TABLE OF CONTENTS

S18002

ATTACHMENTS

DECLARATION FOR THE RECORD OF DECISION

Site Name and Location

Town of Johnstown, Johnstown City Landfill, Fulton County, New York

Statement of Basis and Purpose

This decision document presents the selected remedial action for the Johnstown City Landfill site (the "Site"), located in the City of Johnstown, Fulton County, New York, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601-9675, as amended (CERCLA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision document explains the factual and legal basis for selecting the remedy for the Site. The information supporting this remedial action decision is contained in the administrative record for the Site. The administrative record index is attached (Appendix III).

The New York State Department of Environmental Conservation (NYSDEC) concurs with the selected remedy. NYSDEC will also concur with the contingent remedy, should future water quality data indicate that the ground-water remediation component of the contingent remedy is appropriate. (See Appendix IV.)

Assessment of the Site

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present a significant and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

This operable unit represents the entire remedial action for the Site. It addresses the principal threats to human health and the environment at the Site by controlling the source of contamination and the generation of leachate.

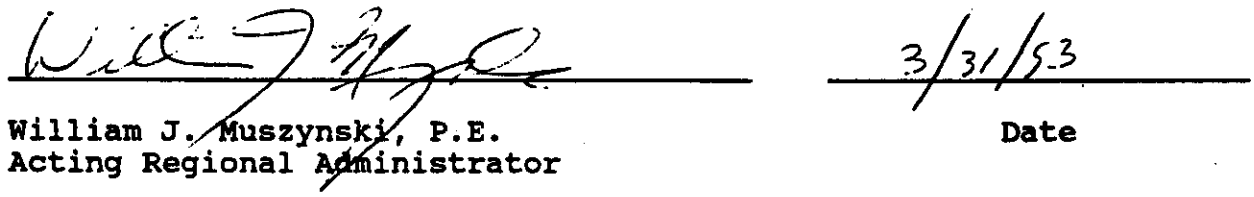
The major components of the selected remedy include:

- Excavation of the LaGrange Gravel Pit sediments and placing the excavated materials on the existing landfill. The pit will be filled with clean fill, so that it may be used as an infiltration basin and/or stormwater collection basin;

Declaration

The selected remedy 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. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. In keeping with the statutory preference for treatment as a principal element of the remedy, the contaminated ground water will be collected and treated, if necessary. The landfill material, however, cannot be excavated and treated effectively, because of the size of the landfill and because there are no on-Site "hot spots" that represent the major sources of contamination.

A review of the Site will be conducted no later than five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment, because this remedy will result in hazardous substances remaining on-Site above health-based levels.



3/31/93

William J. Muszynski, P.E.
Acting Regional Administrator

Date

- Regrading and compacting the landfill mound to provide a stable foundation for placement of the various layers of the cap and to promote rapid runoff;

- Construction of a multi-layer closure cap over the landfill mound and excavated sediments as per New York State 6 NYCRR Part 360 regulations. The cap, by reducing leachate generation, will act to improve the ground-water quality in the upper (overburden) and lower (bedrock) aquifers and surface-water quality in Mathew Creek through natural attenuation of contaminants;

- Expansion of the Johnstown City water-supply system to provide potable water to all private water supplies potentially impacted by the landfill. Providing city water will require the extension of the City's water lines and construction of a booster pump station; and

- Erection of approximately 6,800 feet of conventional chain-link fencing surrounding the entire landfill mound, with placement of appropriate warning signs.

The effectiveness of the landfill cap will be evaluated through post-construction monitoring of ground-water and surface-water quality. The evaluation will be conducted within 5 years following initiation of construction of the landfill cap, and at any time as needed thereafter, during the long-term monitoring of the Site. Should the monitoring results indicate that either ground-water quality in the upper (overburden) aquifer or the lower (bedrock) aquifer, or surface-water quality in Mathew Creek, is not being restored to acceptable levels through natural attenuation as a result of reduced leachate generation, the following will be implemented:

- Extraction of contaminated ground water from either of the aquifers, as necessary. The extraction system would utilize extraction wells which would induce flow to the wells through drawdown of the ground-water table. Operation of the ground-water extraction system would reduce the migration of contaminants away from the Site;

- Treatment of ground water by a treatment system located permanently on-Site that would use physical/chemical processes such as pH adjustment, chemical precipitation, and carbon adsorption, to remove inorganic and volatile organic contaminants; and

- Discharge of treated ground water by returning it to the aquifer via percolation ponds or injection wells, or by discharging it to a stream, the nearest being Mathew Creek. The discharge standards would be established by NYSDEC.

SITE NAME, LOCATION AND DESCRIPTION

The Johnstown City Landfill is a municipally operated, unlined landfill, situated in a 68-acre gravel pit in the Town of Johnstown, Fulton County, New York. The Site is located approximately 1.5 miles northwest of the City of Johnstown and 1.75 miles west of the City of Gloversville. (See Figure 1.)

The landfill consists of two, generally flat terraces filled into former borrow pits. A remnant of a pit once used as a demolition debris and metals disposal area, approximately 30 feet deep, exists on the westward side of the landfill at the base of a steep ridge. (See Figure 2.)

The surrounding area has a mixed residential, agricultural, and recreational land use. Approximately 10 homes are located within 1,000 feet of the Site, and an estimated 80 homes are located within one mile downgradient of the Site. (See Figure 3.) All of these homes have private wells with depths ranging from 10 to 208 feet. The population within a one-mile radius of the Site is approximately 1,000 persons.

The surface-water drainage in the vicinity of the landfill flows generally to the southeast. Surface waters flow from the upland areas, north of the Site, via intermittent drainage ways towards the south-southeast. The primary surface-water feature in the immediate vicinity of the landfill is Mathew Creek. The headwaters of the creek (LaGrange Springs) are located approximately 1,000 feet southeast of the Site. The creek flows southeasterly until it converges with Hall Creek prior to discharging into Cayadutta Creek. The flow of Mathew Creek is interrupted by a manmade pond (Hulbert's Pond) before it converges with Hall Creek. Cayadutta Creek ultimately discharges to the Mohawk River.

Due to differences in surface elevation, storm-water runoff and drainage from West Fulton Street Extension flow onto the surface of the landfill creating ponded water near its northeast corner. The water in this approximately one-acre pond either evaporates or infiltrates into the landfilled wastes. LaGrange Gravel Pit, located approximately 100 feet east of the eastern margin of the landfill, receives surface runoff from hill slopes in its immediate vicinity, minor flows from leachate seeps and occasional ephemeral runoff from the landfill surface. (See Figure 2.) Except for short-lived discharges to LaGrange Gravel Pit, there is no surface water runoff from the landfill. There is no surface water runoff from LaGrange Gravel Pit.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

Site History

Thirty-four acres of the 68-acre Johnstown City Landfill were used as an open refuse disposal facility from 1947 to 1960 before being

converted to a sanitary landfill. The landfill accepted industrial wastes from local tanneries and textile plants until April 1979, and sludge from the Gloversville-Johnstown Joint Sewage Treatment Plant from 1973 to April 1979. Landfill operations ceased in June 1989. Much of the tannery wastes were disposed of as chromium-treated hide trimmings and other materials. Sewage sludge was disposed of in open piles at a rate of approximately 20,000 cubic yards per year. The sludge contained concentrations of chromium, iron, and lead. There are no records available which detail the amounts of industrial wastes accepted by the landfill.

On June 10, 1986, the Johnstown City Landfill site was placed on the Superfund National Priorities List.

Enforcement Activities

On June 5, 1987, the state of New York filed suit under CERCLA and state common law against the City of Johnstown, the Gloversville/Johnstown Joint Sewer Board, Bruce Miller Trucking Company, and about a dozen waste generators. Several of the defendants subsequently impleaded approximately 52 third-party defendants, including additional generators, transporters and a number of area municipalities. When the defendants declined to fund an RI/FS, the State and the City of Johnstown entered into an interim consent order, which was approved by Federal Judge Con. G. Cholakis on October 4, 1988.

Under the interim order, the City agreed to conduct an RI/FS of the Site consistent with the NCP and state guidance, and agreed to close the Site by June 1, 1990, or within thirty days of the date a new solid waste management facility in Fulton County (the Mud Road Facility) was to accept refuse, whichever was sooner.

On February 12, 1988, EPA issued Special Notice Letters to 15 parties potentially responsible for contamination at the Site.

During the implementation of the RI/FS, the parties involved in the litigation have conducted extensive document discovery and the defendants have made initial attempts to allocate responsibility. It is NYSDEC's intention to have the responsible parties for the site undertake any remedial activities.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

On May 17, 1989, the City of Johnstown and NYSDEC conducted a public meeting in Johnstown, New York, to inform local officials and interested citizens of the upcoming RI and to respond to any questions from area residents and other attendees. A follow-up public meeting was held on June 13, 1990 to describe the results of the first phase of the RI and to present plans for the second phase of field work.

The RI report, FS report, and the Proposed Plan for the Site were released to the public for comment on January 21, 1993. These documents were made available to the public in the administrative record repositories at the EPA Docket Room in Region II, New York and at the Johnstown Public Library, Johnstown, New York. The documents were also made available at the information repositories at NYSDEC's Albany, New York office, at NYSDEC's Ray Brook, New York office, and at the City of Johnstown Attorney's Office. The public comment period on these documents ended on February 19, 1993.

During the public comment period, a public meeting was held at the Johnstown High School, Johnstown, New York on February 10, 1993 to present the RI/FS reports and the Proposed Plan, to answer questions, and to accept oral comments. At this meeting, representatives from the NYSDEC, the New York State Department of Health (NYSDOH), and EPA answered questions about problems at the Site and the remedial alternatives under consideration. A summary of the comments presented at the public meeting and their responses, as well as written comments received during the public comment period and their responses, are included in the Responsiveness Summary (see Appendix V.)

SCOPE AND ROLE OF OPERABLE UNIT

This response action applies a comprehensive approach, therefore only one operable unit is required to remediate the Site.

Remedial action objectives are specific goals to protect human health and the environment. 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.

The following remedial action objectives were established: 1) prevent human and animal contact with contaminated soil from the landfill surface; 2) prevent erosion of contaminated surface soil through surface-water runoff; 3) minimize the infiltration of rainfall or snow melt into the landfill, thus reducing the quantity of water percolating through the landfill materials and leaching out contaminants; 4) mitigate the off-Site migration of contaminated ground water; 5) prevent unacceptable exposure to off-Site contaminated ground water; 6) restore ground-water quality to levels which do not exceed state or federal drinking-water standards; 7) prevent ingestion of on-Site ground water; 8) control generation and prevent migration of subsurface landfill gas; and 9) prevent unacceptable exposure to vapors from the landfill.

NYSDEC is the lead agency for this project; EPA is the support agency.

SUMMARY OF SITE CHARACTERISTICS

The RI field work was carried out in two phases: Phase I, between June 1989 and June 1990; and Phase II, between July 1990 and March 1992. Media sampled during the RI included subsurface soil, ground-water, surface water, sediments, and air. The frequency of detection, lowest and highest concentrations detected, and location of highest concentrations detected, are shown for all sampled on-Site and off-Site ground water, surface water, subsurface soils, and sediments in Tables 1a, 1b, 2a, 2b, 3a, and 3b. The RI also included ground-water flow studies to evaluate the hydrogeologic conditions at and in the vicinity of the landfill, a wetlands delineation in the vicinity of the Mathew Creek area, and ecological studies in Mathew Creek and Halls Brook.

Subsurface soil samples were collected for all ground-water monitoring wells shown on Figure 4, except for MW-15 and MW-19. Soils located directly beneath the landfill exhibited the majority of the soil contamination. Eight volatile organic compounds (VOCs), acetone, methylene chloride, xylene, benzene, ethylbenzene, 2-butanone, 4-methyl-2-pentanone, and toluene were detected in landfill subsurface soil samples (MW-16 through MW-18) at concentrations ranging from 3 micrograms per kilogram (µg/kg) to 440 µg/kg. Benzoic acid, phthalate, and polycyclic aromatic hydrocarbon (PAH) compounds comprised most of the semi-volatile organic compound (SVOC) contamination detected in landfill soil zones, with phthalate esters observed to have the highest range of concentrations (42 µg/kg to 1,100 µg/kg). Eighteen metals were detected in subsurface soil samples collected within the landfill ranging in concentrations from 0.43 milligrams per kilogram (mg/kg) to 72,000 mg/kg. Eight of these (antimony, calcium, chromium, lead, magnesium, sodium, aluminum, and zinc) exceeded background values. Eleven pesticides were also detected in landfill subsurface soil samples at concentrations between 4.1 µg/kg and 37 µg/kg. Downgradient inorganic substances found in all of the 4 subsurface soil samples (MW-9 through MW-12) included aluminum, arsenic, barium, beryllium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, vanadium, and zinc, at concentrations ranging from 0.31 mg/kg to 39,000 mg/kg. Organic contaminants that were found in more than half of the 9 downgradient subsurface soil samples (MW-1 through MW-4, MW-8 through MW-12) included acetone, methylene chloride, toluene, and tetrachloroethylene at concentrations between 0.6 µg/kg and 75 µg/kg.

The volatile contamination detected in the shallow downgradient aquifer (MW-1 through MW-4, MW-8 through MW-12, and MW-15) included 13 VOCs. Concentrations of these contaminants ranged from 0.2 micrograms per liter (µg/L) to 62.0 µg/L, with the highest being toluene detected at MW-3S, which is located near the LaGrange Gravel Pit. Semi-volatile contamination in downgradient monitoring wells included phthalate ester compounds, polycyclic aromatics, methylphenol, and benzoic acid at concentrations between 0.3 µg/L and 150 µg/L. Twenty metals were detected in shallow wells downgradient of the landfill at levels often exceeding background

levels. Eight metals (iron, manganese, sodium, arsenic, lead, chromium, copper, and zinc) exceeded EPA and/or NYSDEC standards in downgradient monitoring wells. Two pesticides were detected in downgradient monitoring wells, MW-9S and MW-11D, at 0.04 µg/L (delta-BHC) and 0.05 µg/L (Endosulfan 1), respectively.

Acetone and bis(2-ethylhexyl)phthalate were the primary contaminants detected within the bedrock ground-water aquifer at concentrations generally much greater than those found at the source (landfill) wells. The highest concentration of acetone (2,900 µg/L) was detected at MW-7D located northwest of the landfill. The highest concentration of bis(2-ethylhexyl)phthalate (150 µg/L) was detected at MW-3D located near the LaGrange Gravel Pit.

Five VOCs, acetone, methylene chloride, xylene, benzene, and ethylbenzene were detected in the ground-water sample collected from landfill well MW-16, at concentrations ranging from 9 µg/L (benzene) to 230 µg/L (xylene). Generally, the highest concentrations of inorganic contaminants in ground water were also detected at MW-16. Six pesticide compounds, none of which were found in downgradient ground-water samples, were detected at MW-16 at concentrations ranging from 0.01 µg/L (4,4'-DDE) to 0.35 µg/L (4,4'-DDD). Based on water-level data, these results may be characteristic of leachate. Benzene and ethylbenzene were detected in landfill well MW-19, at 0.9 µg/L and 7 µg/L, respectively. Eleven SVOCs were detected in landfill wells MW-16, MW-18, and MW-19 at concentrations ranging from 0.6 µg/L (di-n-octylphthalate) to 24 µg/L (bis(2-Ethylhexyl)phthalate). No VOCs or pesticides were detected in landfill monitoring well MW-18. No polychlorinated biphenyls (PCBs) were detected in any of the three sampled landfill monitoring wells.

No inorganic contaminants found in residential well samples exceeded New York State or EPA primary drinking water standards. Some compounds, such as iron, manganese, zinc, and total dissolved solids (TDS), were detected at concentrations which may affect aesthetic qualities of drinking water (e.g., taste, odor, and staining of fixtures). VOC compounds detected in residential well samples included acetone, carbon disulfide, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, and toluene, but were found at concentrations below state and federal drinking water standards. Acetone was detected in 6 of the 52 samples collected, at concentrations ranging from 3 to 6 µg/L. Carbon disulfide was detected in 4 of the 52 samples, at concentrations ranging from 0.3 to 3 µg/L. Methylene chloride was detected in 3 of the 52 samples at concentrations up to 2 µg/L. Trichloroethylene, 1,1,1-trichloroethane, and toluene were each detected in one of the 52 samples collected, at 2, 3, and 2 µg/L, respectively. Three phthalate esters were detected in residential well samples. Bis(2-ethylhexyl)phthalate was detected in 34 of the 39 residential wells sampled, at concentrations ranging from 2 to 66 µg/L. In 4 of these samples, concentrations of bis(2-ethylhexyl)phthalate exceeded the NYSDEC ground-water standard of 50 µg/L. (In all three sampling rounds, bis(2-ethylhexyl)phthalate was also detected in laboratory samples, indicating that its presence in collected

residential well samples may be attributed to contamination in the laboratory, and may not be representative of actual water quality.) Di-n-butylphthalate was detected in 6 of the 52 samples collected at concentrations ranging from 0.8 to 2 µg/L. N-nitrosodiphenylamine was detected in one of the 52 samples at a concentration of 2 µg/L. No pesticide or PCB compounds were detected in residential well samples.

Surface-water quality and sediment sampling locations are shown on Figures 5a and 5b. Inorganic compounds found in surface-water samples collected from Mathew Creek included aluminum, antimony, barium, chromium, cobalt, copper, iron, lead, magnesium, mercury, nickel, potassium, selenium, sodium, zinc, cyanide, sulfate, chloride, bicarbonate, and ammonia-nitrogen at concentrations ranging from 1.2 µg/L (selenium) to 111,000 µg/L (calcium). Concentrations were generally higher at the headwater springs than at other locations. However, several metals, including chromium, lead, iron, and zinc, were detected at the highest concentration at the furthest downstream sampling location (Station #4). Six VOCs, acetone, methylene chloride, toluene, trichloroethylene, tetrachloroethylene, and chlorobenzene were also detected in Mathew Creek samples at concentrations ranging from 0.7 µg/L (chlorobenzene) to 24 µg/L (acetone). Acetone, methylene chloride, and toluene were detected in more than one sample. Three phthalate ester compounds, diethylphthalate, di-n-butylphthalate, and bis(2-ethylhexyl)phthalate, were detected in Mathew Creek samples at concentrations ranging from 0.4 µg/L (diethylphthalate) to 16 µg/L (bis(2-ethylhexyl)phthalate). Seven of the 8 surface water samples collected in Mathew Creek had detectable concentrations of bis(2-ethylhexyl)phthalate that exceeded the NYSDEC surface water standard of 0.6 µg/L. No pesticides or PCBs were detected in any surface-water samples from Mathew Creek.

Surface-water samples were collected from the LaGrange Gravel Pit (Sta #5 on Figure 5a) during the second and third rounds of on-Site water-quality sampling. The concentrations of inorganic compounds in the LaGrange Pit were typically consistent with those detected in the ground water around the landfill. The sample collected during Round 2 had detectable concentrations of 6 VOCs, namely, acetone, methylene chloride, benzene, 2-butanone, 4-methyl-2-pentanone, and toluene, at concentrations ranging from 2 µg/L (benzene) to 250 µg/L (2-butanone). The Round 2 water-quality sample also indicated the presence of 9 SVOCs from the LaGrange Gravel Pit at concentrations between 0.2 µg/L (di-n-octylphthalate) and 190 µg/L (benzoic acid). Five of these compounds are phthalate esters and were prevalent in both soil and ground-water samples. No pesticides or PCBs were detected in any surface-water samples from LaGrange Pit.

Sediment contamination in Mathew Creek included metals, ammonia-nitrogen, VOCs, SVOCs, and pesticides. Concentrations for arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, and nickel exceeded NYSDEC Sediment Criteria Guidance Values in one or more sediment samples from Mathew Creek. Eight VOCs, acetone, methylene chloride, trichloroethylene, chloroform, benzene, 2-

butanone, carbon disulfide, and toluene, were detected at concentrations ranging from 2 µg/kg to 380 µg/kg (acetone). Twenty-two SVOCs were detected in sediment samples at concentrations ranging from 4 µg/kg (benzo(g,h,i)perylene) to 4,500 µg/kg (benzoic acid). Two pesticides, delta-BHC and 4,4'-DDE, were detected at concentrations ranging from 2.1 µg/kg (4,4'-DDE) to 13 µg/kg (delta-BHC).

Sediment contamination in the LaGrange Gravel Pit also included inorganic compounds, VOCs, SVOCs, and pesticides. Twenty-one metals were detected at concentrations ranging from 0.14 mg/kg (mercury) to 106,000 mg/kg (calcium). Six VOCs, acetone, methylene chloride, benzene, 2-butanone, 4-methyl-2-pentanone, and toluene at concentrations ranging from 2 µg/kg (benzene) to 99 µg/kg (acetone) were detected. Nineteen SVOCs were detected at concentrations ranging from 11 µg/kg (fluorene) to 1,400 µg/kg (naphthalene). Four pesticides, 4,4'-DDE, 4,4'-DDD, heptachlor, and aldrin were detected at concentrations ranging from 1.8 µg/kg (aldrin) to 170 µg/kg (4,4'-DDE).

Ambient air in the vicinity of the landfill was measured for VOCs and particulate chromium. Acetone, benzene, toluene, 2-butanone, 1,1,1-trichloroethane, and carbon tetrachloride were detected at concentrations ranging from 0.47 micrograms per cubic meter (µg/m^3) (carbon tetrachloride) to 20.6 µg/m^3 (acetone). The highest total concentration of VOCs for any one sample was 23.2 µg/m^3. Airborne chromium was detected at concentrations ranging from 0.002 to 0.005 µg/m^3. All of the airborne VOCs and chromium detected during the RI are within the guideline values for both occupational values and New York State guidance criteria. (See Tables 4 and 5.)

The hydrogeological investigation determined that two aquifers exist beneath the Johnstown City Landfill. The upper (overburden) aquifer flows through till, sand and gravel, and flows generally towards the southeast and south from the landfill following surface drainage patterns. A geologic cross section from the northeastern boundary of the landfill to the LaGrange Springs area is shown in Figure 6. Ground water in the overburden and shallow bedrock aquifers appears to be hydraulically connected downgradient from the Site and to discharge into the wetlands area of LaGrange Springs and Mathew Creek located southeast of the Site. In contrast to the ground-water flow pattern in the shallow water table, deep (bedrock) ground water generally flows from west to east across the Site.

The immediate area of the landfill is underlain by the Canojoharie Shale, a mid-Ordovician age, calcarious shale with occasional pyrite lobes. The bedrock was found to be mildly fractured in the upper 20 feet of the unit. Depth to bedrock ranges across the site from about 30 feet to 120 feet.

Wetland areas associated with Mathew Creek were identified using aerial photography, the NYSDEC wetland map on the Johnstown area, and the U.S. Soil Conservation Service draft soils map of the area. Wetland boundaries were verified in the field in May 1990 by viewing vegetation and hydrology. (See Figure 7.) Wetland types

include palustrine forest, scrub-shrub, emergent, and open water. A wetland assessment using the Hollands and Magee (1985) method indicated above-average scores for the biological, hydrological, and socio-economic functions of the wetlands.

SUMMARY OF SITE RISKS

Human Health Risk Assessment

A baseline risk assessment was conducted to evaluate the potential risks to human health and the environment associated with the Site in its current state. The baseline risk assessment focused on contaminants in the soil, ground water, and air which are likely to pose significant risks to human health and the environment. A list of the contaminants of potential concern in ground water, soil, and air is found in Table 6.

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of ten basic exposure pathways. These pathways included: 1) ingestion of soil; 2) dermal contact with soil; 3) inhalation of fugitive dust from the landfill; 4) ingestion of Mathew Creek surface water; 5) dermal contact with Mathew Creek surface water; 6) ingestion of Mathew Creek sediments; 7) dermal contact with Mathew Creek sediments; 8) ingestion of ground water; 9) inhalation of outdoor air; and 10) inhalation of ground-water contaminants while showering. The exposure pathways were evaluated under both current and potential future land-use conditions, except for exposures to landfill soil, for which only current conditions were considered. Three potential receptors were identified: young (ages 6-18) trespassers; adult, young (ages 6-18) and child (ages 0-6) residents living downgradient and off-Site; and young (ages 6-18) and adult users of Mathew Creek. These exposure pathways were evaluated separately for adults and children and are listed in Table 7. Exposure intakes (doses) were calculated for each receptor for all exposure pathways considered.

Under current EPA guidelines, the likelihood of carcinogenic (cancer causing) and noncarcinogenic effects due to exposure to site chemicals are considered separately. It was assumed that the toxic effects of the Site-related chemicals would be additive. Thus, carcinogenic and noncarcinogenic risks associated with exposures to individual compounds of concern were summed to indicate the potential risks associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference Doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of mg/kg-day, are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (e.g., the

amount of a chemical ingested from contaminated drinking water) are compared with the RfD to derive the hazard quotient for the contaminant in the particular medium. The reference doses for the compounds of concern at the Site are presented in Table 8.

The hazard index is obtained by adding the hazard quotients for all compounds across all media. A hazard index greater than 1 indicates that the potential exists for noncarcinogenic health effects to occur as a result of Site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

The HI was significant (i.e., greater than 1.0) for all age groups ingesting ground water under current land use. The HI for ingesting ground water was estimated to be 6.5, 3.3, and 2.5 for children, youths, and adults, respectively. In the case of residents ingesting ground water, the major contribution to noncancer health risk is attributable to ingestion of antimony and thallium in drinking water by nearby residents. A summary of the noncarcinogenic risks associated with the chemicals evaluated across various exposure pathways is found in Table 9. It should be noted that antimony was not detected in any of the 51 water quality samples collected in downgradient ground-water monitoring wells, and thallium was detected in only 2 of the 51 monitoring well samples. Among the 52 residential wells sampled, antimony and thallium were detected in 8 and 6 of the water-quality samples, respectively. Therefore, these compounds may originate from the native soils and not from the landfill waste mass. Without antimony and thallium, the HI for residents ingesting ground water for current land use is below 1.0 for all age groups. Under future land use conditions, which assumes that the contaminated ground water beneath the landfill migrates to a residential receptor, the HI for adults and children ingesting ground water was estimated to be 1.5 and 1.0, respectively. The major contributor to these risks is arsenic.

The HI was also significant for youths and adults wading and fishing in Mathew Creek. The HI was 1.2 and 1.1 for youths and adults, respectively. The major contributors to these risks are lead and mercury.

Potential carcinogenic risks were evaluated using the cancer slope factors developed by EPA for the contaminants of concern. Cancer slope factors (SFs) have been developed by EPA's Carcinogenic Risk Assessment Verification Endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes the underestimation of the risk highly unlikely. The SF for the compounds of concern are presented in Table 10.

For known or suspected carcinogens, EPA considers excess upper bound individual lifetime cancer risks of between 10^{-4} to 10^{-6} to be acceptable. This level indicates that an individual has not greater than a one in ten thousand to one in a million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at the Site. Under the current land-use conditions, the cumulative cancer risk for all receptors evaluated (i.e., adults, youths, children) was 6×10^{-5}. The overwhelming contribution to this risk is attributable to residents ingesting contaminated ground water. This risk is within EPA's acceptable cancer risk range of 10^{-4} to 10^{-6}. However, under future land-use conditions, which assumes that the contaminated ground water beneath the landfill migrates to a residential receptor, a cancer risk of 2×10^{-4} was found for the adult receptor. This risk, which slightly exceeds the acceptable cancer range, is attributable to the ingestion of ground water, with beryllium accounting for most of the risk. A summary of the carcinogenic risks for the chemicals evaluated across various current exposure pathways is found on Table 11.

The calculations were based on the contaminants detected in soils, on-Site monitoring wells, and air. It was assumed that in the future case, on-Site monitoring wells would be used for residential purposes. Risk estimates were developed by taking into account various conservative assumptions about the likelihood of a person being exposed to the various contaminated media. It should be noted too, that the carcinogenic and noncarcinogenic risks attributable to lead, which was detected in 44 of 54 on-Site samples at an average concentration of 38.6 µg/L, cannot be quantified because cancer and noncancer toxicity factors have not been developed for this compound. However, EPA considers lead to be a probable carcinogen, and is known to interfere with the central nervous system as a noncarcinogen. An action level of 15 µg/L was established by EPA for this compound, meaning that some remedial measures should be implemented, if the concentration of lead in drinking water exceeds this level.

Uncertainties

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include:

- environmental chemistry sampling and analysis
- environmental parameter measurement
- fate and transport modeling
- exposure parameter estimation
- toxicological data

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry analysis error can stem from several sources including the errors inherent in the analyti-

cal methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the baseline risk assessment provides upper bound estimates of the risks to populations near the Landfill, and is highly unlikely to underestimate actual risks related to the Site.

More specific information concerning public health risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the RI report.

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.

Sediment, surface water, vegetation, wildlife, fish, and macroinvertebrates were assessed along Mathew Creek and a nearby reference stream, Halls Brook. Fish tissue was collected and analyzed for the presence of heavy metals and pesticides. In-situ and laboratory bioassays were performed to evaluate the toxicity of Mathew Creek surface water to aquatic life.

The contaminants in Mathew Creek sediments appear to be adversely affecting the aquatic communities, and may potentially affect wildlife species such as beaver, muskrat, and waterfowl, which are dependent on food resources from the stream. Arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, and nickel were all present in stream sediments at concentrations that exceeded criteria established by NYSDEC. Exceeding these criteria suggests that a given metal has reached a concentration that can possibly result in chronic, sublethal effects that can include inhibition of

reproduction, inefficient metabolism of food items, alteration of an organism's ability to compete, etc. The Mathew Creek biota most likely at risk of exposure to metal contaminated sediments (other than mercury) are benthic macroinvertebrates such as worms, beetles, and midges.

Free-swimming aquatic organisms in Mathew Creek may also be adversely affected by creek contamination, particularly high ammonia concentrations in surface water. Water quality samples collected in Mathew Creek, over three sampling rounds, indicated the presence of 8 inorganic substances, namely, aluminum, iron, lead, manganese, selenium, cyanide, zinc, and ammonia-nitrogen, at concentrations above NYSDEC surface-water standards and/or EPA Ambient Water Quality freshwater toxicity criteria. Concentrations of aluminum, iron, and cyanide were also above EPA acute freshwater toxicity criteria. Aluminum and cyanide exceeded the EPA acute fresh water toxicity criteria at downstream stations in Mathew Creek. Ammonia-nitrogen exceeded the EPA acute fresh water toxicity criterion at the headwater springs and just downstream of Hulbert pond. Vegetation does not appear to be adversely affected by contaminants in Mathew Creek.

In summary, 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.

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.

This Record of Decision evaluates in detail, 7 remedial alternatives for addressing the contamination associated with the Site. The time to implement reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate with the responsible parties, or procure contracts for design and construction. These alternatives are described below.

Alternative SC-1: No Action

Capital Cost:	$14,000
Operation and Maintenance Cost:	$119,000
Present-Worth Cost:	$1,860,000
Time to Implement:	3 months

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative does not include any physical remedial measures that address the problem of contamination at the Site. However, this response action does include the implementation of a long-term ground-water, surface-water and sediment-monitoring program. Water quality samples would be collected on a quarterly basis from upgradient, on-Site and downgradient ground-water monitoring wells and from locations on Mathew Creek. Sediment samples would be collected from the creek bed. Parameters to be sampled and analyzed would be in accordance with 6 NYCRR Part 360 baseline and routine parameters.

The no-action response also includes the development and implementation of a public awareness and education program for the residents in the area surrounding the Site. This program would include the preparation and distribution of informational press releases and circulars and convening public meetings. These activities would serve to enhance the public's knowledge of the conditions existing at the Site. The capital cost for the public awareness program is approximately $14,000. This alternative would also require the involvement of local government, various health departments and environmental agencies.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

Alternative SC-2: Limited Action, Residential Water Replacement

Capital Cost:	$8,343,000
Operation and Maintenance Cost:	$174,000
Present-Worth Cost:	$11,034,000
Time to Implement:	3 years

This alternative includes a Site access restriction which would consist of surrounding the entire landfill mound with approximately 6,800 feet of conventional chain-link fencing and placing appropriate warning signs. In addition to the access restriction, institutional controls would be implemented to restrict the use of the land because of the threat of contamination. This may occur in the form of local ordinances or deed restrictions. As part of the limited action alternative, the landfill would be regraded to prevent stormwater from ponding on the landfill mound, and to allow rapid runoff from the Site, while minimizing soil erosion. The regrading would include excavation of the LaGrange Gravel Pit sediments, placing the excavated material on the existing landfill, and covering them. The pit would then be filled with clean fill so that it may be used as an infiltration basin, and/or an area to collect stormwater.

The limited-action alternative also calls for the expansion of the Johnstown City water supply system to provide potable water to all

downgradient private water supplies potentially impacted by the landfill. Providing city water would require the extension of the City's water lines and a booster pump station requiring major construction. Under this alternative, at least 24,600 feet of water line would be constructed.

Similar to Alternative SC-1, this alternative would also include long-term monitoring of ground water, surface water and sediments, and the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

Alternative SC-3: Installation of 6 NYCRR Part 360 Landfill Cap, Residential Water Replacement

Capital Cost:	$13,763,000
Operation and Maintenance Cost:	$174,000
Present-Worth Cost:	$16,454,000
Time to Implement:	3 years

The major features of this alternative include constructing a multi-layer closure cap over the landfill mound, supplying city water to replace existing private wells, and erecting a security fence. The replacement of private water sources with Johnstown City water, land use restrictions, and fencing components are identical to those described in Alternative SC-2. Prior to the construction of the cap, the landfill mound would have to be regraded and compacted to provide a stable foundation for placement of the various layers of the cap and to provide rapid runoff as described in Alternative SC-2. The landfill cap would be designed and constructed as per New York State 6 NYCRR Part 360 regulations. A landfill cap meeting these requirements would consist of a filter fabric, 12 inches for a gas venting layer, a 40 mil geomembrane (or 18 inches of clay), 24 inches of drainage material and six inches of topsoil. Capping the landfill would minimize the release of the additional leachate into ground water and would be expected to allow reduction of ground-water contaminants by processes of natural attenuation which may include dilution, biodegradation and sorption. Landfill gases would be monitored and vented into the atmosphere or controlled as needed.

Similar to Alternative SC-1, this alternative would also include long-term monitoring of ground water, surface water, and sediments, and the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be

reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

Alternative SC-4: Installation of RCRA Landfill Cap, Residential Water Replacement

Capital Cost:	$19,729,000
Operation and Maintenance Cost:	$174,000
Present-Worth Cost:	$22,420,000
Time to Implement:	3 years

The major features of this alternative include constructing a multi-layer closure cap over the landfill mound, supplying city water to residences, and erecting a security fence. This alternative is identical to Alternative SC-3 except that a RCRA capping system would be used instead of the 6 NYCRR Part 360 cap that would be implemented under Alternative SC-3. The RCRA cap system differs from the NYCRR cap by requiring a 24-inch thick soil barrier layer (NYCRR requires 18 inches, if soil is used) and a 40 mil geomembrane (NYCRR requires either the membrane or the soil barrier layer), a 12-inch thick drainage layer (NYCRR requires 24 inches) and a 24-inch thick topsoil layer (NYCRR requires 6-inch thick topsoil). Capping the landfill would minimize the release of the additional leachate into ground water and would be expected to allow reduction of ground-water contaminants by processes of natural attenuation which may include dilution, biodegradation and sorption. Landfill gases would be vented into the atmosphere or controlled, as needed.

Similar to Alternative SC-1, this alternative would also include long-term monitoring of ground water, surface water, and sediments, and the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

Alternative SC-5: Ground Water Collection/Treatment/Discharge, Residential Water Replacement

Capital Cost:	$12,754,000
Operation and Maintenance Cost:	$936,000
Present-Worth Cost:	$27,160,000
Time to Implement:	3 years

This remedial alternative includes the collection of contaminated ground water in the upper (overburden) aquifer and/or the lower (bedrock) aquifer, followed by its treatment and discharge via percolation ponds or injection wells. Ground water would be extracted utilizing extraction wells which would induce ground-

water flow to the wells by drawdown development. Ground-water flow leaving the Site would be collected by the creation of overlapping zones of influence of the extraction wells. The ground-water treatment system would be located permanently at the Johnstown City Landfill site and would utilize physical-chemical processes, such as pH adjustment, chemical precipitation, and carbon adsorption, to remove inorganic and volatile organic contaminants. Treated ground water would be discharged by returning it to the aquifer, or by discharging to a stream, the nearest being Mathew Creek. The discharge standards would be established by NYSDEC.

The other major features of this alternative include regrading with a two-foot soil cover, residential water replacement with Johnstown City public water, security fencing, and deed restrictions as described in Alternative SC-2.

Similar to Alternative SC-1, this alternative would also include long-term monitoring of ground water, surface water, and sediments, and the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

Alternative SC-6: 6 NYCRR Part 360 Cap, Residential Water Replacement, Ground Water Collection/Treatment/Discharge

Capital Cost:	$18,174,000
Operation and Maintenance Cost:	$936,000
Present-Worth Cost:	$32,580,000
Time to Implement:	3 years

This alternative consists of the following: constructing a multi-layer NYCRR closure cap over the landfill mound as in Alternative SC-3; treating extracted ground water with discharge to the aquifer or surface water as in Alternative SC-5; supplying city water to local residents; erecting a security fence around the landfill; and implementing institutional controls as in Alternative SC-2.

Similar to Alternative SC-1, this alternative would also include long-term monitoring of the ground water, surface water, and sediments, and the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

Alternative SC-7: RCRA Cap, Residential Water Replacement, Ground Water Collection/Treatment/Discharge

Capital Cost:	$24,139,000
Operation and Maintenance Cost:	$936,000
Present-Worth Cost:	$38,545,000
Time to Implement:	3 years

This alternative consists of the construction of a multi-layer RCRA closure cap over the landfill mound as in Alternative SC-4; treatment of extracted ground water followed by discharge to surface water, as in Alternative SC-5; supplying city water to local residents; implementing ground water and landfill gas monitoring programs; erecting a security fence around the landfill; and implementing institutional controls, as in Alternative SC-2.

Similar to Alternative SC-1, this alternative would also include long-term monitoring of ground water, surface water and sediments, and the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action.

Because this alternative would result in contaminants remaining on-Site above health-based levels, CERCLA requires that the Site be reviewed every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes.

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 alterna-

tives:

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.

Overall Protection of Human Health and the Environment

The no-action alternative, Alternative SC-1, would be the least protective of human health and the environment since it does not address any of the remedial action objectives established for the Site. Alternative SC-2 would be more effective than Alternative SC-1 in protecting human health and the environment by reducing risks attributed to direct exposure and from ingestion of contaminated drinking water. Direct exposure would be reduced somewhat by constructing fences, posting signs, and implementing institutional controls which would limit access to the Site by trespassers and children. Risks from ingestion of contaminated ground water would be reduced since the landfill would be regraded to prevent

stormwater from ponding on the landfill mound and to allow for rapid runoff from the Site while minimizing soil erosion. It is estimated that this would limit infiltration of precipitation into the landfill and reduce the generation of landfill leachate by 36 percent. Also, extension of city water services proposed in Alternative SC-2 would reduce the risk associated with ingestion and exposure to contaminated ground water.

The closure cap systems of Alternatives SC-3 and SC-4, which include an impermeable layer, would further reduce run-on and infiltration of rainfall and snow melt into the landfill, thus reducing the quantity of water percolating through the landfill materials and leaching out contaminants. It is estimated that Alternative SC-3 (NYCRR impermeable cap) would provide a 94 to 99 percent reduction in leachate production and Alternative SC-4 (RCRA impermeable cap) would provide greater than 99 percent reduction in leachate production. Alternative SC-4 would therefore be more protective than Alternative SC-3. But both Alternatives SC-3 and SC-4 would be significantly more protective than Alternative SC-2. None of these alternatives include any direct ground-water control or remediation measures; therefore, the contaminated ground water would remain unaffected except for reduced leachate production allowing ground-water contaminant levels to decline. Although the rate of contaminant decrease cannot be predicted with certainty, mathematical modelling results indicate that Site ground-water contamination levels may continue to exceed ARARs for a period of about 3 to 12 years following installation of the cap, if there is no control or direct remediation of ground water.

The extraction and treatment system of Alternative SC-5 would reduce the movement and toxicity of the contaminated landfill leachate and ground water by pumping and treating this water and preventing its downgradient migration. Under Alternative SC-5 the landfill would be regraded and a soil cover would be placed as described under Alternative SC-2. Alternative SC-5 would be more protective in remediating contaminated ground water than Alternative SC-2. However, Alternative SC-5 would be less effective in limiting leachate production than Alternatives SC-3 and SC-4.

Alternatives SC-6 and SC-7 include the closure cap systems of Alternatives SC-3 and SC-4 respectively, ground water extraction and treatment as in Alternative SC-5, and city water service as in Alternative SC-2. Alternatives SC-6 and SC-7 would thereby further reduce the volume of ground water coming into contact with the contaminant source, reducing the remediation time in comparison with Alternative SC-5. Alternatives SC-7 and SC-6 would be the most protective and second most protective alternatives, respectively, of human health and the environment.

Compliance with ARARs

The New York State Part 360 landfill cap is an action-specific ARAR for landfill closure. Alternatives SC-1, SC-2, and SC-5 would not meet this ARAR, since they do not include any provisions for a

landfill cap. Alternatives SC-3, SC-4, SC-6, and SC-7 include provisions for a landfill cap which would meet or exceed the Part 360 requirement for an impermeable cap.

Alternatives SC-6 and SC-7 would be the most effective in reducing ground water contaminant concentrations below maximum contaminant levels (MCLs), because of the lower infiltration rate of precipitation associated with placing an impermeable cap over the landfill, and because they include collection and on-Site treatment of contaminated ground water. Alternative SC-5 may be nearly as effective as Alternatives SC-6 and SC-7 in reducing ground water contamination, provided that the collection system was designed and operated to capture all the contaminated ground water. However, without an impermeable cap there would be more leachate generated and additional contaminated ground water requiring collection and treatment under Alternative SC-5 than under Alternatives SC-6 and SC-7. Alternatives SC-1, SC-2, SC-3, and SC-4 do not provide for any direct remediation of ground water. However, under Alternatives SC-2, SC-3, and SC-4 less leachate would be generated and introduced into the ground water. This would facilitate the reduction of contaminant levels in ground water to ARARs by natural attenuation.

Long-Term Effectiveness and Permanence

Alternative SC-1 provides no long-term controls for handling the on-Site contamination or the ground-water contamination. Alternative SC-2 would minimally reduce the rate of leachate production, thereby limiting direct contact with the contamination. Under Alternative SC-2, the replacement of residential water supplies and the erection of a security fence would be permanent actions which would reduce potential exposure to contaminated ground water and to contaminated waste. However, it is doubtful that ground-water quality would be restored to acceptable levels, since significant quantities of leachate would be generated as a result of continued infiltration of precipitation through the soil cover. Alternatives SC-3 and SC-4 would provide much greater reduction of leachate production than Alternative SC-2, resulting in ground-water remediation by natural attenuation. Alternative SC-5 would provide an equivalent reduction in leachate generation as would Alternative SC-2 due to the soil cover. In addition, ground-water contaminants would be contained by the ground-water collection and treatment system proposed under Alternative SC-5. The collection and treatment system would be operated until contaminant concentration levels in ground water are reduced to acceptable levels. Alternative SC-6 would combine the capping and ground-water remediation components of Alternatives SC-3 and SC-5, and Alternative SC-7 would combine the capping and ground-water remediation components of Alternatives SC-4 and SC-5, thus reducing the period of treatment necessary. The closure cap is a permanent technology that must be maintained at regular intervals to ensure its structural integrity and impermeability.

Reduction in Toxicity, Mobility, or Volume Through Treatment

The no-action alternative (Alternative SC-1) does not contain any remedial measures which would reduce the toxicity, mobility, or volume of the ground-water contamination. The limited action alternative (Alternative SC-2) provides some limited reduction of leachate and leachate seeps through regrading.

Alternatives SC-3 and SC-4 provide further reduction of the volume of contaminated ground water by further reducing the amount of water infiltrating the landfill. These alternatives also eliminate the formation of contaminated leachate seeps.

Implementation of Alternative SC-5, SC-6, or SC-7 would reduce the toxicity, mobility, and volume of the contaminated ground water by extracting and treating the ground water. These alternatives would remove the contaminated ground water from the aquifer and reduce contaminant concentrations in ground water to acceptable levels, which would reduce downgradient migration of the contaminated ground water.

Alternative SC-5 would reduce the leachate production using a soil cover. Alternatives SC-6 and SC-7 would further reduce leachate generation with an impermeable cap. Alternative SC-5 would leach some contaminants from the landfill mound but at a rate slower than is occurring now. Therefore, dilution would be achieved and treatment could probably end after a relatively short period. Alternatives SC-6 and SC-7 would result in the elimination of the production of almost all leachate and, thereby, provide the shortest treatment period. However, leachate production would restart, if the impermeable cap were to fail. Data is not presently available concerning the effective life of a landfill cap.

None of the alternatives proposed reduces the toxicity or volume of waste present in the landfill.

Short-Term Effectiveness

Alternative SC-1 does not include any physical construction measures and, therefore, does not present a risk to the community as a result of its implementation.

The remaining alternatives involve major construction activities at the Site and the use of heavy earth-moving equipment. All of the potential impacts associated with implementation of Alternatives SC-2, SC-3, SC-4, SC-5, SC-6, and SC-7 could be mitigated in part by using proper construction techniques and operational procedures. The potential for on-Site accidents and worker exposure to contaminated media would increase as the number of construction activities increases. These risks would be minimized with proper health and safety training and personal protective equipment. Potential hazards to the surrounding community and environment would include adverse traffic conditions, airborne dust and

particulate emissions, an increase in noise levels, and adverse impacts to the wetlands area. Mitigative measures would be implemented to minimize the impacts from these hazards.

The ground-water treatment systems of Alternatives SC-5, SC-6 and SC-7 would require storage and handling of possibly dangerous materials, such as process reagents and residuals. These activities may be accomplished with minimal risks to workers, by the development and implementation of safe operating and maintenance practices. Compliance with applicable regulations would ensure proper hazardous waste transportation and disposal of drummed process sludge at an appropriate off-Site treatment and disposal facility.

Implementability

Alternative SC-1, the no-action alternative, would be the easiest of the alternatives to implement because it requires only minimal on-Site activity. Public information programs and ground-water monitoring are easily implemented.

The construction procedures, materials and earth-moving equipment required for the implementation of Alternatives SC-2, SC-3, SC-4, SC-5, SC-6, and SC-7 are conventional and are used extensively in standard commercial and industrial applications. Supplying city water to nearby residents is readily achievable.

Alternatives SC-3, SC-4, SC-6, and SC-7, which involve capping the landfill, may be somewhat more difficult to implement. Construction methods for capping are well established, although some technical problems, such as those attributed to meeting the required specifications for the impermeable layer, may be encountered. The treatment systems of Alternatives SC-5, SC-6 and SC-7 utilize standard unit operations and water treatment equipment that are well suited for this application and are technically reliable. Transportation and disposal of the dewatered process sludge involves easily implementable practices and the use of commercially available facilities.

All of the alternatives involve some degree of institutional management. Alternative SC-1 requires administrative coordination of the ground-water monitoring program and the five-year site status reviews, along with the development of the public education program. Alternative SC-2 requires a similar level of control for those activities and also for maintenance of the security fence and administrative issues related to extension of the city water system to residents.

The administrative requirements of Alternatives SC-3, SC-4, SC-5, SC-6, and SC-7 include the ground-water, surface-water and sediment monitoring programs, the extension of the city water system, and the security fence inspection. In addition to these activities, the structural integrity and impermeability of the closure cap and cover must be maintained through a program of periodic surveillance

and necessary repairs. Because of the large land area of the landfill, this item could be fairly substantial.

Alternatives SC-5, SC-6, and SC-7 also require an extensive monitoring program for the operation and maintenance of the ground-water treatment facility. The administrative elements of this program are extensive because they include equipment maintenance schedules and transportation and disposal of hazardous process residuals in compliance with regulations. Also, should treated leachate and ground water be discharged to surface water, system effluent monitoring to meet surface-water discharge standards would be necessary.

Most services and materials required for implementation of any of these potential remedial alternatives are readily available. Standard construction equipment and practices can be employed for the fence installation and the extensive Site work activities of Alternatives SC-2, SC-3, SC-4, SC-5, SC-6, and SC-7. Most of the materials and equipment required for these alternatives may be obtained locally.

Contractors to provide the construction services are also available in the Fulton County area. Because the work will be taking place at a Superfund site, all on-Site personnel must have approved health and safety training. Many companies are available to provide this training to contractors. The engineering and design services required for implementation of Alternatives SC-2, SC-3, SC-4, SC-5, SC-6 and SC-7 may be obtained from many companies. Hazardous waste transportation and disposal for treatment residuals required for Alternatives SC-5, SC-6, and SC-7 are also commercially available.

Cost

Cost estimates were developed for each of the potential remedial alternatives. The present-worth costs are calculated using a discount rate of 5 percent and a 30-year time interval. The estimated capital, annual operation and maintenance, and present worth costs for each of the alternatives are as follows:

Alternative	Capital Cost	Annual Cost	Present Worth Cost
SC-1	$14,000	$119,000	$1,859,000
SC-2	$8,343,000	$174,000	$11,034,000
SC-3	$13,763,000	$174,000	$16,454,000
SC-4	$19,729,000	$174,000	$22,420,000
SC-5	$12,754,000	$936,000	$27,160,000
SC-6	$18,174,000	$936,000	$32,580,000
SC-7	$24,139,000	$936,000	$38,545,000

The capital cost and annual cost for Alternative SC-1, the no-action alternative, includes the cost for the public awareness program and for long-term monitoring, respectively. The capital cost for Alternative SC-2 includes costs for clearing and regrading

the landfill and for construction of the water-line extension. The capital cost for Alternatives SC-3 and SC-4 are for construction of the 6 NYCRR Part 360 cap and RCRA cap, respectively, in addition to necessary clearing and regrading of the landfill and construction of the water-line extension. The annual cost for Alternatives SC-2, SC-3, and SC-4 includes operation and maintenance of the landfill cover and surface-water drainage systems, in addition to long-term monitoring. The capital costs for Alternatives SC-5, SC-6, and SC-7 includes the construction of the ground-water collection, treatment, and discharge system, in addition to those capital costs specified for Alternatives SC-2, SC-3, and SC-4, respectively. The annual cost for Alternatives SC-5, SC-6, and SC-7 include operation and maintenance of the ground-water extraction, treatment, and discharge system, in addition to operation and maintenance of the landfill cover and surface-water drainage systems, and for long-term monitoring.

State Acceptance

NYSDEC concurs with the selected alternative. NYSDEC also concurs with the contingent remedy, should future water-quality data indicate that the ground-water remediation component of the contingent remedy is appropriate.

Community Acceptance

The community's comments and concerns identified during the public comment period are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V to this document. While several residents expressed concerns at the February 10, 1993 public meeting related to the costs of water use and water district taxes associated with extending the Johnstown City water-supply system, it appears that the majority of the community is supportive of the water line. This is evidenced from Resolution No. 110 adopted by the Town Board of Johnstown at its meeting on October 19, 1992 and from statements made at a Town Board meeting on March 4, 1993.

SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, both NYSDEC and EPA have determined that Alternative SC-3 is the appropriate remedy, with Alternative SC-6 as a contingent remedy for the Site.

Alternative SC-3, as the selected remedy, and Alternative SC-6, as the contingent remedy, are effective in protecting human health and the environment and in meeting ARARs for landfill closure and ground-water quality, since they include an impermeable landfill cap and ground-water remediation, if it is needed. Although Alternative SC-6 would be more protective in that it includes

collection and treatment of contaminated ground water, NYSDEC and EPA believe that Alternative SC-3 is more cost-effective than Alternative SC-6. Under Alternative SC-6, ground-water collection and treatment would raise the capital cost of the remedy by more than $4 million and would raise the present-worth cost of the remedy by about $16 million. Given that the levels of ground-water contamination are generally only slightly above ARARs, that the cancerous risk is only slightly above the acceptable risk range, and that the noncancerous risk posed by ground-water ingestion is only slightly above the significant level, ground water remediation does not appear to be warranted unless ground-water contamination levels and surface-water contamination in Mathew Creek do not improve through natural attenuation. It is estimated that as a result of reduced leachate generation, ground-water and surface-water contamination would begin to naturally attenuate within 5 years following initiation of construction of the cap.

NYSDEC and EPA consider Alternative SC-3 (with Alternative SC-6 as the contingent alternative) to be preferable to Alternative SC-4 (with Alternative SC-7 as the contingent alternative), since Alternative SC-3 provides a comparable degree of protection as Alternative SC-4, but is more cost-effective. The RCRA cap required under Alternative SC-4 (and Alternative SC-7) would cost approximately $6 million more to construct than the NYSDEC Part 360 cap under Alternative SC-3 (and Alternative SC-6), but would only, at most, marginally reduce infiltration of precipitation through the cap. Unlike Alternatives SC-2 and SC-5, which do not include an impermeable cap, Alternatives SC-3 and SC-6 will be designed to meet New York State landfill closure ARARs and thereby reduce the volume of contaminated ground water. Although Alternative SC-1 is significantly lower in cost than the other alternatives, including the preferred alternative, it would not attain remedial action objectives for this site, since it would not reduce leachate generation, prevent human and animal contact with contaminated soil from the landfill surface, prevent erosion of contaminated surface soil, nor provide a means of treating landfill gas emissions.

The major components of the selected remedy are as follows:

- Excavation of the LaGrange Gravel Pit sediments and placing the excavated materials on the existing landfill. The pit will then be filled with clean fill, so that it may be used as an infiltration basin and/or stormwater collection basin;

- Regrading and compacting the landfill mound to provide a stable foundation for placement of the various layers of the cap and to promote rapid runoff;

- Construction of a multi-layer closure cap over the landfill mound and excavated sediments as per New York State 6 NYCRR Part 360 regulations. The cap, by reducing leachate generation, will act to improve the ground-water quality in the upper (overburden) and lower (bedrock) aquifers and surface-water quality in Mathew Creek through natural attenuation of contaminants;

- Expansion of the Johnstown City water-supply system to provide potable water to all private water supplies potentially impacted by the landfill. Providing city water will require the extension of the City's water lines and construction of a booster pump station;

- Erection of approximately 6,800 feet of conventional chain-link fencing surrounding the entire landfill mound, with placement of appropriate warning signs;

- Performance of air monitoring prior to, during, and following construction at the Site to ensure that air emissions resulting from the cap construction meet applicable or relevant and appropriate requirements. Perimeter subsurface gas monitoring between the landfill and the adjacent properties will be performed. The gas-monitoring wells will be monitored quarterly for explosive gas concentrations;

- Performance of air dispersion modeling to estimate ambient air concentrations of contaminants. Landfill gas emissions will be vented into the atmosphere, or if necessary, controlled;

- Imposition of property deed restrictions by the appropriate state or local authorities. The deed restrictions will include measures to prevent the installation of drinking water wells at the Site, and restrict activities which could affect the integrity of the cap;

- Performance of a maintenance and sampling program upon completion of closure activities. The monitoring program will fulfill the requirements of 6 NYCRR Part 360 for post-closure landfill monitoring in addition to monitoring parameters of concern found at the Site;

- Development and implementation of a dust control plan. The plan will contain all possible sources of fugitive dust emissions which exceed action levels including intrusive field activities such as excavation or regrading of waste. Normal dust suppression techniques for handling of soils and road materials will be addressed in the plan. The plan will also include how each of these potential dust sources will be controlled by addressing the control methods that will be conducted. The plan will prohibit the use of environmentally unacceptable products such as halides or petroleum products;

- Performance of a Stage IA cultural resources survey (CRS) as early as possible in the Remedial Design phase for both on-Site and off-Site areas to evaluate the sensitivity of the site for cultural resources. The results of the Stage IA survey will be used to assist in determining if additional CRS work will be required.

The effectiveness of the landfill cap will be evaluated through

post-construction monitoring of ground-water and surface-water quality. The evaluation will be conducted within 5 years following initiation of construction of the landfill cap, and at any time as needed thereafter, during the long-term monitoring of the Site. Should the monitoring results indicate that either ground-water quality in the upper (overburden) aquifer or the lower (bedrock) aquifer, or surface-water quality in Mathew Creek, is not being restored to acceptable levels through natural attenuation as a result of reduced leachate generation, the ground-water remediation component of the contingent remedy, Alternative SC-6, will be implemented. This would include:

- Extraction of contaminated ground water from either of the aquifers as necessary. The extraction system would utilize extraction wells which would induce flow to the wells through drawdown of the ground-water table. Operation of the ground-water extraction system would reduce the migration of contaminants away from the Site;

- Treatment of ground water by a treatment system located permanently on-Site that would use physical/chemical processes such as pH adjustment, chemical precipitation, and carbon adsorption, to remove inorganic and volatile organic contaminants; and

- Discharge of treated ground water by returning it to the aquifer via percolation ponds or injection wells, or by discharging it to a stream, the nearest being Mathew Creek. The discharge standards would be established by NYSDEC.

The purpose of this response action is to reduce the present risk to human health and the environment due to contaminants leaching from the landfill mound. The capping of the landfill will minimize the infiltration of rainfall and snow melt into the landfill, thereby reducing the potential for contaminants leaching from the landfill and negatively impacting the wetlands habitat and ground-water quality. Capping will prevent direct contact exposure to contaminated soils, and as such, will result in risks which are less than EPA's target levels of 10^{-6} and 1 for carcinogenic risks and the noncarcinogenic HI, respectively. The extension of the City of Johnstown's municipal water lines supply to residents living near the landfill will ensure that the residents have a potable supply of drinking water. The goal of pumping and treating the ground water, if implemented, would be to facilitate the natural attenuation processes in restoring ground water and Mathew Creek surface water to applicable or relevant and appropriate state and federal standards.

STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibilities at Superfund sites are to undertake remedial actions that achieve protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory require-

ments and preferences. These specify that when complete, the selected remedial action for the 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 wastes, as available. The following sections discuss how the selected remedy meets these statutory requirements. The contingent remedy will also meet these requirements.

Protection of Human Health and the Environment

Alternative SC-3 and Alternative SC-6 are fully responsive to this criterion and to the remedial response objectives. Capping the landfill will protect human health and the environment by reducing the mobility of contaminated materials, in that the leaching of contaminants into the aquifers will be significantly reduced. In addition, capping the landfill will eliminate threats posed to adults, children, trespassers, and wildlife who come in contact with the Site. The extension of the Johnstown City water supply system to all private water supplies potentially impacted by the Site, will ensure that the community continues to have a potable supply of drinking water.

Compliance with ARARs

The multi-layer closure cap over the landfill mound will be designed and constructed as per New York State 6 NYCRR Part 360 regulations.

Attainment of chemical-specific ARARs for ground water and surface water will be hastened due to reduced leaching following construction of the cap. Should monitoring results show that ground-water quality or surface-water quality in Mathew Creek is not being restored to acceptable levels through natural attenuation as a result of reduced leaching, ground water will be extracted and treated as described in the contingent alternative. Action- and location-specific ARARs will be complied with during implementation.

Action-specific ARARs:

- New York State Solid Waste Management Facilities 6 NYCRR Part 360
- National Emissions Standards for Hazardous Air Pollutants (NESHAPs)
- 6 NYCRR Part 257 Air Quality Standards

- 6 NYCRR Part 212 Air Emission Standards
- 6 NYCRR Part 373 Fugitive Dusts
- 40 CFR 50 Air Quality Standards
- SPDES - Discharge
- Resource Conservation and Recovery Act (RCRA)

Chemical-specific ARARs:

- SDWA MCLs
- 6 NYCRR Parts 700-705 Ground Water and Surface Water Quality Regulations
- 10 NYCRR Part 5 State Sanitary Code

Location-specific ARARs:

- Clean Water Act Section 404, 33 USC 1344
- Fish and Wildlife Coordination Act, 16 USC 661
- National Historic Preservation Act, 16 USC 470
- New York State Freshwater Wetlands Law ECL, Article 24, 71 in Title 23
- New York State Freshwater Wetlands Permit Requirements and Classification, 6 NYCRR 663 and 664
- New York State Endangered and Threatened Species of Fish and Wildlife Requirements, 6 NYCRR 182

Other Criteria, Advisories, or Guidance To Be Considered:

- Executive Order 11990 (Protection of Wetlands)
- Executive Order 11988 (Floodplain Management)
- EPA Statement of Policy on Floodplains and Wetlands Assessments for CERCLA Actions
- New York Guidelines for Soil Erosion and Sediment Control
- New York State Sediment Criteria, December 1989
- New York State Air Cleanup Criteria, January 1990
- SDWA Proposed Maximum Contaminant Levels (PMCLs) and Maximum Contaminant Level Goals (MCLGs)
- NYSDEC Technical and Operational Guidance Series 1.1.1,

Cost-Effectiveness

The selected remedy and the contingent remedy provide overall effectiveness proportional to their costs. The total capital and present-worth costs for the selected remedy are estimated to be $13,763,000, and $16,454,000, respectively. For the contingent remedy, which includes active ground-water remediation, the total capital and present-worth costs are $18,174,000 and $32,580,000, respectively.

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

Given the size of the landfill and the absence of isolated hot spots, containment of the waste mass is the only practical means to remediate the Site. By constructing a multi-media cap over the landfill in accordance with New York State's 6 NYCRR Part 360 for landfill closure, hazardous wastes in the landfill will be isolated from the environment and their mobility will be minimized. The closure cap is a permanent technology that must be maintained at regular intervals to ensure its structural integrity and impermeability. The installation of a water line to supply potable water to affected residents is a permanent solution to meeting their drinking water needs. If needed, ground water will be collected via ground-water extraction wells, and treated using a ground-water treatment system located permanently at the Site. Thus, the selected remedy and contingent remedy which require the construction of the Part 360 cap, installation of a water to supply residents with municipal water, and if needed, ground-water collection and treatment, utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. The selected remedy and the contingent remedy represent the best balance of trade-offs among the alternatives with respect to the evaluation criteria.

Ground-water and surface-water monitoring will be performed to demonstrate that the selected remedy meets all remedial action objectives. If the monitoring results indicate that the selected remedy is not effective in meeting remedial action objectives, then the contingent remedy will be implemented. The extraction and subsequent treatment of ground water, if implemented, will permanently and significantly reduce the toxicity, mobility, and volume of contaminants in the ground water.

The selected remedy will require construction of a landfill cap. No technological problems should arise since the technologies and materials needed for capping the landfill are readily available. With the construction of the landfill cap, the direct contact risk to the landfill surface will be eliminated.

Preference for Treatment as a Principal Element

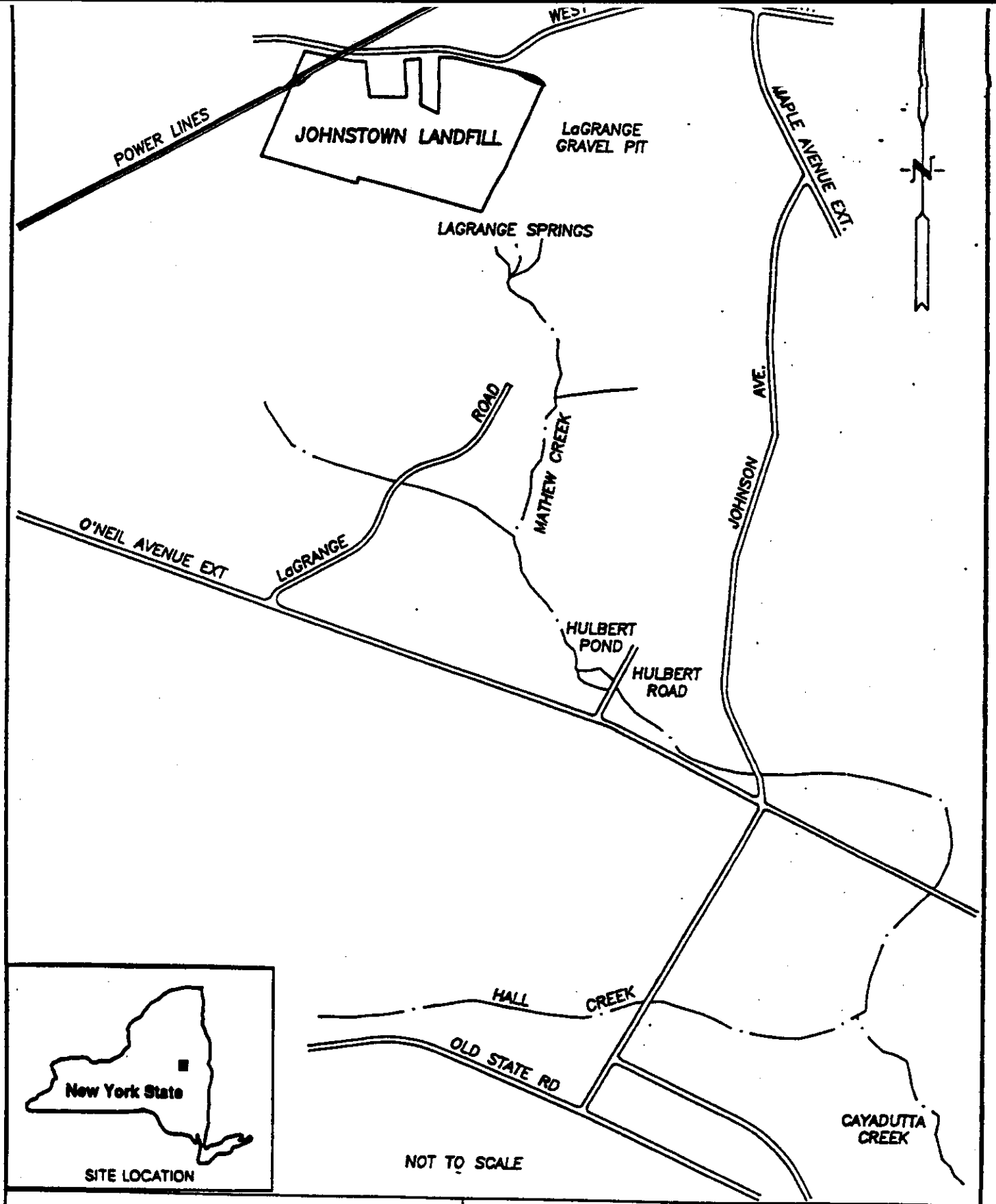
The statutory preference for remedies that employ treatment as a principal element cannot be satisfied for the landfill itself, since treatment of the landfill material is not practicable. The size of the landfill and the fact that there are no identified on-Site hot spots that represent the major sources of contamination preclude a remedy in which contaminants could be excavated and treated effectively. However, the contingent remedy calls for the treatment of contaminated ground water at the Site and, hence, would satisfy the preference for treatment for this portion of the remedy, if needed.

DOCUMENTATION OF SIGNIFICANT CHANGES

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

APPENDIX I

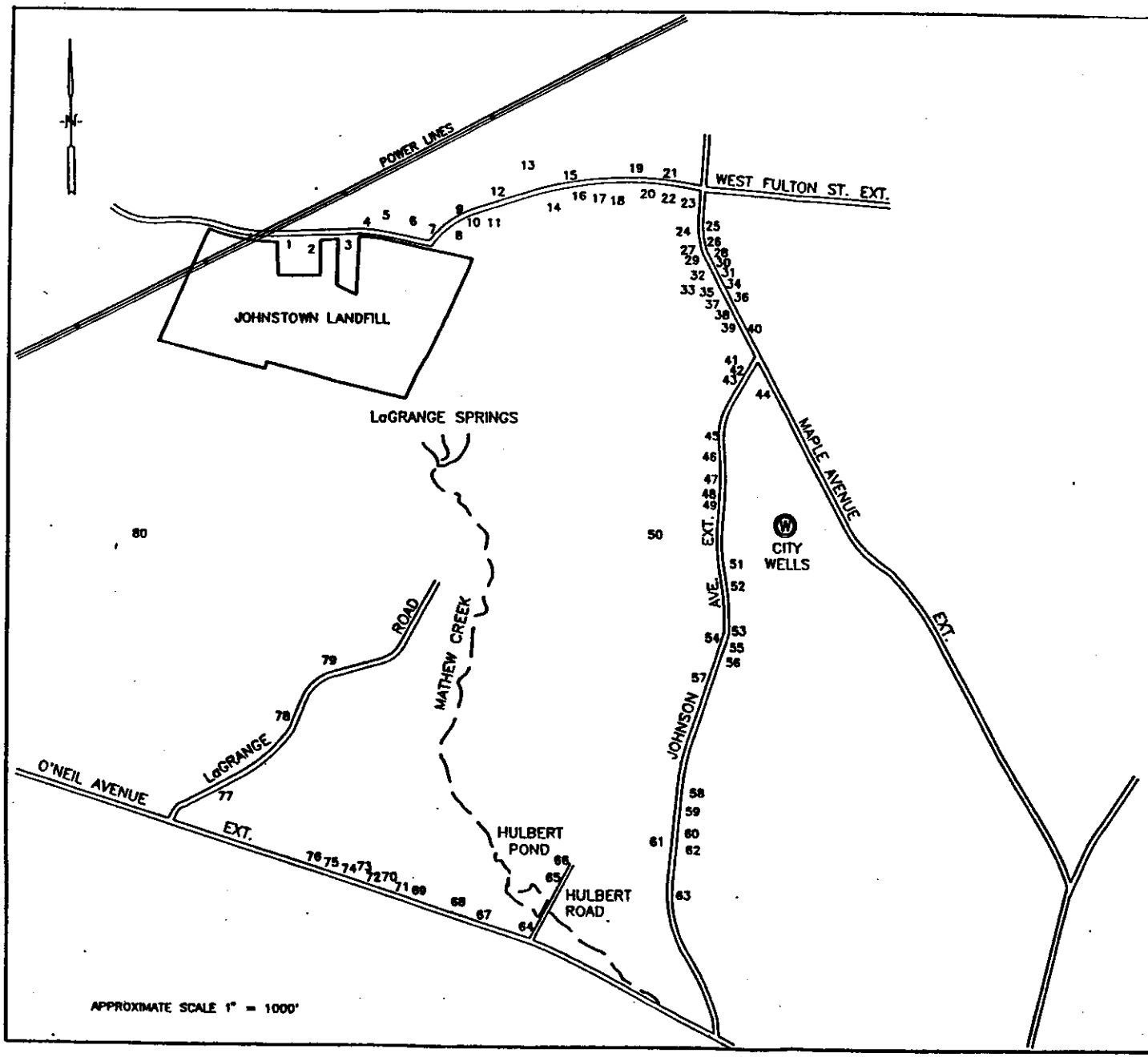
FIGURES



JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK

Thermo Consulting Engineers
(formerly Normandeau Engineers)

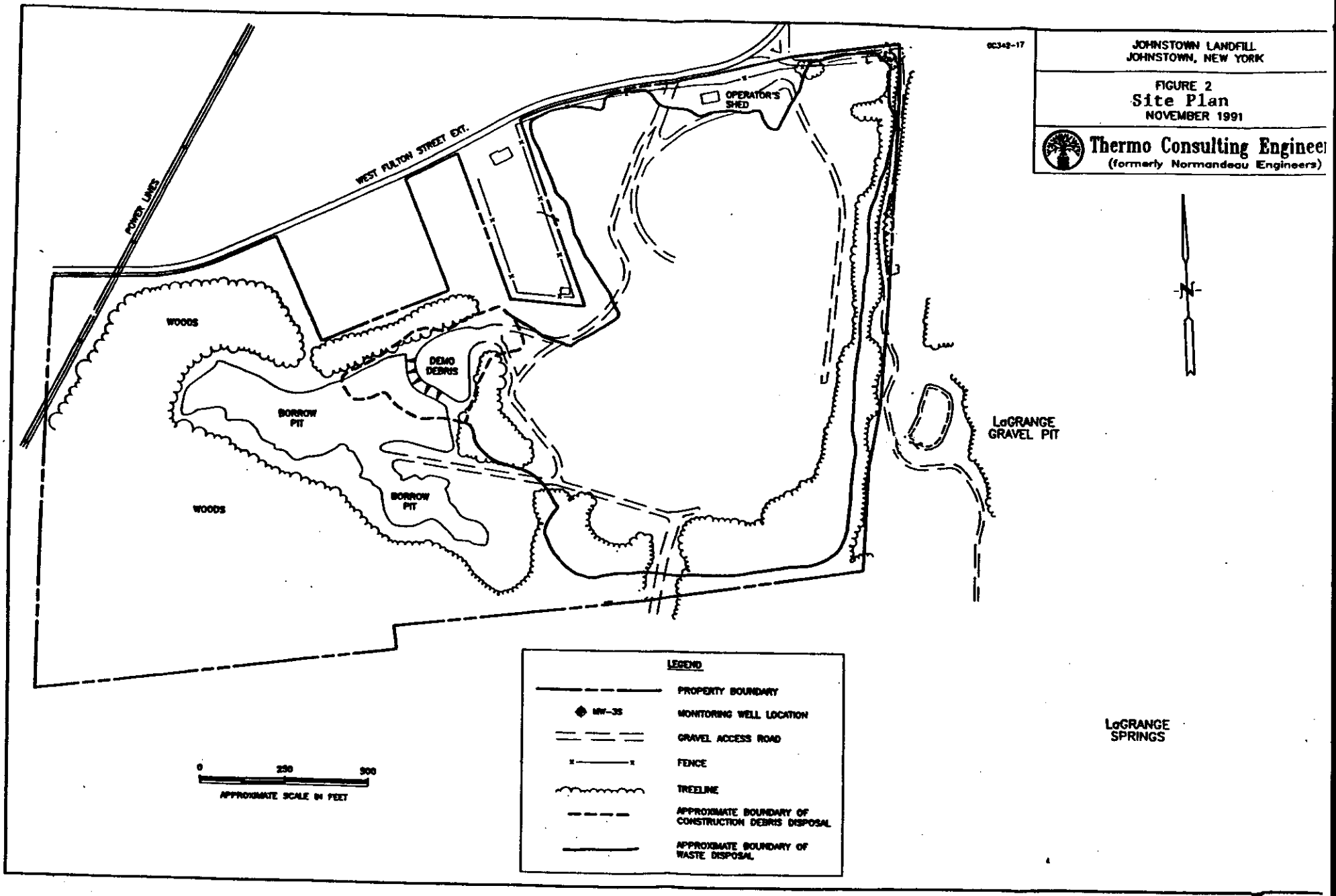
FIGURE 1
GENERAL LOCATION MAP SHOWING SURFACE WATER FEATURES LaGRANGE SPRINGS, HULBERT'S POND, MATHEW CREEK, HALL CREEK AND CAYADUTTA CREEK.
NOVEMBER 1991

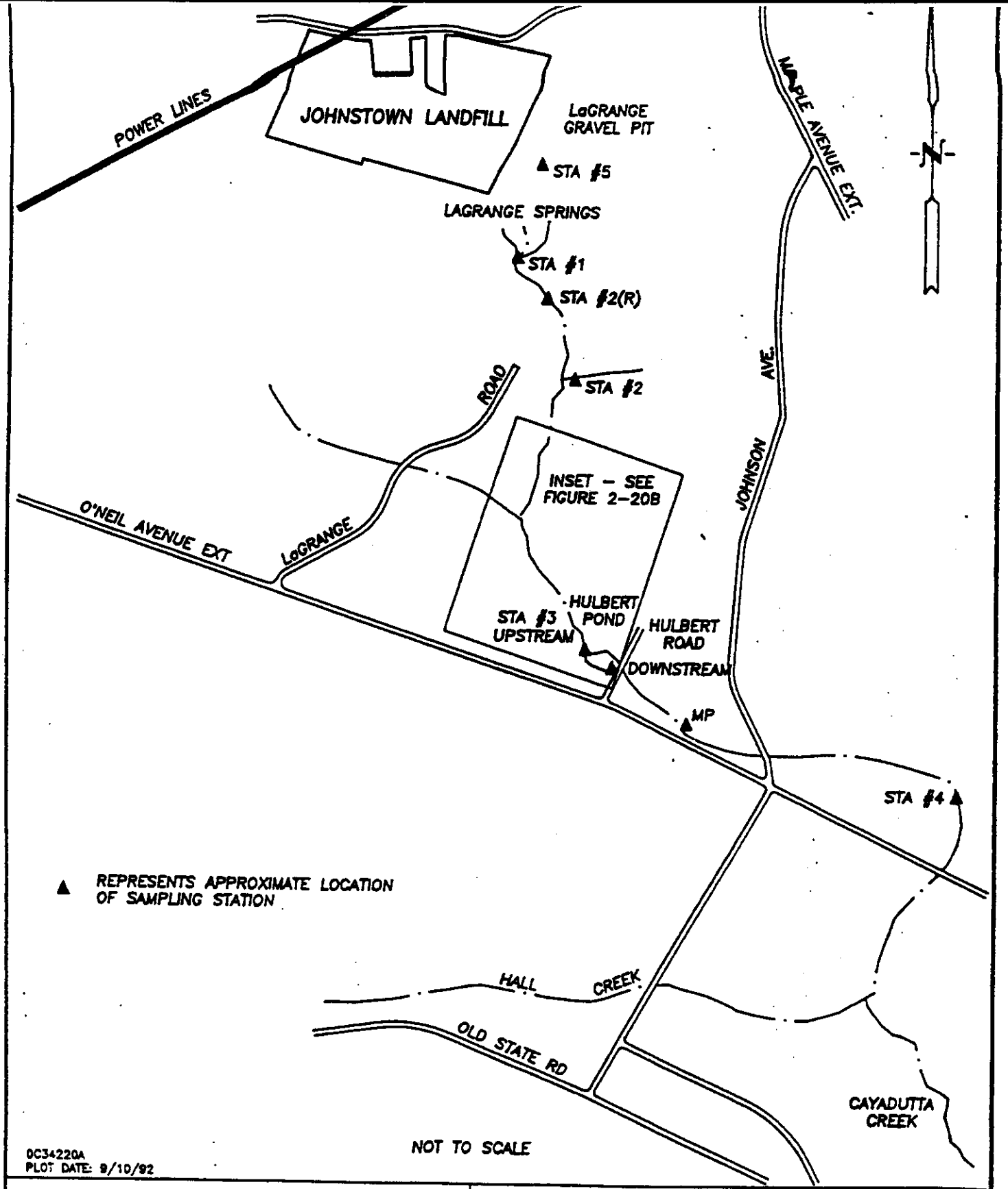


JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK

FIGURE 3
APPROXIMATE LOCATIONS OF RESIDE
CANVASSED DURING DOMESTIC WELL IN
NOVEMBER 1991

Thermo Consulting Eng
(formerly Normandeau Engin


JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK
FIGURE 2
Site Plan
NOVEMBER 1991
Thermo Consulting Engineer
(formerly Normandeau Engineers)
0C342-17
POWER LINES
WEST FULTON STREET EXT.
OPERATOR'S SHED
WOODS
DEMO DEBRIS
BORROW PIT
BORROW PIT
WOODS
LaGRANGE GRAVEL PIT
LaGRANGE SPRINGS
N
0
250
500
APPROXIMATE SCALE IN FEET
LEGEND
PROPERTY BOUNDARY
MW-3S
MONITORING WELL LOCATION
GRAVEL ACCESS ROAD
FENCE
TREELINE
APPROXIMATE BOUNDARY OF CONSTRUCTION DEBRIS DISPOSAL
APPROXIMATE BOUNDARY OF WASTE DISPOSAL



0C34220A
PLOT DATE: 9/10/92

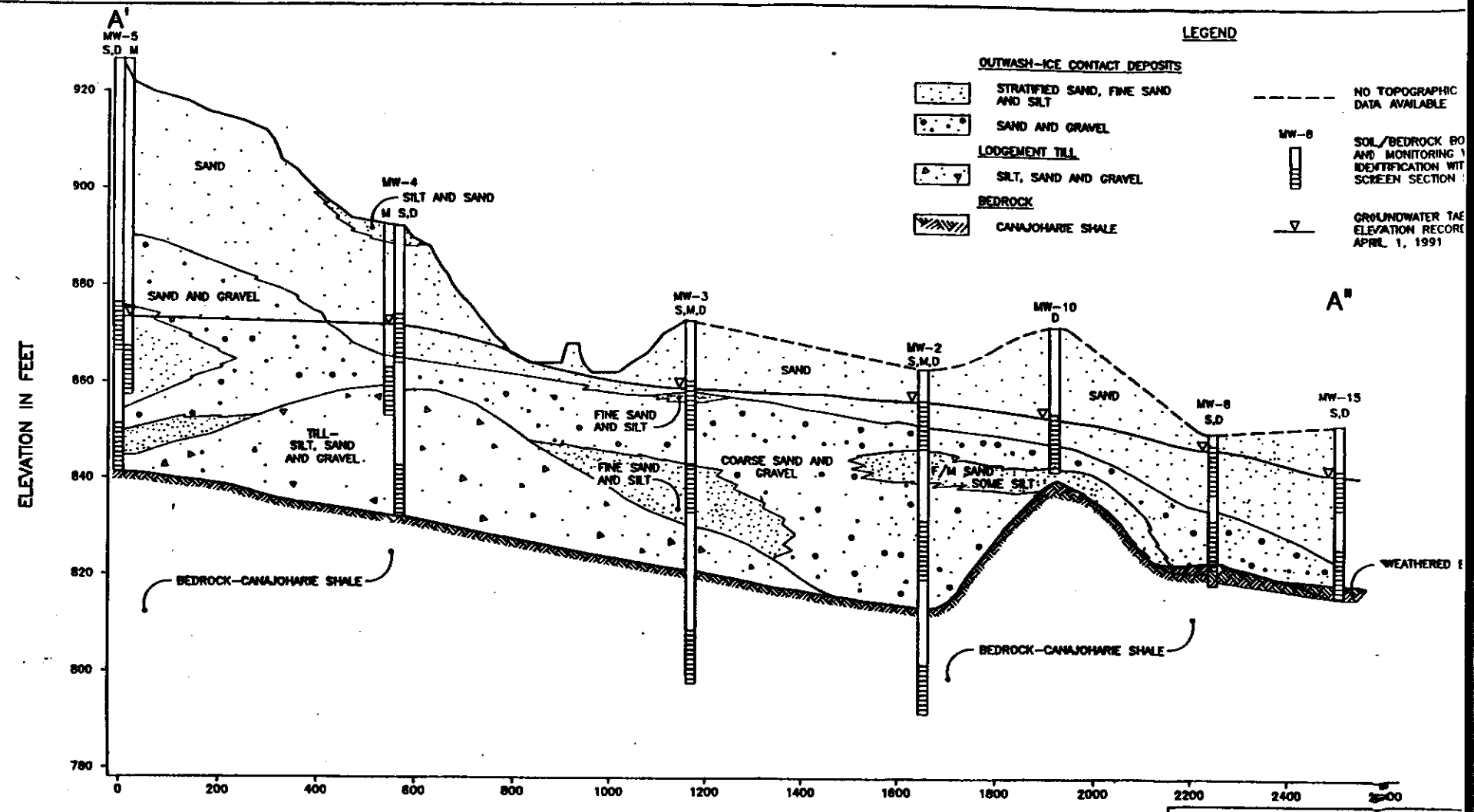
JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK

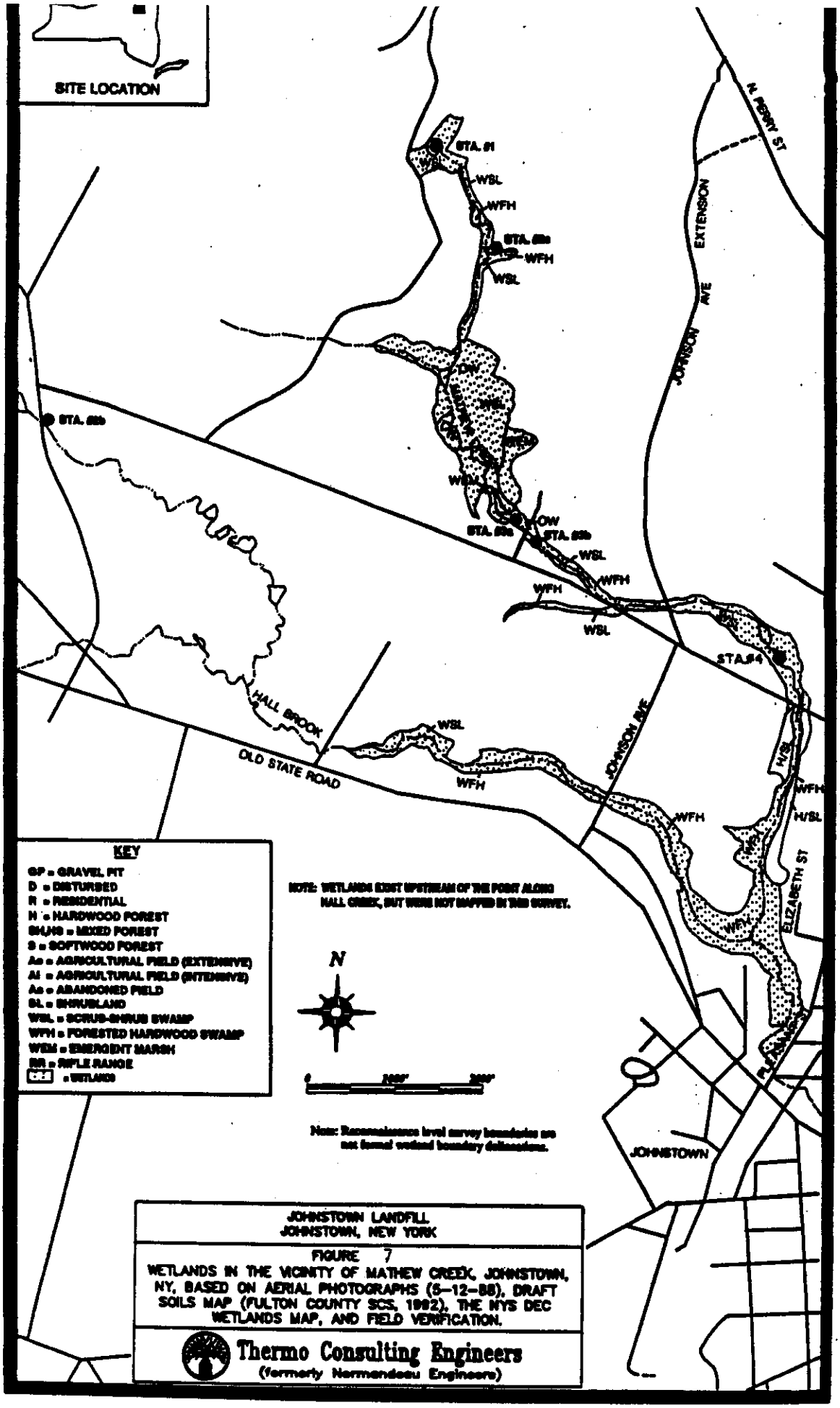
Thermo Consulting Engineers
(formerly Normandeau Engineers)

FIGURE 5a

APPROXIMATE LOCATIONS OF SAMPLING STATIONS ON LaGRANGE SPRINGS AND MATHEW CREEK

NOVEMBER 1991

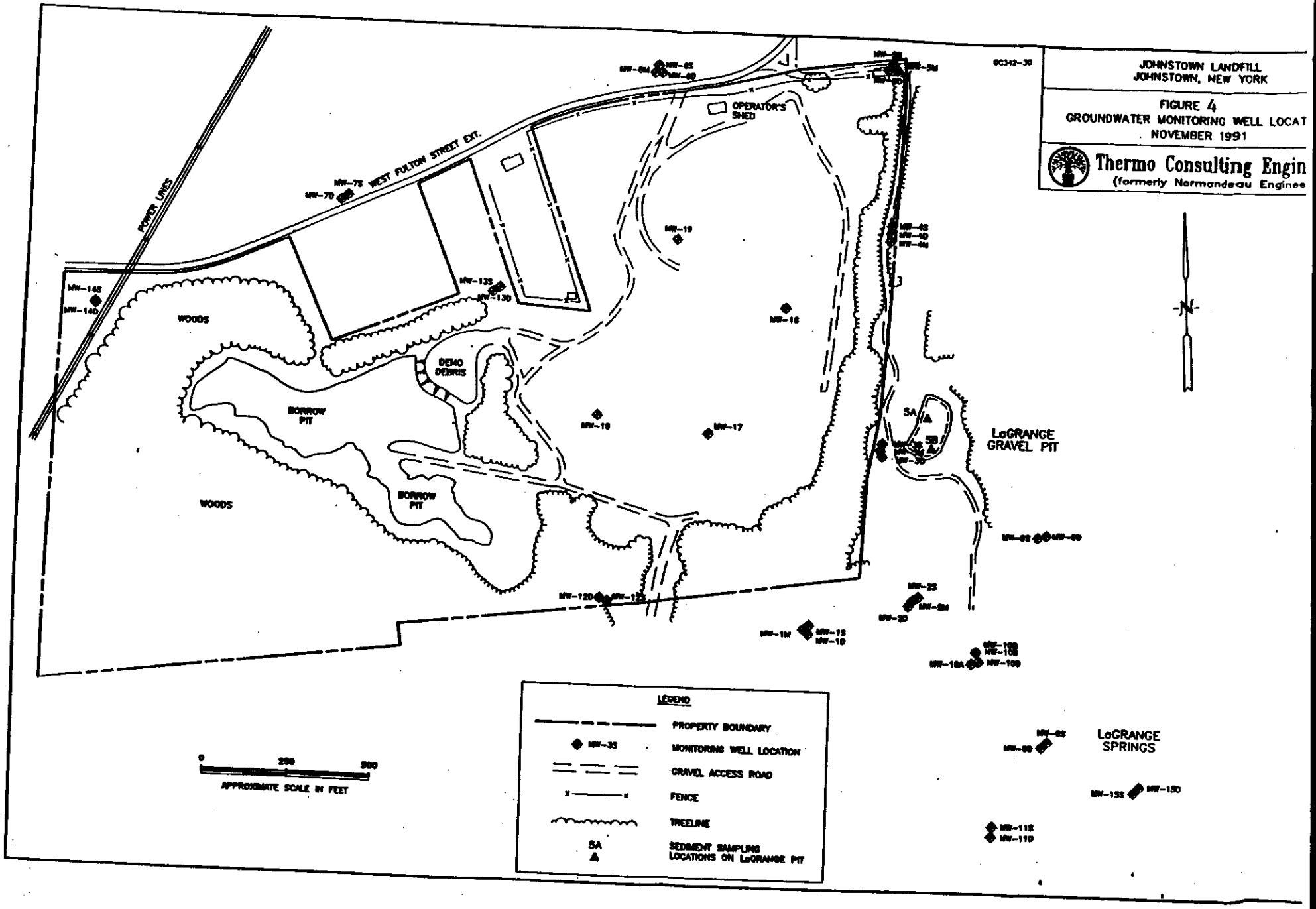

A'
MW-5
S,D M
MW-4
SILT AND SAND
M S,D
MW-3
S,M,D
MW-2
S,M,D
MW-10
D
MW-8
S,D
MW-15
S,D
A"
SAND
SAND AND GRAVEL
TILL-
SILT, SAND
AND GRAVEL
FINE SAND
AND SILT
FINE SAND
AND SILT
COARSE SAND AND
GRAVEL
F/M SAND
SOME SILT
SAND
SAND
BEDROCK-CANAJOHARIE SHALE
BEDROCK-CANAJOHARIE SHALE
WEATHERED
ELEVATION IN FEET
920
900
880
860
840
820
800
780
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
HORIZONTAL DISTANCE IN FEET
LEGEND
OUTWASH-ICE CONTACT DEPOSITS
STRATIFIED SAND, FINE SAND AND SILT
SAND AND GRAVEL
LODGEMENT TILL
SILT, SAND AND GRAVEL
BEDROCK
CANAJOHARIE SHALE
NO TOPOGRAPHIC DATA AVAILABLE
MW-8
SOIL/BEDROCK BO
AND MONITORING
IDENTIFICATION WIT
SCREEN SECTION
GROUNDWATER TAE
ELEVATION RECORE
APRIL 1, 1991
JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK
FIGURE
GEOLOGIC CROSS SECTION OF SURFICIAL
AND BEDROCK ALONG TRANSECT A'
LOCATED EAST OF THE JOHNSTOWN L
FEBRUARY 1992
Thermo Consulting Eng
(formerly Normandeau Engi
6C3424-2



JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK

FIGURE 7
WETLANDS IN THE VICINITY OF MATHEW CREEK, JOHNSTOWN, NY, BASED ON AERIAL PHOTOGRAPHS (5-12-88), DRAFT SOILS MAP (FULTON COUNTY SCS, 1992), THE NYS DEC WETLANDS MAP, AND FIELD VERIFICATION.

Thermo Consulting Engineers
(formerly Normandeau Engineers)


JOHNSTOWN LANDFILL
JOHNSTOWN, NEW YORK
FIGURE 4
GROUNDWATER MONITORING WELL LOCAT
NOVEMBER 1991
Thermo Consulting Engin
(formerly Normandeau Enginee
0C342-30
OPERATOR'S SHED
WEST FULTON STREET EXT.
POWER LINES
WOODS
DEMO DEBRIS
BORROW PIT
BORROW PIT
WOODS
LoGRANGE GRAVEL PIT
LoGRANGE SPRINGS
LEGEND
PROPERTY BOUNDARY
MW-3S MONITORING WELL LOCATION
GRAVEL ACCESS ROAD
FENCE
TREELINE
5A SEDIMENT SAMPLING LOCATIONS ON LoGRANGE PIT
0
250
500
APPROXIMATE SCALE IN FEET

APPENDIX II

TABLES

Table 1A: Nature and Source of Contaminants Profile
Metals and Miscellaneous Inorganics
Groundwater and Surface Water
Johnstown Landfill, Johnstown, New York

	GROUND WATER UPGRADIENT WELLS				GROUND WATER LANDFILL WELLS				GROUND WATER DOWNGRADIENT WELLS				GROUND WATER RESIDENTIAL WELLS				SURFACE WATER MATHEW CREEK				SURFACE WATER LaGRANGE PIT		
Parameter	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	RESIDENT	FREQ	LOW	HIGH	STAT#	FREQ	LOW	HIGH
METALS (ug/L)																							
Aluminum	27/27	67	43,200	5S	3/3	13,300	55,800	1S	51/51	53.8	104,000	11S	34/52	16.0	1,410	Gunnison	11/12	34.9	363	#2R	2/2	192	357
Antimony	2/27	15.8	20.3	14D	0/3				0/51				8/52	13.6	21.4	Palmateer	1/12		13.9	#1	1/2		17
Arsenic	22/27	1.1	16.9	5S	3/3	11.9	35.7	1S	44/51	0.8	49.5	3S	11/52	0.30	1.6	LaGrange	0/12				1/2		1.6
Barium	26/27	18.4	425	13D	3/3	17.7	1,060	1S	51/51	41.9	894	15S	41/52	2.1	555	Gunnison	12/12	27	72.6	#1	2/2	22.9	32.4
Beryllium	7/27	0.23	3.3	13D	3/3	2.4	6.0	1S	51/51	0.37	9.2	11S	4/52	0.21	0.45	Hulbert	0/12				0/2		
Cadmium	16/27	1.3	53.0	7D	3/3	2.5	77.6	1S	22/51	1.1	11.4	3D	0/52				0/12				0/2		
Calcium	27/27	42,700	796,000	13D	3/3	327,000	1,430,000	1S	51/51	35,300	1,810,000	3S	51/52	87.8	121,000	Pine Tree	12/12	49,900	111,000	#1	2/2	64,900	86,200
Chromium(T)	25/27	3.5	197	13D	3/3	145	2,330	1S	49/51	2.9	229	15S	1/52		3.4	Stanlet	4/12	3.7	7.2	#4	2/2	34	40.6
Cobalt	13/27	2.4	69	5S	3/3	29.6	61.2	1S	29/51	2.2	121	1S	0/52				1/12		3.7	#1	0/2		
Copper	19/27	3.5	269	13D	3/3	104	259	1S	39/51	6.6	299	3S	22/52	3.1	30.6	Gunnison	0/12				0/2		
Iron	27/27	651	124,000	5S	3/3	45,800	130,000	1S	51/51	58.0	202,000	3S	43/52	53.0	6,840	Gunnison	12/12	69.7	4,940	#4	2/2	1,410	6,330
Lead	26/27	1.0	65.3	5S	3/3	34.6	487	1S	46/51	1.0	454	2S	18/52	0.4	5.6	Pine Tree	1/12		6.9	#4	1/2		2.2
Magnesium	27/27	6,210	99,600	5S	3/3	39,900	82,900	1S	51/51	4,866	90,400	2S	51/52	33.9	26,100	LaGrange	12/12	6,460	15,900	#2	2/2	8,070	11,100
Manganese	27/27	24	4,630	5S	3/3	1,350	2,570	1S	51/51	7.9	57,300	1S	49/52	0.72	7,980	Gunnison	12/12	29.3	857	#1	2/2	93.9	944
Mercury	2/27	0.20	0.46	5S	3/3	0.21	10.8	1S	9/51	0.25	0.49	1S	0/52				0/12				0/2		
Nickel	16/27	0.9	247	13D	3/3	91.7	445	1S	49/51	7.6	332	3S	5/52	5.9	13.9	Pine Tree	3/12	0.2	12	#4	1/2		12.6
Potassium	27/27	701	13,100	5S	3/3	7,100	206,000	1S	50/51	1,670	19,500	3S	43/52	616	13,500	Stanlet	12/12	2,980	5,420	#1	2/2	9,780	23,000
Selenium	0/27				0/3				0/51				10/52	0.5	1.4	Forrester	2/12	1.2	1.4	#2R	0/2		
Silver	0/27				0/3				0/51				1/52		2.5	Wintermute	0/12				0/2		
Sodium	27/27	1,060	89,600	6D	3/3	13,300	423,000	1S	51/51	1,790	166,000	1S	52/52	2,200	258,000	Hannon	12/12	14,700	70,900	#2	2/2	33,600	97,300
Thallium	0/27				1/3		1.9	1S	2/51	1.0	2.7	1S	0/52	0.7	1.0	Schroppel	0/12				0/2		
Vanadium	21/27	3.7	168	13D	3/3	49.0	131	1S	36/51	4	279	15S	2/52	0.5	7.2	Wheeler	0/12				2/2	5.9	8
Zinc	27/27	10.8	798	13D	3/3	216	2,730	1S	50/51	3.6	479	1S,3S	38/52	4.2	790	Pine Tree	9/12	3.5	89.4	#4	2/2	16.8	263
Cyanide	0/27				1/3		73	1S	1/51		10.2	1D	2/52	16.0	29.2	Wager	2/12	34.8	41.9	#3	0/2		
Hexchrome	2/27	30	30	6S,M	0/3				2/51	20	40	1S	0/52				0/12				0/2		
INORG. (mg/L)																							
Sulfate	20/27	7.41	108	6M	3/3	11.5	13.2	1S	36/51	11.9	51.8	3D	46/52	10.3	57.9	Wager	10/12	11.1	66.9	#1	2/2	18.9	29.2
Chloride	25/27	9.30	112	6D	3/3	25.9	669	1S	48/51	3.17	216	3S	34/52	3.1	154	Pine Tree	12/12	22.2	66.6	#2	2/2	40.3	136
COD	14/27	11.2	668	13D	3/3	19.9	852	1S	29/51	10.3	672	10S	5/52	12.7	36.7	Hulbert	6/12	19.4	41	#3	2/2	25.2	219
TDS	27/27	101	934	5S	3/3	296	2,100	1S	51/51	134	1,330	3S	52/52	82.0	1,160	Wheeler	12/12	202	483	#1	2/2	322	736
Bicarbonate	27/27	84.4	822	5S	3/3	411	2,890	1S	51/51	74.4	780	3S	52/52	87.5	590	Pine Tree	12/12	140	409	#1	2/2	245	315
Carbonate	0/11				0/3				0/23				12/36	0.02	2.4	LaGrange	0/4				0/1		
TOC	11/11	1.4	196	7D	3/3	19.1	178	1S	22/23	0.84	66.7	15D					4/4	4.70	11.2	#3	1/1		8.15
Hardness	11/11	81.9	890	5S	3/3	251	700	1S	23/23	106	448	4S	17/17	74	328	Pine Tree	4/4	198	279	#1	1/1		197
Ammonia-N	10/11	0.05	15.9	6M	3/3	33.8	472	1S	23/23	0.08	64.5	15S,9D	8/8	0.010	5.5	Pine Tree	4/4	2.72	33.5	#1	1/1		11.2

Notes:

FREQ = Frequency of analyte detected above sample detection limits
LOW = Lowest concentration detected in each sampling category
HIGH = Highest concentration detected in each sampling category
MW,RESIDENCE,STAT# = Sample location where highest concentration of analyte was detected

UPGRADIENT WELLS: CLUSTER MWs 5,6,7,13,14
DOWNGRADIENT WELLS: CLUSTER MWs 1,2,3,4,8,9,10,11,12,15
LANDFILL WELLS: MWs 16,18,19

Table 1B: Nature and Source of Contaminants Profile
Metals and Miscellaneous Inorganics
Soil Boring and Sediment Samples
Johnstown Landfill, Johnstown, New York

	SOIL SAMPLES UPGRADIENT BORINGS				SOIL SAMPLES LANDFILL BORINGS				SOIL SAMPLES DOWNGRADIENT BORINGS				SEDIMENT–ROUNDS 1 & 2 MATHEW CREEK				SEDIMENT–ROUND 3 MATHEW CREEK				SEDIMENT–ROUNDS 2 & 3 LaGRANGE PIT		
Parameter	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	STATION	FREQ	LOW	HIGH	STATION	FREQ	LOW	HIGH
METALS (mg/Kg)																							
Aluminum	2/2	3,660	5,710	14D	3/3	4,000	6,490	16	4/4	3,050	11,200	11D	16/16	1,940	16,100	#1,0–6"	16/16	1,980	20,200	SD#2,0–12"	9/9	2,600	3,660
Antimony	0/2				1/3		4.2	17	0/4				0/16				0/16				0/9		
Arsenic	2/2	0.7	1.4	14D	3/3	0.43	1.1	16	4/4	0.5	1.0	12D	16/16	0.56	12.2	#1,0–12"	16/16	0.76	91.0	2R,0–6"	9/9	0.30	2.2
Barium	2/2	14.4	21.3	14D	3/3	16.0	23.9	16	4/4	11.3	21.0	9D	16/16	12	316	#1,0–6"	16/16	16.3	156	2R,0–6"	9/9	9.9	25.4
Beryllium	2/2	0.36	0.53	14D	3/3	0.23	0.56	17	4/4	0.31	0.43	9D	13/16	0.09	0.83	#3INLET	8/16	0.17	0.56	2R,0–6"	3/9	0.21	0.29
Cadmium	0/2				0/3				0/4				2/16	0.93	3.7	#1,0–6"	16/16	0.80	2.7	SD#2,0–12"	8/9	0.29	0.84
Calcium	2/2	12,500	69,400	13D	3/3	16,900	72,000	16	4/4	1,220	39,200	16D	16/16	1,740	59,300	#1,0–6"	16/16	3,020	22,000	SD(A),0–6"	9/9	17,400	106,000
Chromium(T)	2/2	5.9	11.8	14D	3/3	6.3	30.0	16	4/4	6.2	11.5	11D	16/16	1.9	23.6	#1,0–6"	16/16	2.8	16.8	#3IN,0–6"	9/9	29.3	1,520
Cobalt	2/2	1.9	3.6	14D	3/3	2.2	3.9	16	4/4	1.9	4.0	11D	14/16	2.5	30.3	#1,0–6"	16/16	1.7	13.1	2R,0–6"	6/9	2.2	4.5
Copper	2/2	4.5	10.1	14D	3/3	6.0	7.1	17	4/4	4.5	9.1	10D	15/16	1.4	43.2	#3INLET	15/16	9.01	26.4	#3IN,0–6"	9/9	5.4	17.2
Iron	2/2	4,890	9,710	14D	3/3	8,250	9,250	16	4/4	4,660	11,100	9D	16/16	6,100	121,000	#1,0–6"	16/16	5,250	30,700	2R,0–6"	9/9	5,540	9,040
Lead	2/2	1.7	3.6	14D	3/3	2.6	7.8	16	4/4	1.7	3.6	12D	16/16	2.7	17.8	#1,0–6"	16/16	2.6	62.4	#4,0–12"	9/9	3.3	53.4
Magnesium	2/2	3,190	5,750	14D	3/3	1,800	6,660	17	4/4	704	2,060	10D	16/16	602	3,910	#1,0–6"	16/16	526	3,510	MP,0–6"	9/9	1,560	22,000
Manganese	2/2	106	166	14D	3/3	120	186	17	4/4	78.5	224	12D	16/16	41.9	4,220	#1,0–12"	16/16	79.4	2,040	2R,0–6"	9/9	71.8	155
Mercury	0/2				0/3				0/4				0/16				8/16	0.10	0.43	#3IN,0–6"	2/9	0.14	0.22
Nickel	2/2	4.4	10.8	14D	3/3	4.8	7.1	16	4/4	4.0	8.6	9D	14/16	1.8	89.5	#1,0–6"	16/16	3.0	21.8	#1,0–12"	9/9	4.4	8.2
Potassium	2/2	1,060	1,810	14D	3/3	994	1,630	16	4/4	303	766	11D	16/16	279	1,760	#1,0–6"	16/16	160	817	SD(A),0–6"	9/9	278	694
Selenium	0/2				0/3				0/4				8/16	0.43	1.8	#1,0–12"	1/16		0.71	#1,0–12"	1/9		0.22
Silver	0/2				0/3				0/4				8/16				2/16	0.66	2.3	SD(A),0–6"	0/9		
Sodium	2/2	340	386	14D	3/3	343	567	17	4/4	230	365	10D	16/16	105	606	#1,0–6"	16/16	63.4	306	SD(A),0–6"	9/9	62.2	274
Thallium	1/2		0.21	14D	0/3				2/4	0.23	0.28	10D	1/16		0.3	#1,0–12"	0/16				1/9		0.24
Vanadium	2/2	7.1	17.3	14D	3/3	10.3	16.1	16	4/4	9.6	18.2	11D	16/16	7.1	46.7	#1,0–6"	16/16	4.9	29.9	SD#2,0–12"	9/9	4.9	148.9
Zinc	2/2	12.5	16.9	14D	3/3	13.5	32.9	16	4/4	11.3	22.3	9D	16/16	13.1	95.7	#1,0–6"	16/16	12	199	SD#2,0–12"	9/9	24.7	9.06
Cyanide	NT				0/3				NT				3/16	1.1	1.4	#2,0–6"	1/16		5.7	#3IN,0–6"	0/9		
Hexchrome	0/2				0/3				0/4				2/16	0.66	0.66	#1,0–6"	1/16		0.71	#1,0–6"	0/9		
INORG. (mg/Kg)																							
Sulfate	NT				1/3		280	17	0/4				12/16	61.8	577	#2,0–12"	0/16				3/9	274	1,287
COD	NT				3/3	5,420	80,800	17	4/4	2,810	11,000	12D	16/16	6,360	347,000	#1,0–6"	16/16	19,700	486,000	SD#2,0–6"	9/9	2,000	6,500
TOC	NT				NT								NT				11/16	7,370	>80,000	SD,SD	4/4	8,740	51,850
Ammonia–N	NT				NT								NT				16/16	16.9	867	2R,0–6"	4/4	23.8	35.3

Notes:
FREQ = Frequency of analyte detected above sample detection limits
LOW = Lowest concentration detected in each sampling category
HIGH = Highest concentration detected in each sampling category
MW,STATION = Sample location where highest concentration of analyte was detected
NT = Not tested

UPGRADIENT BORINGS : MWs 5,8,7,13,14
DOWNGRADIENT BORINGS MWs 1,2,3,4,8,9,10,11,12
LANDFILL BORINGS : MWs 15,17,18

Table 2A : Nature and Source of Contaminants Profile
TCL Volatile Organic Compounds
Groundwater and Surface Water
Johnstown Landfill, Johnstown, New York

	GROUND WATER UPGRADIENT WELLS				GROUND WATER LANDFILL WELLS				GROUND WATER DOWNGRADIENT WELLS				GROUND WATER RESIDENTIAL WELLS				SURFACE WATER MATHEW CREEK				SURFACE WATER LaGRANGE PIT	
Parameter	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	RESIDENCE	FREQ	LOW	HIGH	STAT#	FREQ	LOW
VOC's (µg/L)																						
Acetone	12/27(B)	2	2,800	7D	1/3		130	18	22/51(B)	2	1,700	1D	8/52(B)	3	6	Gunnison	4/12(B)	12	24	#2	1/2	
Methylene Chloride	8/27(B)	2	75	7D	1/3		26	16	14/51(B)	0.8	44	2D	3/52(B)	1	2	PTRC,Gunnison	2/12(B)	2	3	#1	1/2(B)	
Trichloroethylene	0/27				0/3				0/51				1/52		2	LaGrange	1/12		1	#3	0/2	
1,1,1 Trichloroethane	1/27		3	6S	0/3				0/51				1/52		3	Schreppel	0/12				0/2	
Chloroform	4/27(B)	0.8	3	7D	0/3				9/51(B)	0.5	30	1M	0/52				0/12				0/2	
Vinyl Chloride	1/27		39	7S	0/3				1/51		3	3D	0/52				0/12				0/2	
Xylene	2/27	2	12	6D	2/3	5	230	16	6/51	0.3	4	3S	0/52				0/12				0/2	
Benzene	1/27		0.8	6D	2/3	0.9	9	16	7/51	0.2	2	8S,8D	0/52				0/12				1/2	
Ethylbenzene	2/27	0.7	2	6D	2/3	7	110	16	4/51	0.6	2	3S	0/52				0/12				0/2	
Chlorobenzene	1/27		1	6D	0/3				2/51	0.7	2	3S	0/52				1/12		0.7	#4	0/2	
2-Butanone	0/27				0/3				1/51		41	1D	0/52				0/12				1/2	
4-Methyl-2-Pentanone	0/27				0/3				1/51		7	3S	0/52				0/12				1/2	
Vinyl Acetate	1/27		0.7	6D	0/3				0/51				0/52				0/12				0/2	
1,1-Dichloroethane	0/27				0/3				2/51		0.2	16D,3S	0/52				0/12				0/2	
Styrene	0/27				0/3				2/51	1	2	3M	0/52				0/12				0/2	
Carbon Disulfide	1/27		2	6D	0/3				5/51	0.1	2	3M,D	4/52	0.3	3	LaGrange	0/12				0/2	
Toluene	4/27	0.6	9	6D	0/3				6/51	0.7	62	3S	1/52		2	Schreppel	4/12(B)	1	2	#1,2R	1/2	
Tetrachloroethylene	0/27				0/3				0/51				0/52				1/12		7	#3	0/2	
1,1-Dichloroethylene	0/27				0/3				0/51				0/52				0/12				0/2	
1,2-Dichloroethylene	1/27		2	6S	0/3				0/51				0/52				0/12				0/2	

Notes:

FREQ = Frequency of analyte detected above sample detection limits
LOW = Lowest concentration detected in each sampling category
HIGH = Highest concentration detected in each sampling category
MW,RESIDENCE,STAT# = Sample location where highest concentration of analyte was detected
(B) = Flag indicates analyte was detected in method blanks for one or more of the samples

UPGRADIENT WELLS : CLUSTER MWs 5,6,7,13,14
DOWNGRADIENT WELLS : CLUSTER MWs 1,2,3,4,8,9,10,11,12,15
LANDFILL WELLS : MWs 16,18,19

Table 2B : Nature and Source of Contaminants Profile
TCL Volatile Organic Compounds
Soil and Sediment Samples
Johnstown Landfill, Johnstown, New York

	SOIL BORINGS UPGRADIENT WELLS				SOIL BORINGS LANDFILL WELLS				SOIL BORINGS DOWNGRADIENT WELLS				SEDIMENT MATHEW CREEK ROUNDS 1 & 2				SEDIMENT MATHEW CREEK ROUND 3				SEDIMENT LaGRANGE ROUNDS 2	
Perameter	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	STATION	FREQ	LOW	HIGH	STATION	FREQ	LOW
VOC's (µg/Kg)																						
Acetone	5/5(B)	5	160	7S	3/3(B)	13	440	1S	9/9(B)	7	75	1D	16/16(B)	14	380	#1,0-6"	16/16(B)	16	130	#3INLET	6/6(B)	16
Methylene Chloride	3/5(B)	2	6	13D	3/3(B)	4	7	1S	7/9(B)	2	5	2D	15/16(B)	2	20	#1,0-6"	15/16(B)	6	23	#3INLET	5/6(B)	4
Trichloroethylene	0/5				0/3				2/9	7	9	12D	0/16				1/16		19	SD(B),6-12"	0/6	
1,1,1 Trichloroethane	0/5				0/3				2/9	4	6	10D	0/16				0/16				0/6	
Chloroform	3/5	1	1	5,6,7	0/3				1/9		1	1D	4/16(B)	0.8	2	#1,6-12"	0/16				0/6	
Vinyl Chloride	0/5				0/3				0/9				0/16				0/16				0/6	
Xylene	0/5				2/3	10	15	1S	2/9	3	9	12D	0/16				0/16				0/6	
Benzene	0/5				1/3		13	1S	1/9		0.9	12D	1/16		3	#2,0-6"	0/16				0/6	
Ethylbenzene	0/5				2/3	3	5	17	2/9	1	2	12D	0/16				0/16				0/6	
Chlorobenzene	0/5				0/3				0/9				0/16				0/16				0/6	
2-Butanone	3/5(B)	2	4	6D	2/3(B)	7	360	1S	3/9(B)	2	3	12D	0/16	6	100	#3 INLET	11/16(B)	2	32	#3INLET	3/6(B)	3
4-Methyl-2-Pentanone	0/5				1/3(B)		14	1S	0/9				0/16				0/16				1/6	
Vinyl Acetate	0/5				0/3				0/9				0/16				0/16				0/6	
1,1-Dichloroethane	0/5				0/3				0/9				0/16				0/16				0/6	
Styrene	0/5				0/3				0/9				0/16				0/16				0/6	
Carbon Disulfide	0/5				0/3				0/9				1/16		31	#3 INLET	1/16				0/6	
Toluene	3/5(B)	0.8	2	14D	2/3	10	61	1S	5/9	0.8	2	3D	3/16	2	3	#1,#3IN.	2/16	4	6	#4,0-6"	2/6	3
Tetrachloroethylene	1/5		3	7S	0/3				5/9	0.7	2	1D,3D	0/16				0/16				0/6	
1,1-Dichloroethylene	0/5				0/3				2/9		0.9	3D,11D	0/16				0/16				0/6	
1,2-Dichloroethylene	0/5				0/3				0/9				0/16				0/16				0/6	

Notes:

FREQ = Frequency of analyte detected above sample detection limits
LOW = Lowest concentration detected in each sampling category
HIGH = Highest concentration detected in each sampling category
MW,STATION = Sample location where highest concentration of analyte was detected
(B) = Flag indicates analyte was detected in method blanks for one or more of the samples

UPGRADIENT BORINGS : MWs 5,6,7,13,14
DOWNGRADIENT BORINGS : MWs 1,2,3,4,8,9,10,11,12
LANDFILL BORINGS : MWs 16,17,18

Table 3A : Nature and Source of Contaminants Profile
TCL Semi-Volatile Organics and Pesticides
Groundwater and Surface Water
Johnstown Landfill, Johnstown, New York

	GROUND WATER UPGRADIENT WELLS				GROUND WATER LANDFILL WELLS				GROUND WATER DOWNGRADIENT WELLS				GROUND WATER RESIDENTIAL WELLS				SURFACE WATER MATHEW CREEK				SURFACE WATE LaGRANGE PT	
Parameter	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	RESIDENCE	FREQ	LOW	HIGH	STAT#	FREQ	LOW
SVOC's (ug/L)																						
Phenol	0/19				0/3				0/37				0/39				0/8				1/1	
Benzyl alcohol	0/19				0/3				0/37				0/39				0/8				1/1	
1,2-Dichlorobenzene	0/19				1/3		2	16	0/37				0/39				0/8				0/1	
4-Methylphenol	0/19				0/3				1/37		4	3S	0/39				0/8				1/1	
Benzoic acid	0/19				2/2	2	6	19	7/37	2	4	15S,8	0/39				0/8				1/1	
Naphthalene	1/19		0.8	8D	2/3	1	21	16	0/37				0/39				0/8				0/1	
2-Methylnaphthalene	0/19				1/3		2	16	0/37				0/39				0/8				0/1	
Dimethylphthalate	1/19		0.7	6S	0/3				1/37		0.4	2S	0/39				0/8				0/1	
Diethylphthalate	6/19(B)	0.8	2	5S,D	1/3		2	19	15/37(B)	0.6	6	11D	1/39		2	Forester	7/8(B)	0.4	1	#1,3	1/1(B)	
N-Nitrosodiphenylamine(1)	0/19				0/3				1/37		4	11D	0/39				0/8				0/1	
Phenanthrene	0/19				1/3		1	16	2/37	0.5	3	11D	0/39				0/8				0/1	
Anthracene	0/19				0/3				2/37	0.6	3	11D	0/39				0/8				0/1	
Di-n-butylphthalate	6/19(B)	0.5	3	8D	2/3	1	2	16	16/37(B)	0.4	11	11D	8/39(B)	0.8	2	Forester	8/8(B)	0.4	0.7	#4	1/1(B)	
Fluoranthene	0/19				1/3		2	16	2/37	0.7	7	11D	0/39				0/8				0/1	
Pyrene	0/19				1/3		2	16	2/37(B)	1	7	11D	0/39				0/8				0/1	
Butylbenzylphthalate	2/19	0.2	0.4	8D	0/3				4/37(B)	0.3	7	11D	0/39				0/8				1/1	
3,3'-Dichlorobenzidine	0/19				0/3				1/37		7	11D	0/39				0/8				0/1	
Benzo(a)anthracene	0/19				0/3				2/37	0.6	4	11D	0/39				0/8				0/1	
Chrysene	0/19				0/3				2/37	1	2	11D	0/39				0/8				0/1	
bis(2-Ethylhexyl)phthalate	18/19(B)	2	33	8S	3/3(B)	6	24	16	37/37(B)	2	159	3D	34/39(B)	2	66	Palmateer	7/8(B)	0.7	16	#1	1/1(B)	
Di-n-octylphthalate	4/19	0.3	4	8M	1/3		0.6	19	2/37(B)	0.3	5	11D	2/39	3	16	Paul	0/8				1/1	
Benzo(b)fluoranthene	0/19				0/3				2/37(B)	0.6	6	11D	0/39				0/8				0/1	
Benzo(k)fluoranthene	0/19				0/3				1/37(B)		0.8	15S	0/39				0/8				0/1	
Benzo(a)pyrene	0/19				0/3				2/37(B)	0.7	4	11D	0/39				0/8				0/1	
Indeno(1,2,3-cd)pyrene	0/19				0/3				1/37(B)			11D	0/39				0/8				0/1	
PESTICIDES (ug/L)																						
delta-BHC	0/19				0/3				1/37		0.04	9S	0/39				0/8				0/1	
Endosulfan 1	0/19				0/3				1/37		0.06	11D	0/39				0/8				0/1	
Dieldrin	0/19				1/3		0.01	16	0/37				0/39				0/8				0/1	
4,4'-DDE	0/19				1/3		0.18	16	0/37				0/39				0/8				0/1	
4,4'-DDD	0/19				1/3		0.35	16	0/37				0/39				0/8				0/1	
4,4'-DDT	0/19				1/3		0.03	16	0/37				0/39				0/8				0/1	
alpha-Chlordane	0/19				1/3		0.06	16	0/37				0/39				0/8				0/1	
gamma-Chlordane	0/19				1/3		0.05	16	0/37				0/39				0/8				0/1	
gamma-BHC	0/19				0/3				0/37				0/39				0/8				0/1	
Heptachlor	0/19				0/3				0/37				0/39				0/8				0/1	
Aldrin	0/19				0/3				0/37				0/39				0/8				0/1	
Heptachlor Epoxide	0/19				0/3				0/37				0/39				0/8				0/1	
Endrin	0/19				0/3				0/37				0/39				0/8				0/1	

Notes:
FREQ = Frequency of analyte detected above sample detection limits
LOW = Lowest concentration detected in each sampling category
HIGH = Highest concentration detected in each sampling category
MW,RESIDENCE,STAT# = Sample location where highest concentration of analyte was detected
(B) = Flag indicates analyte was detected in method blanks for one or more of the samples

UPGRADIENT WELLS : CLUSTER MWs 5,6,7,13,14
DOWNGRADIENT WELLS : CLUSTER MWs 1,2,3,4,8,9,10,11,12,15
LANDFILL WELLS : MWs 16,18,19

Table 3B : Nature and Source of Contaminants Profile
TCL Semi-Volatile Organics and Pesticides
Soil and Sediment Samples
Johnstown Landfill, Johnstown, New York

	SOIL BORINGS LANDFILL WELLS				SEDIMENT SAMPLES MATHEW CREEK ROUND 1				SEDIMENT SAMPLES MATHEW CREEK ROUND 2				SEDIMENT SAMPLES LaGRANGE PIT ROUNDS 1 & 2		
Parameter	FREQ	LOW	HIGH	MW	FREQ	LOW	HIGH	STAT	FREQ	LOW	HIGH	STAT	FREQ	LOW	HIGH
SVOC's (ug/Kg)															
Acenaphthene	0/3				0/3				0/3				1/2		44
Dibenzofuran	0/3				0/3				0/3				1/2		48
Fluorene	0/3				0/3				0/3				2/2	15	91
Acenaphthylene	0/3				0/3				1/8		12	#4,8-12	2/2	11	42
Benzoic acid	2/3	120	390	16	8/8	32	4,500	#1,6-8	7/8	26	480	#1,6-12	0/2		
Naphthalene	1/5		410	16	0/3				1/8		15	#4,8-12	2/2	170	1,400
2-Methylnaphthalene	0/3				0/3				1/8		8	#4,8-12	2/2	40	320
Dimethylphthalate	0/5				0/3				1/8		15	#3,OUT	0/2		
Diethylphthalate	1/5		760	16	2/8	60	82	#4,8-12	8/8(B)	19	66	#1,6-8	2/2(B)	62	71
N-Nitrosodiphenylamine(1)	0/5				0/3				0/3				0/2		
Phenanthrene	0/5				2/8(B)	31	160	#1,6-8	4/8	37	220	#4,8-12	2/2	66	170
Anthracene	0/5				0/3				3/8	20	61	#4,8-12	2/2	16	61
Di-n-butylphthalate	1/5		760	16	1/8(B)		87	#4,8-12	8/8(B)	23	90	#1,6-8	1/2(B)		41
Fluoranthene	0/5				2/8(B)	46	370	#1,6-8	5/8	16	200	#4,8-12	2/2	68	150
Pyrene	0/5				4/8(B)	21	210	#1,6-8	8/8(B)	16	210	#4,8-12	2/2	71	150
Butylbenzylphthalate	1/5		700	17	0/8				3/8(B)	8	36	#3,IN	0/2		
3,3'-Dichlorobenzidine	0/5				0/8				0/8				0/2		
Benzo(a)anthracene	0/5				1/8(B)		170	#1,6-8	4/8	22	88	#4,8-12	2/2	48	84
Chrysene	0/5				1/8(B)		170	#1,6-8	4/8	22	110	#4,8-12	2/2	46	99
bis(2-Ethylhexyl)phthalate	3/5(B)	400	1,100	16	8/8(B)	44	180	#4,8-12	8/8(B)	66	140	#3,IN	2/2(B)	430	850
Di-n-octylphthalate	1/5		42	16	1/8		15	#4,8-12	5/8	12	190	#3,IN	2/2(B)	46	270
Benzo(b)fluoranthene	0/5				2/8(B)	16	180	#1,6-8	5/8	46	78	#4,8-8	2/2	43	240
Benzo(k)fluoranthene	0/5				0/8				3/8	66	66	#3,OUT	1/2		160
Benzo(a)pyrene	0/5				1/8		18	#4,8-12	5/8	46	70	#4,8-12	1/2		43
Indeno(1,2,3-cd)pyrene	0/5				1/8		8	#4,8-12	6/8				0/2		
Benzo(g,h,i)perylene	0/5				0/8				1/8		4	#4,8-12	0/2		
Isophorone	0/5				0/8				2/8	7	8	#3,OUT	0/2		
PESTICIDES (ug/Kg)															
gamma-BHC	1/3		4.1	16	0/8				0/8				0/2		
delta-BHC	1/3		4.8	16	1/8		13	#3,IN	0/8				0/2		
Endosulfan 1	1/3		14	16	0/8				0/8				0/2		
Dieldrin	1/3		17	16	0/8				0/8				0/2		
4,4'-DDE	2/3	11	25	16	4/8	2.1	8.8	#1,6-8	4/8	2.6	12	#1,6-8	2/2	36	170
4,4'-DDD	1/3		37	16	0/8				0/8				2/2	13	69
4,4'-DDT	2/3	14	18	16	0/8				0/8				0/2		
alpha-Chlordane	0/3				0/8				0/8				0/2		
gamma-Chlordane	0/3				0/8				0/8				0/2		
Heptachlor	1/3		4.4	16	0/8				0/8				1/2		3.7
Aldrin	1/3		5.8	16	0/8				0/8				1/2		1.8
Heptachlor Epoxide	1/3		14	16	0/8				0/8				0/2		
Endrin	1/3		21	16	0/8				0/8				0/2		

Notes:

FREQ = Frequency of analyte detected above sample detection limits
LOW = Lowest concentration detected in each sampling category
HIGH = Highest concentration detected in each sampling category
MW,STAT# = Sample location where highest concentration of analyte was detected

UPGRADIENT BORING : MWs 5,6,7,13,14
DOWNGRADIENT BORING : MWs 1,2,3,4,8,9,10,11,12
LANDFILL BORING : MWs 15,17,18
(B) = Flag indicates analyte was detected in method blanks for one or more of the samples

Table 4 : Summary Results of 3-Hour Air Quality Sampling For VOCs
Johnstown Landfill, Johnstown, New York, September, 1989.

	Station No. ST-1				Station No. ST-2				Station No. ST-3				Occupat. Value* (24-HR)	AGC** (annual)
Date Sampled	9/13	9/13	9/21	9/21	9/13	9/13	9/21	9/21	9/13	9/13	9/21	9/21		
Sample Number	T-2	T-3	T-8	T-9	T-4	T-5	T-10	T-11	T-6	T-7	T-12	T-13		
Pump Flow Rate (L/min)	0.104	0.251	0.100	0.251	0.100	0.253	0.102	0.253	0.102	0.252	0.104	0.252		
Parameter														
Acetone	3.05	2.44	6.11	ND	ND	1.00	1.22	ND	4.44	20.56	ND	ND	1.78E6	35,600(c)
Benzene	1.84	1.02	1.11	0.64	1.89	0.74	ND	ND	0.69	1.44	1.53	0.62	30,000	100(a)
Toluene	1.26	1.00	ND	0.49	1.17	0.61	1.22	0.57	0.62	ND	ND	0.62	375,000	7,500(c)
2-Butanone	ND	ND	ND	ND	1.61	0.63	ND	ND	ND	ND	ND	ND	590,000	1,967(b)
1,1,1-Trichloroethane	1.05	0.84	ND	0.69	1.39	0.83	1.50	0.98	0.69	1.22	ND	0.62	1.90E6	38,000(c)
Carbon Tetrachloride	ND	ND	ND	0.47	ND	ND	ND	ND	ND	ND	ND	ND	30,000	100(a)
Totals	7.20	5.30	7.22	2.29	6.06	3.81	3.94	1.57	6.44	23.22	1.53	1.86		

Notes :
All concentration values expressed in micrograms per cubic meter (ug/cu. m)
(a) = High Toxicity Air Contaminants
(b) = Moderate Toxicity Air Contaminants
(c) = Low Toxicity Air Contaminants
* = Short Term 1989 ACGIH TWA-TLV
** = Long Term Ambient Guideline Concentration - (derived from ACGIH TWA-TLV)
ND = Not Detectable

Table 5 : Summary Results of Airborne Chromium Sampling
Johnstown Landfill, Johnstown, New York
September and October, 1989.

Station Number	Date	Filter Number	Total Chromium (µg)	Total Flow (cu. m)	Chromium Concentration (µg/cu. m)	Average Chromium Concentration (µg/cu. m)	AGC* (µg/cu. m)	Occupational Value** (µg/cu. m)
HV-1-P	9/14/89	2872	6.0	1,898.9	0.003	0.004	0.167	50
	10/1/89	2881	9.9	1,929.3	0.005			
	10/6/89	2885	6.9	1,937.6	0.004			
HV-1-C	9/14/89	2873	5.9	1,815.1	0.003	0.004	0.167	50
	10/1/89	2882	9.2	1,875.4	0.005			
	10/6/89	2886	6.4	1,821.3	0.004			
HV-2	9/14/89	2875	4.6	1,592.3	0.003	0.003	0.167	50
	10/1/89	2883	4.6	1,672.2	0.003			
	10/6/89	2887	5.5	1,670.7	0.003			
HV-3	9/14/89	2874	5.3	1,569.9	0.003	0.003	0.167	50
	10/1/89	2884	3.5	1,705.3	0.002			
	10/6/89	2889	6.8	1,692.7	0.004			

Notes :
* = Ambient Guideline Concentration – Annual Average – derived from 1989 ACGIH TWA-TLV
** = 1989 ACGIH Short Term TWA-TLV

Table 7
Summary of Exposure Scenarios
Johnstown Landfill, Johnstown, NY

	Scenario 1: Nearby Residents Current Conditions (Landfill Closed and Unremediated)			Scenario 2: Nearby Residents Future Conditions (Landfill Capped and Fenced, with no Ground Water Interception and Treatment)			Scenario 3: Nearby Residents Future Conditions (Landfill Capped and Fenced, with Ground Water Interception and Treatment)		
	1a Trespassing on the Landfill	1b Wading/ Fishing in Matthew Creek	1c Living at Home	2a Trespassing on the Landfill	2b Wading/ Fishing in Matthew Creek	2c Living at Home	3a Trespassing on the Landfill	3b Wading/ Fishing in Matthew Creek	3c Living at Home
Exposures to Soil from the Landfill									
Incidental Ingestion of Soil on Landfill	Yes	No	No	No	No	No	No	No	No
Dermal Contact with Soil on Landfill	Yes	No	No	No	No	No	No	No	No
Inhalation of Fugitive Dust on Landfill	Yes	No	No	No	No	No	No	No	No
Exposures to Matthew Creek									
Incidental Ingestion of Sediments	No	Yes	No	No	Yes	No	No	Yes	No
Dermal Contact with Sediments	No	Yes	No	No	Yes	No	No	Yes	No
Incidental Ingestion of Surface Water	No	Yes	No	No	Yes	No	No	Yes	No
Dermal Contact with Surface Water	No	Yes	No	No	Yes	No	No	Yes	No
Ingestion of Fish	No	Yes	No	No	Yes	No	No	Yes	No
Exposures to Ground Water									
Use of Ground Water as Household Water	No	No	Yes	No	No	Yes	No	No	Yes
Exposures to Outdoor Air									
Inhalation of Outdoor Air	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6

Study Chemicals, with Abbreviations and Common Synonyms

Johnstown Landfill, Johnstown, NY

Chemical	Abbreviation	Synonym 1	Synonym 2	CAS Number
Metals and Cyanide				
aluminum	Al			7429-90-5
antimony	Sb			7440-36-0
arsenic	As			7440-38-2
barium	Ba			7440-39-3
beryllium	Be			7440-41-7
cadmium	Cd			7440-43-9
chromium	Cr (III)			
chromium VI	Cr (VI)			18540-29-9
cobalt	Co			7440-48-4
copper	Cu			7440-50-8
lead	Pb			7439-92-1
mercury	Hg			7439-97-6
nickel	Ni			7440-02-0
selenium	Se			7782-49-2
silver	Ag			7440-22-4
strontium	Sr			7440-24-6
thallium	Tl			7440-28-0
titanium	Ti			7440-32-6
vanadium	V			7440-62-2
zinc	Zn			7440-66-6
cyanide				57-12-5
Volatile Organic Compounds				
methylene chloride	DCM	dichloromethane		75-09-2
chloroform		trichloromethane		67-66-3
carbon tetrachloride		perchloromethane		56-23-5
carbon disulfide				75-15-0
1,1,1-trichloroethane	1,1,1-TCA	methyl chloroform		71-55-6
vinyl chloride		chloroethene	chloroethylene	75-01-4
trichloroethylene	TCE	trichloroethene		79-01-6
tetrachloroethylene	PCE	tetrachloroethene	perchloroethylene	127-18-4
acetone		dimethyl ketone	2-propanone	67-64-1
2-butanone	MEK	methyl ethyl ketone		78-93-3
4-methyl-2-pentanone	MIBK	methyl isobutyl ketone		108-10-1
benzene		benzol		71-43-2
ethylbenzene		phenylethane		100-41-4
toluene		methylbenzene		108-88-3
xylenes (total)		xylene, mixed	xylenes [total]	1330-20-7
styrene		vinylbenzene		100-42-5
Semi-Volatile Organic Compounds				
benzoic acid		benzene carboxylic acid		65-85-0
phenol		carbolic acid		108-95-2
4-methylphenol		p-cresol	4-cresol	106-44-5
di-n-butylphthalate				84-74-2
di-n-octylphthalate				117-84-0
bis(2-ethylhexyl)phthalate	DEHP	di(2-ethylhexyl)phthalate		117-81-7
butylbenzylphthalate				85-68-7
naphthalene				91-20-3
Pesticides and PCBs				
ΣDDTR		Total DDT Residue (sum of DDT, DDD, DDE)		

Table 9
Summary of Noncancer Risks
Current Land Use Scenario

Chemical	Total HI as a Child	Total HI as a Youth			Total HI as an Adult	
	Living at Home	Trespassing	Wading / Fishing	Living at Home	Wading / Fishing	Living at Home
	(ratio)	(ratio)	(ratio)	(ratio)	(ratio)	(ratio)
Metals and Cyanide						
aluminum						
antimony	2.4E+00		4.5E-04	1.2E+00	2.7E-04	9.5E-01
arsenic	2.1E-01	3.2E-04	2.1E-03	1.1E-01	1.3E-03	8.6E-02
barium	1.6E-01	6.0E-05	5.1E-02	7.9E-02	4.5E-02	6.3E-02
beryllium	4.3E-03	1.8E-06	7.1E-06	2.1E-03	4.3E-06	1.7E-03
cadmium		6.2E-05	2.5E-04		1.5E-04	
chromium	1.1E-04	7.3E-01	6.7E-04	5.3E-05	6.0E-04	4.3E-05
chromium VI			3.9E-05		2.4E-05	
cobalt						
copper	1.5E-02	1.6E-05	1.1E-02	7.6E-03	1.0E-02	6.1E-03
lead	2.2E-01	2.8E-03	8.6E-01	1.1E-01	7.7E-01	8.7E-02
mercury		2.0E-05	1.3E-01		1.2E-01	
nickel	1.5E-02	1.5E-05	6.4E-05	7.3E-03	3.9E-05	5.9E-03
selenium	1.2E-02	2.5E-06	1.3E-05	6.0E-03	8.1E-06	4.8E-03
silver	2.3E-02			1.2E-02		9.4E-03
strontium						
thallium	2.5E+00			1.3E+00		1.0E+00
titanium						
vanadium	2.8E-02	5.1E-05	2.9E-04	1.4E-02	1.7E-04	1.1E-02
zinc	4.0E-02	1.9E-05	4.4E-02	2.0E-02	3.9E-02	1.8E-02
cyanide	2.2E-02		2.7E-05	1.1E-02	1.5E-05	8.9E-03
Volatile Organic Compounds						
methylene chloride		1.5E-07	3.7E-07		2.6E-07	
chloroform						
carbon tetrachloride	6.8E-01	2.9E-03	1.3E-04	3.8E-01	6.7E-05	1.9E-01
carbon disulfide	5.3E-02		1.7E-07	2.6E-02	1.2E-07	2.1E-02
1,1,1-trichloroethane	3.5E-03	1.5E-05	6.9E-07	1.9E-03	3.5E-07	9.7E-04
vinyl chloride						
trichloroethylene						
tetrachloroethylene	3.0E-02		9.3E-06	1.5E-02	6.1E-06	1.2E-02
acetone	6.0E-02	2.6E-04	1.3E-05	3.3E-02	7.0E-06	1.7E-02
2-butanone						
4-methyl-2-pentanone						
benzene						
ethylbenzene						
toluene	1.6E-03	6.8E-06	3.8E-07	8.7E-04	2.1E-07	4.3E-04
xylenes (total)						
styrene						
Semi-Volatile Organic Compounds						
benzoic acid			1.5E-07		1.0E-07	
phenol						
4-methylphenol						
di-n-butylphthalate						
di-n-octylphthalate						
bis(2-ethylhexyl)phthalate			3.9E-04		2.7E-04	
butylbenzylphthalate						
naphthalene		5.0E-05				
Pesticides and PCBs						
ΣDDTR		6.6E-05	1.4E-01		1.2E-01	
	6.5E+00	7.3E-01	1.2E+00	3.3E+00	1.1E+00	2.5E+00

Table 8

Summary of Key Toxicological Properties of Study Chemicals
Johnstown Landfill, Johnstown, NY

Chemical	Chronic Noncarcinogenic Toxicicity by Ingestion: Reference Dose (RfD) (mg/(kg-day))	Confidence in RfD	Species Tested in Critical Study	Chronic Noncarcinogenic Toxicicity by Inhalation: Reference Concentration (RfC) (mg/m3)	Reference Dose (RfD) (mg/(kg-day))	Confidence in RfD	Species Tested in Critical Study
Metals and Cyanide							
aluminum							
antimony	4E-04	low	rat				
arsenic	3E-04	med	human				
barium	7E-02	med	human				
beryllium	5E-03	low	rat	5E-04	1E-04		rat
cadmium	5E-04	high	human				
chromium III	1E+00	low	rat				
chromium VI	5E-03	low	rat	2E-06	6E-07		human
cobalt				2E-06	6E-07		human
copper	4E-02		human				
lead	5E-04						
mercury	3E-04		rat				
nickel	2E-02	med	rat	3E-04	9E-05		human
selenium	5E-03	high	human				
silver	5E-03	low	human				
strontium							
thallium	7E-05		rat				
titanium							
vanadium	7E-03		rat				
zinc	2E-01		human				
cyanide	2E-02	med	rat				
Volatile Organic Compounds							
methylene chloride	6E-02	med	rat	3E+00	9E-01		rat
chloroform	1E-02	med	dog		1E-02		
carbon tetrachloride	7E-04	med	rat		7E-04		
carbon disulfide	1E-01	med	rabbit	1E-02	3E-03		rat
1,1,1-trichloroethane	9E-02		guinea pig	1E+00	3E-01		guinea pig
vinyl chloride							
trichloroethylene							
tetrachloroethylene	1E-02	med	mouse; rat		1E-02		
acetone	1E-01	low	rat		1E-01		
2-butanone							
4-methyl-2-pentanone							
benzene							
ethylbenzene	1E-01	low	rat	1E+00	3E-01	low	rat, rabbit
toluene	2E-01	med	rat	2E+00	6E-01		human
xylenes (total)	2E+00	med	rat	3E-01	9E-02		human
styrene	2E-01	med	dog		2E-01		
Semi-Volatile Organic Compounds							
benzoic acid	4E+00	med	human		4E+00		
phenol	6E-01	low	rat		6E-01		
4-methylphenol							
di-n-butylphthalate	1E-01	low	rat		1E-01		
di-n-octylphthalate							
bis(2-ethylhexyl)phthalate	2E-02	med	guinea pig		2E-02		
butylbenzylphthalate	2E-01		rat		2E-01		
naphthalene	4E-03		rat		4E-03		
Pesticides and PCBs							
ΣDDTR	5E-04				5E-04		
4,4'-DDD							
4,4'-DDE							
4,4'-DDT	5E-04	med	rat		5E-04		

Table 11
Summary of Cancer Risks
Current Land Use Scenario

Chemical	Total ILCR				
	Trespassing (prob)	Wading / Fishing (prob)	Living at Home (prob)	All Activities (prob)	Percent of Summary ILCR (%)
Metals and Cyanide					
aluminum					
antimony					
arsenic	2.8E-09			2.8E-09	0.0%
barium					
beryllium	4.8E-09	4.2E-08	2.2E-05	2.2E-05	40.7%
cadmium	1.1E-10			1.1E-10	0.0%
chromium					
chromium VI					
cobalt					
copper					
lead					
mercury					
nickel	1.5E-10			1.5E-10	0.0%
selenium					
silver					
strontium					
thallium					
titanium					
vanadium					
zinc					
cyanide					
Volatile Organic Compounds					
methylene chloride	7.6E-12	4.9E-11		5.6E-11	0.0%
chloroform					
carbon tetrachloride	3.0E-08	3.1E-09	1.4E-05	1.4E-05	25.9%
carbon disulfide					
1,1,1-trichloroethane					
vinyl chloride					
trichloroethylene		4.9E-11		4.9E-11	0.0%
tetrachloroethylene		1.3E-09	2.1E-06	2.1E-06	3.9%
acetone					
2-butanone					
4-methyl-2-pentanone					
benzene	1.8E-08	1.9E-09	8.4E-06	8.4E-06	15.4%
ethylbenzene					
toluene					
xylenes (total)					
styrene					
Semi-Volatile Organic Compounds					
benzoic acid					
phenol					
4-methylphenol					
di-n-butylphthalate					
di-n-octylphthalate					
bis(2-ethylhexyl)phthalate		3.2E-08		3.2E-08	0.1%
butylbenzylphthalate					
naphthalene					
Pesticides and PCBs					
ΣDDTR	1.3E-09	7.7E-06		7.7E-06	14.1%
	5.7E-08	7.7E-06	4.7E-05	5.5E-05	100.0%
	0.1%	14.2%	85.7%	100.0%	

Table 10
Carcinogenic Toxicity Values

Chemical	Carcinogenicity by ingestion: Weight-of-Evidence Classification	Drinking Water Unit Risk ((µg/l)-1)	Cancer Potency Factor (CPF) (mg/(kg-day))-1	Carcinogenicity by inhalation: Weight-of-Evidence Classification	Inhalation Unit Risk (µg/m3)-1	Cancer Potency Factor (CPF) (mg/(kg-day))-1
Metals and Cyanide						
aluminum						
antimony						
arsenic	A			A	4.3E-03	5.0E+01
barium						
beryllium	B2	1.2E-04	4.3E+00	B2	2.4E-03	8.4E+00
cadmium				B1	1.8E-03	6.3E+00
chromium III						
chromium VI				A	1.2E-02	4.1E+01
cobalt						
copper	D			D		
lead	B2			B2		
mercury	D			D		
nickel				A	2.4E-04	8.4E-01
selenium	D			D		
silver	D			D		
strontium						
thallium						
tianium						
vanadium						
zinc	D			D		
cyanide	D			D		
Volatile Organic Compounds						
methylene chloride	B2	2.1E-07	7.5E-03	B2	4.7E-07	1.6E-03
chloroform	B2	1.7E-07	6.1E-03	B2	2.3E-05	8.1E-02
carbon tetrachloride	B2	3.7E-06	1.3E-01	B2	1.5E-05	1.3E-01
carbon disulfide						
1,1,1-trichloroethane	D			D		
vinyl chloride	A	5.4E-05	1.9E+00	A	8.4E-05	2.9E-01
trichloroethylene	B2	3.2E-07	1.1E-02	B2	1.7E-06	1.7E-02
tetrachloroethylene	B2	1.5E-06	5.1E-02	B2	5.2E-07	1,8E-03
acetone	D			D		
2-butanone						
4-methyl-2-pentanone						
benzene	A	8.3E-07	2.9E-02	A	8.3E-06	2.9E-02
ethylbenzene	D			D		
toluene	D			D		
xylenes (total)	D			D		
styrene	B2	8.6E-07	3.0E-02	B2	5.7E-07	2.0E-03
Semi-Volatile Organic Compounds						
benzoic acid	D			D		
phenol	D			D		
4-methylphenol	C			C		
di-n-butylphthalate	D			D		
di-n-octylphthalate						
bis(2-ethylhexyl)phthalate	B2	4.0E-07	1.4E-02	B2		1.4E-02
butylbenzylphthalate	C					
naphthalene	D			D		
Pesticides and PCBs						
ΣDDTR	B2	9.7E-06	3.4E-01	B2	9.7E-05	3.4E-01
4,4'-DDD	B2	6.9E-06	2.4E-01			2.4E-01
4,4'-DDE	B2	9.7E-06	3.4E-01	B2		3.4E-01
4,4'-DDT	B2	9.7E-06	3.4E-01	B2	9.7E-05	3.4E-01

APPENDIX III

ADMINISTRATIVE RECORD INDEX

PUBLIC HEARING
FINAL RESULTS

of the REMEDIAL INVESTIGATION and FEASIBILITY STUDY
at the FORMER JOHNSTOWN LANDFILL

JOHNSTOWN HIGH SCHOOL
JOHNSTOWN, NEW YORK
February 10, 1993
7:00 p.m.

ASSOCIATED REPORTERS INTERNATIONAL INC.
(800) 523-7887

MR. ROBERT SUBIK: Good evening, my name is Bob Subik. I'm the city attorney here in the city of Johnstown.

I'm also the project manager for the Remedial Investigation and Feasibility Study at the former Johnstown landfill.

Tonight we have a public hearing; the purpose of that public hearing is to discuss the final results of the Remedial Investigation and Feasibility Study at the landfill which is located at the extension of West Fulton Street in the town of Johnstown, and also to present the federal remedial action plan.

Just a few brief historical notes on how we came to be at this point. The city of Johnstown operated that site as a sanitary landfill from 1947 to July of 1988 when it was closed. In November 1983, a phase one study was completed at the site which identified some off-site contamination. And thereafter, the site was nominated to the national priority list of federal Superfund sites. Thereafter in January of 1985, the city was notified that it had liability under the federal CERCLA statute --

that's the Comprehensive Environmental Response and Compensation Liability Act of 1980.

Thereafter, we had a series of negotiations with the state to develop a study, a scope of work to be undertaken in the study. In May of 1987, the city of Johnstown was sued by the state of New York under that statute to require the city to conduct such a study and to remediate the site. In October of 1988, the city signed a consent order with the state of New York that it would in fact conduct the study and thereafter remediate the site.

We hired an engineering consultant, and in May of 1989 we began the process of studying the former Johnstown landfill and the area immediately surrounding it. The remedial investigation study began at that time. We had one prior public hearing before tonight. The fieldwork was completed approximately September of 1991. Thereafter, a list of alternatives was developed by our engineering consultant of those actions that the city could take to remediate the site. Those are identified in the feasibility study, which is available for your review.

And tonight we are presenting the results of the remedial investigation and the feasibility study, and there will be a discussion of the federal response to the city's submittal of that report, which is entitled a preliminary remedial action plan. We have people here tonight from both the federal government, the E.P.A., and also from the state government, the Department of Environmental Conservation, who will address those issues.

So without any further ado, I would like to introduce the members of the panel who are going to be presenting information to you tonight. And at the conclusion of their remarks, there will be an opportunity for people to ask questions at the end of the meeting. To my immediate left is Richard Fedigan. He is an official with the New York State Department of Health; he is with the program -- he is a program research specialist. To his left is Robert Cozzi. Bob is the section chief for the New York State Department of Environmental Conservation. To his left is James Barrett. James is the project engineer for the city's engineering consultant. To his left is

Joel Singerman, who is the section chief of the U.S. E.P.A. To his left is Robert Nunes, who is the -- who is with the United States Environmental Protection Agency and who is the principal author of the remedial action plan which will be presented tonight. And in the audience we have Betsy Lowe, who is a citizen participation specialist with D.E.C. We also have Michael Lesser, who is an attorney with D.E.C., and who would be available to address some questions with regard to the legal aspects of this matter.

At this point, I would like to turn the program over to Betsy Lowe.

MS. BETSY LOWE: Thank you. I just have a couple of real brief comments. This public meeting is being held as part of our statewide program to conduct citizen participation activities in inactive hazardous waste sites. And the purpose of the meeting tonight is not only to give you information about the study and investigation that was conducted at the site and the proposed measures to address what was found on the site but also to get your ideas and input

and reflections on what you hear tonight. And we look forward to working with you on that.

There is three document repositories that contain the full study and the appendices that was done. They are at the Johnstown Public Library, the Johnstown City Clerk's office, and the Johnstown Free Library. As part of the appellate participation program, we have -- early on, we developed a site contact list, which I'm sure is how a lot of you heard about the meeting tonight. There was an extensive mailing sent out. But prior to tonight, there have also been two other public meetings on the site. There was one May 17th, '89 on the draft work plan for the study and September 15th, 1990 on the first part of the study, called the remedial investigation. And we will be glad to entertain oral comments tonight or any comments that you have in writing that you would like to send to us through February 19th. And your comments should be sent to Bob Cozzi, the project manager, at the D.E.C. 50 Wolf Road address. He can give you that detail. I think it is on one of the handouts.

MR. BOB COZZI: Actually, I left some cards

up there.

MS. LOWE: So if anybody wanted to follow up that way.

And then following this meeting today, there is going to be a response to the summary developed with all the comments and how the department acted on the comments, and that will be done once the final decision is selected for the site, and they will be available in the document repositories and then -- so that's all I have to say, and here is Joel Singerman.

MR. JOEL SINGERMAN: In order to understand the Superfund program, you first should take a look at how hazardous waste were handled historically. While this country has produced industrial waste for many years, until the mid-seventies, there was little regulation of their disposal. In response to concerns about this country's haphazard approach to waste disposal, Congress passed the Resource Conservation Recovery Act in 1976 to regulate hazardous waste generators, transporters, and treatment and disposal facilities. From this legislation, the E.P.A. created a program that

would regulate solid hazardous waste from its cradle where it is generated to its grave where it is disposed. A key distinction to make is that RCRA only addresses today's waste generators, transporters, and treatment disposal facilities.

Several well-publicized toxic waste disposal disasters in the late nineteen-seventies, among them Love Canal, shocked the nation and highlighted the fact that past waste disposal practices were not safe. In 1980, Congress responded with a creation of the Comprehensive Environmental Response Compensation and Liability Act, more commonly known as Superfund. The original Superfund law provided one point six billion dollars of federal funds to be used in the cleanup of uncontrolled and abandoned hazardous waste sites and for responding to emergencies involving hazardous substances. In addition, the E.P.A. was empowered to compel those responsible for these sites to pay for or conduct necessary response actions. Superfund was reauthorized by Congress in 1986, increasing the size of the fund to eight point six billion

dollars.

The work to remediate a Superfund site is usually very complex and takes places in many stages. Once the site is discovered, an inspection to further identify the hazard and contaminants is conducted. A determination is then made whether to include the site on the Superfund national priorities list, a list of the nation's worst hazardous waste sites. Sites are placed on the national priorities list primarily based on the scores obtained by the hazard ranking system which evaluates the relative risk posed by a site. Only sites in the national priorities list are eligible for remedial work financed by Superfund.

The selection of a remedy of a site is based upon two studies, a remedial investigation and a feasibility study. The purpose of the remedial investigation is to determine the nature and extent of contamination at and emanating from the site and the associated risks to the public health and environment. The purpose of the feasibility study is to identify and to evaluate remedial alternatives to address site

contamination problems.

Public participation is a key feature of the Superfund program. The public is invited to participate in all of the decisions that are to be made, through the community relations program. Town meetings such as this one are held as necessary to keep the public informed about what is happening and what is planned for a site. The public is also given the opportunity to comment on the results of the investigations and studies and the proposed remedy. After considering public comments on the proposed remedy, a record of its decision is signed. The record of decision documents why a particular remedy was selected.

Following the selection of the remedy, the site is designed and then following the design, the actual hands-on work associated with cleaning up the site is undertaken. Following this work, the site is closed and monitored. As early as possible in this remedial process, E.P.A., with the affected state, begins looking for parties potentially responsible for contamination at the site. The search attempts to identify the

hazardous waste generators and transporters as well as the owners and operators of the site. Once identified, if E.P.A. or the affected state believes that the responsible parties are willing and capable of conducting the necessary investigation and/or cleanup work at the site, then an enforcement agreement may be signed. The work that will then be performed by the responsible parties with the E.P.A.'s or the affected state's oversight. If no agreement can be reached, E.P.A. or the affected state can order the responsible parties to conduct the work, or they can under take the work themselves and attempt to recover their costs at a later date.

MR. JIM BARRETT: My name is Jim Barrett. I'm with Thermo Consulting Engineers (phonetic spelling), who is the consulting company that was hired to do the field work at the Johnstown landfill that has taken place over the last couple of years. My intention for this meeting and just for this presentation is just mainly to just give a broad general discussion of what was done and what was found at the site with the idea

that if you have specific questions or specific concerns, we can address those in the question and answer period after this presentation. And likewise, if you have further concerns after this meeting, you can send them by letter to Bob Cozzi, which Bob and I will then attempt to address in as good a manner as possible.

Essentially the landfill study involved sampling ground water and soils around and inside the landfill itself, ground water and soils downhill from the landfill in this area and it also involved sampling sediments and surface water, fish and other stream biotic life, along the creek which leads just southeast from the landfill. We also sampled residential wells in approximately this area for ground water quality to assess drinking water concerns.

This particular diagram (indicating) gives you an idea of the number of wells. There was approximately thirty-two monitoring wells that were drilled at the site. Nearly one hundred ground water samples were taken from the site-specific monitoring wells, and approximately sixty water samples were taken from residential

wells. Early on at the beginning of the program in order to collected some baseline data so that we could have a good picture of the quality of the soil and water at all of the sites for all of the parameters, we took and did analyses of a very, very extensive sweep of laboratory parameters.

The third round of sampling, we focused on metals, which were the primary constituents of concern that were associated with the site. The metals that were at the site include aluminum manganese and iron, which are typically associated with landfills. You often find those as a result of garbage disposal. But at this site, the compounds of concern were the metals chromium and lead. The compounds and similar compounds were also found in Matthew Creek leading from the site. Primarily manganese and iron were found more often in sediments from the creek as well as other trace hints of some organic compounds, again the chromium and lead and ammonia.

In terms of the creek and impacts to wildlife in the creek, aluminum, ammonia,

manganese, and iron were the compounds that were most noted in the highest concentrations near the headwater springs that were about a thousand feet away from the landfill. In terms of the ground water in the landfill, the highest concentration of ground water containing those metals, as you might expect, was in wells that were taking ground water samples from directly below the landfill.

The drinking water analyses showed that all primary drinking water standards were met. No sample from any drinking water supply exceeded the what is could the M.C.O., the maximum contaminant level, which is the level that is -- everything has to be below that level as part of federal and state law. The only things that ever were detected that were higher in drinking water were iron and manganese, and those exceeded the secondary standards. Secondary standards are what we term as aesthetic standards. If high enough concentrations of iron and manganese exist in water, you could get a taste, you could get staining of the plumbing fixtures, and you could get staining of laundry. But those are not

health-related items, and those were not discovered in any of the drinking water samples that we took at levels that were anywhere close to health-related concerns. I happen to live on a private property with a well, and my well exceeds the secondary drinking water standards for iron and manganese, and there is no landfill or anything. It is just a consequence of having a bedrock well in the northeastern part of the United States.

In addition to taking all of those water samples so that we could characterize the nature and extent of contamination and we could see where the effects of contamination were localized, we also did drilling -- and I guess we could call it geological studies -- to determine what the mechanism of contamination and transport from the landfill was. And what we found is that primarily rainfall falling onto the surface of the landfill and runoff from the roads surrounding the landfill flowing onto the landfill was producing water that would pond up on the landfill and percolate through the garbage. Essentially, because of the local

topographic conditions, the landfill was in a low spot so not only did it receive rain water, but it received runoff water from the nearby hillsides. The ideal situation for a landfill, of course, is to have it look like a dome and not look like a bowl because you want it to shed water, not collect water.

As the studies showed, we were very pleased to find out that the actual landfill waste, which is shown by these dashed patterns here, was well above the water table -- and this is the ground water table below the landfill. So essentially what was happening is rain would fall and run onto the site from the neighboring hillside, percolate through this landfill waste, go on down through the sand and gravels, come into the ground water, and then mix with the ground water and flow off of the site.

This is cross-section showing the relationship of the landfill and the waste it contains to the water table and to LaGrange Springs (phonetic spelling). LaGrange Springs exists primarily because there is insufficient soil to transmit the water underground. When you

get -- this is the bedrock here. As you go downhill from the landfill, the sand and gravel overburden above the bedrock thins. You can see it is lot thicker here than it is there (indicating). Consequently, there is no room for the water to be transported downhill; the bedrock does not allow transport to occur, so it finally pops out to the surface at LaGrange Springs. So essentially what we have on an annual basis is rainfall and run-on coming through the landfill waste, entering the ground water, flowing down with the ground water, some of it coming up in the surface water at LaGrange Springs, and becoming part of the flow of Matthew Creek.

The fact that this garbage was above the water table was a very import aspect to looking at the various engineering alternatives. I don't believe you have this handout; I just want to go through some of the selection process, and I don't intended for you to try to read this -- and I never intended for you to try to read it other than to give you a feel of what types of evaluations are done.

We develop what the media of concern were.

In that case, it would be solid compounds, solid media such as the soils and the sediments of the creek, the solid waste of the landfill itself, water, meaning ground water as well as surface water, and any subsurface gas that could be produced from the landfill. We had to identify what those media concerned were and then look at the kinds of -- types of action that one could do to treat these particular contaminated substances.

As part of the E.P.A. process, doing the remedial investigation feasibility study, you have to look at the no-act and essentially you say, "Well, what is the result if we just monitor and give public awareness and constantly monitor the system." Limited action could involve things like putting a fence around the site just to keep people from walking across it. Containment is exactly that, and covering the site, either with a cap and then removal, is physically removing the materials from the area. All of these particular response actions have their benefits and their deficits. The no-action alternative is very inexpensive, but then it doesn't accomplish

anything.

The removal action would be okay in a site where you had a very small volume of very concentrated soils, but it doesn't work in an area like the Johnstown landfill where you have thirty-six acres of deposits of solid waste up to thirty feet thick. There is just too much volume, and there are no hot spots, so hauling does not become a very good option in terms of the cost and also the impact of exposing garbage that has been in the ground for so long. The benefit of the removal action is, however, that it is taken to another site that is designed to hold the waste.

After looking at those basic options, we also look at the kinds of processes that could be involved. As I have already mentioned, the limited access, which could involve a fence or deed restrictions or alternate water supplies. The removal could involve anywhere from excavation to ground water collection and treatment and all different types of ground water treatment and discharge options. The basic criteria that we had to look at were to make sure

that we could overall protect the public health and welfare and environmental conditions around the site, adjacent to the site, comply with the local and federal and state laws, evaluate a decision and solution that will have long-term performance, reduce either the toxicity or the mobility or volume of the waste, be something that you can implement -- that is, be something that can be done with today's technology that you know will work and also have cost items that can be looked at as acceptable.

Based on all that screening, we came up with these general alternatives, we came up with seven remedial alternatives. The no-action alternative, which is required under federal law, was rejected because it did not meet the criteria of cleaning up the site or containing the waste. Limited action involved replacing the existing private wells in the neighboring vicinity of the landfill with city water supply, and it included doing some soil and -- what is could slope control, ground grading, so that we would eliminate water ponding on the site and we would also eliminate water flowing from neighboring

hillsides onto the site, essentially just regrading and land contouring. That would alone reduce the percolation and creation of waste or ground water and leachate from the landfill by about thirty percent.

The next alternative was, again, the city water supply to the neighboring residences and a landfill cap based an New York State standards for a landfill. We went through further alternatives. One was a RCRA cap, which is a very similar cap to the state landfill cover cap except it has an extra clay layer. I have overlooked the details, but if you are interested, you can ask me during question and answer and we can show you the types of caps and arrangements for caps that there are. And we looked at an alternative for collecting ground water and treating it. The ground water collection and treatment option did not involve actual capping of the site.

Finally, we looked at the state cap, which we call the Part 360 cap for a landfill, tied into ground water collection treatment and discharge. We also looked at the federal cap

with ground water treatment and discharge. That's a quick summary of all of the seven alternatives.

Again, because the whole source of leachate and polluted ground water that ultimately becomes polluted surface water is due to rainfall either falling directly on the site or falling on neighboring land and running to the site, and the fact that the ground water itself is above -- the waste is above the ground water, the basic solution for this site is to put a cover over it. Essentially, it is like an umbrella so that the garbage can dry and remain dry.

The seven alternatives. Number one would make no difference in the production of leachate. Alternative two reduces leachate production by thirty percent because doing the land grading at least keeps the water from running to the site. Alternative three, the state cap, reduces the leachate production to less than one percent of its current production. The similar alternative with the federal cap reduces leachate even further to almost non-measurable levels.

With that, I guess I will conclude my

portion of the presentation, and Bob Cozzy will go through the discussion or the process that the state used to select among the seven alternatives.

MR. COZZI: Jim has described the seven alternatives that were presented in the F.S., and I'd like to describe the criteria that both E.P.A. and D.E.C. used to evaluate those alternatives.

The first two criteria that we use are called overall protection and compliance with A.R.A.R.s, and that's overall protection of human health and the environment, we look at both. The overall protection criteria considers how risks to public health and the environment could be eliminated, reduced, or controlled, and the compliance with A.R.A.R.s -- A.R.A.R.s are applicable relevant or appropriate requirements. And to give you some examples, they would be like ground water standards, surface water standards or Part 360 landfill closure requirements -- would all be considered A.R.A.R.s. And those two criteria are called threshold criteria in the federal guidance. And that means in order for a

remedy to be selected, it has to at a minimum meet those two criteria.

The next five criteria are long-term effectiveness and permanence, reduction of toxicity, mobility, or volume, short-term effectiveness, implementability, and cost. Now, those five criteria are called primary balancing criteria. What we do is if the -- basically, if the alternative passes through the first two criteria, which is must meet, the threshold criteria, we use these five criteria to then strike a balance amongst these five criteria. The long term effectiveness of it, any short-term impacts, and how much reduction of toxicity, mobility, and volume we get, and also how implementable the remedy is, and last of all, cost. Now, the cost considers the capital costs, the operation and maintenance costs, and it uses a present-worth analysis to compare the alternatives.

In going through the analysis the -- of the seven alternatives that Jim described, alternatives one, two, and five do not meet both of the threshold criteria, the first two. And

therefore, those three alternatives one, two, and five could not be selected because they don't meet that minimum requirement.

The other four alternatives S.E. three, four, six, and seven would all meet those two threshold criteria and then use the next five criteria to strike a balance amongst those four. Now, alternatives three, four, six, and seven would all be effective in the long term because they rely on the ability of a low permeability cap to virtually eliminate all future leachate generation and any impacts to ground water. Alternatives three and four rely on that low permeable cap to reduce the mobility of the hazardous waste within the landfill while alternatives six and seven further reduce the mobility by pumping and treating in addition to the cap. All four of the alternatives have similar short-term impacts such as dust, noise, increased truck traffic, typical things you will get with a large construction project. And therefore, there is really no difference between the four because they all involve some sort of cap on the landfill. All four alternatives are

also equally implementable because the equipment and qualified personnel are readily available to construct any one of those four alternatives.

Now, when we look at the cost criteria requirement -- if you look at the cost of alternatives six and seven -- we look at the present worth value. And if you'll look at the cost of alternatives six and seven, it is just about double the cost of either alternative three or four. And basically, because of that factor --.

UNIDENTIFIED SPEAKER: Can you read some of those figures? We can't see them.

MR. COZZI: Okay. Alternative three, the present worth is sixteen million four hundred fifty-four thousand. Alternative four, the present worth is twenty-two million four hundred twenty thousand. Alternative six, the cost is thirty-two million five hundred eighty thousand. Alternative seven, the present worth is thirty-eight million five hundred forty-five thousand.

Now, because the costs of six and seven are basically double that of three and four, there --

to strike a balance amongst the other criteria, since three or four would be essentially equivalent to alternative six and seven based on long-term impact/short-term impact reduction of toxicity, mobility, and volume, the cost would then swing us to alternative three or four as long as they meet the threshold criteria. If you compare alternatives three or four, you will see alternative four is about forty-five percent more than alternative three. And again, they are equally protective based on the criteria that we use.

So based on this evaluation, D.E.C. and E.P.A. are proposing tonight alternative S.E. three, which is installation of a Part 360 landfill cap and residential water.

Now, the criteria that I mentioned earlier -- there is actually nine criteria, and the last two criteria that E.P.A. uses are state acceptance and community acceptance. Now, the state has already concurred with this proposed remedy; we have already agreed with the E.P.A. that this is the best proposed remedy. And now we are here tonight, and the purpose of the

public comment period is to, then, assess community acceptance of the proposed remedy.

I would just like to describe the components of the proposed remedy. The primary component of alternative S.E. three would be the design and construction of an impermeable cap with a gas venting system, and that will comply with D.E.C.'s Part 360 landfill closure regulation. This slide shows you the waste mass, the waste material down here. There is a filter layer above that, there is a gas vent layer above that, there is a geo membrane above that and then a drainage layer and topsoil.

The primary component that provides the environmental protection is the geo membrane. And what that does, as Jim described earlier, the primary impact of this site is water percolating through the waste. The function of this geo membrane is to prevent that water from infiltrating down into the waste. What will happen is it will run off through this drainage layer above. There is also is -- the purpose of the gas vent layer below the geo membrane is to capture the methane gas that is generated within

the waste and properly vent it above the cap, and that prevents pressure buildup and migration of methane gas. The remedy would also include -- the proposed remedy would also include extension of city water mains and hookups to all downgradient water supplies that are potentially impacted by the landfill. I would also include erection of a security fence around the cap of the landfill and the imposition of deed restrictions to protect the cap from damage. And the finally component would be long-term monitoring of ground water, surface water, and sediments to determine the effectiveness of the remedy.

Now, the one thing I would like to add is that after construction of the landfill cap -- and this is in our proposed remedy also -- our long-term monitoring data will be evaluated. And in the event that ground water/surface water quality is not being restored to acceptable levels, the ground water remediation component that is contained in alternative S.E. six may be implemented. For this reason, the proposed plan has alternative S.E. six as a contingent remedy

in the event that alternative S.E. three does not restore the ground water and surface water quality to acceptable levels. S.E. six contains all the components in alternative S.E. three and in addition would include ground water extraction treatment and discharge requirement. If ground water treatment is necessary in the future, it would include pH adjustment, chemical precipitation, and carbon absorption to remove inorganic and volatile organic compounds.

The last thing I would like to cover is the projected schedule. And right now, we expect to be able to have a record of decision in the spring of this year, 1993, and a final design by the spring of 1994. And then going for bid in the summer of 1994, we hope to be able to start construction late in the summer of 1994.

Okay. At this point, I would like to open it up to public comments and questions. We ask that you please state your name and your address for the court stenographer so that we have it for the record. We will try to answer as many questions as we can tonight, and I just ask that, please, have one person at a time speak. Raise

your hand, we will recognize you so that we get a proper record made. Okay, any questions comments?

Yes, sir.

MR. DENNIS WILSON: Dennis Wilson (phonetic spelling), Johnson Avenue, town of Johnstown. My wife is right here with me, she's had a conversation with you. You know us; right?

MR. COZZI: Yes.

MR. D. WILSON: Mr. Sheran (phonetic spelling) works with you?

MR. COZZI: He used to.

MR. D. WILSON: Did he get promoted or demoted?

MR. COZZI: He works for a private consultant now.

MR. D. WILSON: My biggest concern is -- and I am not going to try to speak for everyone here tonight, but I believe that a lot of my neighbors are here and they feel the same way -- but again, I'm not going to attempt to speak for anybody else other than myself right now -- is the cost involved with paying water bills to the city of Johnstown. Now, you talk about the cost, and all

the cost that you mentioned this evening. I believe, are the costs for the owner of the site; the O and M, the capital costs. Have you considered the costs to the homeowners if they should take city water? Is that a consideration, or are you, in the O and M, in the capital costs, considering that you are going to give all the homeowners water at no charge?

MR. RICHARD FEDIGAN: No, we are not.

MR. D. WILSON: So you made a presumption down in Albany that I am willing to pay a water bill at this point in time.

MR. FEDIGAN: No, we didn't.

MR. D. WILSON: I have lived in the town of Johnstown for sixteen years.

MR. FEDIGAN: No, we didn't. What we are recommending is that we --.

MR. D. WILSON: Well, who made that presumption then?

MR. FEDIGAN: What we're recommending is that we provide water in the streets -- and we are willing to pay for the hookups, both the state and the city are willing to pay for the hookups. Now, each individual homeowner

certainly has the right to refuse that. We are not forcing anybody to take water.

MR. D. WILSON: Okay. Now, that is part of the record; you just stated that. Because that contradicts the conversations that I had with Mr. Sheran. Apparently that may be why he is not with your department any longer because he suggested --.

MR. FEDIGAN: That's not true.

MR. D. WILSON: And it was also suggested in the Leader-Herald just last evening that the city would not make any attempt to force any homeowner to take city water but that could be done by the state. So who here from the state is going to make that attempt? You are saying that you are not going to do it, but the health department is absent tonight.

MR. COZZI: No, we are right here.

MR. D. WILSON: Okay. Are you going to do it?

MR. COZZI: No, we don't force --.

MR. D. WILSON: Okay. So I think you have relieved my concern over being -- the suggestion of somebody being forced into this. And this is

what's irritated me for months on end. And Bob Subik knows this, I have discussed it with him, to think that I was -- somebody was going to try to force me into taking this water. You have changed your position on that apparently.

MR. COZZI: No --.

MR. D. WILSON: You haven't changed your position on that?

MR. COZZI: The health department does not regulate individual homeowners.

MR. D. WILSON: I know. But Sheran told me that they might, and that's what concerns me.

MR. COZZI: Well, that's probably because he wasn't sure if they would, but Rich and myself have talked about it.

MR. D. WILSON: Okay. So you are going to build a pipeline, it's optional. And you are not going to try to put a lien on anybody's deed that they can't sell it if they don't hook up. That's the scenario that was given to me by your department.

MRS. WILSON: I talked to you, sir. You told me that.

MR. COZZI: I did not say they we would

force you to hook up. No, I didn't.

MRS. WILSON: Sir, we talked a good half-hour one day, and you told me that -- you said it could happen, it very well could happen.

MR. D. WILSON: Somebody in the deputy commissioner's office also told me that it could happen, so you are making it a part of the record tonight official in front of media and part of the transcript that you are not going to make any attempt to force anybody to take water, try to get them to sign a statement they won't sue the city if they don't take the water or any of those intimidating attempts on people?

MR. COZZI: No.

MR. D. WILSON: Then I don't have to read my speech that I prepared because I'm not concerned about it now.

I would like to let you know one thing. You did tell my wife -- you did tell my wife this, that the cost of paying for the water would be negligible and would be offset by not running your pump any longer. And I'd like to educate you a little bit tonight because you took the time to educate everyone here tonight. I went to

Niagara Mohawk, and it costs a dollar eighty a month to run a well at today's price per kilowatt hour. And that comes out to about twenty-three or twenty-four bucks a year with quick math. I've got a pump that I have had in the ground for seventeen years, it cost me three hundred sixty-nine dollars.

MR. BARRETT: Which brand of pump is that?

MR. D. WILSON: Sears.

That cost me about twenty-three, twenty-two dollars. Okay, a few bucks for maintenance, you are talking fifty bucks a year. Now, if I start paying for water according to the recent article that was in the paper, it is going to be upwards of eight hundred a year with the cost of the water and the water district tax, so I want to go on the record that you have been corrected. And when you do talk to public for now on as a state official, perhaps you ought to do your homework, unless you are paying lot more for Niagara Mohawk electricity than I am.

MR. COZZI: Do you have a water softener, sir?

MR. D. WILSON: No, I don't, sir.

MR. COZZI: If you have a water softener, I believe the cost would be very comparable.

MR. D. WILSON: No eight hundred dollars.

MR. COZZI: Eight hundred dollars is incorrect.

MR. SUBIK: If I could just address Dennis's question for a moment with respect to this part of the remedy. Part of the remedy calls for the city to run thousands of linear feet of a water main which would service essentially Johnson Avenue, a portion of Maple Avenue, and then over to the extension of West Fulton Street, and going in the other direction, a portion of O'Neil Avenue (phonetic spelling) so that in essence there would be a water district created which would encompass about three sides of the existing site. Now, the state and the city would fund the cost of constructing this line and the service lines into the homes, okay. However, beyond that, as far as internal changes in the houses to connect the lines, we would not be involved in that. The cost of actually buying water will be a matter for negotiation between the Town of Johnstown and the City of Johnstown at some

point, and it will be necessary -- I guess we might as well address this now -- it will be necessary if this project goes forward in this fashion for the town board to apply to the state and create a water district, which would encompass this general area. And there are certain rules and regulations that have to be complied with to create such a district, and all that process will be subject to public hearing in the town, which your own town board will be conducting, and that at some point there will be negotiations between the town and the city for purposes of having a master contract between the city and this water district to supply the district.

MR. D. WILSON: Should the district be approved -- positive thinking, you might just want to back up.

MR. SUBIK: Our obligation -- the city of Johnstown's obligation and the state of New York, as the lead agencies in this project to study the problems on the site, were to propose remedies. And the proposed remedy that we have come up with includes the construction of a water line, and so

we feel that we would not be acting responsibly if we did not include this as part of the proposed remedy. Now, whether the town residents avail themselves of the opportunity to hook up to this or not probably will be done on a case-by-case basis with the town residents. We would encourage them to do it. We think it is prudent to do it because, although there is no contamination of their wells now that violates the primary drinking water standards of the state of New York, we don't know what the future holds, and so we think the prudent action would be for the town residents in the affected area to connect to the system once it is in place. But it will be a decision for individual homeowners to make. As far as the rate is concerned, that will be a matter for the town board and the city to negotiate in the course of this process.

MR. D. WILSON: I think it would be prudent for the city to make that cost as economical as possible for the homeowners so that you eliminate liability. That's what you are trying to do is eliminate liability in the future. If you make it attractive, you may get people to hook up.

One last question -- you don't have to go on any longer, Bob, on how you're going to build the pipeline. If the pipeline is put in and somebody doesn't want to use it, are we going to be taxed because there is a water district, do you know?

MR. SUBIK: The capital costs to construct the line will be entirely borne by the state, so and City there will be no special assessment district for the capital costs of the construction of the line and the appurtenant equipment such as a booster pump station if that's necessary and some other structures that might be necessary to make it work; however, the usage, the actual consumption of water, would be a matter that the individual homeowner would have to pay for.

MR. D. WILSON: No, I'm talking about a yearly water district tax.

MR. SUBIK: Well, that -- again, that would be a subject for negotiation between the town and the city. If there is a cost in running that district, then obviously they might have to pass that on to the people that are in the district. What that cost might be, I don't know.

Just one other thing while we are on the

subject just to kind of complete the thought, we did have some discussions with some employees of the water board today about what costs might look like for users in that district. And of course, this is based on a minimum usage of two thousand cubic feet per semiannual billing period; however, based on the historical rate, which is twice the rate of city residents for outside users, we came up with a figure of about hundred and fifty dollars for the minimum usage for an average household in the district. Now, an average household might consume far more than that, but at least in terms of the minimum usage, it would be about a hundred and fifty dollars or maybe a hundred and fifty to two hundred dollars. It could be more, but I think the figures of eight hundred dollars and some other figures I have heard thrown around may be on the high side, so I would caution you to take a look at those figures because I'm not sure going to be --.

MR. D. WILSON: Any way you look at it, the figures are going to be considerably more than what somebody is currently expending to run a well, to run a pump on their well. And as far --

I'll shut my mouth, I just have one last point I want to make at this time, I'll still reserve my right to speak later. You know, when there are costs for a water district -- Bob, are you looking at me?

MR. SUBIK: Yes.

MR. D. WILSON: When there are costs for a water district, generally water districts are formed at the request of individuals because they have a housing development they want to put in or whatever the case may be. This is being done as a necessity mandated by the state and federal government because of a violation that the city has in our neighborhood, so therefore the costs to the homeowner should be negligible. We didn't create the problem that's out there.

MR. SUBIK: Let me just say it this way: Rather than characterize it as a violation, I would simply say this, there is the potential, potential for contamination of the ground water which would be in the area of the wells in this private -- along Johnson Avenue.

MR. D. WILSON: This isn't just a matter of convenience --.

MR. SUBIK: There is no existing contamination or at least violation of the primary drinking water standards. We don't want to alarm people who will go home tonight and say, "I'm not going to drink that water any longer." What they are saying is there is a problem there; there no violation of the primary drinking water standards of any of the wells that were tested. But as a precaution, and not knowing exactly what the future may hold as far as further migration of leachate out of the site, we are recommending this line be built, and we are urging people in the affected area to connect.

MR. D. WILSON: And because you're instigating this because of your potential problems with the landfill, that should be a consideration of the homeowners. We are not here rallying -- or I'm not here rallying tonight to have you put in a pipeline. It is not at our request in most cases.

MR. SUBIK: We know this is not initiated by the residents; we understand this.

MR. D. WILSON: Right. So therefore, this should be considered when the negotiations come

up and when anybody thinks about taxing somebody, that we didn't ask for this.

MR. SUBIK: I'm sure this would be a factor. Go ahead.

MS. WINIFRED DAUM: Winifred Domm (phonetic spelling), and I own property on West Fulton Street. Now, why would my son have to pay a hundred fifty dollars for water at that site when my daughter pays over eight hundred dollars at year at Leed Street (phonetic spelling) in the city.

MR. SUBIK: Well, again, I don't know what her usage is on Leed Street. When I said a hundred fifty dollars -- I don't want that to be misleading, either. That number was based upon the minimum billing of two thousand cubic feet of water, okay. And a home with perhaps two adults and two children might use a great deal more than that, I don't know.

MR. BARRETT: Bob, that's probably with sewer, too.

MS. DAUM: There is sewer tax on top of that.

MR. SUBIK: That's just the water portion?

Well, it is probably based on her fairly heavy usage of water at this location.

MS. DAUM: No, they are very careful about it.

MR. SUBIK: Well, at each home, the usage is a little different.

MS. DAUM: Now, is this a hundred fifty every six months or for the year?

MR. BARRETT: Hundred fifty dollars, Bob, that's for the year.

MR. D. WILSON: And that's for how many people?

MR. BARRETT: No, we are not talking about people. We are talking about the amount of water going through the meter.

MR. D. WILSON: Yes, but you are saying that's an average. What are you basing your average on, two people or four people?

MR. BARRETT: It is the minimum bill.

MR. D. WILSON: Well, I pay a minimum for my camp for electricity for Niagara Mohawk. It's thirteen bucks for every two months. As soon as I go in there, it costs me a lot of money. Now, you are saying the minimum to be hooked up.

That's --.

MR. SUBIK: Yes, we don't want to be misleading. The actual usage could exceed that.

MR. D. WILSON: It could. It's going to, Bob. Don't try to mislead me.

MR. BARTLETT: The hundred fifty dollars, that was for one year.

MR. D. WILSON: To be hooked up even if nobody is living at the place; right?

MR. SAM GRECCO: Sam Grecco (phonetic spelling), alderman, city of Johnstown.

Dennis, I have water meters on a lot of apartments, and the average bill for all of the apartments don't run fifteen dollars a month, and those also include the sewer rate, just to throw that out. But they run anywhere from fifteen to twenty with the sewer.

MR. D. WILSON: You're billed monthly? I thought it was every six months.

MR. GRECCO: No, I said that's what the monthly cost was.

MR. D. WILSON: So what do you figure, that's about a hundred eighty bucks a year maybe?

MR. GRECCO: Well, times twelve.

MR. D. WILSON: And that's how many people you have living in your flats? Do you have families or retired people?

MR. GRECCO: Two people, two and three.

MR. COZZI: Could we move on?

MR. RICH SMULLEN: Rich Smullen (phonetic spelling), town of Johnstown supervisor. When the water district is formed, who will pay for the engineering costs that are required to put the -- get the district okayed by the district or the department of health? Is that included in the cost, the original cost? Because we have to do the engineering, that is all included into it so when we apply for our water district permission, that will be included right there, and we will have to do nothing. We will have to hire no engineers or anything. We can just say this the engineering is done ahead of time, and when we send to D.O.H., they say, "Okay, the engineering is done; it costs you nothing," and you okay it?

MR. BARRETT: To answer your question, the engineering costs for the design and construction of the pipeline include the complete engineering

design for New York State standards and requirements, the construction, the testing, and permitting. The cost estimate this was shown in the overhead is a basic cost estimate; it is a preliminary cost estimate. We put in a contingency to be sure this number, if anything, is on a high number. But before any detailed design and construction was done, there would be lot more analysis. You recognize that these numbers are for comparison purposes. They are not -- you know, if you saw a number this said two point two one seven five million dollars, you are not supposed to lock on to that to the nearest seventy-five cents. But the answer your question is yes, that is to have a complete functional committed water transmission system.

MR. SMULLEN: And that is accepted by the department of health? I mean, so there will be no cost as far as --?

MR. BARRETT: They would submit to the bureau of public water supply the plans, and they would be reviewed like any other town water district, and all that cost is done through the state and the city.

MR. CHRIS SAVAGE: Chris Savage (phonetic spelling).

Will you be -- will the department of health require fire hydrants on this line, too, for flushing?

MR. FEDIGAN: No, that is a decision made, again, by the town and city when they negotiate what they want. The state will pay so much to the city to take care of what the potential impacts of the landfill are, okay. Now, if that's a six-inch water line serving everyone, okay, that's potentially impacted, that's what the state will contribute to the city. Okay, if the state and the town jointly decide we want fire protection and we want lines big enough to service -- if there is eighty homes, we want lines big enough to service hundred and fifty in the future -- that's up to them to decide jointly and bear the extra cost.

MS. MARYLOU FRASER: Marylou Fraser (phonetic spelling), and I live on O'Neil Avenue.

Is the city looking at annexing any of this area? I have heard rumors to the effect that this is being looked at.

MR. SUBIK: So far as I know, there is no thought at this time that annexation would be part of this proposal. This proposal to remediate the area involving capping of the site and the building of the water line, those proposals stand alone, and annexation is not part of this thinking at this point in time.

MS. FRASER: Is it being considered though?

MR. SUBIK: Not to my knowledge, not in this area.

MR. RENEY SANGES: I have a couple of questions. My name is Reney Sanders (phonetic spelling). I'm with the Rainbow Alliance; we are a Fulton-County-based environmental group. I reside in Gloversville.

At the beginning, you stated this is the third public hearing to date; the last one was in 1990. I'd just like to comment that I think the whole public participation program on the federal and state level is totally inadequate on projects such as this and the public should be involved on a much more frequent basis, and periodic updates and opportunities for input provided. That's just one comment.

There's a couple of questions. You list the seven alternatives. There really are more alternatives, I don't know how you narrow it down to the seven. You consider things like containment as alternatives where you are really just talking about capping. You don't mention things like slurry walls and putting up walls around the outside. What kind of alternatives does this fall into and how did you narrow it down to these seven, and concerning just the different types of caps of these seven?

MR. BARRETT: That's a good question. As I mentioned to you when I made the presentation, I was giving a broad brush. I wasn't going to go into all that kind of detail unless each individual had their own specific detailed question.

We did look at slurry walls and we did look at different kinds of emplacements of slurry walls as well as interception of ground water through trenches and interception of ground water through the use of ground water interception wells. The decision to drop the use of the trenches is based on the fact that the ground

water is not in contact with the garbage. The garbage is high and dry above the ground water if you don't have rain fall percolating through it. You would use an interception trench either downgradient to the landfill or all the way around the landfill if, like Gloversville, the garbage is in the water so it is constantly percolating away and constantly making leachate. In this case, once the cap is in place and once the existing volume of garbage has drained, there will not be any leachate from the landfill to a measurable level. Therefore, the decision is based on the cost versus the effectiveness. The cost of that kind of containment is very, very expensive and has no impact to the absolute ultimate effectiveness.

MR. SANGES: There are documented sludge rock containing high level of chromium rolling out of the landfill over in the area on your drawing by the LaGrange gravel pit. These have been laboratory documented by New York State D.E.C., chromium compositions of up to twenty-six thousand parts per million rolling out of the landfill onto that area. How will this area be

contained in that area there? Let me finish my comment -- on your other drawing, you show a hedgerow of trees on that area, which is not a solid hedgerow of trees. If you look at the area, there are several deep ravines that allow these sludge rocks to flow out of that area there.

MR. BARRETT: Let me answer your question. Again, my intention for this meeting was not to go into that kind of detail. However, the area around LaGrange pit was found to have contamination, and the actual mechanism whether it is as you describe or it's due to the leachate flowing into the sediments and then coating them makes no difference because it is still there. And those tests, which were also done by me, show this they were there. We are going to excavate all the area around LaGrange pit to the point of reaching clean background conditions in the soils within that pit, and we were going to put that material in the middle of the landfill to be covered by the closure cap.

MR. SANGES: I'm just saying why is this cliff here, though?

MR. BARRETT: That cliff won't be there like that anymore. The new cap will be a three percent grade, which is much less graded than these desk are in this room. I mean the fine detail of where the foot of that cap will be has not been determined because it is a fine engineering detail. It could just as well cover that pit, but we are going to dig up that pit anyway. I guarantee any contamination that is in that pit that has come from the site that you just described will be removed, put into the landfill to be covered. I can't tell you within the nearest five feet where the landfill cap is going to stop and natural ground is going to start. That is the process of the final design.

MR. SUBIK: Sir, in the back there.

MR. GORDON LaGRANGE: My name is Gordon LaGrange (phonetic spelling). I'm the root of this whole thing right here.

There is a hole that contains eight to ten feet of water and is polluted. You can go down to the bottom of the gravel pit ten or twelve feet, and it's solid stone this far. Last spring, there was fourteen foot of water in

there. Consequently, by June, it broke out a quarter of a mile away down the hayfield and spread the whole hayfield over towards that spring. So how are you going to contain that?

MR. BARRETT: As I mentioned to you earlier -- and again, it is another question which is a detail that I purposely did not discuss unless I heard that there was interest. The main problem of the landfill as is stands today is that it's flat. It is more like a bowl. It should be, instead of a bowl that contains water, it should be an upside down bowl that sheds water. And I mentioned that we were going to do land regrading, and the problem that you described is that because the landfill collects water and some of this water runs off of that landfill into that pond, when you finish with the site, there will not be this pit there, I should say, and there will not be this drainage problem.

MR. LaGRANGE: Well, there is something else I would like to say. Now, about ten years ago, they dug a big hole to bury garbage. They dug a hole thirty feet deep in the dump. The next morning, he had fifteen feet of water in that

hole, he couldn't dig no more, so they dumped the garbage in the hole. When the hole got full, the water come out down the hill and run right down the road into the gravel pit. Now, that spring is still there. Where is it going to go?

MR. BARRETT: Well, that spring won't be there because the only reason it is there now is because of the rainfall landing on the top of the landfill, percolating through and coming out through one of the lifts in the daily cover that is used in the landfill.

MR. LaGRANGE: This spring has been there years before anybody else here was born -- running down through that spring.

MR. BARRETT: Well, are you talking about LaGrange Spring?

MR. LaGRANGE: Yes.

MR. BARRETT: I'm sorry, I thought you were talking about the spring that is by the LaGrange pit. That spring will still be there; we don't intended to change that.

MR. LaGRANGE: I've been here seventy-five years, and I know what it is.

MR. BARRETT: I'm sorry, I misunderstood.

MR. COZZI: What will happen is in the longer term, once the cap is in place, we have estimated that within three to nine years, the ground water will then approach background concentrations once the cap has had a chance to work. And that's why the remedy is set up the way it is where we cap it first. We are going to observe what happens over time, and the concentrations, we expect, will go down very rapidly. And within three to nine years, we should approach background, and then LaGrange Springs will still be there but it should be clean.

Ma'am.

MS. DAUM: In your presentation, you said something about you would protect it by deed. What are you going to write in the deeds to protect the land?

MR. COZZI: We don't have the exact wording right now, but the way it basically will work is the area on the property that is covered -- it is a sixty-eight acre parcel of which about thirty-four acres are landfill, so the area that is landfill that will be capped over, we will put

deed restrictions on it so that the city or anybody else in the future cannot dig through that cap.

MS. DAUM: That's the only places you are putting deed restrictions?

MR. COZZI: Right. Only on the cap there to protect it. And that cap will also be fenced to protect from four-wheel vehicles, things like that, all-terrain vehicles.

MR. ROY PALMATEER: Roy Palmateer (phonetic spelling), councilman, town of Johnstown.

You were or one of your fellow party members there mentioned that your selection -- alternative selection was S.E. three; is that correct?

MR. COZZI: That's correct.

MR. PALMATEER: And you said that after the capping is completed, the amount of leachate filtering into the ground water would be substantially reduced. But then again, alternative S.E. four, with naturally an added cost of six million dollars, would in fact almost put the leachate figures -- to use a favorite phrase of mine -- is ninety-nine and one

one-hundredths percent pure. I guess I'm questioning why we wouldn't spend the additional six million to reduce the hazards.

MR. COZZI: It is actually alternative three and alternative four -- no, you're correct, it's three and four.

The difference between the two alternatives is the difference between the two-feet-thick layer of clay. The difference is also the difference of about -- with alternate three, the leachate production rate would be estimated to be about thousand gallons per year. That's about five gallons a day, six gallons a day. The other alternative four, for six million dollars more, instead of six gallons per day, you would be making one gallon per day. When you look at that in terms of the actual amount of chromium or lead that's being released to the environment, it is negligible. And recognize that those levels are so small that you really couldn't be able to measure them anyway. By using alternative three to reduce the flow rates to the very small amount that I said, we would reach the drinking water standards so that any lead or chrome that was in

the water that left the landfill would be so low that it could qualify for drinking water, as a drinking water supply, not that one would be prudent to do so.

So the point that not going any cleaner than that is that when you -- it's how clean is clean. How much more money do you want to spend? That next step is six million dollars more, and the difference in quality, if you measure the water, would be almost undetectable. So we took, I guess, the best-bang-for-the-buck approach, the most cost-effective solution. That's how we made that decision.

MR. SUBIK: Sir.

MR. SMULLEN: Yeah, Rich Smullen again.

Suppose when we have our public hearing to form a water district, we poll the residents and ninety percent say no, they don't want to form a water district, the town board decides against forming a water district. What happens then?

MR. COZZI: I guess at that point the people have spoken, the water line doesn't go in. The state has made its best recommendation, but it is still a country of the people, and the people

have spoken.

MR. SMULLEN: What happens ten years down the road when the wells become polluted due to that?

MR. COZZI: Then you have a problem because right now the state has the money available to the city and to the residents for hookups under the 1986 bond act, and the state's going to pay up to seventy-five percent of those costs. Now, ten years from now, that bond act money is going to be completely gone, and then it's going to be strictly up to negotiations with the city. The city would have to put their own --.

MR. SMULLEN: If we do go ahead and form a water district and nobody hooks up to it, there should be no O and M cost to it because it is going to be a stagnant line; right? There should be no cost to the residents until they actually start using it?

MR. BARRETT: I think that's something that would be best discussed during the process for permitting the water district. That's a detail that doesn't enter into this alternative. I mean it's an important detail, but we didn't intended to answer those kinds of questions at this

approach.

MR. D. WILSON: If by installing a cap, in other words option A, B, or C, whatever you are going to do, you told me you can reduce it down even with the least expensive cap to how many gallons a day of leachate? Five gallons a day?

MR. COZZI: Approximately. It's in the report, and I would have to look it up. It's like five hundred cubic feet a year, which I think I said was about two thousand gallons.

MR. D. WILSON: All right. So it is very minimal.

MR. COZZI: Yes.

MR. D. WILSON: Obviously, it is not going to have any impact on the environment, I would think.

MR. COZZI: I would think so.

MR. D. WILSON: Okay. So why are we going to spend money putting in a pipeline? Just because there is money in the Environmental Quality Bond Act and somebody wants to use it up? Why are we going to install a pipeline?

MR. SUBIK: No, because there is already contamination off-site. You have to understand

that the genie is already out of the bottle. It is not just a question of material in the site that might get flushed out in the future. There is already off-site contamination, that's what triggered the CERCLA action in the first place. That's a threshold thing that has -- if that exists, then we go forward, and that's why we have done this study. So there is already contamination out there, it is moving, we don't know the rate of transport through the ground exactly now, but there is some element of danger. There is a potential for that existing leachate to move through the ground and make contact with the private well fields. That is what we are concerned about. When that might happen and to the extent it might impact it, that, we don't know, but that's what we are trying to guard against.

MR. BARRETT: I should add to that. Based on the information that we have and the studies that we have done and the determination of ground water flow direction, we don't believe it is going to go to any residential water supply well. However, nothing in this world is absolutely

perfect and risk free. We also believe there is a potential that it could be there. I mean I would be not doing my job to tell you that engineering is perfect. I mean how many bridges have you seen fall down? So it is because of that, even though we feel very, very strongly and the predominance of the evidence shows that -- the preponderance of the evidence shows that the ground water is flowing into the creek and along the creek.

Prudence dictates that as a safety measure the water supply be provided for those who care to use it. We also looked at monitoring but the thought of going to everybody's house once a month, once a year -- what if you go once every three months and you take a sample and it is clean but the next day, in spite of all the odds, it is not clean? Then it is not until, what, three months later or thirty days later that the next sample is taken before you would ever find that.

MR. FEDIGAN: And that could go on for up to ten years. When the bond act and Superfund money disappears, and we all disappear, so does that

funding to put those lines in.

MR. D. WILSON: Okay, I just want to reiterate -- it seems that for your panel costs are a big concern, and you must understand that the costs are a big concern to the homeowners, too. You people are all concerned about costs; every other sentence has to do with dollars and cents and cost. And you have to remember that we are the little guys here, you guys have the big purse strings.

UNIDENTIFIED SPEAKER: Let's remember it is our money, too.

MR. BARRETT: Well, also remember one of the steps in this criteria was state and local acceptance. We have done all the work in terms of the technical and financial and implementable ideas. Now is the step for the public interest. So if this is rejected by those people who are being offered a water line, then the test of public acceptance isn't met, so you don't get it because you don't want it. But we couldn't present this information to you until going through all those other criteria, and that's what we are all here for so.

MR. GRECCO: I would like to ask the question of when we had the last study up at city hall, we were told that there was a time -- isn't time of the essence and that money might run out and that we might not get the full percentage possible? I wish you would address that; it is very important to me. It's not a guaranteed thing. It's been way too long and --.

MR. COZZI: Right. There is a limited amount in the bond act; the bond act was passed in 1986. Presently, the state has committed about six hundred million dollars of the bond act. There's about five hundred remaining for this type of work. At our present projections, we expect that the bond act will be depleted sometime during 1995-96. Now, we are sitting in 1993, and the schedule I described said if we move long quickly enough, we should be able to start construction in the summer of 1994. This is going to be at least a one-year and possibly a two-year project so we are right on the fringe of that. So it is imperative that the city and the state move as quickly as we can to ensure the funding.

Ma'am.

MS. SUE FERRY (phonetic spelling): Everybody else here just has houses, but I have a business. We milk sixty cows. Now, when this water line goes through, am I going to have the option of hooking the water up only to the house, or do I have to hook it up to the barn at the same time? The other part of my question was I was also told by Tony Sherin that if we hooked up to the water, that all existing water sources would then have to be capped to guarantee we would not use them for anything else.

MR. FEDIGAN: No. They have to be physically disconnected from the public water supply. I just went through an installation like this. When they come in to hook the water lines to the home -- and if you choose, the barn -- they will physically cut the pipes to your supply, okay, because of the public water supply law saying no cross-connections to private and potentially nonpotable water supplies. What you do beyond that is up to you. If you choose to hook your well back up and turn the city water off, that's up to you. Once that city water is

available and out there and you choose not to use it, don't expect the city or the state to fund testing your wells for the next twenty years, okay. The one concern you have with the cows, okay, and the amount that the barn uses, okay, that's something you should discuss with the people that regulate you, Agriculture and Markets.

MS. FERRY: Well, my water is tested that comes into the barn by them periodically anyway, but if I hook this up to city water for my barn, I'm talking I could be using as much as three thousand gallons a day of water at double the rate?

MR. FEDIGAN: That's true. That's something you would have to personally decide whether it is worth it to you or not. Discuss it with your department of Agriculture and Markets; they have much more data available to them about what sort of chemicals would be of concern to cows and cows' milk.

MS. FERRY: Right. But where their water comes from now is fine. If we form this water district and you put the water line in and we

choose not to hook up to it now and then have the problem later, then are you going to allow us to hook up later if there is a problem?

MR. SUBIK: Well, you will have access to whatever main is there in the street. But whatever it takes to get the water from the main to either your house or barn, whatever you are trying to hook up, that expense in the future might become yours if you don't avail yourself of connecting up initially. But the main will be there, so you will be able to tap into it. It is just a question of running the service lines and whatever else has to be done.

MS. FERRY: How far down LaGrange Road are you going to run this main?

MR. SUBIK: I know you are a special situation because you are back off the main road quite a distance, so this is something really -- you are probably one of the more unusual cases that's in the water district. I am somewhat familiar with the farm. That is something that you should talk to the town fathers about and something that we can discuss later in your particular case. The fact remains that the water

17

main will be in the street, the public right of way, and your ability to connect is not going to be -- you are not going to be prohibited from connecting later on, but the cost associated with running that line is something that -- you may have to bear some of that cost because so much of that was on private property. It is not a typical service connection.

MS. FERRY: That's not private property. That road is town property.

MR. SUBIK: Is the road all the way back there -- ?

MS. FERRY: Yeah, all the way to the farm, that's town property.

MR. SUBIK: Well then, if that's included in the water district, then we would have to run

18

that main back there, too, I suppose. But I might be getting a little bit ahead of ourselves because we don't know exact parameters of the district yet, so I wouldn't want to make any promises as to where the main will start and stop. And that will be a matter for some discussions and some design later on. Your particular situation is going to have to be

viewed in that context.

MR. COZZI: Just to clarify, you would have the option if the main is brought to your house and you only want to hook up your drinking water to it, your potable water for the house, we would pay for that hookup and you could still -- as long as you got approval from Agriculture and Markets, you could still use your well to water the cattle.

MS. FERRY: Okay. Because it is two separate wells. There is a spring that waters the cows, and I have a well right by the house that I use for the house water.

MR. D. WILSON: Is it possible, Bob, say, somebody wanted to have the water brought in at the time that you are doing the line and brought into their wellhouse or into their cellar or wherever their connections might take place and just leave it there but not have it hooked up and used until they feel maybe in a few years that they want to start doing it? Is that an option?

MR. SUBIK: That's a possibility.

MR. D. WILSON: Without having to pay a minimum or anything but it is there to

determine -- if their well goes dry or they feel there is pollution in the area. They could sell the house and it could be available to the new owners.

MR. SUBIK: There are certain rules about where the connection would have to start and stop for purposes of not having persons tamper with the lines.

MR. D. WILSON: Accessibility to the homeowner.

MR. SUBIK: Accessibility, yes. So those rules would have to be observed, but it is possible to have some preliminary things done without the actual -- the final connection to the building being made. That would be a possibility, yes, I think so.

Mr. Savage.

MR. SAVAGE: Could we still use our main water supply that we have now for toilets and washing and use the city water just for drinking only?

MR. FEDIGAN: As long as your system -- and this again gets into local regulations -- is completely physically disconnected from the

public water supply so that there is no potential cross-contamination of supplies.

MR. SANGES: One more comment on the process to date. I have not had a chance to review the information in your three repositories, so I can't address at this time any specific details of your plan, but I would comment on the handouts that were provided tonight. I feel it's inadequate to address the proposals that you are making. And in the interest of the people here, your handouts have several maps, no data that show what was selected from any of these maps, no information on the seven alternatives that were presented, or the scoring of the seven alternatives and how you chose which alternatives to pursue and which ones not to. I think that would have been basic information that, with a few extra pieces of paper, you could have handed out and provided tonight knowing that most of the people in this room do not have the time or the facilities to go to the public access point and review these volumes of information. This would give the basic information; if they had questions, they

could further address them in the repository location, and they could make an attempt. Now, this information you have given tonight is totally inadequate for the public to be informed on this. The information on the screen was unreadable and presented too quickly; you can't expect people to make notes on it. It is clearly inadequate.

MR. BOB NUNES: I just want to address that comment. I did bring copies of the proposed plan that E.P.A. has prepared. Unfortunately, I didn't bring enough copies, I brought about twenty. And since some of you have it, a lot of you who walked in later didn't have a chance to pick it up. Maybe what we could do is we could just make up a list of people who didn't get it and include their names and addresses, and what we could do is mail out copies of the proposed plan.

MR. SUBIK: That's a good idea. We can leave a sheet -- or Betsy can have a sheet at the front. If anybody would like copy of the preliminary remedial action plans that Mr. Nunes prepared, that has a distillation of lot of the

information that Reney says he didn't have an opportunity to review. It's a multi-paged document. If you would like a copy of that and you didn't receive one, give us your name. We will make up copies, and we will see that those get mailed out next week so you can get those.

MR. BILL GREAGAN: My name is Bill Greagan and I'm an attorney with Carter, Conboy in Albany representing some of the third-party defendants in the underlying city of Johnstown action.

As far as the contaminants to the water supply, what are they? What are the potential contaminants that you are concerned about?

MR. COZZI: The primary contaminants concerned are chromium and lead at this time.

MR. GREAGAN: And is that true for all leachate or just that that threatens the water supply? In short, are those the only two elements that you are concerned about transporting off-site regardless of whether it gets into the residential wells?

MR. COZZI: No, there is an entire list. I don't have the list here. We can include that in response of the summary. Those are the primary

two. There are various volatile organics, and there are a number of other metals that also exceed ground water and drinking water standards near the landfill.

MR. GREAGAN: When you talk about chromium, can you differentiate between trivalent and hexavalent chromium?

MR. COZZI: Yes, we have done that in our sampling.

MR. GREAGAN: Which one is it?

MR. COZZI: I believe it is the trivalent, but I will have to check, and we will address that in our responses summary. We will verify that.

MR. PALMATEER: The gentleman's name again, and who do you represent?

MR. GREAGAN: My name is Bill Greagan, and I am from the law firm of Carter, Conboy, Bardwell, Case, Blackmore & Napierski in Albany.

MR. PALMATEER: I may want to see you after we get done here. Who do you represent?

MR. GREAGAN: It gets complicated. The state of New York has sued the city of Johnstown, the city of Johnstown turned around and sued the

people who contributed -- businesses primarily -- who contributed to the landfill during the course of their business. I currently represent, I think, two clients, but our firm is also what is called a liaison counsel, and I have the duty to report back to all the third-party defendants, I don't know, about fifty to seventy-five of them, I don't remember today how many there are.

MR. PALMATEER: I've just have another statement to make.

MR. SUBIK: Okay. Your name again?

MR. PALMATEER: My name is Roy Palmateer, I'm a councilman in the town of Johnstown.

And I just can't believe that -- this landfill in question back in 1947 was positioned in the town of Johnstown, and the town of Johnstown has been contractually using that landfill for God knows how many years, and I have no idea how much we paid the city of Johnstown to use it. But then we have to turn around and pay for water to keep the health hazards reduced to a sheer minimum. I just want to be on record I'm totally opposed to the residences in the town of Johnstown that fall within that water district to

have to pay far any water. I think it's ludicrous.

MR. FEDIGAN: To make clear on that, as it's been said several times, it's community acceptance. This is what the state has proposed as the most permanent, feasible alternative for private drinking water wells.

MR. PALMATEER: Sir, you have to understand the situation. We have had one landfill in the town of Johnstown and, son of a gun, we selected the Fulton County landfill. Now, that's in the town of Johnstown. And you know, we continuously come up with hazardous sites, and I'm concerned for the citizens within the town. I don't have no qualms whatsoever, I think it is an excellent idea. Every one of you are doing a fine job. But this water issue, I totally don't think that the residents should have to pay for the water. But I know it is a negotiable issue, and we will negotiate it.

MR. FEDIGAN: Understand that though the word "mandated" by the state has been used, it is not being mandated. It is being offered through D.E.C. Superfund monies at this time.

MR. DALMATEER: We understand that.

MS. FRASER: Will the water district be formed and the negotiations be done so that we know what the price tag is going to be before the homeowners have to make the decision of whether they're going to hook up?

MR. SUBIK: Well, we'll certainly know a lot more about what these figures are or will be when we get to that point. And I would say yes, we will have a better handle on those numbers before the district is actually formed. But to know all the specifics, I'm not sure just how much knowledge we'll have on the ultimate cost of everything.

MR. D. WILSON: Will the sign-up list serve as a mailing list to inform everybody that is here tonight of future meetings or other developments that are relevant to this issue?

MR. COZZI: Yes, the people on that list will be added to whoever is already on our mailing list.

MS. LOWE: If we have a complete address with your name on the sign-in sheet.

MR. D. WILSON: Did you receive a resolution

from the town board back in October or maybe November -- from the town of Johnstown board relative to this issue?

MR. COZZI: I believe we did. That was when Mr. Sheran had the project

MR. D. WILSON: And the health department, did you receive it?

MR. COZZI: Not to my --.

MR. D. WILSON: Probably just one to the D.E.C., I think. I don't know if we sent one to the health department.

MR. COZZI: You're talking about regarding the water district?

MR. D. WILSON: Regarding the -- forcing residents to take the water and residents have to pay for it. Those two issues were presented to the town board, and they passed a resolution in favor of the residents. I just want to make sure we have it for the record. And okay --.

MR. MORRIS EVANS: Morris Evans (phonetic spelling).

What are we spending for this water district? What is the estimate in your figures?

MR. COZZI: I think the estimate that we

the homeowner wells.

MR. EVANS: Do you think the water that's approaching the land -- where's that going to come from if it's not coming from the landfill? Is it -- you're talking about the water that is already out?

MR. COZZI: Right now, there's already --.

MR. FEDIGAN: A certain amount of contamination has left the landfill, and that won't be captured by the cap, so the potential still exists for contamination. Whether it's five years down the road, three years, or ten years, we don't know. So far, it has not impacted --.

MR. EVANS: Now, you're talking that you are mainly interested in the lead and the chromium. As I remember, those are heavy metals and don't tend to move very fast or very far.

MR. COZZI: Well, they don't tend to move very fast or very far, but they have migrated from the landfill, and they will continue to migrate, however, so slowly and in those concentrations. And they do exceed drinking water standards at the landfill.

MR. EVANS: At that site. And you don't think they will just mitigate and filter out and stay where they are? You think they're going to move?

MR. COZZI: We've already seen some migration. It will continue, it's -- as Jim mentioned earlier, there's a good chance none of the wells will be impacted. But as a matter of prudence, we believe this water line is the only permanent solution to ensure that none of those wells are impacted other than sampling them every day. Because, as Jim and I have mentioned before, you can sample it one day and three months later go out and take a another sample and you've missed when that well was contaminated.

MR. EVANS: Okay, I seem to -- I'm from the city of Johnstown, I seem to sense a great -- on the city of Johnstown from the town of Johnstown residents. I'd just like to say that, number one, when the city placed this landfill where they placed it, none of the things they put in it were illegal to put in there, were known to be illegal, were thought to be illegal, or even thought to be dangerous or any other thing. They

have become so since by regulation and not necessarily by action. The second thing is the city puts refuse in that dump, but also town residents put refuse into that dump. They use the same dump. The third thing is that those industries who employ people in this town employ people not only in the city of Johnstown but they employ people in the town of Johnstown and other places.

Now, it's probably pretty sure that a lot of pollution came from those industries, but those industries employ people in other places than city of Johnstown and provided that employment, so not -- I mean everybody benefited from these actions at the time, so it's not, quote unquote, "the fault" of Johnstown that this has happened, the city of Johnstown, nor for that matter the town of Johnstown. It's just something that has happened. Thank you.

MR. SUBIK: You, sir, in the blue shirt.

MR. JERRY SHERMAN: Jerry Sherman (phonetic spelling), extension of Cold Creek.

In which direction do you feel that the contaminants are moving right now in relationship

to Maple Avenue extension and Fulton Street?

MR. BARRETT: The measurement of the ground water flow path has indicated that ground water and contamination is flowing to the southeast along Matthew Creek.

MR. SHERMAN: That would be toward the city of Johnstown?

MR. BARRETT: Yes.

MR. SHERMAN: Were there any test wells drilled on the northeast side of the landfill?

MR. BARRETT: Yes.

MR. SHERMAN: And how far away were they drilled?

MR. BARRETT: The northeast corner landfill was where wells were drilled. I'd have to show you on the map, the map that is supplied by the --.

MR. COZZY: Dennis.

MR. D. WILSON: You've indicated that there has been contamination found off-site -- obviously, not in anybody's home -- anybody's private well. This has been test borings that you've done off-site; how far off site? What's the greatest distance from the landfill?

MR. BARRETT: I can't give exact distance but several hundred feet southeast of LaGrange Springs. The furthest part of that's along the plume of the contamination. But that map, in one of pages that was passed out, shows the wells. Well fifteen was the furthest down here.

MS. FERRY: Sue Ferry.

Those test wells that you put out on the farm, people are going to continue monitoring and taking samples from them for a long period of time?

MR. BARRETT: Yes, we haven't got a defined operation monitoring and maintenance plan, but I would expect those wells probably would be included.

MS. FERRY: As a person who works that way, I would like a little consideration on when they go in to take those testing samples. I have crops growing there that are run over constantly. I'm never told when they are back there. We were back doing some hay work and they decided it was the day to test the wells, so they drove right across hay that had been raked and ready to bale and things like that. And now, as a land owner,

I think, you know, we deserve a little consideration of the fact that they're allowed to come in there and take these things. But, you know, they're destroying our property at the same time and our source of income.

The other thing I was told to ask you about is that there is considered a commercial rate on water use; does anyone know the limits on what the usage would have to be to qualify for that?

MR. JOHN JURICA: Well, there is no commercial rate as such.

MR. SUBIK: Could we have your name, please?

MR.JURICA: Hello, my name is John Jurica (phonetic spelling) from the city of Johnstown.

There's a two-tier rate in the city of Johnstown, it's all based on water usage. Everyone pays the same rate, be it industry, residential, commercial, whatever. It's a declining rate of the -- I think it's over two -- we bill in increments of cubic feet. Anything over two hundred thousand cubic feet every six months is a declining rate.

MS. FERRY: Thank you.

MR. COZZI: Ma'am, I'd just like to address

have, which is also including all engineering and contingencies, is about two and a half million dollar.

MR. SUBIK: The chosen alternative of S.E. three, the third alternate that's being chosen, is approximately thirteen point seven million dollars, of which two point five is the water line, approximately.

MR. EVANS: Okay. And that, we don't -- correct me if I'm wrong, you said that no wells that have been tested are outside of the federal drinking water standards; is that correct?

MR. COZZI: The primary standards, that's right.

MR. EVANS: Okay.

MR. COZZI: Federal or state.

MR. EVANS: And you also said within nine years you hope that your water will approach background --

MR. COZZI: Right.

MR. EVANS: -- values?

MR. COZZI: The water exiting the landfill.

MR. EVANS: Right.

MR. COZZI: Not the water that's approaching

the first question you had. In the future, if individuals are sampling those wells, they should receive permission from you first as the property owner.

MS. FERRY: Thank you.

MR. COZZI: And we will try to address that. Sir, in back.

MR. LaGRANGE: I'm the property owner of that land she's talking about, and I let them work the fields.

MR. COZZI: Okay.

MR. LaGRANGE: And the reason that the wells are drilled on that property, that sixteen acres -- nobody even asked me permission to drill them wells. The back fifty acres, I give permission to drill. There's sixteen more there --.

MR. COZZI: I've been -- I've been told that Tony Sheran, the previous project manager, had gotten your permission to do that.

MR. LaGRANGE: I talked to Tony Sheran but no permission. Bob Subik sent me a letter on the others. He was going in there and test wells, I signed the letter, sent it back to him;

everything was good. The next sixteen acres was never -- nothing said about to nobody.

MR. SUBIK: We'll look into that, Mr. LaGrange, and see what was done on that.

MR. LaGRANGE: You know where the land is, Bob, you've baled hay onto it.

MR. D. WILSON: Where will a copy of the transcript that's taken be available for review? Where will a copy of this transcript that's being taken be available for review?

MR. COZZI: Where will it? What we will do is we'll make -- the transcript will be available with the record of the decision. Now, that will end up in the repositories, which I believe, as you mentioned earlier -- depending upon our ability to do it, we may, if there's a certain group of individuals and if you're the head of a group of individuals and you would like a copy, certainly we can do that. Obviously, we do not have the resources -- we can't give everybody a copy, but it will be in the repositories. And if a group or if the Rainbow Alliance would like a copy, just give me a call.

MR. D. WILSON: I'm sure Bobby gets a copy;

right?

MR. COZZI: The city will have a copy also.

MR. D. WILSON: Bobby will give you a copy; won't you, Bob?

MR. COZZI: Yes, so we will have --.

MR. D. WILSON: Listen, I would like to point out one thing to this young lady here. There's only one library in the city of Johnstown. I don't know where you got two. I don't know that's kind of ---.

MR. FEDIGAN: She meant the city clerk's office as well as the town library.

MR. D. WILSON: There's no town library, there's a city library.

MR. FEDIGAN: City library as well as the city clerk's office.

MR. WILSON: Oh, she mentioned two libraries.

MS. LOWE: Okay.

MR. FEDIGAN: Yes, she meant the city clerk.

MS. TINA HENRY (phonetic spelling): If the money that's to clean up the landfill is coming from the Quality Bond Act, where's the money that the city will be collecting from the third-party

defendants? Where will that be going?

MR. COZZI: Okay, what will happen is whatever monies are recovered from the third-party defendants and from the other responsible parties will be split seventy-five percent state, twenty-five percent city, equivalent to our shares. So there will be -- there's going to be ongoing negotiations, and there may be fixed percentages that the responsible parties end up paying and then the state and the city will negotiate our share with those responsible parties. But if there's recovery after we spent money, that would be split seventy-five, twenty-five.

MS. HENRY: Don't you think that the residents should be compensated with some sort of -- I mean some of the money that the tanneries and whatnot have to put out?

MR. COZZI: That's up to the each individual resident. If you feel that you've been slighted by one of these industries, you certainly have that option.

MS. HENRY: I think we all have. We're all victims.

MR. COZZI: Yes, and we're all taxpayers, and it's your state tax dollars and your town or city tax dollars that are going to pay for this, and that's the way you will get reimbursed.

MS. HENRY: I'd like to be on record, Tina Henry.

I totally agree. It's fine if you want to put through the water lines and have the residents pay for it, and I'm totally against --.

MR. COZZI: Yes, ma'am.

MS. HULBERT: I'm Violet Hulbert (phonetic spelling), on Hulbert Road.

And I'd like to ask you to make note that Matthew Creek is that black line that flows south. You mentioned Matthew Creek, that it was going down in that direction and it was flowing south -- and the leachate from your landfill. And I wish to note you have other notes there of -- well, of the Hulbert Pond, but you don't have it as Matthew Creek either. I think you ought to put that on your map so the people maybe know where it is.

MR. COZZI: Okay, thank you.

The guy in the back.

MR. GARY HULBERT: Gary Hulbert (phonetic spelling). My mother is Rhonda (phonetic spelling).

I've live in this farm since 1956. In 1973, I lost nineteen head of beef cattle, rather mysteriously, on this farm, and the statute of limitations has long sense gone. I'm sure that this problem has originated since the 1947 origination of the dump -- may well have had something to do with it. I know, Mr. Cozzy, your organization has been since 1978 testing the area up there, and there's considerable contamination. Apparently down through the -- all the fish died many, many years ago in that stream, which was a classified trout stream, and it's my understanding it is still today although there is no trout in it. And I think we're dealing with capping this landfill.

Now, how about the state law that says that if my mother sells this property knowing that it's contaminated she is responsible for its cleanup? Who's going to pay us to clean up this pond, with beaver dams all below LaGrange Springs and the city dump? We can't afford millions of

dollars to clean our pond, clean all this farmland up through the area. It's private land. Are we going to be reimbursed by the E.P.A. for cleanup activity?

MR. COZZI: No --.

MR. SUBIK: Before you answer that, Bob, I just think that I should identify the fact that there is an active lawsuit going with the Hulbert family involving the property, and I'm not sure it would be appropriate to comment on that at this time inasmuch as that matter has not come to a complete conclusion. So for us to discuss that litigation publicly or any stance that the state or locality might take with respect to it in this forum, I don't think would be appropriate, Mr. Hulbert. We do know your comments, sir, for the record. Thank you, sir.

MR. FRANK KOVARIK: I've got a quick question for you.

MR. SUBIK: Could we have your name, please?

MR. KOVARIK: Frank Kovarik (phonetic spelling). I'm the comptroller from the city of Johnstown.

You brought out one good point. I think

everybody had a misconception here that all this money was coming from the Superfund and it isn't. My question is from my own information. When the state came to us with the closure, we had a choice, like the first gentleman had spoke. It was a case of do it -- like that transmission commercial -- "You can pay me now or pay me later." We had the choice of closing or we had a choice of letting the state do it. I want to know if the state has closed any landfills. Have they closed any that you know of?

MR. COZZI: By closed you mean put a cap on of this sort?

MR. KOVARIK: I'm talking about -- well, that they've gone through all of what we've gone through. Has the state done this for other cities?

MR. COZZI: Yes, we have for other cities.

MR. KOVARIK: How many? Roughly, I'm not holding you on that.

MR. COZZ.: Okay, there's two groups of landfills. There are landfills such as yours, which is a hazardous -- inactive hazardous waste site, which is a class two landfill. And then

there's a another group, which are nonhazardous landfills. I'm familiar with the hazardous landfill such as yours. And right now -- as far as how many are actually closed?

MR.KOVARIK: No, how many are the state actually closing, that these municipalities have said, "We're not going to close it, you go ahead and do it."

MR. COZZI: Oh, I see, okay. As far as I know, every municipality such as yours that we've approached has decided to accept the state's seventy-five percent. So right now, to my knowledge, there aren't any that the state is closing and then going back after the municipality because we've reached agreement.

MR.KOVARIK: That was going to be my next question. How do they go about getting the money if they had closed them? I just wondered if we had taken the right path.

MR. COZZI: I thought you meant how many had actually been final capped.

MR.KOVARIK: No, no.

MR. D. WILSON: What is the next step in this process so that everybody here can

continually be involved, so that there is a water district formed, so a rate is set that's not appropriate for homeowners? How can we continue to have an input in this so that, you know, the town and the city and all the residents are involved in this? Do you have some meeting coming up where is something is decided and suddenly I get a notice that I can take water, you know, at twelve thousand dollars a year if I want it. How are we going to make sure that we continue to have dialogue?

MR. COZZI: Okay, the next step in this particular program is we have the record of decision. As I mentioned earlier, after we take all the public comments into account during this period with -- both the E.P.A. and the state will arrive at a record of decision. And as I said, we expect to have that this spring. Then there will be a negotiation period between the state and the industries that are involved, and that will take place through the spring and into the summer. And at the end -- at the conclusion of that, we would hope that by the end of summer and into early fall we would then be able to begin to

design the final remedy, which be -- with the industries or with the city or just the state.

MR. D. WILSON: But how can you have a design of the final remedy if you haven't conferred with the town to see if we formed a water district yet? You haven't put that in there. Are you going to do that?

MR. COZZI: No, once we have our record of decision, then the burden is on the city and the town to negotiate with the town. And then it's up the town or the citizens to raise this possibility of a water district. Then it will go the normal route of a water district.

Yes.

MR. SMULLEN: Rich Smullen, supervisor.

I think the first thing we'll do is have a public hearing just for concerned citizens to see if we are -- if the people that are there do want to form a water district. And say, if we got -- how many do you think are in there, Dennis, fifteen or twenty -- whatever would be involved around there.

MR. SUBIK: There are potentially eighty in the district.

MR. SMULLEN: All right. But I mean the close ones right around -- I mean those would be the ones that are potentially involved more than that. If they only go for whatever amount it is at our next town board meeting, we'll set up a public hearing. Maybe nothing to do with the water district, but just to have the people who are involved in the --.

MR. D. WILSON: Get a consensus.

MR. SMULLEN: To get a consensus, that's right, to see if the people want to go forward with it.

MR. D. WILSON: It wouldn't be an official hearing, it would just be a polling line?

MR. SMULLEN: That's right. I mean if we had a public hearing and the people say, "No, we don't want to go any farther," then --.

MR. D. WILSON: So you will notify everybody here, Rich?

MR. SMULLEN: I'll have a resolution at the next town board meeting, and I've got two councilmen right here, so we can say that very easily that we'll have resolution at our next town board meeting.

MR. D. WILSON: The following.

MR. SMULLEN: That's right, we have to advertise it and everything. We'll have a public hearing and invite everybody there.

MR. D. WILSON: You're inviting them here to tell all to come to that?

MR. SMULLEN: Right, right, yes.

MR. D. WILSON: I'd like to make just one comment. Can I make one more comment? I'd like to make one comment.

I'd like just to make one comment. As a taxpayer in the town of Johnstown, I would like to commend Rich and Roy and Jack for being here tonight and not only just for being here tonight but making their positions known on this and entertaining the resolution that we asked them to pass back in October. And I really appreciate the support that you've given us, and I think you're a good town board. And we look forward to continued support and looking forward to working with you on this decision. Nobody else is going to say it, but I'd like to commend them. They do a great job, they are very responsive town board.

MR. JACK WILSON: Jack Wilson (phonetic

spelling). I'm also a councilman in the town of Johnstown.

And I would just like to address Mr. Evans. I don't think any of these people here tonight have come here directly to bash the city of Johnstown. These people are very concerned. The property represents their lives, and they're very interested in their own personal property, and they're not here to bash the city of Johnstown. They're here to help work through a very frustrating situation.

MR. TIM PRENTICE: My name is Tim Prentice (phonetic spelling). I'm an aquatic biologist with the D.E.C. I came here tonight to ask you or entertain a few question possibly related to Matthew Creek and the landfill. I live in the town of Johnstown. I have my own question for you.

I have every reason to believe that what's being proposed is going to work three to nine years down the road, following 1994 with the construction started and everything in place. If the cap is working and precipitation through the landfill is pretty much eliminated and we still

see that the leachate levels are not or the ground water levels or not reaching the background levels that we hoped -- you've heard of monitoring nine years at that point -- when do we decide we need more? What's going to cause us to think, well, we'll wait a little longer and monitor a little longer or are we going to go to the next step of putting in ground water wells and pumping and treating, and who pays for that?

MR. COZZI: I would say that what we will do is based on the monitoring data that we obtain, primarily the ground water data, but also surface water data. Surface water, we should see a rapid improvement. Ground water may take a little longer. But based on the long-term trend of the ground water, what we expect is a fairly steep drop once the cap is in place and then leveling off. And it depends at what level it levels off at, what level the contaminate concentrations level off at.

The standards are here, and if it levels off below standards, we have no problem. If it levels off just above standard, it's probably not going to be a problem. If it levels off

significantly above standard, then I would say that we will have to go back and we will have to evaluate the feasibility of pumping and treating. And at that point, as you mentioned, if it is seven, eight, nine years from now, there won't be state money available to do that, and then it will be a question of either alternate state funding if it's available at that time or the city of Johnstown or the industrial P.R.P.s, depending on what agreements are reached, would have to pay for that.

Any other questions, comments? Yes, sir.

MR. ED BOSNER: Ed Bosner (phonetic spelling), of Johnson Ave.

Is it possible well lines could be knocked down again and we're not being told?

MR. COZZI: Yes.

MR. BOSNER: I think some people are thinking ahead in case -- what happened if your well goes bad and you have to have -- then what do you do? I would like to see the water line put in but not a mandatory hookup, in case five years from now you have trouble with -- what are you supposed to do, pick your house up and move?

MR. COZZI: And the state and the E.P.A. are proposing tonight to put the water line in. The state and the city are proposing that we would even pay for it, and it's going have to be the choice of the people, though, whether this district is formed. We cannot mandate --as Rich said, we cannot mandate.

MR. BOSNER: I would like to see, even if it's not a mandatory hookup -- and the other question is that after -- talking about the rates, we should pay the same rate as the city.

MR. FEDIGAN: One thing, even if in our, the state's and the E.P.A.'s ROD (phonetic spelling) decision, the extension of water mains is put in there. If the town says, "We're not going to do a water district," we can't go out and put the pipes in the line -- or the pipes in the ground, okay, and spend the money. If there's no water district, it's not going to go in the ground even though it's been --.

MR. BOSNER: Even though a certain amount of people are going to say, "I want to pay for water?" What percentage?

MR. SUBIK: The city of Johnstown, as the

lead agency here in working with the state, is not empowered or authorized to start digging in somebody else's right of way and extending this water main no matter how well-intentioned it might be that we do so. There has to be a structure in which that project can go forward. That structure is the creation of a water district. We would urge you to move in that direction.

MR. D. WILSON: Now, I would just like to say, I think it would be harder to poll people next month, Rich, if you don't know what the level of even the district tax might be if you don't use the water, so you -- you can't ask me tonight about voting yes or no because I don't what it's going to cost me if it goes by my house and I don't use it; you understand what I'm saying? It's going to be hard to get people to make a decision if you don't know the cost -- the cost the thing that everybody --.

MS. HULBERT: I'd like to ask you one question.

Now, is the water level here in New York State lowering up in the north end, you know? In

the east, we have a lot of water but is the water level really going down or are we about the same as we have been?

MR. COZZI: I'm not familiar with the long-term trends, but as far as I know from the sites that we've look at and others, the long-term trend doesn't seem to be going down. The clearest example that I can think of is Long Island. We have a site in Long Island -- central Long Island that the water table has gone up six to ten feet starting about from 1988 back to 1982. But since 1988, it's gone back down again, so it's probably gone down two for four feet since then. It just fluctuates, and I really don't know what the long-term trend is for this area.

Any other questions?

MR. JURICA: Just one question. My name is John Jurica of the water department.

Historically, the north end of the city of Johnstown has not been the greatest as far as the water pressure. Now, if this water line does theoretically go out there if it is accepted by all parties, there is -- you know, there is

somewhat of a concern for the residents of the north end of city of Johnstown as well as industries in the ability of getting the water out that far without -- you know, a judgment without infrastructure as well as the availability of furnishing water out there. So just for the record, that should be known and --.

MR. FEDIGAN: That's got to be taken into design. The bureau of public waters, that's one of the first things that they look at, adequate pressure and quantities.

MR. SUBIK: All right, thank you very much. Betsy Lowe has the --.

MS. LOWE: I just want to thank you all for coming, and I'll be here for a little while to talk to you one-on-one if you have any questions.

W. David Layton

I, W. David Layton, certify that this transcript is an accurate representation of the proceedings to the best of my skill and ability

2-23-93
Dated

APPENDIX IV

NYSDEC LETTER OF CONCURRENCE

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

MAR 2 3 1993

93 MAR 29 PM 4:21
US EPA
PPIB

Mr. William J. Muszynski
Acting Regional Administrator
United States Environmental
Protection Agency, Region II
26 Federal Plaza
New York, New York 10278

Dear Mr. Muszynski:

RE: Johnstown City Landfill - Site No. 518002
Record of Decision

Concerning the draft Record of Decision at the Johnstown City Landfill Site, the New York State Department of Environmental Conservation (NYSDEC) concurs with the United States Environmental Protection Agency's (USEPA) selection of Alternative SC-3, which will include the following major components:

1. Excavation of the LaGrange Gravel Pit sediments, placing the excavated materials on the existing landfill. The pit would then be filled with clean fill to eliminate any standing water.

2. Construction of a multi-layer closure cap over the landfill mound and excavated sediments per New York State 6NYCRR Part 360 regulations.

3. Expansion of the Johnstown City water supply system to provide potable water to all private water supplies potentially impacted by the landfill.

4. Erection of approximately 6800 feet of conventional chain link fencing surrounding the entire landfill mound, with placement of appropriate warning signs.

5. Performance of air monitoring prior to, during, and following construction at the site. Perimeter subsurface gas monitoring between the landfilled area and adjacent properties will be conducted and landfill gas emissions controlled as needed.

6. Performance of a maintenance and monitoring program which at a minimum will fulfill the requirements of 6NYCRR Part 360 for post closure monitoring.

7. Performance of a Stage 1A cultural resources survey in on-site and in off-site areas where there is a potential impact to cultural resources.

8. Imposition of property deed restrictions which will include measures to prevent the installation of drinking water wells at the site and restrict activities which could affect the integrity of the cap.

The NYSDEC also concurs with the contingent remedy, Alternative SC-6, which may be implemented should monitoring results show that groundwater and/or surface water quality is not being restored to acceptable levels through natural attenuation after construction of the landfill cap required in Alternative SC-3. Alternative SC-6 would include all of the major components of Alternative SC-3 described above, and in addition groundwater extraction, treatment and discharge.

If you have any questions, please contact Mr. Robert Cozzy at 518-457-1641.

Sincerely,

Ann Hill DeBarbieri
Deputy Commissioner
Office of Environmental
Remediation

APPENDIX V

RESPONSIVENESS SUMMARY

APPENDIX V

RESPONSIVENESS SUMMARY

JOHNSTOWN CITY LANDFILL SUPERFUND SITE

Introduction

A responsiveness summary is required by Superfund policy. It provides a summary of citizens' comments and concerns received during the public comment period, and the New York State Department of Environmental Conservation's (NYSDEC's) and the United States Environmental Protection Agency's (EPA's) responses to those comments and concerns. All comments summarized in this document have been considered in NYSDEC's and EPA's final decision for selection of a remedial alternative for the Johnstown City Landfill site.

Summary of Community Relations Activities

NYSDEC, the lead agency for this project, conducted community relations activities related to the remedial investigation and feasibility study (RI/FS) and oversaw community relations activities conducted by the City of Johnstown.

On May 17, 1989, a public informational meeting was held concerning the workplan for the RI/FS. Two local document repositories were set up at the Johnstown Public Library and the City of Johnstown City Hall. A follow-up public meeting was held on June 13, 1990 to describe the results of the first phase of the RI and to present plans for the second phase of field work.

A public comment period associated with the RI/FS report and the Proposed Plan was held from January 21 through February 19, 1993. The availability of the RI/FS report and the Proposed Plan and a public meeting to discuss the results of the RI/FS and to present the preferred remedy, were advertised by means of a legal notice in the January 20, 1993 Johnstown Leader Herald. A press release was issued by NYSDEC on January 21, 1993 announcing the public comment period and the public meeting. Residents, interested public, and local officials listed on the site contact list were mailed notices to encourage their participation and to solicit comments on the Proposed Plan and the RI/FS reports.

A public meeting took place on February 10, 1993 at the Johnstown High School in Johnstown, New York. Approximately 80 people attended, including representatives of EPA, NYSDEC, and the New York State Department of Health (DOH), as well as local officials, residents, and representatives of civic and environmental associations, news media, and businesses. NYSDEC also had frequent contact with many of these interested parties and sent them notices and project reports.

Summary of Comments and Responses

The following correspondence was received during the public comment period:

- Letter to Robert Cozzy, NYSDEC, from William J. Greagan of Carter, Conboy, Bardwell, Case, Blackmore, & Napierski, regarding comments submitted on behalf of Berkshire Leather and Coast-Line Trading Co., Inc. concerning the Proposed Plan; February 19, 1993.

- Letter to Robert Cozzy, NYSDEC, from Scott N. Fein of Whiteman, Osterman, and Hanna, regarding comments prepared by C. T. Male Associates, P.C. and submitted on behalf of the Johnstown potentially responsible party (PRP) Steering Committee concerning the Proposed Plan, February 19, 1993.

A summary of the comments contained in the above letters and the comments provided by the public at the February 10, 1993 public meeting, as well as NYSDEC's and EPA's response to those comments, follows.

Comment #1: How will changes to 6 NYCRR Part 360 affect the selected remedy? Proposed revisions to 6 NYCRR Part 360 regulations are anticipated to have an effective date of October 9, 1993. Will the proposed remedy, Alternative SC-3, allow for closure and post-closure monitoring and maintenance under the terms of the proposed 6 NYCRR Part 360?

Response #1: In accordance with the National Contingency Plan (refer to 40 CFR 300.430(f)(1)(ii)(B)), on-site remedial actions selected in a Record of Decision (ROD) must attain those Applicable or Relevant and Appropriate Requirements (ARARs) that are identified at the time of ROD signature. Therefore, the current 6 NYCRR Part 360 regulations (effective December 31, 1988) will be the applicable landfill closure regulation for this site.

Comment #2: Why include a contingent remedy? Within the framework of the selected remedy, it is not necessary to outline a contingent alternative (Alternative SC-6) that includes additional and costly remedial actions. Since hazardous substances will remain on the site following implementation of the remedy, Alternative SC-3 would be subject to a 5-year review under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), at which time contingent alternatives necessary to ensure protection of human health and the environment could be considered. What criteria will be used to decide if the contingent remedy of pumping and treating ground water is implemented? Who pays for it in the future?

Response #2: The selected remedy must demonstrate overall protection of human health and the environment and compliance with ARARs unless a waiver is justified. Data collected during the RI indicates that both ground-water and surface-water standards, which are ARARs for this site, were exceeded. While it is believed that Alternative SC-3 will attain these ARARs through natural attenuation as a result of reduced leachate generation, there is an element of uncertainty with Alternative SC-3, since no treatment of ground water would be used to attain ARARs. While a 5-year review of this remedy following its implementation will be undertaken as required under CERCLA, the contingent remedy, Alternative SC-6, allows the flexibility to implement the treatment of ground water at any time between the 5-year review periods based on the long-term monitoring data. After Alternative SC-3 (Part 360 cap) is implemented, trends in long-term ground-water and surface-water data will be analyzed to determine if ground-water remediation as discussed under Alternative SC-6 is necessary. Criteria will include ground-water and surface-water contaminant concentration levels and the speed at which ground water and surface water quality is approaching background conditions or state and federal water quality standards. It is NYSDEC's intention to have the responsible parties for the site undertake any remedial activities, including ground-water cleanup.

Comment #3: Will any sediment remediation be included in this remedy? The FS report does not address a limited removal action of the LaGrange Gravel pit and Mathew Creek sediments. Remedial alternatives considered in detail only include source removal actions that involve removal of the entire waste mass which is not feasible for a landfill of this size. A remedial alternative that includes limited hotspot removal of sediments should satisfy the CERCLA statutory preference for treatment as a principal element of the remedy, instead of a ground-water pump and treat scenario.

Response #3: The selected and contingent remedies do not include any active remediation of Mathew Creek sediments. While contaminated sediments are apparent from the RI, the level of contamination does not warrant remediation of the creek. During post-construction monitoring, sediment samples will be collected from Mathew Creek to determine if contaminant concentrations are improving following implementation of the remedy.

In the case of LaGrange Pit, water quality samples collected in the pit during the RI indicated that ARARs for several compounds were exceeded. Sediment samples also indicated the presence of metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and pesticides at concentrations typically higher than concentrations detected in soils from landfill borings. The FS report discusses the excavation and filling of the LaGrange Gravel Pit with clean fill, so that the pit could serve as an infiltration or stormwater collection basin. The waste that is removed from the

LaGrange gravel pit would be placed under the landfill cap.

Comment #4: Why is residential water replacement included in the remedy? The residential water replacement feature of the proposed remedy is not justified by the Risk Assessment Summary and Conclusions, since the contaminants which elevate risk are not related to the site. What are the potential contaminants to the water supply? Since numerous chemicals were found at concentrations exceeding the standards, the ROD should not identify chromium and lead as the contaminants driving this remedy. It does not appear that the ground-water chemical analytical results support the remedial action of extending the Johnstown City water supply system to all private water supplies potentially impacted by the landfill. An alternative and more cost-effective approach than the extension of a municipal water supply line is continued ground-water quality monitoring and, possibly, treatment at the individual residential wells.

Response #4: The baseline human health risk assessment conducted during the RI concluded that, for residents ingesting site-contaminated ground water, beryllium and arsenic were the major driving forces in producing elevated cancer and noncancer risks, respectively. Both of these contaminants were widespread in on-site water quality samples collected during the RI. Beryllium represents an increased cancer risk of about 2×10^{-4} for the future-use scenario. The incremental cancer risk for the future-use scenario, which is based on data from 28 on-site monitoring wells, slightly exceeds EPA's acceptable risk range of 10^{-6} to 10^{-4}. The hazard index (HI), which represents the potential for noncarcinogenic health effects to occur as a result of Site-related exposures, slightly exceeded the significant level (i.e. greater than 1.0) for adults ingesting site-contaminated ground water. (The HI was 1.5.)

The ground-water plume presently extends over 1,000 feet from the landfill property, as is evidenced by the contaminant concentrations in monitoring well 15s, with chromium at 229 parts per billion (ppb), iron at 173,000 ppb, lead at 32 ppb, manganese at 4,910 ppb, sodium at 68,900 ppb, zinc at 409 ppb, and total dissolved solids (TDS) at 509,000 ppb. The nearest directly downgradient residential well is approximately 2,500 feet from the landfill property. Based on three rounds of sampling of residential wells, concentrations (all values in ppb) of iron (4050, 801, and 883), manganese (73, 58, and 60), sodium (106,000, 100,000, and 93,900), and TDS (712,000, 586,000, and 575,000) are above drinking water standards. These elevated inorganics were found in several residential wells and are indicative of landfill leachate impacts to ground-water quality. While those leachate parameters (except beryllium) associated with a greater health risk were not presently found in significant concentrations in residential wells, the elevated concentrations of iron, manganese, sodium, and TDS in

residential wells are believed to be the precursors of the more adverse leachate contaminants. Other constituents detected above ground-water standards in the shallow aquifer on-site included 13 VOCs, several SVOCs, and eight metals. Discussion focused on chromium and lead during the public meeting because these were the only contaminants which were consistently detected during the RI at concentrations exceeding the maximum contaminant levels (MCLs) for drinking water. The chromium identified in the plume appears to be primarily trivalent chromium, not hexavalent chromium.

Because there may be both an increased risk of cancer and of noncarcinogenic health affects from ingestion of site-contaminated drinking water, and because drinking water standards have been exceeded in the contaminant plume, NYSDEC and EPA believe that extending the Johnstown City water supply to residents potentially impacted by the ground-water contamination is needed to ensure that the residents have a potable supply of drinking water.

Installing point-of-use treatment units and monitoring ground-water quality at the residential homes, while less costly over the long-term (present-worth cost is $2,636,057 versus the $2,848,321 present-worth cost for the proposed water supply replacement in Alternative SC-3), is not as protective of human health, because monitoring would allow the potential for up to 180 days consumption of contaminated ground water by the residents between sampling events. Since the costs are relatively close, NYSDEC and EPA proposed an alternative that permanently eliminates those potential risks.

Comment #5: Why was a 6 NYCRR Part 360 cap chosen for the site? Since a 6 NYCRR Part 360 cap would be required regardless of the nature of the waste, the proposed cap outlined in the preferred alternative, Alternative SC-3, should not be considered as a remedy for the alleged contamination of this site by hazardous wastes. Even in the absence of listing of the site on the Superfund National Priorities List, the Johnstown City Landfill would be required to be closed under 6 NYCRR Part 360 regulations, which would require 30-year monitoring, post closure maintenance, regrading, a multi-layered cover system, and periodic reporting to NYSDEC. Why not spend the extra money for Alternative SC-4 and further reduce leachate generation?

Response #5: The hazardous materials placed in the Johnstown City Landfill were not segregated in one area of the landfill during disposal operations and, therefore, could be located anywhere within the 34 acres of landfill waste. The RI did not identify any "hot spots" or small areas of high concentration of hazardous waste. Therefore, the hazardous wastes at this site must be remediated in conjunction with the solid wastes (municipal waste) since there is no feasible way to segregate the two types of waste at this site. One method to remediate hazardous wastes is via

containment, which isolates the wastes from the environment and minimizes the mobility of those wastes. Containment is recognized as a viable remedy for hazardous waste sites which encompass a large area with no identifiable "hot spots," such as the Johnstown City Landfill. Since the bottom of the waste is at least 14 feet above the water table, a cap alone would be effective at minimizing leaching of hazardous constituents at this site.

The FS report and the Proposed Plan evaluated various containment alternatives which included both a 6 NYCRR Part 360 cap and a Resource Conservation and Recovery Act (RCRA) cap (Alternative SC-4). The major difference in these two caps is the estimated amount of infiltration or leakage of water through them. The part 360 cap is estimated to provide a 94 to 99 percent reduction in infiltration and, therefore, leachate generation, while the RCRA cap is estimated to provide greater than a 99 percent reduction. Thus, the RCRA cap is slightly better in reducing leachate impacts to the ground water, but due to the large volume of ground water passing under the landfill, there would be no significant improvement in ground-water quality, given the small additional quantity of leachate generated under the RCRA cap scenario. Since a RCRA cap would cost about $6 million more to construct than the Part 360 cap, it would not be as cost-effective.

Comment #6: How will the costs of the water line be shared? What costs will be borne by the water district, the City of Johnstown, and the State of New York? If the City collects money from third party defendants, what will it be used for? Who will bear the costs of water usage and what would these costs be? Will the residents be forced to accept the municipal water?

Response #6: The water district will bear any of the operation and maintenance costs associated with the water line. These costs, along with water usage costs, may be subject to negotiation with the City of Johnstown. The PRPs will be given the opportunity to undertake the clean up of the site, including construction of the water line. If the PRPs elect to undertake the clean up, the City of Johnstown will pay 25 percent and New York State will pay 75 percent of the City's cost share. In the event that the PRPs are unwilling or unable to conduct the clean up, the City of Johnstown will pay 25 percent and New York State will pay 75 percent of the construction costs. If the City of Johnstown and the State of New York recover money from any PRPs, the recovered money would be split 25/75 to offset the city/state costs incurred.

The cost of water usage will be borne by the users. However, residents near the landfill would not be obligated to hook up to the water line. In the event that the residents choose to hook up, hook-up charges would be paid for by the parties conducting the clean up of the site. The actual cost of water usage will be a matter for negotiation between the Town of Johnstown, the newly

created water district serving the residents living near the landfill, and the City of Johnstown. Several residents at the public meeting of February 10, 1993 expressed concern about the costs of water usage, and associated water district taxes that might be levied. One farmer, in particular, was very concerned about water-use charges given that she has 60 cows. Since she utilizes 2 wells, one for her home and the other for the barn, she may wish to have only the home hooked-up to the water line, assuming that the appropriate agricultural regulatory authorities approve.

Comment #7: What if the water district is not formed and there are future impacts? What if the homeowner wells become contaminated 10 years later? Who would pay to clean up contaminated residential wells?

Response #7: Although some of the Town of Johnstown's residents present at the public meeting on February 10, 1993 and at another Town Board meeting on March 4, 1993 expressed concern over how much they might have to pay for water use and other expenses related to the water line, they were generally supportive of the creation of a water district and the installation of a water line. A Resolution adopted by the Town Board of Johnstown at its meeting on October 19, 1992 specifically stated the Town Board's support for the proposed remedy for the site which includes installation of the water line. Consequently, the additional questions posed in this comment are moot.

Comment #8: Why is a slurry wall not recommended?

Response #8: Based on soil borings through and piezometers below the landfilled waste, the ground-water table is approximately 14 feet below the waste. A slurry wall would reduce the horizontal movement of ground water through the waste. Since the waste is not in contact with ground water, a slurry wall would not be effective at reducing leachate generation. Capping the landfill will significantly reduce infiltration, which will, in turn, significantly reduce leachate generation and contaminant loading to the aquifer.

Comment #9: What will be written in the deed to protect the land in the future?

Response #9: Deed restrictions will be placed by the City of Johnstown (the property owner) on the capped portion of the site to prevent anyone in the future from excavating through the cap except as needed to repair the cap. Ground-water use at the site would also be restricted on the deed.

APPENDIX V ATTACHMENT

RESPONSIVENESS SUMMARY RECORDS

JOHNSTOWN CITY LANDFILL SUPERFUND SITE

Transcript of public meeting regarding Remedial Investigation and Feasibility Study (RI/FS), February 10, 1993, 7:00 p.m., Associated Reporters International, Inc.

January 20, 1993 Legal Notice published in the Johnstown Leader Herald of public meeting to announce results of the RI/FS and the Proposed Plan.

Letter to Robert Cozzy, NYSDEC, from William J. Greagan, of the firm Carter, Conboy, Bardwell, Case, Blackmore, & Napierski, Re: Comments submitted on behalf of Berkshire Leather and Coast-Line Trading Co., Inc. concerning the Proposed Plan; February 19, 1993.

Letter to Robert Cozzy, NYSDEC, from Scott N. Fein, of the firm Whiteman, Osterman, and Hanna, Re: Comments prepared by C. T. Male Associates, P.C. and submitted on behalf of the Johnstown PRP Steering Committee concerning the Proposed Plan, February 19, 1993.

Letter to WHOM IT MAY CONCERN, from Nancy MacVean, Town Clerk, Town of Johnstown, concerning Resolution No. 110 adopted by the Town Board on October 19, 1992 pertaining to the closure and remediation of the Johnstown City Landfill, October 26, 1992.

JOHNSTOWN CITY LANDFILL
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

1.0 SITE IDENTIFICATION

1.1 Background - RCRA and other information

P. 100001 - 100003 Report: City of Johnstown Landfill Town of Johnstown Fulton County: Information Dossier, prepared by Office of Toxic Substances, New York State Department of Environmental Conservation, February 28, 1979.

P. 100004 - 100266 Report: Johnstown Landfill, consists of various background information, (undated).

1.2 Notification/Site Inspection Reports

P. 100267 - 100276 Report : Potentially Hazardous Waste Site: Site Inspection Report, Johnstown City Landfill, prepared by Mr. Robert F. Murphy, February 12, 1980.

1.3 Preliminary Assessment Reports

P. 100277 - 100543 Report: Preliminary Investigation of the Johnstown Landfill. Phase I. Summary Report, prepared by Ecological Analysts, Inc., November 1983.

1.4 Site Investigation Reports

P. 100544 - 100613 Letter to Mr. John Privitera, Esq., Environmental Bureau, Department of Law, from Mr. Robert M. Subik, City Attorney, City of Johnstown, re: Final Report to Industrial Pretreatment Program, November 19, 1987. Attached Report: Draft Final Report Industrial Pretreatment Program, Cities of Gloversville and Johnstown, New York, prepared by Stearns & Wheler, November 1982.

P. 100614- 100686 Report: New York State Department of Environmental Conservation, Bureau of Wastewater Facilities, Design - Industrial Chemical Survey (ICS), September 1982.

P. 100687 - 100689 Report: New York State Department of Health, Division of Laboratories and Research, Environmental Health Center - Results of Examination, April 1979.

P. 100690 - 100692 Report: New York State Department of Health, Division of Laboratories and Research, Environmental Health Center - Results of Examination, April 1979.

1.6 Correspondence

P. 100693 - 100695 Letter to Bornt Waste & Metal Co., from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, and Mr. Malcolm Coutant, Attorney, Department of Environmental Conservation. March 19, 1985. Reply from Mr. James Bornt, Partner is attached.

P. 100696 - 100710 Letter to Ms. Jacqueline Schaffer, Regional Administator, U.S. EPA, Region II, from Ms. Nancy R. Sellers, Stearns & Wheler, re: 14 industries which New York State Department of Environmental Conservation specified as eligible monitoring stations, for Gloversville and Johnstown, file No. 954.4, February 3, 1983.

P. 100711 - 100716 Letter to Mr. and Mrs. Donald Wilson, West Fulton Street Extension, from Mr. Raymond E. Lupe, P.E., Senior Sanitary Engineer, State of New York Department of Health, re: Private Water Supply, Water Contamination Complaint for Johnstown Landfill, July 9, 1979. Attached Report: New York State Department of Health, Division of Laboratories and Research, Environmental Health Center - Results of Examination, November 4, 1979.

P. 100717 - 100719 Letter to Mr. Donald Corliss, Regional Engineer, New York State Department of Environmental Conservation, from Mr. Raymond E. Lupe, P.E., Senior Sanitary Engineer, State of New York Department of Health, re: Refuse Landfill Complaint (Wilson), Johnstown City Landfill, May 25, 1979.

P. 100720 - 100722 Letter to Mr. Donald Wilson, West Fulton Street Extension, from Mr. Raymond E. Lupe, P.E., Senior Sanitary Engineer, State of New York Department of Health, re: Private Water Supply, Water Contamination Problem for Johnstown Landfill, May 23, 1979.

P. 100723 - 100726 Letter to Mr. and Mrs. Donald Wilson, West Fulton Street Extension, from Mr. Raymond E. Lupe, P.E., Senior Sanitary Engineer, State of New York Department of Health, re: Private Water Supply, Water Contamination Complaint for Johnstown Landfill, May 8, 1979. Attached Report: New York State Department of Health Division of Laboratories and Research, Environmental Health Center - Results of Examination, November 4, 1979.

3.0 REMEDIAL INVESTIGATION

3.1 Sampling and Analysis Plans

P. 300001 - 300045 Report: Air Investigations Sampling Operations Plan for the RI/FS at the Johnstown, NY Landfill, prepared by Normandeau Engineers, Inc., for City of Johnstown, New York, January 1989.

P. 300046 - 300198 Report: Sampling Operations Plan for the Johnstown Landfill Remedial Investigation, prepared by Normandeau Engineers, Inc., January 1989.

P. 300199 - 300593 Report: Quality Assurance, Quality Control and Data Validation Plan for the Johnstown Landfill, Johnstown, New York , prepared by Normandeau Engineers, Inc., April 1989.

3.2 Sampling and Analysis Data/Chain of Custody Forms

P. 300594 - 300595 Letter to Mr. George Karras, U.S. EPA, Region II, from Ms. Karen Taylor, ESAT Org. Data Reviewer, Lockheed Engineering & Sciences Company, re: Johnstown Landfill PRP, January 29, 1992. Data validation attachment.

P. 300596 - 300609 Letter to Ms. Dorothy Allen, U.S. EPA, Region II, from Mr. Anthony R. Sheeran, P.E., Project Manager, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Landfill, Site no. 518002, discussing the enclosure of the attached copies of (8) eight independent NYS DOH Homeowner Sample Results and the delay of the RI and FS Reports, January 14, 1992. List of Homeowners attached.

P. 300610 - 300611 Letter to Ms. Laura Scalise, EPA MMB from Mr. Dale S. Boshart, ESAT Inorganic Data Reviewer, Weston, re: Inorganic revalidation of the Johnstown City Landfill potentially responsible party, August 6, 1991.

P. 300612 - 300613 Memorandum to Ms. Laura Scalise, Monitoring Management Branch, from Ms. Dorothy Allen, Project Manager, Eastern New York/Carribean Superfund Section II, re: Quality Assurance review of the data from Phase I Remedial Investigation and Feasibility Study for Johnstown Landfill Superfund Site, March 6, 1991.

P. 300614 - 300637 Letter to Ms. Dorothy Allen, U.S. EPA, Region II, from Mr. Anthony R. Sheeran, P.E., Project Manager, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Landfill RI/FS Site No. 518002, discussing the enclosed attached items concerning the ongoing RI/FS, January 15, 1991. The following are attached: 1. Spreadsheet of Data Validation Reports. 2. Volume Calculations for Tenax Air Samples. 3. Form 1 Laboratory Results from Ambient Air Samples (9/89).

P. 300638 - 300643 Letter to Ms. Dorothy Allen, Project Manager, Emergency and Remedial Response Division, U.S. EPA, Region II, from Ms. Maribeth, Weston, re: Data Validation reports, November 9, 1990. Handwritten. Attachment re: PRP data case - Inorganic Review.

P. 300644 - 300644 Memorandum to Mr. Louis Bevilacqua, Chief, Toxic and Hazardous Waste Section, U.S. EPA, Region II, from Mr. Melvin Hauptman, Chief, Eastern New York/Caribbean Compliance Section, re: Quality Assurance Review of the data from the Phase I Remedial Investigation/Feasibility Study for Johnstown Landfill Superfund Site, September 24, 1990.

P. 300645 - 300750 Report: Report Number 30900-1428A, prepared by Normandeau Engineers, September 6, 1990.

P. 300751 - 300776 Report: Report of Analysis, prepared by Hazleton Laboratories America, Inc., July 26, 1990.

P. 300777 - 300789 Report: New York State Department of Health, Wadsworth Center for Laboratories and Research - Results of Examination, July 1990.

P. 300790 - 300814 Report: New York State Department of Health Wadsworth Center for Laboratories and Research - Results of Examination, February 1990.

P. 300815 - 300863 Report: A Summary: Ammonia Toxicity and Chemical Analysis In Relation to Mathew Creek, Johnstown, New York, prepared by NYS Department of Environmental Conservation, Division of Fish and Wildlife, July 1987.

P. 300864 - 300882 Report: Volatile Organics Analysis Data Sheet, January 1987.

P. 300883 - 300896 Letter to Mr. Peter Smith, Director, Bureau of Public Water Supply, New York State Department of Health, from Mr. Robert R. Williams, P.E. Acting Chief, Water Supply Branch, U.S. EPA, Region II, re: Analytical results from samples collected, November 5, 1980. Attachment of analytical results.

3.3 Work Plans

P. 300897 - 300897 List of attendees at Phase II Scoping and Strategy Meeting, January 9, 1991.

P. 300898 - 300914 Report: Amended Scope of Work, December 26, 1990. Letter of Transmittal attached.

P. 300915 - 301029 Report: Interim Final Remedial Investigation Work Plan For The Johnstown Landfill, Johnstown, New York, prepared by Normandeau Engineers, Inc., April 1989.

P. 301030 - 301033 List of attendees at City of Johnstown Remedial Investigation/Feasibility Study meeting, New York State Department of Environmental Conservation, February 9, 1988. Handwritten work plan notes attached.

3.4 Remedial Investigation Reports

P. 301034 - 301356 Report: RI Report for the Johnstown Landfill, Johnstown, New York, prepared by TWM Northeast of NY, P.C., doing business as Thermo Consulting Engineers of NY, P.C., September 1992.

P. 301357 - 301692 Report: Second Draft Report, RI/FS For The Johnstown Landfill, Johnstown, New York, Figures and Tables, prepared by TWM Northeast of N.Y., P.C., doing business as Thermo Consulting Engineers of NY, P.C., September, 1992.

P. 301693 - 302283 Report: Draft Report, Remedial Investigation/Feasibility Study for the Johnstown Landfill, Johnstown, New York, Appendices A through G, prepared by Thermo Consulting Engineers Inc., May 1992.

P. 302284 - 302712 Report: Draft Report, RI/FS for the Johnstown Landfill, Johnstown, New York, Appendix H (Sections 1-7), prepared by Thermo Consulting Engineers Inc., May 1992.

P. 302713 - 303133 Report: Draft Report, RI/FS for the Johnstown Landfill, Johnstown, New York, Appendix H (Sections 8-17), prepared by Thermo Consulting Engineers Inc., May 1992.

P. 303134 - 303963 Report: Draft Report, RI/FS for the Johnstown Landfill, Johnstown, New York, (Appendix I), prepared by Thermo Consulting Engineers Inc. May 1992.

3.5 Correspondence

P. 303964 - 303969 Letter to Honorable David O. Martin, House of Representatives, from Mr. Constantine Sidamon-Eristoff, Regional Administrator, U.S. EPA, Region II, re: Resolution of the RI/FS adopted by the Town of Johnstown Board, November 23, 1992.

P. 303970 - 303970 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Robert J. Cozzy, P.E., Chief, Special Projects Section, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: RI/FS reports, November 13, 1992.

P. 303971 - 303973 Letter to Mr. Robert Nunes, Western NY Superfund Section, U.S. EPA, Region II, from Mr. Robert J. Cozzy, P.E., Chief, Special Projects Section, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown City Landfill Site No. 518002, listing comments on the draft Proposed Remedial Action Plan (PRAP) offered by the New York State Department of Environmental Conservation and Department of Health (DOH), November 16, 1992.

P. 303974 - 303975 Memorandum to Mr. Bob Nunes, Remedial Project Manager, New York/Caribbean Superfund Branch 2, from Ms. Shari Stevens, Environmental Scientist, Surveillance and Monitoring Branch, U.S. EPA, Region II, re: Technical Review of Supplemental Information to Johnstown Landfill site, October 6, 1992.

P. 303976 - 303983 Letter to Mr. Constantine Sidamon-Eristoff, Regional Administrator, U.S. EPA, Region II, from Mr. Francis W. Reed, City of Johnstown, Mayor, re: Remedial Investigation and Feasibility Study at former Johnstown Landfill discussing the alternative supported by the city to remediate the site, September 22, 1992.

P. 303984 - 304004 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony R. Sheeran, P.E., Project Manager, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Landfill, Site no. 518002, Review of comments on Remedial Investigation and Feasibility Study Draft Reports received from the United States Environmental Protection Agency, August 3, 1992. Review comments attached.

P. 304005 - 304007 Letter to Mr. Robert Nunes, U.S. EPA, Region II, from Mr. Anthony R. Sheeran, P.E., Project Manager, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: A file review of all available independent data for the Remedial Investigation Report and the enclosed Table of Contents detailing the results of this effort, June 12, 1992.

P. 304008 - 304009 Letter to Mr. Robert Subik, City Attorney, City of Johnstown , from Mr. Anthony Sheeran, P.E., Project Manager, Bureau of Eastern Remedial Action, New York State Department of Environmental Conservation, re: Project Status: Johnstown Landfill, Site no. 518002, December 17, 1991.

P. 304010 - 304011 Letter to Ms. Dorothy Allen, U.S. EPA, Region II, from Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, re: Review of major points of February 25, 1991 conference call and enclosure of environmental data acquired since the Phase I Remedial Investigation Report was prepared, March 1, 1991.

P. 304012 - 304015 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Comments on the proposed Phase II Scope of Work for the Remedial Investigation and Feasibility Study, February 6, 1991.

P. 304016 - 304020 - Letter to Ms. Dorothy Allen, U.S. EPA, Region II, from Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Landfill Remedial Investigation and Feasibility Study with comment by comment review of New York State Department of Environmental Conservation's statements concerning the proposed Scope of Work attached, February 4, 1991.

P. 304021 - 304026 Letter to Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, from Ms. Dorothy Allen, U.S. EPA, Region II, re: Johnstown Landfill--Review of Scope of Work for Phase Two Remedial Investigation and Feasibility Study--Identification of ARAR's, January 28, 1991.

P. 304027 - 304028 Letter to Ms. Dorothy Allen, U.S. EPA, Region II, from Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Municipal Landfill Site No. 518002, Comments on city proposal, January 10, 1991.

P. 304029 - 304029 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Response to Request for a meeting with the United States Environmental Protection Agency and the New York State Department of Environmental Conservation on January 8, 1991, January 7, 1991.

P. 304030 - 304030 Memorandum to Mr. William Webster, Division of Air Resources, from Mr. Anthony Sheeran, through Mr. Robert J. Cozzy, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Response to the DAR comments received December 20, 1990 concerning the June 1990 Interim Remedial Investigation and Feasibility Study report, January 3, 1991.

P. 304031 - 304031 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony Sheeran, Project Manager, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Meeting on January 8, 1991, December 31, 1990.

P. 304032 - 304032 Memorandum to Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, from Mr. Robert J. Cozzy, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Meeting on January 8, 1991, December 31, 1990.

P. 304033 - 304033 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Robert M. Subik, City Attorney, City of Johnstown, re: Phase II of Remedial Investigation/Feasibility Study, December 20, 1990.

P. 304034 - 304034 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Robert Subik, City Attorney, City of Johnstown, re: Phase II Remedial Investigation/Feasibility Study budget, December 12, 1990. (Note: This document is CONFIDENTIAL. It is located at United States Environmental Protection Agency, Records Center, Room 2900, 26 Federal Plaza, New York, New York 10178.

P. 304035 - 304036 Letter to Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Interim Phase I Report, December 4, 1990.

P. 304037 - 304038 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Phase II contract, December 3, 1990.

P. 304039 - 304048 Letter to Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Status of the ongoing Remedial Investigation/Feasibility Study and discussion of various Environmental Protection Agency comments contained in the July 19, 1990 letter, November 30, 1990.

P. 304049 - 304051 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, re: Johnstown Landfill/Wetlands Delineation, Assessment, Data Validation Review and Communications, November 26, 1990.

P. 304052 - 304052 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, re: Environmental Protection Agency guidance for the Remedial Investigation at Johnstown Landfill, September 24, 1990.

P. 304053 - 304053 Memorandum to Mr. Melvin Hauptman, Chief, Eastern New York/Caribbean Compliance Section, from Mr. Marsden Chen, Acting Director, Bureau of Eastern Remedial Action B, DHINR, re: Johnstown Landfill Remedial Investigation/Feasibility Study Meeting, August 15, 1990.

P. 304054 - 304054 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Interim Report of the Remedial Investigation and Feasibility Study prepared by Normandeau Engineers, Inc., July 31, 1990.

P. 304055 - 304068 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, re: Review of Johnstown Landfill Interim Remedial Investigation/Feasibility Study Report, July 18, 1990. U.S. EPA comments on Interim Report attached.

P. 304069 - 304069 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, re: Johnstown Landfill Remedial Investigation/Feasibility Study Phase I Report, June 19, 1990.

P. 304070 - 304088 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Norman W. Spindel and Mr. Scott N. Fein, of Lowenstein, Sandler, Kohl, Fisher & Boylan, Counsellors at Law, re: Interim Report for Johnstown Landfill Remedial Investigation/Feasibility Study, June 26, 1990. Attached are two letters re: Comments on the Interim Report for the Remedial Investigation/Feasibility Study and Ecological Risk Assessment.

P. 304089 - 304099 Letter to Ms. Dorothy Allen, Emergency Remedial and Response Division, U.S. EPA, Region II, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Status of the New York State Department of Environmental Conservation's Remedial Investigation and Feasibility Study at Johnstown Landfill and request for copies of an Environmental Protection Agency sponsored sampling event from September 1980, May 23, 1990. Sampling and Data Package attached.

P. 304100 - 304100 Letter to Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Project Status and revisions to the planning documents relative to the Johnstown Landfill Remedial Investigation/ Feasibility Study Project, July 6, 1989.

P. 304101 - 304103 Letter to Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Comments on the Remedial Investigation/Feasibility Study Work Plan, February 15, 1989.

P. 304104 - 304105 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, re: Conditional approval of January 1989 revision of the Remedial Investigation/Feasibility Study Work Plans, February 15, 1989.

P. 304106 - 304109 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, re: Johnstown Landfill Revised Work Plan, February 8, 1989.

P. 304110 - 304110 Letter to Mr. Robert Subik, Esq., City Attorney, City of Johnstown, from Mr. Anthony R. Sheeran, Project Manager, Bureau of Eastern Remedial Action, Division of Hazardous Waste Remediation, U.S. EPA, Region II, re: Application for 1986 Environmental Quality Bond Act funding, December 6, 1988.

P. 304111 - 304114 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Joseph L. Slack, P.E., Director, Bureau of Eastern Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: The State of New York's comments on the September 1988 Remedial Investigation Work Plan, November 3, 1988.

P. 304115 - 304118 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, re: Johnstown Landfill Work Plan-Environmental Protection Agency's comments, October 20, 1988.

P. 304119 - 304120 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Geoffrey J. Laccetti, Program Research Specialist II, Bureau of Environmental Exposure Investigation, New York State Department of Health, re: Comments on the Revised Work Plan for the Remedial Investigation at Johnstown Landfill, October 11, 1988.

P. 304121 - 304121 Letter to Mr. Anthony R. Sheeran, Bureau of Eastern Remedial Action, New York State Department of Environmental Conservation, from Mr. Douglas J. Tomchuk, Site Complaince Branch, U.S. EPA, Region II, re: Draft comments by Bioassessment Group for Johnstown Landfill, August 22, 1988.

P. 304122 - 304127 Letter to Mr. Robert Subik, City Attorney, City of Johnstown, from Mr. Joseph L. Slack, P.E., Director, Bureau of Eastern Remedial Action, Division of Hazardous Waste Remediation, re: Comments on the March, 1988 Remedial Investigation/Feasibility Study Work Plans, August 5, 1988.

P. 304128 - 304129 Letter to Mr. John Privatera, Assistant Attorney General, Environmental Protection Bureau, Department of Law, from Mr. Geoffrey J. Laccetti, Program Research Specialist II, Bureau of Environmental Exposure Investigation, re: Comments on the Remedial Investigation Work Plan, May 19, 1988.

P. 304130 - 304133 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, re: Johnstown Landfill Work Plan-Environmental Protection Agency's comments, May 6, 1988. Site Layout attached.

P. 304134 - 304135 Letter to Mr. Stephan D. Luftig, Director, Emergency Remedial and Response Division, U.S. EPA, Region II, from Mr. William J. Dreyer of Dreyer, Kinsella, Boyajian and Tuttle, Attorneys at Law, re: City of Johnstown and State of New York negotiation of Interim Consent Order providing for a Remedial Investigation/Feasibility Study of the Johnstown Landfill, April 15, 1988.

P. 304136 - 304136 Letter to Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, from Mr. William J. Dreyer of Dreyer, Kinsella, Boyajian and Tuttle, Attorneys at Law, re: Enclosure of the March 1988 Remedial Investigation Work Plan, April 4, 1988.

P. 304137 - 304137 Letter to Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, from Mr. William J. Dreyer of Dreyer, Kinsella, Boyajian and Tuttle, Attorneys at Law, re: City of Johnstown as a Potentially Responsible Party, February 27, 1988.

P. 304138 - 304139 Letter to Mr. John Privatera, Assistant Attorney General, Environmental Protection Bureau, Department of Law, from Mr. Douglas Tomchuk, Environmental Engineer, U.S. EPA, Region II, re: Environmental Protection Agency's comments on the Remedial Investigation Work Plan for Johnstown Landfill, September 8, 1987.

P. 304140 - 304141 Letter to Senator Alfonse D'Amato, United States Senator, from Mr. Christopher J. Daggett, Regional Administrator, U.S. EPA, Region II, re: Response to March 7, 1987 letter concerning Johnstown Landfill, April 1, 1987.

P. 304142 - 304168 Letter to Mr. Robert M. Subik, City Attorney, City of Johnstown, from Mr. Paul A. Rubin, Hydrogeologist, re: Review of the Remedial Investigation Work Plan for the Johnstown Landfill, September 4, 1986. Attachments include: Hazardous Substance List, Modified Figure 1 and LaGrange Spring Sampling results.

P. 304169 - 304170A Letter to Mr. David Munro, New York State Department of Law, Environmental Protection Bureau, from Mr. John E. Iannotti, P.E., Supervisor, Division of Solid and Hazardous Waste, New York State Department of Environmental Conservation, re: Proposed Remedial Investigation/Feasibility Study Scope of Work, July 2, 1986.

P. 304171 Letter to Ms. Caroline Kwan, Environmental Engineer, U.S. EPA, Region II, from Mr. David A. Munro, New York State Department of Law, Environmental Protection Bureau, re: Proposed Remedial Investigation Work Plan, November 29, 1985.

P. 304172 Letter to Ms. Caroline Kwan, Environmental Engineer, U.S. EPA, Region II, from Mr. John E. Iannotti, P.E., Supervisor, Division of Solid and Hazardous Waste, re: Request for copy of proposed Remedial Investigation/Feasibility Study, November 25, 1985.

P. 304173 Letter to Ms. Beverly Brown, GCA Corporation Technology Division, from Ms. Caroline Kwan, Environmental Engineer, U.S. EPA, Region II, re: Enclosure of Dun and Bradstreet reports for Johnstown Landfill site, (undated).

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Report

P. 400001 - 400292 Report: FINAL REPORT: Feasibility Study for the Johnstown Landfill, Johnstown, New York, prepared by Thermo Consulting Engineers of New York P.C., for The City of Johnstown, October 1992.

4.5 Supplements and Revisions to Proposed Plan

P. 400293 - 400295 Supplemental to information in proposed plan, January 1993.

4.6 Correspondence

P. 400296 - 400298 Letter to Mr. Anthony Sheeran, Project Manager, New York State Department of Environmental Conservation, from Mr. Robert M. Subik, City Attorney, City of Johnstown, re: Johnstown Landfill RI/FS; Controversy over installation of municipal water mains, October 21, 1992. The following are attached:
A-Press release,"Johnstown Dump Neighbors Blast City Water Plan," for release (undated).
B-Press Release, "Town Residents Board Protest," for release (undated).

P. 400299 - 400308 Letter to Mr. Anthony Sheeran, Project Manager, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, from Mr. Robert Nunes, Remedial Project Manager, Western New York Superfund Section I, re: Johnstown City Landfill, June 1992 Draft Feasibility Study Report, July 24, 1992.
Letter re: Comments on the revised Ecological Risk Assessment and Draft RI report, June 30, 1992 attached.

5.0 RECORD OF DECISION

5.4 Correspondence

P. 500001 - 500004 Letter to Mr. Richard Caspe, P.E., Director, Office of Emergency and Remedial Response, U. S. EPA, from Mr. Michael J. O'Toole, Jr., P.E., Director, Division of Hazardous Waste Remediation, re: NPL sites/NYSDEC Lead, August 22, 1990. State lead PRP attached.

6.0 STATE COORDINATION

6.3 Correspondence

P. 600001 - 600001 Letter to Ms. Dorothy Allen, Emergency Remedial Response Division U.S. EPA, Region II, from Mr. Anthony R. Sheeran, P.E., Project Manager, Bureau of Central Remedial Action Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Municipal Landfill Site No. 518002, discussing whether the Wetlands assessment manual should be listed as Applicable Requirement or as a Relevant and Appropriate Requirement (ARAR) for the Johnstown Landfill remedial program, March 13, 1992.

P. 600002 - 600002 Letter to Ms. Dorothy Allen, Emergency Remedial Response Division U.S. EPA, Region II, from Mr. Anthony R. Sheeran, P.E., Project Manager, Bureau of Central Remedial Action Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Johnstown Municipal Landfill Site No. 518002, states the reference manual for Wetlands delineation doesn't meet the definition of an Applicable Requirement or a Relevant and Appropriate Requirement. February 19, 1992.

P. 600003 - 600003 Letter to Mr. Anthony Sheeran, Project Manager, Bureau of Eastern Remedial Action Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, from Ms. Dorothy Allen, Project Manager, Eastern New York/Carribean Superfund Section II, U.S. EPA, Region II, re: Federal Manual for Identifying and Delineating Jurisdictional Wetlands. February 6, 1992.

P. 600004 - 600004 Letter to TAG Project Officer, U.S. EPA, Region II from Mr. Marcus Harazin, Chair-person of Rainbow Alliance for a Clean Environment, Inc., re: Intent to apply for Technical Assistance Grant, August 2, 1988.

7.0 ENFORCEMENT

7.1 Enforcement History

P. 700001 - 700005 List: Waste Hauler's and Industries that used the Johnstown Landfill until April 1979. (undated). Industrial Hauler's going to Gloversville Landfill list attached.

7.4 Consent Decrees

P. 700006 - 700019 Interim Consent Order, Index No. CV-87-636, Judge Cholakis, October 4, 1988.

7.5 Affidavits

P. 700020 - 700021 Affidavit, In the matter of an Investigation of the Johnstown and Gloversville Landfills, Town of Johnstown, Fulton County, New York, August 18, 1986.

P. 700022 - 700023 Letter to Mr. John Privitera, Assistant Attorney General, New York State Department of Law, from Mr. Scott N. Fein of Whiteman, Osterman, and Hanna, Attorneys at Law, re: Enclosure of a affidavit of Theresa Cooke, Vice President of Hermann Loewenstein, Inc., October 28, 1986. Affidavit attached.

P. 700024 - 700025 Letter to Mr. John Privitera, Assistant Attorney General, New York State Department of Law, from Mr. Scott N. Fein of Whiteman, Osterman, and Hanna, Attorneys at Law, re: Enclosure of a affidavit of James Kilmer, September 17, 1986. Letter attached.

7.6 Documentation of Technical Discussions with PRPs

P. 700026 - 700109 Letter to Mr. Douglas Tomchuk, Project Manager, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Norman W. Spindel, of Lowenstein, Sandler, Kohl, Fisher and Boylan, Counsellors at Law, re: Johnstown, N.Y. Landfill Superfund Site, Milligan & Higgins willingness to explore the municipal performance of the Remedial Investigation/Feasibility Study. February 25, 1988. Attachments.

P. 700110 - 700121 Letter to Mr. Douglas H. Ward, Assistant Attorney General, New York State Department of Law, from Mr. Jeremiah Wood, of Wood, Holtzworth and Seward, re: Lee Dying Company as a non potentially responsible party for transport of hazardous substance to Johnstown Landfill, April 4, 1984.

7.7 Notice Letters and Responses - 104e's

P. 700122 - 700123 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. John D. Gates, Secretary/Treasurer, Gates-Mills, Inc., re: Request for Information for Artcraft Glove Corporation, Inc., Certification of answers to request for information attached, September 30, 1989.

P. 700124 - 700125 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. John D. Gates, Secretary/Treasurer, Gates-Mills, Inc., re: Request for Information for Crescendoe Gloves, Inc., Certification of answers to request for information attached, September 30, 1989.

P. 700126 - 700127 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. John D. Gates, Secretary/Treasurer, Gates-Mills, Inc., re: Request for Information for Daniel Hayes Co., Certification of answers to request for information attached, September 30, 1989.

P. 700128 - 700142 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Scott N. Fein, of Whiteman, Osterman & Hanna, Attorneys at Law, re: 104(e) response to the Request for Information for Simco Leather Corporation, December 20, 1988.

P. 700143 - 700161 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Michael J. Murphy, of Ainsworth, Sullivan, Tracy, Knauf, Warner and Ruslander, Attorneys at Law, re: 104(e) response to the Request for Information for St. Amour Refuse Collection Service, Inc., August 26, 1988. (Note: Attachment is CONFIDENTIAL. It is located at United States Environmental Protection Agency, Records Center, Room 2900, 26 Federal Plaza, New York, New York, 10278).

P. 700162 - 700175 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Scott N. Fein, of Whiteman, Osterman & Hanna, Attorneys at Law, re: 104(e) response to the Request for Information for Johnstown Leather Corporation, June 1, 1988.

P. 700176 - 700179 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Scott N. Fein, of Whiteman, Osterman & Hanna, Attorneys at Law, re: Pan American Tanning Corporation and Johnstown Leather Corporation notarized certificate and identification forms, May 17, 1988. Forms attached.

P. 700180 - 700195 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Scott N. Fein, of Whiteman, Osterman & Hanna, Attorneys at Law, re: 104(e) response to the Request for Information for Carville National Leather Corporation, May 12, 1988.

P. 700196 - 700239 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Scott N. Fein, of Whiteman, Osterman & Hanna, Attorneys at Law, re: 104(e) response to the Request for Information for Pan American Tanning Corporation, Karg Bros. Inc., and Crown Leather Finishing, Inc., May 5, 1988.

P. 700240 - 700240 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Scott N. Fein, of Whiteman, Osterman & Hanna, re: Feuer Leather Corporation denial of disposal, May 3, 1988.

P. 700241 - 700241 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Ivan Becker, Executive Vice-President, Crescent Leather Finishing Co., re: Response to item #10 of Request for Information, April 21, 1988.

P. 700242 - 700243 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Ms. Donna L. Kolar, Attorney for Browning - Ferris Industries of New York Inc., re: Response to 104(e) Request for Information, April 20, 1988.

P. 700244 - 700244 Letter from Mr. Vincent J. Ambrosino of Ambroson Gloves Inc., re: response to request for information, April 13, 1988. Handwritten.

P. 700245 - 700251 104(e) response to the Request for Information for Elmer Little Gloves, April 12, 1988. (Note: Attachment is CONFIDENTIAL. It is located at United States Environmental Protection Agency, Records Center, Room 2900, 26 Federal Plaza, New York, New York, 10278).

P. 700252 - 700252 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, United States Environmental Protection Agency, from Ms. Theresa Cooke, Comptroller, re: Herman Loewenstein Inc., as a potentially responsible party, April 12, 1988.

P. 700253 - 700256 104(e) response to the Request for Information for Noone Gloves, Inc., from Mr. Thomas Noone, April 12, 1988.

P. 700257 - 700257 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, United States Environmental Protection Agency, from Mr. Fred A. Rulison, President, F. Rulison & Sons, Inc., re: Response to Request for Information, April 11, 1988.

P. 700258 - 700258 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Ms. Gwen S. Walsh, of Browning - Ferris Industries, Inc., re: extension to 104(e) Request for Information, April 11, 1988.

P. 700259 - 700260 Letter to Ms. Elena Kissel, Esq., U.S. EPA, Region II, from Mr. Ronald G. Hull, of Nixon, Hargrave, Devans and Doyle, Attorneys at Law, re: Request for Information from Gloversville/ Johnstown Joint Sewer Board concerning Johnstown Landfill site, April 11, 1988.

P. 700261 - 700272 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Bruce E. Miller, of Bruce E. Miller Trucking, re: 104(e) response to Request for Information for Bruce E. Miller Trucking, April 11, 1988.

P. 700273 - 700274 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Robert Pitcavage, of Bob's Trucking, re: 104(e) response to Request for Information for Bob's Trucking, April 11, 1988. Attachment for certification of answer to request for information.

P. 700275 - 700276 Identification and Certification of potentially responsible party of Independent Leather Manufacturing Corporation. April 9, 1988.

P. 700277 - 700281 104(e) response to the Request for Information for Kiernan State St. Leather, Inc., April 8, 1988. Handwritten.

P. 700282 - 700282 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Norman W. Spindel, Lowenstein, Sandler, Kohl, Fisher and Boylan, Counsellors at Law, re: Request for Information concerning Johnstown Landfill, April 8, 1988.

P. 700283 - 700284 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Robert Wilcox, owner of Bob Wilcox's Rubbish Removal, re: Request for Information, April 8, 1988.

P. 700285 - 700317 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. John D. Gates, Secretary/Treasurer, Gates-Mills, Inc., re: 104(e) response to the Request for Information, for Gates Mills, Inc., April 7, 1988. General Liability Policy attached. (Note: Attachment is CONFIDENTIAL. It is located at United States Environmental Protection Agency, Records Center, Room 2900, 26 Federal Plaza, New York, New York, 10278).

P. 700318 - 700321 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Herman DiMaio, of H & J Leather Finishers, re: 104(e) response to the Request for Information for H & Leather Finishers. April 5, 1988.

P. 700322 - 700322 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mrs. Jane Vosburgh of Combined Leasing Group International, re: Potentially Responsible Party status, April 4, 1988. Handwritten.

P. 700323 - 700325 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Steven T. Hart, of Hart's Trucking Service, re: 104(e) response to the Request for Information for Hart's Trucking Service, April 4, 1988.

P. 700326 700329 104(e) response to request for information from Merton J. Lesser, April 3, 1988.

P. 700330 - 700343 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Clark Easterly, President, of Johnstown Knitting Mill Co., re: The Johnstown Knitting 104(e) response to the Request for Information, March 31, 1988. (Note: Attachment is CONFIDENTIAL. It is located at United States Environmental Protection Agency, Records Center, Room 2900, 26 Federal Plaza, New York, New York, 10278).

P. 700344 - 700345 Letter to Mr. Douglas Tomchuk, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Terry A. Kucel, President, Crescent Leather Finishing Co., Inc., re: 104(e) response to Request for Information for the Crescent Leather Finishing Co., Inc., March 31, 1988.

P. 700346 - 700349 Identification and certification for Milbrook Kitchens, Inc., March 30, 1988.

P. 700350 - 700351 104(e) response to Request for Information for the M.F. Adams & Sons Inc. March 29, 1988. Handwritten.

P. 700352 - 700363 Letter to Johnstown Landfill Superfund site from Mr. Stephen D. Luftig, Director, Emergency and Remedial Response Division, U.S. EPA, Region II, re: Request for information, March 25, 1988.

P. 700364 - 700372 Letter to R.L. Kilmer & Sons, Inc. from Mr. Stephen D. Luftig, Director, Emergency and Remedial Response Division, U.S. EPA, Region II, re: Request for information, March 25, 1988.

P. 700373 - 700373 Letter to Ms. Elena Kissel, Office of Regional Counsel, U.S. EPA, Region II, from Mr. Scott N. Fein of Whiteman, Osterman, and Hanna, Attorneys at Law, re: Enclosure of a list of Potentially Responsible Parties, March 10, 1988.

P. 700374 - 700378 General notice letter to be sent to potentially responsible parties, February 12, 1988. Attachments.

P. 700379 - 700384 List of recipients of Special Notice Letter for Johnstown Landfill Superfund Site, February 1988.

P. 700385 - 700395 Response to Demand - In the Matter of and Investigation of the Johnstown and Gloversiville Landfills, Town of Johnstown, Fulton County, New York, re: St. Amour Refuse Collections Service, Inc., October 20, 1986.

P. 700396 - 700397 Letter from Ms. Linda M. Arnold, Vice-President, Jones & Naudin Leather Corporation, re: Sanitary waste and materials, September 9, 1986. Attachment.

P. 700398 - 700401 Letter to Mr. John Privitera, Assistant Attorney General, New York State Department of Law, from Mr. Jeremiah Wood of Wood, Holtzworth and Seward, re: Status of Baronet Litho, Inc., as a potentially responsible party, August 15, 1986.

P. 700402 - 700403 Letter to Mr. John Privitera, Esq., Assistant Attorney General, State of New York Department of Law, Environmental Protection Bureau, from Murphy, Niles & Greco, Attorneys at Law, re: Response to demand letter for Pearl Leather Finishers, Inc., August 14, 1986.

P. 700404 - 700406 Letter to Mr. Robert Abrams, Attorney General for the State of New York, from Mr. Alfred Zambella, of Fashion Tanning Company, Inc., re: Question of Potentially Responsible Party status. August 12, 1986. Attachment.

P. 700407 - 700409A Letter to Honorable Donald F. Murphy, Mayor, City of Johnstown, from Mr. John Privitera and David A. Munro, Assistant Attorney Generals, re: Claim concerning Johnstown Landfill, July 15, 1986.

P. 700410 - 700412 Letter to Mr. John Privitera, Esq., Assistant Attorney General, State of New York Department of Law, Environmental Protection Bureau, from Mr. William P. Willig, of Higgins, Roberts, Beyerl & Coan, P.C., Attorneys and Counsellors at Law, re: Tiffany Leather Company, Inc., response to demand, June 11, 1986.

P. 700413 - 700415 Letter to Mr. David Munro, State of New York Department of Law, Environmental Protection Bureau, from Mr. Edward G. Suffern, Suffern Chemical Co., Inc., re: Frequent visits to Johnstown Landfill prior to 1974, May 19, 1986. Reply letter attached.

P. 700416 - 700418 Letter to Suffern Chemical Company, Inc., from Mr. Frank Giocando, Assistant Branch Manager, Merchants Insurance Company, re: Liability policies and definitions, May 13, 1986.

P. 700419 - 700421 Response to Demand - In the Matter of and Investigation of the Johnstown and Gloversville Landfills, Town of Johnstown, Fulton County, New York, re: Coleco Industries, May 6, 1986.

P. 700422 - 700553 Letter to Mr. David Monroe, Esq., Mr. Douglas Ward, Esq., Assistant Attorney Generals, from Mr. Scott N. Fein, of Whiteman, Osterman and Hanna, Attorneys at Law, re: Request for information concerning contributions by the Tanners to the Gloversville and Johnstown landfills, July 29, 1985.

P. 700554 - 700554 Letter to Honorable Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, re: Leavitt-Berner Tanning Corporation--confirmation of representation and company records, July 18, 1985.

P. 700555 - 700556 Letter to Mr. Douglas H. Ward, Esq., Assistant Attorney General, Environmental Protection Bureau, Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, from Mr. William P. Willig, of Higgins, Roberts, Beyerl & Coan, Attorneys and Counselors at Law, re: Response to request for information letter, June 5, 1985.

P. 700557 - 700558 Letter to Mr. Douglas H. Ward, Esq., Assistant Attorney General, Environmental Protection Bureau, from Mr. Kormanek Ronald S. Kormanell, Vice-President, Milligan & Higgins, re: Response to request for information letter, May 14, 1985.

P. 700559 - 700564 Letter to State of New York Department of Law, from Mr. Soloman B. Wise, Gloversville Embossing Company, Inc., re: Response to 104(e) letter, May 6, 1985. Statement attached.

P. 700565 - 700569 Letter to Mr. Douglas Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law from Mr. Robert L. Miller, Manager, Hazardous Materials and Environmental Protection Agency, re: Hussman Corporation response to 104(e) request for information, May 3, 1985.

P. 700570 - 700571 Letter to Mr. Douglas Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law from Mr. George H. Voght, G.H. Voght Trucking, re: Request for Information concerning G.H. Voght Trucking, May 1, 1985.

P. 700572 Letter to State of New York Department of Law, from Mr. Walter Wessendorf Sr., Wessendorf Glove Co., re: Wessendorf Brothers, Glove Company as potentially responsible party, April 27, 1985. Handwritten.

P. 700573 - 700577 104(e) response to request for information for Ernest Horning, April 22, 1985. Handwritten.

P. 700578 - 700583 Letter to Mr. Douglas Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. Richard T. Aulisi, of Caputo, Aulisi and Skoda, Attorneys and Counselors at Law, re: Daytona Corporation (Bridge Manufacturing Corporation), status as potentially responsible party, April 12, 1985. Letter attachments.

P. 700584 - 700593 Letter to Mr. Douglas Ward, Mr. Malcolm Coutant, Environmental Protection Bureau, Department of Law from Mr. Richard F. Goebel Sr., Plant Manager, The Glove City Abroading Co., Inc., re: Request dated 3/19/85 for information relating to transportation of hazardous waste, April 4, 1985.

P. 700594 - 700595 Letter to Mr. Douglas H. Ward, Esq., Assistant Attorney General, Environmental Protection Bureau, Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, from Mr. Donald R. Seelow, Controller, The Johnstown Knitting Mill Company, re: Response to 104(e) letter, April 4, 1985.

P. 700596 - 700626 Letter to State of New York, Department of Law, from Mr. Larry Potter, President, Skin & Leather Co., Inc., re: Response to 104(e) letter, April 3, 1985. Laboratory Report and Landfill User Statements attached.

P. 700627 - 700632 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, from Mr.Leonard Prall, Prall's Trucking and Rubbish Removal, re: Response to 104(e) letter with attachments, April 3, 1985. Handwritten.

P. 700633 - 700634 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, from Mr. Richard Hogan, Manager, Waste Water Treatment Facility, Gloversville-Johnstown Joint Sewer Board, re: Response to 104(e) letter, April 2, 1985. Letter attached.

P. 700635 - 700636 Letter to Mr. Douglas Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. C. Holden Bachner, C.J. Bachner & Sons, Inc., Gloves by Bachner, re: Status of company as potentially responsible party, April 2, 1985.

P. 700637 - 700637 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, from Mr. Robert Wilcox, re: Response to 104(e) letter, April 2, 1985. Handwritten.

P. 700638 - 700638 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, from Mr. R.G. Brown, Technical Director, Wells Chemical Company, Inc., re: Response to 104(e) letter, April 1, 1985.

P. 700639 - 700640 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, from Mr. Humbert Saluzzo, President, Perrella Gloves Inc., re: Response to request for information for Perrella Gloves, Inc., April 1, 1985.

P. 700641 - 700643 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, State of New York Department of Law, from Mr. Renato Sanges, Grandoe Information Corporation, re: Response to Request for Information for Grandoe International Corporation, April 1, 1985.

P. 700644 - 700645 Letter to Mr. Douglas Ward, Mr. Malcolm Coutant, Environmental Protection Bureau, State of New York Department of Law, from Ms. Mary Jane Chapman, of Quinn, Jacobs, Barry and Miller, Attorneys at Law, re: Extension to Request for Information for Hermann Lowenstein, Inc., April 1, 1985.

P. 700646 - 700647 Letter to Mr. Douglas Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. William B. Gates, Gates-Mills, Inc., re: City of Johnstown Municipal Landfill, status as potentially responsible party, April 1, 1985.

P. 700648 - 700648 Letter to Mr. Douglas Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. James A. Curtin, Curtin-Hebert Co., Inc., re: Status as potentially responsible party, March 29, 1985.

P. 700649 - 700650 Letter to Mr. Malcolm Coutant, Attorney, State of New York, Department of Law, from Mr. George W. Taylor, Fulton County Silks Mills, re: Letter of 3/19/85 City of Johnstown Municipal Landfill, March 29, 1985.

P. 700651 - 700651 Letter to Mr. Douglas H. Ward, Esq., Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. Michael E. Lucas, Treasurer and General Manager, The Leader-Herald, re: Response to 104(e) letter, March 28, 1985.

P. 700652 - 700653 Letter to State of New York Department of Law, from Ms. Everett Weber, Rubin Gloves, Inc., re: Response to 104(e) letter, March 27, 1985.

P. 700654 - 700655 Letter to State of New York Department of Law, Department of Environmental Conservation, from Mrs. Edward G. Suffern, Suffern Chemical Company, Inc., re: Response to 104(e) letter, March 27, 1985.

P. 700656 - 700656 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. George E. Bradt, President, G. Levor & Company Inc., re: Response to 104(e) letter, March 27, 1985.

P. 700657 - 700658 Letter to State of New York Department of Law, from Mr. Robert A. Kazmierski, of Bob's Taxidermy Studio, re: Status as potentially responsible party, March 26, 1985. Attachment.

P. 700659 - 700661 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, from Donald A. Fleischut, President, Somerset Industries, Inc., re: Response to Request for Information, March 25, 1985.

P. 700662 - 700662 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. William M. St. Thomas, Executive Coordinator, St. Thomas, Inc., re: Response to request for information, March 25, 1985.

P. 700663 - 700663 Inter-office memo to Department of Environmental Conservation from Stan Bellinger Trucking, re: Gloversville Landfill Disposal, March 24, 1985. Handwritten.

P. 700664 - 700664 Letter to State of New York Department of Law, from Ms. Lynn Saltsman, Saltsman Enterprises, re: Hazardous waste disposal by Saltman Enterprises, March 22, 1985.

P. 700665 - 700665 Letter to State of New York Department of Law, Department of Environmental Conservation, from Mr. Henry J. Lesser, Henry J.Lesser Glove Company Inc., re: Reply to Request for Information, March 21, 1985.

P. 700666 - 700666 Letter to State of New York Department of Law, from Mr. Warren Dennie, Warden Leathers, Inc., re: Reply to request for information, March 20, 1985.

P. 700667 - 700667 Letter to Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. Fred A. Rulison, Chief Executive Officer, F. Rulison & Sons, Inc., re: Reply to Request for Information, March 20, 1985.

P. 700668 - 700668 Letter to State of New York Department of Law, from Mr. Peter Leonardi, President, Halo Optical Products, Inc., re: Reply to request for information, March 20, 1985.

P. 700669 - 700671 Letter to T&R Toggling Company, from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, New York State Department of Law, re: New York State version of 104(e) letter, City of Johnstown Landfill, March 19, 1985.

P. 700672 - 700674 Letter to J&J Trucking, from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, New York State Department of Law, re: New York State version of 104(e) letter, City of Johnstown Landfill, March 19, 1985.

P. 700675 - 700677 Letter to JAD Industries, Inc., from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, New York State Department of Law, re: New York State version of 104(e) letter, City of Johnstown Landfill, March 19, 1985.

P. 700678 - 700680 Letter to Gloversville Snow Melte, from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, New York State Department of Law, re: New York State version of 104(e) letter, City of Johnstown Landfill, March 19, 1985.

P. 700681 - 700683 Letter to Hohenforst Splitting Company, Inc., from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, New York State Department of Law, re: New York State version of 104(e) letter, City of Johnstown Landfill, March 19, 1985.

P. 700684 - 700687 Letter to Innovation Packaging, Inc., from Mr. Douglas H. Ward, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, and Mr. Malcolm Coutant, Esq., Attorney, Department of Environmental Conservation, New York State Department of Law, re: New York State version of 104(e) letter, City of Johnstown Landfill, March 19, 1985.

P. 700688 - 700694 Letter to New York State Department of Environmental Conservation, from Mr. Renato J. Sanges, Manager, Grandoe International Corporation, re: Enclosed and attached Hazardous Waste Disposal Questionnaire and Survey, September 19, 1984.

P. 700695 - 700699 Letter to New York State Department of Environmental Conservation, Division of Solid Waste, from Mr. John Grit Savage, The Grandoe Corpation, re: Enclosure of permit to transport waste ad collector annual report, September 23, 1981.

P. 700700 - 700782 104(e) response to request for information for N.A. Taylor Personnel at the South Boulevard Plant Involved in the Management and Handling of Hazardous Waste Material, (undated).

P. 700783 - 700783 Letter to State of New York Department of Law, from Robert Jump & Son Trucking, re: Reply to Request for Information, (undated).

P. 700784 - 700785 104(e) response to Request for Information for R.L. Kilmer & Sons Inc., (undated).

P. 700786 - 700787 Letter from Mr. Larry Rajjano, of Mr. Larry Rajjano Trucking, re: Breakdown of hazardous waste, (undated). Handwritten.

P. 700888 - 700792 Johnstown Information Request List of addresses, (undated).

7.8 Correspondence

P. 700793 - 700798 Letter to Mr. Anthony Sheeran, New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation, from Mr. Robert M. Subik, City of Johnstown, re: Johnstown Remedial Investigation/Feasibility Study, April 6, 1992. Attachments.

P. 700799 - 700799 Letter to Mr. Paul Van Cott, Esq., Division of Environmental Enforcement, New York State Department of Environmental Conservation, from Mr. John J. Privitera, Assistant Attorney General, State of New York, Department of Law, re: State of New York v. City of Johnstown, et al. 87-CV-636, October 18, 1988.

P. 700800 - 700801 Letter to Mr. John Privitera, Assistant Attorney General, Environmental Protection Bureau, New York State Department of Law, from Mr. Paul Simon, Assistant Regional Counsel, Office of Regional Council, re: Comments concerning Interim Consent Order between the State and the City of Johnstown, June 6, 1988.

P. 700802 - 700813 List: Index of documents requested pursuant to FOIA, from New York State Attorney Generals potentially responsible party file, Tanners Association, (undated).

10.0 PUBLIC PARTICIPATION

10.1 Comments and Responses

P. 1000001 - 1000001 Letter to 16 residents that attended the Johnstown Public meeting on 2/10/93, from Mr. Robert J. Cozzy, P.E., Chief, Special Project Section, Bureau of Central Remedial Action, Division of Hazardous Waste Remediation, re: Attendance at public meeting and enclosure of Proposed Remedial Action Plan, February 11, 1993.

10.3 Public Notices

P. 1000002 - Public notice: "The New York State Department of
1000002 Environmental Conservation and the Environmental Protection Agency propose a cleanup remedy and schedule a Public Meeting for the Johnstown City Landfill Site", for release January 20, 1993.

10.6 Fact Sheets and Press Releases

P. 1000003 - News article: "Town residents, board protest
1000003 potential water hookup," for release October 20, 1992.

P. 1000004 - News article: "Gloversville's plan to reopen
1000004 landfill rejected," for release October 14, 1992.

P. 1000005 - News article: "Landfill closing still under
1000006 study,"for release January 24, 1991.

P. 1000007 - Fact Sheet: Johnstown Landfill Fact Sheet, April
1000009 15, 1986.

P. 1000010 - Question and Answer Fact Sheet for the Johnstown
1000015 Landfill as prepared by the N.Y.S. Dept. of Environmental Conservation, Division of Solid & Hazardous Waste, April 1986.

10.9 Proposed Plan

P. 1000016 - Proposed Plan to Johnstown City Landfill, January
1000029 1993.

10.10 Correspondence

P. 1000030 - Letter to Ms. Sandy Fonda, Rainbow Alliance for a
1000031 Clean Environment, Inc., from Ms. Lillian Johnson, Chief, Community Relations Staff, Office of External Programs, re: Technical Assistance Grant for Johnstown Landfill, April 1, 1989. Handwritten note attached.

APPENDIX A

List of Documents in the Administrative Record

1. "Technical Proposal to Conduct a Remedial Investigation/Feasibility for the Kerry Chemical Company Site, Delaware County, New York," GHR Engineering - November 1985

2. "Phase II Engineering Investigation of the Kerry Chemical Company Site, Delaware County, New York," Wehran Engineering - July 1986

3. "Feasibility Study Report, Westline Site, Westline, Pennsylvania," NUS Corporation (for U.S. Environmental Protection Agency) - July 1986

4. "Contract Document for a Remedial Investigation/Feasibility Study at the Kerry Chemical Company Site," New York State Department of Environmental Conservation - July 1986

5. "Interim Investigative Work Plan, Site Safety Plan and Quality Assurance/Quality Control Plan for the Kerry Chemical Company Site," GHR Engineering - August 1986

6. "Final Investigative Work Plan, Site Safety Plan and Quality Assurance/Quality Control Plan for the Kerry Chemical Company Site," GHR Engineering - October 1986

7. "Supplemental Agreement to the Remedial Investigation/Feasibility Study Contract for the Kerry Chemical Company Site," New York State Department of Environmental Conservation - February 1987

8. "Raw Data Package from the Remedial Investigation for the Kerry Chemical Company Site," Compuchem - March 1987

9. "Draft Remedial Investigation Report for the Kerry Chemical Company Site, Volumes I and II," GHR Engineering - April 1987

10. "Final Remedial Investigation Report for the Kerry Chemical Company Site, Volumes I and II," GHR Engineering - June 1987

11. "Draft Feasibility Study Report for the Kerry Chemical Company Site," GHR Engineering - November 1987

12. "Final Feasibility Study Report for the Kerry Chemical Company Site," GHR Engineering - May 1988

13. "Citizen Participation Plan, Kerry Chemical Site," New York State Department of Environmental Conservation - April 1989

14. "Report on Post Feasibility Study Tasks, Kerry Chemical Company Site," GHR Engineering - July 1989

15. "Proposed Plan for the Remediation of the Kerry Chemical Company Site," New York State Department of Environmental Conservation - July 1990

16. "Public Meeting for the Kerry Chemical Company Site Remedial Investigation/Feasibility Study and Proposed Remedial Action Plan," Transcript Prepared by Czenenda Court Reporting, - August 1990

APPENDIX B

RESPONSIVENESS SUMMARY

The New York State Department of Environmental Conservation (NYSDEC) held a public meeting on July 19, 1990 in Hancock Central Schools' Auditorium to discuss the findings of the Kerry Chemical Company site Remedial Investigation/Feasibility Study (RI/FS) and the Proposed Remedial Action Plan. The studies were performed by GHR Engineering Associates under contract to NYSDEC. A list of those in attendance at the meeting is found at the end of the Responsiveness Summary.

The RI/FS documents were available for public review since April 1989 at the following locations:

* Read Library, Hancock, New York
* Hancock Town Hall, Hancock, New York
* NYSDEC Region 4 Sub-office, Stamford, New York
* NYSDEC Central Office, Albany, New York

Summary of Public Concerns and NYSDEC Responses

The following is a list of the questions asked during the public meeting, and NYSDEC's responses to those questions.

Q1. What do you do with the residue after incineration?

A. Since we have not yet conducted a trial burn of the Kerry wood tar waste, we do not know yet what the exact composition of the resulting ash will be. Trial burns to determine ash composition and stack gas content will be conducted during the upcoming Design phase of the project. From data already collected on the composition of the tar, however, it is possible to say two general things about the ash. First, because of the high organic, low inorganic content of the tar, the volume reduction due to incineration will be great; a relatively small amount of ash will be generated. Secondly, the inorganic analysis of the tar shows very low levels of the metals which would be of greatest concern: mercury (not detected in tar), lead (5.7 parts per million), cadmium (not detected), chromium (not detected), and zinc (5.4 ppm.) These low concentrations make it more likely that the heavy metal content of ash will be in a range that may easily be dealt with.

Once trial burns have generated ash from incineration of the Kerry tar, the ash will be analyzed. Based on these results, specifically the Toxicity Characteristic Leaching Procedure (TCLP) analysis and based on regulatory definitions, a determination will be made as to whether the ash will be designated hazardous. If the ash is hazardous, it will be disposed in a double-composite liner landfill. This could be done on-site in a small landfill cell that would be located above

the flood plain of the Cadosia Creek. There are areas on-site 25 feet above the creek grade which could be used. If hazardous, the ash could also be transported off-site to a secure hazardous waste disposal facility. The decision for on-site or off-site hazardous disposal could be based on a cost analysis of the two methods. If the volume of ash generated is small, off-site disposal may be the least expensive choice.

If the ash is designated non-hazardous, its disposal would again be carried out in the least expensive manner, on-site or off-site. With the ash non-hazardous, either method would be fairly inexpensive and subject to less regulatory restrictions.

Q2. How can you guarantee the scrubbing process will be sufficient to remove any toxic materials going up the stack and how can you guarantee that activated charcoal will remove anything in the scrubber water?

A. It had been stated previously in the public meeting that one method of air pollution control for rotary kiln incineration involves use of a wet scrubber on gasses leaving the afterburner, followed by activated carbon treatment of the scrubber water. This is the most commonly used combination of treatment technologies for air pollution control (APC) on rotary kiln incinerators. The air pollution controls for incineration of the Kerry Chemical Company waste will be custom-designed to the products of combustion which result from trial burns of the waste. Design of an appropriate air pollution control system, followed by detailed analysis of the resulting stack gasses to determine the efficiency of the APC system, will ensure that operation of the incineration meets all regulatory requirements for quality of air emissions. Similarly, if a wet scrubber or other APC technology that generates waste water is used, a waste water treatment system will be designed and operated to ensure that all regulatory requirements are met before any water is discharged.

Q3. Is there any chance that the mobile incinerator proposed would be replaced by a permanent installation?

A. No. The incinerator would be set up at the Kerry Chemical Company Site only to destroy the waste present on the Kerry Site and will be disassembled and taken away once the Kerry waste is gone. The entire operation, once begun, will take less than one year.

Q4. Can the owner of this property use it for something else once this project is complete?

A. Yes. The property owner was determined to have insufficient funds to pay for the study or cleanup of the Kerry Chemical Site, so the State of New York is not attempting to recover costs from him. The land will remain his at the completion of this project,

although NYSDEC's Division of Fish and Wildlife has proposed requesting that he agree to an access easement so that public access to the Cadosia Creek for fishing could be provided. One other change in the property would take place. The decrepit buildings and concrete stack still standing on site would be destroyed to remove the hazard they pose in the event of their failure during on-site work.

Q5. Is the tar carcinogenic?

Of the hundreds of chemical compounds contained in the Kerry Chemical tar, six were identified that are considered suspected carcinogens. All six fall within the category of polycyclic arometic hydrocarbons (PAH's). Therefore, the tar can be said to be carcinogenic. The route by which humans are most likely exposed to the carcinogens was determined in the Remedial Investigation to be ingestion of fish which have absorbed the PAH compounds from sediments in the Cadosia Creek. No other route of exposure is likely expect direct contact through entrapment in a tar lagoon since the PAH's do not significantly volatilize into the air, nor have they dissolved into surface water or groundwater.

There were no written questions or comments received during the 30 day comment period following the public meeting, nor since.

KERRY CHEMICAL COMPANY SITE

REMEDIAL INVESTIGATION/FEASIBILITY STUDY

Public Meeting

Hancock Central Schools Auditorium

July 19, 1990

7:00 PM

Karan Vetrone	Hancock Resident
Patty Vetrone	Hancock Resident
Harold Swartwout	Hancock Resident
Shaun Goethardt	Hancock Resident
Ed Pavilonis	Hancock Resident
John Evanitsky, Jr.	Property Owner
Ralph Hunter	Cadosia Resident
Mary Ann Hunter	Cadosia Resident
Leonard E. Sienko, Jr.	Hancock Resident
Edward Juba	Hancock Resident
Alan Ramburg	Cadosia Resident
Karen Ramburg	Cadosia Resident
Mike Ramburg	Cadosia Resident
Mrs. Raymond Swartwout	Cadosia Resident
John R. Price	Cadosia Resident
Mrs. John Price	Cadosia Resident
Robert Newman	Hancock Resident
Oliver D. Hewitt	Hancock Resident
Chris Jones	Press, Walton
Sally Zegers	Press, Hancock
Scott Foti	NYSDEC, Central Office
Bob Edwards	NYSDEC, C.O.
Darwin Roosa	NYSDEC, Region 4
Eric Hamilton	NYSDEC, Region 4
Ray Lupe	NYSDEC, C.O.
Russ Shaver	NYSDEC, Region 4

C.T. MALE ASSOCIATES, P.C.

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Engineering
Land Surveying
Architecture
Landscape Architecture
Environmental Services
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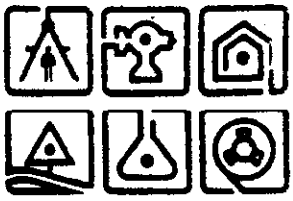

February 18, 1993

Mr. Scott N. Fein
Whiteman Osterman & Hanna
One Commerce Plaza
Albany, New York 12260

RE: *Johnstown RI/FS and Superfund Proposed Plan*
CTMA Project No. 93.2198

Dear Mr. Fein:

At your request as liaison counsel to the Johnstown PRP Steering Committee, C.T. Male Associates, P.C. has reviewed the documents you supplied our office concerning remediation of the Johnstown City Landfill.

This letter presents a review of the Second Draft Report Remedial Investigation/Feasibility Study (RI/FS) dated September 1992 (two volumes), the Final Report Feasibility Study (FS) dated October 1992, and the Superfund Proposed Plan dated January 1993 for the Johnstown City Landfill located in Fulton County, New York. The FS report that was reviewed did not contain a chapter that outlined the selection process for the preferred remedial alternative. The last section of the FS provided only an individual and comparative analysis. The selected alternative, SC-3, was provided, however, in the Superfund Proposed Plan.

C.T. Male Associates, P.C. offers the following general comments with the objective of selecting a cost effective remedial alternative that is protective of human health and the environment.

6NYCRR PART 360 LANDFILL CLOSURE

The essential components of the selected remedy are identical to the requirements of 6NYCRR Part 360 regulations. These solid waste regulations are applicable to all solid waste management facilities including municipal landfills. Even in the absence of NPL listing, the Johnstown City Landfill which reportedly operated until June 1989 would be required to close under 6NYCRR Part 360 regulations which among other conditions would require 30-year environmental monitoring, post-closure maintenance, regrading, a layered cover system, and periodic reporting to NYSDEC.

Moreover, the leachate metals, volatile organic compound, and semi-volatile compound results (MWs 16, 18, and 19) for the Johnstown City Landfill are consistent with the published range of leachate constituents that are characteristic of municipal solid waste (USEPA, 1988)*, with the exception of chromium and mercury which were detected in one monitoring well (MW-16) at concentrations marginally above the published range of concentrations for municipal solid waste leachate. These leachate chemical analytical results do not suggest the presence of a unique waste source, and are interpreted to be characteristic of municipal solid waste leachate.

CONTINGENCY ALTERNATIVE

Within the framework of the selected remedy, it is not necessary to outline a contingency alternative (SC-6) that includes additional and costly remedial actions. Since hazardous substances will reportedly remain on the site following the implementation of the selected remedy, remedial alternative SC-3 would be subject to a five year review under CERCLA. At that time it would be appropriate to consider alternative contingency approaches necessary to ensure protection of human health and the environment.

PLUME DELINEATION/WATER LINE EXTENSION

While it is apparent that a groundwater contaminant plume exists beneath the landfill and directly downgradient of the landfill in the shallow overburden within several hundred feet of the landfill footprint, it appears further that the groundwater plume does not extend significantly downgradient of the landfill.

The three rounds of comprehensive chemical analytical testing for the residential wells surrounding the landfill, support the conclusion that the water quality of residential wells is not being impacted by the release of leachate constituents from the landfill. Therefore, it has not been demonstrated that the groundwater plume extends to the residential wells.

The only chemical analytical parameters exceeding the applicable USEPA, NYSDOH or NYSDEC water quality standards in some residential wells were iron, manganese, sodium, TDS and

occasionally zinc. By themselves these exceedances do not demonstrate an impact from the landfill, nor do these constituents pose a significant threat to human health. Iron, manganese, sodium, TDS, and zinc are all naturally occurring constituents that commonly exist at background concentrations that sometimes exceed water quality standards. Some very low levels of volatile organic and semi-volatile compounds also were detected in several residential wells, however these very low levels did not exceed any water quality standards and were detected below or just above the quantitation limit (QL) in instances where specific compounds were not detected in sample blanks. No significant conclusions can be drawn from the results in which an analyte was found in the sample blank. Other contaminant sources, sampling variation, chemical analytical laboratory contamination and natural background variations in water quality parameters can account for all of these detections and/or exceedances in residential wells.

In light of the above comments, it does not appear that the groundwater chemical analytical results support the remedial action of extending the Johnstown City water supply system to all downgradient private water supplies potentially impacted by the landfill. These residential wells are not presently being impacted, nor is it apparent based on the results provided in the RI/FS that these wells would be impacted adversely at some point in the future provided that appropriate and necessary remedial actions are taken. An alternative and more cost-effective approach than the extension of a municipal water supply is continued groundwater quality monitoring and possibly treatment at the individual residential wells.

6NYCRR PART 360 REVISIONS

NYSDEC has proposed revisions to the 6NYCRR Part 360 regulations which are anticipated to have an effective date of October 9, 1993, corresponding to the RCRA Subtitle D implementation schedule. It is unclear whether the proposed remedy, SC-3, would allow for closure and post-closure monitoring and maintenance under the terms of the proposed 6NYCRR Part 360 or not. Some level of flexibility in this regard may be appropriate, since the cover system details under the proposed revisions to the 6NYCRR Part 360 are to be modified.

SEDIMENT REMOVAL

The results of the RI/FS seem to demonstrate that under present conditions the most significant off-site contaminant pathway is via surface water. This pathway will be eliminated by regrading to prevent ponding and construction of a closure cap over the landfill. However, some level of residual contamination may remain in the pit and creek sediments downstream of the landfill.

The FS does not address a limited removal action of the pit and creek sediments. Remedial alternatives considered in detail only include source removal actions that involve removal of the entire waste mass which is not feasible for a landfill of this size. A remedial alternative that includes limited hotspot removal of sediments should satisfy the CERCLA statutory preference for treatment as a principal element of the remedy, instead of a groundwater pump and treat scenario.

If you have any questions or need further information, please do not hesitate to contact our office.

Sincerely,

C.T. MALE ASSOCIATES, P.C.

John S. Munsey, CPG
Senior Environmental Hydrogeologist

David W. Roecker, P.E.
Managing Engineer
Environmental Engineering

JSM/sm

*USEPA, 1988; Summary of Data on Municipal Solid Waste Landfill Leachate Characteristics, "Criteria for Municipal Solid Waste Landfill" (40 CFR 258); July 1988; Office of Solid Waste.

WHITEMAN OSTERMAN & HANNA

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ALICIA C. RODD
ALEXANDER W. BLOOMSTEIN
CAROLYN DICK
NOAH D. BABIN

February 19, 1993

Robert Cozzy, P.P., Chief
Special Projects Section
Division of Hazardous Waste Remediation
New York State Department of
Environmental Conservation
50 Wolf Road
Albany, New York 12233

Re: State of New York v. City of Johnstown, et al.
Civil Action No. CV-87-3862

Dear Mr. Cozzy:

Enclosed are written comments on the RI/FS and Superfund Proposed Plan for the Johnstown City Landfill Site prepared by C. T. Male Associates, P.C. and submitted on behalf of the Johnstown PRP Steering Committee.

If you have any questions or comments, please call me or Carl Patka at 487-7600.

Very truly yours,

Scott N. Fein

Enclosure

/amc[ltr(cozzy)021993]

CARTER, CONBOY, BARDWELL, CASE,
BLACKMORE & NAPIERSKI
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DENNIS A. FIRST
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AUDREY THOMAS***
MICHELE M. MONSERRATE*
COLLEEN H. WHALEN
PATRICK J. LaPORTA

*Also Admitted in Massachusetts

**Also Admitted in Pennsylvania

***Also Admitted in Connecticut

February 19, 1993

New York State
Department of Environmental Conservation
Albany Office, Room 222
50 Wolf Road
Albany, New York 12233-7071

Att: Robert Cozzy
Project Manager
Re: Johnstown Landfill

Dear Mr. Cozzy:

The following comments are submitted on behalf of our clients, Berkshire Leather and Coast-Line Trading Co., Inc., for inclusion in the formulation of a Record of Decision regarding the conclusions of the Remedial Investigation and Feasibility Study and remediation of the Johnstown City Landfill Inactive Hazardous Waste Disposal Site (#518002).

1. The Risk Assessment Summary and Conclusions [Final Report of Feasibility Study For Johnstown Landfill, Johnstown, New York (hereinafter "Feasibility Study") pp. 1-22 - 24] indicates that the "major driving forces" requiring the residential water replacement features of SC3 are the presence beryllium, tetrachloroethylene and antimony in the groundwater. A review of the feasibility study shows that these contaminants are not related to the site and therefore the residential water replacement feature should be deleted from the proposed remedy.

2. Your statements at the public hearing held on February 10, 1993 at the Johnstown High School identified chromium and lead as the contaminants driving the remedy. However, antimony, calcium, magnesium, sodium, aluminum, zinc, manganese, iron, thallium and 11 pesticides were also found in the soil in levels above the background levels (Feasibility Study, pp. 1 - 17 - 19). Thirteen TCL VOCs, semi-volatile contamination and 20 TAL metals were found in overburden wells downgradient of the landfill. Additionally, acetone and bis(2 ethylhexyl)phthalate were the "primary contaminant" within the bedrock aquifer and residential wells showed contamination by metals, TDS, ammonia, nitrogen, manganese, sodium and zinc.

Surface water contamination included six VOCs, several semi-volatile organic compounds and 15 TAL metals were found. The highest concentrations of these metals were iron, manganese and selenium.

In addition to chromium and lead, sediment contamination included concentrations of arsenic, cadmium, copper, manganese, mercury, nickel and zinc.

In light of these numerous other chemicals and compounds, it is extraordinary to conclude that lead and chromium are the elements driving the remedy. This is especially true considering the expert computations at page D-19 of the Feasibility Study which states that the current amount of chrome being released from the landfill is .19 lbs. (or 3.04 oz.) per year. Therefore, the Record of Decision should not identify chromium and lead as the contaminants driving this remedy.

3. Since an inactive municipal landfill must be capped with a Part 360 cap regardless of the nature of the waste present, the proposed cap outlined in SC3 should not be considered as a "remedy" for the alleged contamination of this site by hazardous wastes.

4. According to the information presented at the public hearing on February 10, 1993, residential water wells are not currently contaminated and the chances of future contamination is low. Residential water replacement is therefore unnecessary and should not be considered as part of the remedy for this site.

Please consider these comments when formulating the Record of Decision.

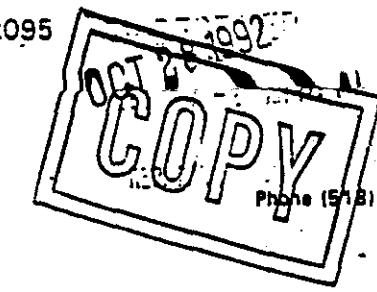
Very truly yours,

CARTER, CONBOY, BARDWELL, CASE,
BLACKMORE & NAPIERSKI

By _____
WILLIAM J. GREAGAN

WJG:bsg
00002178.bsg

P.O. BOX 88
Johnstown, New York 12095



Nancy MacVean, Town Clerk

Phone (518) 762-7070

October 26, 1992

TO WHOM IT MAY CONCERN:

At the regular meeting of the Town Board of Johnstown, New York, on October 19, 1992, the following Resolution was made:

Mr. Smullen offered the following Resolution and moved its adoption:

WHEREAS, the City of Johnstown did on September 23, 1991 adopt Resolution No. 110 pertaining to the closure and remediation of the City of Johnstown Landfill wherein, among other things, the City of Johnstown proposed to extend its municipal water line to homes on the periphery of the landfill to supply City water to adjacent Town residents, and

WHEREAS, the Town residents have petitioned the Town Board in support of the water line but against any mandatory hookup or water charges to the homeowner, and

WHEREAS, the Town Board is generally in agreement with the Town residents, therefore, be it

RESOLVED, that the Town Board of the Town of Johnstown supports the concept of the City of Johnstown extending its water supply system to homes in the Town on the periphery of the landfill site but the Town Board is opposed to any requirement that homeowners be mandated to connect to the water line or pay for water consumed by such homeowners that do connect, and be it further

RESOLVED, that a copy of this resolution be sent to NYS DEC, USEPA, NYS DOH, Fulton County Planning Department, Mayor and City Council of the City of Johnstown, Assemblyman James King, State Senator Hugh Farley, Congressman David O. B. Martin, United States Senator Alphonse D'Amato and all others who may further the purport or have an interest in this Resolution.

SECONDED by Jack Wilson and approved by the following vote:

AYES : All.

STATE OF NEW YORK:
COUNTY OF FULTON:
TOWN OF JOHNSTOWN:

I, Nancy MacVean, Town Clerk of the Town of Johnstown. County of Fulton, State of New York, do hereby certify that I have compared the preceding Resolution with the original thereof filed in my office at the Town of Johnstown Hall on October 19th, 1992. The same is a true and correct copy of said original and the whole thereof.

In testimony whereof, I have hereunto set my hand and affixed the seal of said Town this 26th day of October, 1992.

Nancy MacVean

Nancy MacVean, Town Clerk

303966

RI/FS, NYSDEC and EPA evaluated seven alternative cleanup methods summarized as follows: no action (Alternative SC-1); limited action and residential water replacement (Alternative SC-2); installation of a 6 NYCRR Part 360 landfill cap and residential water replacement (Alternative SC-3); installation of a Resource Conservation and Recovery Act (RCRA) landfill cap and residential water replacement (Alternative SC-4); ground water collection/treatment/discharge and residential water replacement (Alternative SC-5); 6 NYCRR Part 360 cap, residential water replacement, and ground water collection/treatment/discharge (Alternative SC-6); and RCRA cap, residential water replacement, and ground water collection/treatment/discharge (Alternative SC-7).

Based upon an evaluation of these alternatives, NYSDEC and EPA are recommending Alternative SC-3 as the preferred alternative, with Alternative SC- as a contingent alternative.

Complete documentation of the results of the investigations and studies performed at the

AND THE
ENVIRONMENTAL
PROTECTION
AGENCY
PROPOSE A
CLEANUP REMEDY
AND SCHEDULE A
PUBLIC MEETING
FOR THE
JOHNSTOWN CITY
LANDFILL SITE
CITY OF
JOHNSTOWN
FULTON COUNTY
NEW YORK

The New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (EPA), as lead and support agencies, respectively, will hold a public meeting to discuss the results of the remedial investigation and feasibility study (RI/FS) and the Proposed Plan for the Johnstown City Landfill site.

The Proposed Plan calls for, as the preferred remedy for the site, the construction of a multi-layer cap over the landfill mound to isolate the wastes from rainfall and human contact, extension of city water to individual users to replace existing private potable supply wells potentially impacted by the landfill, erection of a security fence around the landfill mound, institution of land-use restrictions, and environmental monitoring to determine the effectiveness of the remedial program, which will include long-term monitoring of ground water, surface water, and sediments. In the event that monitoring results do no show that ground water quality is being restored to acceptable levels through natural attenuation as a result of reduced leachate generation, ground water remediation will be reevaluated and may be implemented. If ground water remediation is implemented in the future, it would include the extraction of ground water using collection wells with on-site treatment to remove inorganic and volatile organic contaminants, with discharge of the treated water to the ground water or to a stream.

NYSDEC has scheduled a public meeting to discuss the findings of the RI/FS and the Proposed Plan. the meeting will be held at 7:00 P.M., Wednesday, February 10, 1993 at the Johnstown High School, Pearl Street, Johnstown, New York. The release of the Proposed Plan and the scheduled public meeting are in accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended.

After evaluating the information gathered during the studies and sampling conducted at the site as part of the public review at:

CITY OF JOHNSTOWN
ATTORNEY'S OFFICE
City Hall
88-1 East Main Street
Johnstown, New York
12095-2696
(518) 762-3911
Monday-Friday
9:00 A.M.-5:00 P.M.

JOHNSTOWN
PUBLIC LIBRARY
38 South Market Street
Johnstown, New York 12095
(518) 762-8317
Sunday, 1:00 P.M.-4 P.M.
Monday, Thursday
1:00 P.M.-8:00 P.M.
Tuesday, Wednesday
10:00 P.M.-8:00 P.M.
Saturday
10:00 A.M.-1:00 P.M.

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL
CONSERVATION
Region 5 Office
Ray Brook
Route 86
Ray Brook, New York 12927
(518) 891-1370
Monday-Friday
9:00 A.M.-5:00 P.M.

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL
CONSERVATION
50 Wolf Road
Albany, New York 12233
(518) 457-1641
Monday-Friday
900 A.M.-5:00 P.M.

UNITED STATES
ENVIRONMENTAL
PROTECTION
AGENCY
26 Federal Plaza
New York, New York 10278
(212) 264-2723
Monday-Friday
9:00 A.M.-5:00 P.M.

NYSDEC and EPA welcome public comments on the Administrative Record and all alternatives identified above. The final selection of a remedy for the site will be made after all public comments have been taken into consideration. Public comments on all of the alternatives are being solicited, since a remedy other than the proposed alternative may be selected after consideration of all comments received.

Public comments should be submitted during the period commencing on January 21, 1993 and concluding on February 19, 1993.

All written comments should be addressed to:

ROBERT COZZY
Project Manager
New York State
Department Of
Environmental Conservation
50 Wolf Road
Room 222
Albany, New York
12233-7010

DATED: January 14, 1993
Approved As To Form:
ROBERT M. SUBIK
Esquire
City Attorney

J-96 1/20

JOHNSTOWN
Leader
Herald
1/20/93

15 (12-75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Stephe Hammond, Bob Olazagasti, Ray Lupe, Jim Harrington, and Al Rockmore
FROM: Jack McKeon
SUBJECT: Kerry Chemical Reality Check

DATE: NOV 08 1991

The last correspondence that I have on the Kerry Chemical procurement is the attached memo from myself and Stephe to Mike. I was directly involved in the two-step procurement process since at that time both the Technology Section and the Contract Development Section were my responsibility. Obviously, with the Technology Section moving to the Bureau of Technical Services, I am no longer as directly involved.

My understanding is that the Kerry Chemical design contract is being finalized for transmittal to SAIC. I feel it's important to get all concerned in agreement that the procedures outlined on the attached memo represented final agreement on how we will be proceeding.

If you disagree, please give me a call.

Attachment

cc: C. Goddard

15 (12-75)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Michael J. O'Toole, Jr.
FROM: Jack McKeon and Stephen Hammond
SUBJECT: Procurement of Remedial Services at Kerry Chemical

DATE: MAY 08 1991

At the March 4, 1991 meeting on procurement of a mobile incinerator to remediate the Kerry Chemical Site, it was decided that we would first prequalify technology vendors; then competitively bid the project with the provision that the low bidder must use one of the prequalified vendors. That bidding process would be open to general contractors using prequalified Technology Vendors or the Prequalified Technology Vendors acting as the general contractor. This process has been endorsed by Counsel's Office.

Attached is a timeline for this process. The main objective is to select the lowest qualified bidder that will provide the required services with the least foreseeable problems. During the meeting and in subsequent discussions, a number of issues relative to overseeing the design prepared by the consultant were discussed. They are listed below.

1. Emphasis must be placed upon creating very "tight" performance specifications, especially with respect to materials handling. However, care should be taken that we do not direct how the job is to be done. The specifications should list results (e.g., no fugitive emissions, residual soil concentration, etc.), not methods (e.g., tracked loaders versus rubber tire loaders).

2. Information relative to the existing conditions must be as complete as possible. Since this waste is quite different from the usual contamination, great care must be taken to describe the characteristics as well as the contamination. To aid in the development of projected ambient air impacts from the incineration unit, collection of on-site meteorological data will be pursued.

3. Preparation of the thermal technology performance specifications should be the first element prepared by the design contractor. Only after these specifications have been reviewed and approved by the respective NYSDEC divisions, can the RFQ for the technology vendors be prepared.

4. After the performance specifications for the technology is completed, performance specifications for excavation and materials handling is the next priority. These specifications must be approved prior to completion of the bid documents for the general contractor.

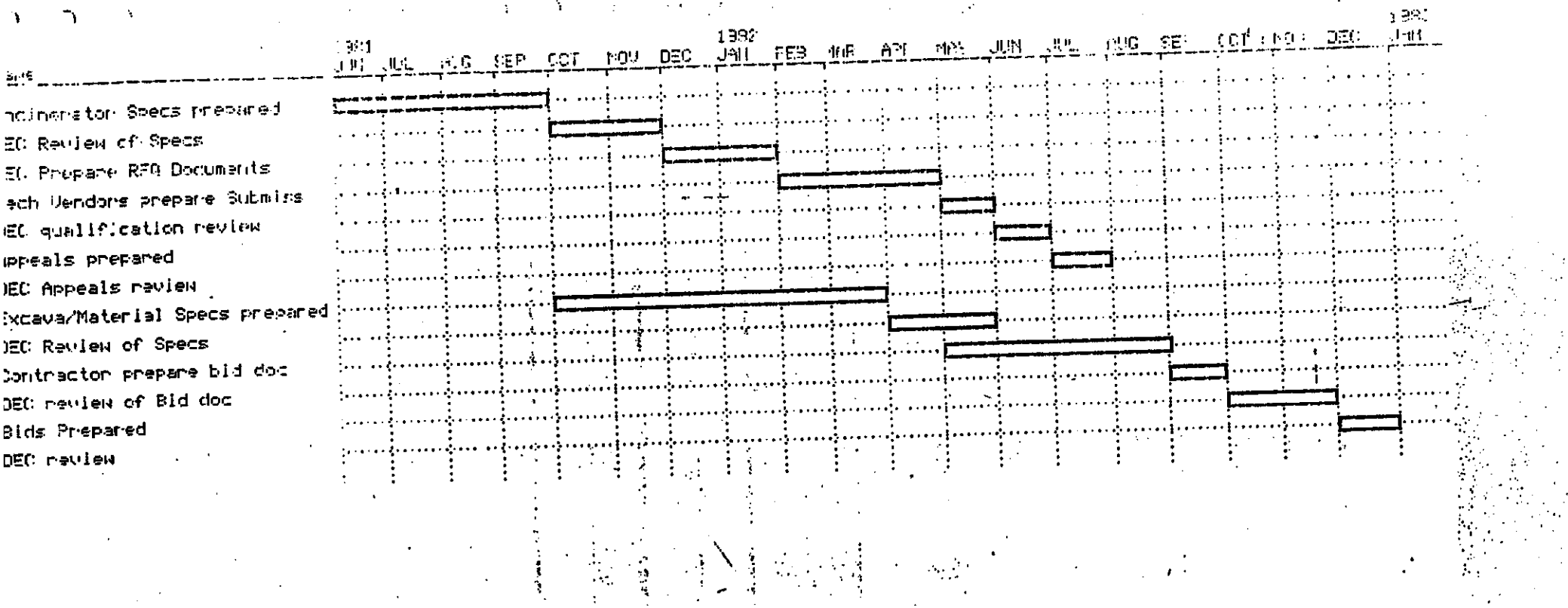
5. The time between the prequalification step and advertisement for bids should be kept to a minimum to avoid difficulties caused by potential vendors becoming qualified during the review period. If there were to be an extended period between qualification and advertisement,

consideration of qualifications of new vendors might be necessary. However, the schedule must allow time for appeals from technology vendors that were not qualified.

The individual steps to be accomplished on this site are listed below. A conceptual schedule of the major elements involved with getting this project under construction is shown on the attachment. This schedule does not reflect any input from the other Divisions that would be involved in the processing of this contract.

1. Design Work Plan
2. Design
   a. Health and Safety Plan
   b. Mobilization Plan
   c. Material Handling Plan
   d. Technology Vendor Specifications
3. Request for Qualifications
4. Evaluation of Technology Vendors
5. Appeal of Non-qualified Vendors
6. Advertise for Bids
7. Award Contract
8. Implement Remediation

cc: C. Goddard
J. Harrington
R. Lupe
S. Foti
D. Smith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