FILE KEY DOC
8-19-001

RECORD OF DECISION

Batavia Landfill Site

Batavia, Genesee County, New York

United States Environmental Protection Agency
Region II
New York, New York
June 1995

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Batavia Landfill Site
Town of Batavia
Genesee County, New York

STATEMENT OF BASIS AND PURPOSE

This Record of Decision ("ROD") documents the selection of a remedial action for the Batavia Landfill Site ("Site") by the U.S. Environmental Protection Agency ("EPA") in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("CERCLA"), and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"). This decision document summarizes the factual and legal basis for selecting the remedy for this site.

The New York State Department of Environmental Conservation has been consulted on the planned remedial action in accordance with Section 121(f) of CERCLA, 42 U.S.C. § 9621(f), and concurs with the selected remedy (see Appendix IV).

An administrative record for the Site, established pursuant to the NCP, 40 CFR 300.800, contains the documents that form the basis for EPA's selection of the remedial action (see Appendix III).

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 ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy pertains to the last of two operable units for the Site. On March 31, 1993, EPA signed a ROD selecting a first operable unit interim remedy for the Site that consists of extending the local municipal water supply line to residences adjacent to the Batavia Landfill (the "Landfill"). This operable unit addresses the entire Site. The major components of the selected remedy include the following:

1) Excavation of contaminated soil from drum area R and the approximately 7-acre magnesium fines area in the northern area of the Landfill and consolidating these materials under the landfill cap in the southern area of the Landfill. Moving the wastes from the northern area of the Landfill, where the ground water is shallow, to the higher terrain of the southern area will also minimize the migration of hazardous constituents to the ground water and surrounding wetlands.

2) Subsequent grading of the northern area of the Landfill, filling it with clean topsoil, and seeding it for a vegetative cover.

3) Excavation of drums from the southern area of the Landfill containing hazardous substances, which are estimated in number to be 150. The drums will be transported off-site for treatment and disposal.

4) Capping of the southern region of the Landfill with a NYS Solid Waste Standard Cap designed and constructed in accordance with the substantive requirements of 6 NYCRR Part 360-2.13(q), which includes a minimum of 18 inches of compacted clay liner with a post-compacted maximum remolded coefficient of permeability of 10^{-7} cm/sec throughout its thickness (a minimum thickness of 40 mil geomembrane), a 24 inch barrier protection layer of soil and 6 inches of topsoil suitable to maintain vegetative growth, or an equivalent design as permitted pursuant to the regulations (6 NYCRR Part 360-2.13(w)). Grading of the Landfill will be based upon the final capping configuration determined during the remedial design phase.

5) An explosive gas survey will be performed to determine the need for constructing a passive gas venting layer or trench system underlying the low permeability cap material. Any gas venting system would be situated beneath impermeable clay so as to increase its effectiveness in controlling horizontal gas migration.

6) Construction of a leachate collection system. The leachate collection system will be designed to provide a physical barrier to the migration of leachate from the Landfill, with appropriate pumping or other forms of leachate collection.

7) Performance of a pre-design ecological assessment to define impacts of the Landfill on fish, wildlife, and associated habitats (especially wetlands). This information will be used to determine whether any wetland excavation is advisable to best protect fish and wildlife, and if the assessment is determined to be necessary, the information will be used to determine the extent of appropriate action. Any sediments excavated as a result of the ecological assessment will be placed under the cap. The construction of the cap may impact a portion of the wetlands, and consequently the information obtained during the ecological assessment will also be used to assist in the design and construction of the remedy in such a way as to minimize any adverse impacts to the wetlands caused by the remedy. The selected remedy also requires that any damage to wetlands or wetlands function will be mitigated.

8) EPA will recommend to local agencies that institutional controls be undertaken to ensure that future land use at the Site is restricted so as to preclude certain uses of the Site, such as

is restricted so as to preclude certain uses of the Site, such as restricting certain types of access to the Landfill and eliminating groundwater use for human consumption at the Site.

9) Implementation of long-term operation and maintenance of the Landfill cap systems to provide for inspections and repairs.

10) An evaluation of Site conditions no less than each five years to determine if the selected alternative is protective of human health and the environment.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions as set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, and 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, given the scope of the action. The remedy will permanently reduce the toxicity, mobility, and volume of contaminants by reducing infiltration through the landfilled wastes and collecting and treating leachate. In addition, the remedy involves the excavation of on-site buried drums for off-site treatment and disposal. A review of the remedial action will be conducted no less than each five years after the commencement of the remedial action to ensure that the remedy continues to provide adequate protection to human health and the environment because this remedy will result in hazardous substances remaining on-site above health-based levels.

William J. Muszynski /

Jeanne M. Fox
Regional Administrator

June 6, 1995
Date

RECORD OF DECISION
DECISION SUMMARY

Batavia Landfill Site

Town of Batavia, Genesee County, New York

United States Environmental Protection Agency
Region II
New York, New York
June 1995

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ATTACHMENTS

SITE NAME, LOCATION AND DESCRIPTION

The Batavia Landfill Site (the "Site") is located approximately three miles west-northwest of the City of Batavia, Genesee County, New York (see Figure 1). The Site includes the 35 acre Batavia Landfill (the "Landfill"), which is bounded to the north and portions of the east by the Galloway Swamp, to the east by the Town's former Sanitary Landfill (now closed), to the south by Harloff Road (the New York State Thruway, or Interstate Route 90, is approximately 200 feet south of the Landfill), and to the west by vacant property. It should be noted that the boundary between the Landfill and the former sanitary landfill to the east is not well defined. In fact, portions of the two landfills overlap to some degree. The Town of Batavia owns the Landfill and the adjoining sanitary landfill to the east. The Site includes the areal extent of contamination emanating from the Landfill, including any contamination impacting the surrounding wetlands.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Landfill was owned by private citizens from 1828 to 1967. The land was used primarily for agricultural purposes until approximately 1960, although during the 1950s, portions of the property were mined to provide construction materials for the New York State Thruway. The Landfill accepted wastes, including industrial wastes, for on-site disposal from 1968 until 1980, the year the New York State Department of Environmental Conservation ("NYSDEC") declared the property an open dump based on noncompliance with the surface water criteria (40 CFR Part 257). Poor housekeeping practices and the disposal of industrial and hazardous wastes resulted in the closure of the Landfill. Most of the wastes at the Site were disposed in the southern and northern areas (see Figure 2). Available information indicates that no wastes were buried in the central area of the Site, however, debris (e.g. tires, wood) is visible at the ground surface. Industrial wastes known to have been disposed of at the Site include chromium hydroxide sludge, magnesium sludges, and sweepings containing barium, inks, spent solvents, and oils.

In December 1982, Fred C. Hart Associates under contract with EPA conducted a ground water sampling survey in the area of the Site. Sampling data from three on-site monitoring wells, installed in 1980 for the NYSDEC, revealed the presence of hazardous organic and inorganic chemical constituents (including methylene chloride, 1,1 dichloroethane, barium) which exceeded New York State and Federal Drinking Water Standards.

On December 20, 1982, the Site was proposed for inclusion on the National Priorities List ("NPL") and the Site was added to the NPL by publication in the Federal Register on September 8, 1983 (48 Fed. Reg. 40658).

The following have been identified as potentially responsible parties ("PRPs") for the Site:

a. Town of Batavia
b. City of Batavia
c. Eaton Corporation
d. GTE Products Corporation (successor to GTE-Sylvania)
e. NL Industries, Inc. (because of activities associated with its former Doehler-Jarvis division)
f. R.E. Chapin Manufacturing Works, Inc.
g. Unisys Corporation (successor to Burroughs Corporation)

EPA first sent notice of potential responsibility in 1982 to the PRPs listed above or to a predecessor or affiliate of such entity. These parties were subsequently notified to solicit their participation at the Site, in 1984 in connection with planned Remedial Investigation and Feasibility Study ("RI/FS") activities, and in 1988 in connection with the planned removal action.

On August 9, 1984, EPA entered into an Administrative Order on Consent ("AOC") with NL Industries for the performance of an RI/FS at the Site.

In August 1985, NL Industries contracted with ERCO to conduct the RI/FS. ERCO, in turn, contracted with GZA GeoEnvironmental of New York (formerly GZA Associates, Inc.,) to aid in the study.

GZA, working as a subconsultant to ERCO, completed a preliminary study entitled "Remedial Investigation Report for Batavia Town Landfill, Batavia, New York," dated December 1985. The work done to complete this report included assembly and review of available data pertaining to waste types and quantities suspected to have been disposed of at the Site, and a review of regional geologic and hydrogeologic information and prior reports. The results of the RI confirmed that groundwater contamination was present at the Site. Based on the available data base, EPA deemed that additional work was required to better characterize the chemical and hydrogeologic conditions at the Site prior to initiating the FS. NL Industries thus contracted with GZA to complete an RI/FS. ERCO was also retained by NL Industries to perform selected sampling and analyses.

In April 1989, NL Industries submitted a report entitled "Batavia Landfill Site Draft Remedial Investigation Report", prepared by GZA, which EPA determined to be insufficient for failing to provide an adequate data base upon which to develop an FS for an overall Site remedy. In April 1991, NL Industries conducted a limited re-sampling of selected project groundwater monitoring wells for total (unfiltered) metals and hexavalent chromium and resubmitted "Batavia Landfill Site Remedial Investigation Report Final Draft" dated May 1992. NL Industries and EPA disagreed on the interpretation of the RI data. EPA then contracted with Alliance

Technologies, Inc. (subsequently renamed TRC Environmental Corporation, and hereinafter referred to as "TRC"), an EPA Technical Enforcement Support ("TES") contractor, which developed a Conceptual Hydrogeologic Model for the Site based upon EPA's interpretation of the RI data (the "EPA Groundwater Model"). The EPA Groundwater Model was incorporated into the final RI Report for the Site in place of the groundwater model developed by GZA for NL Industries. The EPA Groundwater model concludes that the Site poses a potential threat, via the ingestion of the ground water, to area residents living in the vicinity of the Landfill.

A residential well sampling/analyses survey conducted by the New York State Department of Health on homes along Pratt Road, within close proximity to the Landfill, have revealed the presence of 1,1,1-trichloroethane ("TCA") at 6 parts per billion ("ppb") and chloroform at 2 ppb in the potable water supply. These levels are below the federal Maximum Contaminant Level ("MCL") for TCA (200 ppb) and the proposed MCL of for chloroform (100 ppb). The New York State MCL for TCA, a principal organic contaminant, is 5 ppb, and the MCL for trihalomethanes (chloroform) is 100 ppb. EPA's Conceptual Groundwater Model, developed from accumulated RI data, concludes that the level of Site contaminants will continue to increase in the residential wells should the source, the Landfill, remain unremediated. No contamination was found at the wells sampled on Kelsey Road.

On March 31, 1993, EPA signed a Record of Decision ("ROD") selecting an interim remedy for the Site which consists of extending the local municipal water supply line to potentially impacted residences in the vicinity of the Landfill. On September 21, 1993, EPA issued a Unilateral Administrative Order to the PRPs directing them to implement this remedy. The waterline is currently being designed, and the construction is scheduled to begin in May of 1995.

On July 31, 1990, the following six PRPs entered into an administrative order on consent with EPA, agreeing to perform a removal of surface and semi-buried drums from the Site: Unisys Corporation, GTE-Sylvania, Eaton Corporation, R. E. Chapin Manufacturing Works, Inc., the Town of Batavia, and the City of Batavia. In the Summer of 1991, Blasland & Bouck Engineers, P.C., under contract with these six PRPs, removed 632 drums from the surface at the Site which amounted to 35.3 tons of contaminated solid wastes, 1,700 gallons of decontamination water, 27.1 tons of crushed drums, and 55 gallons of cyanide-bearing oils.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI report, the Feasibility Study report, and the Proposed Plan for the Site were released to the public for comment on August 8, 1994. These documents were made available to the public at two local information repositories maintained at the Richmond Library

and Town of Batavia Town Hall, in the Town of Batavia, New York. A third repository was located at the EPA Region II Office in New York City. The notice of availability for the above-referenced documents was published in the Batavia Daily News on August 8, 1994. The 30-day public comment period, originally from August 8, 1994 to September 7, 1994, was extended by an additional sixty days to November 7, 1994, in response to two written requests, dated August 25, 1994 and September 30, 1994, respectively, from the City of Batavia.

On August 18, 1994, EPA conducted a public meeting at the Batavia High School, in Batavia, New York. The purpose of the meeting was to inform local officials and interested citizens about the Superfund process, to present EPA's Proposed Plan for the remedial action at the Site, and to respond to any questions from area residents and other attendees. The comments received at the public meeting generally pertained to the status of the municipal water supply remedy mandated by the March 1993 ROD, and questions were raised on the potential of site-contaminants reaching the Village of Oakfield Wells, a municipal water supply wellfield located 3/4 of a mile to the north from the Landfill. Representatives on behalf of the Village of Oakfield requested that EPA develop a contingency plan for implementation in the event that Site contaminants migrate and impact these wells.

Responses to the comments received at the public meeting and written comments received during the public comment period are included in the attached Responsiveness Summary (see Appendix V).

SCOPE AND ROLE OF RESPONSE ACTION

The primary objectives of this action are to control the source of contamination at the Site and to reduce and minimize the migration of contaminants into Site media, thereby minimizing any health and environmental impacts.

In addition to the environmental impacts measured and documented concerning traditional site media (e.g., ground water, surface water, sediment, etc.), the RI identified sensitive wetland areas in and around portions of the Site. These water bodies receive drainage from the Landfill. As stated above, the Landfill is bordered on the north and east by the Galloway Swamp. The FS projected, for cost estimation purposes, that approximately 25,000 cubic yards of wetlands sediment may have to be excavated. This projection was based on NYSDEC sediment criteria. However, additional fieldwork is planned to complete an ecological assessment at the Site. The results of this pre-design ecological assessment may indicate that the area to be remediated is smaller or that no remediation of the wetlands is appropriate. The ecological assessment will also be used to avoid or mitigate potential impacts that the Landfill capping portion of the selected remedy may have on fish, wildlife and their habitats, and

especially the wetlands. The remedial design will be guided by the results of this ecological assessment so that sediment cleanup goals and implementation of the remedy will be protective of fish and wildlife. NYSDEC's technical screening guidance for evaluating sediment contamination at hazardous waste sites will be considered as cleanup goals.

SUMMARY OF SITE CHARACTERISTICS

The RI has confirmed the release of hazardous substances to the soil, sediment, and groundwater at the Site as a result of past hazardous waste disposal activities. Generally, the past disposal of wastes at the Site (see Figure 2) seems to have been haphazard. The following disposal areas have been identified at the Site through the RI process: (a) drummed wastes were buried in the southern area of the Landfill (the "buried drum area"); (b) chromium and magnesium sludges were disposed into a waste pit area in the southeast corner of the Landfill (the "waste pit area"); (c) magnesium fines were buried generally in the north-central area of the Landfill (the "magnesium fines area"); and (d) drums and some sediment were removed from the northern region of the Landfill during the 1991 drum removal action by the PRPs (drum area R), however, some contaminated soil may still remain.

Data collected during the RI have confirmed the following regarding the various media and areas of interest:

1. Groundwater

Sampling and chemical analyses reveal releases of total chromium (181 ppb), arsenic (251 ppb), lead (433 ppb), TCA (110 ppb), toluene (1,900 ppb), and methylene chloride (181 ppb) to the ground water at the Site. The levels of contaminants in the groundwater **(see Tables 4 and 5 in Appendix II)** can present both a carcinogenic and a noncarcinogenic risk to future consumers.

2. Soil, Sediments and Surface Water

The contamination to the soil is present but very irregular. This is attributed primarily to the generally haphazard nature of past disposal practices at the 35-acre Landfill. Sampling and chemical analyses results have shown, among many other things, the presence of total chromium (320,000 ppb), arsenic (83,800 ppb), lead (359,000 ppb), TCA (380 ppb), methylene chloride (1,100 ppb), and toluene (2,000 ppb) in the soil and sediment in the wetland areas. Analytical results from the Buried Drum Area in the southern portion of the Landfill (see Figure 2) revealed the presence of both organic and inorganic hazardous chemical constituents in the sediment. In this locality, toluene was the most frequently detected chemical constituent at 5,100,000 ppb. Other volatile organic constituents ("VOCs"), which were all detected at concentrations exceeding 10,000 ppb include acetone, xylene and ethylbenzene.

Chromium, copper, and lead were detected in all sediment samples taken in and around the Landfill during the RI. Lead, with a maximum detected concentration of 2000 milligram per kilogram ("mg/kg"), or 2,000,000 ppb within the sediment, exceeded EPA's screening level for residential soils of 400 mg/kg.

The Waste Pit Area sediment (see Figure 2) exhibited low levels of VOCs. Detected contaminants included methylene chloride, carbon disulfide, phenol. Several inorganic compounds frequently detected within the Waste Pit Area included aluminum, arsenic, barium, chromium, lead, and magnesium. Inorganic compounds with highly elevated concentrations in this area include aluminum (248,000 mg/kg), chromium (313,000 mg/kg) and magnesium (410,000 mg/kg).

The Magnesium Fines Area (see Figure 2) exhibited very high levels of magnesium (195,000 mg/kg) and barium (4,650 mg/kg) within the sediment. Arsenic (114 mg/kg) was also detected within this area. The Magnesium Fines Area is estimated to be approximately 7 acres.

The surface waters at the Site also exhibited persistent levels of heavy metal and volatile organic contamination. A total of eight different VOCs were detected in surface water samples collected during the RI. The most frequently detected VOCs within the surface waters were chloroethane and methylene chloride, both of which exceed the New York State ground water standards.

A total of 21 inorganic chemical constituents were detected in every surface water sample. Aluminum, barium, magnesium, and iron where among the metals detected within this medium. Concentrations of several inorganics greatly exceeded current ambient water quality criteria ("AWQC").

3. EPA Monitors Northernmost Wells at the Site

In response to concerns from the citizens, EPA is periodically monitoring the northernmost bedrock wells at the Site. Sampling results from November 1992 and February 1994 have confirmed that no contaminant plumes are migrating from the Landfill towards the Village of Oakfield wells located 3/4 of a mile to the north.

Site Hydrology

A preliminary conceptual model, based upon EPA's interpretation of the RI data gathered by GZA GeoEnvironmental of New York, was developed by EPA in August 1991. The following statements in this section summarize the hydrogeology of the Site:

- The upper 10 feet of bedrock is highly fractured, and hydraulic conductivity in the bedrock ranged from 1 to 70 feet/day. In the northern portion of the Landfill, the Onondaga limestone is overlain by a thick glaciolacustrine sequence of silt and clay, but this sequence is not continuous

across the Site. In other portions of the Landfill, the bedrock is overlain by the water bearing lower soil unit characterized by fine sands, silts, and gravels. The bedrock is likely to be highly permeable and is hydraulically connected to the unconsolidated overburden. The hydraulic connection between bedrock and overburden is evidenced by the discontinuity of the low permeability lenses and the fact that Site related contaminants have been detected in all hydrogeologic units on-site.

- The geometry of the low permeability layer is not well understood, especially in the central portion of the Landfill where it does not appear to be present based on well logs (see Figure 3). Discontinuous layers of silt and clay, varying in thickness between 1 and 30 feet, are present in the northern and southern portions of the Landfill. Because of the discontinuity of the low permeability lenses, the upper soil zones, the low soils zone, and the lower (bedrock) soils zone should be considered as one heterogeneous aquifer. The interconnectedness of the aquifer is demonstrated by the detection of Site contaminants in samples from wells screened at all depths.

  During the RI, data on vertical hydraulic gradients have been amassed from well clusters with screens in the shallow, intermediate, and deep portions of the aquifer. Review of water level elevation data indicates that in the western portion of the Landfill, vertical gradients are predominantly downward. In the eastern portion of the Landfill, they vary and may be downward to horizontal to slightly upward, as evidenced by the presence of water bodies (ponds) in and around the Landfill. The overburden ground water bearing zone is also hydraulically connected with the surface water bodies surrounding the Landfill.

  Based on the data provided for wells screened at or very near the water table, shallow ground water flow is generally to the south in the southern portion of the Landfill, to the east-northeast in the southern central portion of the Landfill, toward the east-southeast in the northern central portion of the Landfill. EPA estimates that flow is to the north in the northern part of the Landfill, towards the Galloway Swamp.

- Based upon vertical gradients observed in the well clusters, there is a strong component of downward ground water flow at most locations in the Landfill. Ground water flow is slightly upward on the east side of the Landfill and south of the adjacent former municipal landfill. This observation is consistent with the detection of VOCs in the shallow, intermediate, and bedrock aquifers at the Landfill. The fact that VOCs were detected in the bedrock wells on the eastern side of the Landfill supports the theory that contamination

is moving downward under the Landfill mound and laterally (eastward) towards Galloway Swamp.

SUMMARY OF SITE RISKS

Based upon the results of the RI, specifically the ground water data, a baseline risk assessment was conducted to estimate the risks associated with current and future site conditions. The baseline risk assessment estimates the human health risk which could result from the contamination at the Site if no remedial action were taken.

Human Health Risk Assessment

To perform a Human Health Risk Assessment, the reasonable maximum human exposure is evaluated. A four-step process is then utilized for assessing site related human health risks for a reasonable maximum exposure scenario:

Hazard Identification-- identifies the contaminants of concern ("COCs") at the Site based on several factors such as toxicity, frequency of occurrence, and concentration.

Exposure Assessment-- estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed.

Toxicity Assessment-- determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response).

Risk Characterization-- summarizes and combines output of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks (e.g., one-in-a-million excess cancer risk).

The baseline risk assessment began with selecting contaminants of concern which would be representative of site-related risks. Results from the RI sampling at the Site indicate that ground water, soil, surface waters, and sediments are contaminated with a combination of VOCs, base neutral acids, and inorganic compounds. As part of the RI, air quality monitoring was performed with field instruments during test pit boring activities. In general, the results of the explosimeter and organic vapor testing revealed explosivity that was below 1 percent of the Lower Explosivity Limit, and the organic vapors measured at the Site during test pit drilling activities exceeded background by less than 0.5 parts per million. Therefore, no evidence of significant air impacts have been noted.

The human health risk assessment evaluated current and potential future exposure to contaminants in the ground water, soil/waste, surface water, sediments, and leachate seeps (see tables in Appendix II). Ground water risks were evaluated in a risk assessment conducted in 1992 by TRC, an EPA contractor, to address ground water quality in the immediate vicinity of the Landfill. This risk assessment resulted in EPA signing an interim action Record of Decision for the groundwater in 1993. TRC conducted another risk assessment in 1994 that addressed contaminated soil, surface water/leachate, and sediments.

On the basis of current and future land use information, residential development of areas adjacent to the Landfill is possible. In addition, contaminated ground water at the Site may reach residential areas to the south of the Landfill in the future. The risk assessment evaluated exposures to residents and workers who may come on the Site. Exposure pathways included in the overall quantitative risk assessment effort include:

. Ingestion of ground water;

. Ingestion of soil/waste and sediment; and,

. Dermal contact with soil/waste and sediment.

Risks attributable to dermal contact with soil/waste and sediments were assessed for current and future residents and future excavation workers. In accordance with current OSWER and EPA Region II guidance, the quantitative risk assessment for dermal contact was limited. The high degree of uncertainty in the input parameters for this pathway forces us to limit the quantification of dermal risks to the following three contaminant types: cadmium, PCBs, and dioxins. Only cadmium was detected at the site and the noncarcinogenic risks were found to be below an HI of 1.0. In addition risks associated with exposure to surface water and liquid leachate seeps were addressed qualitatively.

Results of the health risk assessment reveal that significant carcinogenic and noncarcinogenic risks would exist in the future should contaminants detected in the ground water at the Site reach private drinking water supplies downgradient of the Landfill. The total carcinogenic risk associated with the ingestion of ground water, 1.2×10^{-3}, exceeds EPA's target risk range of 10^{-4} to 10^{-6}, which means that approximately one in a thousand adults or children could potentially develop cancer over a 30-year exposure period from ingesting ground water at the Site.

The two chemicals present at the Site which drive the carcinogenic risk are:

- vinyl chloride (maximum concentration = 7.2 ppb in well MW 01), and;

- arsenic (maximum concentration = 167 ppb in well MW 04).

Both vinyl chloride and arsenic are classified by EPA as human Class A carcinogens. Vinyl chloride was detected in 3 of 21 ground water samples for which results were available; arsenic was detected in 11 of 15 ground water samples. Thirteen other contaminants produced carcinogenic risks greater than 10^{-6} but less than 10^{-4}.

To assess the overall potential for noncarcinogenic effects posed by one or more than one contaminant, EPA has developed a hazard index ("HI"). This index measures the assumed exposures to several chemicals simultaneously at low concentrations which could result in an adverse health effect. When the HI exceeds one (1.0), there may be concern for potential noncarcinogenic effects.

The acute noncarcinogenic HI associated with on-site ground water ingestion was 5.4 and the chronic HI was 26.8, indicating the potential for significant noncarcinogenic effects.

Because no toxicity value is currently available for lead, ground water concentrations were compared with the EPA action level for drinking water. For the wells evaluated in this risk assessment, the maximum concentration for lead in the ground water (433 ppb), the upper 95 percent confidence limit concentration (196 ppb), and the geometric mean concentration (23 ppb) all exceed EPA's action level of 15 ppb.

Significant carcinogenic risks (2×10^{-4}) are also associated with the ingestion of site sediment. The risk value is driven by a combination of poly-aromatic hydrocarbons, although chrysene produces the highest risk value (1×10^{-4}). The highest concentrations of chrysene and other poly-aromatic hydrocarbons were detected along the mid-western side of the Landfill. Ingestion of sediment resulted in a noncarcinogenic HI of one (1.0). Sediment lead concentrations, with a maximum concentration of 1220 mg/kg, exceeded EPA's screening level for residential soils of 400 mg/kg.

Carcinogenic risks associated with incidental ingestion of subsurface soils during future excavation at the Waste Pit Area were within EPA's acceptable risk range. The total ingestion risk was 5×10^{-6}. The noncarcinogenic HI of 6.0 exceeded 1.0.

Other risks associated with exposure to contaminants in soils, sediments, surface waters, and leachate seeps were deemed insignificant.

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:

- Degree of characterization of contamination in all media;
- Process used to select COCs;
- Availability of toxicity data of certain COCs;
- Future land use;
- Exposure parameter values; and,
- Availability of sufficient background data.

In general, the risks presented herein are likely to be conservative estimates of true risks. The ground water scenario conservatively assumes that contaminants detected in the ground water under the Landfill will migrate without any attenuation. In addition, the exposure parameters used to characterize the reasonable maximum exposure in this assessment are health protective values.

REMEDIAL ACTION OBJECTIVES

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 primary objectives of this action are to control the source of contamination at the Landfill and to reduce and minimize the migration of contaminants into Site media, thereby minimizing any health and ecological impacts.

The following remedial action objectives were established for the Site:

* Preventing direct contact with Landfill contents;

* Controlling surface water runoff and erosion;

* Collecting and treating any Landfill leachate;

* Controlling Landfill gas;

* Preventing the infiltration of contaminants into ground water; and

* Remediating contaminated wetland areas, as appropriate.

DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA mandates that a remedial action must be protective of human health and the environment, be cost effective, and utilize

permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. It also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, and contaminants at a site. CERCLA further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified. The FS Report evaluated in detail ten remedial alternatives for addressing the contamination associated with the Site. Estimates for the various construction times include only the time needed to construct or implement the remedy. It does not include any time required for the design of the remedy, negotiations with the responsible parties, or award of contracts, all of which, depending upon the selected remedy, may involve up to two years. Additionally, the alternative costs are based upon researched construction costs for the Western New York/Niagara area. In accordance with Section 121 of CERCLA, EPA must review any remedial action that results in hazardous substances remaining at the Site above health based limits at least once every five years to assure that the remedy selected continues to be protective of human health and the environment. All of the alternatives set forth below will require such a review every five years. The remedial alternatives are:

Alternative 1: No Action

The Superfund program requires that the "No Action" alternative be considered as a baseline for comparison of other alternatives. Under this Alternative, no clean-up or mitigation measures would be taken at the Site, and the Landfill would be left in its current state. An annual ground water monitoring program utilizing existing and proposed wells at the Site would be implemented to monitor the potential migration of ground water. Sediment sampling (annually) would also be included with the ground water monitoring program. Ground water and sediment samples would be collected for 30 years, or until it is determined to be no longer necessary during the 5-year review process. Under the no-action alternative, the potential for off-site migration of contaminated ground water would continue.

Capital Cost: $52,198
O & M Cost: $46,040/yr (30 yrs)
Present Worth Cost: $759,946
Construction Time: 6 months

Alternative 2: Sediment Cover

This Alternative (see Figure 4) includes all the components of Alternative 1 (i.e., monitoring of sediment and ground water quality etc.,) plus perimeter fencing, institutional controls, a

soil cover over selected areas (such as drainage ditches and portions of the surrounding wetlands), the construction of drainage swales and retention basins. The soil cover in designated areas would include 18 inches of clean fill followed by six inches of seeded topsoil.

Capital Costs: $1,675,218
O & M Costs: $57,460/yr
Present Worth: $2,525,390
Construction Time: 6 months

Alternative 3 - Sediment Cover and In-situ Treatment of Buried Drum Area and Waste Pit Area Soils

Alternative 3 includes in-situ stabilization of the buried drum area (in the southern portion of the Site) and waste pit area soils, in addition to all the components of Alternative 2.

Capital Costs: $3,887,218
O & M : $57,460/yr (30 yrs)
Present Worth: $4,737,390
Construction Time: 1 year

Alternative 4: Landfill Soil Cap

This Alternative (see Figure 5) includes all the components of Alternative 2. Contaminated wetland sediment, currently estimated at 25,000 cubic yards, would be consolidated on-site, and the entire Landfill would be covered with 12 inches of low permeability soil fill and six inches of seeded topsoil. The amount of wetland sediment to be excavated would be determined at the conclusion of a pre-design ecological assessment. In addition to the Landfill cover, a Landfill gas monitoring system would be instituted, and additional groundwater monitoring wells would be installed to track potential contaminant migration.

Capital Costs: $3,902,842
O & M : $136,560/yr (30 yrs)
Present Worth: $5,095,476
Construction Time : approximately 2 years

Alternative 5: Sediment Cover, Excavation and Treatment of Buried Drum Area and Waste Pit Area Soils

This Alternative is similar to Alternative 3 except that the buried drum area and waste pit area soils would be excavated prior to treatment on-site. Treatment of the buried drum area (in the southern portion of the Landfill) and waste pit area soils includes low temperature thermal stripping to remove VOCs and base neutral acids, followed by cement-based stabilization to immobilize the inorganic constituents (metals/ionic compounds). A treatability

study would be performed to determine both the optimum operating conditions and reagents for the low temperature thermal stripping and waste stabilization processes, respectively. Following treatment, the waste would be returned to its original location and covered with one foot of soil fill and six inches of seeded topsoil.

Capital Cost: $11,320,854
O & M: $57,460/yr (30 yrs)
Present Worth: $12,171,130
Construction Time: 2 years

Alternative 6 - Sediment and Waste Consolidation and New York State Part 360 Landfill Cap

This Alternative contains the components of Alternative 2 (i.e., monitoring, fencing, institutional controls, and the construction of drainage swales and retention basins), and in addition it requires the construction of a landfill capping system consistent with the requirements of New York State Regulations set forth at 6 NYCRR Part 360 in an effort to prevent or minimize the migration of contaminants from the Site.

Common to all of the following three sub-alternatives under Alternative 6 is the requirement that the buried drums containing hazardous substances in the southern area of the Landfill (estimated in number at approximately 150) be excavated and transported off-site for treatment and disposal prior to construction of the 6 NYCRR Part 360 landfill capping system. Also, for purposes of estimating the cost of the various sub-alternatives, it was assumed based on NYSDEC sediment/soil criteria that as much as 25,000 cubic yards of contaminated sediments would be excavated from the wetlands for disposal under a landfill cap in the southern area. However, as stated above, one of the objectives of the planned pre-design ecological assessment is to determine the impact of the Landfill on the wetlands. The results of the ecological assessment may indicate that the area to be remediated is smaller, larger, or that remediation of the wetlands is not appropriate. Information obtained during the ecological assessment will also be used to avoid or mitigate any impacts that remedial action may have on the fish, wildlife, and their habitats.

Alternative 6 also includes the construction of a passive gas venting system as part of the Landfill design requirements. For purposes of this evaluation, it is anticipated that any leachate disposal would occur off-site. However, the exact disposal option would be determined during the remedial design, based upon such factors as technical practicability of leachate treatment by the POTW and cost. The following are the three sub-alternatives of Alternative 6:

Alternative 6A - Consolidation of Central Areas into Northern and

Southern Areas with 6 NYCRR Part 360 Landfill Cap

This Alternative (see Figure 6) includes consolidating approximately 125,000 cubic yards of soil from the central area of the Landfill into the northern and southern areas where two landfill caps will be constructed in accordance with the requirements of 6 NYCRR Part 360. A wetlands mitigation area would be constructed in the central area of the Site to replace the wetlands that would be destroyed by capping the northern area. It is estimated that approximately 4,500 gallons per day of leachate will be generated as a result. Under this Alternative, the northern area of the Landfill would be dewatered to facilitate the construction of the landfill cap in that area.

Capital Cost: $11,240,689
O & M Cost: $385,960/yr (30 yrs)
Present Worth: $17,140,731
Construction Time: 2 years

Alternative 6B - Consolidation of Magnesium Fines Area and Drum Area R into Southern Area with 6 NYCRR Part 360 Cap

This Alternative includes removing the magnesium fines area and the drum area R (estimated to contain approximately 50,000 cubic yards of material), located in the northern area of the Landfill, and consolidating these wastes into the southern area of the Landfill. After consolidation, a landfill cap satisfying the requirements of 6 NYCRR Part 360 would be constructed (see Figure 7) over the southern area of the Landfill. The northern area of the Landfill would be graded, filled with topsoil, and seeded for a vegetative cover. It is estimated that approximately 3,400 gallons per day of leachate will to be generated under this Alternative.

Capital Cost: $8,129,084
O & M Costs: $305,660/yr. (30 yrs)
Present Worth $12,370,514
Construction Time: 2 years

Alternative 6C - Consolidation of All Northern Waste and Central Areas into the Southern Area with 6 NYCRR Part 360 Landfill Cap

Alternative 6C is similar to Alternative 6B. However, this Alternative includes excavating the central area of the Landfill as well as the northern areas of the Landfill (in total, estimated to contain approximately 250,000 cubic yards of material) and consolidating these materials into the southern area of a Landfill where a landfill cap satisfying the requirements of 6 NYCRR Part 360 would be constructed. A wetlands mitigation area would be constructed in the central area of the Site to replace the wetlands that would be destroyed by excavating such an extensive amount of material in the northern area. Under this Alternative, the

northern area would be dewatered to facilitate excavation.

Capital Cost: $11,267,184
O & M Costs : $305,660/yr (30 yrs)
Present Worth: $15,932,814
Construction Time : 2 years

Alternative 7 - Landfill Soil Cap with Excavation and Treatment of the Buried Drum Area Soils and In-Situ Stabilization of Waste Pit Area Soils

Alternative 7 retains all the aspects of Alternative 4 in addition to including the excavation and treatment of the buried drum area soils and the in-situ stabilization of the waste pit area soils. Possible technologies for the treatment of the buried drum area soils, which primarily contain volatile and semi-volatile organic constituents, include low temperature thermal stripping or off-site incineration. A treatability study would be performed during the remedial design phase to determine the optimal thermal treatment. The in-situ stabilization process for the waste pit area would involve the in-place mixing of the wastes into a cement-like matrix so as to immobilize the heavy metal constituents therein (i.e. chromium, magnesium, etc.).

Capital Cost: $13,104,958
O & M Costs: $139,260
Present Worth: $14,309,287
Construction Time 2 years

Alternative 8 - Sediment and Waste Consolidation, Landfill Cap with the Excavation and Treatment of Buried Drum Area Soils and In-Situ Stabilization of Waste Pit Area Soils.

This Alternative includes all the components of Alternative 6A in addition to including the treatment technologies of Alternative 7. Under this Alternative, contaminated soil and sediment from the central portion of the Landfill would be excavated and consolidated into the northern and southern areas and covered with two landfill caps which satisfy the requirements of 6 NYCRR Part 360. The buried drum area in the south would be excavated and treated, and the waste pit area soils in the south would be stabilized in-situ.

Capital Cost: $20,443,205
O & M Cost: $385,960/yr (30 yrs)
Present Worth: $26,343,247
Construction Time: 2 years

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In accordance with the NCP, a detailed analysis of each alternative is required. The detailed analysis consists of an assessment of the individual alternatives against each of nine evaluation

criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The following "threshold" criteria must be satisfied by any alternative in order to be eligible for selection:

•

1. *Overall protection of human health and the environment*, which addresses whether 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*, which addresses whether or not a remedy would attain the applicable (legally enforceable), or relevant and appropriate federal and state environmental statutes and requirements (requirements that pertain to situations sufficiently similar to those encountered at a Superfund site such that they are well suited to the Site), or provide sufficient grounds for invoking a waiver.

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

3. *Long-term effectiveness and permanence*, which addresses the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals of the selected remedy 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 via treatment*, which addresses the ability of a remedial technology to reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants at the Site.

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

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

7. *Cost*, which estimates the capital and operation and maintenance costs, as well as the present-worth costs.

The following "modifying" criteria are considered after the formal

public comment period on a proposed plan is complete:

8. *State acceptance*, which considers whether, based on its review of the RI/FS and the proposed remedy, the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. *Community acceptance*, which considers the public's general response to the alternatives described in a proposed remedy and the RI/FS reports. Factors of community acceptance to be discussed include support, reservation, and opposition by the community at large.

A comparative analysis of the remedial alternatives follows, based upon the evaluation criteria noted above.

o Overall Protection of Human Health and the Environment

With the exception of Alternative 1, the No Action Alternative, all of the alternatives provide some degree of protection of human health and the environment. However, Alternatives 6A, 6B, and 6C and 8 provide the highest level of protection because they include a more protective landfill cap consistent with the requirements of the New York State landfill closure regulations set forth at 6 NYCRR Part 360, as well as providing some level of treatment for various hot spot areas. Of the remaining alternatives other than Alternative 1 (Alternatives 2, 3, 4, 5 and 7), Alternative 2 is the least protective because it does not include any treatment, nor does it include any type of Landfill capping.

o Compliance with ARARs

There are a number of types of Applicable or Relevant and Appropriate Requirements: action-specific, chemical-specific, and location-specific. Action-specific ARARs are technology or activity-based requirements or limitations related to various activities. Chemical-specific ARARs are usually numerical values which establish the amount or concentrations of a chemical that may be found in, or discharged to, the ambient environment. Location-specific ARARs are restrictions placed on the concentrations of hazardous substances or the participation in certain activities solely because of the location of the substances or activities.

The principal action-specific ARARs for the Site include the New York State landfill closure requirements set forth at 6 NYCRR Part 360, the State Pollutant Discharge Elimination System requirements for the discharge of treatment system effluent, federal Guidelines and Standards for effluent discharge to a POTW, and State regulations for the control of surface water runoff. Alternatives 6A, 6B, 6C and 8 will require the installation of a cap consistent with the 6 NYCRR Part 360 requirements, and thus comply with this ARAR. Alternatives 1, 2, 3, 4, 5, and 7 do not require the

installation of a landfill cap consistent with 6 NYCRR Part 360, and thus they do not comply with this ARAR and are therefore inconsistent with this requirement of the NCP.

Chemical specific ARARs at the Site include State and Federal MCLs. None of the Alternatives will immediately restore the on-site groundwater to MCLs. However, the Alternatives are ranked in accordance with how effective each would be in preventing further groundwater contamination and migration which relates to the type of cap that is installed. Alternatives 1 and 2 would not effectively reduce the likelihood of contaminant migration from the Landfill and, as such, rank low in attaining chemical specific ARARs. Alternatives 3, 4, 5 and 7, although treating on-site wastes in various capacities, rank as medium because of the absence of the possibility of a leachate control system; also the absence of a 6 NYCRR Part 360 landfill cap will not as effectively reduce the infiltration of precipitation, and a greater potential exists for the migration of Site contaminants to the surrounding environment. Alternatives 6A, 6B, 6C and 8 include landfill caps consistent with 6 NYCRR Part 360 and any necessary leachate controls, and therefore they meet this criterion the best. By constructing a proper cap and collecting and treating leachate, the Landfill will no longer be acting as a source of contamination to the ground water and the remaining contaminated ground water will naturally attenuate over time.

Principal location specific ARARs, with which all alternatives would have to satisfy, include the Federal Protection of Wetlands Executive Order 11990, New York Code of Rules and Regulations Wetlands Permit (6 NYCRR Part 663), Fish and Wild Life Coordination Act regulations (40 CFR 6.302), the Protection of Floodplains (40 CFR 6, Appendix A) and the Floodplain Disaster Act of 1973. Construction of a 6 NYCRR Part 360 landfill cap would result in the net loss of surrounding wetlands that would require mitigation; any action taken at the Site would require compliance with Executive Order 11990 and 6 NYCRR Part 663.

- o Long-Term Effectiveness and Permanence

A landfill cap satisfying the 6 NYCRR Part 360 requirements is a reliable remedial measure that, when properly designed and installed, is highly effective in the long term. Provided that they are properly maintained, Alternatives 6A, 6B, 6C and 8 would rank highest in this category. Direct contact with landfill contents would be eliminated, and leachate generation and migration would be significantly reduced, thus minimizing the potential for continued surface water and sediment contamination. Alternatives 1, 2, 3, 4, 5 and 7 would rank low in long-term effectiveness primarily because these Alternatives do no not employ a proper landfill cap, and thus would not effectively protect human health or the environment in the long term.

- o Reduction in Toxicity, Mobility, or Volume

Alternative 8 would rank the highest in reducing the toxicity, mobility and volume of wastes at the Site because it involves both treatment of "hot spots", which reduces toxicity and mobility, and construction of a cap consistent with 6 NYCRR Part 360, which limits mobility. Alternative 6B and Alternative 6C would be effective in limiting mobility by the excavation of the magnesium fines area and drum area R for disposal under a 6 NYCRR Part 360 cap in the southern area of Landfill where the surface elevation is high and significantly above the water table. All of the Alternative 6 remedies also include the off-site disposal of buried drums, which will reduce the toxicity, mobility, and volume of contaminants at the Site. Alternatives 3, 5, and 7 include treatment of "hot spots" and therefore reduce the toxicity and mobility of these "hot spots". However, these alternatives do not include provisions for the remaining waste at the Landfill, therefore they would not rank as high with respect to this criterion. Alternatives 1, 2, and 4 rank the lowest with respect to this criterion because they include no treatment nor would they be effective in limiting the mobility of the waste over time.

- o Short-Term Effectiveness

The installation of a cap or soil cover in Alternatives 3, 4, 5, 6A, 6B, 6C, 7 or 8 would not result in any short term impacts which can not be readily mitigated and controlled. There would, however, be an increase in traffic flow along local roads with these Alternatives.

Short-term risks to workers would exist from fugitive emissions during the excavation and treatment of on-site "hotspots", such as the Magnesium Fines Area, Buried Drum Area, and Waste Pit Area. However, these risks could be properly mitigated through the implementation of a Site-specific Health and Safety Plan for all workers.

Alternatives 1 and 2 have the highest short-term effectiveness as they would not require the movement of any waste and would take the least amount of time to implement. Alternatives 3, 4 and 6A would not rank as high with respect to this criterion primarily because these alternatives involve comparatively limited excavation of on-site wastes. Alternatives 5, 6B, 6C, 7, and 8 would rank low because of the length of construction time (2 years) and the greater degree of excavation of Site wastes during the remedial construction phase.

- o Implementability

All of the Alternatives are implementable from an engineering perspective. Each Alternative utilizes commercially available products, technologies, and services.

The No Action Alternative and Alternative 2 would not present implementation difficulties and would thus rank the highest in this category. Alternatives 3, 4, 5 and 7 do not involve the installation of 6 NYCRR Part 360 landfill capping system and, as such, would not rank as high with respect to this criterion. Alternatives 6A, 6B, 6C and 8, which involve the construction of a 6 NYCRR Part 360 capping system, would rank the lowest in this category.

Alternatives 6A and 8, which would require the dewatering of the nearby surface water bodies during remedial construction, are the most difficult Alternatives to implement because a cap would be constructed in the northern area of the Site where the groundwater table is high.

o Cost

In comparing estimates of present worth costs, Alternatives 1, 2 and 3 represent the lowest projected costs at $759,946, $2,525,390 and $4,737,390, respectively. Alternatives 4 and 5 are projected at $5,095,476 and $12,171,030, respectively. Alternatives 6A, 6B, 6C, 7 and 8 represent the highest projected costs at $17,140,731, $12,370,514, $15,932,814, $14,309,287 and $26,343,247, respectively.

o State Acceptance

The State of New York concurs with the remedy selected in this Record of Decision.

o Community Acceptance

As state above, EPA conducted a public meeting at the Batavia High School in Batavia on August 18, 1994. The purpose of the meeting was to inform local officials and interested citizens about the Superfund process, to present EPA's Proposed Plan for the remedial action at the Site, and to respond to any questions from area residents and other attendees. The comments received at the public meeting generally pertained to the status of the municipal water supply remedy mandated by the March 1993 ROD, and questions were raised on the potential of site-contaminants reaching the Village of Oakfield Wells, a municipal water supply wellfield located 3/4 of a mile to the north from the Landfill. Representatives on behalf of the Village of Oakfield requested that EPA develop a contingency plan for implementation in the event that Site contaminants migrate and impact these wells.

Responses to the comments received at the public meeting and written comments received during the public comment period are included in the attached Responsiveness Summary (see Appendix V).

SELECTED REMEDY

Based upon the results of the RI and FS Reports, and after careful consideration of the alternatives in the FS, EPA and NYSDEC select Alternative 6B (Consolidation of Magnesium Fines Area and Drum Area R into the Southern Area with 6 NYCRR Part 360 Landfill Cap) as the preferred remedy for the Site. Specifically, the selected remedy includes the following:

1) Excavation of contaminated soil from drum area R, and the magnesium fines area (estimated to be approximately 7-acres in area) in the northern portion of the Landfill, and consolidating these materials under a landfill cap in the southern area of the Landfill. Moving the wastes from the northern area of the Landfill, where the ground water is shallow, to the higher terrain of the southern area will also help to minimize the migration of hazardous constituents to the ground water and surrounding wetlands.

2) Subsequent grading of the northern area of the Landfill, filling it with clean topsoil, and seeding it for a vegetative cover.

3) Excavation of the drums of hazardous substances from the southern area of the Landfill, which are estimated in number to include approximately 150 drums, and the transportation of these materials off-site for treatment and disposal.

4) Capping the southern region of the Landfill with a NYS Solid Waste Standard Cap designed and constructed in accordance with the substantive requirements of 6 NYCRR Part 360-2.13(q), which includes a minimum of 18 inches of compacted clay liner with a post-compacted maximum remolded coefficient of permeability of 10^{-7} cm/sec throughout its thickness (a minimum thickness of 40 mil geomembrane), a 24 inch barrier protection layer of soil, and 6 inches of topsoil suitable to maintain vegetative growth, or an equivalent design as permitted pursuant to the regulations (6 NYCRR Part 360-2.13(w)). Grading of the Landfill will be based upon the final capping configuration determined during the remedial design phase.

5) An explosive gas survey will be performed to determine the need for constructing a passive gas venting layer or trench system underlying the low permeability cap material. The gas venting system would be located beneath impermeable clay so as to increase its effectiveness in controlling horizontal gas migration.

6) Construction of a leachate collection system. The leachate collection system will be designed consistent with the requirements of 6 NYCRR Part 360 to provide a physical barrier to the migration of leachate from the Landfill, with appropriate pumping or other forms of leachate collection. It has been estimated that approximately 3,400 gallons per day of landfill leachate may be generated

and collected for transportation and eventual off-site disposal.

7) Performance of a pre-design ecological assessment to define impacts of the Landfill and the proposed cap on fish, wildlife, and associated habitats (especially wetlands). This information will be used to determine whether any wetland excavation is advisable to best protect fish and wildlife, and if the assessment is determined to be necessary, the information will be used to determine the extent of appropriate action. Any sediments excavated as a result of ecological considerations will be placed under the cap. In constructing the cap, a portion of the wetlands may be impacted. The ecological assessment will also be used to design and to construct the remedy in such a way as to minimize any adverse impacts to the wetlands caused by the remedy. The selected remedy also requires that any damage to wetlands or wetlands function will be mitigated.

8) EPA will recommend to local agencies that institutional controls be undertaken to ensure that future land use at the Site is restricted so as to preclude certain uses of the Site, such as restricting certain types of access to the Landfill and eliminating groundwater use for human consumption at the Site.

9) Implementation of long-term operation and maintenance of the Landfill cap systems, including providing for inspections and repairs.

10) An evaluation of Site conditions no less than each five years to determine if the selected alternative is protective of human health and the environment.

EPA believes that the selected remedy provides the best balance among the alternatives considered according to the evaluation criteria. Alternative 6B will be highly protective of both human health and the environment and will comply with ARARs. The remedy is cost effective and will permanently reduce the toxicity, mobility, and volume of contaminants by reducing infiltration through the landfilled wastes and address any leachate. In addition, it involves treating the hazardous substances excavated from the buried drum area.

STATUTORY DETERMINATIONS

As previously noted, CERCLA mandates that a remedial action must be protective of human health and the environment, cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. CERCLA also establishes a preference for remedial actions which employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site. CERCLA further specifies that a remedial action must attain a degree of cleanup

that satisfies ARARs under Federal and state laws, unless a waiver can be justified.

For the reasons discussed below, EPA has determined that the selected remedy meets the requirements of CERCLA.

Protection of Human Health and the Environment

The selected remedy is protective of human health and the environment. Contact with landfilled wastes will be eliminated through capping, any landfill gases will be controlled through venting, and potential contaminant migration through surface water and ground water to the surrounding environment will be effectively addressed by the collection and treatment of leachate.

Compliance with ARARs

The selected remedy complies with all ARARs identified. Action-specific ARARs for the selected remedy include 6 NYCRR Part 360 requirements, federal requirements for effluent discharge to a POTW (40 CFR Part 403), state regulations for the control of surface-water runoff, federal and state air ARARs (40 CFR 50 and 6 NYCRR Part 373, respectively). Landfill closure will also comply with all provisions of RCRA hazardous waste landfill closure regulations which are relevant and appropriate to the Site. Location-specific ARARs for the selected remedy include Section 404 of the Clean Water Act, as amended, New York Code of Rules and Regulations Wetlands Permit (6 NYCRR Part 663), the Coastal Zone Management Act, the Protection of Floodplains (40 CFR 6, Appendix A), the Floodplain Disaster Act of 1973, Fish and Wild Life Coordination Act, and the Farmland Protection Policy Act. While construction of a landfill satisfying the substantive requirements of 6 NYCRR Part 360 will result in the net loss of surrounding wetlands, any action taken at the Site will include mitigating these effects as required by Executive Order 11990 and the regulations set forth in 6 NYCRR Part 663.

Cost-Effectiveness

The selected remedy is cost effective because it has been demonstrated to provide the best overall effectiveness proportional to its cost.

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

The selected remedy utilizes permanent solutions and treatment technologies to the maximum extent practicable. The selected remedy provides the best balance of trade-offs among the alternatives with respect to the evaluation criteria.

Preference for Treatment as a Principal Element

The selected remedy does satisfy the statutory preference for remedies that use treatment to reduce the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants at a site. Buried on-site drums will be excavated and removed for off-site treatment and disposal.

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

DOCUMENTATION OF SIGNIFICANT CHANGES

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

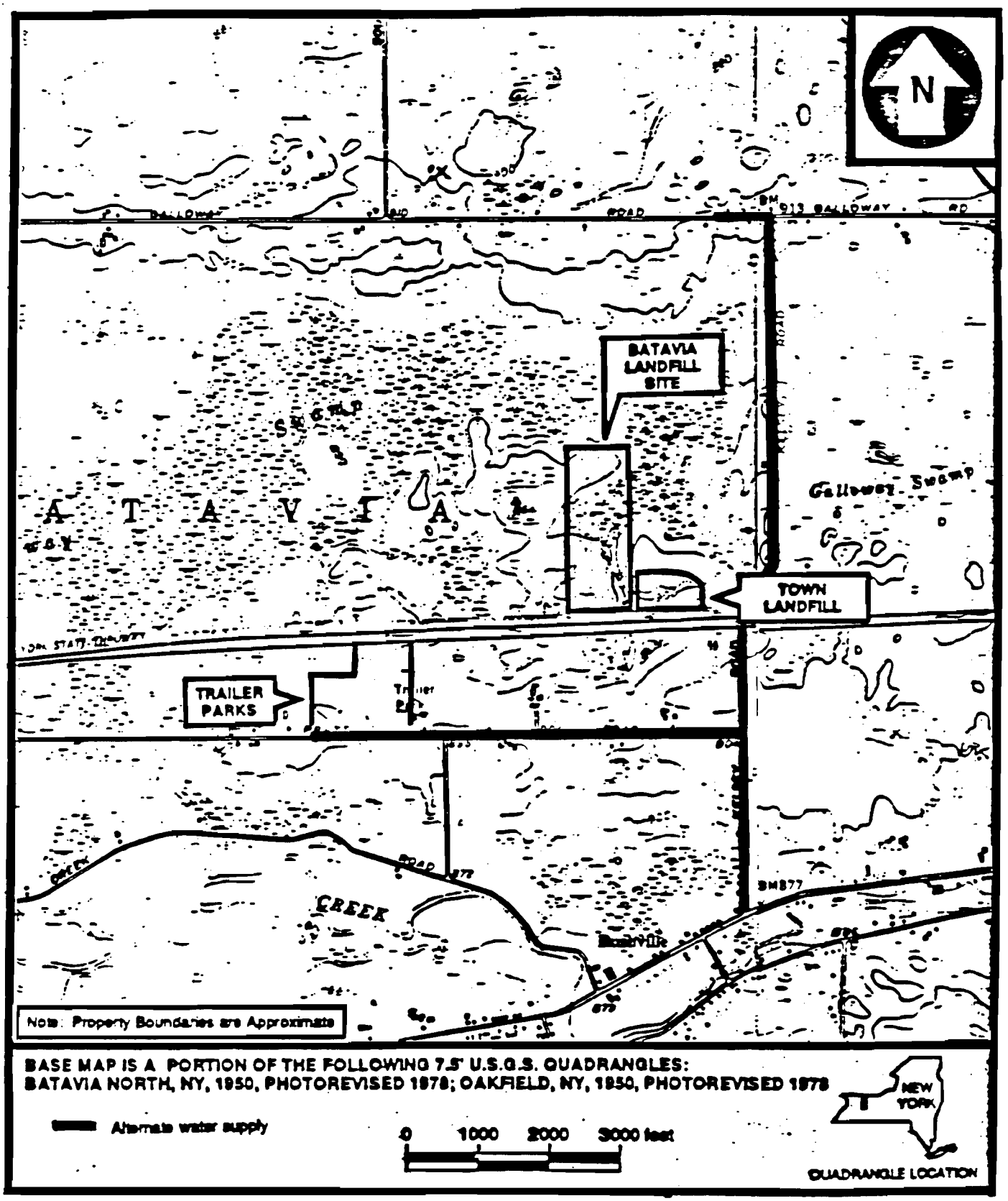

N
BATAVIA LANDFILL SITE
TOWN LANDFILL
TRAILER PARKS
Gallower Swamp
CREEK
Note: Property Boundaries are Approximate
BASE MAP IS A PORTION OF THE FOLLOWING 7.5' U.S.G.S. QUADRANGLES:
BATAVIA NORTH, NY, 1950, PHOTOREVISED 1978; OAKFIELD, NY, 1950, PHOTOREVISED 1978
Alternate water supply
0 1000 2000 3000 feet
NEW YORK
QUADRANGLE LOCATION

FIGURE 1

SITE PLAN AND WASTE DISPOSAL AREAS

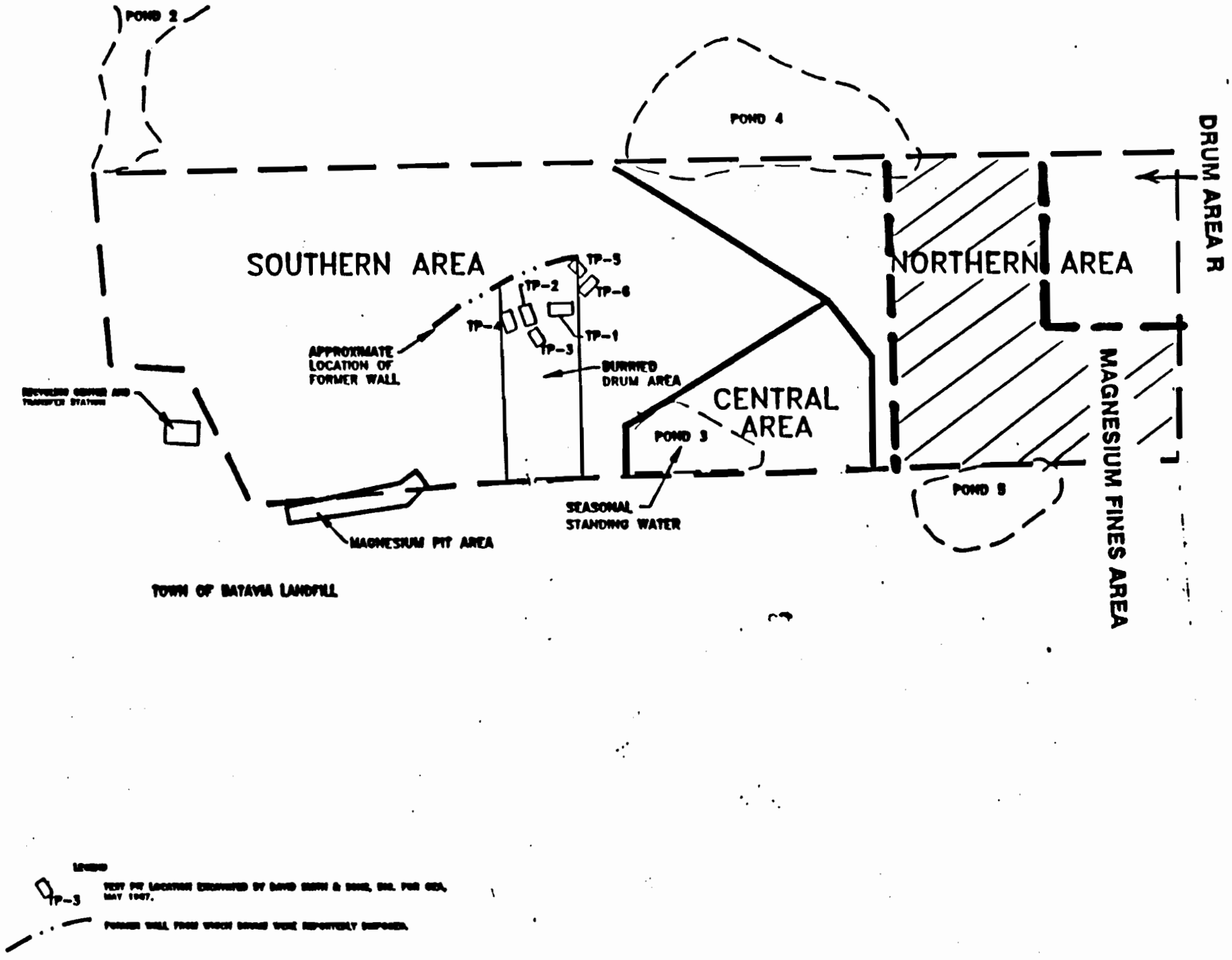
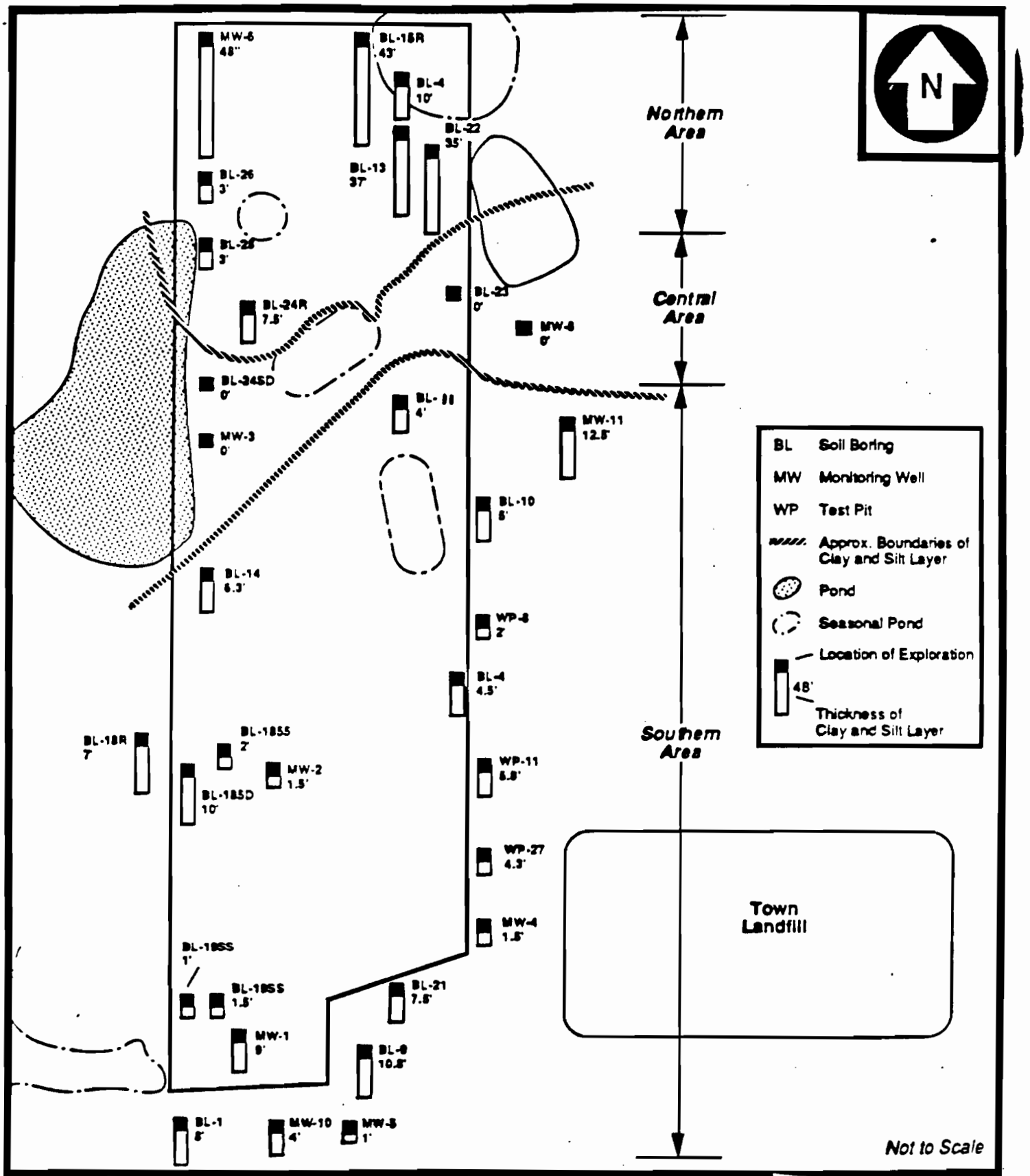


FIGURE 2

BATAVIA LANDFILL SUPERFUND SITE



DISTRIBUTION AND THICKNESS OF CLAY AND SILT LAYER THROUGHOUT

BATAVIA LANDFILL SITE
BATAVIA, NEW YORK

FIGURE 3

8575 1/W

ALTERNATIVE 2: SEDIMENT COVER

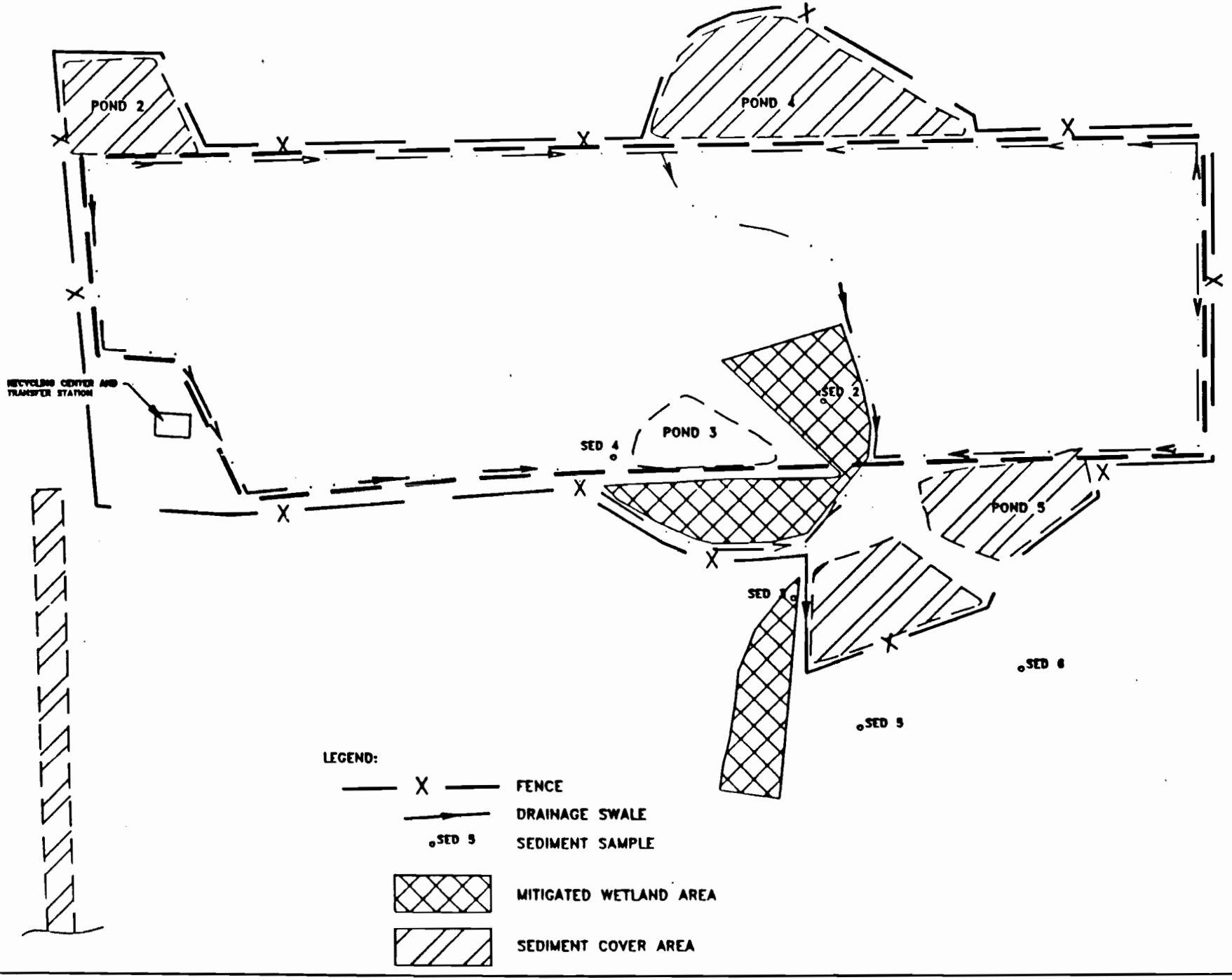


FIGURE 4

ALTERNATIVE 4: LANDFILL SOIL CAP AND SEDIMENT COVER

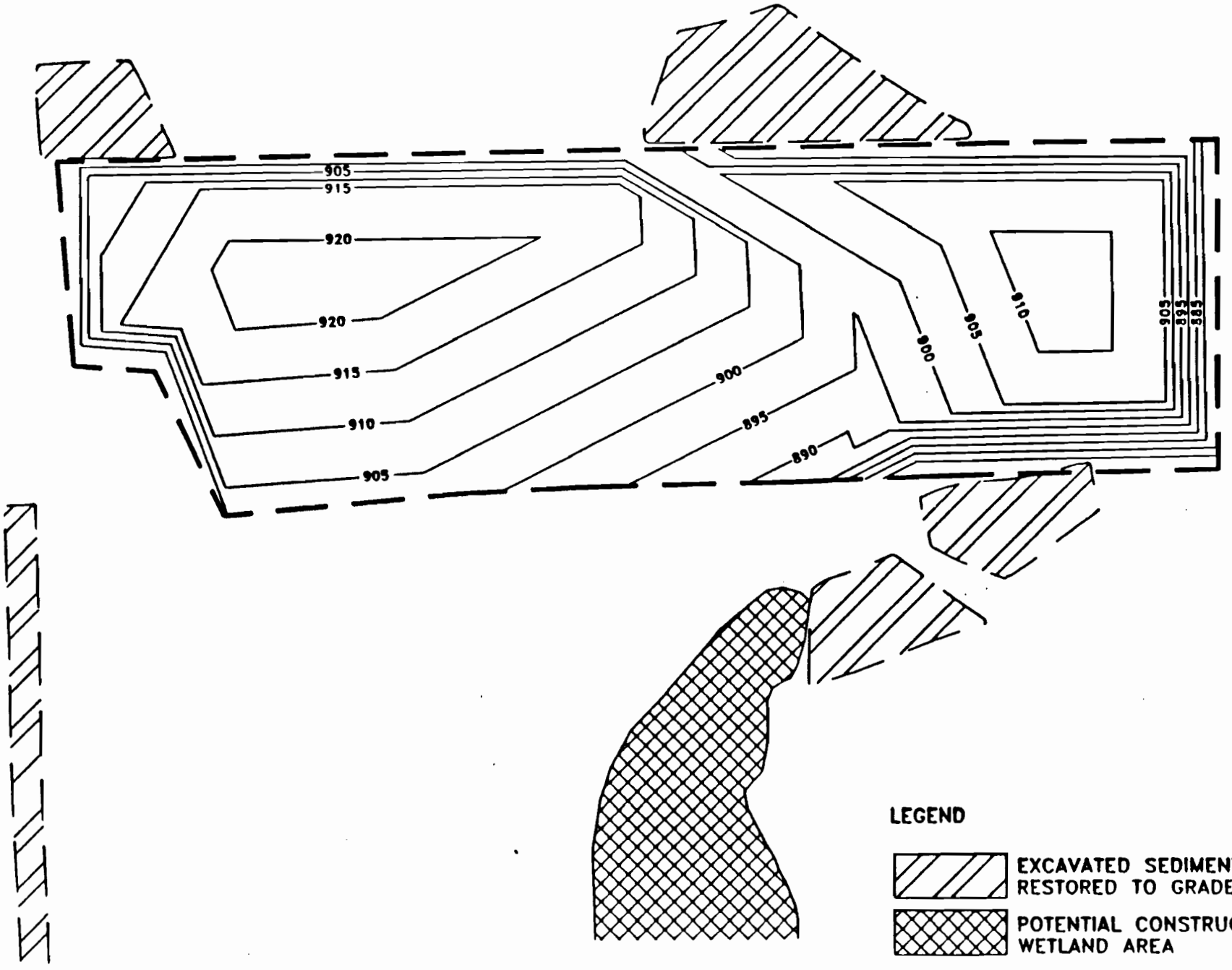


FIGURE 5

BATAVIA LANDFILL SITE

ALTERNATIVE 6A - 6 NYCRR PART 360 LANDFILL CAPS

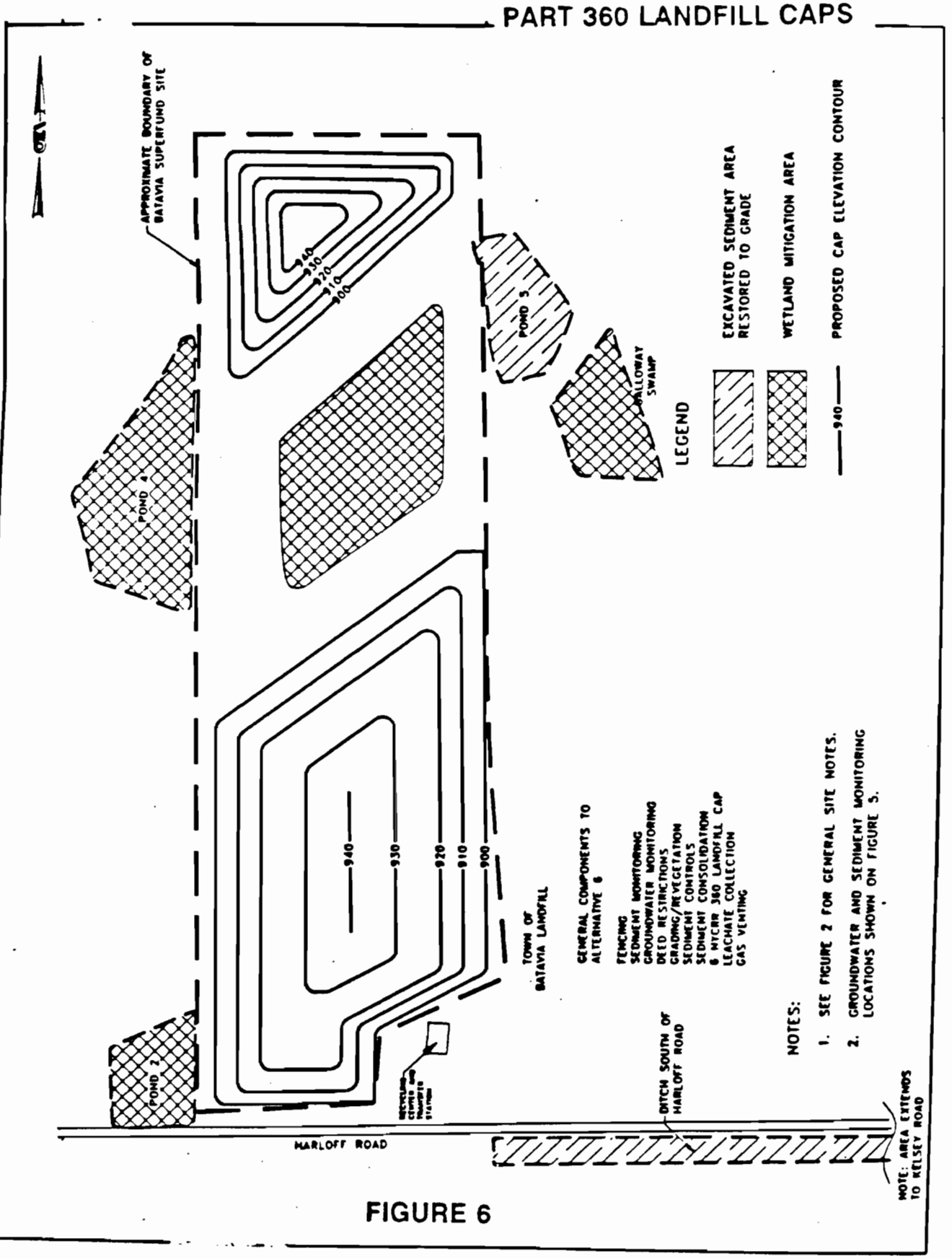


FIGURE 6

BATAVIA LANDFILL SITE

ALTERNATIVE 6B - 6NYCRR PART 360 LANDFILL CAP PLUS WASTE CONSOLIDATION

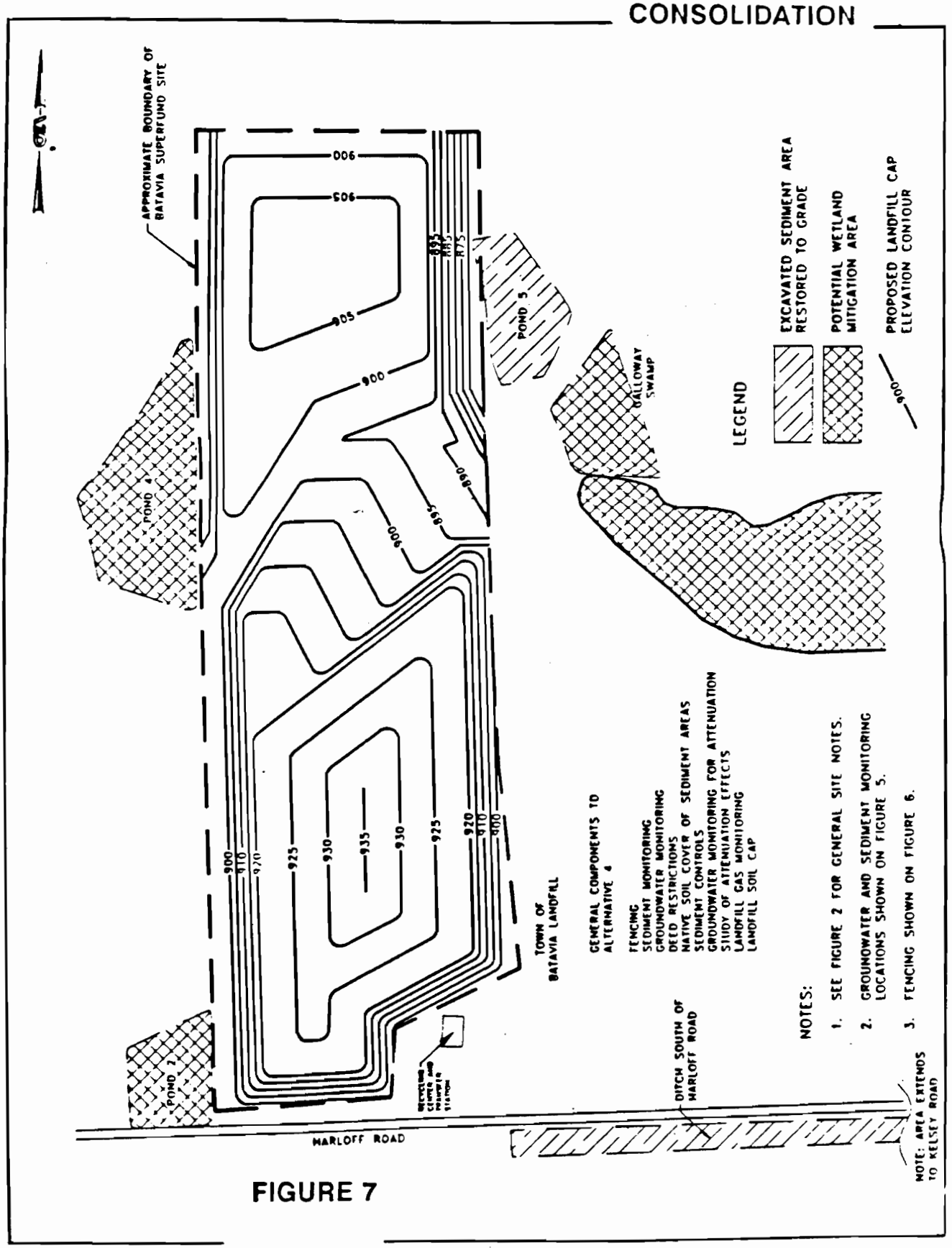


FIGURE 7

APPENDIX II

TABLES

TABLE 1

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE BATAVIA LANDFIL SITE

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE BATAVIA LANDFILL SITE.

Chemical	CARCINOGENIC		CHRONIC	SUBCHRONIC	ACUTE
	Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)	Acute Oral "RfD" [1-Dy HA/10] (mg/kg/day)
Volatiles					
Acetone	D a		1.00E-01 a	1.00E+00 b	
2-Butanone (MEK)	D a		5.00E-02 b	5.00E-01 b	8.00E+00 c
Carbon disulfide	-- a		1.00E-01 a	1.00E-01 b	
Chlorobenzene	D a		2.00E-02 a	2.00E-01 b	2.00E-01 c
Chloroethane (ethyl chloride)	B2 d	2.90E-03 d	4.00E-01 d	4.00E-01 j	
Chloromethane (methyl chloride)	C b	1.30E-02 b			9.00E-01 c
1,2 Dichlorobenzene (ortho)	D a		9.00E-02 a	9.00E-01 b	9.00E-01 c
1,1-Dichloroethane	C a		1.00E-01 b	1.00E+00 b	
1,2-Dichloroethane	B2 a	9.10E-02 a			7.40E-02 a
Ethylbenzene	D a		1.00E-01 a	1.00E+00 b	3.20E+00 a
2-Hexanone (MBK)	-- a		4.00E-02 d	4.00E-02 j	
Methylene chloride	B2 a	7.50E-03 a	6.00E-02 a	6.00E-02 b	1.33E+00 a
4-Methyl-2-pentanone	--		5.00E-02 b	5.00E-01 b	
Tetrachloroethylene	B2 b	5.10E-02 b	1.00E-02 a	1.00E-01 b	2.00E-01 a
Toluene	D a		2.00E-01 b	2.00E+00 b	2.00E+00 c
1,1,1-Trichloroethane	D a		9.00E-02 b	9.00E-01 b	1.00E+01 a
Trichloroethylene	B2 b	1.10E-02 b	6.00E-03 d	6.00E-03 j	
Xylenes	D a		2.00E+00 a	4.00E+00 b	4.00E+00 c
BNAs					
Acenaphthene	-- a		6.00E-02 a	6.00E-01 b	
Acenaphthylene	D a				
Anthracene	D a		3.00E-01 a	3.00E+00 b	
Benzo(a)anthracene	B2 a	5.79E+00 e			

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE BATAVIA LANDFILL SITE. (continued).

Chemical	CARCINOGENIC		CHRONIC	SUBCHRONIC	ACUTE
	Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)	Acute Oral "RfD" [1-Dy HA/10] (mg/kg/day)
Benzo(a)pyrene	B2 a	5.79E+00 a			
Benzo(b)fluoranthene	B2 a	5.79E+00 e			
Benzo(g,h,i)perylene	D a				
Benzo(k)fluoranthene	B2 a	5.79E+00 e			
Benzyl alcohol	--		3.00E-01 b	1.00E+00 b	
Benzylbutylphthalate	C a		2.00E-01 a	2.00E+00 b	
Bis(2-ethylhexyl)phthalate	B2 a	1.40E-02 a	2.00E-02 a	2.00E-02 b	
4-Chloro-3-methylphenol	--		2.00E+00 b,l	2.00E+00 b	
Chrysene	B2 a	5.79E+00 e			
Dibenzofuran	D a		4.00E-03 d	4.00E-03 j	
Dibenz(a,h)anthracene	B2 a	5.79E+00 e			
3,3'-Dichlorobenzidine	B2 a	4.50E-01 a			
Diethylphthalate	D a		8.00E-01 a	8.00E+00 b	
Dimethylphthalate	D a		1.00E+00 b	1.00E+00 b	
Di-n-butyl phthalate	D a		1.00E-01 a	1.00E+00 b	
Di-n-octyl phthalate	--		2.00E-02 b	2.00E-02 j	
Fluoranthene	D a		4.00E-02 a	4.00E-01 b	
Fluorene	D a		4.00E-02 a	4.00E-01 b	
Indeno(1,2,3-cd)pyrene	B2 a	5.79E+00 e			
2-Methylnaphthalene	--				
4-Methylphenol (p-cresol)	C a		5.00E-02 b	5.00E-01 b	
Naphthalene	D a		4.00E-03 b	4.00E-02 b	5.00E-02 c
N-Nitrosodiphenylamine	B2 a	4.90E-03 a			
Pentachlorophenol	B2 a	1.20E-01 a	3.00E-02 a	3.00E-02 b	1.00E-01 a

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE BATAVIA LANDFILL SITE. (continued).

Chemical	CARCINOGENIC		CHRONIC	SUBCHRONIC	ACUTE
	Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)	Acute Oral "RfD" [1-Dy HA/10] (mg/kg/day)
Phenanthrene	D a				
Phenol	D a		6.00E-01 a	6.00E-01 b	6.00E-01 c
Pyrene	D a		3.00E-02 a	3.00E-01 b	
Inorganics					
Aluminum	D d		1.00E+00 d	1.00E+00 j	
Antimony	-- a		4.00E-04 a	4.00E-04 b	1.50E-03 c
Arsenic	A a	1.75E+00 f	3.00E-04 a	1.00E-03 b	
Barium	-- a		5.00E-02 b	5.00E-02 b	
Beryllium	B2 a	4.30E+00 a	5.00E-03 a	5.00E-03 b	3.00E+00 c
Cadmium	B1 a		5.00E-04 a,g	5.00E-04 j	4.00E-03 c
Calcium	--				
* Chromium, III	-- a		1.00E+00 a	1.00E+01 b	
Chromium, total	--		8.76E-01 i	8.75E+00 i	1.40E-01 a
* Chromium, VI	A a		5.00E-03 a	2.00E-02 b	
Cobalt	--		d		
Copper	D a		4.00E-02 d	4.00E-02 j	
Iron	D d		5.00E-01 d	5.00E-01 j	
Lead	B2 a				
Magnesium	--				
Manganese	D a		1.00E-01 a	1.00E-01 b	
Mercury	D a		3.00E-04 b	3.00E-04 b	
Nickel	A a		2.00E-02 a,h	2.00E-02 b	1.00E-01 c
Potassium	--				
Selenium	D a		5.00E-03 a	5.00E-03 j	

TOXICITY VALUES FOR ALL CONTAMINANTS DETECTED AT THE BATAVIA LANDFILL SITE. (continued).

Chemical	CARCINOGENIC		CHRONIC	SUBCHRONIC	ACUTE
	Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Subchronic Oral RfD (mg/kg/day)	Acute Oral "RfD" [1-Dy HA/10] (mg/kg/day)
Silver	D a		5.00E-03 a	3.00E-03 b	2.00E-02 c
Sodium	--				
Thallium	--		7.00E-05 b	7.00E-04 b	7.00E-04 c
Titanium	C d		6.40E+00 d,k	6.40E+00 j	
Vanadium	D c		7.00E-03 b	7.00E-03 b	8.00E-03 c
Zinc	D a		2.00E-01 b	2.00E-01 b	4.00E-01 c

* Not analyzed for. Used in the derivation of toxicity values for total chromium.

a. U.S EPA, Integrated Risk Information System (IRIS). April 1, 1992.

b. U.S. EPA, Health Effects Assessment Summary Tables (HEAST). FY1991.

c. U.S. EPA, Drinking Water Regulations and Health Advisories. November, 1991.

d. Interim value from ECAO. (see text for specific references).

e. Oral slope factor for B(a)P used for PAHs classified as B2 carcinogens.

f. Arsenic oral slope factor derived from unit risk in IRIS.

g. Cadmium RfD is for water; 1.0E-03 mg/kg/day is RfD for food.

h. Value is for nickel, soluble salts.

i. Value is weighted-average value of the hexavalent chromium and trivalent chromium RfDs availablein IRIS assuming 7 parts trivalent to 1 part hexavalent.

j. Chronic RfD used as Subchronic RfD if no Subchronic value is available per RAGS.

k. Value is for TiO2. Values as Ti is 3.8 mg/kg-day.

l. Subchronic RfD used as Chronic RfD if no Chronic value is available.

TABLE 2

TOXICITY VALUES FOR BATAVIA LANDFILL SITE CONTAMINANTS OF CONCERN (COCs)

TABLE 2. TOXICITY VALUES FOR BATAVIA LANDFILL SITE GROUND WATER COCs.

Chemical	Carcinogenic Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Acute Oral "RfD" [1-Dy HA/10] (mg/kg/day)
VOCs				
Acetone	D		1.00E-01 a	
Benzene	A	2.90E-02 a		2.00E-02 c
Bromodichloromethane	B2	1.30E-01 a	2.00E-02 a	7.00E-01 c
2-Butanone (MEK)	D		5.00E-02 b	8.00E+00 c
Chlorobenzene	D		2.00E-02 a	2.00E-01 c
Chloroethane (ethyl chloride)	B2	2.90E-03 d	4.00E-01 d	
Chloroform	B2	6.10E-03 a	1.00E-02 a	4.00E-01 c
Chloromethane (methyl chlor.)	C	1.30E-02 b		9.00E-01 c
1,4 Dichlorobenzene (para)	C	2.40E-02 b	1.00E-01 d	1.00E+00 c
1,1-Dichloroethane	C		1.00E-01 b	
1,2-Dichloroethane	B2	9.10E-02 a		7.40E-02 a
1,1-Dichloroethylene	C	6.00E-01 a	9.00E-03 a	2.00E-01 c
trans-1,2-Dichloroethylene	–		2.00E-02 a	2.00E+00 c
1,2-Dichloropropane	B2	6.80E-02 b		
Ethylbenzene	D		1.00E-01 a	3.20E+00 a
2-Hexanone (MBK)	–		4.00E-02 d	
Methylene chloride	B2	7.50E-03 a	6.00E-02 a	1.33E+00 a
4-Methyl-2-pentanone	–		5.00E-02 b	
Toluene	D		2.00E-01 b	2.00E+00 c
1,1,1-Trichloroethane	D		9.00E-02 b	1.00E+01 a
Trichloroethylene	B2	1.10E-02 b	6.00E-03 d	
Vinyl chloride (chloroethylene)	A	1.90E+00 b		3.00E-01 c
Xylenes	D		2.00E+00 a	4.00E+00 c
BNAs				
Benzoic acid	D		4.00E+00 a	
Bis(2-ethylhexyl)phthalate	B2	1.40E-02 a	2.00E-02 a	
Diethylphthalate	D		8.00E-01 a	
Di-n-butyl phthalate	D		1.00E-01 a	
Dimethylphthalate	D		1.00E+00 b	
2-Methylnaphthalene	–			
4-Methylphenol (p-cresol)	C		5.00E-02 b	
Naphthalene	D		4.00E-03 b	5.00E-02 c
N-Nitrosodiphenylamine	B2	4.90E-03 a		
Phenol	D		6.00E-01 a	6.00E-01 c

TABLE 2. TOXICITY VALUES FOR BATAVIA LANDFILL SITE GROUND WATER COCs. (CONTINUED)

Chemical	Carcinogenic Weight of Evidence Classification	Oral Slope Factor (mg/kg/day)-1	Chronic Oral RfD (mg/kg/day)	Acute Oral "RfD" [1-Dy HA/10] (mg/kg/day)
INORGANICS				
Aluminum	--			
Antimony	--		4.00E-04 a	1.50E-03 c
Arsenic	A	1.75E+00 e	3.00E-04 a	
Barium	--		5.00E-02 b	
Beryllium	B2	4.30E+00 a	5.00E-03 a	3.00E+00 c
Calcium	--			
Chromium, total	--		8.76E-01 g	1.40E-01 a
Cobalt	--			
Copper	D		4.00E-02 d	
Iron	D		5.00E-01 d	
Lead	B2			
Magnesium	--			
Manganese	D		1.00E-01 a	
Mercury	D		3.00E-04 b	
Nickel	A		2.00E-02 a,f	1.00E-01 c
Potassium	--			
Vanadium	D		7.00E-03 b	8.00E-03 c
Zinc	D		2.00E-01 b	4.00E-01 c

LEGEND

a. From IRIS 2/1/92.
b. From HEAST FY 1991.
c. From MCL/HA listing, Office of Drinking Water, November 1991.
d. Interim value from ECAO (see text for complete reference).
e. Arsenic oral slope factor derived from unit risk in IRIS.
f. Value is for nickel, soluble salts.
g. Value is weighted-average value of the Hex and Tri RfDs assuming 7 parts Tri to 1 part Hex.

TABLE 3

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE.

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Soil Boring - Waste Sample

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
Inor.	Aluminum	1	1	30900.00	30900.0000	BL 7 S	30900.0000	30900.0000	.	.
	Barium	1	1	28800.00	28800.0000	BL 7 S	28800.0000	28800.0000	.	.
	Beryllium	1	1	12.00	12.0000	BL 7 S	12.0000	12.0000	.	.
	Calcium	1	1	32800.00	32800.0000	BL 7 S	32800.0000	32800.0000	.	.
	Chromium, total	1	1	36.00	36.0000	BL 7 S	36.0000	36.0000	.	.
	Copper	1	1	120.00	120.0000	BL 7 S	120.0000	120.0000	.	.
	Iron	1	1	10600.00	10600.0000	BL 7 S	10600.0000	10600.0000	.	.
	Magnesium	1	1	200000.00	200000.0000	BL 7 S	200000.0000	200000.0000	.	.
	Manganese	1	1	1200.00	1200.0000	BL 7 S	1200.0000	1200.0000	.	.
	Zinc	1	1	1020.00	1020.0000	BL 7 S	1020.0000	1020.0000	.	.
	Titanium	1	1	140.00	140.0000	BL 7 S	140.0000	140.0000	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Test Pit - Waste Samples

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Acetone	1	4	210000.00	210000.0000	TP 2 S 3	636432.4738	375602877.24	500000.0000	5000000.0000
	Carbon Disulfide	3	4	2000.00	100000.0000	TP 2 S 1	14142.1356	1142153164.5	20000.0000	20000.0000
	2-Butanone (MEK)	2	4	45000.00	1700000.0000	TP 2 S 5	175850.1982	45428236508	100000.0000	500000.0000
	4-Methyl-2-Pentanone	1	4	28000.00	28000.0000	TP 2 S 3	64678.4364	3102096.2721	100000.0000	500000.0000
	Toluene	4	4	6600.00	5100000.0000	TP 2 S 1	245546.9063	3.416109E20	.	.
	Ethylbenzene	2	4	190000.00	600000.0000	TP 2 S 1	32675.7988	1.1396542E20	2000.0000	20000.0000
	Total Xylenes	2	4	830000.00	2100000.0000	TP 2 S 1	64613.6607	1.6603195E29	2000.0000	20000.0000
BNAs	4-Chloro-3-methylphenol	1	4	48000.00	48000.0000	TP 2 S 2	21252.3785	3.135612E21	680.0000	1000000.0000
	2-Methylnaphthalene	1	4	130000.00	130000.0000	TP 2 S 4	23371.2268	1.7336137E23	680.0000	1000000.0000
	Phenanthrene	1	3	56000.00	56000.0000	TP 2 S 4	21193.9700	4.1425625E63	680.0000	1000000.0000
	bis(2-Ethylhexyl)phthalate	1	3	9200.00	9200.0000	TP 1 S 1	14588.8324	171379.0201	27000.0000	50000.0000
	Total Phenols	2	3	15000.00	31000.0000	TP 2 S 2	7747.3109	5.5686931E17	2000.0000	2000.0000
Inor.	Arsenic	2	6	2.10	2.8000	TP 2 S 2	5.8189	3311405.0116	1.3000	250.0000
	Beryllium	3	6	0.46	0.5300	TP 2 S 2	0.4557	1913.8192	0.0250	5.0000
	Chromium, total	6	6	42.00	3200.0000	TP 2 S 5	152.5474	103379.8836	.	.
	Copper	6	6	31.00	410.0000	TP 2 S 3	140.6589	1464.0320	.	.
	Lead	6	6	77.00	2000.0000	TP 2 S 5	388.6473	26826.0786	.	.
	Mercury	1	6	0.06	0.0600	TP 2 S 2	0.1692	842406.2603	0.0500	10.0000
	Nickel	4	6	16.00	57.0000	TP 2 S 2	55.9815	1844.6831	500.0000	500.0000
	Silver	1	6	0.55	0.5500	TP 2 S 1	0.9358	3079538.0290	0.2500	50.0000
	Zinc	4	6	150.00	370.0000	TP 2 S 1	520.0055	19274.2703	5000.0000	5000.0000

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Surface Water

Class	Analyte	Num. Times Detected	Num. Samples Analysed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Chloroethane	5	19	20.00	58.0000	SW 9 A	8.7193	20.8682	10.0000	50.0000
	Methylene Chloride	15	19	1.10	27.0000	SW 4 A	4.5315	8.8723	5.0000	5.0000
	Acetone	2	18	9.60	11.0000	WDA 2 W	5.4167	6.1692	10.0000	10.0000
	1,1-Dichloroethane	2	19	1.00	2.2000	SW 5	2.5755	3.4628	5.0000	25.0000
	1,2-Dichloroethane	1	19	2.00	2.0000	SW 9 B	2.6892	3.4147	5.0000	25.0000
	1,1,1-Trichloroethane	2	19	35.00	240.0000	SW 4 A	3.6525	16.3088	5.0000	5.0000
	Toluene	1	19	3.40	3.4000	SW 4 B	2.7654	3.5004	5.0000	25.0000
	Total Xylenes	1	19	2.50	2.5000	SW 9 B	2.7210	3.4356	5.0000	25.0000
BNAs	2-Methylnaphthalene	1	14	9.20	9.2000	SW 4 A	6.1562	11.0191	10.0000	100.0000
	Dimethylphthalate	5	14	1.00	6.4000	SW 3	3.8633	14.9802	10.0000	100.0000
	Acenaphthene	1	14	1.30	1.3000	SW 4 A	5.3532	11.4329	10.0000	100.0000
	Dibenzofuran	1	14	1.10	1.1000	SW 4 A	5.2897	11.8039	10.0000	100.0000
	Diethylphthalate	1	14	6.40	6.4000	SW 3	5.9987	10.5744	10.0000	100.0000
	Fluorene	1	14	2.00	2.0000	SW 4 A	5.5204	10.7454	10.0000	100.0000
	N-Nitrosodiphenylamine	8	14	1.00	1.8000	SW 3	2.6005	11.9668	10.0000	100.0000
	Phenanthrene	2	14	7.00	100.0000	WDA 2 W	6.3436	15.1087	10.0000	10.0000
	Di-n-butylphthalate	2	14	3.30	29.0000	WDA 2 W	5.5031	8.2387	10.0000	10.0000
	bis(2-Ethylhexyl)phthalate	12	14	1.30	340.0000	WDA 2 W	9.5388	173.0278	10.0000	10.0000
	Total Phenols	2	12	10.00	80.0000	SW 5	6.6742	17.3281	10.0000	10.0000
Inor.	Aluminum	14	14	0.04	27.3000	SW 6	0.9434	701.1669	.	.
	Antimony	5	14	0.02	0.0430	SW 2	0.0171	0.0382	0.0140	0.1400
	Arsenic	4	14	0.01	0.0426	SW 5	0.0033	0.0403	0.0020	0.0300

UMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Surface Water (continued)

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Barium	19	19	0.01	21.7000	SW 6	0.4946	116.2743	.	.
	Beryllium	1	14	0.00	0.0013	SW 1	0.0006	0.0012	0.0010	0.0100
	Calcium	14	14	23.40	458.0000	SW 6	78.3064	239.4195	.	.
	Chromium, total	13	19	0.01	0.2120	SW 4 B	0.0104	0.0765	0.0030	0.0060
	Cobalt	8	14	0.00	0.0737	SW 6	0.0046	0.0239	0.0020	0.0060
	Copper	11	14	0.01	0.0930	SW 6	0.0138	0.1025	0.0030	0.0060
	Iron	14	14	0.48	1570.0000	SW 6	8.3635	8238.8452	.	.
	Lead	17	19	0.00	3.7200	SW 4 B	0.0286	4.5816	0.0020	0.0020
	Magnesium	19	19	18.50	348.0000	SW 9 B	50.2393	122.7220	.	.
	Manganese	14	14	0.03	3.3000	SW 7	0.2719	4.2240	.	.
	Mercury	2	14	0.00	0.0004	SW 7	0.0001	0.0002	0.0002	0.0002
	Nickel	6	14	0.01	0.0296	SW 1	0.0070	0.0201	0.0050	0.0500
	Potassium	14	14	2.52	115.0000	SW 7	13.9665	97.3644	.	.
	Selenium	1	14	0.00	0.0034	SW 5	0.0017	0.0034	0.0020	0.0300
	Silver	6	14	0.00	0.0397	SW 6	0.0029	0.0077	0.0030	0.0040
	Sodium	14	14	4.48	221.0000	SW 8	25.7870	274.1179	.	.
	Vanadium	7	14	0.01	0.1600	SW 6	0.0085	0.1488	0.0050	0.0050
	Zinc	19	19	0.01	19.8000	SW 4 B	0.1401	11.4510	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Suspected Magnesium Fines

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Methylene Chloride	1	1	13.50	13.5000	WP 30 0 -3	13.5000	13.5000	.	.
	Acetone	1	1	51.00	51.0000	WP 30 0 -3	51.0000	51.0000	.	.
	2-Hexanone (MBK)	1	1	4.10	4.1000	WP 30 0 -3	4.1000	4.1000	.	.
BNAs	bis(2-Ethylhexyl)phthalate	1	1	88.00	88.0000	WP 30 0 -3	88.0000	88.0000	.	.
Inor.	Aluminum	1	1	102000.00	102000.0000	WP 30 0 -3	102000.0000	102000.0000	.	.
	Arsenic	1	1	83.80	83.8000	WP 30 0 -3	83.8000	83.8000	.	.
	Barium	1	1	4670.00	4670.0000	WP 30 0 -3	4670.0000	4670.0000	.	.
	Beryllium	1	1	29.40	29.4000	WP 30 0 -3	29.4000	29.4000	.	.
	Cadmium	1	1	13.40	13.4000	WP 30 0 -3	13.4000	13.4000	.	.
	Calcium	1	1	10900.00	10900.0000	WP 30 0 -3	10900.0000	10900.0000	.	.
	Chromium, total	1	1	117.00	117.0000	WP 30 0 -3	117.0000	117.0000	.	.
	Cobalt	1	1	1.90	1.9000	WP 30 0 -3	1.9000	1.9000	.	.
	Copper	1	1	2400.00	2400.0000	WP 30 0 -3	2400.0000	2400.0000	.	.
	Iron	1	1	7690.00	7690.0000	WP 30 0 -3	7690.0000	7690.0000	.	.
	Lead	1	1	128.50	128.5000	WP 30 0 -3	128.5000	128.5000	.	.
	Magnesium	1	1	201500.00	201500.0000	WP 30 0 -3	201500.0000	201500.0000	.	.
	Manganese	1	1	969.00	969.0000	WP 30 0 -3	969.0000	969.0000	.	.
	Nickel	1	1	60.20	60.2000	WP 30 0 -3	60.2000	60.2000	.	.
	Potassium	1	1	513.00	513.0000	WP 30 0 -3	513.0000	513.0000	.	.
	Silver	1	1	2.35	2.3500	WP 30 0 -3	2.3500	2.3500	.	.
	Thallium	1	1	0.90	0.9000	WP 30 0 -3	0.9000	0.9000	.	.
	Vanadium	1	1	16.00	16.0000	WP 30 0 -3	16.0000	16.0000	.	.
	Zinc	1	1	1930.00	1930.0000	WP 30 0 -3	1930.0000	1930.0000	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Sediment

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Chloromethane	2	21	12.00	61.0000	SS 10 A	17.9253	28.7596	10.0000	92.0000
	Methylene Chloride	28	28	4.30	1100.0000	WDA 02 S	35.4542	128.2294	.	.
	Acetone	13	24	7.60	2300.0000	WDA 04 S	66.5725	1639.0351	10.0000	92.0000
	1,1-Dichloroethane	1	28	30.00	30.0000	SS 12	12.5149	22.2476	5.0000	75.0000
	2-Butanone (MEK)	2	21	190.00	1300.0000	WDA 04 S	23.8183	101.6434	10.0000	92.0000
	1,1,1-Trichloroethane	1	29	380.00	380.0000	WDA 02 S	14.2184	35.3996	5.0000	80.0000
	Trichloroethylene	2	28	3.00	3.0000	SS 04 B	12.4513	24.4463	5.0000	80.0000
	Toluene	5	28	22.00	66.0000	L 7 COMPS	13.3085	26.1303	5.0000	75.0000
	Chlorobenzene	2	28	7.10	16.0000	SS 10 A	12.5509	22.4906	5.0000	80.0000
BNAs	Phenol	5	15	49.00	190.0000	SS 09	200.5313	342.1681	310.0000	1000.0000
	Benzyl alcohol	3	11	41.00	210.0000	SS 04 A	222.2814	522.8215	360.0000	1000.0000
	1,2-Dichlorobenzene	4	14	34.00	130.0000	SS 02	193.5912	378.7706	360.0000	1000.0000
	4-Methylphenol	4	13	62.00	3300.0000	WDA 04 S	319.0193	950.8992	310.0000	900.0000
	Naphthalene	1	14	140.00	140.0000	SS 02	258.5226	337.0968	310.0000	1000.0000
	2-Methylnaphthalene	1	12	35000.00	35000.0000	WDA 02 S	433.7117	6039.0848	310.0000	1000.0000
	Dimethylphthalate	3	15	70.00	430.0000	SS 05	239.9027	396.9603	310.0000	1000.0000
	Acenaphthylene	2	14	230.00	1200.0000	SS 02	297.9690	459.8158	310.0000	1000.0000
	Acenaphthene	1	14	260.00	260.0000	SS 02	270.2102	337.3209	310.0000	1000.0000
	Dibenzofuran	2	11	84.00	290.0000	SS 02	253.5593	411.8766	310.0000	1000.0000
	Fluorene	2	14	230.00	900.0000	SS 02	291.9086	420.3100	310.0000	1000.0000
	N-Nitrosodiphenylamine	1	14	110.00	110.0000	SS 08 A	252.4234	337.8464	310.0000	1000.0000
	Pentachlorophenol	1	1	480000.00	480000.0000	WDA 03 S	480000.0000	480000.0000	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Sediment *(continued)*

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Phenanthrene	8	17	36.00	58000.0000	WDA 02 S	595.3204	38921.4634	360.0000	1000.0000
	Anthracene	2	14	260.00	1200.0000	SS 02	300.5899	461.6989	310.0000	1000.0000
	Di-n-butylphthalate	5	15	320.00	1800.0000	SS 04 A	403.8452	800.1509	360.0000	1000.0000
	Fluoranthene	7	16	93.00	21000.0000	WDA 03 S	491.2695	7988.0049	310.0000	1000.0000
	Pyrene	7	16	37.00	140000.0000	WDA 03 S	501.5017	27503.0499	360.0000	1000.0000
	Benzylbutylphthalate	1	14	170.00	170.0000	SS 04 A	227.7188	520.3553	39.0000	1000.0000
	3,3-Dichlorobenzidine	1	8	6700.00	6700.0000	SS 05	580.0419	3769.6748	490.0000	1000.0000
	Benzo(a)anthracene	4	14	170.00	160000.0000	WDA 03 S	556.8415	31091.7602	310.0000	1000.0000
	Chrysene	5	15	150.00	280000.0000	WDA 03 S	522.2757	41303.3001	310.0000	1000.0000
	bis(2-Ethylhexyl)phthalate	17	20	60.00	130000.0000	WDA 02 S	286.2567	3580.3805	450.0000	500.0000
	Di-n-octylphthalate	1	15	1100.00	1100.0000	L 2 SOIL	305.8688	447.3476	310.0000	1000.0000
	Benzo(b)fluoranthene	6	15	52.00	86000.0000	WDA 03 S	503.6664	23407.4006	360.0000	1000.0000
	Benzo(k)fluoranthene	6	15	52.00	86000.0000	WDA 03 S	503.6664	23407.4006	360.0000	1000.0000
	Benzo(a)pyrene	5	15	140.00	210000.0000	WDA 03 S	515.1337	34756.2399	310.0000	1000.0000
	Indeno(1,2,3-cd)pyrene	4	15	88.00	26000.0000	WDA 03 S	426.5165	4349.1659	310.0000	1000.0000
	Dibenzo(a,h)anthracene	2	14	160.00	890.0000	SS 02	284.2122	420.0257	310.0000	1000.0000
	Benzo(g,h,i)perylene	2	14	580.00	3200.0000	SS 02	341.4211	743.0880	310.0000	1000.0000
	Total Phenols	15	28	140.00	5300.0000	SS 12	439.3274	2092.0199	110.0000	1000.0000
Inor.	Aluminum	22	22	3.11	16400.0000	SS 04 A	4125.5892	116950.4187	.	.
	Antimony	1	30	9.80	9.8000	L 1 SOIL	11.6910	21.2923	6.3000	112.0000
	Arsenic	24	30	1.30	110.0000	L 6 SOIL	5.0071	14.2385	1.2000	13.0000
	Barium	30	30	34.20	5220.0000	L 6 SOIL	279.6697	2016.7237	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Sediment

(continued)

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Beryllium	5	30	0.30	0.9200	L 3 SOIL	0.5277	0.9486	0.1300	6.1000
	Cadmium	2	30	4.80	14.0000	L 1 SOIL	1.9991	14.6371	0.6300	2300.0000
	Calcium	22	22	5370.00	131000.0000	WDA 01 S	31992.6906	80635.7660	.	.
	Chromium, total	31	32	6.40	320.0000	L 1 SOIL	15.5282	31.4990	4.3000	4.3000
	Cobalt	14	22	3.00	12.6000	SS 07	4.5997	6.7691	2.6000	12.1000
	Copper	27	30	11.00	770.0000	L 1 SOIL	31.9749	81.4026	13.0000	30.3000
	Iron	22	22	5340.00	362000.0000	SS 05	22611.3458	53574.1070	.	.
	Lead	27	30	8.70	1220.0000	WDA 01 S	50.1332	279.2105	9.1000	64.0000
	Magnesium	22	22	1800.00	39000.0000	WDA 01 S	9775.6262	24860.3418	.	.
	Manganese	22	22	102.00	2410.0000	SS 11	381.3055	728.8645	.	.
	Mercury	9	30	0.02	0.9000	SS 12	0.1421	0.3078	0.1000	1.5000
	Nickel	24	30	1.48	67.5000	WDA 03 S	14.3024	24.7695	12.0000	51.0000
	Potassium	22	22	367.00	3390.0000	SS 10 A	1262.9216	1879.3104	.	.
	Selenium	3	29	2.20	4.4000	L 1 SOIL	1.3135	3.1536	0.6100	11.2000
	Silver	2	30	1.50	50.0000	L 1 SOIL	1.3768	3.6289	0.6300	12.1000
	Vanadium	20	22	8.80	39.9000	SS 16	13.8929	24.7269	3.1000	7.5000
	Zinc	30	30	24.20	1460.0000	SS 12	164.0586	496.2935	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Liquid Leachate

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Chloroethane	4	7	11.00	38.0000	L 2	8.2551	122.7999	5.0000	5.0000
	Trichloroethylene	1	7	1.90	1.9000	L 1 LIQUID	1.0960	1.3823	2.0000	2.0000
	Tetrachloroethylene	1	7	7.50	7.5000	L 1 LIQUID	1.3335	4.6099	2.0000	2.0000
Inor.	Barium	7	7	0.24	1.6000	L 2 LIQUID	0.5709	1.7505	.	.
	Copper	1	7	0.01	0.0140	L 1 LIQUID	0.0037	0.0083	0.0060	0.0060
	Zinc	7	7	0.01	0.1600	L 4 LIQUID	0.0184	0.2036	.	.

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Test Pit - Waste Samples

Class	Analyte	Num. Times Detected	Num. Samples Analysed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Acetone	1	4	210000.00	210000.0000	TP 2 S 3	636432.4738	375602877.24	500000.0000	5000000.0000
	Carbon Disulfide	3	4	2000.00	100000.0000	TP 2 S 1	14142.1356	1142153164.5	20000.0000	20000.0000
	2-Butanone (MEK)	2	4	45000.00	1700000.0000	TP 2 S 5	175850.1982	45428236508	100000.0000	500000.0000
	4-Methyl-2-Pentanone	1	4	28000.00	28000.0000	TP 2 S 3	64678.4364	3102096.2721	100000.0000	500000.0000
	Toluene	4	4	6600.00	5100000.0000	TP 2 S 1	245546.9063	3.416109E20	.	.
	Ethylbenzene	2	4	190000.00	600000.0000	TP 2 S 1	32675.7988	1.1396542E20	2000.0000	20000.0000
	Total Xylenes	2	4	830000.00	2100000.0000	TP 2 S 1	64613.6607	1.6603195E29	2000.0000	20000.0000
BNAs	4-Chloro-3-methylphenol	1	4	48000.00	48000.0000	TP 2 S 2	21252.3785	3.135612E21	680.0000	1000000.0000
	2-Methylnaphthalene	1	4	130000.00	130000.0000	TP 2 S 4	23371.2268	1.7336137E23	680.0000	1000000.0000
	Phenanthrene	1	3	56000.00	56000.0000	TP 2 S 4	21193.9700	4.1425625E63	680.0000	1000000.0000
	bis(2-Ethylhexyl)phthalate	1	3	9200.00	9200.0000	TP 1 S 1	14588.8324	171379.0201	27000.0000	50000.0000
	Total Phenols	2	3	15000.00	31000.0000	TP 2 S 2	7747.3109	5.5686931E17	2000.0000	2000.0000
Inor.	Arsenic	2	6	2.10	2.8000	TP 2 S 2	5.8189	3311405.0116	1.3000	250.0000
	Beryllium	3	6	0.46	0.5300	TP 2 S 2	0.4557	1913.8192	0.0250	5.0000
	Chromium, total	6	6	42.00	3200.0000	TP 2 S 5	152.5474	103379.8836	.	.
	Copper	6	6	31.00	410.0000	TP 2 S 3	140.6589	1464.0320	.	.
	Lead	6	6	77.00	2000.0000	TP 2 S 5	388.6473	26826.0786	.	.
	Mercury	1	6	0.06	0.0600	TP 2 S 2	0.1692	842406.2603	0.0500	10.0000
	Nickel	4	6	16.00	57.0000	TP 2 S 2	55.9815	1844.6831	500.0000	500.0000
	Silver	1	6	0.55	0.5500	TP 2 S 1	0.9358	3079538.0290	0.2500	50.0000
	Zinc	4	6	150.00	370.0000	TP 2 S 1	520.0055	19274.2703	5000.0000	5000.0000

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Subsurface Soils - Waste Pits

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
VOCs	Methylene Chloride	3	3	13.00	72.0000	WP 16 4 -8	23.5759	212371.5978	.	.
	Carbon Disulfide	1	3	11.00	11.0000	WP 19 4 -11	9.3789	210.3683	10.0000	30.0000
	1,1-Dichloroethane	1	3	2.40	2.4000	WP 26 10 -12	8.9628	3508324.1736	30.0000	40.0000
BNAs	Phenol	1	3	250.00	250.0000	WP 16 4 -8	478.0505	38671295242	380.0000	4600.0000
	Dimethylphthalate	2	3	420.00	740.0000	WP 19 4 -11	389.4140	36106.5637	380.0000	380.0000
	bis(2-Ethylhexyl)phthalate	2	3	44.00	450.0000	WP 16 4 -8	357.1064	1.9027392E19	4600.0000	4600.0000
Inor.	Aluminum	7	7	133.00	248000.0000	WP 19 4 -11	20462.4799	1176284816.8	.	.
	Antimony	1	7	239.00	239.0000	WP 16 4 -8	13.7084	3155.1346	5.8000	172.0000
	Arsenic	6	7	20.20	164.0000	WP 19 4 -11	18.3926	85336.0701	0.4000	0.4000
	Barium	6	7	1.60	237.0000	WP 26 10 -12	31.1019	919600.5886	1.5000	1.5000
	Beryllium	1	7	0.71	0.7100	WP 21 3.5 -4.5	0.4754	12.6804	0.2000	5.9000
	Cadmium	3	7	4.20	17.3000	WP 26 3.5 -4	5.2355	184.5940	1.0000	29.6000
	Calcium	7	7	264.00	75100.0000	WP 26 10 -12	6354.5266	6697388.5999	.	.
	Chromium, total	7	7	11.80	313000.0000	WP 16 4 -8	2055.1885	1.5209906E14	.	.
	Cobalt	1	7	2.80	2.8000	WP 26 10 -12	2.8157	56.1002	1.2000	35.5000
	Copper	7	7	8.70	1010.0000	WP 19 4 -11	171.8138	17313.6818	.	.
	Iron	7	7	203.00	8770.0000	WP 19 4 -11	1982.6806	373033.1436	.	.
	Lead	6	7	8.60	94.7000	WP 19 4 -11	15.0157	78053.3120	0.4000	0.4000
	Magnesium	7	7	773.00	410000.0000	WP 26 3.5 -4	51569.1120	120590982.67	.	.
	Manganese	7	7	6.00	1850.0000	WP 19 4 -11	382.7192	314270.2288	.	.
	Nickel	5	7	2.30	25.5000	WP 26 10 -12	13.8113	65.6232	31.9000	47.3000
	Potassium	5	7	44.90	793.0000	WP 26 6 -7	170.7798	2826.6253	93.7000	502.0000

SUMMARY STATISTICS FOR THE BATAVIA LANDFILL SITE. (continued).

SUMMARY STATISTICS FOR SITE, BY CHEMICAL AND MEDIUM/AREA

all in ppb, except inorganics which are in ppm

TYPE=Subsurface Soils - Waste Pits

(continued)

Class	Analyte	Num. Times Detected	Num. Samples Analyzed	Lowest Detected Conc.	Highest Detected Conc.	Highest Conc. Locat.	Geom. Mean Conc.	95 Pct. Upp. Conf. Limit	Min. Detect. Limit	Max. Detect. Limit
	Selenium	1	7	4.10	4.1000	WP 26 6 -7	1.0511	96.4934	0.2000	7.4000
	Silver	1	7	1.60	1.6000	WP 26 10 -12	1.8257	37.3442	0.8000	23.7000
	Thallium	1	7	6.00	6.0000	WP 19 4 -11	0.5582	7.6359	0.4000	1.6000
	Vanadium	4	7	5.40	14.2000	WP 19 4 -11	8.3616	27.6092	3.7000	29.6000
	Zinc	7	7	10.40	3670.0000	WP 26 3.5 -4	574.8720	408089.9924	.	.

TABLE 4

ONSITE GROUNDWATER (INGESTION) CARCINOGENIC RISK

TABLE : 4
SITE : BATAVIA
ENV. MEDIUM : GROUND WATER
EXPOSURE TYPE : INGESTION/FUTURE RESIDENTIAL SCENARIOS
RISK TYPE : CARCINOGENIC

Contaminant of Concern	Concentration (mg/L)	Ingestion Rate (L/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Intake (mg/kg/day)	Oral Slope Factor -1 (mg/kg/day)	Increased CA Risk
Acetone	8.37E-01	2	350	30	70	25550	9.82E-03		
Benzene	7.04E-03	2	350	30	70	25550	8.27E-05	2.90E-02	2.40E-06
Bromodichloromethane	1.20E-03	2	350	30	70	25550	1.41E-05	1.30E-01	1.83E-06
2-Butanone (MEK)	4.32E-02	2	350	30	70	25550	5.07E-04		
Chlorobenzene	5.98E-03	2	350	30	70	25550	7.03E-05		
Chloroethane (ethyl chloride)	5.94E-02	2	350	30	70	25550	6.98E-04	2.90E-03	2.02E-06
Chloroform	5.07E-03	2	350	30	70	25550	5.95E-05	6.10E-03	3.63E-07
Chloromethane (methyl chloride)	7.50E-03	2	350	30	70	25550	8.81E-05	1.30E-02	1.14E-06
1,4 Dichlorobenzene (para)	9.80E-03	2	350	30	70	25550	1.15E-04	2.40E-02	2.76E-06
1,1-Dichloroethane	8.33E-02	2	350	30	70	25550	9.79E-04		
1,2-Dichloroethane	1.50E-03	2	350	30	70	25550	1.76E-05	9.10E-02	1.60E-06
1,1-Dichloroethylene	3.05E-03	2	350	30	70	25550	3.58E-05	6.00E-01	2.15E-05
trans-1,2-Dichloroethylene	5.50E-03	2	350	30	70	25550	6.46E-05		
1,2-Dichloropropane	3.50E-03	2	350	30	70	25550	4.11E-05	6.80E-02	2.79E-06
Ethylbenzene	1.89E-02	2	350	30	70	25550	2.22E-04		
2-Hexanone (MBK)	1.20E-02	2	350	30	70	25550	1.41E-04		
Methylene chloride	2.07E-02	2	350	30	70	25550	2.43E-04	7.50E-03	1.82E-06
4-Methyl-2-pentanone	2.01E-02	2	350	30	70	25550	2.36E-04		
Toluene	1.23E-01	2	350	30	70	25550	1.44E-03		
1,1,1-Trichloroethane	1.49E-02	2	350	30	70	25550	1.75E-04		
Trichloroethylene	1.18E-02	2	350	30	70	25550	1.38E-04	1.10E-02	1.52E-06
Vinyl chloride (chloroethylene)	7.20E-03	2	350	30	70	25550	8.45E-05	1.90E+00	1.61E-04
Xylenes	2.49E-02	2	350	30	70	25550	2.92E-04		
Benzoic acid	3.30E-02	2	350	30	70	25550	3.87E-04		
Bis(2-ethylhexyl)phthalate	1.19E-01	2	350	30	70	25550	1.40E-03	1.40E-02	1.95E-05
Diethylphthalate	1.43E-02	2	350	30	70	25550	1.68E-04		
Di-n-butyl phthalate	2.50E-03	2	350	30	70	25550	2.94E-05		
Dimethylphthalate	2.04E-02	2	350	30	70	25550	2.40E-04		
2-Methylnaphthalene	1.50E-03	2	350	30	70	25550	1.76E-05		
4-Methylphenol (p-cresol)	1.43E+00	2	350	30	70	25550	1.68E-02		
Naphthalene	1.62E-02	2	350	30	70	25550	1.90E-04		
N-Nitrosodiphenylamine	4.25E-02	2	350	30	70	25550	4.99E-04	4.90E-03	2.44E-06
Phenol	2.37E-02	2	350	30	70	25550	2.78E-04		
Aluminum	5.57E+01	2	350	30	70	25550	6.54E-01		
Antimony	7.88E-02	2	350	30	70	25550	9.25E-04		
Arsenic	4.60E-02	2	350	30	70	25550	5.40E-04	1.75E+00	9.44E-04

TABLE : 4
SITE : BATAVIA
ENV. MEDIUM : GROUND WATER
EXPOSURE TYPE : INGESTION/FUTURE RESIDENTIAL SCENARIOS
RISK TYPE : CARCINOGENIC

Contaminant of Concern	Concentration (mg/L)	Ingestion Rate (L/day)	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Intake (mg/kg/day)	Oral Slope Factor -1 (mg/kg/day)	Increased CA Risk
Barium	7.67E-01	2	350	30	70	25550	9.00E-03		
Beryllium	1.38E-03	2	350	30	70	25550	1.62E-05	4.30E+00	6.97E-05
Calcium	6.69E+02	2	350	30	70	25550	7.85E+00		
Chromium, total	1.18E-01	2	350	30	70	25550	1.38E-03		
Cobalt	6.51E-02	2	350	30	70	25550	7.64E-04		
Copper	3.89E-01	2	350	30	70	25550	4.57E-03		
Iron	1.31E+02	2	350	30	70	25550	1.54E+00		
Lead	1.96E-01	2	350	30	70	25550	2.30E-03		
Magnesium	2.27E+02	2	350	30	70	25550	2.66E+00		
Manganese	2.09E+00	2	350	30	70	25550	2.45E-02		
Mercury	3.30E-04	2	350	30	70	25550	3.87E-06		
Nickel	1.55E-01	2	350	30	70	25550	1.82E-03		
Potassium	6.49E+01	2	350	30	70	25550	7.62E-01		
Vanadium	8.35E-02	2	350	30	70	25550	9.80E-04		
Zinc	4.87E+01	2	350	30	70	25550	5.72E-01		
								TOTAL RISK:	1.24E-03

TABLE 5

ONSITE GROUND WATER (INGESTION) NONCARCINOGENIC RISK

TABLE : 5
SITE : BATAVIA
ENV. MEDIUM : GROUND WATER
EXPOSURE TYPE : INGESTION/FUTURE RESIDENTIAL SCENARIOS
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Conc. (mg/L)	Ingestion Rate (L/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Acute Body Dose (mg/kg/day)	Chronic Body Dose (mg/kg/day)	Acute Protective Body Dose (mg/kg/day)	Chronic Protective Body Dose (mg/kg/day)	Acute Hazard Quotient	Chronic Hazard Quotient
Acetone	8.37E-01	2	350	30	70	10950	2.39E-02	2.29E-02		1.00E-01		2.29E-01
Benzene	7.04E-03	2	350	30	70	10950	2.01E-04	1.93E-04	2.00E-02		1.01E-02	
Bromodichloromethane	1.20E-03	2	350	30	70	10950	3.43E-05	3.29E-05	7.00E-01	2.00E-02	4.90E-05	1.64E-03
2-Butanone (MEK)	4.32E-02	2	350	30	70	10950	1.23E-03	1.18E-03	8.00E+00	5.00E-02	1.54E-04	2.37E-02
Chlorobenzene	5.98E-03	2	350	30	70	10950	1.71E-04	1.64E-04	2.00E-01	2.00E-02	8.55E-04	8.20E-03
Chloroethane (ethyl chloride)	5.94E-02	2	350	30	70	10950	1.70E-03	1.63E-03		4.00E-01		4.07E-03
Chloroform	5.07E-03	2	350	30	70	10950	1.45E-04	1.39E-04	4.00E-01	1.00E-02	3.62E-04	1.39E-02
Chloromethane (methyl chloride)	7.50E-03	2	350	30	70	10950	2.14E-04	2.05E-04	9.00E-01		2.38E-04	
1,4 Dichlorobenzene (para)	9.80E-03	2	350	30	70	10950	2.80E-04	2.68E-04	1.00E+00	1.00E-01	2.80E-04	2.68E-03
1,1-Dichloroethane	8.33E-02	2	350	30	70	10950	2.38E-03	2.28E-03		1.00E-01		2.28E-02
1,2-Dichloroethane	1.50E-03	2	350	30	70	10950	4.29E-05	4.11E-05	7.40E-02		5.79E-04	
1,1-Dichloroethylene	3.05E-03	2	350	30	70	10950	8.71E-05	8.36E-05	2.00E-01	9.00E-03	4.36E-04	9.28E-03
trans-1,2-Dichloroethylene	5.50E-03	2	350	30	70	10950	1.57E-04	1.51E-04	2.00E+00	2.00E-02	7.86E-05	7.54E-03
1,2-Dichloropropane	3.50E-03	2	350	30	70	10950	1.00E-04	9.59E-05				
Ethylbenzene	1.89E-02	2	350	30	70	10950	5.40E-04	5.17E-04	3.20E+00	1.00E-01	1.69E-04	5.17E-03
2-Hexanone (MBK)	1.20E-02	2	350	30	70	10950	3.44E-04	3.29E-04		4.00E-02		8.24E-03
Methylene chloride	2.07E-02	2	350	30	70	10950	5.91E-04	5.67E-04	1.33E+00	6.00E-02	4.44E-04	9.45E-03
4-Methyl-2-pentanone	2.01E-02	2	350	30	70	10950	5.75E-04	5.52E-04		5.00E-02		1.10E-02
Toluene	1.23E-01	2	350	30	70	10950	3.51E-03	3.37E-03	2.00E+00	2.00E-01	1.76E-03	1.68E-02
1,1,1-Trichloroethane	1.49E-02	2	350	30	70	10950	4.26E-04	4.09E-04	1.00E+01	9.00E-02	4.26E-05	4.54E-03
Trichloroethylene	1.18E-02	2	350	30	70	10950	3.37E-04	3.23E-04		6.00E-03		5.38E-02
Vinyl chloride (chloroethylene)	7.20E-03	2	350	30	70	10950	2.06E-04	1.97E-04	3.00E-01		6.86E-04	
Xylenes	2.49E-02	2	350	30	70	10950	7.12E-04	6.82E-04	4.00E+00	2.00E+00	1.78E-04	3.41E-04
Benzoic acid	3.30E-02	2	350	30	70	10950	9.43E-04	9.04E-04		4.00E+00		2.26E-04
Bis(2-ethylhexyl)phthalate	1.19E-01	2	350	30	70	10950	3.40E-03	3.26E-03		2.00E-02		1.63E-01
Diethylphthalate	1.43E-02	2	350	30	70	10950	4.10E-04	3.93E-04		8.00E-01		4.91E-04
Di-n-butyl phthalate	2.50E-03	2	350	30	70	10950	7.14E-05	6.85E-05		1.00E-01		6.85E-04
Dimethylphthalate	2.04E-02	2	350	30	70	10950	5.83E-04	5.59E-04		1.00E+00		5.59E-04
2-Methylnaphthalene	1.50E-03	2	350	30	70	10950	4.29E-05	4.11E-05				
4-Methylphenol (p-cresol)	1.43E+00	2	350	30	70	10950	4.10E-02	3.93E-02		5.00E-02		7.86E-01
Naphthalene	1.62E-02	2	350	30	70	10950	4.62E-04	4.43E-04	5.00E-02	4.00E-03	9.23E-03	1.11E-01
N-Nitrosodiphenylamine	4.25E-02	2	350	30	70	10950	1.21E-03	1.16E-03				
Phenol	2.37E-02	2	350	30	70	10950	6.77E-04	6.49E-04	6.00E-01	6.00E-01	1.13E-03	1.08E-03
Aluminum	5.57E+01	2	350	30	70	10950	1.59E+00	1.53E+00				
Antimony	7.88E-02	2	350	30	70	10950	2.25E-03	2.16E-03	1.50E-03	4.00E-04	1.50E+00	5.40E+00

TABLE 5
SITE : BATAVIA
ENV. MEDIUM : GROUND WATER
EXPOSURE TYPE : INGESTION/FUTURE RESIDENTIAL SCENARIOS
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Conc. (mg/L)	Ingestion Rate (L/day)	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Acute Body Dose (mg/kg/day)	Chronic Body Dose (mg/kg/day)	Acute Protective Body Dose (mg/kg/day)	Chronic Protective Body Dose (mg/kg/day)	Acute Hazard Quotient	Chronic Hazard Quotient
Arsenic	4.60E-02	2	350	30	70	10950	1.31E-03	1.26E-03		3.00E-04		4.20E+00
Barium	7.67E-01	2	350	30	70	10950	2.19E-02	2.10E-02		5.00E-02		4.20E-01
Beryllium	1.38E-03	2	350	30	70	10950	3.94E-05	3.78E-05	3.00E+00	5.00E-03	1.31E-05	7.56E-03
Calcium	6.69E+02	2	350	30	70	10950	1.91E+01	1.83E+01				
Chromium, total	1.18E-01	2	350	30	70	10950	3.36E-03	3.23E-03	1.40E-01	8.76E-01	2.40E-02	3.68E-03
Cobalt	6.51E-02	2	350	30	70	10950	1.86E-03	1.78E-03				
Copper	3.89E-01	2	350	30	70	10950	1.11E-02	1.07E-02		4.00E-02		2.66E-01
Iron	1.31E+02	2	350	30	70	10950	3.74E+00	3.59E+00		5.00E-01		7.18E+00
Lead	1.96E-01	2	350	30	70	10950	5.59E-03	5.36E-03				
Magnesium	2.27E+02	2	350	30	70	10950	6.48E+00	6.21E+00				
Manganese	2.09E+00	2	350	30	70	10950	5.97E-02	5.73E-02		1.00E-01		5.73E-01
Mercury	3.30E-04	2	350	30	70	10950	9.43E-06	9.04E-06		3.00E-04		3.01E-02
Nickel	1.55E-01	2	350	30	70	10950	4.43E-03	4.25E-03	1.00E-01	2.00E-02	4.43E-02	2.12E-01
Potassium	6.49E+01	2	350	30	70	10950	1.85E+00	1.78E+00				
Vanadium	8.35E-02	2	350	30	70	10950	2.39E-03	2.29E-03	8.00E-03	7.00E-03	2.98E-01	3.27E-01
Zinc	4.87E+01	2	350	30	70	10950	1.39E+00	1.33E+00	4.00E-01	2.00E-01	3.48E+00	6.67E+00
										HAZARD INDEX:	5.37E+00	2.68E+01

RISK ASSESSMENT SPREADSHEETS
FOR THE
BATAVIA LANDFILL SITE

TABLE : 1
SITE : BATAVIA
ENV. MEDIUM : BORING WASTE SAMPLE
EXPOSURE TYPE : ACUTE INGESTION/RESIDENT/CHILD
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Body Weight (kg)	Acute Body Dose (mg/kg/day)	Acute Protective Body Dose (mg/kg/day)	Acute Hazard Quotient
Aluminum	30900	200	1.0E−06	1	15	4.12E−01	0.00E+00	
Barium	28800	200	1.0E−06	1	15	3.84E−01	0.00E+00	
Beryllium	12	200	1.0E−06	1	15	1.60E−04	3.00E+00	5E−05
Calcium	32800	200	1.0E−06	1	15	4.37E−01	0.00E+00	
Chromium, total	36	200	1.0E−06	1	15	4.80E−04	1.40E−01	3E−03
Copper	120	200	1.0E−06	1	15	1.60E−03	0.00E+00	
Iron	10600	200	1.0E−06	1	15	1.41E−01	0.00E+00	
Magnesium	200000	200	1.0E−06	1	15	2.67E+00	0.00E+00	
Manganese	1200	200	1.0E−06	1	15	1.60E−02	0.00E+00	
Titanium	140	200	1.0E−06	1	15	1.87E−03	0.00E+00	
Zinc	1020	200	1.0E−06	1	15	1.36E−02	4.00E−01	3E−02

HAZARD INDEX: 4E−02

TABLE : 2
SITE : BATAVIA
ENV. MEDIUM : TEST PIT WASTE SOILS
EXPOSURE TYPE : ACUTE INGESTION/RESIDENT/CHILD
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Body Weight (kg)	Acute Body Dose (mg/kg/day)	Acute Protective Body Dose (mg/kg/day)	Acute Hazard Quotient
2-Butanone (MEK)	1700	200	1.0E-06	1	15	2.27E-02	8.00E+00	3E-03
4-Methyl-2-Pentanone	28	200	1.0E-06	1	15	3.73E-04	0.00E+00	
Acetone	210	200	1.0E-06	1	15	2.80E-03	0.00E+00	
Carbon Disulfide	100	200	1.0E-06	1	15	1.33E-03	0.00E+00	
Ethylbenzene	600	200	1.0E-06	1	15	8.00E-03	3.20E+00	3E-03
Toluene	5100	200	1.0E-06	1	15	6.80E-02	2.00E+00	3E-02
Total Xylenes	2100	200	1.0E-06	1	15	2.80E-02	4.00E+00	7E-03
Total Phenols	31	200	1.0E-06	1	15	4.13E-04	0.00E+00	
2-Methylnaphthalene	130	200	1.0E-06	1	15	1.73E-03	0.00E+00	
4-Chloro-3-methylphenol	48	200	1.0E-06	1	15	6.40E-04	0.00E+00	
bis(2-Ethylhexyl)phthalate	9.2	200	1.0E-06	1	15	1.23E-04	0.00E+00	
Phenanthrene	56	200	1.0E-06	1	15	7.47E-04	0.00E+00	
Arsenic	2.8	200	1.0E-06	1	15	3.73E-05	0.00E+00	
Beryllium	0.53	200	1.0E-06	1	15	7.07E-06	3.00E+00	2E-06
Chromium, total	3200	200	1.0E-06	1	15	4.27E-02	1.40E-01	3E-01
Copper	410	200	1.0E-06	1	15	5.47E-03	0.00E+00	
Lead	2000	200	1.0E-06	1	15	2.67E-02	0.00E+00	
Nickel	57	200	1.0E-06	1	15	7.60E-04	1.00E-01	8E-03
Silver	0.55	200	1.0E-06	1	15	7.33E-06	2.00E-02	4E-04
Zinc	370	200	1.0E-06	1	15	4.93E-03	4.00E-01	1E-02
						HAZARD INDEX:		4E-01

TABLE : 3
SITE : BATAVIA
ENV. MEDIUM : SUSPECTED MAGNESIUM FINES
EXPOSURE TYPE : ACUTE INGESTION/RESIDENT/CHILD
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Body Weight (kg)	Acute Body Dose (mg/kg/day)	Acute Protective Body Dose (mg/kg/day)	Acute Hazard Quotient
2-Hexanone (MBK)	0.0041	200	1.0E-06	1	15	5.47E-08	0.00E+00	
Acetone	0.051	200	1.0E-06	1	15	6.80E-07	0.00E+00	
Methylene Chloride	0.0135	200	1.0E-06	1	15	1.80E-07	1.33E+00	1E-07
bis(2-Ethylhexyl)phthalate	0.088	200	1.0E-06	1	15	1.17E-06	0.00E+00	
Aluminum	102000	200	1.0E-06	1	15	1.36E+00	0.00E+00	
Arsenic	83.8	200	1.0E-06	1	15	1.12E-03	0.00E+00	
Barium	4670	200	1.0E-06	1	15	6.23E-02	0.00E+00	
Beryllium	29.4	200	1.0E-06	1	15	3.92E-04	3.00E+00	1E-04
Cadmium	13.4	200	1.0E-06	1	15	1.79E-04	4.00E-03	4E-02
Calcium	10900	200	1.0E-06	1	15	1.45E-01	0.00E+00	
Chromium, total	117	200	1.0E-06	1	15	1.56E-03	1.40E-01	1E-02
Cobalt	1.9	200	1.0E-06	1	15	2.53E-05	0.00E+00	
Copper	2400	200	1.0E-06	1	15	3.20E-02	0.00E+00	
Iron	7690	200	1.0E-06	1	15	1.03E-01	0.00E+00	
Lead	128.5	200	1.0E-06	1	15	1.71E-03	0.00E+00	
Magnesium	201500	200	1.0E-06	1	15	2.69E+00	0.00E+00	
Manganese	969	200	1.0E-06	1	15	1.29E-02	0.00E+00	
Nickel	60.2	200	1.0E-06	1	15	8.03E-04	1.00E-01	8E-03
Potassium	513	200	1.0E-06	1	15	6.84E-03	0.00E+00	
Silver	2.35	200	1.0E-06	1	15	3.13E-05	2.00E-02	2E-03
Thallium	0.9	200	1.0E-06	1	15	1.20E-05	7.00E-04	2E-02
Vanadium	16	200	1.0E-06	1	15	2.13E-04	8.00E-03	3E-02
Zinc	1930	200	1.0E-06	1	15	2.57E-02	4.00E-01	6E-02

HAZARD INDEX:	2E-01

TABLE : 4
SITE : BATAVIA
ENV. MEDIUM : SUBSURFACE SOIL (WASTE PIT AREA)
EXPOSURE TYPE : INGESTION/FUTURE/EXCAVATION WORKER
RISK TYPE : CARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Chronic Body Dose (mg/kg/day)	Oral Slope Factor -1 (mg/kg/day)	Increased CA Risk
Aluminum	248000	480	1.0E-06	1	65	1	70	25550	4.33E-03	0.00E+00	
Antimony	239	480	1.0E-06	1	65	1	70	25550	4.17E-06	0.00E+00	
Arsenic	164	480	1.0E-06	1	65	1	70	25550	2.86E-06	1.75E+00	5E-06
Barium	237	480	1.0E-06	1	65	1	70	25550	4.13E-06	0.00E+00	
Beryllium	0.71	480	1.0E-06	1	65	1	70	25550	1.24E-08	4.30E+00	5E-08
Cadmium	17.3	480	1.0E-06	1	65	1	70	25550	3.02E-07	0.00E+00	
Chromium, total	313000	480	1.0E-06	1	65	1	70	25550	5.46E-03	0.00E+00	
Cobalt	2.8	480	1.0E-06	1	65	1	70	25550	4.88E-08	0.00E+00	
Copper	1010	480	1.0E-06	1	65	1	70	25550	1.76E-05	0.00E+00	
Iron	8770	480	1.0E-06	1	65	1	70	25550	1.53E-04	0.00E+00	
Lead	94.7	480	1.0E-06	1	65	1	70	25550	1.65E-06	0.00E+00	
Magnesium	410000	480	1.0E-06	1	65	1	70	25550	7.15E-03	0.00E+00	
Manganese	1850	480	1.0E-06	1	65	1	70	25550	3.23E-05	0.00E+00	
Nickel	25.5	480	1.0E-06	1	65	1	70	25550	4.45E-07	0.00E+00	
Selenium	4.1	480	1.0E-06	1	65	1	70	25550	7.15E-08	0.00E+00	
Silver	1.6	480	1.0E-06	1	65	1	70	25550	2.79E-08	0.00E+00	
Thallium	6	480	1.0E-06	1	65	1	70	25550	1.05E-07	0.00E+00	
Vanadium	14.2	480	1.0E-06	1	65	1	70	25550	2.48E-07	0.00E+00	
Zinc	3670	480	1.0E-06	1	65	1	70	25550	6.40E-05	0.00E+00	
									TOTAL RISK:		5E-06

TABLE : 5
SITE : BATAVIA
ENV. MEDIUM : SUBSURFACE SOIL (WASTE PIT AREA)
EXPOSURE TYPE : INGESTION/FUTURE/EXCAVATION WORKER
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Subchronic Body Dose (mg/kg/day)	Subchronic Protective Body Dose (mg/kg/day)	Subchronic Hazard Quotient
Aluminum	248000	480	1.0E-06	1	65	1	70	91	1.21E+00	1.00E+00a	1E+00
Antimony	239	480	1.0E-06	1	65	1	70	91	1.17E-03	4.00E-04	3E+00
Arsenic	164	480	1.0E-06	1	65	1	70	91	8.03E-04	1.00E-03	8E-01
Barium	237	480	1.0E-06	1	65	1	70	91	1.16E-03	5.00E-02	2E-02
Beryllium	0.71	480	1.0E-06	1	65	1	70	91	3.48E-06	5.00E-03	7E-04
Cadmium	17.3	480	1.0E-06	1	65	1	70	91	8.47E-05	1.00E-03	8E-02
Chromium, total	313000	480	1.0E-06	1	65	1	70	91	1.53E+00	8.75E+00	2E-01
Cobalt	2.8	480	1.0E-06	1	65	1	70	91	1.37E-05	0.00E+00	
Copper	1010	480	1.0E-06	1	65	1	70	91	4.95E-03	4.00E-02	1E-01
Iron	8770	480	1.0E-06	1	65	1	70	91	4.30E-02	5.00E-01	9E-02
Lead	94.7	480	1.0E-06	1	65	1	70	91	4.64E-04	0.00E+00	
Magnesium	410000	480	1.0E-06	1	65	1	70	91	2.01E+00	0.00E+00	
Manganese	1850	480	1.0E-06	1	65	1	70	91	9.06E-03	1.00E-01	9E-02
Nickel	25.5	480	1.0E-06	1	65	1	70	91	1.25E-04	2.00E-02	6E-03
Selenium	4.1	480	1.0E-06	1	65	1	70	91	2.01E-05	5.00E-03	4E-03
Silver	1.6	480	1.0E-06	1	65	1	70	91	7.84E-06	3.00E-03	3E-03
Thallium	6	480	1.0E-06	1	65	1	70	91	2.94E-05	7.00E-04	4E-02
Vanadium	14.2	480	1.0E-06	1	65	1	70	91	6.96E-05	7.00E-03	1E-02
Zinc	3670	480	1.0E-06	1	65	1	70	91	1.80E-02	2.00E-01	9E-02
										HAZARD INDEX:	6E+00

TABLE : 6
SITE : BATAVIA
ENV. MEDIUM : SUBSURFACE SOIL (WASTE PIT AREA)
EXPOSURE TYPE : DERMAL CONTACT/FUTURE/EXCAVATION WORKER
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	kg/mg	Skin Surface Area Contacted (cm2/day)	Soil Skin Adherence Factor (mg/cm2)	Absorption Factor	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Subchronic Body Dose (mg/kg/day)	Subchronic Protective Body Dose (mg/kg/day)	Subchronic Hazard Quotient
CADMIUM	17.300	1.0E-06	3120	0.6	0.005	65	1	70	91	1.65E-06	5.00E-05	3E-02

TABLE : 7
SITE : BATAVIA
ENV. MEDIUM : SEDIMENTS
EXPOSURE TYPE : INGESTION/PRESENT & FUTURE/RESIDENT/CHILD
RISK TYPE : CARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Chronic Body Dose (mg/kg/day)	Oral Slope Factor -1 (mg/kg/day)	Increased CA Risk
2-Butanone (MEK)	0.10	200	1.0E-06	1	143	6	15	25550	4.55E-08	0.00E+00	
Acetone	1.64	200	1.0E-06	1	143	6	15	25550	7.34E-07	0.00E+00	
Methylene Chloride	0.13	200	1.0E-06	1	143	6	15	25550	5.74E-08	7.50E-03	4E-10
Toluene	0.03	200	1.0E-06	1	143	6	15	25550	1.17E-08	0.00E+00	
1,2-Dichlorobenzene	0.13	200	1.0E-06	1	143	6	15	25550	5.82E-08	0.00E+00	
2-Methylnaphthalene	6.04	200	1.0E-06	1	143	6	15	25550	2.70E-06	0.00E+00	
4-Methylphenol	0.95	200	1.0E-06	1	143	6	15	25550	4.26E-07	0.00E+00	
Acenaphthylene	0.46	200	1.0E-06	1	143	6	15	25550	2.06E-07	0.00E+00	
Anthracene	0.46	200	1.0E-06	1	143	6	15	25550	2.07E-07	0.00E+00	
Benzo(a)anthracene	31.09	200	1.0E-06	1	143	6	15	25550	1.39E-05	5.79E+00	8E-05
Benzo(a)pyrene	34.76	200	1.0E-06	1	143	6	15	25550	1.56E-05	5.79E+00	9E-05
Benzo(b)fluoranthene	23.41	200	1.0E-06	1	143	6	15	25550	1.05E-05	5.79E+00	6E-05
Benzo(g,h,i)perylene	0.74	200	1.0E-06	1	143	6	15	25550	3.33E-07	0.00E+00	
Benzo(k)fluoranthene	23.41	200	1.0E-06	1	143	6	15	25550	1.05E-05	5.79E+00	6E-05
Benzyl alcohol	0.21	200	1.0E-06	1	143	6	15	25550	9.40E-08	0.00E+00	
bis(2-Ethylhexyl)phthalate	3.58	200	1.0E-06	1	143	6	15	25550	1.60E-06	1.40E-02	2E-08
Chrysene	41.30	200	1.0E-06	1	143	6	15	25550	1.85E-05	5.79E+00	1E-04
Di-n-butylphthalate	0.80	200	1.0E-06	1	143	6	15	25550	3.58E-07	0.00E+00	
Dibenzo(a,h)anthracene	0.42	200	1.0E-06	1	143	6	15	25550	1.88E-07	5.79E+00	1E-06
Dibenzofuran	0.29	200	1.0E-06	1	143	6	15	25550	1.30E-07	0.00E+00	
Dimethylphthalate	0.40	200	1.0E-06	1	143	6	15	25550	1.78E-07	0.00E+00	
Fluoranthene	7.99	200	1.0E-06	1	143	6	15	25550	3.58E-06	0.00E+00	
Fluorene	0.42	200	1.0E-06	1	143	6	15	25550	1.88E-07	0.00E+00	
Indeno(1,2,3-cd)pyrene	4.35	200	1.0E-06	1	143	6	15	25550	1.95E-06	5.79E+00	1E-05
Pentachlorophenol	480	200	1.0E-06	1	143	6	15	25550	2.15E-04	1.20E-01	3E-05
Phenanthrene	38.92	200	1.0E-06	1	143	6	15	25550	1.74E-05	0.00E+00	
Phenol	0.19	200	1.0E-06	1	143	6	15	25550	8.51E-08	0.00E+00	
Pyrene	27.50	200	1.0E-06	1	143	6	15	25550	1.23E-05	0.00E+00	
Aluminum	16400	200	1.0E-06	1	143	6	15	25550	7.34E-03	0.00E+00	
Arsenic	14.24	200	1.0E-06	1	143	6	15	25550	6.38E-06	1.75E+00	1E-05
Barium	2016.72	200	1.0E-06	1	143	6	15	25550	9.03E-04	0.00E+00	
Beryllium	0.92	200	1.0E-06	1	143	6	15	25550	4.12E-07	4.30E+00	2E-06
Cadmium	14	200	1.0E-06	1	143	6	15	25550	6.27E-06	0.00E+00	
Chromium, total	31.50	200	1.0E-06	1	143	6	15	25550	1.41E-05	0.00E+00	
Cobalt	6.77	200	1.0E-06	1	143	6	15	25550	3.03E-06	0.00E+00	
Copper	81.40	200	1.0E-06	1	143	6	15	25550	3.64E-05	0.00E+00	
Iron	53574.11	200	1.0E-06	1	143	6	15	25550	2.40E-02	0.00E+00	
Lead	279.21	200	1.0E-06	1	143	6	15	25550	1.25E-04	0.00E+00	
Magnesium	24860.34	200	1.0E-06	1	143	6	15	25550	1.11E-02	0.00E+00	
Manganese	728.86	200	1.0E-06	1	143	6	15	25550	3.26E-04	0.00E+00	
Mercury	0.31	200	1.0E-06	1	143	6	15	25550	1.38E-07	0.00E+00	
Nickel	24.77	200	1.0E-06	1	143	6	15	25550	1.11E-05	0.00E+00	
Selenium	3.15	200	1.0E-06	1	143	6	15	25550	1.41E-06	0.00E+00	
Silver	3.63	200	1.0E-06	1	143	6	15	25550	1.62E-06	0.00E+00	
Vanadium	24.73	200	1.0E-06	1	143	6	15	25550	1.11E-05	0.00E+00	
Zinc	496.29	200	1.0E-06	1	143	6	15	25550	2.22E-04	0.00E+00	

TABLE : 8
SITE : BATAVIA
ENV. MEDIUM : SEDIMENTS
EXPOSURE TYPE : INGESTION/PRESENT & FUTURE/RESIDENT/CHILD
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	Ingestion Rate (mg/day)	Conversion Factor kg/mg	Fraction Ingested	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Chronic Dose (mg/kg/day)	Chronic Protective Body Dose (mg/kg/day)	Chronic Hazard Quotient
2-Butanone (MEK)	0.10	200	1.0E-06	1	143	6	15	2190	5.31E-07	5.00E-02	1E-05
Acetone	1.64	200	1.0E-06	1	143	6	15	2190	8.56E-06	1.00E-01	9E-05
Methylene Chloride	0.13	200	1.0E-06	1	143	6	15	2190	6.70E-07	6.00E-02	1E-05
Toluene	0.03	200	1.0E-06	1	143	6	15	2190	1.36E-07	2.00E-01	7E-07
1,2-Dichlorobenzene	0.13	200	1.0E-06	1	143	6	15	2190	6.79E-07	9.00E-02	8E-06
2-Methylnaphthalene	6.04	200	1.0E-06	1	143	6	15	2190	3.15E-05	0.00E+00	
4-Methylphenol	0.95	200	1.0E-06	1	143	6	15	2190	4.97E-06	5.00E-02	1E-04
Acenaphthylene	0.46	200	1.0E-06	1	143	6	15	2190	2.40E-06	0.00E+00	
Anthracene	0.46	200	1.0E-06	1	143	6	15	2190	2.41E-06	3.00E-01	8E-06
Benzo(a)anthracene	31.09	200	1.0E-06	1	143	6	15	2190	1.62E-04	0.00E+00	
Benzo(a)pyrene	34.76	200	1.0E-06	1	143	6	15	2190	1.82E-04	0.00E+00	
Benzo(b)fluoranthene	23.41	200	1.0E-06	1	143	6	15	2190	1.22E-04	0.00E+00	
Benzo(g,h,i)perylene	0.74	200	1.0E-06	1	143	6	15	2190	3.88E-06	0.00E+00	
Benzo(k)fluoranthene	23.41	200	1.0E-06	1	143	6	15	2190	1.22E-04	0.00E+00	
Benzyl alcohol	0.21	200	1.0E-06	1	143	6	15	2190	1.10E-06	3.00E-01	4E-06
bis(2-Ethylhexyl)phthalate	3.58	200	1.0E-06	1	143	6	15	2190	1.87E-05	2.00E-02	9E-04
Chrysene	41.30	200	1.0E-06	1	143	6	15	2190	2.16E-04	0.00E+00	
Di-n-butylphthalate	0.80	200	1.0E-06	1	143	6	15	2190	4.18E-06	1.00E-01	4E-05
Dibenzo(a,h)anthracene	0.42	200	1.0E-06	1	143	6	15	2190	2.19E-06	0.00E+00	
Dibenzofuran	0.29	200	1.0E-06	1	143	6	15	2190	1.51E-06	4.00E-03	4E-04
Dimethylphthalate	0.40	200	1.0E-06	1	143	6	15	2190	2.07E-06	1.00E+00	2E-06
Fluoranthene	7.99	200	1.0E-06	1	143	6	15	2190	4.17E-05	4.00E-02	1E-03
Fluorene	0.42	200	1.0E-06	1	143	6	15	2190	2.20E-06	4.00E-02	5E-05
Indeno(1,2,3-cd)pyrene	4.35	200	1.0E-06	1	143	6	15	2190	2.27E-05	0.00E+00	
Pentachlorophenol	480	200	1.0E-06	1	143	6	15	2190	2.51E-03	3.00E-02	8E-02
Phenanthrene	38.92	200	1.0E-06	1	143	6	15	2190	2.03E-04	0.00E+00	
Phenol	0.19	200	1.0E-06	1	143	6	15	2190	9.93E-07	6.00E-01	2E-06
Pyrene	27.50	200	1.0E-06	1	143	6	15	2190	1.44E-04	3.00E-02	5E-03
Aluminum	16400	200	1.0E-06	1	143	6	15	2190	8.57E-02	1.00E+00	9E-02
Arsenic	14.24	200	1.0E-06	1	143	6	15	2190	7.44E-05	3.00E-04	2E-01
Barium	2016.72	200	1.0E-06	1	143	6	15	2190	1.05E-02	5.00E-02	2E-01
Beryllium	0.92	200	1.0E-06	1	143	6	15	2190	4.81E-06	5.00E-03	1E-03
Cadmium	14	200	1.0E-06	1	143	6	15	2190	7.31E-05	1.00E-03	7E-02
Chromium, total	31.50	200	1.0E-06	1	143	6	15	2190	1.65E-04	8.76E-01	2E-04
Cobalt	6.77	200	1.0E-06	1	143	6	15	2190	3.54E-05	0.00E+00	
Copper	81.40	200	1.0E-06	1	143	6	15	2190	4.25E-04	4.00E-02	1E-02
Iron	53574.11	200	1.0E-06	1	143	6	15	2190	2.80E-01	5.00E-01	6E-01
Lead	279.21	200	1.0E-06	1	143	6	15	2190	1.46E-03	0.00E+00	
Magnesium	24860.34	200	1.0E-06	1	143	6	15	2190	1.30E-01	0.00E+00	
Manganese	728.86	200	1.0E-06	1	143	6	15	2190	3.81E-03	1.00E-01	4E-02
Mercury	0.31	200	1.0E-06	1	143	6	15	2190	1.61E-06	3.00E-04	5E-03
Nickel	24.77	200	1.0E-06	1	143	6	15	2190	1.29E-04	2.00E-02	6E-03
Selenium	3.15	200	1.0E-06	1	143	6	15	2190	1.65E-05	5.00E-03	3E-03
Silver	3.63	200	1.0E-06	1	143	6	15	2190	1.90E-05	5.00E-03	4E-03
Vanadium	24.73	200	1.0E-06	1	143	6	15	2190	1.29E-04	7.00E-03	2E-02
Zinc	496.29	200	1.0E-06	1	143	6	15	2190	2.59E-03	2.00E-01	1E-02
										HAZARD INDEX:	1E+00

TABLE : 9
SITE : BATAVIA
ENV. MEDIUM : SEDIMENTS
EXPOSURE TYPE : DERMAL CONTACT/FUTURE/RESIDENT
RISK TYPE : NONCARCINOGENIC

Contaminant of Concern	Concentration (mg/kg)	kg/mg	Skin Surface Area Contacted (cm2/day)	Soil Skin Adherence Factor (mg/cm2)	Absorption Factor	Exposure Frequency (days/yr)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)	Chronic Body Dose (mg/kg/day)	Chronic Protective Body Dose (mg/kg/day)	Chronic Hazard Quotient
Child												
CADMIUM	14.000	1.0E-06	3680	0.6	0.005	143	6	15	2190	4.04E-06	5.00E-05	8E-02
Adult												
CADMIUM	14.000	1.0E-06	3120	0.6	0.005	78	24	70	8760	4.00E-07	5.00E-05	8E-03

APPENDIX III

ADMINISTRATIVE RECORD INDEX

BATAVIA LANDFILL SITE
OPERABLE UNIT ONE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

3.0 REMEDIAL INVESTIGATION

3.2 Sampling and Analysis Data/Chain of Custody Forms

P. 300001 - 300007 Letter to Mr. Michael Walters, Work Assignment Manager, U.S. EPA, from Mr. Conrad Leszkiewicz, P.E., Project Manager, TRC Environmental Corporation, re: Summary of the Validated Analytical from TRC's Groundwater Sampling Event Conducted at the Batavia Landfill Site on February 8-10, 1994, April 15, 1994. (Attached: U.S. EPA - CLP Inorganic Analyses Data Package)

P. 300008 - 300032 Letter to Mr. Michael Walters, Work Assignment Manager, U.S. EPA, from Mr. Conrad Leszkiewicz, P.E., Project Manager, TRC Environmental Corporation, re: Groundwater Sampling Results (Volatile Organics, Semi-Volatile Organics), April 13, 1994. (Attached: Sample Data Package, prepared by Ms. Jean M. Zimmerman, Technical Reviewer, CompuChem Environmental Corporation, February, 24, 1994.)

P. 300033 - 300037 Letter to Mr. Erwin Smieszek, Regional Project Officer, U.S. EPA, from Mr. Douglas Sullivan, Regional Manager, TRC Environmental Corporation, re: Supplemental Ground Water Sampling Addendum, February 4, 1994. (Attached: 1. Table 1-1, Batavia Landfill Field Sampling and QA Summary, (undated); 2. Letter to Mr. Jeff Healey, Project Manager, TRC Environmental Corporation, from Mr. Michael Walters, Project Manager, Western New York Section II, Region II, U.S. EPA, re: Approval of the Revised Addendum to the 1990 Field Oversight Workplan for the Batavia Landfill Superfund Site, Genesee County, New York, November 3, 1992.)

3.5 Correspondence

P. 300038 - 300038 Memorandum to Ms. Laura Scalise, Chemist, Toxic and Hazardous Waste Section, Region II, U.S. EPA, from Mr. Michael Walters, Remedial Project Manager, Western New York Section II, Region II, U.S. EPA, re: Review of Revised Draft Work Plan for Supplemental Sediment and Surface Water Sampling at the Batavia Landfill Superfund Site, Genesee County, New York, June 3, 1994.

P. 300039 - 300039 Memorandum to Mr. Daniel Montella, Chief, Wetlands Protection Section, Region II, U.S. EPA, from Mr. Kevin Lynch, Chief, Western New York Section II, Region II, U.S. EPA, re: Technical Review of Draft Sediment and Surface Water Sampling Plan for the Batavia Landfill Superfund Site, June 1, 1994.

P. 300040 - 300040 Memorandum to Mr. John Filippelli, Chief, Environmental Analysis Section, Region II, U.S. EPA, from Mr. Kevin Lynch, Chief, Western New York Section II, Region II, U.S. EPA, re: Technical Review of Draft Sediment and Surface Water Sampling Plan for the Batavia Landfill Superfund Site, June 1, 1994.

P. 300041 - 300041 Memorandum to Ms. Amelia Jackson, Chemist, Toxic and Hazardous Waste Section, Region II, U.S. EPA, from Mr. Michael Walters, Remedial Project Manager, Western New York Section II, Region II, U.S. EPA, re: Review of Draft Work Plan for Supplemental Sediment and Surface Water Sampling at the Batavia Landfill Superfund Site, Genesee County, New York, April 29, 1994.

P. 300042 - 300042 Letter to Mr. Conrad Leszkiewicz, Project Manager, TRC Environmental Corporation, from Mr. Michael Walters, Remedial Project Manager, Emergency and Remedial Response Division, Region II, U.S. EPA, re: Approval of Batavia Landfill Superfund Site Supplementary Groundwater Sampling Addendum, February 8, 1994. (Fax transmittal attached.)

4.0 FEASIBILITY STUDY

4.3 Feasibility Sudy Reports

P. 400001 - 400348 Report: Batavia Landfill Site, Operable Unit 1, Draft Feasibility Study, Batavia, New York, prepared for NL Industries, Inc., prepared by GZA GeoEnvironmental of New York, March 1994.

P. 400349 - 400380 Report: Technical Review of the Feasibility Study Report for the Batavia Landfill Site, Batavia, New York, prepared for U.S. EPA, prepared by TRC Environmental Corporation, December 15, 1993.

P. 400381 - 400433 Report: Stage 1A Cultural Resource Investigations for the Batavia Landfill Superfund Site, Town of Batavia, Genesee County, New York, prepared for GZA GeoEnvironmental of New York, prepared by Pratt & Huth Associates, September 20, 1993.

4.6 Correspondence

P. 400434 - 400436 Letter to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Jay F. Young, Principal Environmental Engineer, NL Industries, Inc., re: NL Response to EPA Comments dated January 15, 1994, March 30, 1994.

P. 400437 - 400439 Letter to Mr. Jay F. Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Technical Review of Draft Feasibility Study Report for the Batavia Landfill Superfund Site, Genesee County, New York, March 17, 1994.

P. 400440 - 400442 Letter to Mr. Michael Walters, Work Assignment Manager, U.S. EPA, Emergency and Remedial Response Division, from Mr. Conrad Leszkiewiez, P.E., Project Manager, TRC Environmental Corporation, re: Review of Batavia Landfill Draft Feasibility Study, Operable Unit One, March 1994, April 6, 1994.

P. 400443 - 400443 Letter to Mr. Jay F. Young, Principal Environmental Engineer, NL Industries, Inc., from Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: November 1992 New York State Department of Health Ground Water Sampling Results for the Batavia Landfill Superfund Site, Genessee County, New York, February 17, 1994.

P. 400444 - 400467 Letter to Mr. Jay F. Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Technical Review of Draft Feasibility Study ("FS") Report for the Batavia Landfill Superfund Site, Genesee County, New York, January 19, 1994.

P. 400468 - 400468 Letter to Mr. Jay Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Stage 1A Cultural Resources Survey for the Batavia Landfill Superfund Site, Genesee County, New York, December 27, 1993.

P. 400469 - 400471 Memorandum to Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, from Dore LaPosta, Chief, Ground Water Management Section, U.S. EPA, Region II, re: Batavia Landfill Site, Operable Unit One, Batavia, New York, Draft Feasibility Study (FS) Report, December 7, 1993.

P. 400472 - 400473 Memorandum to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from M.A. Mustafa, Air-Superfund Coordinator, Air Programs Branch, AWM, re: Batavia Landfill Operable Unit One, Draft Feasibility Study: Air Programs Branch Review, November 30, 1993.

P. 400474 - 400475 Memorandum to Mr. Kevin Lynch, Chief, Western New York Section II, U.S. EPA, Region II, from Mr. John Filippelli, Chief, Environmental Analysis Section, re: Batavia Landfill, Feasibility Study for Operable Unit One, November 30, 1993.

P. 400476 - 400476 Letter to Mr. Jay Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Stage 1A Cultural Resources Survey for the Batavia Landfill Superfund Site, Genesee County, New York, November 29, 1993.

P. 400477 - 400478 Memorandum to Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, from Mr. Andrew Bellina, P. E., Chief, Hazardous Waste Facilities Branch, U.S. EPA, Region II, re: Review of the Operable Unit One Draft Feasibility Study Report for the Batavia Landfill Superfund Site, Genesee, New York, November 24, 1993.

P. 400479 - 400479 Memorandum to Mr. Kevin Lynch, Chief, Western New York, U.S. EPA, Region II, from Mr. John Filippelli, Chief, Environmental Analysis Section, re: Batavia Landfill, Stage IA Cultural Resources Survey, November 16, 1993.

P. 400480 - 400492 Letter to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Jay F. Young, Principle Environmental Engineer, NL Industries, Inc., re: Batavia Landfill Superfund Site Feasibility Study, March 1, 1993. Attached Report: Work Plan, Batavia Landfill Site Feasibility Study, prepared by GZA GeoEnvironmental of New York, prepared for NL Industries, Inc., March 1993.

P. 400493 - 400494 Letter to Mr. Jay Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Finalization of the Feasibility Study Workplan for the Batavia Landfill Superfund Site, June 10, 1993.

P. 400495 - 400495 Letter to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Jay F. Young, Principal Environmental Engineer, NL Industries, Inc., re: Batavia Landfill Site (BLS), Revised Feasibility Study Work Plan, May 24, 1993.

P. 400496 - 400500 Letter to Mr. Jay Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Draft Feasibility Study Workplan, April 16, 1993.

6.0 STATE COORDINATION

6.3 Correspondence

P. 600001 - 600002 Letter to Mr. Steve Scharf, P.E., Bureau of Western Remedial Action, New York State Department of Environmental Conservation, from Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, U.S. EPA, re: Revised Draft Sediment and Surface Water Sampling Plan for the Ecological Assessment of the Batavia Landfill Superfund Site, Genesee County, New York, June 1, 1994.

P. 600003 - 600005 Letter to Mr. Michael Walters, Region II, U.S. EPA, from Mr. Steven M. Scharf, P.E., Project Engineer, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Comments on the Draft Final Feasibility Study Prepared by GZA Geoenvironmental of New York on Behalf of NL Industries Inc., and to Offer Input on the Impending Proposed Remedial Action Plan (PRAP) for Operable Unit One (OU1), May 19, 1994.

P. 600006 - 600009 Transmittal slip to Mr. Michael Walters, Remedial Project Manager, Region II, U.S. EPA, from Mr. Steve Scharf, P.E., Project Engineer, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: A Copy of the Memo to the New York State Department of Environmental Conservation, Division of Fish and Wildlife, Detailing Items Which Need to be Incorporated into the Proposed Remedial Action Plan, May 16, 1994. (Attached: Memorandum to Ms. Emmy Thomee, Hazardous Waste Site Evaluation Unit, Department of Fish and Wildlife, New York State Department of Environmental Conservation, from Mr. Steven M. Scharf, P.E., Project Engineer, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Summary of Discussions Between Department of Fish and Wildlife and the Division of Hazardous Waste Remediation with Respect to the DFW's Concerns on the Batavia Landfill Feasibility Study and the Upcoming Proposed Remedial Action Plan, May 10, 1994.)

P. 600010 - 600013 Letter to Mr. Michael Walters, Region II, U.S. EPA, from Mr. Steven Scharf, P.E., Project Engineer, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Comments on the Batavia Landfill Site Feasibility Study Prepared by GZA Associates on Behalf of NL Industries, Inc., from the New York State Department of Environmental Conservation, December 13, 1993. (Attached: Letter to Mr. Steven Scharf, Bureau of Western Remedial Action, New York State Department of Environmental Conservation, from Mr. Charles J. Amento, Environmental Health Specialist II, Bureau of Environmental Exposure Investigation, Center for Environmental Health, State of New York Department of Health, re: Review of the Draft Feasibility Study for the Batavia Landfill Site, November 30, 1993.)

P. 600014 - 600015 Letter to Mr. Kevin Lynch, Section Chief, Emergency and Remedial Response Division, U.S. EPA, from Mr. Robert W. Schick, P.E., Chief, Remedial Section A, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Comments on the Wetlands Assessment Report for the Batavia Landfill Site Prepared by GZA Associates on Behalf of NL Industries, Inc., by the New York State Department of Environmental Conservation, November 29, 1993.

P. 600016 - 600016 Memorandum to Mr. Steven Scharf, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, from Mr. Paul Carella, Bureau of Environmental Protection, Division of Fish and Wildlife, New York State Department of Environmental Conservation, re: Failure to Complete Various Reports for the Batavia Landfill Site has Jeopardized the New York State Department of Environmental Conservation's Concurrence with a Final Site Remedy, November 4, 1993. (Fax transmittal attached.)

P. 600017 - 600017 Memorandum to Mr. Steven Scharf, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, from Mr. Paul Carella, Bureau of Environmental Protection, Division of Fish and Wildlife, New York State Department of Environmental Conservation, re: Request for Additional Documentation Needed by the Division of Fish and Wildlife to Completely Evaluate Ecological Impacts Resulting from Site Contamination, October 26, 1993.

P. 600018 - 600018 Letter to Mr. Michael Walters, Region II, U.S. EPA, from Mr. Steven M. Scharf, P.E., Remedial Action Section A, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: New York State Department of Environmental Conservation's Position on the Status of the Batavia Landfill Site, July 19, 1993.

P. 600019 - 600020 Letter to Mr. Michael Walters, Region II, U.S. EPA, from Mr. Steven Scharf, Environmental Engineer 2, Bureau of Western Remedial Action, Division of Hazardous Waste Remediation, New York State Department of Environmental Conservation, re: Comments on the Batavia Landfill Feasibility Study Scope of Work Prepared by GZA Associates on Behalf of NL Industries Inc., from the New York State Department of Environmental Conservation and the New York Department of Health, March 18, 1993.

7.0 ENFORCEMENT

7.2 Endangerment Assessments

P. 700001 - 700004 Letter to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. David Fratt, Manager, Health & Environmental Sciences Department, TRC Environmental Corporation, re: Attached Summary and Conclusions for Batavia Landfill Risk Assessment, April 26, 1994.

P. 700005 - 700388 Report: Final Risk Assessment, Batavia Landfill, Batavia, New York - Work Assignment: C02061, prepared for U.S. EPA, prepared by TRC Environmental Corporation, April 11, 1994.

P. 700389 - 700420 Report: Ecological Assessment Work Plan, Batavia Landfill, Batavia, New York - Work Assignment: C02061, prepared for U.S. EPA, prepared by TRC Environmental Corporation, April 7, 1994.

P. 700421 - 700435 Bulletin: ECO Update - Developing a Work Scope for Ecological Assessments, prepared by U.S. EPA, Intermittent Bulletin, Volume 1, Number 4, May 1992.

P. 700436 - 700466 Transmittal Slip to Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Steven Scharf, New York State Department of Environmental Conservation, re: enclosed Habitat Based Assessment report and Aquatic Sediment Criteria ARAR, March 13, 1992. Attached are: Report: Habitat Based Assessment, (undated), and Appendix B: Sediment Criteria - Report of the Sediment Medium Committee, (undated).

P. 700467 - 700496 Draft Report: Understanding Wetlands Evaluations for Hazardous Waste Sites: A Reference Document for Region II Remedial Project Managers, prepared by the Region II Biological Technical Assistance Group (BTAG), January 14, 1992.

P. 700497 - 700504 Bulletin: ECO Update - Ecological Assessment of Superfund Sites: An Overview, prepared by U.S. EPA, Intermittent Bulletin, Volume 1, Number 2, December 1991.

7.6 Documentation of Technical Discussions with PRP's

P. 700505 - 700506 Letter to Mr. Jay Young, Principal Environmental Engineer, NL Industries, Inc., from Ms. Carole Petersen, Chief, New York/Caribbean Superfund Branch II, U.S. EPA, Region II, re: Ecological Assessment Work Plan for the Batavia Landfill Superfund site, Genesee County, New York, May 6, 1994.

7.8 Correspondence

P. 700507 - 700508 Letter to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. Jay F. Young, Principal Environmental Engineer, NL Industries, Inc., re: Performance of Ecological Risk Assessment, Wetlands Delineation, and Sediment Sampling, April 26, 1994.

P. 700509 - 700510 Memorandum to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Ms. Shari Stevens, Coordinator, Biological Technical Assistance Group, U.S. EPA, Region II, re: Batavia Landfill - Draft Ecological Assessment Work Plan, April 1, 1994.

P. 700511 - 700511 Memorandum to Dore LaPosta, Chief, Ground Water Management Section, U.S. EPA, Region II, from Mr. Mario Del Vicario, Chief, Marine and Wetlands Protection Branch, re: Draft Ecological Assessment Workplan, Batavia Landfill Site, Town of Batavia, Genesee County, New York, March 17, 1994.

P. 700512 - 700512 Memorandum to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Ms. Shari Stevens, Coordinator, Biological Technical Assistance Group, U.S. EPA, Region II, re: Biological Technical Assistance Group (BTAG) Review of Draft Ecological Assessment Workplan for the Batavia Landfill Superfund Site, March 9, 1994.

Note: The documents listed on the attached index for the Batavia Landfill Administrative Record file for Operable Unit 2 (OU2) are hereby incorporated into this Administrative Record file for Operable Unit 1 (OU1) by reference.

Document Number: BAT-002-1902 To 1902 Date: / /

Title: (Letter recommending consideration of Plan 2B from the Batavia Landfill site Proposed Plan)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Peterson, Janet: none
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1903 To 1903 Date: / /

Title: (Letter providing comments on the Batavia Landfill Proposed Plan and recommending extension of the water line on Kelsey Road)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Betters, Paul D.: resident
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1925 To 1926 Date: / /

Title: (Public Notice:) The United States Environmental Protection Agency Invites Public Comment on the Proposed Plan for the BataviaLandfill Superfund Site in Batavia, New York

Type: CORRESPONDENCE
Category: 10.3.0.0.0 Public Notice(s)
Author: none: US EPA
Recipient: none: none

Document Number: BAT-002-1927 To 1932 Date: / /

Title: Batavia Landfill, Batavia, New York, Fact Sheet

Type: CORRESPONDENCE
Category: 10.6.0.0.0 Fact Sheets and Press Releases
Author: none: US EPA
Recipient: none: none

Document Number: BAT-002-1939 To 1944 Date: / /

Title: (List of names and addresses)

Type: OTHER
Category: 10.9.0.0.0 Public Correspondence
Author: none: none
Recipient: none: none

Document Number: BAT-001-0615 To 0654 Date: 09/26/80

Title: New York State Department of Environmental Conservation Resource Conservation Recovery Act (R.C.R.A.) Open Dump Inventory Ground Water Quality Evaluation

Type: REPORT
Category: 2.2.0.0.0 Sampling and Analysis Data/Chain of Custody
Author: Clark, Theodore D.: Dunn Geoscience Corporation
Recipient: Rosenchuck, Norman M.: Dunn Geoscience Corporation

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Document Number: BAT-001-0316 To 0341 Date: 02/17/83

Title: Review of Analytical Data from the Batevia Landfill, Batevia, New York

Type: PLAN
Category: 1.6.0.0.0 Site Identification Correspondence
Author: none: Fred C. Hart Associates
Recipient: none: none

Document Number: BAT-001-1890 To 1904 Date: 08/01/84

Title: Remedial Investigation at Batevia Town Landfill, Batevia, New York

Type: REPORT
Category: 3.3.0.0.0 Work Plan
Author: Rodman, Glenn M.: NL Industries, Inc.
Recipient: none: none

Document Number: BAT-002-1397 To 1427 Date: 08/09/84

Title: Administrative Order, Index No. CERCLA-40201, In the Matter of NL Industries, Inc.

Type: LEGAL DOCUMENT
Category: 7.3.0.0.0 Administrative Orders
Author: Dowling, Richard T.: US EPA
Recipient: Montanari, Fred W.: NL Industries, Inc.

Document Number: BAT-002-1451 To 1451 Date: 08/30/84

Title: (Check for $42,973.00)

Type: OTHER
Category: 7.8.0.0.0 Enforcement Correspondence
Author: Watt, John A.: NL Industries, Inc.
Recipient: none: US EPA

Document Number: BAT-001-1589 To 1608 Date: 01/18/85

Title: Evaluation of Residential Well Sampling Data from Batavia Landfill, Batavia, New York

Type: PLAN
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Capuano, Nicholas W.: NUS Corporation
Recipient: none: US EPA

Document Number: BAT-001-1609 To 1628 Date: 03/14/85

Title: Evaluation of Residential Well Sampling Data from Batavia Landfill, Batavia, New York

Type: PLAN
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Capuano, Nicholas W.: NUS Corporation
Recipient: none: US EPA

Document Number: BAT-002-1904 To 1924 Date: 04/01/85

Title: Community Relations Plan, Batavia Landfill Site, Genesee County, New York

Type: PLAN
Category: 10.2.0.0.0 Community Relations Plan
Author: Meyer, Gilbert, J. Jr.: NUS Corporation
Recipient: none: US EPA

Document Number: BAT-002-1883 To 1883 Parent: BAT-002-1882 Date: 06/20/86

Title: (News Article:) One Test Shows Excess Water Contamination

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Pfalzer, Marilyn: Batavia Daily News
Recipient: none: none

Document Number: BAT-001-1874 To 1889 Date: 07/01/86

Title: Work Plan for Additional Studies at the Batavia Town Landfill, Batavia, New York

Type: PLAN
Category: 3.3.0.0.0 Work Plan
Author: ERCO: ENSECO
Recipient: none: NL Industries, Inc.

Document Number: BAT-001-1629 To 1643 Date: 04/28/88

Title: Case Narrative (and Project Narratives from April 28, 1988, to August 25, 1988, for the Batavia Landfill site)

Type: OTHER
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: McCarthy, Elizabeth J.: ENSECO
Recipient: none: none

Document Number: BAT-002-1145 TO 1160 Date: 02/15/89

Title: Quarterly Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Kleeren, Donovan L.: Advanced Environmental Services, Inc.
Kuklis, Karen E.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0001 To 0010 Date: 02/20/89

Title: Quartely Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: McMahon, Paul T.: Advanced Environmental Services, Inc.
Simpson, Bonnie J.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0011 To 0026 Date: 02/22/89

Title: Annual Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: McMahon, Paul T.: Advanced Environmental Services, Inc.
Simpson, Bonnie J.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0028 To 0041 Parent: BAT-001-0027 Date: 02/27/89

Title: Annual Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: McMahon, Paul T.: Advanced Environmental Services, Inc.
Simpson, Bonnie J.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0027 To 0027 Date: 03/17/89

Title: (Letter forwarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukmen, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0028

Document Number: BAT-001-0043 To 0058 Parent: BAT-001-0042 Date: 06/09/89

Title: Quarterly Sampling and Analysis of Surface and Ground Water at the Town of Batavia Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: McMahon, Paul T.: Advanced Environmental Services, Inc.
Simpson, Bonnie J.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0042 To 0042 Date: 06/16/89

Title: (Letter forwarding the attached Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukmen, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0043

Document Number: BAT-002-1793 To 1801 Parent: BAT-002-1792 Date: 06/30/89

Title: Preliminary Health Assessment for Batavia Landfill

Type: PLAN
Category: 8.1.0.0.0 ATSDR Health Assessments
Author: none: NY Dept of Health
Recipient: none: Agency for Toxic Substances & Disease Registry (ATSDR)

Document Number: BAT-002-1792 To 1792 Date: 07/12/89

Title: (Memo forwarding the completed Preliminary Health Assessment for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 8.1.0.0.0 ATSDR Health Assessments
Author: Johnson, Denise: Agency for Toxic Substances & Disease Registry (ATSDR)
Nelson, William: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Gonzalez, Eduardo: US EPA
Attached: BAT-002-1793

Document Number: BAT-001-0060 To 0079 Parent: BAT-001-0059 Date: 09/13/89

Title: Quarterly Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Klaaren, Donovan L.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0059 To 0059 Date: 09/18/89

Title: (Letter forwarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0060

Document Number: BAT-002-2242 To 2250 Date: 09/24/89

Title: Filtration of Ground Water Samples for Metals Analysis

Type: FINANCIAL/TECHNICAL
Category: 11.4.0.0.0 Technical Sources
Author: Barcelona, Michael J.: Illinois State Water Survey
Puls, Robert W.: US EPA
Recipient: none: none

Document Number: BAT-002-0659 To 0661 Date: 09/27/89

Title: (Letter commenting on the Draft Remedial Investigation Report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Khalil, M.: NY Dept of Environmental Conservation
Recipient: Schick, Robert W.: NY Dept of Environmental Conservation

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Document Number: BAT-001-0081 To 0098 Parent: BAT-001-0080 Date: 12/04/89

Title: Quarterly Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Klaaren, Donovan L.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
none: Town of Batavia

Document Number: BAT-001-0080 To 0080 Date: 12/06/89

Title: (Letter forwarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0081

Document Number: BAT-002-0662 To 0667 Date: 12/26/89

Title: (Letter containing NYSDEC's comments on the Draft Remedial Investigation Report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Schick, Robert W.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0099 To 0101 Date: 12/26/89

Title: (Letter forwarding NYSDEC's comments on the Batavia Landfill Draft Remedial Investigation Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Recipient: Schick, Robert W.: NY Dept of Environmental Conservation
Walters, Michael A.: US EPA

Document Number: BAT-001-0102 To 0102 Date: 01/03/90

Title: (Letter fowarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Vukman, June C.: Town of Batavia
Attached: BAT-001-0103

Document Number: BAT-001-0118 To 0129 Parent: BAT-001-0117 Date: 03/15/90

Title: Quarterly Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Klaaren, Donovan L.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0117 To 0117 Date: 03/19/90

Title: (Letter forwarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0118

Document Number: BAT-001-0130 To 0135 Date: 03/22/90

Title: (Letter forwarding a copy of field notes omitted from Advanced Environmental Services' March 15, 1990, report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation

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Document Number: BAT-001-0137 To 0153 Parent: BAT-001-0136 Date: 04/04/90

Title: Annual Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Klearen, Donovan L.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0136 To 0136 Date: 04/06/90

Title: (Letter forwarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0137

Document Number: BAT-001-0553 To 0614 Date: 05/01/90

Title: Advanced Environment Services, Laboratory Quality Assurance and Quality Control Manual

Type: PLAN
Category: 2.1.0.0.0 Sampling and Analysis Plans
Author: McMahon, Paul T.:: Advanced Environmental Services, Inc.
Recipient: none: none

Document Number: BAT-002-1428 To 1450 Date: 06/25/90

Title: Administrative Order on Consent, Index No. II, CERCLA - 90226, In the Matter of Batavia Landfill

Type: LEGAL DOCUMENT
Category: 7.3.0.0.0 Administrative Orders
Author: Sidamon-Eristoff, C: US EPA
Recipient: various: various parties associated with the site

Document Number: BAT-002-0668 To 0700 Date: 08/03/90

Title: (Letter forwarding comments outlining technical deficiencies and discrepencies in the Remedial Investigation Report dated April 1989)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0701 To 0707 Date: 09/20/90

Title: (Letter forwarding the Batavia Landfill Sampling Plan, GZA's response to comments on Target Compounds, a schedule of activities and Well BL-4 Proposed Abatement Procedures)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Young, Jay F.: NL Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0155 To 0173 Parent: BAT-001-0154 Date: 09/26/90

Title: Quarterly Sampling and Analysis of Surface and Groundwater at the Town of Batavia Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Lattin, Gerald E.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0154 To 0154 Date: 09/28/90

Title: (Letter forwarding the attached copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0155

Document Number: BAT-002-0708 To 0708 Date: 10/05/90

Title: (Letter stating that EPA will not review NL Industries' Work Plan for Total and Soluble Metals Studies and Surface Sediment Sampling)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0709 To 0710 Date: 10/19/90

Title: (Letter submitting the Revised Work Plan for Supplemental Groundwater and Surface Sediment Sampling at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Condition: MISSING ATTACHMENT
Author: Young, Jay F.: NL Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0342 To 0552 Date: 11/01/90

Title: Removal Action Work Plan, Batavia Landfill Superfund Site, Batavia, New York

Type: PLAN
Category: 2.0.0.0.0 Removal Response
Author: none: Blasland & Bouck Engineers
Recipient: none: various PRPs

Document Number: BAT-002-1161 To 1162 Date: 11/16/90

Title: (Letter summarizing comments by NYSDEC and NYSDOH on the Batavia Landfill site draft Sampling Plan)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Scharf, Steven M.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-0711 To 0716 Date: 11/26/90

Title: (Letter containing EPA's comments on the Sampling and Metals Analyses Work Plan for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: ML Industries, Inc.

Document Number: BAT-001-1905 To 1994 Date: 12/01/90

Title: Work Plan, Supplemental Groundwater and Surface Sediment Sampling, Batavia Landfill Site, Batavia, New York

Type: PLAN
Category: 3.3.0.0.0 Work Plan
Author: none: Goldberg-Zoino & Associates
Recipient: none: ML Industries, Inc.

Document Number: BAT-002-0717 To 0717 Date: 12/27/90

Title: (Letter forwarding revised copies of the Sampling and Metal Analysis Work Plan for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Condition: MISSING ATTACHMENT
Author: Young, Jay F.: ML Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0103 To 0116 Parent: BAT-001-0102 Date: 12/31/90

Title: Quarterly Sampling and Analysis of Surface and Groundwater at the Town of Batavia Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Lattin, Gerald E.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-002-1452 To 1744 Date: 01/01/91

Title: Health Effects Assessment Summary Tables - Annual FY/1991

Type: REPORT
Category: 8.0.0.0.0 Health Assessments
Author: none: US EPA
Recipient: none: US EPA

Document Number: BAT-001-1559 To 1588 Date: 02/01/91

Title: (Letter forwarding the Addenda to the laboratory Quality Assurance Project Plan for analysis of samples from the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.1.0.0.0 Sampling and Analysis Plan (SAP)
Author: Stearns, Karen M.: OMM Corporation
Recipient: Heins, Thomas R.: GZA Geoenvironmental of New York

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Document Number: BAT-002-0718 To 0722 Date: 02/04/91

Title: (Letter forwarding EPA's comments on submitted revisions to Sections 2, 3, 4, and 5 of the Draft Batavia Landfill Remedial Investigation Report)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: ML Industries, Inc.

Document Number: BAT-002-0723 To 0724 Date: 02/12/91

Title: (Letter discussing issues to be resolved before the revised draft Batavia Landfill Supplemental Groundwater and Sediment Sampling Work Plan can be approved)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0725 To 0727 Date: 02/28/91

Title: (Letter forwarding comments on the Batavia Sampling and Metals Analysis Work Plan)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0729 To 0730 Parent: BAT-002-0728 Date: 02/28/91

Title: (Letter responding to EPA's comments on the Batavia Sampling and Metals Analysis Work Plan)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Kampff, Raymond L.: GZA Geoenvironmental of New York
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0731 To 0732 Parent: BAT-002-0728 Date: 02/28/91

Title: (Letter forwarding ETC's EPA Quarterly CLP Performance Evaluation Study Scores Summary)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Condition: MISSING ATTACHMENT
Author: Reduker, Stephen D.: Environmental Testing & Certification Corporation (ETC)
Recipient: Heins, Thomas R.: GZA Geoenvironmental of New York

Document Number: BAT-002-0728 To 0728 Date: 03/05/91

Title: (Letter forwarding responses to EPA's second set of comments dated February 12, 1991, for the Batavia Landfill Sampling Metals Analysis Work Plan)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Young, Jay F.: NL Industries, Inc.
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-0729 BAT-002-0731

Document Number: BAT-001-1644 To 1646 Date: 03/21/91

Title: Residential Wells Sampling Near Batavia Landfill Site

Type: DATA
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: none: CompuChem
none: none

Document Number: BAT-002-1955 To 2241 Date: 03/25/91

Title: Risk Assessment Guidance for Superfund-Volume I: Human Health Evaluation Manual Supplemental Guidance - "Standard Default Exposure Factors" Interim Final

Type: REPORT
Category: 11.0.0.0.0 Technical Sources and Guidance Documents
Author: none: US EPA
Recipient: none: US EPA

Document Number: BAT-002-2251 To 2253 Date: 03/25/91

Title: (Letter concerning Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Factors"

Type: CORRESPONDENCE
Category: 11.5.0.0.0 Technical Sources and Guidance Document Correspondence
Author: Fields, Timothy Jr.: US EPA
Recipient: various: US EPA
Attached: BAT-002-2254

Document Number: BAT-002-2254 To 2278 Parent: BAT-002-2251 Date: 03/25/91

Title: Risk Assessment Guidance For Superfund Volume 1: Human Health Evaluation Manual - Supplemental Guidance, "Standard Default Exposure Factors" - Interim Final

Type: REPORT
Category: 11.5.0.0.0 Technical Sources and Guidance Document Correspondence
Author: none: US EPA
Recipient: none: US EPA

Document Number: BAT-002-0733 To 0734 Date: 03/29/91

Title: (Letter approving the Supplemental Groundwater and Surface Sediment Sampling Work Plan for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0735 To 0736 Date: 04/02/91

Title: (Letter discussing issues to be resolved regarding the revised Batavia Landfill Remedial Investigation Report)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-001-0175 To 0227 Parent: BAT-001-0174 Date: 04/10/91

Title: Annual Sampling and Analysis of Surface and Groundwater Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Lattin, Gerald E.: Advanced Environmental Services, Inc.
McMahon, Paul T.: Advanced Environmental Services, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-001-0174 To 0174 Date: 04/12/91

Title: (Letter forwarding a copy of the Town of Batavia Sanitary Landfill Groundwater Monitoring Report)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Author: Vukman, June C.: Town of Batavia
Recipient: Kieda, Edward D.: NY Dept of Environmental Conservation
Attached: BAT-001-0175

Document Number: BAT-002-0653 To 0658 Date: 04/18/91

Title: (Letter submitting responses to EPA's comments on the Batavia Landfill Remedial Investigation Report)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Kempff, Raymond L.: GZA Geoenvironmental of New York
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0737 To 0738 Date: 04/26/91

Title: (Letter requesting clarification of an unclear phone message and discussing NL Industries' sampling at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Young, Jay F.: NL Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0655 To 0658 Date: 05/09/91

Title: (Letter serving as the first bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0659 To 0662 Date: 05/13/91

Title: (Letter serving as the second bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-1163 To 1184 Date: 05/16/91

Title: (Letter forwarding attached results of analysis of aqueous samples received April 16 and 17, 1991)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Kinecki, Deborah J.: Recra Environmental
Recipient: Ryan, John: NY Dept of Environmental Conservation

Document Number: BAT-001-0663 To 0663 Date: 05/17/91

Title: (Handwritten letter forwarding a map to help delineate the boundaries for area "A" at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Anderson, Michael G.: Blasland & Bouck Engineers
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0664 To 0691 Date: 05/30/91

Title: (Letter serving as the third bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-0739 To 0741 Date: 05/30/91

Title: (Letter responding to issues which still need resolution after a review of Goldberg-Zoino and Associates' response to EPA comments dated April 2, 1991)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0742 To 0742 Date: 06/03/91

Title: (Letter accepting a new schedule for the submission date of the Remedial Investigation Report)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-1185 To 1217 Date: 06/03/91

Title: N.Y.S. Department of Environmental Conservation, Department of Hazardous Waste Remediation, Bureau of Site Control, Analytical Report (for the Batavia Landfill site)

Type: REPORT
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Scharf, Steven N.: NY Dept of Environmental Conservation
Woodward, F.: NY Dept of Environmental Conservation
Recipient: none: none

Document Number: BAT-002-1218 To 1240 Date: 06/07/91

Title: (Letter forwarding the attached results of sampling performed in April 1991, at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Scharf, Steven N.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0228 To 0241 Date: 06/17/91

Title: Quarterly Sampling and Analysis of Surface Groundwater - Sanitary Landfill

Type: REPORT
Category: 1.1.0.0.0 Background - RCRA and other information
Author: various: Advanced Environmental Services, Inc.
Recipient: none: City of Batavia

Document Number: BAT-001-0692 To 0695 Date: 06/21/91

Title: (Letter serving as the fourth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-1647 To 1651 Date: 06/24/91

Title: (Letter responding to request for a review of the proposed surrogate RFDs for Specific PAHs for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Hurst, Pei Fung: US EPA
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-0743 To 0744 Date: 06/28/91

Title: (Letter stating that ML Industries will forward the final revisions to the Batavia Landfill site Remedial Investigation and discussing the history of the project)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Young, Jay F.: ML Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0696 To 0767 Date: 07/15/91

Title: (Letter serving as the fifth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0768 To 0768 Date: 07/15/91

Title: (Letter forwarding the approved Modification to the Work Plan for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Petersen, Carole: US EPA
Recipient: Earley, Kevin M.: Unisys Corporation

Document Number: BAT-001-1652 To 1738 Date: 07/17/91

Title: Batavia Landfill Superfund Site/Project No. 604.03

Type: DATA
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: various: Advanced Environmental Services, Inc.
Recipient: none: Unisys Corporation

Document Number: BAT-001-0769 To 0788 Date: 07/29/91

Title: (Letter serving as the sixth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0789 To 0790 Date: 08/02/91

Title: (Letter serving as the seventh bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0791 To 0793 Date: 08/29/91

Title: (Letter serving as the eighth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0794 To 0795 Date: 09/06/91

Title: (Letter discussing the current status of the disposition of materials removed from the Batavia Landfill site according to the Drum Removal Action)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Earley, Kevin M.: Unisys Corporation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-0745 To 0777 Date: 09/06/91

Title: (Letter forwarding EPA's draft comments on the revised Batavia Landfill Remedial Investigation Report, dated June 1991)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Walters, Michael A.: US EPA
Recipient: Young, Jay F.: ML Industries, Inc.

Document Number: BAT-001-0796 To 0802 Date: 09/20/91

Title: (Letter serving as the ninth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-1113 To 1118 Parent: BAT-002-1112 Date: 10/02/91

Title: (Letter forwarding analytical results for the laboratory analyses collected on August 28, 1991, from two wells at Ridgewood Village)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Condition: MISSING ATTACHMENT
Author: Amanto, Charles J.: NY Dept of Health
Recipient: various: NY Post

Document Number: BAT-001-0803 To 0804 Date: 10/04/91

Title: (Letter announcing the intended shipment of Batavia Landfill site wastes to a waste management facility outside of New York state)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Condition: MISSING ATTACHMENT
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Wise, Robert: KY Div of Hazardous Materials & Waste Management

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Document Number: BAT-002-0849 To 0857 Date: 10/10/91

Title: Facsimile Cover Sheet (for sketches used during a presentation of the Batavia Landfill site hydrogeologic model)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Condition: DRAFT
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1112 To 1112 Date: 10/15/91

Title: (Letter forwarding sampling results of well water testing conducted on August 28, 1991, notification letters to individual homeowners attached)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Condition: MISSING ATTACHMENT
Author: Block, Arthur: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1113 BAT-002-1119 BAT-002-1120

Document Number: BAT-002-1241 To 1244 Date: 10/22/91

Title: (Letter forwarding the attached analytical results of private well sampling performed in the vicinity of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Schick, Robert W.: NY Dept of Environmental Conservation
Recipient: Lynch, Kevin: US EPA

Document Number: BAT-002-1837 To 1837 Parent: BAT-002-1836 Date: 10/22/91

Title: (Letter discussing private well sampling, groundwater contamination, and supplying water to homes south of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 8.3.0.0.0 Health Assessment Correspondence
Author: Amento, Charles J.: NY Dept of Health
Recipient: Scharf, Steven M.: NY Dept of Environmental Conservation

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Document Number: BAT-002-0858 To 0864 Date: 10/23/91

Title: (Letter clarifying the interpretation of hydrogeologic conditions in the southern portion of the Batavia Landfill site discussed at an October 8, 1991, meeting)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Kampff, Raymond L.: GZA Geoenvironmental of New York
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-001-0805 To 0807 Date: 10/28/91

Title: (Letter serving as the tenth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-1739 To 1806 Date: 10/30/91

Title: (Letter forwarding the results of groundwater modeling done for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Kempff, Raymond L.: GZA Geoenvironmental of New York
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0778 To 0848 Date: 10/30/91

Title: (Letter forwarding the attached results of ground water modeling done for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Heins, Thomas R.:: GZA Geoenvironmental of New York
Kempff, Raymond L.:: GZA Geoenvironmental of New York
Recipient: Young, Jay F.:: NL Industries, Inc.

Document Number: BAT-001-0808 To 0809 Date: 11/01/91

Title: (Letter serving as the eleventh bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0871 To 0911 Parent: BAT-001-0870 Date: 11/01/91

Title: Final Report, Batavia Landfill Superfund Site, Batavia, New York, Volume 1 of 5

Type: REPORT
Category: 2.7.0.0.0 Removal Response Correspondence
Author: none: Blasland & Bouck Engineers
Recipient: none: various PRPs

Document Number: BAT-001-0912 To 1231 Parent: BAT-001-0870 Date: 11/01/91

Title: Final Report, Batavia Landfill Superfund Site, Batavia, New York, Volume 2 of 5

Type: REPORT
Category: 2.7.0.0.0 Removal Response Correspondence
Author: none: Blasland & Bouck Engineers
Recipient: none: various PRPs

Document Number: BAT-001-1232 To 1539 Parent: BAT-001-0870 Date: 11/01/91

Title: Final Report, Batavia Landfill Superfund Site, Batavia, New York, Volume 3 of 5

Type: REPORT
Category: 2.7.0.0.0 Removal Response Correspondence
Author: none: Blasland & Bouck Engineers
Recipient: none: various PRPs

Document Number: BAT-001-1995 To 2011 Date: 11/01/91

Title: (Letter detailing a disagreement about the conceptual model for groundwater flow at the Batavia Landfill site and forwarding a copy of the Preliminary Conceptual Model of Hydrogeologic Conditions, Batavia Landfill)

Type: CORRESPONDENCE
Category: 3.4.0.0.0 RI Reports
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-1836 To 1836 Date: 11/01/91

Title: (Memo forwarding the NYSDOH assessment and recommendations to consider supplying water to homes south of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 8.3.0.0.0 Health Assessment Correspondence
Author: Block, Arthur: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1837

Document Number: BAT-001-0810 To 0811 Date: 11/04/91

Title: (Letter serving as the twelfth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-1245 To 1247 Date: 11/06/91

Title: (Letter discussing sampling results for drinking water samples taken October 1991, from residences on Pratt Road just south of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Scharf, Steven M.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0812 To 0845 Date: 11/08/91

Title: (Letter serving as the thirteenth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0846 To 0863 Date: 11/13/91

Title: (Letter serving as the fourteenth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-001-0864 To 0865 Date: 11/20/91

Title: (Letter serving as the fifteenth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-0865 To 0869 Date: 11/21/91

Title: (Letter addressing EPA's concerns regarding groundwater flow directions at the Batavia Landfill site and other unresolved technical issues)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Heins, Thomas R.: GZA Geoenvironmental of New York
Kempff, Raymond L.: GZA Geoenvironmental of New York
Powers, Michael A.: GZA Geoenvironmental of New York
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-1120 To 1144 Parent: BAT-002-1112 Date: 11/25/91

Title: (Letter forwarding the analytical results of samples collected on October 29, 1991, from residential wells near the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Condition: MISSING ATTACHMENT
Author: Amanto, Charles J.: NY Dept of Health
Recipient: various: NY Post

Document Number: BAT-001-0866 To 0867 Date: 11/26/91

Title: (Letter serving as the sixteenth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-1119 To 1119 Parent: BAT-002-1112 Date: 11/29/91

Title: (Memo discussing the October 29, 1991, private well sampling of residences near the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Block, Arthur: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-1807 To 1807 Date: 12/02/91

Title: (Letter discussing contamination in the wells of homes in the vicinity of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Amento, Charles J.: NY Dept of Health
Recipient: Scharf, Steven M.: NY Dept of Environmental Conservation

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Document Number: BAT-002-1835 To 1835 Parent: BAT-002-1834 Date: 12/02/91

Title: (Letter discussing groundwater contamination and public health concerns to residents near the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 8.3.0.0.0 Health Assessment Correspondence
Author: Amento, Charles J.: NY Dept of Health
Recipient: Scharf, Steven M.: NY Dept of Environmental Conservation

Document Number: BAT-001-0868 To 0869 Date: 12/04/91

Title: (Letter serving as the seventeenth bi-weekly progress report for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Popham, William B.: Blasland & Bouck Engineers
Recipient: Harmon, Jack D.: US EPA

Document Number: BAT-002-1248 To 1250 Date: 12/10/91

Title: (Letter discussing trichloroethane (TCE) contamination found in private wells located south of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: O'Toole, Michael J. Jr.: NY Dept of Environmental Conservation
Recipient: Callahan, Kathleen C.: US EPA

Document Number: BAT-002-1834 To 1834 Date: 12/20/91

Title: (Memo forwarding NYSDOH's comments on public health concerns to the residents near the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 8.3.0.0.0 Health Assessment Correspondence
Author: Block, Arthur: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1835

Document Number: BAT-002-1933 To 1935 Date: 12/20/91

Title: (News Release:) DEC: Town Wells Contaminated (with Facsimile cover sheets attached)

Type: CORRESPONDENCE
Category: 10.6.0.0.0 Fact Sheets and Press Releases
Author: saville, Kevin: Daily News
Recipient: none: none

Document Number: BAT-002-1251 To 1268 Date: 01/03/92

Title: (Letter forwarding the attached analytical results for samples collected from 3385 Pratt Road)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Scharf, Steven M.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-0870 To 0873 Date: 02/28/92

Title: (Letter providing EPA's final technical comments on the draft Batavia Landfill Remedial Investigation Report)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: NL Industries, Inc.

Document Number: BAT-002-0876 To 0878 Date: 03/24/92

Title: (Letter detailing what was discussed during a March 20, 1992, conference call regarding the Batavia Landfill site Remedial Investigation)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Young, Jay F.: NL Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-2012 To 2037 Date: 03/27/92

Title: Draft Final Interim Ground Water Risk Assessment, Batavia Landfill, Batavia, New York, Work Assignment: C02061

Type: PLAN
Category: 3.4.0.0.0 RI Reports
Condition: DRAFT
Author: Pratt, David: Alliance Technologies Corporation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1269 To 1272 Date: 03/27/92

Title: (Letter responding to a request for an interim remedial measure to address the need to provide potable water to residents in the area of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Callahan, Kathleen C.: US EPA
Recipient: O'Toole, Michael J. Jr.: NY Dept of Environmental Conservation

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Document Number: BAT-002-1065 To 1088 Date: 04/01/92

Title: Map, Plan and Report for Proposed Consolidated Water District Extension (Galloway Road/Kelsey Road)

Type: PLAN
Category: 4.5.0.0.0 Feasibility Study Correspondence
Author: none: Mussbaumer & Clark, Inc.
Recipient: none: Town of Batavia

Document Number: BAT-002-1273 To 1396 Date: 04/03/92

Title: (Analytical results from sampling performed in January 1992, for the Batavia Landfill site)

Type: DATA
Category: 6.3.0.0.0 State Coordination Correspondence
Author: Scherf, Steven M.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0870 To 0870 Date: 04/09/92

Title: (Letter forwarding the enclosed Drum Removal Report dated November 1991)

Type: CORRESPONDENCE
Category: 2.7.0.0.0 Removal Response Correspondence
Author: Earley, Kevin M.: Unisys Corporation
Recipient: Walters, Michael A.: US EPA
Attached: BAT-001-0871 BAT-001-0912 BAT-001-1252

Document Number: BAT-002-0879 To 0880 Date: 04/20/92

Title: (Letter outlining deadlines for deliverables prepared by ML Industries for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Condition: MISSING ATTACHMENT
Author: Petersen, Carole: US EPA
Recipient: Young, Jay F.: ML Industries, Inc.

Document Number: BAT-002-1945 To 1946 Date: 04/21/92

Title: (Letter discussing groundwater contamination in the area of private wells south and east of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.9.0.0.0 Public Correspondence
Author: Vukman, June C.: Town of Batavia
Recipient: Callahan, Kathleen C.: US EPA

Document Number: BAT-001-1809 To 1871 Date: 04/28/92

Title: (Letter forwarding the Quality Assurance/Quality Control data for private well samples collected near the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Amento, Charles J.: NY Dept of Health
Recipient: Scharf, Steven M.: NY Dept of Environmental Conservation

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Document Number: BAT-001-2043 To 2375 Date: 05/01/92

Title: Batavia Landfill Site, Remedial Investigation Report, Final Draft, Volume I of V

Type: REPORT
Category: 3.4.0.0.0 RI Reports
Condition: DRAFT
Author: none: EZA Geoenvironmental of New York
Recipient: none: ML Industries, Inc.
Attached: BAT-001-2376 BAT-001-2403 BAT-002-0001 BAT-002-0338

Document Number: BAT-001-2376 To 2402 Parent: BAT-001-2043 Date: 05/01/92

Title: Batavia Landfill Site, Remedial Investigation Report, Final Draft, Volume II of V

Type: REPORT
Category: 3.4.0.0.0 RI Reports
Condition: DRAFT
Author: none: GZA Geoenvironmental of New York
Recipient: none: NL Industries, Inc.

Document Number: BAT-001-2403 To 2419 Parent: BAT-001-2043 Date: 05/01/92

Title: Batavia Landfill Site, Remedial Investigation Report, Final Draft, Volume III of V

Type: REPORT
Category: 3.4.0.0.0 RI Reports
Condition: DRAFT
Author: none: GZA Geoenvironmental of New York
Recipient: none: NL Industries, Inc.

Document Number: BAT-002-0001 To 0337 Parent: BAT-001-2043 Date: 05/01/92

Title: Batavia Landfill Site, Remedial Investigation Report, Final Draft, Volume IV of V

Type: REPORT
Category: 3.4.0.0.0 RI Reports
Condition: DRAFT
Author: none: GZA Geoenvironmental of New York
Recipient: none: NL Industries, Inc.

Document Number: BAT-002-0338 To 0652 Parent: BAT-001-2043 Date: 05/01/92

Title: Batavia Landfill Site, Remedial Investigation Report, Final Draft, Volume V of V

Type: REPORT
Category: 3.4.0.0.0 RI Reports
Condition: DRAFT
Author: none: GZA Geoenvironmental of New York
Recipient: none: NL Industries, Inc.

Document Number: BAT-001-1808 To 1808 Date: 05/05/92

Title: (Letter forwarding the Quality Assurance/Quality Control reports from private well samples and the leachate data from the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Scharf, Steven M.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1060 To 1061 Date: 05/11/92

Title: (Letter responding to an earlier request for NL Industries to perform the Focused Feasibility Study and additional testing for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 4.5.0.0.0 Feasibility Study Correspondence
Author: Young, Jay F.: NL Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1947 To 1949 Date: 05/11/92

Title: (Letter requesting financial and technical assistance to conduct a Feasibility Study to identify new sources of water and update projects of future needs)

Type: CORRESPONDENCE
Category: 10.9.0.0.0 Public Correspondence
Author: Robinson, James R.: Village of Oakfield, NY
Recipient: Molinari, Paul: US EPA

Document Number: BAT-002-1950 To 1951 Date: 05/20/92

Title: (Letter discussing the performance of studies at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.9.0.0.0 Public Correspondence
Author: Peterson, Carole: US EPA
Recipient: Vukman, June C.: Town of Batavia

Document Number: BAT-002-0874 To 0875 Date: 05/22/92

Title: (Letter stating that GZA Associates has completed the Final Draft Remedial Investigation Report and would like to conduct additional studies near the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.5.0.0.0 Remedial Investigation Correspondence
Author: Young, Jay F.: ML Industries, Inc.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1802 To 1833 Date: 05/29/92

Title: (Memo forwarding the attached information on toxicity and carcinogenicity values for several chemicals found at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 8.2.0.0.0 Toxicological Profiles
Author: Poirier, Kenneth A.: US EPA
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1062 To 1064 Date: 07/27/92

Title: (Letter stating the NYSDEC and NYSDOH recommend Alternative 2B as the preferred remedial alternative at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 4.5.0.0.0 Feasibility Study Correspondence
Author: Scharf, Steven M.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1046 To 1058 Date: 08/01/92

Title: Superfund Proposed Plan, Batavia Landfill Superfund Site, Batavia, Genesee County, New York

Type: PLAN
Category: 4.3.0.0.0 Proposed Plan
Author: none: US EPA
Recipient: none: none

Document Number: BAT-001-2038 To 2042 Date: 08/01/92

Title: Batavia Landfill Site Remedial Investigation Report, United States Environmental Protection Agency's Preface

Type: REPORT
Category: 3.4.0.0.0 RI Reports
Author: none: US EPA
Recipient: none: none

Document Number: BAT-001-1872 To 1873 Date: 08/06/92

Title: (Transmittal Slip for a map of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 3.2.0.0.0 Sampling and Analysis Data/Chain of Custody Forms
Author: Mann, Kim: New York State Center for Environmental Health
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-001-0242 To 0315 Date: 08/21/92

Title: (Letter forwarding the attached sampling results from monitoring wells testing at the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 1.1.0.0.0 Background - RCRA and other information
Condition: MARGINALIA
Author: Repicci, Francis C.: Town of Batavia
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1059 To 1059 Date: 08/26/92

Title: (Letter stating that NYSDEC and NYSDOH have reviewed the Proposed Remedial Action Plan and concurs in 2A in that potable water is supplied to the south)

Type: CORRESPONDENCE
Category: 4.3.0.0.0 Proposed Plan
Author: O'Toole, Michael J. Jr.: NY Dept of Environmental Conservation
Recipient: Callahan, Kathleen C.: US EPA

Document Number: BAT-002-0881 To 1045 Date: 08/28/92

Title: Focused Feasibility Study, Batavia Landfill, Batavia, New York, Work Assignment: C02040

Type: PLAN
Category: 4.2.0.0.0 FS Reports
Author: Walters, Michael A.: US EPA
Recipient: Sullivan, Douglas: TRC Environmental Consultants, Inc.

Document Number: BAT-002-1952 To 1952 Date: 08/28/92

Title: (Letter forwarding copies of the Proposed Plan and Focused Feasibility Study Report for the Batavia Landfill site and stating that a public meeting is scheduled for September 10, 1992)

Type: CORRESPONDENCE
Category: 10.9.0.0.0 Public Correspondence
Condition: MISSING ATTACHMENT
Author: Walters, Michael A.: US EPA
Recipient: various: distribution list

Document Number: BAT-002-1953 To 1954 Date: 08/28/92

Title: (Letter forwarding documents to be kept at the public information repositories for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.9.0.0.0 Public Correspondence
Condition: MISSING ATTACHMENT
Author: Walters, Michael A.: US EPA
Recipient: Facer, Kathleen: Richmond Library
Levins, Rubie K.: Town of Batavia

Document Number: BAT-002-1885 To 1885 Parent: BAT-002-1884 Date: 08/29/92

Title: (Public Notice:) The United States Environmental Protection Agency Invites Public Comment on the Proposed Plan for the Batavia Landfill Superfund Site in Batavia, New York

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: none: US EPA
Recipient: none: Batavia Daily News

Document Number: BAT-002-1936 To 1936 Date: 08/29/92

Title: (Public Notice:) The United States Environmental Protection Agency Invites Public Comment on the Proposed Plan for the Batavia Landfill Superfund Site in Batavia, New York

Type: CORRESPONDENCE
Category: 10.6.0.0.0 Fact Sheets and Press Releases
Author: none: Daily News
Recipient: none: none

Document Number: BAT-002-1937 To 1938 Date: 08/29/92

Title: Affidavit of Publication (for the Public Meeting Notice)

Type: CORRESPONDENCE
Category: 10.6.0.0.0 Fact Sheets and Press Releases
Author: Elliot, Donna J.: Batavia Newspapers Corporation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1838 To 1839 Date: 09/14/92

Title: (Letter requesting a sixty-day extension of the public comment period for the Batavia Landfill site Proposed Plan)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Earley, Kevin M.: Unisys Corporation
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1841 To 1842 Parent: BAT-002-1840 Date: 09/14/92

Title: Resolution Number 12, Village of Oakfield

Type: LEGAL DOCUMENT
Category: 10.1.0.0.0 Comments and Responses
Author: Board of Trustees: Village of Oakfield, NY
Recipient: none: none

Document Number: BAT-002-1840 To 1840 Date: 09/15/92

Title: (Letter forwarding the attached Village of Oakfield, New York, Resolution outlining the Board of Trustees' stand on the remedial plans for the cleanup of the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Robinson, James R.: Village of Oakfield, NY
Recipient: Lynch, Kevin: US EPA
Attached: BAT-002-1841

Document Number: BAT-002-1089 To 1105 Date: 09/15/92

Title: (Letter offering comments on the Draft Focused Feasibility Study for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 4.5.0.0.0 Feasibility Study Correspondence
Author: O'Beirne, Kevin M.: Nussbaumer & Clark, Inc.
Perry, Dean T.: Nussbaumer & Clark, Inc.
Recipient: Repicci, Francis C.: Town of Batavia

Document Number: BAT-002-1846 To 1848 Parent: BAT-002-1845 Date: 09/16/92

Title: Adoption of the Town Board Position Relative to the Interim Remedial Action Plan for Groundwater Contamination Adjacent to the Batavia Landfill Superfund Site as Proposed by the U.S. EPA

Type: LEGAL DOCUMENT
Category: 10.1.0.0.0 Comments and Responses
Author: Town Board: Town of Batavia
Recipient: none: none

Document Number: BAT-002-1746 To 1791 Parent: BAT-002-1745 Date: 09/16/92

Title: Public Health Assessment for Batavia Landfill, Batavia, Genesee County, New York, CERCLIS No. NYD980507693 - Initial Release (3 copies - Initial Release)

Type: PLAN
Category: 8.1.0.0.0 ATSDR Health Assessments
Author: none: NY Dept of Environmental Conservation
Recipient: none: Agency for Toxic Substances & Disease Registry (ATSDR)

Document Number: BAT-002-1843 To 1844 Date: 09/18/92

Title: (Letter requesting an extension of the public comment period for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Greenbaum, Leslie Mark: Gross, Shuman, Brizdle & Gilfillan, P.C.
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1845 To 1845 Date: 09/18/92

Title: (Letter forwarding the attached resolution recommending the "looped" waterline alternative for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Condition: MISSING ATTACHMENT
Author: Vukman, June C.: Town of Batavia
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1846

Document Number: BAT-002-1849 To 1851 Date: 09/22/92

Title: (Handwritten letter forwarding the attached site location maps of the Batavia Landfill site area for review)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Boies, Felicia: resident
Boies, James: resident
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1852 To 1873 Date: 09/22/92

Title: (Letter providing comments on the Batavia Landfill site and forwarding a copy of an Evaluation of Residential Well Sampling Data from Batavia Landfill)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Boies, Felicia: resident
Boies, James: resident
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1874 To 1881 Date: 09/22/92

Title: (Letter forwarding a copy of sampling analysis results for well samples taken at the Boies residence and requesting review of water line plans)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Boies, Felicia: resident
Boies, James: resident
Recipient: Walters, Michael A.: US EPA

Document Number: BAT-002-1882 To 1882 Date: 09/22/92

Title: (Letter forwarding the attached news article and requesting extension of the installed water lines)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Boies, Felicia: resident
Boies, James: resident
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1883

Document Number: BAT-002-1884 To 1884 Date: 09/22/92

Title: (Letter forwarding a copy of public comment notice for the Batavia Landfill site)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Boies, Felicia: resident
Boies, James: resident
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1885

Document Number: BAT-002-1745 To 1745 Date: 09/22/92

Title: (Memo forwarding the attached copies of the ATSDR Initial Release Public Health Assessment for Batavia Landfill)

Type: CORRESPONDENCE
Category: 8.0.0.0.0 Health Assessments
Author: Block, Arthur: Agency for Toxic Substances & Disease Registry (ATSDR)
Recipient: Walters, Michael A.: US EPA
Attached: BAT-002-1746

Document Number: BAT-002-1900 To 1901 Date: 11/24/92

Title: (Letter responding to comments on the Batavia Landfill site proposed remedial action plan received from the cooperating potentially responsible parties)

Type: CORRESPONDENCE
Category: 10.1.0.0.0 Comments and Responses
Author: Scharf, Steven H.: NY Dept of Environmental Conservation
Recipient: Walters, Michael A.: US EPA

BATAVIA LANDFILL SITE
OPERABLE UNIT ONE UPDATE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

7.0 ENFORCEMENT

7.2 Endangerment Assessments

P. 700513-700515 Letter to Mr. Michael Walters, Project Manager, New York/Caribbean Superfund Branch II, Emergency and Remedial Response Division, U.S. EPA, Region II, from Mr. David Fratt, Risk Assessment Project Manager, TRC Environmental Corporation, re: Recalculation of Site Sediment Risks, March 29, 1993. (Tables Attached.)

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York 12233

MAR 30 1995

Ms. Kathleen Callahan
Director
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, New York 10007-1866

Dear Ms. Callahan:

Re: **Batavia Landfill Site, Town of Batavia, Genesee County New York, Site No. 9-19-001**

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) have reviewed the draft Record of Decision (ROD) for Operable Unit No. 1 (OU1), the landfill closure and final ROD for the Batavia Landfill site. Alternative 6B is selected by the ROD as the preferred remedial action.

Alternative 6B includes a 6 NYCRR Part 360 cap, gas venting, leachate collection, removal of buried drums from in the central portion and consolidation of the northern area under the cap of the southern area. Mitigation of wetland areas will be included dependent on the final design of the landfill cap and the final approved Ecological Assessment Report. Alternative 6B was identified by USEPA as being protective of human health and the environment, complies with Applicable or Relevant and Appropriate requirements (ARARs) and Standards, Criteria and Guidance (SCGs) and is the best proposal for reducing contamination in the groundwater.

The NYSDEC and NYSDOH concur with this ROD.

Sincerely,

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

cc: C. Petersen, USEPA
K. Lynch, USEPA
M. Walters, USEPA
A. Carlson, NYSDOH

APPENDIX V

RESPONSIVENESS SUMMARY

TABLE OF CONTENTS

I. RESPONSIVENESS SUMMARY OVERVIEW

This Responsiveness Summary provides a summary of citizen's comments and concerns and the responses by the U.S. Environmental Protection Agency ("EPA") to those comments regarding the Remedial Investigation/Feasibility Study ("RI/FS") Reports and Proposed Plan for the Batavia Landfill Superfund Site (the "Site"). All comments summarized in this document have been considered in EPA's final decision for selection of a remedial alternative for the Site.

EPA initially published notice of a public comment period from August 8, 1994 through September 7, 1994 to provide interested parties with the opportunity to comment on the RI/FS and Proposed Plan for the Site. The public comment period, originally thirty days, was extended an additional sixty days after EPA received a request for such an extension. A public meeting was held to discuss the remedial alternatives described in the FS and to present EPA's preferred remedial alternative for the remediation of the Site. The meeting was held at the Batavia High School, in Batavia, New York on August 18, 1994 at 7:00 p.m.
At the time of the public comment period, EPA published its preferred alternative for the Site, specifically the excavation of contaminated sediment and soils from the northern portion of the Batavia landfill (the "Landfill") for consolidation in the southern portion of the Landfill under a landfill cap to be designed and constructed pursuant to New York State Part 360 regulations, including a leachate collection system and provisions for off-site leachate treatment. The preferred alternative also included the removal of all buried drums found at the Site during remedial construction for off-site treatment and disposal.

During the public meeting, the local community reaction to the preferred alternative was, for the most part, favorable. However, there was a general concern on the status of the waterline construction, which was mandated by a March 1993 Record of Decision. Also, representatives from the Village of Oakfield expressed concern that contamination from the Landfill, irrespective of which alternative would be chosen, could impact the Village of Oakfield Wells which are located approximately 3/4 of mile away from the Landfill. On this accord, the Village of Oakfield requested that EPA develop a 'contingency' plan which could be immediately implemented in the event that contamination is detected in the northernmost bedrock wells at the Landfill.

Prior to proposing a remedial alternative, EPA screened the alternatives in the FS, giving consideration to the first eight of the following nine key criteria as set forth in the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"):

Threshold Criteria, which must be satisfied, which include:

- overall protection of human health and the environment; and
- compliance with Federal, State, and local environmental and health laws.

- Balancing Criteria, which include:

- long-term effectiveness;
- short-term effectiveness;
- reduction of mobility, toxicity, or volume;
- ability to implement; and
- cost

Modifying Criteria, which include:

- State acceptance; and
- community acceptance.

Since the close of the public comment period, EPA has weighed community acceptance of the proposed remedy prior to reaching the final decision regarding the selected remedy for the Site. The selected remedy provides the best balance of trade-offs from among the alternatives with respect to the nine criteria that EPA must use for evaluation.

II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

EPA's community relations efforts included a Community Relations Plan, which was formulated in May 1985 and included an outline of community concerns, required and suggested community relations activities, and provided a comprehensive list of federal, state, and local contacts. Site information repositories were established, one located at EPA's Region II office in New York City and others located at the Richmond Library and the Batavia Town Hall in the Town of Batavia, New York.

To obtain public input on the RI/FS and the proposed remedy, a public comment period was established from August 8, 1994 to September 7, 1994. A public notice appeared in the August 8, 1994 Batavia Daily News, and a public meeting was held on August 18, 1994. A representative of the City of Batavia requested extensions of the public comment period on two occasions to allow adequate time for the City, as well as other interested parties, to comment on EPA's Proposed Plan. EPA granted two thirty day extensions. A second public notice appeared in the Batavia Daily News on August 31, 1994, where EPA announced the extension of the public comment period.

Approximately 25 people attended the meeting. The audience consisted of local businessmen, residents, and state and local government officials. A summary of the questions posed during the meeting is included in the following section.

III. COMPREHENSIVE SUMMARY OF COMMENTS AND RESPONSES

Public comments on the Proposed Plan submitted between August 8, 1994 and November 7, 1994 are summarized and addressed below. Section A summarizes those comments received at the public meeting held on August 18, 1994. Section B summarizes the written comments received during the public comment period.

A. Comments Received at Public Meeting

Village of Oakfield:

Representatives from the Village of Oakfield wanted to know why the municipal water line project (selected in the March 1993 Record of Decision) included supplying municipal water to Batavia residences as far as a mile away from the Site while no provisions were being made for the Village of Oakfield where the municipal wells are only 3/4 of mile away from the Landfill. The representatives also requested that EPA develop a contingency plan that could be activated if the northernmost monitoring wells at the Landfill detect contaminant plumes possibly migrating toward the Village of Oakfield Wells.

EPA Response:

The March 1993 Record of Decision requires that the municipal waterline be extended to include certain residences in the vicinity of the Landfill. This action was required by EPA primarily because remedial investigation studies have revealed that these nearby residents, who rely solely on the local ground water for consumptive and domestic needs, were at risk because of the potential threat posed by the contamination at the Site. Furthermore, groundwater samples collected by the New York State Department of Health ("NYSDOH") in 1991 and 1992 confirmed the presence of trace amounts of Site contaminants in a few residential wells adjacent to the Site, particularly in private wells to the south on Pratt Road. A portion of the municipal waterline extension in the Town of Batavia is primarily a civil project independently initiated by the Town and is not required by the Record of Decision ("ROD") issued in 1993.

EPA maintains that the Village of Oakfield Wells, located 3/4 of a mile from the Site, are not threatened by the migration of contamination from the Landfill. EPA has periodically monitored the northernmost project wells at the Site. Sampling results from November 1992 and February 1994 have confirmed that no contamination is migrating from the Landfill in the direction of the Village of Oakfield Wells. In addition, because of the immensity of the Galloway Swamp, which lies between the Site and the Village of Oakfield Wells, dilution and dispersal factors render the possibility of a contaminant plume ever reaching these wells highly unlikely.

However, EPA will continue groundwater monitoring activities under the final Site remedy, as mandated by this Record of Decision, and EPA will take appropriate measures to protect the Village of Oakfield Wells should they become at risk.

B. SUMMARY OF EPA's RESPONSES TO WRITTEN COMMENTS

1. Comments from the City of Batavia, dated November 3, 1994

COMMENT 1.

The City of Batavia Commented that the cost of leachate treatment/disposal under the proposed remedy may be high on account of the "derived from" rule (under the Resource Conservation and Recovery Act, or "RCRA").

EPA Response:

It is the position of EPA that unless there is documentation of the disposal at the Landfill of hazardous wastes which are regulated under the RCRA, the leachate at the Site will not fall within the "derived from" rule. Any leachate which is collected should be disposed of based on their waste characteristic, in accordance with RCRA and/or the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA").

COMMENT 2:

Barton & Loguidice, P.C., a contractor for the City of Batavia, recollects EPA asserting, at the August 18, 1994 public meeting, the possibility of examining the use of a system of cutoff (slurry) walls at the Landfill, reaching slightly into the groundwater table but not to the underlying till below, as part of the Site remedy. The comment further states that removing leachate from the inside of this barrier will draw a constant recharge from the groundwater outside the barrier, thus resulting in groundwater remediation which is not required at the Site by either Federal or State Policy.

EPA Response:

A cutoff wall is not part of the selected remedy. A properly constructed landfill cap, in conjunction with a leachate collection system, are cumulatively sufficient containment technologies in abating the migration of hazardous substances at the Site. A properly designed leachate collection system will not collect "clean" groundwater. The details of a leachate collection system will be determined during the design phase of the project.

COMMENT 3.

The Town reiterated the concerns residents expressed about the potential impact the Site could have on the Village of Oakfield municipal water supply wells, 3/4 of mile to the north of the Site. The comment recommends an array of technological options that could abate the potential flow of contaminants away from the Landfill in the direction of the Village of Oakfield Wells.

EPA Response:

EPA's position is that the Village of Oakfield Wells are not threatened by the Landfill. EPA feels that the same would be true even if the Landfill is left unremediated. The groundwater flow at the Landfill has a northern gradient in the north of the Site, but natural groundwater processes such as dilution and adsorption, coupled with the fact that most of the shallow groundwater discharges into the immense Galloway Swamp, act as an hydraulic barrier. Based on the data collected at the Site EPA does not anticipate contaminants impacting the Village of Oakfield Wells. In addition, EPA's last testing of groundwater samples from the northernmost bedrock wells at the Site, in February 1994, reveals no contaminant plumes migrating towards the Village of Oakfield wells.

EPA will give thorough considerations to the technical suggestions (i.e, exploring the possibility of the surface water run off being collected and diverted to the south, etc.) during the design phase of the project so as to enhance the final Site remedy, if such is determined to be necessary during the 5-year review.

COMMENT 4.

A Commenter stated that the Present Worth Cost for the operation and maintenance of the Site remedy, for a duration of 30 years, did not account for inflation.

EPA Response:

A present worth analysis was performed for each alternative using the assumed discount rate of 5% as per Agency policy at the time of the Feasibility Study.

COMMENT 5:

A Commenter questions the necessity of the leachate collection system as part of the final Site remedy, especially if the affected residents will be connected to the municipal water supply system mandated by the March 1993 Record of Decision and thus will no longer be at risk from consuming contaminated groundwater from the Landfill. The Commenter further states that

the leachate collection system, if instituted, will in actuality collect mostly fresh or very mildly contaminated groundwater, much like the leachate collection system at the adjacent former sanitary landfill. As such, the commenter recommends the construction of a leachate barrier (slurry wall) in the north of the Site, in lieu of constructing a leachate collection system, to prevent fresh recharge groundwater from entering the Landfill and consequently reducing operation and maintenance cost of the Site remedy. The Commenter also questions EPA's projected 30-year operation and maintenance costs for the site remedy.

EPA Response:

EPA's objective is to protect both human health and the environment. Data accumulated during the remedial investigation of the Landfill clearly confirms that Site contaminants have migrated into the surrounding surface waters and sediment, therefore leachate at the Site must be addressed. EPA believes some form of leachate collection system is necessary. A properly designed leachate collection system will not collect "clean" groundwater, however the details of a leachate collection system will be developed in the Remedial Design phase of the project.

In addition, a slurry wall constructed along the northern end of the Landfill without some system to address leachate at the Site, will not be an adequate barrier to site contaminants migrating into the Galloway Swamp.

Lastly, in reference to the projected operation and maintenance costs for the site remedy, it is within the EPA guidance and policy requirement that the projected cost for a site remedy have an accuracy of +50 percent to -30 percent.

COMMENT 6:

A Commenter states that the proposed gas venting layer in the Site remedy's NYCRR Part 360 landfill cap should be deleted in favor of four gas vents per acre. The Commenter refers to the currently low gas production at the Landfill as the main reason why the proposed gas venting layer should be waived.

EPA Response:

Volatile organic compounds were detected on-Site during a gas monitoring survey in 1987 by GZA Associates of New York, the technical consultant for the potentially responsible parties ("PRPs"). The gas venting layer, a substantive requirement of the 6 NYCRR Part 360 landfill cap design, cannot be waived unless it can be successfully demonstrated that such a system is not needed. Specifically, an explosive gas investigation must be performed to determine if the gas venting layer can be waived.

This determination can be made during the remedial design phase of the selected remedy. However, New York State regulations governing closure of municipal landfills and proper engineering practices dictate that provision of such system should be made.

COMMENT 7:

A Commenter states that the selected Site remedy should be divided into two phases. The capping of the Landfill and the groundwater monitoring should comprise Phase I. Phase II, which should include the installation of a perimeter leachate collection system, should be deferred until after the 5-year review.

EPA Response:

As stated in previous response to comment number 5, the issue of leachate generated at the Site must be addressed. If, during the design phase, it can be demonstrated that an alternative approach can be implemented sufficiently to address the leachate, a modification may be made.

COMMENT 8:

A Commenter states that leachate storage capacity of 40,000 gallons will be insufficient, especially during late winter and early spring when leachate generation is expected to be a at maximum. The Commenter recommends that the leachate tank storage capacity be 500,000 gallons.

EPA Response:

The storage capacity of 40,000 gallons was calculated during the RI/FS, and it is based on an estimate of 3,400 gallons per day rate of leachate generation which was calculated using the Hydrologic Evaluation of Landfill Performance model. However, the final storage capacity of the leachate storage tanks will be re-evaluated during the remedial design phase of the Site remedy.

COMMENT 9:

A Commenter cites the health and safety hazards which the excavation of the Magnesium Fines Area would pose to workers and adjacent residents. Commenter recommends capping the northern area of the Landfill, leaving the Magnesium Fines Area undisturbed.

EPA Response:

EPA is aware of the hazards associated with the excavation of the Magnesium Fines Area. Special health and safety guidelines will be followed in the excavation of the Magnesium Fines Area.

Measures will be taken to eliminate fugitive dust migration, and special field equipment will be used to prevent sparks from igniting the magnesium.

2. Comments from NL Industries, Inc., dated November 7, 1994 prepared by ELM Environmental Liability, Inc.

COMMENT 1:

A Commenter asserts that EPA's proposed remedy for the Site is not based upon sound technical, scientific, and engineering analysis and therefore is arbitrary and capricious.

EPA Response:

EPA's proposed remedy for the Site is based upon the mandates of CERCLA, and the NCP. Specifically, the proposed Site remedy is based upon the administrative record, including the following studies and technical documents:

GZA. April 1989. Batavia Landfill Site, Draft Remedial Investigation Report. Prepared by Goldberg-Ziono Associates of New York for NL Industries, Inc., Hightown, New Jersey.

GZA. 1991. Batavia Landfill Site, Draft Remedial Investigation Report. Prepared by GZA GeoEnvironmental of New York for NL Industries, Inc., Hightown, New Jersey. June 1991

Addendum to the Remedial Investigation Report prepared by the U. S. Environmental Protection Agency

Alliance Technologies Corporation (renamed TRC Environmental Corporation, or "TRC"). Final Risk Assessment, Batavia Landfill, New York. Prepared for U.S. Environmental Protection Agency. April 11, 1994.

Alliance Technologies Corporation (now TRC), Draft Final Interim Ground Water Risk Assessment, Batavia Landfill, Batavia, New York. Prepared for the U.S. Environmental Protection Agency, March 1992.

GZA. 1994. Batavia Landfill Site, Operable Unit 1 Draft Feasibility Study, Batavia, New York. Prepared by GZA GeoEnvironmental of New York for NL Industries, Inc., Hightown, New Jersey. June 1994.

Addendum to the Feasibility Study prepared by the U. S. Environmental Protection Agency

U.S. EPA. 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. Interim Final. Report No. EPA/540/G-89/004, OSWER Directive 9355.3-01 (October 1988). U.S. EPA, Office of Emergency and Remedial Response, Washington, D.C. 20460.

COMMENT 2:

The Commenter asserts that the selected remedy for the Site is unjustified for the following reasons: (1) The EPA and NYSDOH human health risk assessments do not justify the remedy; (2) EPA's Human Health Risk Assessments are invalid and flawed; (3) An ecological risk assessment of the Site is not completed, and yet EPA proposes remedial activities to address hypothetical ecological risks; and, (4) the proposed remedy will cause substantial environmental injury in order to reduce undocumented risks.

EPA Response:

EPA does not agree.

1) The Public Health Assessment for the Site, dated January 11, 1994 and prepared by the NYSDOH, concludes that all three water bearing aquifers at the Landfill have been contaminated with metals and volatile organic compounds to levels which in exceed drinking water and health based standards. The report further concludes that the Landfill is a public health hazard, and public access to the premises should be restricted.

2) The EPA Human Health Risk Assessment was performed in accordance with EPA guidance and policies. The risk was calculated to be 1.2×10^{-3} , and exceeds the acceptable risk range established by the NCP.

3) As part of the Site remedy, a pre-design ecological assessment to define impacts of the Landfill on fish, wildlife, and associated habitats (especially wetlands) will be performed. This information will be used to determine whether any wetland excavation is advisable consistent with the goal to protect the fish and wildlife, and if excavation is determined to be necessary and advisable, the information obtained will be used to determine the extent of work to be performed. Any sediments excavated as a result of ecological considerations will be placed under the cap. In constructing the cap, a portion of the wetlands may be impacted. The ecological assessment will also assist in designing and constructing the remedy in such a way as to minimize any adverse impacts to the wetlands caused by the remedy. The remedy will require mitigation to any damage to wetlands or wetlands function.

4) In February 1994, representatives from NL Industries requested that EPA allow for the performance of an ecological assessment of the Site prior to, rather than after, the selection of a remedy for the Site. EPA guidance clearly states that an ecological assessment may be performed before, during, or after remedial action. EPA, however, nevertheless provided NL Industries with the opportunity to perform the ecological assessment, with the provision that EPA's Ecological Assessment Workplan, dated April 7, 1994 and prepared by TRC Environmental Corporation, be followed. On July 26, 1994, EPA reviewed and approved a Sediment and Surface Water Sampling Work Plan, dated May 24, 1994, prepared by GZA (for NL) in conjunction with the ecological assessment which they proposed be performed. EPA confirmed, in a letter dated July 26, 1994, its understanding that the fieldwork for the ecological assessment would commence on August 1, 1994. EPA agreed to consider the ecological assessment conducted by NL Industries if it was received in a timely manner, and NL projected its completion by late September 1994. EPA eventually received the Ecological Risk Assessment report in mid-December 1994. The report has been reviewed by EPA and determined to be incomplete. The document is not representative of a complete Ecological Risk assessment, but rather it is more applicable as a thorough screening analysis for which contaminants of concern are identified for the wetlands areas, which is traditionally the first step in the ecological risk analysis process. Consequently, the ecological risk assessment for the Site will be completed during the remedial design phase of the selected remedy. The results of the completed ecological assessment will be used to design and construct the remedy in a way to minimize any adverse impacts to the wetlands.

COMMENT 3:

A comment on page 6 of the submittal asserts that metals in the Site's ground water were generally detected below Maximum Contaminant Levels ("MCLs").

EPA Response:

The above comment is inaccurate: arsenic was detected in 11 of 15 groundwater samples with a maximum concentration of 167 parts per billion ("ppb"); barium was detected in 23 of 23 groundwater samples with a maximum concentration of 2220 ppb; total chromium was detected in 20 of 23 groundwater samples with a maximum concentration of 181 ppb; lead was detected in 21 of 23 groundwater samples with a maximum concentration of 433 pbb; nickel was detected in 14 of 15 groundwater samples with a high concentration of 155 pbb. All referenced maximum metal concentrations in the groundwater exceed the federal and State MCLs. Considering that the monitoring wells system is essentially configured around the periphery of the Landfill,

there is a reasonable possibility that the ground water under the Site may be more severely impacted than as indicated by the remedial investigation results of 1988.

COMMENT 4:

A Commenter questions the necessity for a Site remedy because NYSDOH in April 1993, after reviewing a site assessment performed by the Agency for Toxic Substances and Disease Registry, only recommended that an alternate public water supply be provided for residents living adjacent to the Landfill.

EPA Response:

The provision of an alternate water supply was identified as an interim measure to address one of the problems associated with the Site. The objective of this action is to control the source of contamination at the Site and to reduce and minimize the migration of contaminants into the site media.

The Health assessment is only one of the documents that form the basis for the selection of a remedy. The Administrative Record containing the supporting documents is available and has been maintained at the Richmond Library and the Batavia Town Hall.

COMMENT 5:

A Commenter asserts that both of EPA's human health risk assessments are flawed because they:

1. **are exceedingly simplistic, resulting in implausible assumptions;**

2. **ignore the importance of environmental processes that have been generally recognized by the scientific community for years;**

3. **fail to follow relevant EPA guidance documents, thereby disregarding good technical and scientific protocols; and,**

4. **are based on data that are deficient in quantity, quality, and are not representative of potential exposure point concentrations.**

EPA Response:

As stated previously in EPA's response to comment number 1 on page 8, the risk assessments at the Site, have been completed in accordance with applicable EPA technical guidances and policies under CERCLA and the NCP. The ecological assessment notwithstanding, EPA has acquired sufficient data on the Site conditions to support and justify the need for remedial action at the Site to protect both human health and the environment.

COMMENT 6:

A Commenter questions the impact of that EPA's conclusion in its Risk Assessment Report which states that the local groundwater background conditions have not been characterized.

EPA Response:

Most monitoring wells used, as stated in earlier responses, are generally situated in and around the property boundary line of the Landfill. While more background monitoring well locations could have been selected during the remedial investigation, EPA has sufficient background characterization of the local groundwater through data collected from the periodic testing of groundwater samples from the adjacent former sanitary landfill (now closed), the wells to the north of the Site, and NYSDOH's sampling of nearby private residential wells.

COMMENT 7:

A Commenter asserts that the EPA Risk Assessment is flawed because background chemical concentrations were not determined during the RI. Furthermore, the commenter continues to speculate that the chemical concentrations found on Site may actually represent 'natural' background chemical conditions.

EPA Response:

According to EPA's current policy on conducting risk assessments at Superfund sites, background sampling is not required. Furthermore, data collected during the RI have confirmed on-site sediment and soil contamination, which includes heavy metals and polycyclic aromatic hydrocarbons ("PAHs") well in excess of federal and State soil/sediment cleanup criteria. The ground water beneath the Site has also been impacted by contaminants at levels which exceed federal and State health-based levels.

COMMENT 8:

A Commenter asserts that all groundwater data used in EPA's risk assessment was from unfiltered samples and that EPA failed to follow its guidance which recommends collecting and evaluating both filtered and unfiltered groundwater samples.

EPA Response:

Although EPA guidance suggests the chemical testing of both filtered and unfiltered groundwater samples during a remedial investigation, it also requires that any unfiltered samples be chemically analyzed so as to not under-represent the concentrations of hazardous constituents in the groundwater medium. Note that the 1989 EPA Risk Assessment Guidance (page 6-

27) states that, "data from unfiltered samples should be used to estimate exposure concentrations." The chemical analysis of filtered groundwater samples tends to under-represent the mobility and concentrations of contaminants in the groundwater.

COMMENT 9:

A Commenter states that EPA failed to follow its own Risk Assessment guidance (EPA 1989; EPA 1990) for the proper sampling depth of the sediment during the remedial investigation of the Site.

EPA Response:

The sediment samples were collected during the remedial investigation fieldwork activities in 1988, a year prior to the release of the referenced EPA guidance. The sediment sampling depths (6") were approved by the NYSDOH prior to the 1988 sediment sample collection. EPA attempts to sample sediment and soil from depths that will be available for potential direct exposure to human and ecological receptors. The upper six inches of soil and sediment are potentially exposure pathways for dermal contact and incidental ingestion.

COMMENT 10:

A Commenter asserts that EPA's Risk Assessment was based upon a small number of on-site samples taken in 1987-88. The Commenter further states that no additional sampling was taken to delineate the extent of contamination and establish gradients of contamination attenuation.

EPA Response:

Although EPA does acknowledge that more analytical sampling of the wetlands sediment and surface waters are needed to further delineate the exact area and volume to be remediated in the wetlands, we do not share the opinion that insufficient field data was used to select the remedy for the Site. As stated in an earlier response, the design of the selected remedy will include an ecological assessment and additional sampling of the wetlands sediment and surface waters to determine whether any wetland excavation is advisable consistent with the goal to protect the fish and wildlife, and if excavation is determined to be necessary and advisable, the information obtained will be used to determine the extent of work to be performed.

COMMENT 11:

A Commenter asserts that EPA's Risk Assessment did not include an assessment of the data useability as required in EPA Guidance (EPA 1990). The Commenter also continues to further state that

metals were analyzed during the remedial investigation (RI) using inductively coupled plasma atomic emission spectroscopy. As a result, arsenic and antimony were subjected to significant positive interferences when analyzed by this method; as such, arsenic and antimony may not be chemicals of concern at the Site.

EPA Response:

The risk assumptions used by TRC, EPA's contractor, regarding arsenic and antimony are consistent with EPA policy and with risk assessments for other sites in EPA Region II. EPA acknowledges that there are uncertainties in the toxicity values for arsenic and antimony. These type of uncertainties are discussed in the "Discussion of Uncertainties" section of the EPA Risk Assessment Report.

COMMENT 12:

A Commenter asserts that EPA's projected future land use scenarios in the vicinity the Landfill and the Site are unreasonable and unrealistic.

EPA Response:

EPA's Risk Assessment's exposure scenarios are based on the proximity of nearby residents and the future potential that residential development of the area adjacent to the Landfill is possible. The exposure scenarios are considered reasonable maximum exposure scenarios and are consistent with the NCP.

COMMENT 13:

A Commenter asserts that the scenario TRC used to estimate potential risks to future excavation workers is unrealistic.

EPA Response:

The use of an excavation worker scenario is performed according to EPA guidance and is based on the potential for future utility maintenance/repair/installation activities at the Site.

COMMENT 14:

A Commenter asserts that, "EPA estimated carcinogenic risks posed by the PAHs in sediment to hypothetical resident are based upon implausible assumptions."

EPA Response:

The risk assessment for the Site was developed during a period of evolving EPA policy regarding PAH carcinogenic potency. Specifically, the risk assessment report was prepared before EPA

Region II adopted the Toxicity Equivalency Factor ("TEF") approach. EPA recalculated the PAH risks using the TEF approach. These results indicate that the sediment risk decreased from 6 x 10^{-4} to 2 x 10^{-4}. This revised risk estimate is largely attributable to benzo(a)pyrene. However, the cancer risk related to the potential ingestion of on-site groundwater, 1.2 x 10^{-3}, is not altered by the adopted TEF approach.

COMMENT 15:

A Commenter asserts that EPA overestimated the carcinogenic risks posed by the PAHs.

EPA Response:

The risk assessment was prepared before EPA Region II began using the TEF approach. As stated above, an addendum to the risk assessment recalculating PAH risks using the TEF approach reduced the sediment carcinogenic risk from 6 x 10^{-4} to 2 x 10^{-4}.

COMMENT 16:

A Commenter asserts that the EPA Risk Assessment of the ground water improperly assumes no natural soil attenuation of site-contaminants as ground water flows beneath the Site.

EPA Response:

The approach of not assuming any natural soil attenuation of site-wide contaminants as groundwater flows beneath a site is common practice in risk assessments. It is considered especially relevant at this Site given the contaminants of concern and the fact that current or potential future receptors are located in relatively close proximity to the contamination source.

COMMENT 17:

A Commenter asserts that currently, as well as in the future, residents will not be at threat from contaminant plumes at the Site, especially with the nearby residents being connected to the municipal waterline. The Commenter further speculates that contaminants will remain at the Site and/or attenuate to concentrations below health-based criteria.

EPA Response:

The purpose of EPA's remedial action at the Batavia Landfill Site is to protect both human health and the environment. Providing the nearby residents with a safe and dependable alternate water supply does not alleviate the Agency's responsibility to remediate the Site. Furthermore, EPA's assessment of the Site

hydrogeology does not support the hypothesis that contaminants at the Landfill, if unremediated, will not continue to negatively impact the local environment. Therefore, some action to prevent the Landfill from acting as a source of contamination to the groundwater is necessary. However, by constructing a proper cap and collecting and treating leachate, the Landfill will no longer be acting as a source of contamination to the groundwater and the remaining contaminated groundwater should naturally attenuate over time.

COMMENT 18:

A Commenter asserts that the EPA Risk Assessment failed to take into account the possibility that vinyl chloride, one of the two major contributors to the ground water ingestion risk, was not detected in any bedrock well samples.

EPA Response:

Vinyl chloride was detected in the upper groundwater bearing zones which are hydraulically connected to the bedrock, therefore there is a possibility that vinyl chloride could reach the bedrock aquifer in the future. Using vinyl chloride in the Risk Assessment is consistent with EPA policy.

COMMENT 19:

A Commenter asserts that EPA's risk assessment failed to take into account the biodegradation of organic chemicals in the sediment and ground water. The Commenter continues that EPA's risk assessment estimates, which assume concentrations remain constant over the lifetime of an individual, are inherently flawed.

EPA Response:

It is a common practice in risk assessments not to address attenuation of contaminants. This is considered especially relevant where current or potential future receptors are located in relatively close proximity to the contaminant source. The use of numerical models to evaluate contaminant transport in ground water may be the source of great uncertainty. In most cases, inputs to the model (i.e., degradation, retardation, etc.) can provide a source of great uncertainty.

COMMENT 20:

A Commenter asserts that an ecological assessment was not completed and also that a comparison to Site-specific background concentrations cannot be made because the appropriate (i.e. background) data were not collected by EPA.

EPA Response:

In implementing the Site remedy, an ecological risk assessment will be conducted which will include the additional sampling of the surrounding wetland sediment and surface waters. Also, see EPA's Response to comment number 2 on page 9.

COMMENT 21:

A Commenter contends that the excavation of the sediment is not necessary to protect human health or the environment.

EPA Response:

As part of the Site remedy, a pre-design ecological assessment will be performed to define impacts of the Landfill on fish, wildlife, and associated habitats (especially wetlands). This information will be used to determine whether any wetland excavation is advisable consistent with the goal to protect the fish and wildlife, and if excavation is determined to be necessary and advisable, the information obtained will be used to determine the extent of work to be performed. Any sediments excavated as a result of ecological considerations will be placed under the cap. In constructing the cap a portion of the wetlands may be impacted. The ecological assessment will also assist in designing and constructing the remedy in such a way as to minimize any adverse impacts to the wetlands caused by the remedy. The remedy will require mitigation to any damage to wetlands or wetlands function.

COMMENT 22:

A Commenter asserts dissatisfaction that EPA is not utilizing more modern statistical approaches (i.e. Monte Carlo simulations) in its Risk Assessment.

EPA Response:

EPA recognizes that although Monte Carlo analysis ("MCA") has been available since the 1940's, the widespread application of MCA in health and environmental risk assessments did not really begin until relatively recently. EPA acknowledged the utility of MCA in its 1992 Guidelines for Exposure Assessment, however, the use of MCA within the Agency has been limited, primarily because of insufficient Agency guidance and the need to fully evaluate the advantages and disadvantages of this approach. The Agency is working to develop a training program, conduct a needs assessment of software and computer requirements, and develop a final policy statement in July, 1996.

COMMENT 23:

A Commenter asserts that the excavation of the Magnesium Fines Area and Area R soils would be a health risk to workers.

EPA Response:

See EPA Response to comment number 9 submitted by the City of Batavia on page 7.

COMMENT 24:

A Commenter asserts that the excavation of the Magnesium Fines Area and Area R soils are not necessary to protect human health or the environment.

EPA Response:

The Magnesium Fines Area and Drum Area R constitute the northern area of the Landfill. The wastes in these areas are a continuing source of contamination to the groundwater. The groundwater from the Site has been contaminated by metals and volatile organic compounds at levels which exceed drinking water standards. The carcinogenic risk related to ingestion of groundwater, 1.2×10^{-3}, is outside the acceptable risk range established by the NCP. Therefore the remediation of the northern area is necessary to protect human health.

The New York State Department of Environmental Conservation's 1994 Technical and Administrative Guidance Memorandum ("TAGM") will be used as a goal in determining the amount of soil to be excavated from the northern area of the Landfill for consolidation under a NYCRR Part 360 cap.

COMMENT 25:

A Commenter asserts that the excavation of the buried drums in the southern area of the Landfill is not necessary to protect human health and the environment.

EPA Response:

Sampling results from the area of the buried drums detected the highest concentration of volatile organic compounds found at the Site, identifying this area as a hot spot. Because the soils are surrounding and in contact with the drums, it is a natural assumption that the drums would contain similar types of contaminants. Therefore, the removal of the buried drums from the southern portion of the Landfill, estimated to be 150 in number, would be consistent with the mandates of the NCP to treat hot spots. This is also consistent with Agency RI/FS guidance

and presumptive remedy guidance. As stated before, the protection of the groundwater is relevant to the protection of the environment and, as such, the removal of any buried drums, will enhance the effectiveness of the Site remedy.

COMMENT 26:

A Commenter asserts that the Risk Assessment concludes that wastes at the Site do not pose a significant risk to human health under any realistic exposure scenarios.

EPA Response:

EPA's Groundwater Risk Assessment, dated March 27, 1992, concludes that the groundwater has been contaminated with hazardous constituents at levels which exceed federal and State MCLs as a result of past disposal practices at the Site. These levels present an unacceptable carcinogenic risk of 1.2×10^{-3}. The Risk Assessment also concludes that significant carcinogenic risks (2×10^{-4}) exist via incidental ingestion of on-site sediment.

To assess the overall potential for noncarcinogenic effects posed by one or more than one contaminant, EPA has developed a hazard index ("HI") that measures the assumed simultaneous exposures to several chemicals at low concentrations which could result in an adverse health effect. When the HI exceeds one (1.0), there may be concern for potential noncarcinogenic effects. The acute noncarcinogenic HI associated with groundwater ingestion at the Site was 5.4 and the chronic HI was 26.4, indicating the potential for significant noncarcinogenic effects if the Site remains unremediated.

COMMENT 27:

A commenter expresses opposition to the inclusion of a leachate collection system as part of the proposed Site remedy.

EPA Response:

See EPA responses to comments number 5 and 7 from the City of Batavia on pages 5 and 7, respectively.

COMMENT 28:

A Commenter expresses opposition to performing an ecological assessment after (as opposed to before) the Record of Decision is issued.

EPA Response:

See EPA's response to comment number 2 on page 9.

COMMENT 29:

A Commenter expresses disappointment, for economic reasons, in EPA's failure to perform the ecological assessment prior to selecting the site remedy.

EPA Response:

See EPA's Response to comment number 2 on page 9.

3. **Comments submitted by NL Industries, Inc., GTE Operations Support Inc., Eaton Corporation, Unisys Corporation and R. E. Chapin Manufacturing Works dated November 5, 1994**

COMMENT 1:

The Commenter requests that their submitted comments become part of the Administrative Record.

EPA Response:

In accordance with the NCP, all significant comments submitted by the public in a timely fashion will become part of the Administrative Record. Accordingly, these comments will be included in the Administrative Record for this remedy.

COMMENT 2:

The Commenter states that EPA's Ground Water Risk Assessment and Baseline Risk Assessment are based upon inadequate and out-dated data.

EPA Response:

Because conditions at the Landfill have not significantly changed, i.e. no remedial actions have been taken, EPA views the data collected as representative of current Site conditions.

COMMENT 3:

The Commenter asserts that the Risk Assessments, performed by TRC, did not consider the drum removal actions which were performed after 1987-88, the period in which the bulk of the RI information was accumulated.

EPA Response:

The "Uncertainty" section of the TRC Risk Assessment discusses the drum removal actions performed after 1987. The drum removal actions did not remove the soil in those areas, therefore contamination remains in those areas and the removal action would not contradict the results of the risk assessment.

COMMENT 4:

The Commenter asserts that the EPA Risk Assessment did not factor into its analysis a statistically significant number of groundwater samples to establish background conditions.

EPA Response:

EPA has collected sufficient data and performed the necessary environmental studies at the Site to substantiate undertaking a response action pursuant to the mandates of CERCLA and the NCP. The selected Site remedy also requires the completion of an ecological assessment to determine the extent of remediation necessary concerning the wetlands sediment and to collect additional background samples to define the extent of environmental contamination.

COMMENT 5:

The Commenter asserts that the Ground Water Risk Assessment is flawed and inconsistent with the NCP because TRC failed to present a true "no action" baseline risk assessment.

EPA Response:

The Interim Groundwater Risk Assessment was intended to evaluate potential future risks to public health associated with contaminants measured in ground water during RI field activities. The results of the Assessment were used to conduct a Focused Feasibility Study, the goal of which was the protection of the health of those found to be at risk. Evaluation of the potential future risks associated with ingestion of contaminated ground water is not contrary to the development of a "no action" baseline risk assessment. Furthermore, the interim Risk Assessment was supplemented by an additional Risk Assessment.

COMMENT 6:

The Commenter asserts that the Interim Groundwater Risk Assessment only evaluated hypothetical future risks to users of existing domestic ground water wells.

EPA Response:

A risk assessment must evaluate whether drinking water exposures could potentially occur in the future. Conservatively, the risk assessment conducted at the Site assumed that contaminants would reach nearby receptors without attenuation. This approach is often adopted by EPA in the absence of detailed site-specific information on contaminant transport. Time of travel calculations are typically made during the remedial investigation and are not considered part of a risk assessment.

COMMENT 7:

The Commenter asserts that the following assumptions, upon which the groundwater risk assessment is based, are insupportable: (1) that the overburden and bedrock aquifers are hydraulically connected, and (2) that the ground water in the southern portion of the Site flows toward the south.

EPA Response:

Data accumulated during the RI have confirmed that the three water-bearing aquifers at the Site are interconnected and, as such, they could all be considered as being one heterogeneous aquifer. Although EPA's interpretation of the Site's hydrogeology does support the existence of a silt/clay layer underlying most of the Site, this sub-layer is not present in the north-central location of the Site and, therefore, some of the Site contaminants have been detected in all three water-bearing zones. For instance, barium, magnesium, and chromium have all been detected in descending concentrations in the upper soil zone, lower soil zone, and bedrock aquifers, respectively.

EPA's interpretation of the Site's hydrology is that shallow groundwater flow appears to be to the south in the southern portion of the Landfill and to the east-northeast in the southern central portion of the Landfill, based upon information amassed during the RI and specifically on data provided for wells screened at or very near the water table.

COMMENT 8:

The Commenter asserts that TRC included vinyl chloride in the ground water risk assessment, despite the lack of statistically significant detections.

EPA Response:

Vinyl chloride was included in the groundwater risk assessment because it is a Group A carcinogen. The Risk Assessment for Superfund Guidance ("RAGS") document states on page 5-21 that "...the weight-of-evidence classification should be considered in

conjunction with the concentrations detected at the site. It may be practical and conservative to retain a chemical that was detected at low concentrations if that chemical is a Group A carcinogen."

Frequency of detection is an optional criterion that may be used to eliminate contaminants from the risk assessment. The EPA RAGS document recommends including all chemicals in the risk assessment, regardless of frequency of detection, if it is not unwieldy to do so. This is the approach that was used in this risk assessment.

EPA generally uses a 5% frequency of detection limit in order to eliminate chemicals from the risk assessment. If a contaminant is found in 5% or less of the media samples, it may be eliminated from the risk assessment. Vinyl chloride was found in 3 out of 21 groundwater samples, or 14% of the samples. Therefore, vinyl chloride was considered a contaminant of concern in the risk assessment.

COMMENT 9:

The Commenter asserts that TRC used only unfiltered ground water samples in the risk assessment.

EPA Response:

In general, EPA calls for evaluating risk associated with unfiltered groundwater sampling results. RAGS p. 6-27 states that "data from unfiltered samples should be used to estimate exposure concentrations." RAGS further states that data from filtered samples "may underestimate chemical concentrations in water from an unfiltered tap."

COMMENT 10:

The Commenter asserts that TRC's assumptions regarding the child receptors are "beyond the bounds of reality in many ways."

EPA Response:

The assumptions regarding the child receptor are based on the proximity of residences to the Landfill and the land use information that residential development of area adjacent to the Landfill is possible. The exposure parameters used in the risk assessment are meant to be conservative and protective of this sensitive subpopulation.

COMMENT 11:

The Commenter asserts that TRC's exposure scenario for the excavation workers is unrealistic and unsupportable.

EPA Response:

The excavation worker scenario is based on the potential for future excavation activities at the Site, such as future utility workers, not on the potential for future excavation activities related to the remedial activities selected at the Site.

COMMENT 12:

The Commenter asserts that TRC derived the oral ingestion risk for soil from a Taiwanese study of arsenic in drinking water and that data from similar studies in the United States fail to confirm these findings.

EPA Response:

The assumptions used in the risk assessment regarding arsenic are consistent with EPA policy and risk assessments for other sites in EPA Region II. While EPA recognizes that results of studies have not observed similar results in U.S. populations, the results of the U.S. studies are not necessarily inconsistent with the existing findings from foreign populations.

COMMENT 13:

The Commenter states that the Proposed Plan does not adequately address the short-term risk associated with the implementation of the preferred remedy.

EPA Response:

Although the Proposed Plan did present a summary of the short-term risks to workers and nearby residents, the referenced document does refer the public to the local EPA repositories for a more detailed technical, scientific, regulatory, and legal basis for the selection of the Site remedy. Chapters 4 - 7 of the TRC Risk Assessment as well the feasibility study, both which can be reviewed at either of the local repositories, provide lengthy discussions on the short term risks that the Site would pose to excavation workers and nearby residents.

COMMENT 14:

The Commenter asserts that the Proposed Plan does not accurately determine the cost effectiveness of the Preferred Remedy.

EPA Response:

See EPA Response to comment number 4 submitted by the City of Batavia on page 5. Furthermore, all Alternatives were evaluated for cost effectiveness and overall protectiveness to human health and the environment.

COMMENT 15:

The Commenter asserts that the Proposed Plan does not accurately determine the long-term effectiveness of the leachate collection system as part of the Preferred Remedy.

EPA Response:

See EPA response to comment number 5 submitted by the City of Batavia on page 5.

4. **The following comments are from the document entitled "Batavia Landfill Superfund Site Review of Remedial Investigation Completed by GZA GeoEnvironmental of New York", dated October 1992, prepared by Leggette, Brashears & Graham, Inc.**

COMMENT 1:

A Commenter states that Environ (a technical consultant) found EPA's groundwater risk assessment to be flawed. The Commenter further states that data developed by GZA and interpreted by the commenter, the consultant firm of Leggette, Brashears & Graham, indicate that contaminants could not reach domestic wells from the bedrock aquifer.

EPA Response:

EPA has already responded to the above referenced document by Leggette, Brashears & Graham, Inc., in the March 1993 ROD. Please refer to EPA's Responsiveness Summary (pages 8-16) in the March 1993 ROD.

5. **The following comments are from the document entitled, "Comments on the TRC Environmental Corporation's 'Draft Final Risk Assessment, Batavia Landfill, Batavia, New York'," prepared for the Batavia Landfill PRP Group by ENVIRON Corporation dated May 24, 1993**

COMMENT 1:

The Commenter states that the TRC risk assessment was based on a small number of samples and that there is no indication that this data adequately depicts current Site conditions.

EPA Response:

The TRC risk assessment takes this fact into account in the "Uncertainty" section. See also responses to comment 2, submitted by NL Industries, et al., on page 20.

COMMENT 2:

The Commenter asserts that the TRC risk assessment's excavation worker scenario is unrealistic and unsupportable.

EPA Response:

The excavation worker scenario was developed in accordance with current EPA guidelines to be protective of human health. This scenario is based on the assumption that, in the future, excavation work (i.e. underground utility repair/maintenance/ installation) may occur at the Site.

COMMENT 3:

The Commenter asserts that the carcinogenic risk from arsenic calculated for the excavation worker scenario is too conservative.

EPA Response:

The assumptions used in the risk assessment regarding arsenic are consistent with EPA policy and risk assessments for other sites in EPA Region II.

COMMENT 4:

The Commenter states that the noncarcinogenic risk to excavation workers are artificially elevated by unrealistic assumptions.

EPA Response:

Assumptions concerning the occurrence of excavation activities were based on the potential for future underground utility repair/maintenance/installation work at the Site, **not** considering future remedial actions. The use of a 3 month exposure duration for the excavation worker in limited areas of contamination is intended to be conservative. The subchronic reference doses used in the risk assessment were derived in accordance with current EPA guidelines. Specifically, when subchronic toxicity data are unavailable for a particular chemical, the chronic reference doses are adopted as the subchronic reference doses without any adjustments.

COMMENT 5:

The Commenter states that the carcinogenic risks presented for the hypothetical off-site resident exposure to sediment are elevated by implausible assumptions regarding exposure frequency.

EPA Response:

The exposure frequency parameters for the off-site residential exposure to sediments are based on professional judgement and are intended to be conservative. The risk assessment for the Site was developed during a period of evolving EPA policy regarding PAH carcinogenic potency. Specifically, the risk assessment report was prepared before EPA Region II adopted the TEF approach. As an addendum to the risk assessment, TRC recalculated PAH risks using the TEF approach. These results indicated that the sediment risk decreased from 6×10^{-4} to 2×10^{-4}. The revised risk estimate is largely attributable to benzo(a)pyrene.

COMMENT 6:

The Commenter states that most of the risk to the excavation worker was from the ingestion of arsenic, based upon a maximum detected concentration of 164 parts per million ("ppm") in subsurface soil. The Commenter refers to a Shacklette and Boerngen study of background eastern U.S. data that acknowledges a natural background concentration of up to 73 ppm for arsenic.

EPA Response:

The referenced background level of 73 ppm for arsenic is too high for New York. A more realistic range, as referenced in the TAGM, is 3 - 12 ppm. Arsenic was found at the Site an order of magnitude greater than that referenced and cannot be considered background. According to the RAGS document, chemicals present at the Site at levels which exceed background levels are carried through the risk assessment, and carcinogenic and noncarcinogenic risks are calculated.

COMMENT 7:

The Commenter states that the risk to the excavation worker from exposure to arsenic was characterized using an oral cancer slope factor of 1.75. This slope, the comment asserts, was developed from studies of the ingestion of arsenic in drinking water. The TRC risk assessment, on the other hand, addressed the ingestion of arsenic bound in a soil matrix.

EPA Response:

As indicated in the comment, data on ingestion of arsenic in soil is not available in the scientific literature. In the absence of this information, we have assessed this potential risk using the oral slope factor that is protective of public health. The assumptions used in the risk assessment are consistent with EPA policy and risk assessments for other sites in Region II.

COMMENT 8:

The Commenter states that the EPA Science Advisory Board recommended, based upon studies, that EPA revise its arsenic risk assessment in establishing a drinking water standard.

EPA Response:

The recommendation in question, which resulted from the negotiation of a settlement of a law suit, allowed EPA the option of pursuing a research program that would address risk assessment issues surrounding arsenic-induced cancer. It did not specifically recommend that EPA revise its arsenic risk assessment in establishing a drinking water standard.

COMMENT 9:

The Commenter states that the maximum concentration for aluminum used to calculate the Hazard Quotient ("HQ") of 1.0 for an excavation worker is questionable because specific background data on this metal is unavailable for the Site.

EPA Response:

Aluminum was found at levels which significantly exceeded what would be considered background; notwithstanding, if aluminum were eliminated from the calculation of the HI (into which the HQ is added), the current HI of 6 for excavation workers would only be reduced to an HI of 5, which remains well above the acceptable HI level of 1.

COMMENT 10:

The Commenter is opposed to the exposure assumptions for adults (ages 7 to 70) used in the TRC Risk Assessment, which they assert is overly broad because there are sufficient differences in exposure parameters among these age groups to warrant separate exposure evaluations.

EPA Response:

As stated above, the exposure frequencies used in the sediment exposure scenario are based on the current proximity of residences to the Landfill and the adjacent land use information that residential development of area adjacent to the Landfill is possible. In addition, they comply with EPA guidance and methodologies. As stated in the RAGS document, 100 milligrams per kilogram is used as a soil/sediment ingestion rate for all age groups greater than 6 years old.

COMMENT 11:

The Commenter is critical of EPA for not using the TEF in the Risk Assessment while such was done for the Niagara Mohawk Power Corporation Site and at a metals company in Massena, New York.

EPA Response:

As stated previously, the risk assessment for the Site was prepared before EPA Region II adopted the TEF approach. In an addendum to the risk assessment, TRC recalculated PAH risks using the TEF approach. The results showed that the sediment risk decreased from 6×10^{-4} to 2×10^{-4}.

COMMENT 12:

The Commenter asserts that the young child (1-6 years of age) exposure risk scenario (i.e. ingestion of soil/waste and sediment) is unrealistic.

EPA Response:

As stated above, this risk scenario is based on the proximity of residences to the Landfill. The Site is uncontrolled and unfenced with nothing to prevent children from playing at the Landfill. The presence of ponds make parts of the Site attractive to nearby youngsters.

COMMENT 13:

The Commenter asserts that the data used in the risk assessment are from 1987-88 and that it is uncertain whether this reflects current site conditions.

EPA Response:

As stated above in comment 2 on page 20, the Landfill conditions have not significantly changed, and no remedial actions have been taken; therefore EPA views the data collected as representative of current Site conditions.

6. <u>The following comments are from the document entitled "Batavia Landfill Superfund Site Evaluation of EPA Preferred Remedy and Proposed Alternative Remedy", dated November 4, 1994, prepared by C&E Consultants, Inc.</u>

COMMENT 1:

The Commenter states that the wastes in the southern area do not appear to be significantly different than in the northern area of the Landfill.

EPA response:

EPA disagrees. The RI and the FS both discuss the differences among the wastes, both in topography and in the type and distribution of waste.

COMMENT 2:

The Commenter discusses the cap and the gas and leachate collection systems described in the Proposed Plan and states that modifications to the system could be handled using the variance request procedure included in the State regulations.

EPA response:

EPA agrees. The ARAR identified for the capping of the Site, New York regulations setting forth closure requirements (6 NYCRR Part 360), allows for variances to the cap described in the regulations, and EPA would accept a proper variance if it can be demonstrated to be equally effective and achieve the performance standards.

COMMENT 3:

The Commenter discusses the remedy in the Proposed Plan and proposes the selection of an alternative remedy, a variation from those evaluated in the FS, namely covering the landfill with a variation of a 6 NYCRR Part 360 cap. The proposed alternative discusses capping both the northern and southern area, without any waste consolidation and without treatment of the buried drum area. In addition, the proposed alternative would eliminate the leachate collection system.

EPA response:

As a result of the Site geology and the proximity of the wetlands, a cap in the northern portion of the Landfill would be techincally more difficult to engineer and the estimated cost associated with such an action (e.g., actual construction costs, operation and maintenance, additional leachate treatment) resulted in EPA proposing an alternative remedy. As to the components of the capping system, sampling performed in the RI was intended to collect data to adequately characterize the Site for the purpose of developing and evaluating effective remedial alternatives. It was not necessarily intended to provide the level of detail sufficient to design the remedy. The capping system that was evaluated in the FS is the one specified in the 6 NYCRR Part 360 regulations. However, the regulations do allow for the installation of an equivalent design. After the collection of additional data during the design phase, the components of the cap, including any gas and leachate collection systems, will be further defined and designed.

COMMENT 4:

The Commenter asserts that the substitution of a new set of remedial action objectives ("RAOs") set forth by EPA in the Proposed Plan, when compared with the RAOs for the first Record of Decision mandating the alternate water supply, is inconsistent with the NCP requirements because they are dissimilar.

EPA Response:

The purpose of the March 1993 Record of Decision, an interim remedial action, was to ensure that the nearby residents who rely solely on well water for potable domestic and consumptive needs would have a safe drinking water supply. Their private wells could potentially be impacted by hazardous constituents from the Site and, the March 1993 ROD had a different objective from this ROD; therefore, the two RODs are not dissimilar or inconsistent with the NCP.

COMMENT 5:

The Commenter states that EPA's interpretation of the groundwater flow directions and contaminant pathways are incorrect. The Commenter further asserts that contaminants could not reach domestic wells extracting water from the bedrock aquifer south of the Site, and thus the Landfill could not pose a risk to residents.

EPA Response:

As stated in the Preface to the RI report, EPA believes that EPA's Conceptual Groundwater Model best represents hydogeological conditions at the Site and that the groundwater from the Site does pose a risk to the private wells.

COMMENT 6:

The Commenter reiterates Environ's October 1992 and May 1993 comments on the EPA risk assessments for the Site.

EPA Response:

EPA has already responded to the issues raised by Environ's comments. See EPA responses in Section 5 of this Responsiveness Summary. Also see pages 8-12 of the March 1993 Record of Decision Responsiveness Summary.

COMMENT 7:

The Commenter asserts that the RAOs in the Proposed Plan differ from those in the FS and are not supported by the risk assessment.

EPA Response:

The RAOs, while not identical to those in the FS, are similar. The NCP states that Final remediation goals will be determined when the remedy is selected. RAOs in the remedy selection process are not solely or completely developed based on the human health risk assessment; RAOs are also developed to protect the environment and local ecology as well. For instance, the protection of the groundwater beneath the Site is a RAO. Federal and New York State soil/sediment cleanup criteria are also RAOs that have evolved from environmental protection concerns as well as from the potential risks to which an unremediated site could subject nearby residents.

COMMENT 8:

The Commenter asserts that the gas venting layer for the Landfill cap is unnecessary because the Site it is not anticipated that the Landfill will produce any significant amount of gas.

EPA Response:

See EPA's response to comment number 6 from the City of Batavia, on page 6.

COMMENT 9:

The Commenter expresses skepticism concerning the effectiveness of the leachate collection system required under the proposed Site remedy.

EPA Response:

See EPA's response to comment number 5 from the City of Batavia on page 5.

COMMENT 10:

The Commenter states that there is no basis for excavating the estimated 45,000 cubic yards of material from the Magnesium Fines Area.

EPA Response:

The estimated volume of soils (45,000 cubic yards) to be excavated is based upon results of the soil borings taken during the RI. The determination that it is necessary to excavate the materials from the Magnesium Fines Area, on the other hand, is based upon NYSDEC soil cleanup criteria. NYSDEC soil cleanup standards, developed to protect the ground water quality, require that these metals be remediated to at least a level of 5000 milligrams per kilogram. Some soil samples from the Magnesium

Fines Area have revealed magnesium concentrations as high as 400,000 milligrams per kilogram. Also other metals, such as barium and chromium, are included in the estimated 45,000 cubic yards of material to be excavated from the Magnesium Fines Area. Additional soil samples will be collected during the remedial design phase to determine more accurately the volume amount of material which must be excaveted from the Magnesium Fines Area.

COMMENT 11:

The Commenter argues that NYSDEC's TAGM, dated January 24, 1994, is not appropriate for establishing cleanup levels in the Magnesium Fines Area because the levels may not be achievable.

EPA Response:

EPA is using the TAGM to set cleanup goals, rather than cleanup levels.