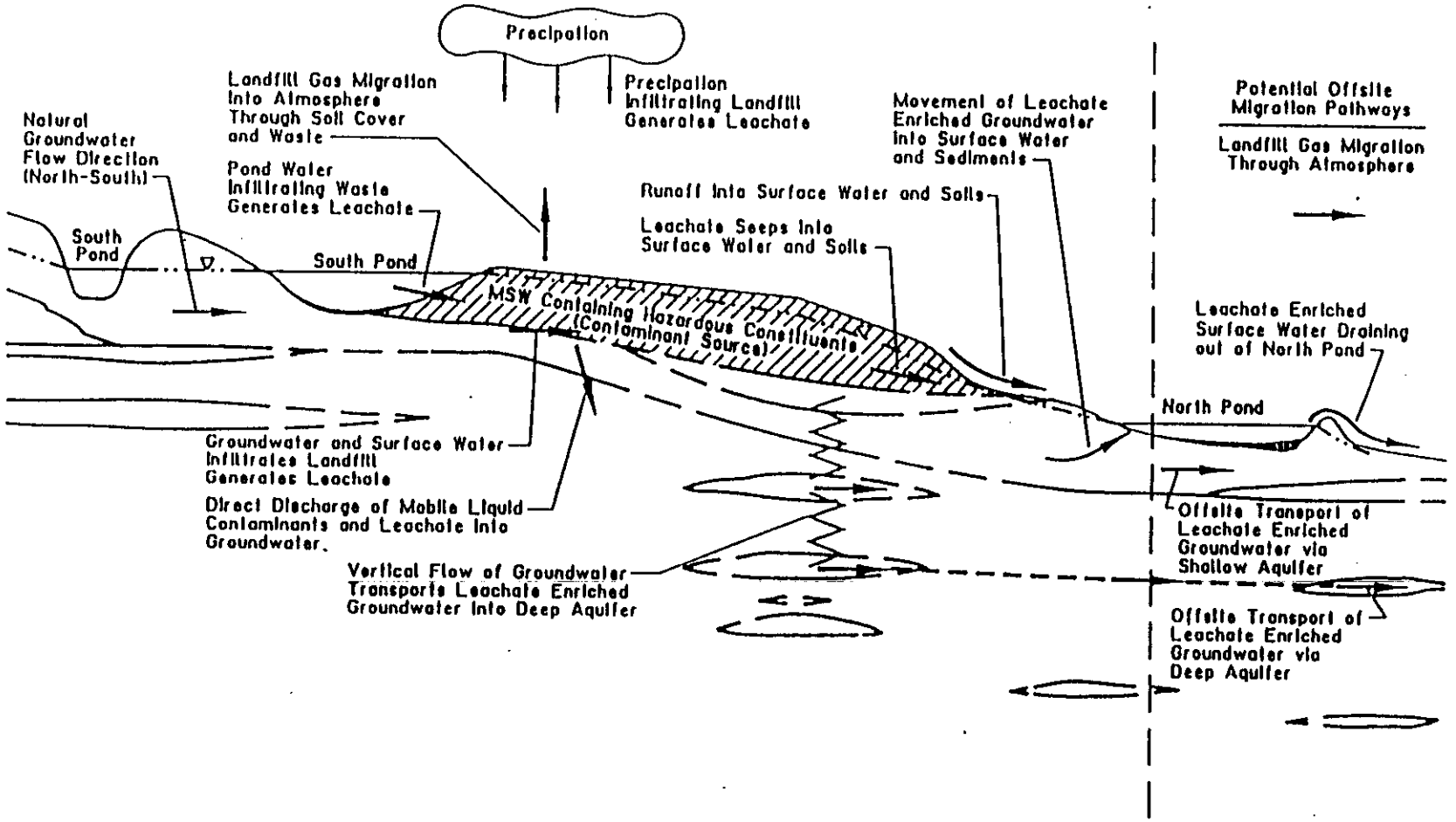


Figure - 3

Conceptual Model of Contaminant Sources, Transport Mechanisms and Migration Pathways
ETE Sanitation And Landfill Remedial Investigation

CDM Camp Dresser & McKee

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.

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

- ingestion, dermal contact or inhalation, by trespassers, of contaminated surface soil or sediment;
- ingestion (drinking), by trespassers, of contaminated surface water;
- ingestion of contaminated groundwater, in the future, by area residents;

The majority of the Town of Gainesville and surrounding population is supplied with drinking water from private wells screened in unconsolidated glacial deposits.

Currently there are no residential houses located in the immediate vicinity downgradient of the site. Domestic well water from several properties in the vicinity of the ETE site are routinely analyzed by NYSDOH. The analytical results found the drinking water to be suitable for all uses.

Future risk could be associated with the off-site migration of contaminated groundwater into the downgradient areas north of the site.

4.3 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 from the site to fish and wildlife resources. The following pathways for environmental exposure have been identified:

- ingestion of contaminants in vegetation, surface water, surface soils, and in leachate at seeps and at the leachate pond by wildlife;
- dermal contact with contaminants via leachate and soils by wildlife;
- uptake of contaminants by plants via contaminated groundwater, soil, and leachate.

Samples of sediments and water from a creek receiving drainage from the site did not identify elevated levels of site contaminants, therefore remediation in the creek will not be necessary.

SECTION 5: ENFORCEMENT STATUS

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

The ETE Corporation (ETE) owned and operated the landfill. The Almor Corporation of Warsaw, New York, disposed approximately 150 tons of leaded paint sludge onsite. The ETE Corporation declared bankruptcy in 1979. Almor Corporation and its parent company have been dissolved.

The RI/FS is being conducted under the State Superfund program. Efforts are underway to identify additional PRPs. After the remedy is selected, the PRPs, if identified, will 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. Any identified PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to be protective of public health and the environment and meet all Standards, Criteria and Guidance (SCGs). At a minimum, the remedy selected should eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- *Isolate the landfill waste material in order to provide adequate protection to public health and the environment from direct contact or ingestion of hazardous constituents in wastes or surface soil from the landfill;*
- *Remove landfill wastes from the South Pond and contaminated sediments from the North Pond. Consolidate wastes within the landfill property;*
- *Reduce the production of leachate and off-site migration of contaminants by restricting the amount of surface water and groundwater flowing through the landfill;*
- *Eliminate or significantly reduce the quantity of leachate discharging to groundwater and/or surface water;*
- *Control emissions of landfill gases that could pose a risk to current and/or future residents; and*
- *Control surface water runoff and erosion.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of public 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 ETE Sanitation and Landfill site were identified, screened and evaluated in the report entitled ETE Sanitation and Landfill, Feasibility Study Report dated January, 1999.

A summary of the detailed analysis follows. As presented below, 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.

7.1: Description of Alternatives

The potential remedies are intended to address the contaminated soils, sediments and groundwater at the site.

Alternative 1. No Action

Present Worth:	*$ 345,000*
Capital Cost:	*$ 28,000*
Annual O&M (Yr 1 & 2):	*$55,000*
Annual O&M (Yrs 3 to 30):	*$16,000*
Time to Implement:	*Approx. 6 months*

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 public health or the environment. The environmental monitoring would be conducted quarterly for the first two years after closure and annually for the remaining 28 years. Groundwater monitoring would require the installation of two additional well clusters downgradient (north) of the site in order to detect any potential future off-site migration of groundwater contaminants towards residences. Along with the outpost wells, two on-site well clusters, MW-7 and MW-3, and the upgradient well MW-2S would be monitored. In addition, six private wells located downgradient of the site would be included in the post-closure monitoring.

Alternative 2 - Install Modified Part 360 Landfill Cap, Gas Vents, and Environmental Monitoring;

Present Worth:	*$ 4,040,000*
Capital Cost:	*$ 3,400,000*
Annual O&M (Yr 1 & 2):	*$78,200*
Annual O&M (Yrs 3 to 30):	*$36,700*
Time to Implement:	*Approx. 1 year*

Alternative 2 includes a modified landfill cap, passive landfill gas vents, and environmental monitoring. The modified cap would consist of a minimum of 6-inch layer of top soil, 12-inch thick barrier protection layer, and a 40-mil geomembrane liner. The actual thickness will be determined during the design phase. The site would require regrading and waste consolidation. A low permeability landfill cap would be constructed over the site to create a physical barrier that: 1) prevents exposure to solid waste via direct contact, 2) reduces leachate generation and future impacts to underlying groundwater quality, and 3) controls gas emissions from the landfill. The gas venting system would consist of multiple vents installed through the landfill cap. Environmental monitoring would be consistent with the No Action alternative.

Alternative 3 -Install Modified Part 360 Landfill Cap, Gas Vents, Drain South Pond, Expand the North Pond and Environmental Monitoring;

Present Worth:	*$ 4,350,000*
Capital Cost:	*$ 3,690,000*
Annual O&M (Yr 1 & 2):	*$79,200*
Annual O&M (Yrs 3 to 30):	*$37,700*
Time to Implement:	*Approx. 1 year*

Alternative 3 includes site regrading, waste consolidation and cap, gas vents and environmental monitoring as presented in Alternative 2. Alternative 3 also includes draining and regrading the South Pond to reduce the water table within the landfill. The draining of the South Pond would be accomplished by a pipe or open drain to be determined during the design phase. Removing the pond would effectively lower the groundwater table underneath the landfill, reducing the saturated volume of waste. The North Pond would also be temporarily drained so that contaminated sediments could be removed. The contaminated North Pond sediments would be placed on the landfill prior to capping. Additionally, storm water controls would be implemented during the draining of the South Pond to reduce the potential of uncontrolled flooding and erosion. To partially offset the loss of habitat associated with draining the South Pond, the North Pond would be expanded. The extent of regrading the South Pond area, if needed, would be evaluated during design.

Alternative 4 - Install Modified Part 360 Landfill Cap, Gas Vents, Drain South Pond, Install Passive Perimeter Drain, Collection and Disposal (Alternative 4a) or On-site Discharge (Alternative 4b) of Groundwater, and Environmental Monitoring;

Alternative 4a;

Present Worth:	*$ 9,770,000*
Capital Cost:	*$ 4,185,000*
Annual O&M (Yr 1 & 2):	*$393,700*
Annual O&M (Yrs 3 to 30):	*$352,000*
Time to Implement:	*Approx. 1 year*

Alternative 4b:

Present Worth:	*$ 5,740,000*
Capital Cost:	*$ 5,075,000*
Annual O&M (Yr 1 & 2):	*$83,000*
Annual O&M (Yrs 3 to 30):	*$41,500*
Time to Implement:	*Approx. 1 year*

Alternative 4 includes the already discussed site regrading, waste consolidation and cap, gas vents, environmental monitoring, draining of the South Pond, enlarging the North Pond, and the storm water controls presented in Alternative 3. In addition, Alternative 4 includes the installation of a passive perimeter drain around the southern perimeter of the landfill to further reduce the water table and production of leachate.

Alternative 4 is sub-divided as Alternative 4a and 4b to evaluate two options associated with groundwater collection and discharge, respectively. Alternative 4a considers: 1) installation of a passive drain, 2) collection of groundwater in an above-ground storage tank, 3) offsite transport of groundwater using a tanker truck, and 4) disposal of groundwater at a publicly owned waste water treatment plant. Treatment for this sub-alternative would be needed because the drain would capture some leachate from the landfill.

Alternative 4b considers: 1) installation of a sheet pile barrier wall upgradient of the landfill, 2) installation of a passive drain upgradient of the barrier wall, and 3) onsite discharge of groundwater from the passive drain to drainage swales. Treatment would not be needed because the barrier wall would prevent backflow of leachate into the drain.

The passive perimeter drain would divert groundwater flow from the landfill which would lower the underlying groundwater table, thereby minimizing the production of leachate and the height of the water table.

7.2 Evaluation of Remedial Alternatives

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

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

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

Alternatives are evaluated to determine whether they comply with all applicable or relevant and appropriate requirements, or if a waiver is required, how it is justified.

In Alternative 1, no remediation is considered, only environmental monitoring would be implemented. There currently exist exceedances of SCGs for surface water, groundwater, and surface water sediment within and immediately downgradient of the landfill. Therefore, chemical specific SCGs would not be met.

Alternative 2 would not eliminate the potential for future groundwater and surface water contamination. Given the saturated nature of the waste and that South Pond is in direct contact with landfill wastes, leachate generation would remain high. The water would continue to flow through the landfill generating landfill leachate which in turn would continue to impact downgradient groundwater and surface water. For this reason, Alternative 2 would not comply with chemical specific SCGs for ground water or surface water. Additionally, under Alternative 2, contaminated sediments present within the North Pond would remain in place. Therefore, SCGs would not be met for surface water sediments.

Alternatives 3 and 4 would require draining and regrading of the South Pond. The South Pond was originally about one acre in size but appears to have been enlarged by landfill activities to its present size (approximate size: 3.5 acres in area and 10 feet deep at center). Under Alternatives 3 and 4, the contaminated sediments in the North Pond would be excavated and placed on the landfill. The North Pond would be expanded from its current size of 1 acre and depth of 4 feet to approximately two acres and depth of 6 feet, to partially compensate for the loss of habitats due to the elimination of the South Pond.

Alternatives 3 & 4 would meet the chemical-specific SCGs for on-site contaminated soil with the placement of the landfill cap. Additionally, removal of contaminated sediments from the North Pond and placement on the

landfill prior to capping would meet chemical-specific SCGs for surface water sediments. However, selected SCGs for the most prevalent groundwater contaminants, such as 2-butanone, may continue to be exceeded at locations immediately downgradient of the ETE landfill site.

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

The *No Action* Alternative (Alternative 1) would not reduce risks to public health associated with the potential future groundwater use scenario on Site and at the Site perimeter. The remediation goals presented in Section 6 would not be met by Alternative 1.

Alternative 2 would partially protect public health and the environment and would meet some remediation goals. The generation of leachate would continue, since the groundwater and surface water from South Pond would continue to flow through the waste mass. Additionally, contaminated sediments would remain in North Pond.

Under alternatives 3 and 4, draining South Pond in conjunction with the landfill cap would lower the water table within the landfill and significantly reduce leachate production. Reducing leachate production should result in significant improvements to the quality of downgradient groundwater. This would mitigate the threat to downgradient residents. Alternatives 2, 3, 4a, and 4b would result in the reduction of the leachate production by 20%, 66%, 80% and 84%, respectively, as identified in Section 3 of the Feasibility Study (FS) Report. The corresponding drop in the water table in the landfill would be one foot, six feet, 6.6 feet and 6.9 feet. Therefore, Alternative 4 would have the greatest potential for improving downgradient groundwater quality and protecting residents.

The landfill cover system would include a standard gas venting system to prevent damage to the barrier layer in the cover. Environmental monitoring would serve to identify future risks to human health and the environment, such as ingestion of leachate impacted groundwater.

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.

Alternative 1 would not pose short-term risks to the community, since no heavy construction or excavation is required within the landfill as part of this alternative.

It is estimated that Alternatives 2, 3, and 4 could be completed within one year. Under Alternatives 2, 3, and 4, during waste consolidation and construction of the landfill cap, dust may be generated and may migrate around the site causing potential risks to the workers via the inhalation pathway. Suppression measures would be used to decrease the generation of dust, and air quality monitoring would be used to determine if additional personal protective equipment is necessary. During design of the remedy, a Community Health and Safety Plan would be developed to insure that residents living in the vicinity would not be affected by remedial activities.

In addition, Alternatives 3 and 4 would require draining the North and South Ponds with drained water running off to downstream properties or collected and treated as necessary. Measures would be undertaken to control excessive runoff into adjacent surface water and properties and avoid erosion of downstream properties.

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

Alternative 1 would not contain, treat or reduce the landfill contaminants and therefore it can not be considered to be effective over the long term. The potential health risks associated with the current condition of the site would not be significantly reduced over time, beyond what would occur through natural attenuation and degradation.

For alternative 2, contaminated surface water sediments within the North Pond would remain on site.

The cap in alternatives 2, 3 and 4, would significantly reduce the risk of exposure to contaminated soils. The cap and passive gas vents would prevent migration of landfill gases.

In alternative 2, the cap would not significantly reduce the flow of groundwater and surface water from South Pond through the landfill. As a result, groundwater and surface water would continue to be contaminated and contaminants would continue to migrate off site. However, draining South Pond in conjunction with the landfill cap under alternatives 3 and 4 would lower the water table within the landfill an average of approximately six feet and reduce leachate production significantly. Alternative 4 would reduce the leachate production by approximately 80% as compared to 66% (See FS Report) for Alternative 3.

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

Alternative 1 would provide no additional reduction in the toxicity, mobility or volume of chemicals beyond what would be achieved beyond natural attenuation.

The cap in alternative 2 would provide no reduction in toxicity and only partially reduce the mobility and volume of the contaminants to downgradient groundwater and surface water. Groundwater and surface water would continue to flow through the landfill waste, transporting contaminants off site.

Alternatives 3 and 4 include containment technologies and would not reduce the volume or toxicity of contaminants within the ETE landfill. However, these alternatives would significantly reduce the mobility of the landfill contaminants through the reduction of landfill leachate.

As stated above, the Alternatives 2, 3, 4a and 4b would result in the reduction of leachate production by 20%, 66%, 80% and 84%, respectively, as identified in the FS Report.

In addition, Alternative 4a would treat landfill contaminants by off-site transport and disposal of the leachate/groundwater mixture collected by the passive perimeter drain and would provide some reduction in the volume of chemicals in groundwater.

6. Implementability. The technical and administrative feasibility of implementing each alternative is 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.

Alternative 1 would be easily implemented. The location of the two additional outpost well clusters to be installed as part of the environmental monitoring would have to be selected. Access to each location by a drill rig and installation of each well would have to be granted by the respective property owner.

Alternatives 2, 3 and 4 all would involve regrading, consolidation, and capping. The regrading and consolidation of the waste would entail the use of heavy equipment. The cap construction would also be a large scale project. However, the consolidation and capping require only readily available equipment, materials, and workers and are easily implementable.

Draining the North and South Pond would be done through digging temporary drainage ditches. Draining of the South Pond would enable heavy equipment to remove all wastes from the pond and consolidate it within the landfill prior to capping. Though the South and North Ponds would be drained prior to regrading and cap construction, continued surface water flow would have to be routed to temporary drainage ditches. Precautions would have to be undertaken to minimize the potential for site contaminants migrating off site via site runoff during construction activities.

The southern-most part of the Landfill and the South Pond are on property controlled by a different owner than the ETE property. Permanently draining South Pond and installing the final cover may require resolution of several legal and administrative issues before Alternatives 3 or 4 could be implemented. Part of the landfill cap itself would fall on other property under Alternatives 2, 3, and 4, and may raise legal administrative issues.

For alternative 4, construction of the passive perimeter drain could be completed using common excavation and trenching equipment and would make use of readily available equipment, materials and workers.

For Alternative 4b, the barrier wall would be constructed by driving steel sheet piles into the ground using conventional construction equipment.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2. The capital costs shown for the various alternatives above and in Table 2, include administrative costs such as Engineering Design cost (10%), Construction Inspection (10%), Overhead (15%) and Contingency (15%).

Table 2
Remedial Alternative Costs

	Remedial Alternative	Capital Cost	Annual O&M*	Total Present Worth
1	No Action	$28,000	$55,000 and $16,000	$345,000
2	Part 360 Cap	$3,400,000	$78,200 and $36,700	$4,040,000
3	Part 360 Cap, Drain South Pond	$3,690,000	$79,200 and $37,700	$4,350,000
4a	Part 360 Cap, Drain South Pond, Passive Perimeter Drain, off-site disposal.	$4,185,000	$393,700 and $352,200	$9,770,000
4b	Part 360 Cap, Drain South Pond, Passive Perimeter Drain, Sheet pile Barrier Wall.	$5,075,000	$83,000 and $41,500	$5,740,000

* Annual O&M Costs shown are for year 1 and 2, and for years 3 through 30.

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

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. In general, the public comments received were supportive of the selected remedy. The main concerns expressed centered around the groundwater contamination reaching the private wells.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 3: Install a Modified Part 360 Landfill Cap, Gas Vents, Drain South Pond, Expand the North Pond and Environmental Monitoring, as the remedy for this site.

This selection is based upon the evaluation of the four alternatives developed for this site. The No Action alternative (Alternative 1) provides no reduction in risks to human health and the environment and is therefore rejected as a viable alternative.

Alternative 2 would reduce the risks associated with direct exposure scenario but would not eliminate the potential for future groundwater or surface water contamination. The chemical-specific SCGs would continue to be exceeded for Alternative 2. Even with the cap in place, groundwater modeling simulations indicate the majority of the waste mass would remain saturated. The cap alone would not significantly reduce the flow of upgradient groundwater and surface water from South Pond through the landfill. Therefore Alternative 2 was rejected.

Alternative 3 will comply with the chemical-specific ARARs/SCGs for surface water, surface water sediments, soil and air emissions, and partially comply for groundwater. Alternative 3 meets all RAOs. Alternative 3 provides for minimization of human and environmental exposures, will control landfill gas emission, and will significantly reduce leachate generation which in turn will reduce long-term groundwater and surface water contamination. Alternative 3, which combines several identified feasible technologies, will be a reliable remedy with minimal long term maintenance requirements, and is significantly more cost effective than Alternatives 4a and 4b. Therefore, Alternative 3 is selected for implementation at the ETE Sanitation and Landfill site.

Alternative 4 includes all aspects of Alternative 3 plus the installation of a passive perimeter drain for collection of a leachate/groundwater mixture. However, Alternative 4 provides only slightly less reduction in leachate generation and is less cost effective as compared to Alternative 3. Alternative 3 will cost $4.3M to construct and operate as compared to $9.7 M and $5.7M for alternatives 4a and 4b, respectively. Alternative 4a requires offsite disposal of leachate/groundwater mixture.

The estimated present worth cost to implement the proposed remedy is $4,350,000. The cost to construct the remedy is estimated to be $3,690,000 and the estimated average annual operation and maintenance cost is $79,200 for years 1 and 2 and $37,700 per year for years 3 to 30. The administrative costs such as Engineering Design cost (10%), Construction Inspection (10%), Overhead (15%) and Contingency (15%) have been added to the capital cost of $2,700,000 to arrive at the total cost to construct the remedy ($3,690,000).

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. Waste consolidation, site regrading and covering the areas that contain waste with a modified part 360 cap.

3. Permanently drain South Pond. Draining of the South Pond will significantly reduce leachate production and reduce the threat to downgradient residents. Wastes currently under the South Pond will be excavated and consolidated under the final landfill cover.

4. Excavate contaminated sediments from the North Pond and place on the landfill. Expand North Pond by approximately one acre to partially compensate for the loss of South Pond aquatic habitat and/or wetlands.

5. Install and monitor two additional well clusters downgradient of the site to detect any future off-site migration of groundwater contamination towards residences.

6. Attempts will be made to place land use restrictions to prevent the use of groundwater on site and immediately downgradient off site where groundwater is contaminated.

7. Since the remedy will result in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. The monitoring program will include periodic sampling of the groundwater, surface water, private wells and landfill gas vents. This program will allow the effectiveness of the landfill cap to be monitored and will be a component of the operation and maintenance plan for the site.

SECTION 9: 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 for the site was prepared.

- Mailed a fact sheet to all interested parties in October 1997 - To discuss the proposed Remedial Investigation/Feasibility Study (RI/FS) under the State Superfund Program.

- Mailed a fact sheet to all interested parties in April 1998 - To discuss the status of RI/FS and the field work.

- Mailed a fact sheet to all interested parties in December 1998 - To provide the status of the RI/FS and an overview of the findings of the RI.

- Mailed a fact sheet to all interested parties in February 1999 - To provide the status of the RI/FS and inform the interested parties about the Proposed Remedial Action Plan (PRAP).

- March 3, 1999 - Held a Public Meeting at Silver Spring to discuss the PRAP for the ETE Sanitation and Landfill site.

- In March 1999, a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

APPENDIX A

Responsiveness Summary

Appendix - A
RESPONSIVENESS SUMMARY

ETE Sanitation and Landfill Site
Proposed Remedial Action Plan
Gainesville (T),Wyoming County
Site No. 9-61-005

The Proposed Remedial Action Plan (PRAP) for the ETE Sanitation and Landfill Site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 11, 1999. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the ETE Sanitation and Landfill Site. The proposal included waste consolidation, site regrading and covering the areas that contain waste with a modified part 360 cap; permanently drain South Pond to reduce leachate production; excavate contaminated sediments from the North Pond and place on the landfill; expand North Pond by approximately one acre to partially compensate for the loss of South Pond aquatic habitat and/or wetlands; install and monitor two additional well clusters downgradient of the site to detect any future off-site migration of groundwater contamination towards residences; and institute a long-term monitoring program.

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 March 3, 1999 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were received from Mr. David Keenan, owner of the property immediately south of the landfill.

The public comment period for the PRAP ended on March 23, 1999.

This Responsiveness Summary responds to all questions and comments raised at the March 3, 1999 public meeting and to the written comments received.

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

1. Q. The leachate that is coming out of the north pond, how deep down into the ground has it gone?

   G. Based on the analytical results of well cluster 7, the leachate from the north pond and the landfill appears to have impacted the shallow water table aquifer. There is no significant impact on the deep aquifer. The shallow well was installed to a depth of 15 feet and the deep well was installed to a depth of 45 feet.

2. Q. Given the small amount of gas the landfill is producing, is a gas vent layer in the Part 360 cap still needed?

A. Yes, a gas vent layer is still needed. The analytical results of the soil gas investigation conducted at the site indicates that the western portion of the landfill is actively producing landfill gas. Landfill gas production is not so significant in eastern portion of the landfill. Installation of gas vents in the capping system is necessary to protect the cap against any damage due to gas built-up.

3. Q. Is there any immediate danger from the site?

A. No, there is no immediate danger to the residents in the vicinity of this site. The Remedial Investigation (RI) conducted at the site indicate that the waste disposal at the site has impacted the shallow groundwater aquifer at and in the vicinity of the site. There is no impact to the deep aquifer except for the metals like sodium and iron, which also occur naturally. Private wells were tested by the New York State Department of Health (NYSDOH) and the results have not shown any known site-related contaminants in the private wells. Also, see response to question number 20 below.

4. Q. How deep have you been sampling the aquifer? How shallow?

A. The shallow wells were installed at 15 feet to 20 feet below grade. The deep wells were installed at 45 feet to 75 feet below grade.

5. Q. Please explain the statement that the landfill operated between 1972 to 1979? Wasn't it in operation before that?

A. According to the 1994 Preliminary Site Assessment (PSA) report, the ETE Sanitation and Landfill was a non-permitted private landfill which accepted municipal and industrial waste from surrounding towns in Wyoming County during 1972 to 1979. It is possible that this landfill may have been in operation before 1972.

6. Q. Where did the aerial photos come from?

A. The aerial photographs for the years 1954, 1974, 1985 and 1993 were obtained from Wyoming County Department of Soil and Water Conservation.

7. Q. If the North Pond is contaminated, why do you want to expand it? What will you accomplish?

A. As a part of the remedy, the North Pond will be remediated by excavating the contaminated sediments and placing the contaminated sediments on the landfill. The South Pond will be drained and the landfill will be covered with a Part 360 cap. This will significantly reduce any future leachate discharge to the North Pond. The North Pond will be expanded to partially compensate for the loss of the aquatic habitat and/or wetlands due to permanently draining the South Pond.

8. Q. Why are you not concerned about the water coming from the offsite swamp seeping into the landfill and creating leachate?

   A. A drain will be constructed between the landfill and the swamp to empty the South Pond. This drain will intercept most of the water from the swamp.

9. Q. Don't you need the South Pond for flood and high water events?

   A. The South Pond will be drained permanently and graded to create a depression. The level of the lowest point in this area will be at or slightly lower than the waste in the landfill at the southern edge. The depression created by draining the South Pond will serve as a holding basin for high water events. The drain size and the holding basin capacity will be determined during design phase.

10. Q. My pond (South Pond) is not contaminated, why do you have to drain it?

    A. The South Pond is hydraulically up-gradient to the landfill and is contributing to the leachate production.

11. Q. Why can't you put a barrier wall up between the South Pond and the landfill?

    A. For a barrier wall to be effective, the wall should be keyed into an impermeable layer. The geology of the site is such that there is no impermeable layer present within the practicable limit to key in the barrier wall. Without a key the water from the pond will migrate from underneath the wall and rise back again in the landfill.

12. Q. When the South Pond does flood, what will happen to the water? Wouldn't that water also seep into the landfill?

    A. The South Pond may flood and back-up for a short time during high water events. However, it will be controlled by the proper design of the drain during remedial design.

13. Q. How much larger will the North Pond be?

    A. After remediation the size of the North Pond will increase by approximately 1 acre.

14. Q. The actual landfill will be about one acre smaller, how much higher will the landfill be?

    A. The height of the landfill may increase by about 6 to 7 feet by consolidation and capping.

15. Q. Where is the runoff from the North Pond going now? Where will it go after the pond is bigger? Is the runoff contaminated?

A. The runoff from the North Pond flows off-site and will continue to flow off-site to the north into a tributary of Cotton Creek and than to Cotton Creek. Analytical results of the surface water collected from the North Pond indicate some metals present at levels slightly exceeding the criteria for Class C water.

16. Q. Some of the rocks in the creek are orange, how can you say nothing is going down the creek? Tell me again about the iron? I don't understand it?

A. The orange color in the rock can be attributed to the presence of iron in the surface water. The analytical results of the surface water samples collected from the un-named tributary during RI indicates that the leachate has not significantly impacted the surface water quality. Metals (Iron, sodium, copper, aluminum, manganese) were found at levels slightly exceeding the NYSDEC standards for class C water, close to the site. However, the results of the analytical samples collected from Cotton Creek showed no impact on the water quality in that creek which is about 0.75 miles from the site. The orange discoloration seen occasionally may be attributable to the landfill but does not create a significant threat to public health or the environment.

17. Q. What are the limitations that will be placed in the deed?

A. Attempts will be made to limit any future use of the property that may breach the integrity of the cap, or any components of the remedy. The restrictions may also include the use of the contaminated groundwater at or in the vicinity of the site.

18. Q. Who will be the property owner after the remediation is complete?

A. The current owner(s) will continue to be the owner(s) of the site.

19. Q. Would some of the cap be on my land? (Mr. Keenan's property?)

A. Some of the waste material is located in the South Pond, in the property owned by Mr. David Keenan. Waste will be consolidated only to the extent necessary to achieve the required slope for the landfill cover. The final footprint of the landfill will be based on the remedial design. It is very likely that the cap may extend in the adjoining property south of the landfill property.

20. Q. Are residents near the site are being impacted by site contaminants?

A. Based on the Department of Health sampling of private wells near the landfill and the environmental sampling conducted during the Remedial Investigation, no contamination was found at a level that represented a health concern. In the future, two additional well clusters will be installed downgradient to monitor the groundwater quality and evaluate the effectiveness of the remedy. In addition, private wells in the vicinity of the landfill will be sampled.

21. Q. Is that the first time you have tested the wells along Jordan Road?

A. No. Prior to this recent sampling of private wells, one home was sampled in 1991 by the Department of Health along Jordan Road and the water quality was suitable for all purposes.

22. Q. Which way is the underground water flowing? How do you know?

A. The groundwater flow is in a north to northeast direction towards the Cotton Creek. The groundwater flow direction is determined based on the water level measurements in the monitoring wells installed at the site.

23. Q. Will the remediation eliminate the iron runoff?

A. The remediation will significantly reduce the leachate generation from the site. This will result in the reduction of the iron which can be attributed to the site. However, it should be noted that elevated levels of iron were observed in up-gradient wells.

24. Q. How deep are the wastes in the South Pond?

A. The thickness of the waste material is approximately fifteen feet at the center of the landfill and tends to thin towards the perimeter of the landfill. A test pit installed along the southern edge of the landfill indicates that the waste material is extending into the South Pond. The actual thickness of the waste material in the South Pond is not known at this time.

25. Q. Which contaminants in the groundwater under the landfill do you think are the worst?

A. Many contaminants were identified in the groundwater monitoring wells. These included vinyl chloride and benzene which are animal carcinogens (based on laboratory testing at high exposure levels) and human carcinogens (based on individuals exposed to high levels in occupational settings). These chemicals were found in groundwater samples at levels above the New York State drinking water standard. However, these contaminants have not been found in any of the on-site downgradient monitoring wells, or in any of the private wells sampled. Based on the available data, people are not exposed to these contaminants in groundwater, and the contaminants do not currently pose a health concern.

26. Q. Are any of those contaminants cancer causing?

A. See response to question number 25.

27. Q. Are you going to do a study on the cancer cases in the area?

A. No cancer studies are planned by the Department of Health for the area in the vicinity of the landfill. Residents with cancer concerns may speak with Mary Chris Shultz from the NYS Department of Health's Bureau of Environmental and Occupational Epidemiology at 1(800)458-1158 extension 6202.

28. Q. What kind of time table are we looking at for the rest of the project?

A. The completion of the project will involve the design of the selected remedy and the construction of the remedy. The remedial design is likely to take a year to complete. The construction is also likely to take one year. Additional time will be needed for bidding. Before construction can start potentially responsible parties (owners, operators, generators, transporters) will be asked to undertake the remedial work which may take some additional time.

29. Q. What kind of safety procedures will be in place during construction?

A. Prior to any construction, a work plan will be approved by the New York State Departments of Environmental Conservation and Health and will include a Community Air Monitoring Plan. In this plan volatile organic compounds (VOCs) and dust particles will be monitored at the perimeter of the site. If the level of VOCs or the dust particles at the perimeter of the site become elevated, the construction project will be shut down and appropriate dust control measures will be implemented. In addition, health and safety procedures will be established and implemented to protect the on-site personnel.

30. Q. Is there a chance that this could be a local tax burden? When you talk about who will pay, how do you determine it?

A. Potentially Responsible Parties (PRPs), which may include current and/or past owners, operators, generators, will be asked to undertake the remedial work. If PRPs are not willing or cannot be located, the remediation will be completed using New York State superfund money. Remediation will not be a local tax burden.

31. Q. As you go through the remedial process, is there a future possibility that you may not have enough money for the remediation?

A. If the PRPs do not build the remedy, the NYSDEC will complete the work under the State Superfund.

32. Q. There is a lot of salt in the landfill, could that make chlorine? Why didn't you test for it?

A. Salt present in the landfill exists mostly as sodium chloride. When it dissolves in water it produces common salt water and does not create the type of "chlorine" found in bleach or in water treatment chemicals.

A letter dated March 19,1999 was received from Mr. David L. Keenan, the owner of the property south of the landfill, which included the following comments:

33. Q. I own the property on Broughton Road containing the south pond above the former ETE landfill. I will oppose any and all plans to permanently drain the pond on my property. I also will oppose any use of my property as part of a cap for the landfill located north of my property. I oppose destroying almost three acres of prime fishing water, nesting of Canadian geese, water for

wildlife such as deer, coyote and turkey. This pond is stocked with largemouth bass, perch, walleye, calico bass, northern pike and golden shiners. The fish population is healthy and thriving at this time. I did not create the existing problem and do not see why I should suffer financial loss or any loss of my recreational property. If the pond is to be permanently drained the value of the property is of little or no value.

I have worked for three years converting this property from grown up scrub brush and weeds to mowable lawn. I have planted approximately twenty fruit trees that include five varieties of apple, two varieties of pear, 2 cherry, 2 plum and 3 high bush blueberry, filled a large swale near the road (Broughton Road) that required almost 180 loads of fill and 26 loads of topsoil to cover.

The plan being considered now is not acceptable in any way. I do not feel enlarging the north pond is acceptable replacement for wetlands being destroyed at the south pond. I urge the NYSDEC to meet with me and discuss other options.

A. The South Pond is located hydraulically upgradient of the landfill and is contributing to the production of the leachate at the site. A groundwater flow model was used to examine the relationship between the ponds, the landfill and the groundwater system and to evaluate possible hydraulic control technologies to control leachate production. Model simulations indicated that draining the South Pond and installing a landfill cap will be the most effective in lowering the groundwater table and reducing leachate production.

Our consultant also looked into installation of a barrier wall between the South Pond and the landfill as a means to cut off the flow of the water from the pond to the landfill. For a barrier wall to be effective, the wall should be keyed into an impermeable layer. The geology of the site is such that there is no impermeable layer present within the practicable limit to key into the barrier wall. Without a key, the water from the pond will migrate from underneath the wall and rise back again in the landfill. We believe we have thoroughly evaluated the options and have concluded that it is necessary to drain the pond. If we receive new information that would support a different approach, we would evaluate the information on its merits and decide if any change to the selected remedy would be appropriate. However, any change must meet the evaluation criteria described in section 7.2 of the Record of Decision, including the regulatory criterion of cost-effectiveness.

Some of the waste material extends into the property owned by Mr. Keenan and also into the South Pond. Waste will be consolidated to the extent necessary to achieve the required slope for the landfill cover and for the stability of the slope. The final footprint of the landfill will be based on the remedial design. It is likely that the cap may extend in the adjoining property south of the landfill property. NYSDEC is willing to sit down with Mr. Keenan during the design phase to see if the waste material can be removed from his property while maintaining the cost-effectiveness of the remedy.

APPENDIX B
Administrative Record

1. File Index.
2. Record of Decision - March 1999.
3. Proposed Remedial Action Plan, dated February 1999, prepared by NYSDEC.
4. Notice of site classification dated 3/31/95 and Inactive Hazardous Waste Disposal Report Form.
5. Preliminary Site Assessment dated December 1990, prepared by URS Consultants Inc., for NYSDEC.
6. Preliminary Site Assessment dated February 1994, Volume 1 and Volume 2, prepared by Engineering-Science, Inc., for NYSDEC.
7. Final Remedial Investigation (RI) Report dated September 1998, prepared by CDM, for NYSDEC.
8. Second round surface water sampling results (September 24, 1998) - CDM's Memorandum of November 6, 1998.
9. Feasibility Study (FS) Report dated April 1999, prepared by CDM, for NYSDEC.
10. Citizen's Participation Plan prepared by NYSDEC - December 1998.
11. Fact Sheet dated October 1997.
12. Fact Sheet dated April 1998.
13. Fact Sheet dated December 1998.
14. Fact Sheet dated February 1999.
15. Letter dated March 19, 1999 from Mr. David Keenan.