PB97-963804
EPA/541/R-97/055
November 1997

EPA Superfund Record of Decision:

Jones Sanitation,
Hyde Park, NY
3/31/1997

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Jones Sanitation Site

Town of Hyde Park

Dutchess County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Jones Sanitation Site, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan. This decision document explains the factual and legal basis for selecting the remedy for this site.

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy. A letter of concurrence from the NYSDEC is attached to this document (Appendix IV).

The information supporting this remedial action decision is contained in the administrative record for this site. The index for the administrative record is attached to this document (Appendix III).

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Jones Sanitation Site, if not addressed by implementing the response actions selected in this Record of Decision, may present an imminent and substantial endangerment to the public health or welfare, or to the environment.

DESCRIPTION OF THE SELECTED REMEDY

The remedial actions described in this document address the contaminated soil and groundwater at the site and on-site streams and wetlands.

The selected remedy includes capping of the central disposal area and placement of outlying soils under the cap (Alternative S-3) and minimal action for groundwater (Alternative G-2). Both of these alternatives include the implementation of institutional controls. No remedial action is planned for the on-site streams and wetlands. The major components of the selected remedy include the following:

Soil

- Construction of a 4.8-acre cap over the central disposal area in conformance with the major elements described in 6 New York Code or Rules and Regulations Part 360 for solid waste landfill caps. Conceptually, the cap will be comprised of: 18 inches of clay or a suitable material to ensure a permeability of 10^{-7} cm/sec, 6 inches of porous material serving as a drainage layer, 18 inches of backfill, and 6 inches of topsoil and grass cover.

- Surface water controls consisting of concrete culverts will be installed around the perimeter of the cap and at other locations as necessary to ensure that runoff water does not erode the topsoil layer.

- Long-term maintenance program to ensure cap integrity.

- To facilitate the construction of the cap, the existing asphalt and concrete pads, frame building and shed will be removed and disposed of off-site. Also, tanks will be cleaned and recycled off-site.

- Contaminated soils above cleanup goals in the outlying areas (TU-1,6,7, and 8) will be excavated and moved to the central disposal area, where they will be graded with the material there in preparation for placement of the cap.

- Confirmatory samples will be collected from the bottom and sidewalls of the excavations. Following excavation and confirmatory sampling, the trench units will be backfilled with clean fill and overlain with a 6-inch layer of clean topsoil and grass cover.

- Implementation of institutional controls, such as deed restrictions, to limit access and to prohibit interference with the cap.

Groundwater

- Implementation of a long-term groundwater monitoring program. As part of this effort, a series of monitoring wells will be installed between the site and the closest residences. During the first five years of the monitoring program, sampling will be conducted of both on and off-site wells. Such wells will be monitored on an annual basis for metals and Volatile organic compounds. In the event that contaminant levels remain below groundwater standards in the off-site wells during the five-year monitoring period, the monitoring program would be reevaluated. It is expected that once the cap has been constructed, groundwater quality should improve and, hence, a reduction in the scope and/or frequency of groundwater monitoring may be appropriate. This monitoring effort will include the investigation of possible pockets of contamination where anomalies in the data indicate the potential for groundwater contamination. If future monitoring indicates that groundwater contamination is not attenuating and may migrate off-site, additional groundwater remedial measures may be considered.

- Institutional controls, such as deed restrictions and well permitting restrictions, will be implemented to prevent human contact with contaminated groundwater. These restrictions will be applied to both the shallow and bedrock aquifers at the site due to the detection of contaminants at levels exceeding New York State Department of Health drinking water standards and Federal maximum contaminant levels in both aquifers and will prohibit the installation of new wells at the site intended for potable use. Nonpotable uses of site groundwater (e.g., watering) may be allowed.

Streams and Wetlands

No remedial action is presently planned for the streams and wetlands since no adverse impacts were observed. However, during the Remedial Design, further ecological risk assessment activities will be performed, including sampling and analysis of the streams and sediments to confirm that the surrounding streams and wetlands have not been impacted.

- Perform a pre-design phase wetlands delineation and assessment of the delineated area in accordance with the State and Federal guidance which will include additional surface water and sediment samples to adequately quantify any chemical impacts on the streams and wetlands that may exist and, based on sampling results, perform a supplemental ecological risk analysis.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA §121, 42 U.S.C. §9621. It is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The selected remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable, given the scope of the action. However, the remedy does not satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume of contaminants as their principal element.

Because this remedy will result in hazardous substances remaining on the site above health-based levels, a review will be conducted within five years after commencement of the remedial action, and every five years thereafter, to ensure that the remedy continues to provide adequate protection of human health and the environment.

Jeanne M. Fox
Regional Administrator

3/31/97
Date

RECORD OF DECISION

Jones Sanitation Site

Town of Hyde Park, Dutchess County, New York

United States Environmental Protection Agency
Region II
New York, New York
March 1997

TABLE OF CONTENTS

SITE NAME, LOCATION AND DESCRIPTION

The Jones Sanitation site consists of a 57-acre parcel of land located approximately one-half mile northeast of the intersection of Crum Elbow Road and Cardinal Road in Hyde Park, New York. The Maritje Kill flows from northeast to southeast across the eastern side of the site. Another unnamed stream enters the northern side of the site, flows into wetlands on the northwestern side of the property, and flows off-site to the west. Freshwater wetlands surround the northern, southern, and western portions of the site (see Figure 1). The Hudson River is located approximately 2.1 miles west of the site.

The majority of the property is heavily wooded, but a large cleared area exists in the western-central portion of the site and extends to the northeast. A two-story concrete building is located on the western side of the clearing and houses a filter press on the first floor and has office space on the second floor. In addition to the building, several holding tanks and piping (associated with the wastewater treatment system) remain on site. A concrete pad and a bituminous-paved compost area are located to the east of the filter press building. The remainder of the central cleared area consists of a gravel access road and several depressions with bermed sides indicating the former locations of sand filter beds.

The site is zoned residential but the existing commercial use has been grandfathered in. Adjacent land use consists primarily of residential and undeveloped land. Single-family homes are located along Matuk Drive and Thurston Lane to the south, and along Cardinal Road to the west. Val-Kill trailer park, containing approximately 100 residences, is located to the southwest.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The wastes that were treated and disposed of at the site during its approximately 30 years of operation include septage wastes, primarily liquid, from residential, commercial, institutional, and industrial facilities. During approximately a 17-year period, industrial wastewater was also disposed of at the site. In the early years of operation, solids were separated out as liquid wastes filtered through the soil media. After 1980, solids were separated in lined sand filtration pits, mechanically dewatered using a filter press and then composted with wood chips. The compost was used for cover and regrading in some areas of the site.

Septage operations began at the site in approximately 1956 by Mr. William Jones, Sr., under the name of William Jones Sanitation Service (Jones Sanitation). Mr. Jones collected domestic septage from residential properties and disposed of it in trenches on the property. In 1972, the Dutchess County Health Department (DCHD) issued a permit to Jones Sanitation to collect and transport sanitary wastes to the Jones site.

Based on DCHD inspection reports from the 1970s, septage and industrial wastewater were disposed of together in approximately 30 to 40 shallow, randomly oriented trenches located mostly within the central area of the site. Trenches were reportedly three to five feet deep, with lime applied to septage disposed of in the trenches to reduce odors. After the trenches were full and the liquids had leached out into the ground, the trenches were covered with sand and gravel.

Mr. Theodore Losee took over operations at the site in 1977 and reportedly ended random disposal by constructing parallel trenches. In a 1980 aerial photograph, 10 trenches were identified in a central bermed area; however, the presence of several other trenches in peripheral areas was still noted. During Mr. Losee's ownership, the facility was operated under the name of Jones Septic Services. When Mr. Losee took over operations, septage solidification ponds (SSPs) were constructed in the central area and used to separate solids and liquids. In 1987, a filter press was installed and the use of the SSPs was discontinued.

The DeLaval Separator Company (DeLaval), which changed its name to Alfa-Laval in 1980, operated a facility in Poughkeepsie from 1963 to 1990. Untreated industrial wastewater from DeLaval's operations was disposed of at the site until approximately 1975. The sources of DeLaval's industrial wastewater are described as: the Tin Room, which generated acid, alkali, and metals waste from plating; the Tumbling Area, which generated metal wastes and grit in the form of sludge; Customer Service, which generated wastes contaminated with "Zyglo" chemicals and alkali; the Pilot Plant, which produced wastes contaminated with oil, solvents, organic chemicals, and metals; the Rubber Area, which generated wastes contaminated with hydraulic oil, lube oil, and steam condensate; and Salvage, which generated wastes contaminated with water-soluble oils, lube oil, solvents, and pigments. In 1975, DeLaval began treating the industrial wastewater using a centrifugal separator and sent the treated wastewater to the site. Effluent generated at DeLaval's facility that was transported to the site contained hazardous substances, including, but not limited to trichloroethylene, methylene chloride, chloroform, 1,1,1,-trichloroethane, napthalene, chromium, copper, lead and zinc. In approximately 1979, DeLaval ceased sending the treated wastewater to the site.

Beginning in 1970, the site became the focus of several investigations by the New York State Department of Environmental Conservation (NYSDEC) and DCHD. The investigations were comprised of limited sampling of on-site soils, groundwater, surface water, and sediment from the streams on site. Some off-site private and public wells were also sampled. Volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polynuclear aromatic hydrocarbon (PAH) compounds, polychlorinated biphenols (PCBs) and metals were detected at varying concentrations in site media. Based on the results of these investigations, the site was placed on the National Priorities List (NPL) in July 1987, at which time EPA became the lead agency for the site with support from the NYSDEC. The DCHD and NYSDOH have sampled off-site private and community drinking water supply wells on seven different occasions since 1988. Contaminants related to the site were not detected in the drinking water supply wells.

In March 1991, Theodore Losee and Alfa-Laval, Inc., signed an Administrative Order on Consent with EPA in which they agreed to perform the RI/FS for the site. The RI Report was completed in 1995; the FS Report in July 1996.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI report, FS report, and the Proposed Plan for the site were released to the public for comment on February 21, 1997. These documents, as well as other documents in the administrative record were made available to the public at two information repositories maintained at the EPA Docket Room in Region II, New York and the Hyde Park Free Public Library, located at 2 Main Street, Hyde Park, New York. A notice of availability for the above-referenced documents was published in the Poughkeepsie Journal on February 21, 1997 and in the Hyde Park Townsman on February 27, 1997. The public comment period established in these documents was from February 21, 1997 to March 22, 1997.

On March 13, 1997, EPA held a public meeting at the Roosevelt Engine Co.#1 on Cardinal Road, Hyde Park to present the Proposed Plan to local officials and interested citizens and to answer any questions concerning the Plan and other details related to the RI and FS reports. Responses to the comments and questions received at the public meeting, along with other written comments received during the public comment period, are included in the Responsiveness Summary (see Appendix V).

SCOPE AND ROLE OF RESPONSE ACTION

This is the first and only planned action for the site. The primary objectives of this action are to control the source contamination at the site and to reduce and minimize the migration of contaminants into the site media thereby minimizing any human health and ecological impacts. The response actions specified in this ROD address two contaminated media at the site, namely, soil (central disposal area and the outlying areas), and the groundwater. No remedial action presently planned for on-site streams and wetlands although a further ecological risk assessment will be conducted as discussed on page 13 of this decision summary.

SUMMARY OF SITE CHARACTERISTICS

The RI included a soil investigation consisting of a soil gas survey, seismic survey, and soil boring program; a hydrogeologic investigation consisting of aquifer testing, well installation, and groundwater sampling; a surface water and sediment investigation; and an ambient air monitoring program. Environmental sampling activities at the site included collection and analysis of 179 soil gas samples, 120 subsurface soil samples, 11 surface water and 11 sediment samples. Also, groundwater samples were obtained from 13 overburden monitoring wells, 15 bedrock monitoring wells, and 10 off-site potable wells. Results of the soil gas survey were used to aid in the selection of soil boring locations.

The DCHD and NYSDOH have sampled off-site private and community drinking water supply wells on seven different occasions since 1988. Contaminants related to the site were not detected in the drinking water supply wells.

__Physical Site Conditions__

The physical site conditions are characterized by shallow soil deposits (0 to 15 feet) underlain by bedrock consisting of sandstone and shale. Several bedrock ridges with numerous surface outcropping are present at the site. Extensive wetlands are located among the north and south sides of the site, associated with two small streams that drain from northeast to southwest. Overburden groundwater appears to flow from the central disposal area to the wetlands and surface water streams to the north and east.

Soil Contamination

Areas of septage disposal were characterized by the presence of black to dark brown septic sludge materials mixed with soils as observed in soil samples from borings drilled through these areas. Forty trenches (TRs), many overlapping others, septage solidification ponds (SSPs), sand filter (SFs) beds, stained areas, mounded materials, and pits were identified on the aerial photographs performed by the EPA's Environmental Photographic Interpretation Center. During the remedial investigation, the 40 trenches were grouped into 10 trench units (TUs) based upon their lateral distribution on the site.

Trench units 2,3,4,5,9, and 10 and the SSP/SF, are located in the central open area of the site in relative proximity to each other, whereas trench units 1,6,7 and 8 are in more outlying areas (see Figure 1).

A description of the physical nature and contamination of these areas is provided below.

Central Disposal Area

Trench Unit 2 (TR5,TR7,TR9,TR10,TR24-TR34): This trench unit consists of 15 former trenches covering a large portion on the north side of the central open area. Septic waste material was observed in the majority of the borings drilled in this area and up to two feet of black sludge was encountered. Approximately 13,500 cubic yards of septic sludge are estimated to be present in TU-2. High concentrations of toluene (110,000 parts per billion or ppb) and acetone (530 ppb) were detected in this trench unit. Several semivolatile organics were identified; the highest detection observed was phenanthrene (510,000 ppb). Copper (408 parts per million or ppm), lead (324 ppm), zinc (765 ppm) and manganese

(4,640 ppm) were the highest inorganic concentrations detected in this trench unit.

Trench Unit 3 (TR11-TR18, TR36): This trench unit consists of nine former trenches located in the central open area. This trench unit, approximately 20,000 square feet, is now covered in part by the concrete and bituminous paved driveways. A five-foot thick layer of undisturbed septic waste was encountered within this area. Approximately 4,000 cubic yards of septic material are estimated to be present in TU-3. High concentrations of toluene (120,000 ppb) and metals such as cadmium (9.5 ppm), chromium (58.4 ppm), copper (925 ppm), lead (152 ppm), zinc (1,960 ppm), and manganese (896 ppm) were detected in this trench unit.

Trench Unit 4 (TR1,TR19,TR38,TR39): This trench unit consists of four former trenches located on the southwest side of the central open area. It was confirmed as a disposal area by the observation of septic waste material in most of the borings drilled in the area. Approximately 1,800 cubic yards of septic waste are estimated to be present in TU-4. This trench unit has high volatile organic contamination as indicated by the presence of toluene (51,000 ppb), chlorobenzene (26,000 ppb), and acetone (3,600 ppb). A total PCB concentration of 4,900 ppb was also detected. Arsenic (13.2 ppm), copper (1,480 ppm), lead (677 ppm), zinc (5740 ppm), and manganese (1,290 ppm) were some of the highest metals concentrations detected in this trench unit. Also, cyanide contamination was detected (14.3 ppm).

Trench Unit 5 (TR20 and TR21): This trench unit consists of two former trenches located in the southwest side of the central open area, to the east of TU-4. Septic waste and black stained sand were observed in the boring soil samples. Approximately 1,100 cubic yards of sludge are estimated to be present in TU-5. Manganese (796 ppm) and other low concentrations of metals defined the contamination in this trench unit.

Trench Unit 9 (TR8): This trench unit consists of one former trench located on the eastern side of the central open area, to the east of TU-2. A concrete block settling tank was constructed on the northern end of this trench. On the southern end, an approximately 2.5-foot-thick sludge layer was observed. Approximately 450 cubic yards of sludge material are estimated to be present in TU-9. Contaminants detected in this trench unit are PCBs (2,500 ppb), cyanide (1.3 ppm), and metals such as arsenic (10 ppm), barium (807 ppm), cadmium (9.3 ppm), chromium (53.9 ppm), copper (2190 ppm), manganese (1020 ppm), mercury (9.8 ppm), and zinc (4210 ppm).

Trench Unit 10 (TR37): This trench unit consists of one former trench approximately 70 feet long, located along-side a wooded area, southwest of the central open area. No septic sludge or other indication of waste disposal was found in the borings drilled in this trench unit.

Septage Solidification Ponds (SSPs) and Sand Filter (SF) Beds: This area consists of four SSPs, and the effluent from the SSPs was discharged to the SFs. The SSP area covered an approximately 400-by-150-foot area in the west central portion of the site. A septic waste layer was observed from one to seven feet thick. Approximately 12,800 cubic yards of septic waste are estimated to be present in this area. Acetone (240 ppb) and chlorobenzene (3,200 ppb) were the two volatile organics detected in this trench unit in addition to heavy metals including cadmium (4.3 ppm), copper (387 ppm), lead (71.2 ppm), mercury (2 ppm), manganese (1,010 ppm), and zinc (431 ppm).

Outlying Disposal Areas

Trench Unit 1 (TR2, TR3, TR4, TR22): This trench unit consists of four former trenches that were identified on the northeastern side of the site. The location of these former trenches is now partly covered by a large mound of moderately composted septic waste material. This waste material mound is probably former trench material that was regraded and bulldozed into the pile after disposal activities had ceased. The total volume of septic waste material associated with TU-1 is estimated to be approximately 2,300 cubic yards. The highest detection of PCB (11,000 ppb) was detected in this trench unit. There were also high concentrations of arsenic (22.2 ppm), copper (3,220 ppm), mercury (7.4 ppm), and manganese (742 ppm).

Trench Unit 6 (TR40): This trench unit consists of one isolated trench located in the southwest corner of the property. No evidence of waste disposal was noted during field sampling. However, levels of phenols (1,200 ppb), cadmium (4.5 ppm), and manganese (1,030 ppm) were detected in samples collected from this trench unit.

Trench Unit 7 (TR35): This trench unit consists of one isolated former trench located at the edge of a wooded area to the east of the central open area. Borings drilled in this trench unit identified the presence of a four-to-twelve-inch thick, dark brown organic layer that is believed to be highly weathered septic waste material lying directly upon a shallow weathered bedrock surface. Approximately 500 cubic yards of septic waste material are estimated to be present in TU-7. Acetone (200 ppb), PCBs (2,600 ppb), cyanide (4.4 ppm) and metals including arsenic (22.8 ppm), barium (668 ppm), cadmium (11.7 ppm), chromium (44.2 ppm), copper (2,480 ppm), lead (307 ppm), manganese (2,310 ppm), and zinc (2,580 ppm) were detected in samples collected from this trench unit.

Trench Unit 8 (TR-23): This trench unit consists of one trench located on the eastern side of the site, south of TU-1. A three-feet-thick layer of septic waste was observed in the northern end of this trench unit, but no distinct waste layers were observed in the middle or southern end of this trench unit. It is estimated that approximately 50 to 100 cubic yards of waste material remain in TU-8. Contaminants detected were PCBs (800 ppb), cyanide (0.35 ppm), and several metals including arsenic (9.4 ppm), cadmium (1.2 ppm), chromium (25.9 ppm), copper (299 ppm), lead (259 ppm), manganese (821 ppm), mercury (1.3 ppm), and zinc (510 ppm).

<u>Groundwater Contamination</u>

A total of 13 overburden monitoring wells, 15 bedrock monitoring wells, and 10 off-site potable wells were sampled for analysis. Groundwater quality is judged by standards such as those in the New York Code of Rules and Regulations (NYCRR) Title 6, Chapter X, Part 703, Surface Water, Groundwater, and Groundwater Effluent Standards, and Federal Primary Drinking Water Standards, Maximum Contaminants Levels (MCLs).

The primary area where groundwater contamination was detected at levels exceeding water quality standards is crescent shaped (see Figure 2) and lies to the north, south, and east of the central disposal area. The overburden groundwater is bounded by several hydraulic boundaries, including the unnamed stream located northwest and the Maritje Kill to the east and southwest where overburden groundwater flow most likely discharges. It is believed that these hydraulic boundaries act to prevent contaminated groundwater from migrating from this area of the site.

The following VOCs were detected in the overburden aquifer at concentrations exceeding regulatory standards: benzene (1-65 micrograms per liter ($\mu g/l$)), chlorobenzene (5-11$\mu g/l$), 1,3-dichlorobenzene (11$\mu g/l$), and 1,2- and 1,4-dichlorobenzene (8-15 $\mu g/l$) and (10-12 $\mu g/l$), respectively. Total concentrations of several metals, including iron (90,400-540,000 $\mu g/l$), lead (43.7-395 $\mu g/l$) and manganese (5,480-88,300 $\mu g/l$), were detected in a number of overburden monitoring wells at concentrations exceeding primary and secondary drinking water standards. Most of the overburden groundwater contamination was detected beneath the central disposal area.

There are three isolated areas within the facility boundaries but outside of the central disposal area where overburden groundwater contamination was identified. The results of the analysis indicate that there may have been a problem associated with the construction or development or sampling of the monitoring wells in those areas. There is a large difference in the values for the total and dissolved levels for manganese (e.g., Well OB-11 is reported as having the highest level of total manganese reported at the site, 88,000 ppb, but the dissolved manganese level reported for the well is 5 ppb).

Contaminant concentrations were typically much lower and in a much smaller area in the bedrock aquifer as compared with the overburden aquifer. VOCs in bedrock monitoring wells include benzene (24 $\mu g/l$), vinyl chloride (2-5 $\mu g/l$), cis-1,2-dichloroethene (11-37 $\mu g/l$), 1,2-dichloroethene (7$\mu g/l$), and tetrachloroethylene (7 $\mu g/l$). Manganese (6,360 $\mu g/l$) was also detected above the regulatory standard in one bedrock well.

Surface Water and Sediment Contamination

Contaminants detected in surface water samples from the site at concentrations exceeding New York State Surface Water Standards were cadmium (3 $\mu g/l$) and iron (707 $\mu g/l$). No VOC or SVOC contaminants were detected in site surface waters at concentrations exceeding the regulatory standards.

Sediment standards were based on the 1993 NYSDEC Technical Guidance for Screening Contaminated Sediments. No VOCs were detected in the site sediment samples at concentrations exceeding guidance values. Metals, primary arsenic, cadmium, and lead were detected at concentrations slightly exceeding the regulatory standards in several of the sediment samples.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs)(see Table 2) are specific goals to protect human health and the environment; they specify the contaminant(s) of concern, the exposure route(s), receptor(s) and acceptable contaminants level(s) for each exposure route. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

Based on available information and ARARs, RAOs for soils and groundwater were developed. RAOs for soil are designed, in part, to mitigate the health threat posed by ingestion, dermal contact or inhalation of particulates where these soils are contacted or disturbed. Such objectives are also designed to prevent further leaching of contaminants from the soil to the groundwater.

The RAOs for soil are the NYSDEC recommended soil cleanup objectives identified in the Technical and Administrative Guidance Memorandum (TAGM HWR-94-4046). Due to the fact that arsenic and manganese pose the greatest potential risk at the site, the most significant RAOs for soil are arsenic at 7.5 ppm and manganese at the site background (the manganese levels in New York State are typically in the range of 400-600 ppm).

Groundwater RAOs were based on NYSDEC Class GA groundwater standards and/or the EPA primary drinking water standards (MCLs), whichever were more stringent. The most significant RAOs for groundwater are arsenic at 25 μg/l and manganese at 300 μg/l.

Substantial contaminant concentrations were not detected in surface water or sediments at the site. Therefore, remedial action objectives were not developed for site surface waters or sediments.

SUMMARY OF SITE RISKS

Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*—identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment*—estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. *Toxicity Assessment*—determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization*—summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

Based upon the results of the RI, human health and ecological baseline risk assessments were conducted to estimate the risks associated with contamination at the site, assuming no remedial action is taken in the future.

The baseline risk assessment began with selecting contaminants of concern (COCs)(See Table 5). COCs were identified for site soils, groundwater, surface water, and sediments based on the frequency of detection in RI samples, the magnitude of the concentrations detected, and the relative toxicity of the contaminants. COCs included those contaminants that are most representative of risks at the site.

The baseline risk assessment evaluated the health effects that could result from exposure to contaminated site media through ingestion, dermal contact or inhalation. The assessment evaluated risks to potential current trespassers and potential future site residents. Current trespassers were evaluated for ingestion and dermal contact with contaminants in soil, and ingestion of contaminants in sediments and surface water at the site. Potential future residents were evaluated for ingestion and dermal contact with contaminants in soil and groundwater, inhalation of contaminants in groundwater, and ingestion of chemicals present in sediment and surface water at the site.

Current regulations under CERCLA establish acceptable individual cancer risk levels of 10-4 to 10-6 (e.g., an excess cancer risk of 1 in 10,000 to 1 in 1,000,000) and a maximum noncancer Hazard Index (HI) of 1. An HI greater than 1.0 indicates a potential for noncarcinogenic health effects.

The results of the baseline risk assessment are contained in the *Baseline Risk Assessment, Jones Sanitation Site, Hyde Park, New*

York, dated August 1994, which was prepared by Gradient Corporation. The risk assessment concluded that current trespassers were not at risk from contact with contamination in site media.

For trespassers, cancer risks for both adults and children are less than 1x10-4. For both adults and children, the total risk is 7.7x10-6. The noncancer HIs for both adults and children were well below 1 (7.0x10-6 for adults and 5.4x10-2 for children).

For potential future residents, the carcinogenic risks are greater than 1x10-4 for ingestion of groundwater and soil at the site. For both adults and children, the total risk is 7.3x10-4. For adults, the greatest single contributor to risk is ingestion of arsenic in groundwater. For children, ingestion of arsenic in groundwater and ingestion of PCBs and PAHs in soil contribute equally to the cancer risk. The noncarcinogenic HIs for ingestion of groundwater by potential future child and adult residents are well above the acceptable level of 1. For adults, the HI is 85 and for children, the HI is 200. Most of this risk is associated with ingestion of manganese in groundwater. Noncarcinogenic risks associated with contact with soils, sediments and surface water by potential future residents are within acceptable levels at the site.

Based on the results of the baseline risk assessment, the EPA has determined that actual or threatened releases of hazardous substances from the site, if not addressed may present a current or potential threat to public health, welfare, or the environment.

Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation*—a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment*—a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. *Ecological Effects Assessment*—literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. *Risk Characterization*—measurement or estimation of both current and future adverse effects.

The ecological risk assessment began with evaluating the contaminants associated with the site in conjunction with the site-specific biological species/habitat information.

The site contains two intermittent streams (Maritje Kill and an unnamed stream) and several wetlands. The two streams are capable of supporting only limited numbers of transit warmwater fishes. However, wetlands and wildlife (e.g., birds and mammals) indigenous to the site are abundant and diverse. Site-related biological stress has not been reported or observed at or near the site.

Of the contaminants of concern identified, eight metals were found to present a potential ecological risk to receptors indigenous to the site based on the risk assessment conducted. Three metals (cadmium, iron, and manganese) are believed to pose a risk to benthic receptors inhabiting one or both streams at the site due to their sediments exceeding the NYSDEC's sediment quality criteria for freshwater aquatic life. The cadmium, iron, and manganese concentrations detected in the sediments are, however, within the range of background concentrations for these metals based on the levels detected in upstream samples.

Although no distressed vegetation was detected at the site, and no threatened or endangered species were observed that may be impacted by the metal contaminant levels present, EPA and NYSDEC protocols were not strictly followed and the potential ecological risk may have been underestimated. Therefore, during the Remedial Design further field investigations are warranted to better assess the environmental impacts to this area.

DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost-effective, comply with other statutory laws, and utilize permanent solutions, alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

Five soil alternatives and three groundwater alternatives, for addressing the contamination associated with the Jones Sanitation Site were evaluated in detail in the proposed Plan and in the Record of Decision.

Construction time refers to the time required to physically construct the remedial alternative. This does not include the time required to negotiate with the responsible parties for the remedial design and remedial action, or design the remedy or to obtain institutional controls.

During the detailed evaluation of remedial alternatives, each alternative was assessed against nine evaluation criteria, namely, overall protection of human health and the environment, compliance with ARARs (See Table 1), long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost, and State and community acceptance.

Soil Remedial Alternatives

Alternative S-1: No Action

Capital Cost: $0
O & M Cost: $0
Present Worth Cost: $0
Time to Implement: None

CERCLA requires that the "No Action" alternative be considered as a baseline for comparison with other alternatives. The no action alternative assumes no additional actions would be taken at the Jones Sanitation site to address the soil and groundwater contamination. This would allow contaminants to contribute to the degradation of the groundwater quality by leaching from the soils. No institutional controls would be implemented to provide controls for the groundwater use in the area or well restrictions. The no action alternative would be easily implemented as no effort would be required.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative S-2: Minimal Action

Capital Cost: $286,000
O&M Cost: $2,000/year
Present Worth Cost: $317,000
Time to Implement: 2 Months

This alternative would consist of institutional controls to minimize human contact with the contamination, which may include deed restrictions and fencing. Deed restrictions would limit future uses of the site as a whole or in specific areas of identified contamination, as appropriate, both as to the present owner and in the event of transfer of the property to other ownership. Fencing of the site would deter unauthorized access and potential contact of trespassers with remaining contamination.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative S-3: Capping of Central Disposal Area and Placement of Outlying Soils Beneath Central Disposal Area

Capital Cost: $1,043,000
O&M: $27,000/year
Present Worth Cost: $1,458,000
Time to Implement: 8 months

This alternative would include the following remedial measures:

* Construction of a 4.8-acre cap over the central disposal area in conformance with the major elements described in 6 NYCRR Part 360 for solid waste landfill caps. Conceptually, the cap would be comprised of: 18 inches of clay or a suitable material to ensure a permeability of 10^{-7} cm/sec, 6 inches of porous material serving as a drainage layer, 18 inches of backfill, and 6 inches of topsoil and grass cover.

* Surface water controls consisting of concrete culverts would be installed around the perimeter of the cap and at other locations as necessary to ensure that runoff water does not erode the topsoil layer. Long-term maintenance of the cap would be required to ensure cap integrity. In addition, this alternative would include

the institutional controls described in Alternative S-2 to prevent interference with the cap.

* To facilitate the construction of the cap, the existing asphalt and concrete pads, frame building and shed would be removed and disposed of off-site. Tanks remaining on-site would be cleaned and recycled off-site.

* Contaminated soils in outlying areas (TU-1,6,7, and 8) would be excavated and moved directly to the central disposal area, where they would be graded with the material there in preparation for placement of the cap.

* Institutional controls such as deed restrictions to restrict construction on top of treated areas and fencing of the central disposal area (as discussed in Alternative S-2) would be included in this alternative, due to the remaining presence of the contaminants at the site.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative S-4: In-Situ Treatment of Central Disposal Area and Outlying Soils

Capital Cost:	$4,997,000
O&M Cost:	$2,000/year
Present Worth Cost:	$5,028,000
Time to Implement:	7 months

This alternative would include in-situ treatment of the central disposal area and outlying areas (TU-1,-6,-7,-8) soils using solidification/stabilization. This treatment process would immobilize these contaminants which would remain in the soils. The outlying areas would be excavated and the soils combined with the central disposal area soils prior to in-situ treatment. Following the treatment, the central disposal area would be regraded as needed.

Institutional controls such as deed restrictions to restrict construction on top of treated areas and fencing of the central disposal area (as discussed in Alternative S-2) would be included in this alternative due to the remaining presence of the contaminants at the site.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative S-5: Excavate All Areas

Capital Cost : $ 7,142,000
O&M Cost: $ 0
Present Worth Cost: $ 7,142,000
Time to Implement: 8 to 9 months

This alternative would include excavation of all identified soils in the central area and outlying areas with contaminant concentrations exceeding RAOs. The excavated soils would be disposed of as nonhazardous or hazardous waste soils at an off-site disposal facility, as appropriate, based on characterization of the waste piles.

The cost of this alternative was based on off-site disposal of 36,500 cubic yards of contaminated soils. During the remedial design of this alternative, the cost of treating the contaminated soils on-site prior to off-site disposal may be evaluated to determine if any cost savings may be realized.

Groundwater Remedial Alternatives

Alternative G-1: No Action

Capital Cost: $0
O&M Cost: $0
Present Worth Cost: $0
Time to Implement: None

CERCLA requires that the "No Action" alternative be considered as a baseline for comparison with other alternatives. The No Action alternative does not include implementation of any institutional controls or active remedial measures for on-site contaminated groundwater.

This alternative does not require any action to be taken for implementation. However, site RAOs may be achieved over time through natural attenuation and degradation processes.

Alternative G-2: Minimal Action

Capital Cost:		$50,000
O&M Cost:	Year 1-5	$52,000/Year
	Year 6-30	$15,000/Year
Present Worth Cost:		$383,000
Monitoring Time:		30 Years

This alternative would include institutional controls such as use restrictions to prevent human contact with contaminated groundwater at the site while the contaminants naturally attenuate. These restrictions would be applied to both the shallow and bedrock aquifers at the site due to the detection of contaminants at levels exceeding NYSDOH drinking water standards for both aquifers and would prohibit the installation of new wells at the site intended for potable use.

This alternative would also include monitoring of the groundwater to assess migration and natural attenuation of contaminant levels over time. The monitoring program would include a total of 10 off-site wells and a total of 15 on-site monitoring wells, which would be annually sampled and analyzed for Target Analyte List (TAL) metals and Target Compound List (TCL) VOCs. In the event that contaminant levels remain below groundwater standards in the off-site wells during the first five years of monitoring, the monitoring program would be reevaluated to determine if any modification of it would be appropriate.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative G-3: Groundwater Collection and Treatment

Capital Cost:		$1,678,000
O&M Cost:	Year 1	$379,000/year
	Year 2-5	$364,000/year
	Year 6-30	$323,000/year
Present Worth Cost:		$6,607,000
Time to Implement:		4 Months
Monitoring Time:		30 Years

This alternative would include installation of a system of trenches and wells to collect contaminated groundwater at the site and construction of a treatment system designed to meet discharge criteria. Based on the primary contaminants present in groundwater at the site, i.e., organics (benzene and vinyl chloride) and metals (arsenic, beryllium, and manganese), the treatment train would consist of chemical precipitation with clarification to remove the metals followed by activated carbon treatment to remove organic constituents. The treated groundwater effluent would be transported via a pipeline to a discharge point in the unnamed stream at the site. The treated groundwater would meet discharge limits based on the NYSDEC Class B surface water standards. The groundwater collection and pumping may alter the existing wetlands patterns, particularly those to the north near the collection drains and to the south near the pumping well. The exact nature of these impacts and measures to mitigate them would need to be evaluated as part of the remedial design of this alternative.

A groundwater monitoring program would be needed to assess the effectiveness of groundwater extraction on contaminant levels in the aquifer over time. Groundwater monitoring data would be used to evaluate the continuing operation of the collection and treatment system. The monitoring program would include a total of 10 off-site wells and a total of 15 on-site monitoring wells, which would be monitoring sampled and analyzed for TAL metals and TCL VOCs. In the event that contaminant levels remain below groundwater standards in the off-site wells during the first five years of monitoring, the monitoring program would be reevaluated to determine if any modification of it would be appropriate.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels.

Therefore, under CERCLA, the site would have to be reviewed every five years.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative was assessed utilizing nine evaluation criteria as set forth in the NCP and OSWER Directive 9355.3-01. These criteria were developed to address the requirements of Section 121 of CERCLA to ensure all important considerations are factored into remedy selection decisions.

The following "threshold" criteria are the most important, and must be satisfied by any alternative in order to be eligible for selection:

1. *Overall protection of human health and the environment* addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

2. *Compliance with ARARs* addresses whether or not a remedy would meet all of the applicable, or relevant and appropriate requirements of Federal and State environmental statutes and requirements or provide grounds for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

3. *Long-term effectiveness and permanence* refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

4. *Reduction of toxicity, mobility, or volume through treatment* is the anticipated performance of a remedial technology, with respect to these parameters, that a remedy may employ.

5. *Short-term effectiveness* addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation periods until cleanup goals are achieved.

6. *Implementability* is the technical and administrative feasibility of a remedy, including the availability of materials and services needed.

7. *Cost* includes estimated capital and operation and maintenance costs, and the present-worth costs.

The following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

8. *State acceptance* indicates whether, based on its review of the RI/FS and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. *Community acceptance* refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports. Factors of community acceptance to be discussed include support, reservation, and opposition by the community.

A comparative analysis of the remedial alternatives based upon the evaluation criteria noted above follows. The discussion is divided in separate sections for comparison of soil (Alternatives S-1 through S-5) and groundwater (Alternatives G-1 through G-3) alternatives; however, it is recognized that soil alternatives may impact groundwater remedial options and time frames.

<u>Soil Remedial Alternatives</u>

- Overall Protection of Human Health and the Environment

Alternative S-1 would not provide any protection of human health and the environment as no active remedial measures are included in this alternative. Alternative S-2, minimal action, would provide some degree of protection of human health through the use of institutional controls that would include deed restrictions and fencing; however, no protection of the environment is provided as contaminants would remain on the site and may continue to migrate through the environment. Alternatives S-3 and S-4 would be protective as they would prevent human contact with wastes and would reduce migration of contaminants to the groundwater by containing wastes with a cap in the central disposal area (Alternative S-3), or in-situ solidification/stabilization treatment (Alternative S-4). Alternative S-5 would prevent environmental degradation and eliminate potential health risks posed by human contact with disposal area soils through excavation of contaminated soils and disposal off-site. This excavation alternative would provide a greater degree of protection of human health and the environment than Alternatives S-3 and S-4, as the contaminants would be removed permanently from the site.

- Compliance with ARARs

Action-specific ARARs for the site include Federal and State regulations for treatment, temporary storage, and disposal of wastes (40 CFR Part 256-268 and 6 NYCRR Part 360). No action-specific ARARs are applicable to Alternatives S-1 and S-2 as no remedial activities would be conducted at the site. Alternative S-3 would comply with ARARs through capping of the central disposal area and excavation of the outlying areas and placement of these soils under the cap. Alternatives S-4 and S-5 would comply with ARARs by in-situ treatment and/or excavation of all contaminated wastes at the site. Excavated soils would be disposed of appropriately; hazardous soils would be treated on site or at a licensed facility using stabilization followed by disposal as non-hazardous wastes. Any off-site transportation of hazardous wastes would be conducted in accordance with all applicable hazardous waste manifest and transportation requirements.

- Long-Term Effectiveness and Permanence

Alternative S-1 would not provide for long-term effectiveness and permanence as contaminants would remain in site soils with no institutional controls to prevent human contact with the wastes. Alternative S-2 provides marginal long-term effectiveness in that it deters inadvertent access, but does not eliminate the potential for trespassers, future residential exposure or preclude further migration of contaminants. The degree of long-term effectiveness of the central disposal area cap (Alternative S-3) is dependent on its continued integrity and maintenance. The in-situ solidification/stabilization of contaminated soils (Alternative S-4) would significantly reduce or eliminate the leaching of contaminants to the groundwater. Long-term monitoring and maintenance would be required for all remedial alternatives, with the exception of Alternative S-5, which would provide long-term effectiveness and permanence by removing the contaminants from the site.

- Reduction in Toxicity, Mobility, or Volume Through Treatment

Alternatives S-1 and S-2 would not provide reduction in toxicity, mobility, or volume of contaminants. Alternative S-3 would reduce the mobility of the contaminants by placing these soils under the cap, but would not reduce the toxicity or volume of the contaminants. In-situ treatment (Alternative S-4) would further reduce the mobility of contaminants present in treated soils through solidification/stabilization treatment to prevent contaminant leaching. Alternative S-5 would result in a reduction in the toxicity, mobility and volume of contamination present at the site through excavation and ultimate off-site disposal of the wastes.

- Short-Term Effectiveness

Alternatives S-1 and S-2 would not result in any adverse short-term impacts. Potential short-term impacts would be associated with the other alternatives due to the direct contact with soils by workers and/or the generation of vapor and particulate air emissions. Such impacts would be addressed through worker health and safety controls, air pollution controls such as water spraying, dust suppressants, and tarps for covering waste during loading, transporting and waste feeding preparation. Site and community air monitoring programs would be implemented when conducting such activities, to ensure protection of workers and the nearby community. It is estimated that all the alternatives could be completed as follows: Alternative S-1 in zero months, Alternative S-2 in 2 months, Alternative S-3 in 8 months, Alternative S-4 in 7 months and Alternative S-5 in 8 months. These time estimates do not include the time needed for remedial design.

- Implementability

All of the alternatives are implementable from an engineering standpoint. Each alternative would utilize commercially available products and accessible technology. Alternatives S-3 (capping) and S-4 (in-situ treatment) would be easier to implement than

Alternative S-5, which includes more extensive excavation of contaminated site areas. Excavation of outlying areas is included in Alternatives S-3, S-4 and S-5, but disposal of these soils would be most easily handled in Alternative S-3, where they would be placed under the on-site cap. Capping of the central disposal area would present fewer difficulties in implementation than in-situ treatment (Alternative S-4). Cap construction is a common technology that has been frequently applied at hazardous wastes sites. Although solidification/stabilization is an established technology, in-situ application of this process has had only limited application at hazardous wastes sites and implementation may also be limited by the heterogenous nature of the soils in the waste disposal areas and the variety of contaminants present. In addition, the institutional controls contemplated under Alternatives S-2, S-3 and S-4 are expected to be implementable.

- Cost

The capital, present worth, and operation and maintenance (O&M) costs for the soil Alternatives S-1 to S-5 are summarized in Table 8. Alternative S-3 has a present worth cost of $1,458,000 that includes an annual O&M cost associated with maintenance of the cap. Alternative S-4 is substantially more expensive with a present worth cost of $5,028,000 associated with in-situ treatment of the waste material. Alternative S-5 has a present worth cost of $7,142,000, due to the high capital cost of excavation and off-site disposal.

- State Acceptance

After review of all available information the NYSDEC has indicated that it concurs with the selected alternative for the soils. NYSDEC's letter of concurrence is presented in Appendix IV of this document.

- Community Acceptance

Community acceptance of the soil preferred alternative has been assessed in the Responsiveness Summary portion of this ROD following review of the public comments received on the RI/FS report and Proposed Plan. All comments submitted during the public comment period were evaluated and are addressed in the attached Responsiveness Summary (Appendix V). In general, the public was supportive of EPA's proposed remedy for the contaminated soils.

Groundwater Remedial Alternatives

- Overall Protection of Human Health and the Environment

Alternative G-1 does not include institutional controls or active remediation and is not protective of human health in that potential future residents could be exposed to contaminated groundwater at the site. Alternative G-2 would provide protection of human health through the implementation of institutional controls, such as use restrictions, to prevent potable use of contaminated site groundwater. Currently, there is no plume of contaminants migrating from the site; however, Alternative G-3 would provide the greatest degree of protection of human health and the environment of the three groundwater alternatives as it includes collection and treatment of contaminated groundwater to remove the contaminants present throughout the area of groundwater contamination. Treatment of the extracted groundwater prior to on-site discharge to the unnamed stream would ensure that the discharge water does not pose an environmental or human health risk.

- Compliance with ARARs

Principal location-specific and chemical-specific ARARs for the site include the Federal Protection of Wetlands Executive Order (E.O. 11990), NYCRR Wetland Permit (6 NYCRR Part 633), the Safe Drinking Water Act (SDWA) promulgated National Primary Drinking Water standards including both Maximum Contaminant Limits (MCL) and the Maximum Contaminant Level Goals (MCLGs), and the New York State Groundwater and Surface Water Standards promulgated by NYSDEC. Current EPA policy states that groundwater remediation levels be generally attained throughout the contamination plume, or at and beyond the waste management area[1] when wastes are left in place. At this site, essentially all of the detected groundwater contamination is located beneath the waste management area. As discussed earlier, there are three isolated areas outside of the central disposal area where overburden groundwater contamination was initially identified; however, EPA believes that further sampling (to be conducted during the design stage) will likely show that there is actually no overburden contamination in those areas. Accordingly, EPA believes that all three groundwater alternatives

[1]The waste management area is defined as the area comprising the cap in addition to an adjacent buffer area necessary to preserve the integrity of the cap and to provide access to perform maintenance on the cap.

would likely achieve site remedial action objectives at and beyond the edge of the waste management area, as the area of contamination does not extend beyond the waste management area. Alternative G-2 would include institutional controls to prevent use of contaminated groundwater and long-term monitoring to ensure migration does not occur and to assess the rate of attenuation. Alternative G-3 is intended to achieve compliance with the site remedial action objectives throughout the area of groundwater contamination (i.e., including beneath the waste management area) through collection and treatment of groundwater. Discharge of treated groundwater to the unnamed stream would be conducted in accordance with all applicable regulations, including NYSDEC Class B surface water standards as appropriate for the receiving water body. In addition, this stream flows into a NYSDEC-regulated wetland, thereby requiring compliance with NYSDEC wetland permit requirements.

- Long-Term Effectiveness and Permanence

All three groundwater alternatives would likely achieve site remedial action objectives at or beyond the edge of the waste management area, as the area of groundwater contamination does not extend beyond the waste management area. Alternatives G-1 and G-2 would rely only on natural attenuation for the groundwater contamination beneath the waste management area. Alternative G-3 is intended to achieve site remedial action objectives throughout the area of groundwater contamination more quickly than Alternatives G-1 and G-2 through active remediation of the groundwater. However, under Alternative G-3, while some contaminant concentrations are expected to reach cleanup levels in a reasonable amount of time (approximately 10 years), modeling estimates that other contaminants would take considerably longer to reach cleanup levels.

- Reduction of Toxicity, Mobility, or Volume through Treatment

No reduction in toxicity, mobility, or volume of contamination present at the site through active remediation would occur for Alternatives G-1 and G-2; however, natural attenuation and degradation would reduce toxicity of the contaminants present over time particularly when soil source control measures are instituted. Alternative G-3 is intended to reduce the volume of contamination present at the site through extraction of contaminated groundwater using combination of pumping wells and collection trenches. In addition, the toxicity of the extracted groundwater would be reduced through treatment (metals precipitation and carbon adsorption) prior to on-site discharge of the water.

- Short-Term Effectiveness

No significant short-term health or environmental impacts would result from implementation of the no action and minimal action alternatives. The long-term groundwater monitoring program included in Alternative G-2 would pose only minimal health risks to workers performing the groundwater sampling and would be mitigated through use of appropriate personal protective equipment. Alternative G-3 would result in increased noise and traffic at the site during the four to six months required for installation of the groundwater collection and treatment systems. The small potential for adverse health effects to workers during installation of the pumping well and potential trenches would also be minimized through the use of personal protective equipment.

- Implementability

Both Alternatives G-2 and G-3 require implementation of institutional controls at the site and implementation of a long-term groundwater monitoring program. The institutional controls and groundwater monitoring program are implementable. Alternative G-3, collection and treatment of groundwater, would be more difficult to implement due to the need to install the collection system (pumping well and trenches), piping, and treatment system, but it is implementable from an engineering prospective.

- Cost

The capital, present-worth, and O&M costs for the ground water alternatives are summarized in Table 8. The present worth cost of $383,000 for Alternative G-2 is associated with the groundwater monitoring program over 30 years. The significantly greater cost of $6,607,000 for Alternative G-3 is associated with the construction of the groundwater collection and treatment system and its operation, including groundwater monitoring, over 30 years.

- State Acceptance

After review of all available information, the NYSDEC has indicated that it concurs with the selected alternative for the groundwater. NYSDEC's letter of concurrence is presented in Appendix IV of this document.

- Community Acceptance

Community acceptance of the groundwater preferred alternative has been assessed in the Responsiveness Summary portion of this ROD following review of the public comments received on the RI/FS report and Proposed Plan. All comments submitted during the public comment period were evaluated and are addressed in the attached Responsiveness Summary (Appendix V). Many of the public's concerns were related to potential contamination of their private wells. In general, the public was supportive of EPA's proposed remedy for the contaminated groundwater.

SELECTED REMEDY

The EPA has determined, upon consideration of the requirements of CERCLA, the detailed analysis of the various alternatives, and public comments, that Alternative S-3 (see Figure 3) for the soil in combination with Alternative G-2 for the groundwater is the appropriate remedy for the site.

The major components of the selected remedy are as follows:

Soil

- A 4.8-acre cap will be constructed over the central disposal area in conformance with the major elements described in 6 NYCRR Part 360 for solid waste landfill caps. Conceptually, the cap will be comprised of: 18 inches of clay or a suitable material to ensure a permeability of 10^{-7} cm/sec, 6 inches of porous material serving as a drainage layer, 18 inches of backfill, and 6 inches of topsoil and grass cover.

- Surface water controls consisting of concrete culverts will be installed around the perimeter of the cap and at other locations as necessary to ensure that runoff water does not erode the topsoil layer.

- Long-term maintenance program for the cap will to ensure cap integrity.

- To facilitate the construction of the cap, the existing asphalt and concrete pads, frame building, and shed will be removed and disposed of off site. Also, tanks will be cleaned and recycled off site.

- Contaminated soils above the RAOs in outlying areas (TU-1,6,7, and 8) will be excavated and moved to the central disposal area, where they will be graded with the material there in preparation for placement of the cap.

- Confirmatory samples will be collected from the bottom and sidewalls of the excavation. Following excavation and confirmatory sampling, the trench units will be backfilled with a clean fill and overlain with a 6-inch layer of clean topsoil and grass cover.

- Institutional controls such as deed restrictions will be implemented, to limit access and to prohibit interference with the cap.

Groundwater

- Implementation of a long-term groundwater monitoring program. As part of this effort, a series of monitoring wells will be installed between the site and the closest residences. During the first five years of the monitoring program, sampling will be conducted on both on- and off-site wells, including off-site private drinking water wells. Such wells will be monitored on an annual basis for metals and VOCs. In the event that contaminant levels remain below groundwater standards in the off-site wells during the five-year monitoring period, the monitoring program will be reevaluated. It is expected that once the cap has been constructed, groundwater quality should improve and, hence, a reduction in the scope and/or frequency of groundwater monitoring may be appropriate. The monitoring effort will include the investigation of possible pockets of contamination where anomalies in the data indicate the potential of groundwater contamination. If future monitoring indicates that groundwater contamination is not attenuating and may migrate off-site, additional groundwater remedial measures may be considered.

- Institutional controls such as deed restrictions, and/or well permitting restrictions, will be implemented to prevent human contact with contaminated groundwater at the site. These restrictions will be applied to both the shallow and bedrock aquifers at the site due to the detection of contaminants at levels exceeding NYSDOH drinking water standards and Federal MCLs in both aquifers and would prohibit the installation of new wells at the site intended for potable use. Nonpotable uses of site groundwater (e.g., watering) may be allowed.

Streams and Wetlands

No remedial action is presently planned for the streams and wetlands as there were no adverse impacts observed. During the Remedial Design, further ecological risk assessment will be performed as discussed below to confirm that the surroundings streams and wetlands have not been impacted.

- Perform a pre-design phase wetlands delineation and assessment of the delineated area in accordance with the State and Federal guidance which will include additional surface water and sediment samples to adequately quantify any chemical impacts on the streams and wetlands that may exist and, based on sampling results, perform a supplemental ecological risk analysis.

The goal of the remedial action is to contain the source area and to prevent further migration of contaminants to the groundwater to the extent practicable. Based on information obtained during the investigation, and the analysis of the alternatives, the selected alternatives will provide the best balance of trade-offs among alternatives with respect to the evaluating criteria. The EPA and the NYSDEC believe that the selected alternatives will be protective of human health and the environment, will comply with ARARs, will be cost-effective, and will reduce mobility of contaminants permanently by utilizing permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Capital Cost:	Soil - $ 1,043,000 Groundwater - $ 50,000
Annual O&M Costs:	Soil - $2,000 Groundwater -Year 1-5: $52,000 Year 6-30: $15,000
Present Worth Cost:	Soil - $ 1,458,000 Groundwater - $440,000

STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that when complete the selected remedial action for this site must comply with applicable, or relevant and appropriate environmental standards established under Federal and State environmental laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and utilize permanent solutions and alternative treatment technologies or resource-recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances, as available. The following sections discuss how the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The selected remedy is protective of human health and the environment. Capping of soils in the central disposal area is expected to be effective in preventing human contact with the wastes and contamination migration in surface water runoff. Contaminants will remain in soils. However, the cap would eliminate or reduce infiltration of precipitation, therefore minimizing the potential for migration of contaminants to groundwater. The excavation of the contaminated soils in outlying areas and placement under the central disposal area cap, will provide protection of both human and health and the environment for these areas by preventing leaching of such contaminants to groundwater. The institutional controls will help protect human health by preventing access to the contamination and future exposure of individuals to it.

The long-term monitoring of the groundwater will assess the rate of contamination migration and any natural attenuation of contaminant levels over time.

Compliance with ARARs

Action-specific ARARs for the site include Federal and State regulations for treatment, temporary storage, and disposal of wastes (40 CFR Part 256-268 and 6 NYCRR Part 360). The selected remedy will comply with these standards through capping of the central disposal area. In the outlying areas, remedial action objectives will be met through excavation and placement of these soils in the central disposal area. For groundwater, the principal ARARs include the Safe Drinking Water Act (SDWA) promulgated National Primary Drinking Water standards, including both the Maximum Contaminant Limits (MCLs) and the non-zero Maximum Contaminant Level Goals (MCLGs), and the New York State Groundwater and Surface Water Standards promulgated by NYSDEC. EPA believes that the selected groundwater alternative will comply with these ARARs at or beyond the edge of the waste management area.

Cost-Effectiveness

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital costs and O&M costs have been estimated and used to develop present worth costs. In the present-worth cost analysis, annual costs were calculated for thirty years (estimated life of an alternative) using a five percent discount rate and based on 1996 costs. The selected soil alternative has the lowest cost that will achieve the goals of the response actions. Alternatives S-1 and S-2 are less expensive but not deemed to be protective. Alternative G-1 is also not protective. Alternative G-2 through natural attenuation will meet the same goals as Alternative G-3 but at much lower cost.

The selected remedy is cost-effective because it will provide the best overall effectiveness proportional to its cost.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

By excavating the outlying areas and capping the contaminated soils in the central disposal area, and by implementing a long-term groundwater monitoring program, the selected remedy utilizes permanent solutions and treatment technologies to the maximum extent practicable.

Overall, the selected remedy (Alternatives S-3 and G-2) is considered to include the most appropriate solutions to contamination at the site because it provides the best balance of trade-offs among the alternatives with respect to the nine evaluative criteria.

Preference for Treatment as a Principal Element

The statutory preference for remedies that employ treatment as a principal element is not satisfied by the selected remedy. However, the selected remedy is nevertheless, protective of public health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes from the preferred alternative presented in the Proposed Plan.

APPENDIX I

FIGURES

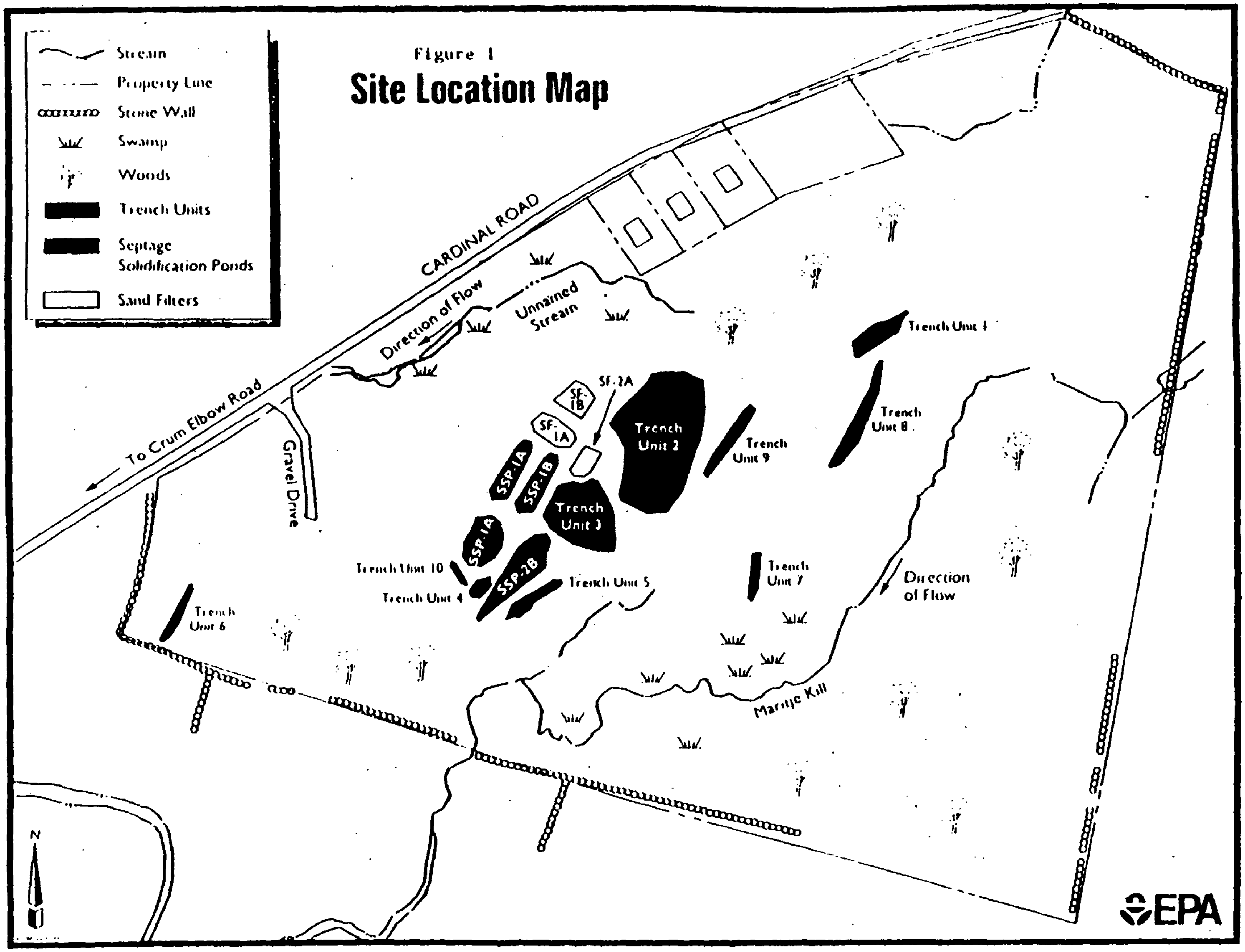
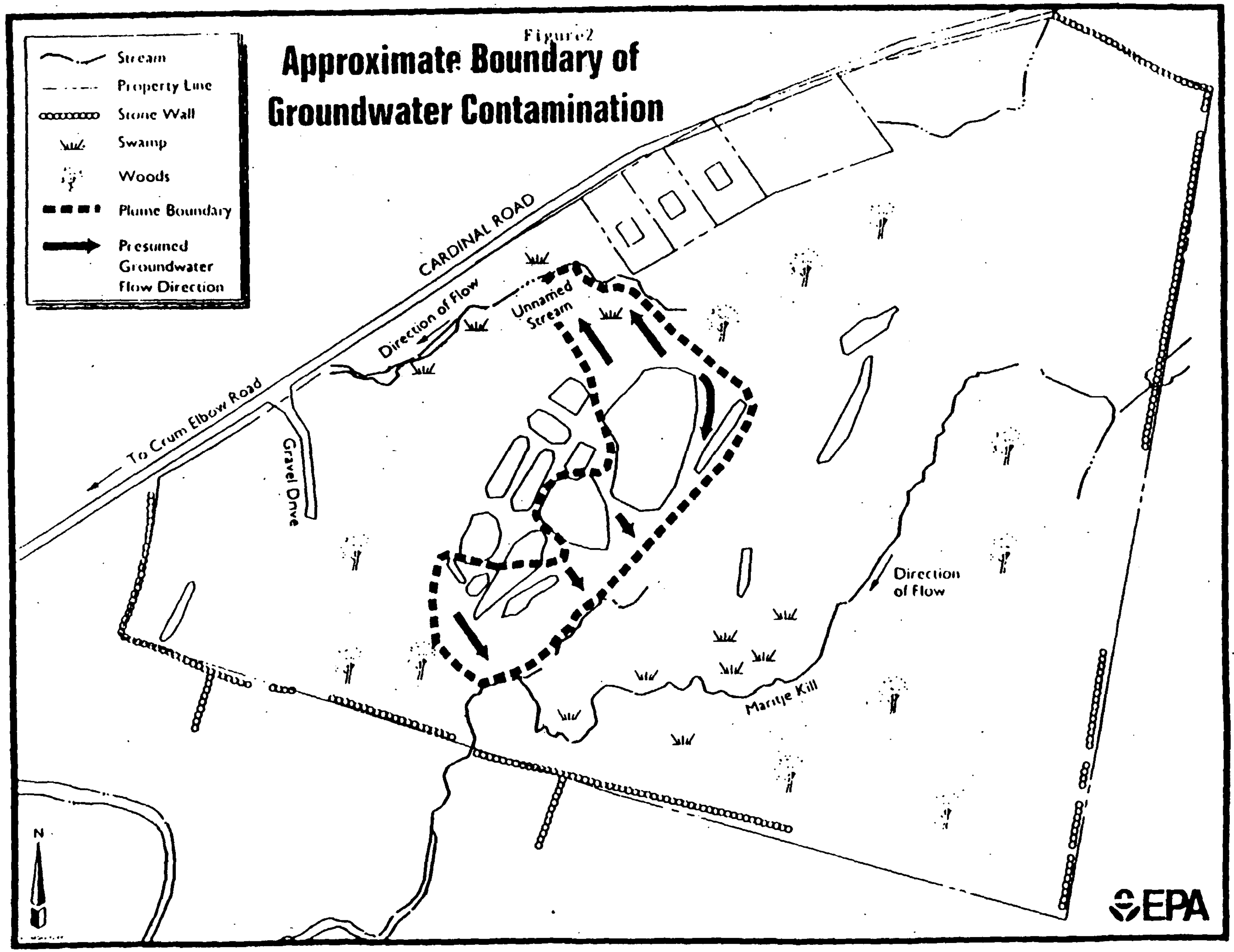


Figure 1
Site Location Map
Stream
Property Line
Stone Wall
Swamp
Woods
Trench Units
Septage Solidification Ponds
Sand Filters
CARDINAL ROAD
To Crum Elbow Road
Gravel Drive
Direction of Flow
Unnamed Stream
SF-1B
SF-1A
SF-2A
SSP-1A
SSP-1B
SSP-2B
Trench Unit 1
Trench Unit 2
Trench Unit 3
Trench Unit 4
Trench Unit 5
Trench Unit 6
Trench Unit 7
Trench Unit 8
Trench Unit 9
Trench Unit 10
Direction of Flow
Maritje Kill
N
EPA

Figure 2

Approximate Boundary of Groundwater Contamination



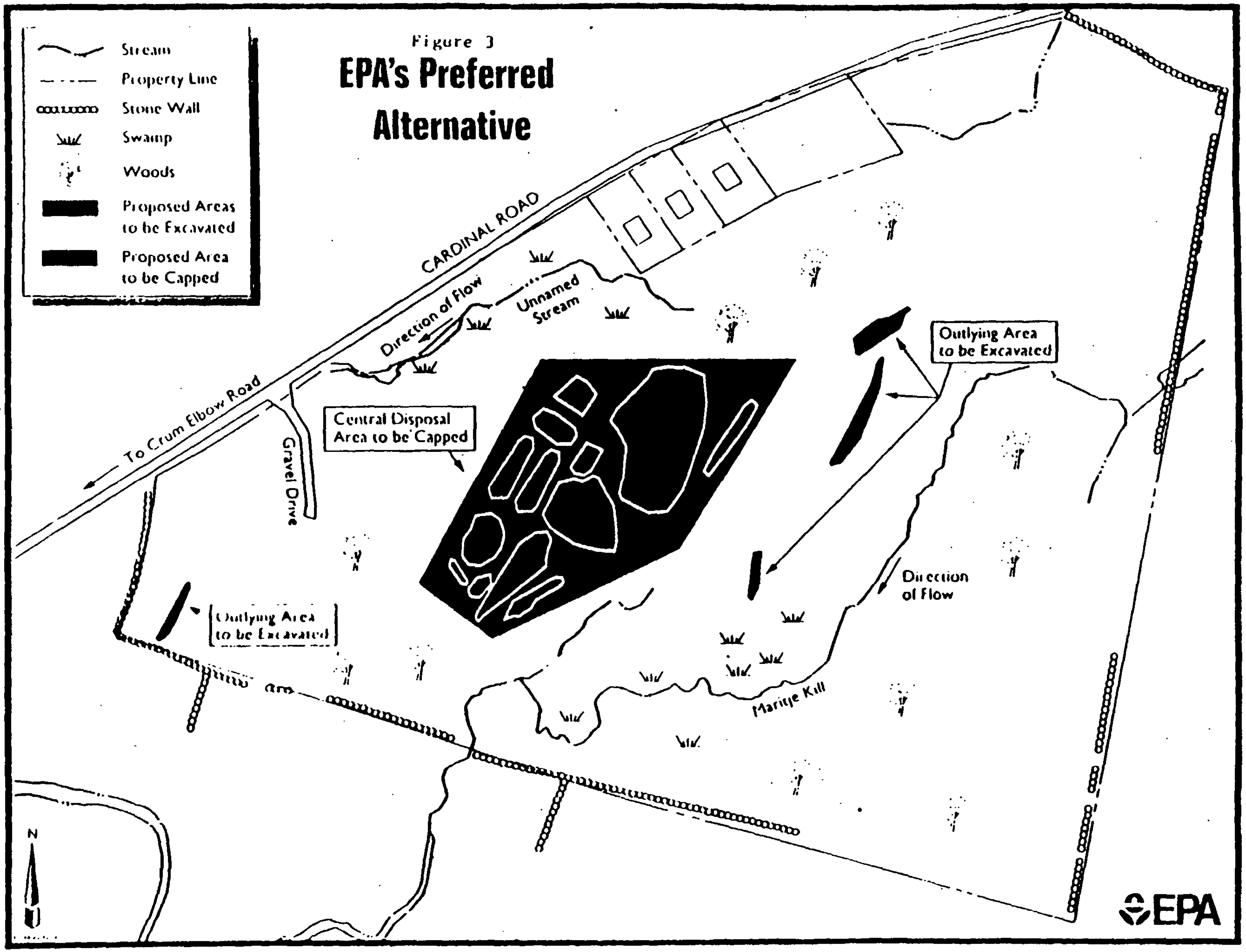
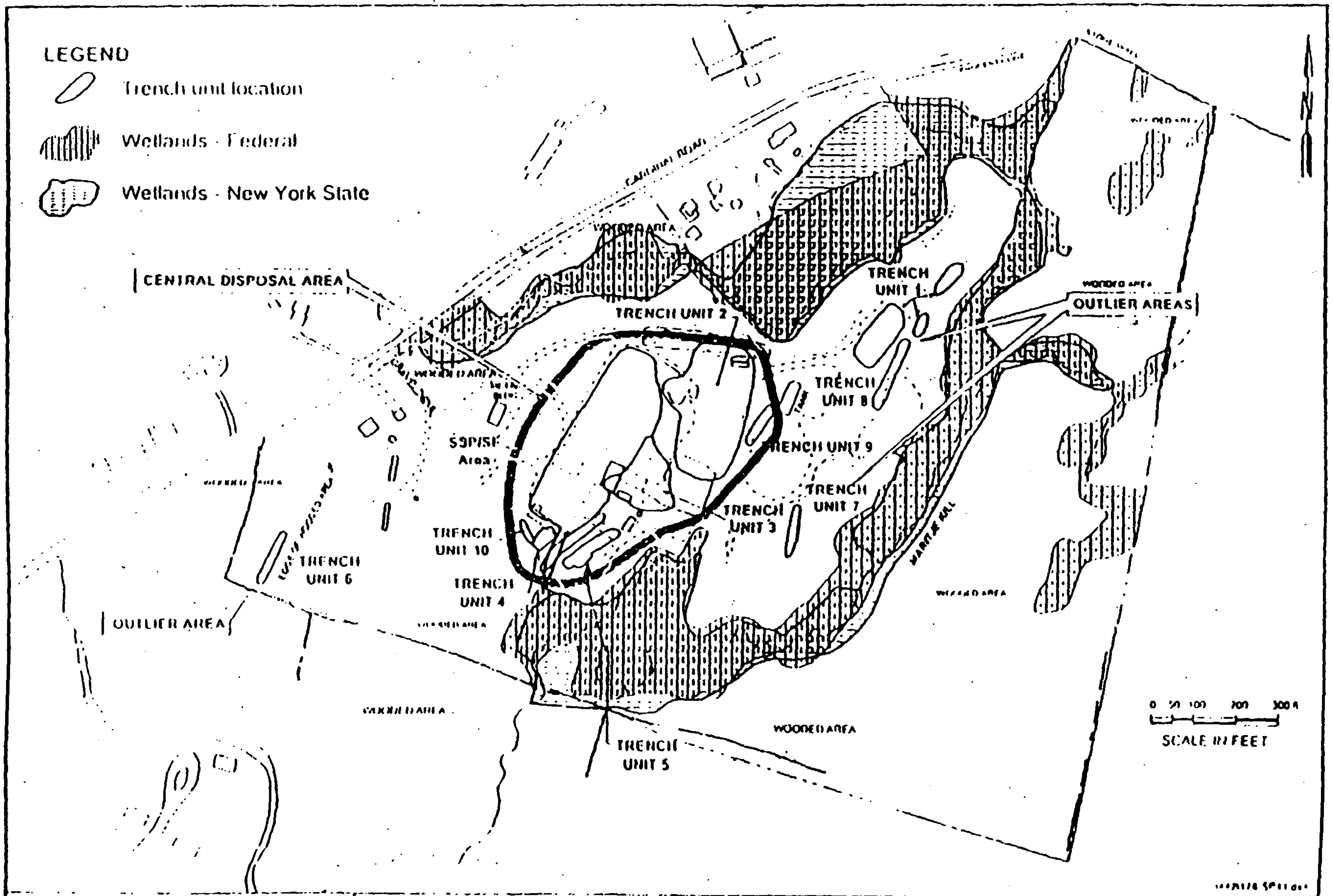


Figure 3
EPA's Preferred Alternative
Stream
Property Line
Stone Wall
Swamp
Woods
Proposed Areas to be Excavated
Proposed Area to be Capped
CARDINAL ROAD
To Crum Elbow Road
Direction of Flow
Unnamed Stream
Gravel Drive
Central Disposal Area to be Capped
Outlying Area to be Excavated
Outlying Area to be Excavated
Direction of Flow
Maritje Kill
N
EPA



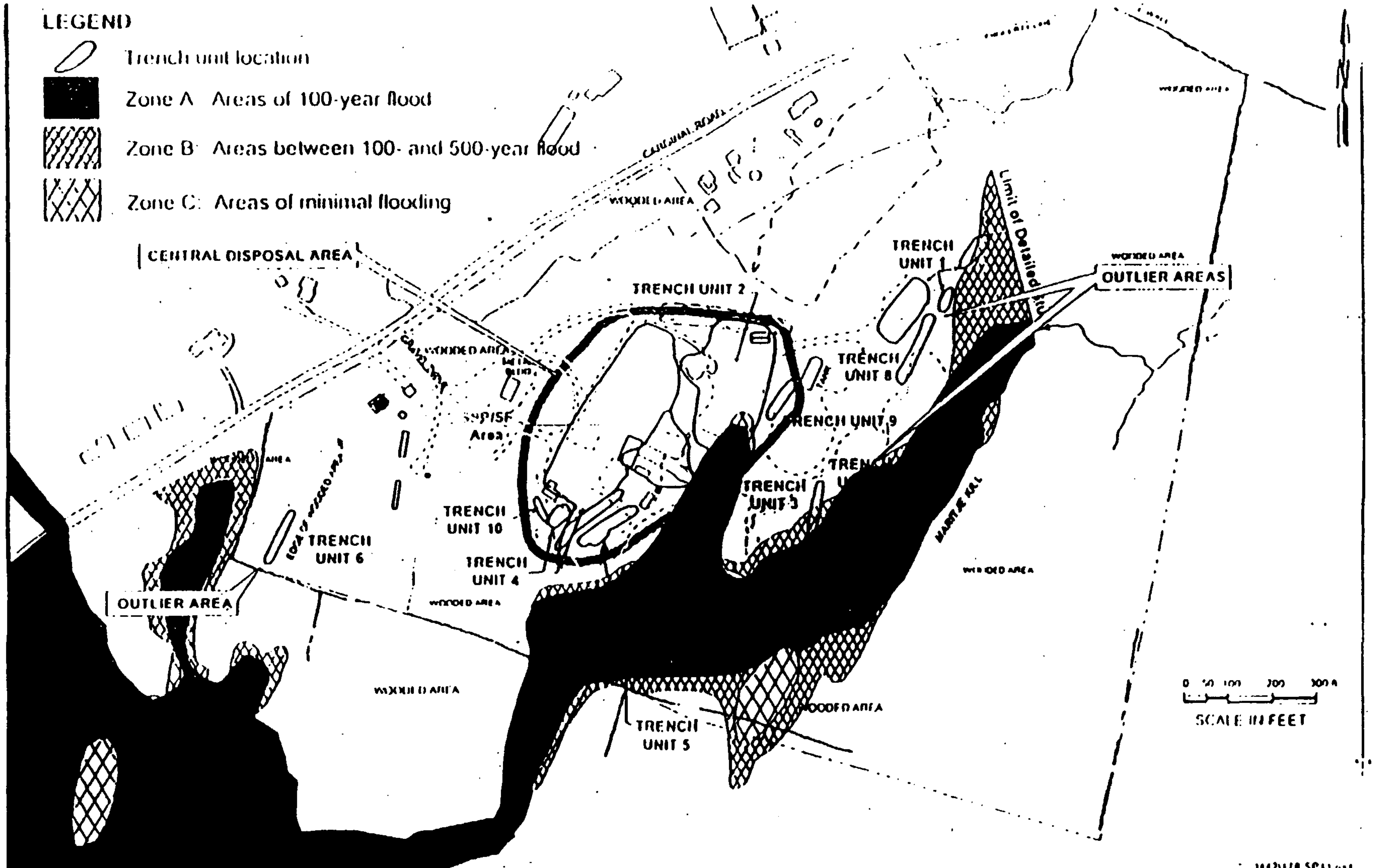
Lawler, Matusky & Skelly Engineers LLP

Approximate Waste Disposal Locations and Wetlands

JONES SANITATION - HYDE PARK, NEW YORK

Figure 4

[redacted]



LMS Lawler, Matusky & Skelly Engineers LLP

ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS

Approximate Waste Disposal Locations and Floodplains

JONES SANITATION - HYDE PARK, NEW YORK

Figure 5

APPENDIX II

TABLES

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND OTHER FEDERAL AND STATE STANDARDS, CRITERIA, AND ADVISORIES FOR COCs EXCEEDING PSALs

Jones Sanitation Site

ITEM	Benzene	Benzo(a)-anthracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Dibenzo(a,h)-anthracene
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS:					
Natural Ambient Air Quality Standards (mg/m³)	NS	NS	NS	NS	NS
Federal Drinking Water Standards MCL/MCLG (µg/l)	5.0/0	0.2/0	0.2/0	0.2/0	0.3*/0.0
NYS Class GA Groundwater Standards (µg/l)	0.7	0.002 GV	ND	0.002 GV	NS
NYS Class B Surface Water Standards (µg/l)	NS	NS	NS	NS	NS
OTHER FEDERAL AND STATE STANDARDS, CRITERIA AND ADVISORIES:					
NYS Recommended Soil Cleanup Objectives (mg/kg)	0.06	0.224 or MDL	0.061 or MDL	1.1	0.014
NYS Sediment Criteria (µg/gOC)	0.5*	NA	1.03[e,f]	NA	NA
Federal Ambient Water Quality Criteria, Human Health Only (µg/l)	0.66	0.0028	0.0028	0.0028	0.0028
EPA Drinking Water Health Advisory-DWEL (µg/l)	NA	NA	NA	NA	NA
NIOSH IDLH (mg/m³)	500[c]	80[c,d]	80[c,d]	80[c,d]	80[c,d]
OSHA PEL-TWA (mg/m³)	1	0.2[d]	0.2[d]	0.2[d]	0.2[d]

* - Proposed
a - Total phenols
b - Carcinogenic compound
c - IDLH based on noncarcinogenic effects only.
d - Value for coal tar pitch volatiles.
e - Human health bioaccumulation sediment criteria from Technical Guidance for Screening Contaminated Sediments (NYSDEC 1993)
f - Freshwater value
GV - Guidance value
NA - Not available
ND - Not detected
NS - No standard
SB - Site background
MDL - Method detection limit.

Table 1 (Page 2 of 5)

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND OTHER FEDERAL AND STATE STANDARDS, CRITERIA, AND ADVISORIES FOR COCs EXCEEDING PSALs

Jones Sanitation Site

ITEM	Indeno(1,2,3-cd)-pyrene	4-Methyl-phenol	PCBs	PCE	Vinyl Chloride
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS:					
Natural Ambient Air Quality Standards (mg/m³)	NS	NS	NS	NS	NS
Federal Drinking Water Standards-MCL/MCLG (µg/l)	0.2/0	NA	0.5/0	5/0	2/0
NYS Class GA Groundwater Standards (µg/l)	0.002 GV	1.0[g]	0.1	5	2
NYS Class B Surface Water Standards (µg/l)	NS	1.0[a]	0.001	1.0[j]	NS
OTHER FEDERAL AND STATE STANDARDS, CRITERIA AND ADVISORIES:					
NYS Recommended Soil Cleanup Objectives (mg/kg)	3.2	0.9	10[h]	1.4	0.2
NYS Sediment Criteria (µg/gOC)	NA	NA	0.0006[j]	0.6[j]	0.07[j]
Federal Ambient Water Quality Criteria, Human Health Only (µg/l)	0.0028	NA	0.000079	0.8	2
EPA Drinking Water Health Advisory-DWEL (µg/l)	NA	NA	NA	500	50
NIOSH IDLH (mg/m³)	80[b,d]	NA	5[b,i]	1,034[b]	NA
OSHA PEL-TWA (mg/m³)	0.2[d]	NA	0.5[i]	689	2.5

a - Total phenols
b - Carcinogenic compound
c - IDLH based on noncarcinogenic effects only
d - Value for coal tar pitch volatiles
g - Total unchlorinated phenols
h - Recommended soil cleanup objective for subsurface soils.
i - Based on Aroclor 1254
j - Guidance value; based on protection of human health from consumption of fish
NA - Not available
NS - No standard

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND OTHER FEDERAL AND STATE STANDARDS, CRITERIA, AND ADVISORIES FOR COCs EXCEEDING PSALs

Jones Sanitation Site

ITEM	Arsenic	Barium	Beryllium	Cadmium	Chromium
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS:					
Natural Ambient Air Quality Standards (mg/m^3)	NS	NS	NS	NS	NS
Federal Drinking Water Standards-MCL/MCLG (µg/l)	50/NA	2,000/2,000	4/4	5/5	100/100
NYS Class GA Groundwater Standards (µg/l)	25	1,000	NS	10	50
NYS Class B Surface Water Standards (µg/l)	190	NS	11[k]	[illegible]	[illegible]
OTHER FEDERAL AND STATE STANDARDS, CRITERIA AND ADVISORIES:					
NYS Recommended Soil Cleanup Objectives (mg/kg)	7.5 or SB	200 or SB	0.16 or SB	1	10 or SB
NYS Sediment Criteria (µg/gOC)	6[e]	NA	NA	0.6[m]	26
Federal Ambient Water Quality Criteria, Human Health Only (µg/l):	0.0022	1,000	0.0068	10	50
EPA Drinking Water Health Advisory-DWEL (µg/l)	NA	NA	NA	18	170
NIOSH IDLH (mg/m^3)	5[b]	50	4[b]	9	250
OSHA PEL-TWA (mg/m^3)	0.01	0.5	0.002	0.005	[illegible]

b - Carcinogenic compound.
e - Human health bioaccumulation sediment criteria from Technical Guidance for Screening Contaminated Sediments (NYSDEC 1993)
k - Assumes a hardness of less than 75 ppm.
l - Standard based on hardness of surface water body as determined by equation exp (0.78[illegible][ln (ppm hardness)] - 3.490)
m - Lowest Effect Level sediment criteria from Technical Guidance for Screening Contaminated Sediments (NYSDEC 1993)
n - Standard based on hardness of surface water body as determined by equation exp (0.819[ln (ppm hardness)] + 1.561)
NA - Not available.
NS - No standard
SB - Site background.

Table 1 (Page 4 of 5)

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND OTHER FEDERAL AND STATE STANDARDS, CRITERIA, AND ADVISORIES FOR COCs EXCEEDING PSALs

Jones Sanitation Site

ITEM	Copper	Manganese	Mercury	Nickel
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS:				
Natural Ambient Air Quality Standards (mg/m^3)	NS	NS	NS	NS
Federal Drinking Water Standards-MCL/MCLG (µg/l)	TT/1,300	NS	2/2	100/100
NYS Class GA Groundwater Standards (µg/l)	200	300[p]	2	NS
NYS Class B Surface Water Standards (µg/l)	[o]	NS	0.2 GV	[r]
OTHER FEDERAL AND STATE STANDARDS, CRITERIA AND ADVISORIES:				
NYS Recommended Soil Cleanup Objectives (mg/kg)	25 or SB	SB	0.1	13 or SB
NYS Sediment Criteria (µg/gOC)	16[m]	[illegible][m]	0.5	16
Federal Ambient Water Quality Criteria, Human Health Only (µg/l):	NA	100	0.114	13.4
EPA Drinking Water Health Advisory-DWEL (µg/l)	NA	NA	10	580
NIOSH IDLH (mg/m^3)	100	500	10	10[b]
OSHA PEL-TWA (mg/m^3)	1	5[q]	0.1	1

b - Carcinogenic compound
e - Human health bioaccumulation sediment criteria from Technical Guidance for Screening Contaminated Sediments (NYSDEC 1993)
m - Lowest Effect Level sediment criteria from Technical Guidance for Screening Contaminated Sediments (NYSDEC 1993)
o - Standard based on hardness of surface water body as determined by equation exp (0.8545 [ln(ppm hardness)] - 1.465)
p - Combined standard for iron and manganese of 500 µg/l.
q - Ceiling value-not to be exceeded limit.
r - Standard based on hardness of surface water body as determined by equation exp (0.76 [ln(ppm hardness)] + 1.06)
NA - Not available.
NS - No standard.
SB - Site background.
TT - Treatment technology

Table 1 (page 5 of 5)

CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS AND OTHER FEDERAL AND STATE STANDARDS, CRITERIA, AND ADVISORIES FOR COCs EXCEEDING PSALs

Jones Sanitation Site

ITEM	Silver	Zinc	Cyanide
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS:			
Natural Ambient Air Quality Standards (mg/m^3)	NS	NS	NS
Federal Drinking Water Standards-MCL/MCLG (µg/l)	100[s]	5,000[s]	200/200
NYS Class GA Groundwater Standards (µg/l)	50	300	100
NYS Class B Surface Water Standards (µg/l)	0.1	30	5.2
OTHER FEDERAL AND STATE STANDARDS, CRITERIA AND ADVISORIES:			
NYS Recommended Soil Cleanup Objectives (mg/kg)	SB	20 or SB	:
NYS Sediment Criteria (µg/gOC)	1	120	NA
Federal Ambient Water Quality Criteria, Human Health Only (µg/l):	50	NA	5.2
EPA Drinking Water Health Advisory DWEL (µg/l)	NA	NA	NA
NIOSH IDLH (mg/m^3)	10	NA	NA
OSHA PEL-TWA (mg/m^3)	0.01	NA	NA

s - Secondary Maximum Contaminant Level (SMCL); not legally enforceable
: - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.
NA - Not available.
NS - No standard.
SB - Site background.

Table 2

SITE REMEDIAL ACTION OBJECTIVES[a]

Jones Sanitation Site

ENVIRONMENTAL MEDIA	REMEDIAL ACTION OBJECTIVES
Soil	Organics:
	Tetrachloroethylene < 1,400 µg/kg[a]
	4-Methylphenol < 900 µg/kg[a]
	Fluoranthene < 50,000 µg/kg
	Pyrene < 50,000 µg/kg
	Benzo(a)anthracene < 220 µg/kg
	Benzo(b)fluoranthene < 1,100 µg/kg
	Benzo(a)pyrene < 61 µg/kg[a]
	Indeno(1,2,3-cd)pyrene < 3,200 µg/kg
	Dibenzo(a,h)anthracene < 14 µg/kg[a]
	PCBs < 10 mg/kg[a]
	Inorganics:
	Antimony < 9.6 mg/kg[b]
	Arsenic < 7.5 mg/kg[a]
	Barium < 300 mg/kg
	Beryllium < 1.3 mg/kg[b]
	Cadmium < 1 mg/kg[a]
	Chromium < 25.9 mg/kg
	Copper < 35.1 mg/kg[a]
	Manganese < 2,240 mg/kg[a]
	Mercury < 0.1 mg/kg
	Nickel < 41.1 mg/kg
	Silver < 1.9 mg/kg
	Vanadium < 150 mg/kg[b]
	Zinc < 141 mg/kg
	Cyanide < 0.06 mg/kg[c]
Groundwater	Organics:
	Benzene < 0.7 µg/l[a]
	Vinyl chloride < 2 µg/l[a]
	Inorganics:
	Arsenic < 25 µg/l[a]
	Barium < 1,000 mg/kg
	Beryllium < 4 µg/l[a]
	Manganese < 300 µg/l[a]

a - All COCs identified in baseline risk assessment included; however, a smaller subset of these identified with "a" accounted for 90% or more of the calculated risk.

b - These COCs as identified in baseline risk assessment did not exceed PSALs.

c - The remedial action objective for cyanide is based on the method detection limit.

<Disk No. DRIVE_? D:\DATA\JONESFIN.XLS Table 2-1 3/4/96 9:35:12 AM>

Table 3

SUMMARY OF REMEDIAL ACTION OBJECTIVE EXCEEDANCES IN OVERBURDEN WELLS

Jones Sanitation Site

CONTAMINANT	PSAL	NUMBER OF WELLS EXCEEDING PSAL[a]	RANGE OF CONCENTRATIONS DETECTED
VOCs (μg/l):			
Benzene	0.7	5	1-65
Chlorobenzene	5	4	14-110
1,3-Dichlorobenzene	5	1	11
1,4-Dichlorobenzene	4.7	2	8-15
1,2-Dichlorobenzene	4.7	2	10-12
METALS (μg/l)[b]:			
Aluminum	37,600	4	52,900-194,000
Arsenic	25	1	33
Barium	1,000	2	1,370-3,120
Beryllium	4	2	7.5-9.9
Calcium	85,200	6	100,000-219,000
Chromium	167	2	197-351
Cobalt	49.5	4	60.8-311
Copper	200	4	295-778
Iron	90,400	4	95,500-548,000
Lead	43.7	6	45.3-395
Magnesium	14,000	7	15,000-66,200
Manganese	5,480	3	18,900-88,300
Nickel	132	3	237-399
Potassium	5,490	6	6,520-16,700
Selenium	10	1	27.1
Sodium	20,000	5	51,400-90,000
Vanadium	42.2	4	53.7-166
Zinc	1,350	4	1,390-10,900

a - Number of overburden wells with concentrations of the contaminant exceeding the PSAL out of the 13 overburden wells sampled during the RI.

b - Total (unfiltered) metals concentrations

Table 4

SUMMARY OF REMEDIAL ACTION OBJECTIVE EXCEEDANCES IN BEDROCK WELLS

Jones Sanitation Site

CONTAMINANT	PSAL	NUMBER OF WELLS EXCEEDING PSAL[a]	RANGE CONCENTRATIONS DETECTED
VOCs (µg/l):			
Vinyl chloride	2	1	5
cis-1,2-Dichloroethane	5	2	11-37
Benzene	0.7	1	24
Tetrachloroethylene	5	1	7
METALS (µg/l)[b]:			
Calcium	85,200	9	96,600-176,000
Magnesium	14,000	9	15,200-36,900
Manganese	5,480	1	6,360
Potassium	5,490	2	7,060-26,400
Sodium	20,000	11	22,000-92,800

a - Number of bedrock wells with concentrations of the contaminant exceeding the PSAL out of the 15 bedrock wells sampled during the RI.

b - Total (unfiltered) metals concentrations.

Table 5

CONTAMINANTS OF CONCERN EVALUATED IN THE BASELINE RISK ASSESSMENT

Jones Sanitation Site

SOIL		GROUNDWATER
Antimony[a]	Fluoranthene	Arsenic
Arsenic	Indeno(1,2,3-cd)pyrene	Barium
Barium	Manganese	Benzene
Benzo(a)anthracene	Mercury	Beryllium
Benzo(b)fluoranthene	4-Methylphenol	Manganese
Benzo(a)pyrene	Nickel	Vinyl chloride
Beryllium[a]	PCBs	
Cadmium	Pyrene	
Chromium	Silver	
Copper	Tetrachloroethylene	
Cyanide	Vanadium[a]	
Dibenzo(a,h)anthracene	Zinc	

SURFACE WATER	SEDIMENT
Manganese	Arsenic
	Barium
	Cadmium
	Chromium
	Copper
	Manganese
	Vanadium

a - Concentrations did not exceed PSAL

Table6 (page 1of 4)

Summary of Potential Receptors and Possible Exposure Pathways

Jones Sanitation Site

Hyde Park, New York

Potential Receptor	Exposure Medium	Exposure Pathway	Type of Evaluation	Reason for Inclusion/Exclusion
Current and Future Recreator Adult/Child	Soil	Incidental ingestion of surface soil	Quantitative	Site is not fenced and is accessible to nearby residents
		Dermal contact with surface soil	Quantitative	Site is not fenced and is accessible to nearby residents
		Inhalation of vapors volatilizing from soil into ambient air	Not Evaluated	Pathway considered insignificant; only 1 volatile organic COC (tetrachloroethene); exposure point concentration is low (1.6 mg/kg)
		Inhalation of fug[illegible] dust derived from contaminated soil	Not Evaluated	Pathway considered insignificant due to vegetative cover, no exposed soil
	Surface Water	Incidental ingestion of surface water	Quantitative	Two small streams run through the site; site is accessible to nearby residents
		Dermal contact with surface water	Not Evaluated	Considered insignificant due to negligible dermal absorption of inorganic COCs; no organic COCs in surface water
		Ingestion of fish	Not Evaluated	Off-site pond is too shallow to support fish
	Sediment	Incidental ingestion of of sediment	Quantitative	Two small streams run through the site; site is accessible to nearby residents
		Dermal contact with sediment	Not Evaluated	Considered insignificant due to negligible dermal absorption of inorganic COCs; no organic COCs in sediment
		Ingestion of fish	Not Evaluated	Off-site pond is too shallow to support fish

Table 6 (page 2 of 4)

Summary of Potential Receptors and Possible Exposure Pathways
Jones Sanitation Site
Hyde Park, New York

Potential Receptor	Exposure Medium	Exposure Pathway	Type of Evaluation	Reason for Inclusion/Exclusion
Future Resident Adult/Child	Soil	Incidental ingestion of soil	Quantitative	Property zoned residential
		Dermal contact with soil	Quantitative	Property zoned residential
		Inhalation of vapors volatilizing from soil into indoor air	Not Evaluated	Pathway considered insignificant; only 1 volatile organic COC (tetrachloroethene); exposure point concentration is low (1.6 mg/kg)
		Inhalation of fugitive dust derived from contaminated soil	Not Evaluated	Pathway considered insignificant due to vegetative cover; no exposed soil
	Groundwater	Ingestion of groundwater	Quantitative	Property zoned residential; assumed water supply well intercepts contaminated groundwater
		Dermal contact with groundwater	Quantitative	Property zoned residential; assumed water supply well intercepts contaminated groundwater
		Inhalation of vapors volatilizing from groundwater during showering	Quantitative	Property zoned residential; assumed water supply well intercepts contaminated groundwater
		Inhalation of vapors volatilizing from groundwater into indoor air (basement infiltration)	Not Evaluated	Pathway considered insignificant; only 2 volatile organic COCs (benzene, vinyl chloride); exposure point concentrations are low (7 and 1.37 µg/L)
	Surface Water	Incidental ingestion of surface water	Quantitative	Two small [illegible] through the site
		Dermal contact with surface water	Not Evaluated	Considered insignificant due to negligible dermal absorption of inorganic COCs; no organic COCs in surface water
		Ingestion of fish	Not Evaluated	Off-site pond is too shallow to support fish

Table 6 (Page 3of4)

Summary of Potential Receptors and Possible Exposure Pathways

Jones Sanitation Site

Hyde Park, New York

Potential Receptor	Exposure Medium	Exposure Pathway	Type of Evaluation	Reason for Inclusion/Exclusion
Future Resident Adult/Child	Sediment	Incidental ingestion of sediment	Quantitative	Two small streams run through the site
		Dermal contact with sediment	Not Evaluated	Considered insignificant due to negligible dermal absorption of inorganic COCs; no organic COCs in sediment
		Ingestion of fish	Not Evaluated	Off-site pond is too shallow to support fish
Current Resident Adult/Child	Soil	Incidental ingestion of soil	Not Evaluated	Future resident would have higher exposure to site subsurface soil
		Dermal contact with soil	Not Evaluated	Future resident would have higher exposure to site subsurface soil
		Inhalation of vapors volatilizing from soil into indoor air	Not Evaluated	Same exposure as future resident
		Inhalation of fugitive dust derived from contaminated soil	Not Evaluated	Same exposure as future resident
	Groundwater	Ingestion of groundwater	Not Evaluated	Future resident would have higher exposure due to assumed use of site groundwater by future resident
		Dermal contact with groundwater	Not Evaluated	Future resident would have higher exposure due to assumed use of site groundwater by future resident
		Inhalation of vapors volatilizing from groundwater during showering	Not Evaluated	Future resident would have higher exposure due to assumed use of site groundwater by future resident
		Inhalation of vapors volatilizing from groundwater into indoor air (basement infiltration)	Not Evaluated	Same exposure as future resident

Table 6 (Page 4 of 4)

Summary of Potential Receptors and Possible Exposure Pathways
Jones Sanitation Site
Hyde Park, New York

Potential Receptor	Exposure Medium	Exposure Pathway	Type of Evaluation	Reason for Inclusion/Exclusion
Current Resident Adult/Child	Surface Water	Incidental ingestion of surface water	Not Evaluated	Same exposure as future resident
		Dermal contact with surface water	Not Evaluated	Same exposure as future resident
		Ingestion of fish	Not Evaluated	Same exposure as future resident
	Sediment	Incidental ingestion of sediment	Not Evaluated	Same exposure as future resident
		Dermal contact with sediment	Not Evaluated	Same exposure as future resident
		Ingestion of fish	Not Evaluated	Same exposure as future resident

Table 7

Carcinogenic and Noncarcinogenic Toxicity Values
for Chemicals of Concern
Jones Sanitation Site
Hyde Park, New York

Chemical	Weight-of-Evidence Classification	Carcinogenic: Oral Slope Factor (mg/kg-day)-1	Carcinogenic: Inhalation Slope Factor (mg/kg-day)-1	Chronic Noncarcinogenic: Oral Reference Dose (mg/kg-day)	Chronic Noncarcinogenic: Inhalation Reference Conc. (mg/m3)
Antimony	NE (a)	---	---	0.0004 (a)	---
Arsenic	A (a)	1.75 (a)	15.1 (c)	0.0003 (a)	---
Barium	NE (a)	---	---	0.07 (a)	0.0005 (c)
Benzene	A (a)	0.029 (a)	0.029 (a)	---	---
Benzo(a)anthracene	B2 (a)	0.73 (d)	---	---	---
Benzo(a)pyrene	B2 (a)	7.3 (a)	---	---	---
Benzo(b)fluoranthene	B2 (a)	0.73 (d)	---	---	---
Beryllium	B2 (a)	4.3 (a)	8.4 (c)	0.005 (a)	---
Cadmium	B2 (a)	---	6.1 (c)	0.001 (a)	---
Chromium	A (a)	---	41 (a)	0.005 (a)	---
Copper	D (a)		---	0.037 (c)	---
Dibenzo(a,h)anthracene	B2 (a)	7.3 (d)	---	---	---
Fluoranthene	D (a)	---	---	0.04 (a)	---
Indeno(1,2,3-cd)pyrene	B2 (a)	0.73 (d)	---	---	---
Manganese (food)	D (a)		---	0.14 ([illegible])	0.0004 (a)
Manganese (water)	D (a)		---	0.005 (a)	0.0004 (a)
Mercury	D (a)		---	0.0003 (c)	0.0003 (c)
Methylphenol, 4-	C (a)		---	0.005 (c)	---
Nickel	NE (a)	---	---	0.02 (a)	---
Polychlorinated biphenyls (PCBs)	B2 (a)	7.7 (a)	---	---	---
Pyrene	D (a)	---	---	0.03 (a)	---
Silver	D (a)		---	0.005 (a)	---
Tetrachloroethene	C-B2 (b)	0.052 (b)	0.002 (b)	0.01 (a)	---
Vanadium	NE (a)		---	0.007 (c)	---
Vinyl chloride	A (c)	1.9 (c)	0.3 (c)	---	---
Zinc	D (a)		---	0.3 (a)	---

Notes:
(a) U.S. EPA Integrated Risk Information System (IRIS) 1994, as cited in The Electronic Handbook of Risk Assessment Values, Bellevue, WA, 1994
(b) U.S. EPA Environmental Criteria and Assessment Office (ECAO) 1993, as cited in The Electronic Handbook of Risk Assessment Values, Bellevue, WA, 1994
(c) U.S. EPA Health Effects Assessment Summary Tables (HEAST) 1993, as cited in The Electronic Handbook of Risk Assessment Values, Bellevue, WA, 1994
(d) Value based on the CSF for benzo(a)pyrene and Toxicity Equivalency Factor (TEF) approach for polyaromatic hydrocarbons provided in 1992 U.S. EPA Region IV guidance
NE indicates not evaluated
--- indicates information not available.

Table 8

Cost Comparison of the Soil Remedial Alternatives

ALTERNATIVE	Capital Cost[1]	Annual O&M Cost[2]	Total Present Worth Cost[3]
S-1: No Action	0	0	0
S-2: Minimal Action	286,000	2,000	317,000
S-3: Capping of Central Disposal Area & Placement of Outlying Soils Beneath Central Disposal Area	1,043,000	27,000	1,458,000
S-4: In-Situ Treatment of Central Disposal Area 1	4,997,000	2,000	5,028,000
S-5: Excavate All Areas	7,142,000	0	7,142,000

Cost Comparison of the Groundwater Remedial Alternatives

ALTERNATIVE	Capital Cost[1]	Annual O&M Cost[2]	Total Present Worth Cost[3]
G-1: No Action	0	0	0
G-2: Minimal Action	0	*Year 1–5* 52,000 *Year 6–30* 15,000	383,000
G-3: Groundwater Collection & Treatment	1,678,000	*Year 1* 379,000 *Year 2-5* 364,000 *Year 6–30* 323,000	6,607,000

1 Capital Cost: Includes costs associated with equipment, site preparation, and treatment of the Central Disposal Area
2 O&M means "Operations and Maintenance"
3 Total Present Worth Cost: The amount of money that EPA would have to invest now at 5% interest in order to have the appropriate funds available at the actual time the remedial alternative is implemented
4 In situ means "in place"

APPENDIX III

ADMINISTRATIVE RECORD INDEX

JONES SANITATION SITE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

1.0 SITE IDENTIFICATION

1.1 Background - RCRA and other Information

P. 100001-100176 Report: Engineering Investigations at Inactive Hazardous Waste Sites in the State of New York, Phase I - Preliminary Investigation, Jones Sanitation, prepared for NYSDEC, prepared by Woodward-Clyde Consultants, Inc., September 30, 1983. (Note: Pages 100070 - 100074 of this document are CONFIDENTIAL. They are located at U.S. EPA ,Superfund Records Center, 290 Broadway, 18th floor, New York, New York, 10007-1866).

P. 100177-100223 Report: Stage IA - SEQR FORM, Cultural Resource Investigation for the Jones Sanitation, Dutchess County, N.Y., prepared for Mr. Brian Kilcoyne, Field Operations Manager, ChemCycle Corporation, prepared by Collamer & Associates, Inc., April 10, 1992.

P. 100224-100252 Report: Site Analysis, Jones Sanitation, Hyde Park, New York, prepared by U.S. EPA, July 1991.

3.0 REMEDIAL INVESTIGATION

3.1 Sampling and Analysis Plans

P. 300001-300179 Plan: Sampling and Analysis Plan For Remedial Investigation/Feasibility Study for the Jones Sanitation Site, Hyde Park, New York, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, September 1991.

P. 300180-300358 Plan: Revised Sampling and Analysis Plan for Remedial Investigation/Feasibility Study for the Jones Sanitation Site, Hyde Park, New York, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, June 1992.

3.2 Sampling and Analysis Data/Chain of Custody Forms

P. 300359- 300422 Data Package: Results of Examination for Samples taken on June 13, 1995, Final Report, prepared by New York State Department of Health, Wadsworth Center, July 13, 1995. (Note: This data package is CONFIDENTIAL. It is located at U.S. EPA, Superfund Records Center, 290 Broadway, 18th floor, New York, New York, 10007-1866).

3.3 Work Plans

P. 300422A- 300535 Plan: Final Revised RI/FS Work Plan, Jones Sanitation Site, Hyde Park, New York, Volume I - RI/FS Work Plan, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, September 1991.

P. 300536- 300658 Plan: Health and Safety Plan, Jones Sanitation Site, Hyde Park, New York, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, June 1992.

P. 300659- 300755 Plan: Quality Assurance Project Plan, Jones Sanitation Site, Hyde Park, New York, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, September 1993.

3.4 Remedial Investigation Reports

P. 300756- 300989 Report: Soil Gas Survey, Jones Sanitation Site, Hyde Park, New York, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, June 1992.

P. 300990- 301103 Report: Monthly Progress Report 14: May 1 through May 31, 1992, Jones Sanitation Site, Hyde Park, New York, prepared for U.S. EPA, Region II, prepared by ChemCycle Corporation, June 12, 1992. (Note: This document is CONFIDENTIAL. It is located at U.S. EPA ,Superfund Records Center, 290 Broadway, 18th floor, New York, New York, 10007-1866).

P. 301104- 301361 Report: Revised Preliminary Site Characterization Summary, Jones Sanitation Site, Hyde Park, New York, Volume II - Appendix, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, May 1993.

P. 301362- 301458 Report: Revised Preliminary Site Characterization Summary, Jones Sanitation Site, Hyde Park, New York, Volume I - Report, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, November 1993.

P. 301459- 301588 Report: Ecological Risk Assessment for Jones Sanitation Site, Including NYSDEC Fish and Wildlife Impact Analysis, prepared for ChemCycle Corporation, prepared by CDR Environmental Specialists Incorporated, March 1994.

P. 301589- 301796 Report: Baseline Risk Assessment: Jones Sanitation Site, Hyde Park, New York, prepared for ChemCycle Corporation, prepared by Gradient Corporation, August 1994.

P. 301797- 302171 Report: Baseline Risk Assessment: Jones Sanitation Site, Hyde Park, New York, Appendix E, IRIS Files and Toxicity Profiles, prepared for ChemCycle Corporation, prepared by Gradient Corporation, August 1994.

P. 302172- 302361 Report: Remedial Investigation, Jones Sanitation Site, Hyde Park, New York, Volume I - Report, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, April 1995.

P. 302362- 302697 Report: Remedial Investigation, Jones Sanitation Site, Hyde Park, New York, Volume II - Appendices, prepared for Alfa-Laval, Inc., prepared by ChemCycle Corporation, April 1995.

3.5 Correspondence

P. 302698- 302700 Letter to Ms. Linda Wood, Project Manager, U.S. EPA, Region II, from Mr. James B. Lister, Bureau of Remedial Action, Division of Hazardous Waste Remediation, NYSDEC, re: Draft Remedial Investigation, Jones Sanitation ID No. 314012, October 5, 1994.

P. 302701- 302702 Letter to Ms. Linda Wood, Project Manager, U.S. EPA, Region II, from Mr. James B. Lister, Bureau of Remedial Action, Division of Hazardous Waste Remediation, NYSDEC, re: Remedial Investigation Report, Jones Sanitation ID No. 314012, May 10, 1995.

P.	302703-302705	Letter to Ms. Linda Wood, Project Manager, U.S. EPA, Region II, from Mr. James B. Lister, Bureau of Remedial Action, Division of Hazardous Waste Remediation, NYSDEC, re: Ecological Risk Assessment, Jones Sanitation ID No. 314012, August 15, 1994.
P.	302706-302708	Memorandum to list of addressees, from Mr. Stephen D. Luftig, Director, Office of Emergency and Remedial Response, U.S. EPA, re: Revised Policy on Performance of Risk Assessments During Remedial Investigation/Feasibility Studies (RI/FS) Conducted by Potentially Responsible Parties, January 26, 1996.

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Reports

P.	400001-400186	Report: Feasibility Study, Jones Sanitation Site, Hyde Park, New York, prepared by Lawler, Matusky & Skelly Engineers LLP, March 1996.

4.6 Correspondence

P.	400187-400197	Memorandum to list of addressees, from Mr. Elliot P. Laws, Assistant Administrator, U.S. EPA, re: Land Use in the CERCLA Remedy Selection Process, May 25, 1995.
P.	400198-400199	Letter to Ms. Linda Wood, Project Manager, U.S. EPA, Region II, from Mr. James B. Lister, Bureau of Remedial Action, Division of Hazardous Waste Remediation, NYSDEC, re: Draft Feasibility Study, Jones Sanitation DEC ID No. 314012, August 15, 1995.
P.	400200-400200	Letter to Ms. Isabel Rodrigues, Project Manager, U.S. EPA, Region II, from Mr. James B. Lister, Bureau of Remedial Action, Division of Hazardous Waste Remediation, NYSDEC, re: Draft Final Feasibility Study, Jones Sanitation DEC ID No. 314012, April 5, 1996.

7.0 ENFORCEMENT

7.4 Consent Decrees

P. 700001- 700034 Administrative Order on Consent for Remedial Investigation/Feasibility Study In The Matter of The Jones Sanitation Site, March 26, 1991.

8.0 HEALTH ASSESSMENTS

8.1 ATSDR Health Assessments

P. 800001- 800005 Report: Preliminary Health Assessment for Jones Sanitation Landfill (Jones Septic site), Hyde Park, Dutchess County, New York, prepared by Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Public Health Service, July 7, 1988.

P. 800006- 800020 Report: Site Review and Update, Jones Sanitation Site, Town of Hyde Park, Dutchess County, New York, prepared by New York State Department of Health under a cooperative agreement with the ATSDR, August 15, 1996.

10.0 PUBLIC PARTICIPATION

10.2 Community Relations Plans

P. 1000001- 1000032 Plan: Draft Community Relations Plan, Jones Sanitation, Hyde Park, New York, Community Relations Support, prepared for U.S. EPA, Region II, prepared by Alliance Technologies Corporation, May 7, 1992.

APPENDIX IV

STATE LETTER OF CONCURRENCE

New York State Department Of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7010

John P. Cahill
Acting Commissioner

Ms. Jeanne Fox
Regional Director
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, NY 10007-1866

Dear Ms. Fox:

Re: Draft Record of Decision
Jones Sanitation ID No. 314012

In response to the draft Record of Decision (ROD) for the Jones Sanitation site, ID No. 314012, submitted by your office, I wish to concur with the remedial action plan as put forth in the ROD. This remedy includes:

-Construction of a Part 360 cap over the central area, after the contaminated soils from the outlying areas are excavated and graded over the central area;
-Removal of any tanks, to be cleaned and recycled offsite;
-Removal of concrete and asphalt pads and an existing structure and disposal of all as C&D waste offsite;
-Implementation of a groundwater monitoring program that includes annual monitoring of on-site monitoring wells and off-site homeowner wells for VOC's and metals for a minimum of five (5) years after which a reevaluation of the monitoring program will be conducted;
-Installation of several additional monitoring wells:
-Implementation of institutional controls through deed restrictions, to prevent the development of the capped area and to prohibit the installation of new wells for potable use.

If you have any questions please contact Mr. Lister at (518) 457-3976.

Sincerely,

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

c: K. Lynch/I. Rodrigues

Post-it® Fax Note 7671	Date 3/27	# of pages ▶ 1
To I. Rodrigues	From H Chen	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # (212) 637-4284	Fax #	

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

JONES SANITATION SITE

1. INTRODUCTION

A responsiveness summary is required by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 CFR 300.430(f)(3)(F). It provides a summary of comments and concerns received during the public comment period, and the United States Environmental Protection Agency's (EPA's) and the New York State Department of Environmental Conservation's (NYSDEC's) responses to those comments and concerns. All comments summarized in this document have been considered in EPA and NYSDEC's final decision for selecting a remedial alternative for the Jones Sanitation site.

This Responsiveness Summary is organized into the following sections:

2.0 SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

This section summarizes the involvement of EPA as the lead agency for community relations at the Site.

3.0 SUMMARY OF COMMENTS RECEIVED DURING PUBLIC MEETING AND EPA'S RESPONSES

This section summarizes both verbal and written comments submitted to EPA by local residents at the public meeting and provides EPA's responses to these comments.

4.0 SUMMARY OF PRP COMMENTS AND EPA's RESPONSES

This section summarizes written comments submitted to EPA by the Potentially Responsible Party (PRP) during the public comment period and EPA's response to these comments.

5.0 APPENDICES

There are four appendices attached to this document. They are as follows:

APPENDIX A: Proposed Plan

APPENDIX B: Public Notices that were printed in the Poughkeepsie Journal and the Hyde Park Townsman to announce the public meeting.

APPENDIX C: Sign-in sheets of attendees at the March 13, 1997 public meeting.

APPENDIX D: Written comments received by EPA during the public comment period which are summarized in Sections 3.0 of the Responsiveness Summary.

2.0 SUMMARY OF COMMUNITY RELATIONS ACTIVITIES.

EPA held a public comment period from February 21 through March 22, 1997 for interested citizens to comment on EPA's Proposed Plan for the Jones Sanitation Site in the Town of Hyde Park, Dutchess County, New York.

EPA's Proposed Plan described the remedial alternatives that the Agency considered to remediate contaminated soil and groundwater at the Jones Sanitation Site and identified EPA's preferred remedial alternatives with the rationale for these preferences. The Proposed Plan was developed by EPA in consultation with NYSDEC.

EPA held a public meeting on Thursday, March 13, 1997, at the Roosevelt Engine Co. #1, 9 Cardinal Road, Hyde Park, New York. During the meeting, representatives from EPA, NYSDEC, and the New York State Department of Health (NYSDOH) answered questions and received verbal and written comments on the Proposed Plan and the other remedial alternatives under consideration.

In addition to comments received at the public meeting, EPA received written comments during the public comment period regarding its Proposed Plan. EPA's responses to these comments are included in this Responsiveness Summary which is appended to, and a part of, the Record of Decision, the document which describes the selected remedy for cleaning up the site. All comments summarized in this Responsiveness Summary were considered prior to EPA's final determination of the selected remedy.

There was little public interest in the Site prior to the release of EPA's Proposed Plan in February 1997. The notice of availability of the final Proposed Plan for the Jones Sanitation Site was published in the Poughkeepsie Journal on Friday, February 21, 1997, and in the Hyde Park Townsman on Thursday, February 27, 1997. A copy of the public notice is attached as Appendix B.

A transcript of the March 13, 1997 public meeting is available at the information repository at the Hyde Park Free Public Library. The sign-in sheets from the public meeting are attached as Appendix C.

This Responsiveness Summary and Record of Decision, along with the Administrative Record for the site, are available at the information repository referenced above.

3.0 SUMMARY OF COMMENTS RECEIVED DURING PUBLIC MEETING AND EPA's RESPONSES

Comments and questions expressed at the March 13, 1997 public meeting are summarized below according to the following topics:

3.1 Remedial Alternative Preferences
3.2 Surface Water Contamination
3.3 Groundwater Contamination
3.4 Health Concerns
3.5 Remedial Construction
3.6 Financial Responsibility

3.1 Remedial Alternative Preferences

3.1.1 Comment: A resident asked how remediation at the Jones Sanitation Site compares to the remediation taking place at the Hudson River Psychiatric Center. He commented that $1 million is being spent at the Psychiatric Center to remove soils containing [polychlorinated biphenyls] PCBs. He noted that a similar amount of money will be spent to remediate the Jones Sanitation Site, yet the Jones Sanitation Site appears to be more complex because of the variety of chemicals present in soil and groundwater. Also, the contamination at the Psychiatric Center does not appear to be affecting any potable wells, whereas contamination at the Jones Sanitation Site could potentially affect many potable wells. He asked whether the sites are comparable.

Response: The contamination associated with the Hudson River Psychiatric Center was caused by a spill of fluid containing PCBs from a transformer. The contamination at the Jones Sanitation Site resulted from operation of a septage facility over a long period of time which also received industrial wastes.

After characterizing the nature and extent of contamination of the Jones Sanitation Site, EPA determined that the most appropriate and cost-effective remedy is to consolidate the outlying disposal areas within the central area and cap the site. Because groundwater contamination was also found primarily under the central disposal area and was not detected beyond the facility, long-term groundwater monitoring is also included as part of the remedy to ensure no adverse impact occurs to off-site potable wells.

PCBs are contaminants specifically regulated under the Toxic Substances Control Act (TSCA). A typical approach for remediating PCB-related spills such as occurred at the Psychiatric Center is to excavate these materials and associated contaminated soils for treatment and/or disposal at an off-site facility in compliance with the requirements of TSCA. While the cost to remediate the sites appear to be comparable, because the contaminants are different, the remedial approaches for the sites are not similar or equivalent.

Also, while the commentor correctly notes that the contamination at the Jones Sanitation Site could potentially affect potable wells, there is no indication that any potable wells near the site have been impacted. The creeks provide a natural, hydraulic barrier between the site and the potable wells.

3.1.2 Comment: A resident recommended that EPA modify its proposed remedy and extend the sides of the cap down to the bedrock. Specifically, he recommended digging a trench around the central disposal area and filling it with clay to encapsulate the area. This would prevent movement of contaminants in the groundwater. He stated that this idea would not require a significant increase in cost. It would, however, prevent contaminated groundwater from entering the streams and provide the community with greater peace of mind.

Response: Installing a vertical barrier (which would function similarly to a slurry wall) to encapsulate a disposal area is a technology generally employed to prevent the movement of groundwater through waste when the waste exists below the groundwater table. This is not the case at the Jones Sanitation Site, as the waste does not extend to a depth that the groundwater would be moving through it.

Capping landfills and other disposal areas is a recognized effective means of containing wastes and preventing the migration of contaminants. The cap creates a highly impermeable cover that will keep precipitation from draining through the contaminated soils and leaching contaminants into the groundwater. Although the RI data indicate that the overburden groundwater discharges to on-site streams, generally no contaminants were detected in surface waters.

The cost of extending the cap down to the bedrock would be significantly greater than the cost of capping the surface of the disposal area because it would require a significant amount of soil to be excavated and, given the proximity of the nearby streams to the disposal area, would require dewatering of the soils prior to excavation. The water generated from the dewatering process would also need to be treated before discharge. These measures would substantially increase the cost of the remedy and would not be deemed cost-effective.

3.1.3 **Comment:** A representative from the Hyde Park Conservation Advisory Committee stated that the site is located over a major aquifer which flows generally to the south. EPA's proposed remedy must assure that contaminants do not enter the aquifer. The trailer park to the south is in the path of any migrating contamination plume. Also, further to the south (less than a mile) are the emergency wells of the Hyde Park Fire and Water District. While the district is not now using these wells, they should be protected for possible emergency use.

Response: No contaminants that are attributable to the Jones Sanitation Site have been detected in any of the off-site potable wells that were sampled as part of the Remedial Investigation. Also, it is believed that the creeks surrounding the disposal areas provide a hydraulic barrier preventing contaminated groundwater from moving off-site. The selected remedy calls for the construction of a cap which will create a highly impermeable cover that will keep precipitation from draining through the contaminated soils, and installation of additional monitoring wells, along the downgradient portion of the site to ensure that no contaminants migrate from the site and impact private public supply wells.

3.1.4 Comment: A representative from the Hyde Park Conservation Advisory Committee and several residents expressed concern about the site's location in a 100-year floodplain and stated that EPA's proposed remedy must consider flooding effects which would wash away the cap. A resident asked whether the proposed cap would maintain its integrity during the 100-year flood cycle. Another resident expressed concern that during a flood event, the ground could become saturated forcing contaminated materials from beneath the cap.

Response: Most of the area to be capped is outside the 100-year flood plain and is not expected to be affected by a flood of such magnitude. A small portion of the cap (less than one percent) along the southeastern border is expected to lie within the 100-year floodplain of the Maritje Kill. As a result, flood prevention measures will be incorporated as appropriate during the Remedial Design. Such measures may include building a levee around that portion, building up the area to remove it from the flood plain, or excavating this area and consolidating it within the central portion of the disposal area. There will also be an operation and maintenance plan in place to maintain the integrety of the cap over time.

3.1.5 Comment: A resident asked whether other factors, such as road construction, heavy rain, and snow, could affect the off-flow of groundwater contamination from the site.

Response: Unusual precipitation (unusually high or low annual precipitation) may have an impact on the surficial aquifer, but in terms of the contaminants on the site, the impact on the contaminants would be limited to the site. Further, the impact to the deeper aquifer would be minimal. The overall direction of groundwater flow in the deeper aquifer would not change noticeably, and the rate of groundwater flow might increase, or decrease, a small amount.

3.1.6 **Comment:** A resident from Matuk Drive expressed disappointment with the EPA's proposed remedy to leave the soil contaminants on the site under a cap. He expressed concern about potential negative effects on real estate values in the area, the potential for future problems, and the loss of peace-of-mind for neighboring residents if the contaminated soil is not disposed of off-site. He stated that the cost to permanently remove the contaminated soil would be small compared to the potential litigation costs that EPA would have to endure if the proposed capping remedy fails.

Response: Once the remedy is implemented, the eventual deletion of the site from the National Priorities List should alleviate the stigma that a Superfund site may create in communities with the resulting negative effect on property values. The results of EPA's investigation with respect to the groundwater should also help to alleviate concerns. As mentioned previously, a cap is an effective means to create a highly impermeable cover that will keep precipitation from draining through the contaminated soils and leaching contaminants into the groundwater. The cost of excavating all of the contamination and disposing of it off-site was estimated to be $7,142,000 and was determined not to be cost-effective. Upon completion of construction of the cap, a long-term maintenance program will be implemented to ensure that the cap does not fail. In addition, EPA will be reviewing the Site at five-year intervals to ensure that the remedy remains protective of the public health and the environment.

3.2 Surface Water Contamination

3.2.1 **Comment:** A resident expressed concern that in the past, contaminated surface water may have affected other surface waters in the Hyde Park area, in particular, what used to be Hyde Park's alternative water supply.

Response: EPA is unaware of any data that characterize the quality of the surface water during the time that Jones Sanitation was operating as an active septage facility. However, data collected during the RI indicate that the surface water quality of the on-site streams generally meets or exceeds federal and State ambient water quality standards. During the Remedial Design, additional samples will be taken in the streams and surrounding wetlands to ensure that these areas have not been impacted.

3.2.2 **Comment:** A resident asked about the behavior of volatile organic compounds (VOCs) and metals in soil. While it appears that many of the VOCs would volatilize, he expects that the metals would remain in place because they are bound to the soil. He asked about the behavior of the contaminants over the period of time the site has been monitored, as well as what would be expected after the proposed cap is complete. He asked if the characteristics of metals in soil would enhance the proposed cap's effectiveness.

Response: During the period of time that the site has been monitored, no contamination has been observed migrating off-site. The metal contaminants detected at the site and which will be contained beneath the cap have an affinity to attach to the soil particles. The cap will keep precipitation from potentially leaching the metals and VOCs into the groundwater.

3.2.3 **Comment:** A resident on Matuk Drive stated that one of the on-site streams flows through a man-made pond on his property. He expressed concern that the stream may have carried contaminants from the site to his pond. He expressed concern about potential health risks to children and pets using the pond. He asked whether the EPA has ever tested the pond.

Response: Limited surface water and sediment sampling was conducted in the streams surrounding the central disposal area of the site. While generally no contaminants were detected in the surface waters, low levels of contaminants were detected in stream sediments. As a result, a supplemental surface water/sediment sampling program will be conducted during the Remedial Design phase and the pond in question will be sampled as part of this effort.

3.2.4 Comment: A resident on Cardinal Road expressed concern that surface water contamination may be affecting shallow wells (15 to 20 feet deep) of residences in her neighborhood.

Response: The shallow groundwater data collected as part of the Remedial Investigation indicate that the overburden groundwater discharges to the shallow streams in the immediate area. Based on the data collected as part of the Remedial Investigation, the surface water quality of the on-site streams generally meets or exceeds federal and State ambient water quality standards. Also, sampling data indicate no contamination in nearby downgradient residential wells.

3.3 Groundwater Contamination

3.3.1 Comment: Several residents expressed concern over the process in which off-site potable wells were selected to be monitored. A couple of residents living in close proximity to the site asked when their particular wells had been tested. Another resident asked what percentage of potentially affected off-site wells were tested.

Response: In order to identify private drinking water sources in the site area, a questionnaire was developed and distributed to residences within a one-mile radius of the site. Based on the results of this survey, wells located on properties adjacent to the site were given highest priority and have been sampled by the NYSDOH since 1988. Approximately 10 wells (10% percent of the potable wells in the area) were sampled by NYSDOH in November 1996. All residents were given the results of the tests on their wells as soon as they were available. EPA is aware however that some residents are new owners and may not be aware of past well sampling. At the public meeting, the NYSDOH representative stated that the NYSDOH would discuss and provide well sampling data upon request by the resident. For information concerning the sampling of private wells, residents should call Joe Crua, of the NYSDOH at (518) 458-6305 or Isabel Rodrigues, EPA's Project Manager, at (212)637-4248.

3.3.2 Comment: A citizen asked when was the last time the wells surrounding the site were tested, and were those wells located in the direction the groundwater was flowing. The Hyde Park Conservation Advisory Committee stated that since the aquifers and surface water flow to the south, testing should be performed downstream to ensure that contaminants have not migrated outside the present test area. This will also provide a baseline for later tests.

Response: The last off-site sampling event included a total of 10 potable wells which were located directly downgradient and sampled in November 1996. Additional monitoring wells will be installed as part of the Remedial Design along the downgradient property boundary. These wells will be monitored, along with the 10 off-site residential wells, as part of a long-term groundwater monitoring program.

3.3.3 Comment: Several residents asked about the depth of groundwater contamination.

Response: The number of contaminants and concentrations in the deeper aquifer (bedrock) were considerably less than the shallow (overburden) aquifer. Eleven of the 15 bedrock monitoring wells contained no compounds above the Preliminary Site Action Levels. Conversely, three of the 14 overburden monitoring wells contained no compounds which exceeded Preliminary Site Action Levels. The depth of groundwater contamination in the overburden is from 5 to 30 feet below ground surface.

3.3.4 Comment: Several residents asked how long homeowners' private wells will be tested after remedial construction is complete.

Response: At least ten off-site potable (residential) wells will be sampled for a minimum of five years after remedial construction is complete. At the conclusion of this initial five-year period, after analyzing all of the groundwater data collected, including on-site groundwater data, a determination will be made as to the need for continued residential well monitoring.

3.3.5 Comment: A citizen asked how many wells in Hyde Park have been or potentially could be affected by the site.

Response: Based on all available data collected to date, no off-site wells have been affected by the site. The implementation of the remedy will minimize the potential for any off-site well to become contaminated. In addition, the future monitoring program will ensure that contamination from the site would be detected before it could impact off-site wells.

3.3.6 Comment: A resident stated that there is an underground lake beneath the site. He asked whether EPA surveyed the area and has information about the site's underlying structure.

Response: Fifteen monitoring wells were drilled into the bedrock to a depth of 250 feet below grade, and no underground lake was found. The geologic nature of the bedrock is that it is solid except where fractures and joints (i.e., narrow openings, generally less than 1/4 inch wide running vertically or horizontally) exist. The groundwater in the bedrock aquifer flows through these narrow openings.

3.4 Health Concerns

3.4.1 Comment: A resident expressed concern about possible latent health effects due to odors that occurred near her residence in 1985 and after.

Response: No air quality data exists for the period that Jones Sanitation was operating. Therefore, a quantitative evaluation of the possible health effects cannot be made. However, as the odor threshold for many chemicals is much lower than the toxicity threshold, it should not be assumed that since odors were observed, that there would be an adverse health affect.

3.4.2 Comment: A resident from the nearby trailer park expressed concern about elevated levels of manganese that have been found in the common well used by the trailer park.

Response: The NYSDOH has indicated that the manganese detected in this well resulted from a malfunctioning of the well's treatment system which has subsequently been corrected.

3.4.3 Comment: A resident expressed concern about airborne chemicals that may be released during remedial construction and could affect the health of her children. She asked if the residents will be notified when construction begins and whether they will need to take precautionary measures, such as keeping the children inside and closing windows.

Another resident asked whether the time of year would have any impact on the potential release of airborne chemicals during remedial construction.

Response: The remedial design will incorporate construction methods and monitoring programs that will ensure that no unsafe levels of chemical emissions reach off-site receptors. Exposure routes will be assessed early in the design process so that precautions such as wetting dirt roads (to reduce the amount of dust generated) and using certain types of foams that cover exposed excavations (to minimize volatilization of chemical constituents) can be implemented. The time of year does have an impact on the potential release of contaminants. The greatest potential for release of contaminants occurs during the hot, dry summer months. To the extent possible, remedial activities, particularly excavations, will be scheduled for late spring or early summer.

As part of its continuing community relations program, EPA will inform the community about upcoming site-related activities through periodic mailings and community meetings. EPA anticipates holding a public meeting or availability session to present information about the Remedial Design and to inform the community about planned construction activities. At that time, EPA will explain the safeguards and monitoring systems that will be implemented during construction.

3.5 Remedial Construction

3.5.1 Comment: A resident asked when construction on the cap will be complete.

Response: After the Record of Decision is signed, EPA will negotiate a consent decree with the PRPs providing for their design and construction of the selected remedy. This period usually takes 4 to 6 months. Subsequently, 12 to 18 months are required to prepare the Remedial Design. EPA anticipates the remedial construction period at this Site will take approximately eight months. Based on these time periods, it is estimated that the remedial construction will be completed in late 1999.

3.5.2 Comment: A resident asked about the composition of the proposed cap.

Response: The cap will be designed in accordance with the major elements described in 6 New York Code of Rules and Regulations Part 360 for landfill caps. Conceptually, the cap will consist of (from bottom to top) 18 inches of clay, six inches of porous material as a drainage layer, 18 inches of backfill, and six inches of topsoil. The specifications of the depth and nature of the materials will be determined as part of the remedial design.

3.5.3 Comment: A citizen asked how the addition of the cap will prevent the movement of groundwater.

Response: The cap will not prevent the movement of the groundwater. The purpose of the cap is to prevent contamination from entering the groundwater. The 18 inches of clay will divert precipitation to the edges of the cap so that virtually no precipitation will flow through the contaminated soils beneath the cap. It is the precipitation moving through the contaminated soils which leaches the contaminants from the soil into the groundwater. If the precipitation which would flow through the contaminated soil is virtually eliminated, essentially no contaminated leachate will enter the groundwater.

3.5.4 Comment: A resident expressed concern that the cap will not prevent lateral leaching of contaminants into a nearby creek.

Response: The movement of precipitation through the unsaturated soils has very little lateral movement. The cap will extend sufficiently beyond the contaminated soils so that virtually no contamination will be leached into the groundwater. Contaminated groundwater already existing beneath the cap will slowly discharge into the nearby streams. No remedial action is presently planned for the streams and wetlands as there were no adverse impacts observed. However, during the remedial design, further ecological risk assessment will be performed, including sampling and analysis of the streams and sediments to confirm that the surrounding streams and wetlands have not been impacted.

3.5.5 Comment: A resident recommended that fencing be constructed around the proposed cap to prevent access to children who may walk through or play in the area.

Response: There will be security fencing around the capped area. The area to be fenced will be finalized as part of the remedial design.

3.6 Financial Responsibility

3.6.1 Comment: Several residents asked who will pay for the remediation.

Response: After the Record of Decision is issued, EPA will negotiate with the PRPs, including Alfa-Laval, to conduct the design and construction of the selected remedy. Alfa-Laval has expressed its intent to enter into an agreement with EPA to conduct the Remedial Design and Remedial Action. However, if an agreement cannot be reached, EPA may order the PRPs to perform the work or EPA may conduct the remedial design and remedial construction using money from the Superfund Program's trust fund. If the latter occurs, EPA would seek reimbursement from the PRPs. During the public meeting, a representative from Alfa-Laval expressed that Alfa-Laval would perform the remedy. All work performed by the PRPs will be overseen by EPA.

3.6.2 Comment: A resident asked who will pay for an alternate drinking water source if his potable well becomes contaminated after the remedial construction is complete.

Response: The NYSDOH representative stated that New York State has a program that will provide drinking water to people that may be affected if their potable wells become contaminated. The counsel for Alfa-Laval also stated that this company would pay for an alternate drinking water source for anyone whose well becomes contaminated.

4.0 SUMMARY OF PRP COMMENTS AND THE EPA's RESPONSES

These comments summarized below were received from the consultant for Alfa-Laval.

4.1.1 Comment: EPA's Proposed Plan states that "further field investigations are warranted to better assess the environmental impacts to this area." However, as described in the Proposed Plan, an ecological risk assessment was conducted to define site risks and no site-related biological stresses were noted. Although a potential ecological risk was identified for on-site receptors, these risks will be addressed by the proposed remedial action. Further definition of a "no-action" baseline risk also appears unwarranted assuming that the proposed remedial measures are undertaken. Additionally, since the Feasibility Study [FS] showed that construction activities for the proposed remediation could avoid identified wetlands, further evaluation of construction impacts to wetlands appears unwarranted (although additional topographic surveying may need to be conducted to accurately locate the wetlands for design purposes). Therefore, we recommend that any further ecological work be limited to wetlands mapping for design purposes.

Response: Although an ecological risk assessment was conducted, it did not strictly follow EPA and NYSDEC protocols. Review of the document has indicated that the potential ecological risk may have been underestimated. Therefore, EPA believes that a further ecological risk assessment is necessary. Further definition of risk will concentrate on the stream and wetlands areas. If it is determined that they have been adversely impacted and pose a risk, a focused feasibility study will be conducted to evaluate appropriate remedial alternatives. While the FS stated that construction activities for the selected remedy could avoid identified wetlands, the Remedial Design must evaluate the impacts of construction to ensure that the remedy is constructed in a way to minimize any adverse impacts.

4.1.2 Comment: On page 9 of the EPA's Proposed Plan, Alternative S-3 is described as requiring long-term cap maintenance, however, in Table 2 it appears that the maintenance costs ($8,000 per year) for the cap were omitted in the calculation of annual operation and maintenance (O&M) costs. By eliminating these cap O&M costs, the calculated present worth has been reduced by approximately $123,000. What is EPA's position regarding cap maintenance in light of this discrepancy?

Response: Table 2 of the Proposed Plan shows an O&M of $27,000/year for Alternative S-3 which includes the cost for cap maintenance. However, the reviewer may have been referring to the difference in O&M cost between the FS and the Proposed Plan for Alternative S-4 which includes an asphalt cap. Successful treatment of the central disposal area under Alternative S-4 would eliminate the potential for contamination to leach from this area. Therefore, there is no need for the installation and maintenance of an asphalt cap under this alternative.

4.1.3 Comment: For the selected groundwater alternative, EPA's Proposed Plan indicates that additional monitoring wells will be installed. Considering the number and duration of overburden and bedrock wells already installed on the site, it does not appear necessary to install new wells.

Response: In considering what has been learned about the contamination at the site and groundwater flow from the Remedial Investigation, EPA believes that it is prudent to install additional monitoring wells along the downgradient property boundary to help ensure that if contamination is detected migrating off-site, there is adequate time to implement a Remedial Action before it can impact off-site receptors.

APPENDIX A

PROPOSED PLAN

(Issued by EPA in February 1997)

Jones Sanitation Superfund Site

Town of Hyde Park, Dutchess County, New York

EPA
Region 2 — February 1997

Mark Your Calendar

February 21–March 22, 1997: Public comment period on the Proposed Plan for the Jones Sanitation Superfund Site

Thursday, March 13, 1997 7:00pm: Public Meeting at Roosevelt Engine Co. #1 on Cardinal Road in Hyde Park

PURPOSE OF PROPOSED PLAN

This Proposed Plan describes the remedial alternatives that the U.S. Environmental Protection Agency (EPA) considered to remediate contaminated soil, groundwater, surface water, and sediments at the Jones Sanitation Superfund Site. The Proposed Plan also identifies the EPA's preferred remedial alternatives with the rationale for these preferences. This document was developed by the EPA in consultation with the New York State Department of Environmental Conservation (NYSDEC). The alternatives summarized here are described in greater detail in the Remedial Investigation and Feasibility Study (RI/FS) reports, which are now available at the Hyde Park Free Public Library.

The EPA's preferred remedial alternatives would involve installing a cap over contaminated soil in the center of the site to minimize the infiltration of rainwater into the soil, which, in turn, would minimize movement of contaminants through the soil. Contaminated soil from outlying areas of the site would be moved under the cap. Groundwater at the site would be monitored to assess movement and natural attenuation of contaminant concentrations over time. Deed restrictions will be sought to prevent future residential use of the site.

The EPA encourages the public to review and comment on all alternatives considered by the EPA, and this Proposed Plan. The remedy described in this Proposed Plan is the EPA's preferred remedy for the site. Changes to the preferred remedy or a change from the preferred remedy to another remedy may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The remedy will be selected after the EPA has taken into consideration all public comments.

Community Role in the Selection Process

The EPA and NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the RI/FS reports, the Proposed Plan, and supporting documentation have been made available to the public for a public comment period that begins on February 21 and concludes on March 22, 1997.

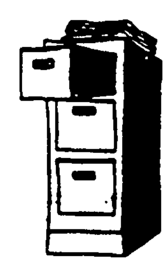
A public meeting will be held during the public comment period at Roosevelt Engine Co. #1, 9 Cardinal Road, Hyde Park, on Thursday, March 13, 1997 at 7:00 p.m. to present the conclusions of the RI/FS, to elaborate further on the reasons for recommending the preferred remedial alternatives, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary section of the Record of Decision (ROD), the document that formalizes the selection of the remedy. All written comments should be addressed to:

Isabel R. Rodrigues, Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Copies of the RI/FS, this Proposed Plan, and other documents relating to the site are available at the following locations:

Hyde Park Free Public Library
2 Main Street
Hyde Park, NY 12538
Hours:
Mon, Tues 9am–8pm;
Wed, Thurs, 12–8pm;
Sat, 9am–2pm; Fri, Sun closed



U.S. Environmental Protection Agency
290 Broadway, 18th Floor
New York, NY 10007-1866
By Appt: 212-637-4215

CONTINUED ON FOLLOWING PAGES

The EPA, after consultation with the NYSDEC, will select a remedy for the site only after the public comment period has ended and the information submitted by the public during that time has been reviewed and considered. The EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and Section 300.430(f) of the National Contingency Plan (NCP).

Site Background

The Jones Sanitation site consists of a 57-acre parcel of land located approximately one-half mile northeast of the intersection of Crum Elbow Road and Cardinal Road in Hyde Park, New York *(see Site Location - Figure 1)*. The Maritje Kill flows from northeast to southeast across the eastern side of the site. Another unnamed stream enters the northern side of the site, flows into wetlands on the northwestern side of the property, and flows off site to the west. Freshwater wetlands surround the northern, southern, and western portions of the site *(see Figure 1)*. The Hudson River is located approximately 2.1 miles west of the site.

The majority of the site property is heavily wooded, but a large cleared area exists in the western-central portion of the site and extends to the northeast. A two-story concrete building is located on the western side of the clearing and houses a filter press on the first floor and has office space on the second floor. In addition to the building, several holding tanks and piping (associated with the wastewater treatment system) remain on site. A concrete pad and a bituminous-paved compost area are located to the east of the filter press building. The remainder of the central cleared area consists of a gravel access road and several depressions with bermed sides indicating the former locations of sand filter beds.

The site is zoned residential but the existing commercial use has been grandfathered. Adjacent land use consists primarily of residential and undeveloped land. Single-family homes are located along Matuk Drive and Thurston Lane to the south, and along Cardinal Road to the west. Val-Kill trailer park, containing approximately 100 residences, is located to the southwest.

The wastes that were treated and disposed of at the site during its approximately 30 years of operation include septage wastes, primarily liquid, from residential, commercial, institutional, and industrial facilities. During a 17-year period, industrial wastewater was also disposed of at the site. In the early years of operation, solids were

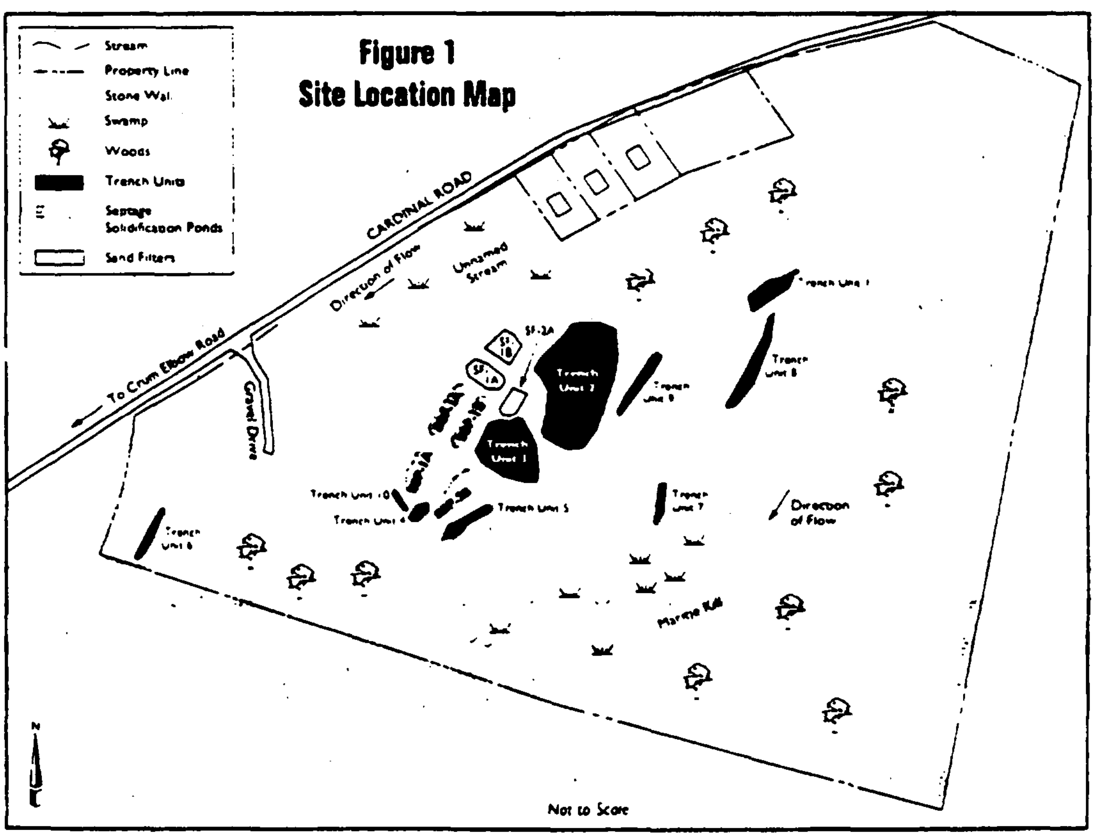


Figure 1
Site Location Map

separated out as liquid wastes filtered through the soil media. After 1980, solids were separated in lined sand filtration pits mechanically using a filter press and then composted with wood chips. The compost was used for cover and regrading in some areas of the site.

Septage operations began at the site in approximately 1956 by Mr. William Jones, Sr., under the name of William Jones Sanitation Service (Jones Sanitation). Mr. Jones collected domestic septage from residential properties and disposed of it in trenches on the property. In 1972, the Dutchess County Health Department (DCHD) issued a permit to Jones Sanitation to collect and transport sanitary wastes to the Jones site.

Based on DCHD inspection reports from the 1970s, septage and industrial wastewater were disposed of together in approximately 30 to 40 shallow, randomly oriented trenches located mostly within the central area of the site. Trenches were reportedly three to five feet deep, with lime applied to septage disposed of in the trenches to reduce odors. After the trenches were full and the liquids had leached out into the ground, the trenches were covered with sand and gravel.

Mr. Theodore Losee took over operations at the site in 1977 and reportedly ended random disposal by constructing parallel trenches. In a 1980 aerial photograph, 10 trenches were identified in a central bermed area; however, the presence of several other trenches in peripheral areas was still noted. Under Mr. Losee, the facility was operated under the name of Jones Septic Services. When Mr. Losee took over operations of Jones Septic Services, septage solidification ponds (SSPs) were constructed in the central area and used to separate solids and liquids. In 1987, a filter press was installed and the use of the SSPs was discontinued.

The DeLaval Separator Company (DeLaval), which changed its name to Alfa-Laval in 1980, operated a facility in Poughkeepsie from 1963 to 1990. Untreated industrial wastewater from DeLaval's operations was disposed of at the site until 1975. The sources of DeLaval's industrial wastewater are described as: the Tin Room, which generated acid, alkali, and metals waste from plating; the Tumbling Area, which generated metal wastes and grit in the form of sludge; Customer Service, which generated wastes contaminated with "Zyglo" chemicals and alkali; the Pilot Plant, which produced wastes contaminated with oil, solvents, organic chemicals, and metals; the Rubber Area, which generated wastes contaminated with hydraulic oil, lube oil, and steam condensate; and Salvage, which generated wastes contaminated with water-soluble oils, lube oil, solvents, and pigments. In 1975, DeLaval began treating the industrial wastewater using a centrifugal separator and sent the treated wastewater to the site. Effluent generated at DeLaval that was transported to the site contained hazardous substances, including, but not limited to trichloroethylene, methylene chloride, chloroform, 1,1,1,-trichloroethane, napthalene, chromium, copper, lead and zinc. In 1979, DeLaval ceased sending the treated wastewater to the site.

Beginning in 1970, the site became the focus of several investigations by the NYSDEC and DCHD. The investigations were comprised of limited sampling of on-site soils, groundwater, surface water, and sediment from the streams on site. Some off-site private and public wells were also sampled. Volatile organic compounds (VOCs), semivolatile organic compounds (SVOC), polynuclear aromatic hydrocarbon (PAH) compounds, polychlorinated biphenols (PCBs) and metals were detected at varying concentrations in site media. Based on the results of these investigations, the site was placed on the National Priorities List (NPL) in July 1987. The DCHD and NYSDOH have sampled off-site private and community drinking water supply wells on seven different occasions since 1988. Contaminants related to the site were not detected in the drinking water supply wells.

In March 1991, Theodore Losee and Alfa-Laval, Inc., signed an Administrative Order on Consent with the EPA in which they agreed to perform the RI/FS for the site. The RI Report was completed in 1995; the FS Report in July 1996.

Remedial Investigation Summary

The RI included a soil investigation consisting of a soil gas survey, seismic survey, and soil boring program; a hydrogeologic investigation consisting of aquifer testing, well installation, and groundwater sampling; a surface water and sediment investigation; and an ambient air monitoring program. Environmental sampling activities at the site included collection and analysis of 179 soil gas samples, 120 subsurface soil samples, 11 surface water and 11 sediment samples. Also, groundwater samples were obtained from 13 overburden monitoring wells, 15 bedrock monitoring wells, and 10 off-site potable wells. Results of the soil gas survey were used to aid in the selection of soil boring locations.

The purpose of the RI was to determine the nature and extent of contamination at the site. The results are summarized below.

Findings of the Remedial Investigation

> Physical Site Conditions

The physical site conditions are characterized by shallow soil deposits (0 to 15 feet) underlain by bedrock consisting of sandstone and shale. Several bedrock ridges with numerous surface outcropping are present at the site. Extensive wetlands are located among the north and south sides of the site, associated with two small streams that drain from northeast to southwest. Overburden ground water appears to flow from the central disposal area to the wetlands and surface water streams to the north and east.

> Soil Contamination

Areas of septage disposal were characterized by the presence of black to dark brown septic sludge materials mixed with soils as observed in soil samples from borings drilled through these areas. Forty trenches (TRs), many overlapping others, septage solidification ponds (SSPs), sand filter (SFs) beds, stained areas, mounded materials, and pits were identified on the aerial photographs performed by the EPA's Environmental Photographic Interpretation Center. The 40 trenches were grouped into 10 trench units (TUs) based upon their lateral distribution on the site.

As shown on Figure 1, trench units 2,3,4,5,9, and 10 and the SSP/SF are located in the central open area of the site in relative proximity to each other, whereas trench units 1,6,7 and 8 are in more outlying areas.

A description of the physical nature and contamination of these areas is provided below:

Central Disposal Area

Trench Unit 2 (TR5,TR7,TR9,TR10,TR24-TR 34): This trench unit consists of 15 former trenches covering a large portion on the north side of the central open area. Septic waste material was observed in the majority of the borings drilled in this area and up to two feet of black sludge was encountered. Approximately 4,000 cubic yards of septic sludge are estimated to be present in TU-2. High concentrations of toluene (110,000 parts per billion or ppb) and acetone (530 ppb) were detected in this trench unit. Several semivolatile organics were identified; the highest detection observed was phenanthrene (510,000 ppb). Copper (408 parts per million or ppm), lead (324 ppm), zinc (765 ppm) and manganese (4,640 ppm) were the highest inorganic concentrations detected in this trench unit.

Trench Unit 3 (TR11-TR18, TR36): This trench unit consists of nine former trenches located in the central open area. This trench unit, approximately 20,000 square feet, is now covered in part by the concrete and bituminous paved driveways. A five-foot thick layer of undisturbed septic waste was encountered within this area. Approximately 2,500 cubic yards of septic material are estimated to be present in TU-3. High concentrations of toluene (120,000 ppb) and metals such as cadmium (9.5 ppm), chromium (58.4 ppm), copper (925 ppm), lead (152 ppm), zinc (1,960 ppm), and manganese (896 ppm) were detected in this trench unit.

Trench Unit 4 (TR1,TR19,TR38,TR39): This trench unit consists of four former trenches located on the southwest side of the central open area. It was confirmed as a disposal area by the observation of septic waste material in most of the borings drilled in the area. Approximately 250 cubic yards of septic waste are estimated to be present in TU-4. This trench unit has high volatile organic contamination as indicated by the presence of toluene (51,000 ppb), chlorobenzene (26,000 ppb), and acetone (3,600 ppb). A total PCBs concentration of 4,900 ppb was also detected. Arsenic (13.2 ppm), copper (1,480 ppm), lead (677 ppm), zinc (5740 ppm), and manganese (1,290 ppm) were some of the highest metals concentrations detected in this trench unit. Also, cyanide contamination was detected (14.3 ppm).

Trench Unit 5 (TR20 and TR21): This trench unit consists of two former trenches located in the southwest side of the central open area, to the east of TU-4. Septic waste and black stained sand were observed in the boring soil samples. Approximately 100 cubic yards of sludge are estimated to be present in TU-5. Manganese (796 ppm) and other low concentrations of metals defined the contamination in this trench unit.

Trench Unit 9 (TR8): This trench unit consists of one former trench located on the eastern side of the central open area, to the east of TU-2. A concrete block settling tank was constructed on the northern end of this trench. On the southern end, an approximately 2.5-foot-thick sludge layer was observed. Approximately 100 to 150 cubic yards of sludge material are estimated to be present in TU-9. Contaminants detected in this trench unit are PCB (2,500 ppb), cyanide (1.3 ppm), and metals such as arsenic (10 ppm), barium (807 ppm), cadmium (9.3 ppm), chromium (53.9 ppm), copper (2190 ppm), manganese (1020 ppm), mercury (9.8 ppm), and zinc (4210 ppm).

Trench Unit 10 (TR37): This trench unit consists of one former trench approximately 70 feet long, located alongside a wooded area, southwest of the central open area. No septic sludge or other indication of waste disposal was found in the borings drilled in this trench unit.

Septage Solidification Ponds (SSPs) and Sand Filters (SF) Beds: This area consists of four SSPs, and the effluent from the SSPs was discharged to the SFs. The SSP area covered an approximately 400-by-150-foot area in the west central portion of the site. A septic waste layer was observed from one to seven feet thick. Approximately 4,500 cubic yards of septic waste are estimated to be present in this area. Acetone (240 ppb) and chlorobenzene (3,200 ppb) were the two volatile organics detected in this trench unit in addition to several metals including cadmium (4.3 ppm), copper (387 ppm), lead (71.2 ppm), mercury (2 ppm), manganese (1,010 ppm), and zinc (431 ppm).

Outlying Disposal Areas

Trench Unit 1 (TR2, TR3, TR4, TR22): This trench unit consists of four former trenches that were identified on the northeastern side of the site. The location of these former trenches is now partly covered by a large mound of moderately composted septic waste material. This waste material mound is probably former trench material that was regraded and bulldozed into the pile after disposal activities had ceased. The total volume of septic waste material associated with TU-1 is estimated to be approximately 1,900 cubic yards. The highest detection of PCB (11,000 ppb) was detected in this trench unit. There were also high concentrations of arsenic (22.2 ppm), copper (3,220 ppm), mercury (7.4 ppm), and manganese (742 ppm).

Trench Unit 6 (TR40): This trench unit consists of one isolated trench located in the southwest corner of the property. No evidence of waste disposal was noted during field sampling. However, levels of phenols (1,200 ppb), cadmium (4.5 ppm), and manganese (1,030 ppm) were detected in samples collected from this trench unit.

Trench Unit 7 (TR35): This trench unit consists of one isolated former trench located at the edge of a wooded area to the east of the central open area. Borings drilled in this trench unit identified the presence of a four-to twelve-inch-thick, dark brown organic layer that is believed to be highly weathered septic waste material lying directly upon shallow weathered bedrock surface. Approximately 50 to 70 cubic yards of septic waste material are estimated to be present in TU-7. Acetone (200 ppb), PCBs (2,600 ppb), cyanide (4.4 ppm) and several metals including arsenic (22.8 ppm), barium (668 ppm), cadmium (11.7 ppm), chromium (44.2 ppm), copper (2,480 ppm), lead (307 ppm), manganese (2,310 ppm), and zinc (2,580 ppm) were detected in sampling collected from this trench unit.

Trench Unit 8 (TR-23): This trench unit consists of one trench located on the eastern side of the site, south of TU-1. A three-feet-thick layer of septic waste was observed in the north end of this trench unit, but no distinct waste layers were observed in the middle or southern end of this trench unit. It is estimated that approximately 50 to 100 cubic yards of waste material remain in TU-8. Contaminants detected were PCBs (800 ppb), cyanide (0.35 ppm), and several metals including arsenic (9.4 ppm), cadmium (1.2 ppm), chromium (25.9 ppm), copper (299 ppm), lead (259 ppm), manganese (821 ppm), mercury (1.3 ppm), and zinc (510 ppm).

➢ Groundwater Contamination

A total of 13 overburden monitoring wells, 15 bedrock monitoring wells, and 10 off-site potable wells were sampled for analysis. Groundwater quality is judged by standards such as those in the New York Code of Rules and Regulations (NYCRR) Title 6, Chapter X, Part 703, Surface Water and Groundwater Standards and Groundwater Effluent Standards and Federal Primary Drinking Water Standards Maximum Contaminants Levels (MCLs).

The primary area where groundwater contamination was detected at levels exceeding water quality standards is crescent shape *(see Figure 2)* and lies to the north, south, and east of the central disposal area. The overburden groundwater is bounded by several hydraulic boundaries, including the unnamed stream located northwest and the Maritje Kill to the east and southwest where overburden groundwater flow most likely discharges. It is believed that these hydraulic boundaries act to prevent contaminated groundwater from migrating from this area of the site.

The following VOCs were detected in the overburden aquifer at concentrations exceeding regulatory standards: benzene (1-65 micrograms per liter (µg/l)), chlorobenzene (5-11µg/l), 1,3-dichlorobenzene (11µg/l), and 1,2- and 1,4-dichlorobenzene (8-15 µg/l) and (10-12 µg/l), respectively. Total concentrations of several metals, including iron (90,400-540,000 µg/l), lead (43.7-395 µg/l) and manganese (5,480-88,300 µg/l) were detected in a number of overburden monitoring wells at concentrations exceeding primary and secondary drinking water standards.

Contaminant concentrations were typically much lower and in a much smaller area in the bedrock aquifer as compared with the overburden aquifer. VOCs in bedrock monitoring wells include benzene (24 µg/l), vinyl chloride (2-5 µg/l), cis-1,2-dichloroethene (11-37 µg/l), 1,2-dichloroethene (7µg/l), and tetrachloroethylene (7 µg/l). Manganese (6,360 µg/l) was also detected above the regulatory standard in one bedrock well.

➢ Surface Water and Sediment Contamination

Contaminants detected in surface water samples from the site at concentrations exceeding New York State Surface Water Standards were barium (21.3 µg/l), cadmium (3 µg/l), iron (707 µg/l), manganese (1,760 µg/l), potassium (2,830 µg/l), and sodium (21,800 µg/l). No VOC or SVOC contaminants were detected in site surface waters at concentrations exceeding the regulatory standards.

Sediment standards were based on the 1993 NYSDEC Technical Guidance for Screening Contaminated Sediments. No VOCs were detected in the site sediment samples at concentrations exceeding guidance values. Metals, primary arsenic, cadmium, chromium, and lead were detected at concentrations slightly exceeding the regulatory standards in several of the sediment samples.

Summary of Site Risk

Based upon the results of the RI, human health and ecological baseline risk assessments were conducted to estimate the risks associated with contamination at the site, assuming no remedial action is taken in the future.

➢ Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification*—identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment*—estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. *Toxicity Assessment*—determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization*—summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

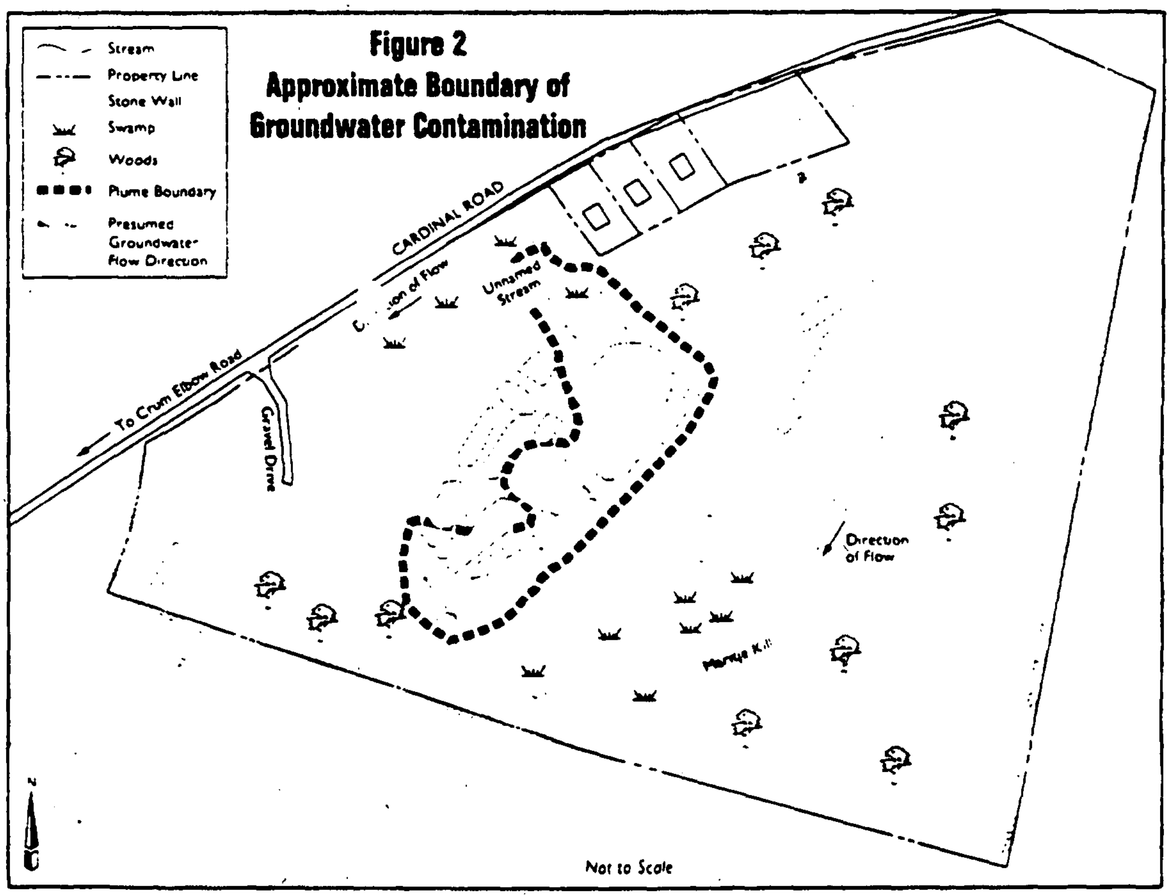


Figure 2
Approximate Boundary of Groundwater Contamination

The baseline risk assessment began with selecting contaminants of concern (COCs). COCs were identified for site soils, groundwater, surface water, and sediments based on the frequency of detection in RI samples, the magnitude of the concentrations detected, and the relative toxicity of the contaminants. COCs included those contaminants that are most representative of risks at the site.

The baseline risk assessment evaluated the health effects that could result from exposure to contaminated site media through ingestion, dermal contact or inhalation. The assessment evaluated risks to potential current trespassers and potential future site residents. Current trespassers were evaluated for ingestion and dermal contact with contaminants in soil, and ingestion of contaminants in sediments and surface water at the site. Potential future residents were evaluated for ingestion and dermal contact with contaminants in soil and groundwater, inhalation of contaminants in groundwater, and ingestion of chemicals present in sediment and surface water at the site.

Current regulations under CERCLA establish acceptable individual cancer risk levels of 10^{-4} to 10^{-6} (e.g., an excess cancer risk of 1 in 10,000 to 1 in 1,000,000) and a maximum noncancer Hazard Index (HI) of 1. An HI greater than 1.0 indicates a potential for noncarcinogenic health effects.

The results of the baseline risk assessment are contained in the *Baseline Risk Assessment, Jones Sanitation Site, Hyde Park, New York*, dated August 1994, which was prepared by Gradient Corporation. The risk assessment concluded that current trespassers were not at risk from contact with contamination in site media. Also, potential future residents could be at risk at the site, particularly from ingestion of metals in groundwater. Risks to residents from contact with soils, sediments, and surface water at the site are within the upper end of the EPA's acceptable risk range.

For recreaters/trespassers, cancer risks for both adults and children are less than 1×10^{-4}. For both adults and children, the total risk is 7.7×10^{-6}. The noncancer HIs for both adults and children were well below 1 (7.0×10^{-6} for adults and 5.4×10^{-2} for children).

For potential future residents, the carcinogenic risks are greater than 1×10^{-4} for ingestion of groundwater and soil at the site. For both adults and children the total risk is 7.3×10^{-4}. For adults, the greatest single contributor to risk is ingestion of arsenic in groundwater. For children, ingestion of arsenic in groundwater and ingestion of PCBs and PAHs in soil contribute equally to the cancer risk.

The noncarcinogenic HIs for ingestion of groundwater by potential future child and adult residents are well above the acceptable level of 1. For adults, the HI is 85 and for children the HI is 200. Most of this risk is associated with ingestion of manganese in groundwater. Noncarcinogenic risks associated with contact with soils, sediments and surface water by potential future residents are within acceptable levels at the site.

Based on the results of the baseline risk assessment, the EPA has determined that actual or threatened releases of hazardous substances from the Site, if not addressed by the preferred alternative or one of the other active measures considered, may present a current or potential threat to public health, welfare, or the environment.

➢ Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation*—a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment*—a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. *Ecological Effects Assessment*—literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. *Risk Characterization*—measurement or estimation of both current and future adverse effects.

The ecological risk assessment began with evaluating the contaminants associated with the site in conjunction with the site-specific biological species/habitat information

The site contains two intermittent streams (Maritje Kill and an unnamed stream) and several wetlands. The two streams are capable of supporting only limited numbers of transit warmwater fishes. However, wetlands and wildlife (e.g., birds and mammals) indigenous to the site are abundant and diverse. Site-related biological stress has not been reported or observed at or near the site.

Of the contaminants of concern identified, eight metals were found to present a potential ecological risk to receptors indigenous to the site based on the risk assessment conducted. Three metals (cadmium, iron, and manganese) are believed to pose a risk to benthic receptors inhabiting one or both streams at the site due to their sediments exceeding the NYSDEC's sediment quality criteria for freshwater aquatic life. The cadmium, iron, and manganese concentrations detected in the sediments are, however, within the range of background concentrations for these metals based on the levels detected in upstream samples.

Although no distressed vegetation was detected at the site, and no threatened or endangered species were observed that may be impacted by the metal contaminant levels present, the EPA has determined that during the remedial design further field investigations are warranted to better assess the environmental impacts to this area.

Remedial Action Objectives

Remedial action objectives (RAOs) are specific goals to protect human health and the environment; they specify the contaminant(s) of concern, the exposure route(s), receptor(s) and acceptable contaminants level(s) for each exposure route. These objectives are based on available information and standards such as applicable or relevant and appropriate requirements (ARARs) and risk-based levels established in the risk assessment.

Based on available information and ARARs, remedial action objectives for soils and groundwater were developed. Remedial action objectives for soil are designed, in

Summary of Remedial Alternatives

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost-effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

This Proposed Plan presents five soil remedial alternatives and three groundwater remedial alternatives for addressing the contamination associated with the site. While the Feasibility Study evaluated six alternatives and various subalternatives for remediation of site soils, the EPA has consolidated these and combined alternatives that included similar elements. Those subalternatives that were identified and distinguished by a minor variation that resulted in a significant increase in cost are not presented in this Proposed Plan. The EPA has screened such subalternatives out on the basis of cost. Also, those subalternatives that were identified to distinguish between on-site and off-site treatment options were consolidated into one treatment alternative, as the EPA believes that the treatment approach should be determined during remedial design. The "Construction Time" for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with the responsible parties, or procure contracts for design and construction.

SOIL REMEDIAL ALTERNATIVES

Alternative S-1: No Action

Capital Cost	O&M Cost
$0	$0
Present Worth Cost	**Time to Implement**
$0	None

CERCLA requires that the "No Action" alternative be considered as a baseline for comparison with other alternatives. The No Action alternative does not include implementation of any institutional controls or active remedial measures for on-site contaminated soils.

This alternative, if selected, would result in contaminants remaining on site with concentrations above health-based levels. Therefore, under CERCLA, the site will have to be reviewed every five years.

Alternative S-2: Minimal Action

Capital Cost	O&M Cost
$286,000	$2,000/year
Present Worth Cost	**Time to Implement**
$317,000	2 Months

This alternative would consist of institutional controls to minimize human contact with the contamination, which may include deed restrictions and fencing. Deed restrictions would limit future uses of the site as a whole or in specific areas of identified contamination, as appropriate, in the event of transfer of the property to other ownership. Deed restrictions would be intended to notify prospective owners of the existence of remaining contamination and the limitations such contamination has on site uses prior to transfer of the property. Fencing of the site would deter unauthorized access and potential contact of trespassers with remaining contamination.

This alternative, if selected, would result in contaminants remaining on-site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years

Alternative S-3: Capping of Central Disposal Area and Placement of Outlying Soils Beneath Central Disposal Area

Capital Cost	O&M
$1,043,000	$27,000/year
Present Worth Cost	**Time to Implement**
$1,458,000	8 months

This alternative would include the following remedial measures:

- Construction of a 4.8-acre cap in conformance with the major elements described in 6 NYCRR Part 360 for solid waste landfill caps. Conceptually, the cap would be comprised of: 18 inches of clay or a suitable material to ensure a permeability of 10^{-} cm/sec, 6 inches of porous material serving as a drainage layer, 18 inches of backfill, and 6 inches of topsoil and grass cover part, to mitigate the health threat posed by ingestion, dermal contact or inhalation of particulates where these soils are contacted or disturbed. Such objectives are also designed to prevent further leaching of contaminants from the soil to the groundwater.

The RAOs for soil are the NYSDEC recommended soil cleanup objectives identified in the Technical and Administrative Guidance Memorandum (TAGM 1994). The most significant RAOs for soil are arsenic at 7.5 ppm and manganese at the site background (the manganese levels in New York State are typically in the range of 400–600 ppm).

Groundwater RAOs were based on NYSDEC Class GA groundwater standards and/or the EPA primary drinking water standards (MCLs), whichever were more stringent. The most significant RAOs for groundwater are arsenic at 25 µg/l and manganese at 300 µg/l.

Substantial contaminant concentrations were not detected in surface water or sediments at the site, therefore, remedial action objectives were not developed for site surface waters or sediments.

Evaluation of Remedial Alternatives

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, overall protection of human health and the environment, compliance with ARARs, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume, short-term effectiveness, implementability, cost, and state and community acceptance. The evaluation criteria are described in Table 1 *(see page 11)*.

A comparative analysis of these alternatives based upon the nine evaluation criteria follows. The discussion is divided in separate sections for comparison of soil (Alternatives S-1 through S-5) and groundwater (Alternatives G-1 through G-3) alternatives; however, it is recognized that soil alternatives may impact groundwater remedial options and time frames.

- Surface water controls consisting of concrete culverts would be installed around the perimeter of the cap and at other locations as necessary to ensure that runoff water does not erode the topsoil layer. Long-term maintenance of the cap would be required to ensure cap integrity. In addition, this alternative would include the institutional controls describe in Alternative S-2 to prevent interference with the cap.
- To facilitate the construction of the cap, the existing asphalt and concrete pads, frame building, and shed would be removed and disposed of off site. Tanks remaining on site, will be cleaned and recycled off site.
- Contaminated soils in outlying areas (TU-1,6,7, and 8) would be excavated and moved directly to the central disposal areas, where they would be graded with the material there in preparation for placement of the cap.

This alternative, if selected, would result in contaminants remaining on site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative S-4: In-Situ Treatment of Central Disposal Area

Capital Cost	**O&M Cost**
$4,997,000	$2,000/year
Present Worth Cost	**Time to Implement**
$5,028,000	7 months

This alternative would include in-situ treatment of the central disposal area and outlying areas (TU-1,-6,-7,-8) soils using solidification/stabilization. This treatment process would immobilize the contaminants that would remain in the soils.

The outlying areas would be excavated and the soils combined with the central disposal area soils prior to in-situ treatment.

Following the treatment, the central disposal area would be regraded as needed.

Institutional controls such as deed restrictions to limit construction on top of treated areas and fencing of the central disposal area (as discussed in Alternative S-2) would be included in this alternative due to the remaining presence of the contaminants at the site.

This alternative, if selected, would result in contaminants remaining on site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative S-5: Excavate All Areas

Capital Cost	**O&M**
$ 7,142,000	$ 0
Present Worth Cost	**Time to Implement**
$ 7,142,000	8 to 9 months

This alternative would include excavation of all identified soils in the central area and outlying areas with contaminant concentrations exceeding remedial action objectives.

The excavated soils would be disposed of as nonhazardous or hazardous waste soils at an off-site landfill, as appropriate, based on characterization of the waste piles.

The cost of this alternative was based on off-site disposal of 36,500 cubic yards contaminated soils. During the remedial design of this alternative, the cost of treating the contaminated soils on site prior to off-site disposal may be evaluated to determine if any cost savings may be realized.

CONTINUED ON FOLLOWING PAGES

➤ Soil Remedial Alternatives

Overall Protection of Human Health and the Environment

Alternative S-1 *(please see the table on pages 8 and 9 for a discussion of the soil remedial alternatives)* would not provide any protection of human health and the environment as no active remedial measures are included in this alternative. Alternative S-2, minimal action, would provide some degree of protection of human health through the use of institutional controls that would include deed restrictions and fencing; however, no protection of the environment is provided as contaminants would remain on site and may continue to migrate through the environment. Alternatives S-3 and S-4 would be protective as they would prevent human contact with wastes and would

Summary of Remedial Alternatives, continued

GROUNDWATER REMEDIAL ALTERNATIVES

Alternative G-1: No Action

Capital Cost	O&M Cost
$0	$0
Present Worth Cost	**Time to Implement**
$0	None

CERCLA requires that the "No Action" alternative be considered as a baseline for comparison with other alternatives. The No Action alternative does not include implementation of any institutional controls or active remedial measures for on-site contaminated groundwater.

This alternative does not require any action to be taken for implementation; however, site remedial action objectives may be achieved over time through natural attenuation and degradation processes.

Alternative G-2: Minimal Action

Capital Cost	O&M Cost
$0	*Year 1-5:* $52,000/Year *Year 6-30:* $15,000/Year
Present Worth Cost	**Monitoring Time**
$383,000	30 Years

This alternative would include institutional controls such as use restrictions to pr[illegible]nt human contact with contaminated groundwater at the site while the contaminants naturally attenuate. These restrictions would be applied to both the shallow and bedrock aquifers at the site due to the detection of contaminants at levels exceeding NYSDOH drinking water standards for both aquifers and would prohibit the installation of new wells at the site intended for potable use.

This alternative would also include monitoring of the groundwater to assess migration and natural attenuation of contaminant levels over time. The monitoring program would consist of an initial comprehensive five-year program, followed by a more limited program for an additional 25 years. The five-year monitoring program would include a total of 10 off-site wells and a total of 15 on-site monitoring wells, which would be monitoring sampled and analyzed for Target Analyte List (TAL) metals and Target Compound List (TCL) VOCs. In the event that contaminant levels remain below groundwater standards in the off-site wells during the first five years of monitoring, the monitoring program would be reevaluated to determine if any modification of it would be appropriate.

This alternative, if selected, would result in contaminants remaining on site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years.

Alternative G-3: Groundwater Collection and Treatment

Capital Cost	O&M Cost
$1,678,000	*Year 1:* $379,000/year *Year 2-5:* $364,000/year *Year 6-30:* $323,000/year
Present Worth Cost	**Time to Implement**
$6,607,000	4 Months
Monitoring Time	
30 Years	

This alternative would include installation of a system of trenches and wells to collect contaminated groundwater at the site and construction of treatment system design to meet discharge criteria. Based on the primary contaminants present in groundwater at the site (e.g., organics (benzene and vinyl chloride) and metals (arsenic, beryllium, and manganese)), the treatment train would consist of chemical precipitation with clarification to remove the metals followed by activated carbon treatment to remove organic constituents. The treated groundwater effluent would be transported via a pipeline to a discharge point in the unnamed stream at the site. The treated groundwater would meet discharge limits based on the NYSDEC Class B surface water standards. The groundwater collection and pumping may alter the existing wetlands patterns, particularly those to the north near the collection drains and to the south near the pumping well. The exact nature of these impacts and measures to mitigate them would need to be evaluated as part of the remedial design of this alternative.

A Groundwater Monitoring Program would be needed to assess the effectiveness of groundwater extraction on contaminant levels in the aquifer over time. Groundwater monitoring data would be used to evaluate the continuing operation of the collection and treatment system. The monitoring program would consist of an initial comprehensive five-year program, followed by a more limited program for an additional 25 years. The five-year monitoring program would include a total of 10 off-site wells and a total of 15 on-site monitoring wells, which would be monitoring sampled and analyzed for TAL metals and TCL VOCs. In the event that contaminant levels remain below groundwater standards in the off-site wells during the first five years of monitoring, the monitoring program will be reevaluated to determine if any modification of it would be appropriate.

This alternative, if selected, would result in contaminants remaining on site with concentrations above health-based levels. Therefore, under CERCLA, the site would have to be reviewed every five years reduce migration of contaminants to the groundwater by containing wastes with a cap in the central disposal area (Alternative S-3), or in-situ solidification/stabilization treatment (Alternative S-4). Alternative S-5 would prevent environmental degradation and eliminate potential health risks posed by human contact with disposal area soils through excavation of contaminated disposal off-site. This excavation alternative would provide a greater degree of protection of human health and the environment than Alternatives S-3 and S-4, as the contaminants would be removed permanently from the site.

Compliance with ARARs

Action-specific ARARs for the site include Federal and NYCRR for treatment, temporary storage, and disposal of wastes (40 CFR Part 256-268 and 6 NYCRR Part 360). Alternatives S-3, S-4, and S-5, would comply with ARARs through capping of the central disposal area, in-situ treatment and/or excavation of all contaminated wastes at the site. Excavated soils would be disposed of appropriately; hazardous soils would be treated on site or at a licensed facility using stabilization followed by disposal as nonhazardous wastes. Any off-site transportation of hazardous wastes would be conducted in accordance with all applicable hazardous waste manifest and transportation requirements.

Long-Term Effectiveness and Permanence

Alternative S-1 would not provide for long-term effectiveness and permanence as contaminants would remain in site soils with no institutional controls to prevent human contact with the wastes. Alternative S-2 provides marginal long-term effectiveness in that it deters inadvertent access, but does not eliminate the potential for trespassers. The degree of long-term effectiveness of the central disposal area cap (Alternative S-3) is dependent on its continued integrity and maintenance. The in-situ solidification/stabilization of contaminated soils (Alternative S-4) would significantly reduce or eliminate the leaching of a contaminant to the groundwater. Long-term monitoring and maintenance would be required for all remedial alternatives. Alternative S-5 would provide long-term effectiveness and permanence by removing the contaminants from the site.

Reduction in Toxicity, Mobility, or Volume Through Treatment

Alternatives S-1 and S-2 would not provide reduction in toxicity, mobility, or volume of contaminants. Alternative S-3 would reduce the mobility of the contaminants by placing these soils under the cap. In-situ treatment (Alternative S-4) would reduce the mobility of contaminants present in treated soils through solidification/stabilization treatment to prevent contaminant leaching. Alternative S-5 would result in a reduction in the volume of contamination present at the site through excavation and ultimate off-site disposal of the wastes.

Short-Term Effectiveness

Alternative S-1 would not result in any adverse short-term impacts. Potential short-term impacts would be associated with the other alternatives due to the direct contact with soils by workers and/or the generation of vapor and particulate air emissions. Such impacts would be addressed through worker health and safety controls, air pollution

Table 1 - Evaluation Criteria

- **Overall protection of human health and the environment** addresses whether or not a remedy provides adequate protection and describes how risks are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
- **Compliance with ARARs** addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and requirements or provide grounds for invoking a waiver.
- **Long-term effectiveness and permanence** refers to the ability of a remedy to maintain protection of human health and the environment once cleanup goals have been met.
- **Reduction of toxicity, mobility, or volume through treatment** is the anticipated performance of the treatment technologies a remedy may employ.
- **Short-term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.
- **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
- **Cost** includes estimated capital and operation and maintenance costs, and net present worth costs.
- **State acceptance** indicates whether, based on its review of the RI/FS reports and Proposed Plan, the state concurs, opposes, or has no comment on the preferred alternative.
- **Community acceptance** will be assessed in the ROD following a review of the public comments received on the RI/FS reports and the Proposed Plan.

controls such as water spraying, dust suppressants, and tarps for covering waste during loading, transporting and waste feeding preparation. Site and community air monitoring programs would be implemented when conducting such activities, to ensure protection of workers and the nearby community. It is estimated that all the alternatives could be completed as follows: Alternative S-1 in zero months, Alternative S-2 in 2 months, Alternative S-3 in 8 months, Alternative S-4 in 7 months and Alternative S-5 in 8 months.

Implementability

All of the alternatives are implementable from an engineering standpoint. Each alternative would utilize commercially available products and accessible technology. Alternatives S-3 (capping) and S-4 (in-situ treatment) would be easier to implement than Alternative S-5, which includes more extensive excavation of contaminated site areas. Excavation of outlying areas is included in all alternatives but disposal of these soils would be most easily handled in Alternative S-3, where they would be placed under the on-site cap. Capping of the central disposal area would present fewer difficulties in implementation than in-situ treatment (Alternative S-4). Cap construction is a common technology that has been frequently applied at hazardous wastes sites. Although solidification/stabilization is an established technology, in-situ application of this process has had only limited application at hazardous wastes sites and implementation may also be limited by the heterogenous nature of the soils in the waste disposal areas and the variety of contaminants present.

Cost

The capital, present worth, and operation and maintenance (O&M) costs for the soil Alternatives S-1 to S-5 are summarized in Table 2. Alternative S-3 has a present worth cost of $1,458,000 that includes an annual O&M cost associated with maintenance of the cap. Alternative S-4 is substantially more expensive with a present worth cost of $5,028,000 associated with in-situ treatment of the waste material. Alternative S-5 has a present worth cost of $7,142,000, due to the high capital cost of excavation.

State Acceptance

The State of New York concurs with the preferred remedy.

Community Acceptance

Community acceptance of the soil preferred alternative will be assessed in the ROD following review of the public comments received on the RI/FS reports and the Proposed Plan.

➢ Groundwater Remedial Alternatives

Overall Protection of Human Health and the Environment

Alternative G-1 *(please see the table on page 10 for a description of the groundwater remedial alternatives)* does not include institutional controls or active remediation and is not protective of human health and the environment. Alternative G-2 would provide protection of human health through the implementation of institutional controls such as use restrictions to prevent potable use of contaminated or potentially contaminated site groundwater. Alternative G-2, through natural attenuation of contaminants levels present over time, would provide protection to the environment. Currently, the site does not contain a plume of contaminants migrating from the site; however, Alternative G-3 would provide the greatest degree of protection of human health and the environment of the three groundwater alternatives as it includes collection and treatment of contaminated groundwater to remove the contaminants present. Treatment of the extracted groundwater prior to on-site discharge to the unnamed stream will ensure that the discharge water does not pose an environmental or human health risk.

Compliance

Principal location-specific ARARs for the site include the Federal Protection of Wetlands Executive Order (E.O. 11990), NYCRR Wetland Permit (6 NYCRR Part 663), the Safe Drinking Water Act (SDWA) promulgated National Primary Drinking Water standards including both the Maximum Contaminant Limits (MCL) and the Maximum Contaminant Level Goals (MCLGs), and the New York State Groundwater and Surface Water Standards promulgated by NYSDEC. All three groundwater alternatives would achieve site remedial action objectives over time; Alternatives G-1 and G-2 through natural attenuation and degradation of the contamination present, and G-3 through active remediation. Alternative G-2 would include institutional controls to prevent use of contaminated groundwater and long-term monitoring to assess the rate of attenuation. Alternative G-3 is intended to achieve compliance with the site remedial action objectives through collection and treatment of groundwater. Discharge of treated groundwater to the unnamed stream would be conducted in accordance with all applicable regulations, including NYSDEC Class B surface water standards as appropriate for the receiving water body. In addition, this stream flows into a NYSDEC-regulated wetland, thereby requiring compliance with NYSDEC wetland permit requirements.

Long-Term Effectiveness and Permanence

Alternative G-3 is intended to achieve site remedial action objectives more quickly than Alternatives G-1 and G-2 through active remediation of the groundwater. However, while some contaminant concentrations are expected to reach cleanup levels in a reasonable amount of time (approximately 10 years), modeling estimates that other contaminants would take considerably longer to reach cleanup levels.

Reduction of Toxicity, Mobility, or Volume through Treatment

No reduction in toxicity, mobility, or volume of contamination present at the site through active remediation (Alternative G- 3) would occur for Alternative G-2; however, natural attenuation and degradation would reduce toxicity of the contaminants present over time particularly when soil source control measures are instituted. Alternative G-3 is intended to reduce the volume of contamination present at the site through extraction of contaminated groundwater using combination of pumping well and collection trenches. In addition, the toxicity of the extracted groundwater would be reduced through treatment (metals precipitation and carbon adsorption) prior to on-site discharge of the water.

Short-Term Effectiveness

No significant short-term health or environmental impacts would result from implementation of the no action and minimal action alternatives. The long-term groundwater monitoring program included in Alternative G-2 would pose only minimal health risks to workers performing the groundwater sampling and would be mitigated through use of appropriate personal protective equipment. Alternative G-3 would result in increase noise and traffic at the site during the four to six months required for installation of the groundwater collection and treatment systems. The small potential for adverse health effects to workers during installation of the pumping well and potential trenches would also be minimized through the use of personal protective equipment.

Implementability

Both Alternatives G-2 and G-3 require implementation of institutional controls at the site and implementation of a long-term groundwater monitoring program. Alternative G-3, collection and treatment of groundwater, would be more difficult to implement due to the need to install the collection system (pumping well and trenches), piping, and treatment system.

Cost

The capital, present-worth, and O&M costs for the groundwater alternatives are summarized in Table 3. The present worth cost of $383,000 for Alternative G-2 is associated with the groundwater monitoring program over 30 years. The significantly greater cost of $6,607,000 for Alternative G-3 is associated with the construction of the groundwater collection and treatment system and its operation, including groundwater monitoring over 30 years.

State Acceptance

The State of New York concurs with the preferred remedy.

Community Acceptance

Community acceptance of the groundwater preferred alternative would be assessed in the ROD following review of the public comments received on the RI and FS Reports and on the Proposed Plan.

Preferred Alternatives

Based upon the results of the RI/FS and after careful consideration on of the various alternatives, the EPA recommends Alternative S-3 (Capping of Central Disposal Area and Placement of Outlying Soils under Cap) and G-2 (Minimal Action for Groundwater) as the preferred alternatives for the site remedy *(see Figure 3)*. In addition, institutional controls, i.e., deed restrictions, for both Alternatives S-3 and G-2 would be implemented.

Specifically, the preferred alternatives would involve the following:

➢ Soil Remedial Alternative

- A 4.8-acre cap would be constructed in conformance with the major elements described in 6 NYCRR Part 360 for solid waste landfill caps. Conceptually, the cap would be comprised of: 18 inches of clay or a suitable material to ensure a permeability of 10^{-7} cm/sec, 6 inches of porous material serving as a drainage layer, 18 inches of backfill, and 6 inches of topsoil and grass cover.
- Surface water controls consisting of concrete culverts would be installed around the perimeter of the cap and at other locations as necessary to ensure that runoff water does not erode the topsoil layer. Long-term maintenance of the cap would be required to ensure cap integrity. In addition, this alternative would include the institutional controls describe in Alternative S-2 to prevent interference with the cap.
- To facilitate the construction of the cap, the existing asphalt and concrete pads, frame building, and shed would be removed and disposed of off site. Also, tanks will be cleaned and recycled off site.
- Contaminated soils above the RAOs in outlying areas (TU-1,6,7, and 8) would be excavated and moved to the central disposal areas, where they would be graded with the material there in preparation for placement of the cap.
- Confirmatory sampling would be collected from the bottom and sidewalls of the excavation. Following excavation and confirmatory sampling, the trench units will be backfilled with a clean fill and overlain a 6-inch layer of clean topsoil and grass cover.
- Institutional controls would be implemented, including new deed restrictions to limit access and to prohibit interference with the cap.

➢ Groundwater Remedial Alternative

Because there is no current risk to human health due to groundwater contamination and, after construction of the cap, groundwater quality is expected to improve, the EPA is proposing Alternative G-2 as its preferred groundwater remedy. Alternative G-2 would provide for groundwater monitoring while allowing for natural attenuation of the contaminants in the groundwater.

Figure 3
EPA's Preferred Alternative

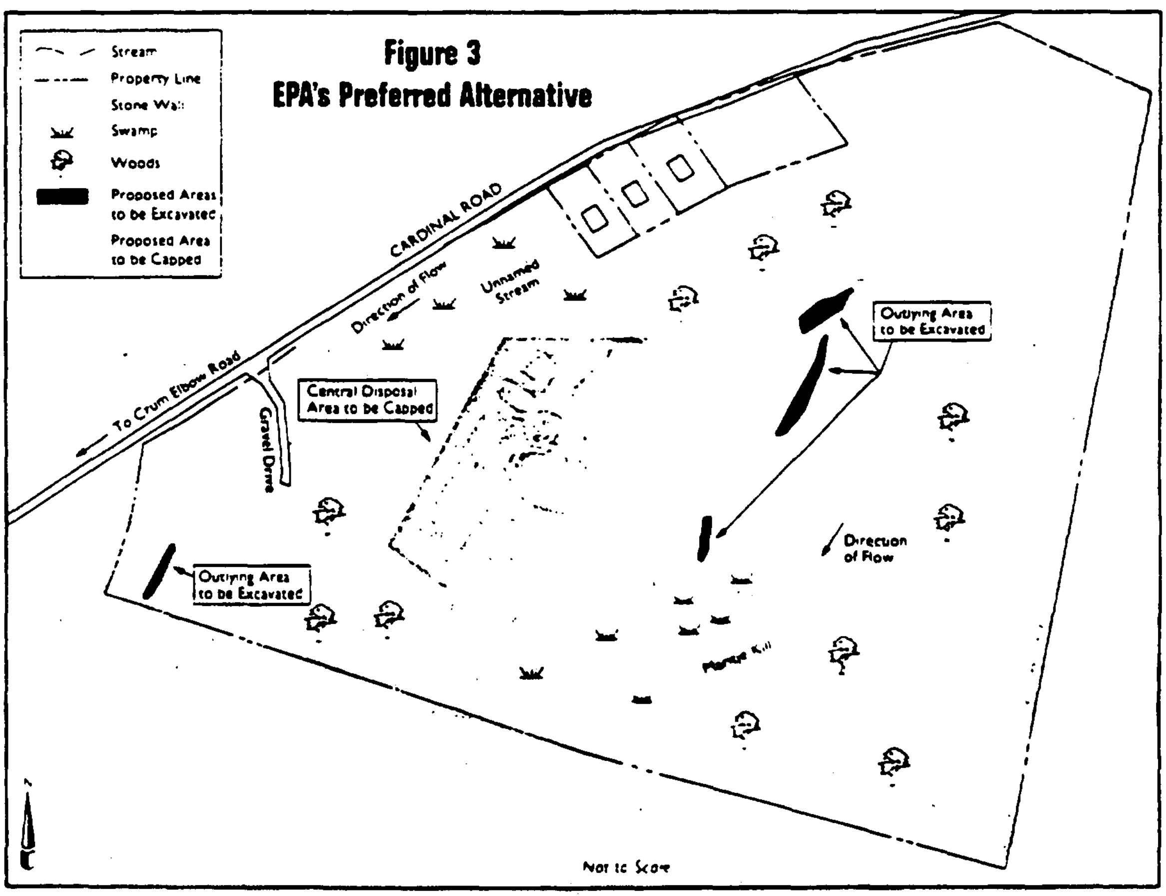


Table 2
Cost Comparison of the Soil Remedial Alternatives

ALTERNATIVE	Capital Cost[1]	Annual O&M Cost[2]	Total Present Worth Cost[3]
S-1: No Action	0	0	0
S-2: Minimal Action	286,000	2,000	317,000
S-3: Capping of Central Disposal Area & Placement of Outlying Soils Beneath Central Disposal Area	1,043,000	27,000	1,458,000
S-4: In-Situ Treatment of Central Disposal Area 1	4,997,000	2,000	5,028,000
S-5: Excavate All Areas	7,142,000	0	7,142,000

Table 3
Cost Comparison of the Groundwater Remedial Alternatives

ALTERNATIVE	Capital Cost[1]	Annual O&M Cost[2]	Total Present Worth Cost[3]
G-1: No Action	0	0	0
G-2: Minimal Action	0	*Year 1–5* 52,000 *Year 6–30* 15,000	383,000
G-3: Groundwater Collection & Treatment	1,678,000	*Year 1* 379,000 *Year 2–5* 364,000 *Year 6–30* 323,000	6,607,000

1 Capital Cost: Includes costs associated with equipment, site preparation and treatment of the Central Disposal Area
2 O&M means "Operations and Maintenance"
3 Total Present Worth Cost: The amount of money that EPA would have to invest now at 5% interest in order to have the appropriate funds available at the actual time the remedial alternative is implemented
4 In situ means "in place"

- The preferred alternative would involve implementation of a groundwater monitoring program that would include an initial intensive five-year program, followed by a more limited program for an additional 25 years. As part of this effort a series of monitoring wells would be installed between the site and the closest residences. During the first five years of the monitoring program, sampling would be conducted on both on- and off-site wells, including off-site private drinking wells, and would be monitored on an annual basis for metals and VOCs. In the event that contaminant levels remain below groundwater standards in the off-site wells during the five-year monitoring period, the monitoring program would be reevaluated. It is expected that once the cap has been constructed, groundwater quality should improve and, hence, a reduction in the scope and/or frequency of groundwater monitoring may be appropriate. If future monitoring indicates that groundwater contamination is not attenuating and may migrate off site, additional groundwater remedial measures may be considered.
- Institutional controls would be implemented, including new deed restrictions to prevent human contact with contaminated groundwater at the site and/or well permitting restrictions. These restrictions would be applied to both the shallow and bedrock aquifers at the site due to the detection of contaminants at levels exceeding NYSDOH drinking water standards in both aquifers and would prohibit the installation of new wells at the site intended for potable use. Nonpotable uses of site groundwater (e.g., watering) may be allowed.

The preferred alternatives would provide the best balance of trade-offs among alternatives with respect to the evaluating criteria. The EPA and the NYSDEC believe that the preferred alternatives would be protective of human health and the environment, would comply with ARARs, would be cost-effective, and would reduce toxicity, mobility, and volume of contaminants permanently by utilizing permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Mailing List Additions

If you or someone you know would like to be placed on the Jones Sanitation Superfund Site Mailing List, please fill out and mail this form to:

Ann Rychlenski
Community Relations Coordinator
U.S. Environmental Protection Agency
290 Broadway, 26th Floor
New York, NY 10007-1866

Name ______________________________

Address ______________________________

____

Telephone ______________________________

Affiliation ______________________________

ECMSS ·›:ˆ

This is printed on recycled paper

United States
Environmental Protection Agency
290 Broadway, 26th Floor
New York, NY 10007-1866

Official Business
Penalty for Private Use $300

APPENDIX B

PUBLIC NOTICES*

*The public notice announcing the availability of the Proposed Plan, the opening of the public comment period, and the public meeting, was published in the Poughkeepsie Journal on Friday, February 21, 1997, and in the Hyde Park Townsman on Thursday, February 27,1997,

EPA

The United States Environmental Protection Agency

invites Public Comment on the

Proposed Cleanup of the Jones Sanitation Superfund Site
Town of Hyde Park, New York

PUBLIC MEETING
Thursday, March 13, 1997 at 7:00 pm
Roosevelt Engine Company #1, Cardinal Road, Town of Hyde Park, NY

The U.S. Environmental Protection Agency (EPA) invites the public to comment on its proposed plan for remediating contaminated soil and groundwater at the Jones Sanitation Superfund Site in the Town of Hyde Park, New York. The EPA will accept public comments during a public comment period that begins on February 21 and ends on March 22, 1997. EPA will consider all comments received at the public meeting and during the public comment period before selecting a final remedy. Written comments may be submitted to the following address:

Isabel Rodrigues, Remedial Project Manager, U.S. Environmental Protection Agency, 290 Broadway, 20th Floor, New York, NY 10007-1866

The EPA and the New York State Department of Environmental Conservation (NYSDEC) evaluated the following alternatives for addressing soils contamination:

S-1—No Action S-2—Minimal Action
S-3—Capping of Central Disposal Area & Placement of Outlying Soils under the Cap
S-4—In-Situ Treatment of Central Disposal Area S-5—Excavate All Areas

The EPA and NYSDEC evaluated the following alternatives for addressing groundwater contamination:

G-1—No Action G-2—Minimal Action G-3—Groundwater Collection & Treatment

Based on available information, the EPA and NYSDEC prefer a combination of Alternatives S-3: Capping of Central Disposal Area and Placement of Outlying Soils under the Cap, and G-2: Minimal Action for Groundwater. This action would involve containing materials in the central disposal area with a cap to minimize infiltration of rainwater which, in turn, would reduce movement of contaminants through the soil. Contaminated soils from outside the central disposal area would be moved under the cap. Concrete culverts would be installed around the cap to control surface water runoff.

The groundwater monitoring program would include an initial intensive five-year program, followed by a more limited program for an additional 25 years. Deed restrictions to prevent future residential use of the site would be implemented to limit exposure to contaminants that remain on site and in the groundwater.

For More Information—Complete analysis of the alternatives listed above are presented in the Feasibility Study and Proposed Plan. These and related documents can be reviewed at the following locations:

Hyde Park Free Public Library, 2 Main Street, Hyde Park, NY 12538
Hours: **Mon, Tues 9am–8pm, Wed, Thurs 12–8pm, Sat, 9am–2pm, Fri, Sun closed**

U.S. Environmental Protection Agency, 290 Broadway, 18th Floor
New York, NY 10007-1866 ***By Appt:*** **212-637-4215**

APPENDIX C

SIGN-IN SHEETS FROM

MARCH 13, 1997

PUBLIC MEETING

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PUBLIC MEETING
for the
JONES SANITATION SUPERFUND SITE
Hyde Park, New York

March 13, 1997

MEETING ATTENDEES
(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING
Nina Knapp	2 University Place	Albany NY	12203	(518) 458 6402	NYS DOH
JIM LISTER	50 Wolf Rd.	Albany, NY	12233	518 457-3976	NYSDEC
Robert L Braun	15 Philips Dr	Hyde Park, NY	12538	914-229-9857	H P CAC
Lanny Gemme	20 Cardinal	Hyde P NY	12538	229-5884	H.P.
Kevin J. Kelly	7 Matuk Dr.	Hyde Park N.Y.	12538	914-229-8160	H.P.
Ted Losee	Cardinal Rd	Hyde Park NY	12531	914-452112[illegible]	Jones Septic Svc
BURTON BATHRICK	29 CARDINAL	HYDE PARK NY	12538	914-229-8029	H.P.
Hugh Fritsch	15 Argon Rd	Stormsburg NY	10974	(914) 753-6110	CAS Eng
Brian Buke	21 Cardinal Rd	Hyde Park	12538		
DAVID Burns	JES PO. Box R	Millbrook	12545	(677)-8223	EMC
ROBERT SMISKO	124 Horns Park Rd	HYDE PARK	12538	229-7673	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PUBLIC MEETING
for the
JONES SANITATION SUPERFUND SITE
Hyde Park, New York

March 13, 1997

MEETING ATTENDEES
(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING
M/M Nick Kelly	17 Matuk Dr	H.P.	12538	229-5402	
[illegible]	43 Cardinal Rd	H.P.	12538	229-5511	
Tom Spruce	627 Albany Post Rd	H P	12538	229-5111	Town of H.P.
Bob & Donna Szymanski	14 Matuk Dr	H.P.	12538	229-9873	Town of H.P.
Peg & Cody Robertson	15 Cardinal Rd	H.P.	12538	229-7341	
George Olney	27 Cardinal Rd	H P	12538	229-5038	
[illegible]	[illegible]	[illegible]		487-[illegible]	
Jay Weiss	98 Cardinal Rd	HP	12538	229-2724	
WILLIAM BEST	68 CARDINAL RD	H.P.	12538	229-5659	
Lozier, Barbara	49 Cardinal Rd	HP	12538	229-9718	

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PUBLIC MEETING
for the
JONES SANITATION SUPERFUND SITE
Hyde Park, New York

March 13, 1997

MEETING ATTENDEES
(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING
[illegible] Kuehner	2 University Pl	Albany	12203	518-458-6305	NYSDOH
Guy Tirums	8 Allie Drive	Hyde Park	12538	914-229-5976	Self
Sharon Pirraino-Kuta	21 Cardinal Rd	HP	12538	914-229-1366	Self
Merrill Woodlawn	32 Cardinal Rd	H.P	12538	914-229-2873	SELF
June Sharpe	10 Matuk Dr	H.P	12538	914-229-2246	Self
Susan Gianner	6 Glen View Dr	Red Hook	12571	914-229-2524	Hyde Park Fire & Water
Jack April Centoma	27 Cardinal Rd	H P	12538	914-229-7853	self
James F Kelly	15 MATUK DR	H.P	12538	229-0536	SELF
Laurie K. Carpenter	120 Howe Park Rd. No	Hyde Park	12538	229-5616	self
D. Braga	27 Matuk DR	Hyde Park	12538	229-2812	Self
R. Wells	41 Matuk Dr	Hyde Park	12538	229-2533	self

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PUBLIC MEETING
for the
JONES SANITATION SUPERFUND SITE
Hyde Park, New York

March 13, 1997

MEETING ATTENDEES
(Please Print)

NAME	STREET	CITY	ZIP	PHONE	REPRESENTING
John & Doris Ruhle	31 Matuk Dr.	Hyde Park	12538	229-2288	
JOHN BISECK	44A NORTH CLOVER ~~GARDEN RD~~	POK. ~~HYDE PARK~~	12601 ~~12538~~	~~485-3452~~	
Joanne Wiceman	485C Route 1S. Iselin, NJ 08830	Iselin, NJ	08830	908-726-3729	ICFKaiser/EPA
Mary Heaton	485C, Route 1S	Iselin, NJ	08830	908-726-3789	ICFKaiser/EPA

APPENDIX D

WRITTEN COMMENTS

HYDE PARK
CONSERVATION ADVISORY COMMITTEE
HYDE PARK TOWN HALL RT 9
Hyde Park, NY 12538

March 12, 1997

Ms. Isabel R. Rodrigues, Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Dear Ms. Rodrigues:

Re: Superfund Proposed Plan: Jones Sanitation Superfund Site, Town of Hyde Park, Dutchess County, New York

The Hyde Park Conservation Advisory Committee (CAC) has reviewed the referenced plan and offers the following comments and suggestions:

1) Since the Aquifers and the surface water flow to the south, testing should be performed downstream to ensure that contaminants have not migrated outside the present test area. This will also provide a base line for later tests.

2) The site is over a major Aquifers, which flows to generally to the south. The "Alternative" must assure that contaminants do not enter the Aquifers. The trailer park to the south is in path of any migrating plume. Also, further to the south (less than a mile) are the emergency use wells of the Hyde Park Fire and Water District. While the district is not now using these wells they should be protected for possible emergency use.

3) Long term town residents have told us that this site is also in the "100 year flood plane". The "Alternative" must consider flooding effects which would wash away the cap.

Thank you for the opportunity to review this plan. We will be happy to address any questions you have.

Sincerely yours,

P. N. Prentice

P. N. Prentice

Chairman Hyde Park CAC
cc: Robert L. Brown, Hyde Park CAC
Town of Hyde Park Tom Spence Supervisor
Hyde Park Fire and Water District

03/14/97

Memo to: U.S. Environmental Protecion Agency

Subject: Jones Sanitation Superfund Site (Hyde Park, N.Y.)

Dear EPA officials,

I would like to thank the EPA for supplying us with a copy of the subject site study and proposed remedial action, and for testing our water. Our home and property directly adjoin the subject site (we live at 29 Matuk Drive). I have reviewed the proposed plan which recommends S-3: gathering and capping the contaminated soil.
I must say that I am very dissappointed with this recommendation. Perception is everything, and my perception is that as long as that stuff is in my neighborhood, it will pose a potential disaster to myself, my family and my neighbors. I'm talking about peace-of-mind here. I'm talking about the value of our homes and the quality of our lives. I'm talking about removing any potential for future problems. The study of this site appears to be extensive and performed with great care and professionalism. Yet there will always be some lingering doubt if the bad stuff isn't hauled away.

For me, the only solution that I can call a solution is S-5: removal of all contaminated soil. Anything else will leave us wondering for the rest of our lives, or until something happens. And if something does happen as a result of adoption of the S-3 plan, $7M will seem small compared to the litigations the EPA would have to endure. So please reconsider the remedial plan.

Thank you for the opportunity to have my opinion recorded. And thanks for keeping us informed. Please continue to keep us informed.

Sincerely,
James Gregerson
James C. Gregerson

Lawler, Matusky & Skelly Engineers LLP

Environmental Science & Engineering Consultants

ONE BLUE HILL PLAZA
P.O. BOX 1509
PEARL RIVER, NEW YORK 10965
(914) 735-8300
FACSIMILE (914) 735-7466

JOHN P. LAWLER, P.E.
MICHAEL J. SKELLY, P.E.
KARIM A. ABOOD, P.E.
PATRICK J. LAWLER, P.E.
THOMAS L. ENGLERT, P.E.
PETER M. McGRODDY, P.E.
THOMAS E. PEASE, P.E.
THOMAS B. VANDERBEEK, P.E.

Principal
SUSAN S. METZGER, Ph.D.

19 March 1997
File No. 442-178

Ms. Isabel Rodrigues
U.S. Environmental Protection Agency
Region 2
290 Broadway, 20th floor
New York, New York 10007-1866

Re: Jones Sanitation Superfund Site
Comments to Proposed Remedial Action Plan (PRAP)

Dear Ms. Rodrigues:

As discussed briefly with you prior to the public meeting on the above-referenced site (held on 13 March 1997) we are forwarding to you the following comments on the proposed remedial action plan (PRAP).

1. <u>Page 8, second paragraph, left-hand column.</u>

The PRAP states that "further field investigations are warranted to better assess the environmental impacts to this area." However, as described in the previous page of the PRAP, an ecological risk assessment was conducted to define site risks and no site-related biological stresses were noted. Although a potential ecological risk was identified for on-site receptors these risks will be addressed by the proposed remedial action. Further definition of a "no-action" baseline risk also appears unwarranted assuming that the proposed remedial measures are undertaken. Additionally, since the FS showed that construction activities for the proposed remediation could avoid identified wetlands, further evaluation of construction impacts to wetlands appears unwarranted (although additional topographic surveying may need to be conducted to accurately locate the wetlands for design purposes). Therefore, we recommend that any further ecological work be limited to wetlands mapping for design purposes.

2. <u>Page 9 (Summary of Remedial Alternatives) and page 15 (Table 2).</u>

On page 9 Alternative S-3 is described as requiring long-term cap maintenance, however, on Table 2, page 15, it appears that the maintenance costs ($8,000/yr) for the cap were omitted in the calculation of annual operation and maintenance (O&M) costs. By eliminating these cap O&M costs the calculated present worth has been reduced by approximately $123,000. What is EPA's position regarding cap maintenance in light of this discrepancy?

3. Page 15, first paragraph, left hand column.

For the selected groundwater alternative, the PRAP indicates that additional monitoring wells will be installed. Considering the number and duration of overburden and bedrock wells already installed on-site, it does not appear necessary to install new wells.

We would like to discuss these comments with you at your earliest convenience and at the same time review the project status and schedule for design and remediation. Please call if you have any questions.

Very truly yours,

Ruth M. Fritsch

Ruth M. Fritsch, Director
Site Assessment Section

cc Scott H. Fein, Esq. (WOH)
Carole Berns, Esq. (USEPA)
James Lister (NYSDEC)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DATE: MAR 31 1997

SUBJECT: Record of Decision for the Jones Sanitation Superfund Site

FROM: Richard L. Caspe, Director
Emergency and Remedial Response Division

TO: Jeanne M. Fox
Regional Administrator

Attached for your approval is the Record of Decision (ROD) for the Jones Sanitation Site, located in the Town of Hyde Park, Dutchess County, New York. The selected remedial action addresses soils and groundwater containing volatile organic, semi-volatile organic, PCB and inorganic contaminants. No remedial action is presently planned for the on-site streams and wetlands as no adverse impacts were observed.

The selected remedy calls for the excavation of contaminated soils above the cleanup goals in the outlying areas and placement of these soils in the central disposal area, construction of a cap over the central disposal area and implementation of a groundwater monitoring program. As part of this monitoring, a series of wells will be installed between the site and the closest residences.

The Remedial Investigation and Feasibility Study reports and the Proposed Plan were released to the public for comment on February 21, 1997. A public comment period on these documents was held from February 21, 1997 through March 22, 1997. Comments received during the public comment period generally supported the preferred remedial alternative and are addressed in the attached Responsiveness Summary.

The estimated present worth cost of the selected remedy Alternatives S-3 and G-2) mentioned above is $1,841,000. The remedy is the same as the preferred alternatives presented in the Proposed Plan.

The ROD has been reviewed by the New York State Department of Environmental Conservation, and the appropriate program offices within Region II. Their input and comments are reflected in this document. The New York State Department of Environmental

Conservation has concurred with the selected remedy for the Jones Sanitation Site, as indicated in the attached letter.

If you have questions or comments on this document, I would be happy to discuss them with you at your convenience.

Attachments

bcc: C. Berns, ORC
S. Clark, EPA-HQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

EXPRESS MAIL
RETURN RECEIPT REQUESTED

Mr. Jim Lister
Division of Environmental Remediation
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Re: Record of Decision for Jones Sanitation Site

Dear Mr. Lister:

Enclosed is a copy of the Record of Decision (ROD) for the Jones Sanitation Site in Hyde Park, New York, signed March 31, 1997. Please note that this ROD is consistent with the approach agreed upon by the EPA and NYSDEC to address the Jones Sanitation Site which is; the excavation of contaminated soils in the outlying areas, construction of a Part 360 cap over the central disposal area, implementation of a groundwater monitoring program and implementation of institutional controls.

If you have any questions regarding this document please contact me at (212) 637-4248.

Sincerely yours,

Isabel Rodrigues, Project Manager
New York Remediation Superfund Branch

Enclosure

cc: M. Chen, NYSDEC - Albany w/out enclosure
G. Anders Carlson, NYSDOH w/out enclosure

bcc: C. Berns - EPA, ORC
I. Rodrigues- EPA, WNYRS
P. Moss- EPA-ERRD
S. Clark-EPA, HQ

ROD FACT SHEET

SITE

Site name: Jones Sanitation Site

Site location: Town of Hyde Park, Dutchess County, New York

HRS score: 52.52 (Jan. 1987)

EPA ID #: NYD980534556

ROD

Selected Remedy:

Soils - Capping of central disposal area and placement of outlying soils beneath central disposal area. Groundwater - Monitoring program for 30 years. In addition, institutional controls to prevent interference with the cap and human contact with contaminated groundwater.

Capital Cost:	Soil -	$1,043,000
	Groundwater	$50,000

O & M cost: Soil - $2,000/year
Groundwater - Year 1-5: $52,000/Year
Year 6-30: $15,000/Year

Present-Worth Cost:	Soil -	$1,458,000
	Groundwater -	$440,000
	Total	$1,898,000

LEAD

United States Environmental Protection Agency

Primary Contact: Isabel R. Rodrigues, (212) 637 - 4248

Secondary Contact: Kevin M. Lynch (212) 637 - 4287

Main PRPs: Alfa-Laval Separator Company
Jones Septic services

WASTE

Waste type: Various volatiles, semi-volatiles, PCBs, PAHs and inorganics.

Waste origin: Septage waste and industrial wastewater.

Estimated waste quantity: Soils from central disposal area: 11,450 cubic yds. Soils from outlying areas : 2,070 cubic yds.

Contaminated medium: Groundwater and soils.