RECORD OF DECISION

Richardson Hill Road Landfill Site

Towns of Sidney and Masonville, Delaware County, New York

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

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Richardson Hill Road Landfill
Towns of Sidney and Masonville, Delaware County, New York

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a remedial action for the Richardson Hill Road Landfill site (the Site), which is chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §9601 *et seq.* and to the extent practicable the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision document explains the factual and legal basis for selecting the remedy for the Site. The attached index (see Appendix III) identifies the items that comprise the Administrative Record upon which the selection of the remedial action is based.

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

ASSESSMENT OF THE SITE

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

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy includes:

- Excavation of contaminated waste material and soil exceeding NYSDEC's Soil Cleanup Objectives[1] in the North and South Areas (other than the landfill). Clean fill will be used as backfill in the excavated areas;

- In the area to be capped (primarily, in the vicinity of the former waste oil disposal pit), soil with polychlorinated biphenyl (PCB) concentrations which equal or exceed 500 milligrams per kilogram (mg/kg) will be excavated and sent off-Site for treatment/disposal at a Toxic Substances Control Act (TSCA)-compliant facility;

- Excavation and/or dredging of sediments exceeding 1 mg/kg PCB from South Pond and all areas downstream for approximately 2,400 feet. The need for remediation in areas further downstream will be evaluated based on an assessment of sediment concentrations and biological receptors. All excavated/dredged sediments will be dewatered, as necessary. Any wetlands impacted by remedial activities will be fully restored;

- Installation of an outlet control/sediment trap downgradient of South Pond to minimize migration of contaminated sediment further downstream from the main beaver pond;

- All excavated/dredged waste materials, soils, and sediments will be subjected to Resource Conservation and Recovery Act (RCRA) hazardous waste characteristic testing. Those waste materials, soils, and sediments that do not pass the RCRA characteristic testing will be sent off-Site for treatment/disposal at a RCRA-compliant facility (or a TSCA-compliant facility, if applicable). Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations which equal or exceed 500 mg/kg will be sent off-Site for treatment/disposal at a TSCA-compliant facility. Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations less than 50 mg/kg will be consolidated at the on-Site landfill; those with PCB concentrations between 50 and 500 mg/kg will be placed in a TSCA-compliant landfill constructed adjacent to the existing landfill. The on-Site TSCA landfill, which will include a double composite liner and a final cover equivalent to a RCRA cap, will meet the requirements of 40 CFR 761.75, except that it will not be in strict compliance with the requirements

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[1] NYSDEC's soil cleanup objectives are specified in NYSDEC Technical Administrative Guidance Memorandum No. 94-HWR-4046.

of 40 CFR 761.75(b)(3), as the bottom of the landfill will not be located at least 50 feet higher than the nearest high groundwater elevation. Therefore, a waiver of this requirement will be necessary pursuant to 40 CFR 761.75(c)(4). It is EPA's assessment that, considering the nature of the waste, the design and operation of the landfill will be sufficient to prevent migration of PCBs from the landfill. Consequently, a waiver of this requirement is justified;

- Following the consolidation of the excavated/dredged waste materials, soils, and sediments with PCB concentrations less than 50 mg/kg onto the existing landfill, a New York State 6 NYCRR Part 360 or equivalent closure cap will be constructed;

- Construction of a chain-link fence around the landfill;

- Construction of a shallow leachate collection trench, keyed into the top of the bedrock, on the downgradient edge of the cap that will be installed on the existing landfill, and installation of vertical overburden and bedrock extraction wells in the North Area;

- Extraction of contaminated groundwater from the overburden and shallow bedrock in the South Area utilizing the downgradient interceptor trench, and in the North Area utilizing the extraction wells, and treatment of the extracted groundwater by air-stripping and activated carbon (or other appropriate treatment), followed by discharge to surface water;

- Taking steps to secure institutional controls (the placement of restrictions on the installation and use of groundwater wells at the Site and restrictions on the future use of the Site in order to protect the integrity of the new TSCA landfill and the cap installed on the existing landfill); and

- Long-term monitoring of groundwater, surface water, fish and sediments to ensure the effectiveness of the selected remedy.

In addition, the water treatment systems that were installed on the contaminated wells at two residences will continue to be maintained.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA §121, 42 U.S.C. §9621 in that it: 1) is protective of human health and the environment; 2) attains a level or standard of control of the hazardous substances, pollutants and contaminants, which at least attains the legally applicable or relevant and appropriate requirements (ARARs) under federal and state laws; 3) is cost-effective; and 4) utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. In keeping with the statutory preference for treatment as a principal element of the remedy, the contaminated groundwater will be collected and treated. The landfill material other than the hot-spot area (PCB contamination equal to or greater than 500 mg/kg), however, cannot be excavated and treated effectively, because of the size of the landfill and the cost associated with the excavation and treatment.

A review of the remedial action pursuant to CERCLA §121(c), 42 U.S.C. §9621(c), will be conducted within five years after the commencement of the remedial action, and every five years thereafter, 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 the Site above health-based levels.

Jeanne M. Fox
Regional Administrator

9/30/91
Date

RECORD OF DECISION FACT SHEET
EPA REGION II

Site:

Site name: Richardson Hill Road Landfill

Site location: Towns of Sidney and Masonville, Delaware County, New York

HRS score: 35

Listed on the NPL: July 1, 1987

Record of Decision:

Date signed: September 30, 1997

Selected remedy: Contaminated Soil and Sediment Excavation/ Dredging, Consolidation, On- and/or Off-Site Disposal, Disposal Cell Construction, Installation of Landfill Cap consistent with 6 NYCRR Part 360, and Groundwater Extraction (North Area via Extraction Wells and South Area via an Interceptor Trench) and Treatment

Capital cost: $7,871,000

Construction Completion - 16 months

Annual O & M cost - $479,000

Present-worth cost - (7% discount rate for 30 years): $13,864,000

Lead:

Site is enforcement lead - EPA is the lead agency

Primary Contact: Young S. Chang, Project Manager, (212) 637-4253

Secondary Contact: Joel Singerman, Chief, Central New York Remediation Section

Main PRPs: Amphenol Corporation and AlliedSignal, Inc.

Waste:

Waste type: volatile organics, semi-volatile organics, metals, and PCBs

Waste origin: Hazardous waste

Contaminated medium: soil, sediment, groundwater, and surface water

RECORD OF DECISION

DECISION SUMMARY

Richardson Hill Road Landfill

Towns of Sidney and Masonville, Delaware County, New York

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

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SITE NAME, LOCATION AND DESCRIPTION

The Site, located in the Towns of Sidney and Masonville, Delaware County, New York, approximately 3.3 miles south-southwest of Sidney Center, is situated on the western side of Richardson Hill Road, adjacent to the Sidney Landfill[1]. The Site consists of two sections designated as the North Area and the South Area. (See Figures 1 and 2).

The South Area is comprised of an 8-acre landfill (which contains a former waste oil disposal pit approximately 25 ft wide by 105 ft long by 14 ft deep), South Pond, and a portion of Herrick Hollow Creek. Surface water from the landfill drains into a marsh and South Pond through a drainage ditch. Water from South Pond drains through a sediment trap weir system and a beaver dam into Herrick Hollow Creek, which eventually flows into the Delaware River, which flows into the Cannonsville Reservoir on the west branch of the Delaware River. The Cannonsville Reservoir is part of the Delaware watershed system, supplying drinking water to the New York City metropolitan area. There are numerous springs around the Site, some of which eventually discharge into the wetlands. (See Figure 3.)

The North Area, located about 1,000 ft northeast of the landfill, includes two disposal trenches (approximately 70 ft by 70 ft) and a man-made surface water body called North Pond. The North Area is situated on a drainage divide between the Susquehanna and Delaware River basins, with the primary drainage toward the Delaware basin. Water from North Pond drains through a series of beaver dams into Carr's Creek, a tributary to the Susquehanna River.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The land on which the Richardson Hill Road Landfill is located was purchased by Devere Rosa, Jr. in 1964 for the purpose of operating a refuse disposal area. Devere Rosa, Sr. was issued a permit from the New York State Department of Health (NYSDOH) to operate the landfill. In July 1964, the Town of Sidney entered into a contract with Devere Rosa, Jr. for the disposal of town wastes at the landfill, including spent oils from the Scintilla Division of Bendix Corporation. While operating the Richardson Hill Road Landfill, Mr. Rosa, Sr. also disposed of wastes in the Sidney Landfill, located on the east side of Richardson Hill Road.

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[1] The Sidney Landfill Superfund Site, also a National Priorities List site, is being remediated separately.

According to NYSDEC and NYSDOH, the Richardson Hill Road Landfill was poorly operated, with the improper compaction of waste, poor daily covering, no supervision, and uncontrolled access to the Site.

Based on continuing violations at the landfill, NYSDOH sought to close it. On October 31, 1968, Mr. Rosa, Sr. signed an order issued against him by NYSDOH to close the landfill, however, waste disposal did not cease until 1969. In 1968, the ownership of the property containing the landfill was transferred to Joseph Del Vecchio and Robert Pacelli. In 1969 and 1970, the properties comprising the North Area were sold to John Spizziri, Sr. and Sandra S. Spizziri. In 1972, these properties were transferred to John Spizziri, Sr. and Alexandra Vitale Spizziri.

Based upon the results of an EPA-performed site investigation and a New York State-performed Phase II site investigation, the Site was listed on the National Priorities List on July 1, 1987.

On July 22, 1987, EPA entered into an Administrative Order on Consent (AOC), Index Number II CERCLA-70205, with Amphenol Corporation and AlliedSignal, Inc. (formally Bendix Corporation), requiring them to perform a remedial investigation and feasibility study (RI/FS) to determine the nature and extent of the contamination at and emanating from the Site and to identify and evaluate remedial alternatives.

In 1993, in response to a fish kill in South Pond attributable to the seep of contaminants from the oil disposal pit, EPA issued an AOC, Index Number II CERCLA-93-0214, and a Unilateral Administrative Order (UAO), Index Number II CERCLA-93-0217, to Amphenol Corporation and AlliedSignal, Inc. The work performed pursuant to these orders included the excavation of approximately 2,200 cubic yards of contaminated sediments from South Pond (the excavated sediments are being temporarily stored on-Site in lined storage cells), the installation of seep interceptor collection basins upgradient of South Pond, and a sediment trap weir system at the outlet of South Pond to prevent the downstream migration of contaminated sediments, and the installation and maintenance of two whole-house supply water treatment systems.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The remedial investigation (RI) report, feasibility study (FS) report, and Proposed Plan for the Site were released to the public for comment on July 28, 1997. These documents were made available to the public in the administrative record file at the Superfund Records Center in the

EPA Region II, New York City office and the information repository at the Sidney Memorial Public Library, Main Street, Sidney. The notice of availability for the above-referenced documents was published in the *Press and Sun Bulletin* on July 28, 1997. The public comment period related to these documents was held from July 28, 1997 to August 26, 1997.

On August 13, 1997, EPA conducted a public meeting at the Sidney Civic Center to inform local officials and interested citizens about the Superfund process, to review current and planned remedial activities at the Site, to discuss the Proposed Plan and to respond to questions from area residents and other interested parties.

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

SCOPE AND ROLE OF OPERABLE UNIT

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

SUMMARY OF SITE CHARACTERISTICS

The purpose of the RI, conducted from 1988 to 1996, was to determine the nature and extent of the contamination at and emanating from the Site. The results of the RI are summarized below.

Surface and Subsurface Soils

Contaminants detected in the surface soils were predominantly PCBs, with the highest concentrations found near the former waste oil disposal pit (the highest surface soil PCB concentration near the former waste oil disposal pit was 950 mg/kg, based upon field screening data).

The subsurface soils are predominantly contaminated with volatile organic compounds (VOCs) and PCBs. The most prevalent VOCs and their corresponding maximum detected concentrations are 1,2-dichloroethene (1,2 DCE) (23 mg/kg), trichloroethene (TCE) (220 mg/kg), toluene (110 mg/kg), ethylbenzene (3.9 mg/kg), and xylene (5.2 mg/kg), with the highest concentrations detected in the vicinity of the former waste oil disposal pit. In the original RI samples collected in

1990, the maximum PCB concentration detected in the subsurface soil was 14,000 mg/kg, located southwest of the former waste oil disposal pit. In the former waste oil disposal pit itself, PCB concentrations ranged up to 7,000 mg/kg. Soil samples collected in the former waste oil disposal pit and its vicinity in 1994 (following the excavation of the contaminated sediments from South Pond pursuant to the UAO) showed a substantial reduction in contaminant levels. In the location where the 14,000 mg/kg PCB was detected previously, a maximum PCB concentration of 79.9 mg/kg was detected in the subsequent sampling. Samples collected from the former waste oil disposal pit showed PCB concentrations had dropped from a maximum concentration of 7,000 mg/kg to a maximum concentration of 480 mg/kg in the subsequent sampling. The significant reduction in PCB concentrations in the former waste oil disposal pit and the surrounding soils, in conjunction with the presence of high levels of PCB-contaminated sediments in South Pond before they were excavated, appears to indicate that the former waste oil disposal pit, although previously a significant source of free-phase PCB-contaminated oil, which caused significant contamination of South Pond sediments, is now a less significant source of contamination.

PCBs were also detected in surface and subsurface soils in the North Area (field screening concentrations ranged up to 42.2 mg/kg and 0.14 mg/kg, respectively) and in the vicinity of the landfill (field screening concentrations ranged up to 155.6 mg/kg and 3.9 mg/kg, respectively).

Elevated inorganic contaminants were detected in subsurface soil samples in an area south/southwest of the former waste oil disposal pit, the former waste oil disposal pit itself, and the North Area. Iron, nickel, lead, and zinc were detected, with highest levels of 53,100 mg/kg, 37.6 mg/kg, 136 mg/kg, and 413 mg/kg, respectively. The concentrations of the remaining inorganics were within the New York State background levels.

Tables 1 and 2 summarize surface and subsurface soil data, respectively.

Groundwater Quality and Residential Wells/Springs

Groundwater samples have been collected from site monitoring wells between November 1988 and February 1995. The most prevalent VOCs present in the overburden groundwater are TCE, PCE, 1,1,1-trichloroethane (1,1,1-TCA), and their breakdown products, 1,2-DCE, 1,1-dichloroethene (1,1-DCE), 1,1- dichloroethane (1,1-DCA) and vinyl chloride. In addition, PCBs were detected in the groundwater.

The VOC concentrations in overburden groundwater exceeded the New York State Class GA standards for each detected compound. The range of total VOCs detected in the overburden groundwater is from 1 microgram per liter (μg/l) to 29,860 μg/l, with the highest concentrations being located adjacent to and downgradient of the former waste oil disposal pit. Concentrations of TCE, 1,1,1-TCA, and 1,2-DCE ranged up to 8,400 μg/l, 1,300μg/l, and 26,000 μg/l, respectively. The distribution of VOCs within the overburden groundwater indicates that a VOC plume about 1,200 feet wide and 400 feet in length extends from the landfill to South Pond.

Concentrations of total VOCs in the North Area groundwater ranged up to 373 μg/l. The compounds with the highest concentrations consisted of TCE (340 μg/l), 1,1,1-TCA (23 μg/l), 1,2-DCE (3 μg/l), and tetrachloroethene (PCE) (7 μg/l).

All overburden wells in the vicinity of the landfill exhibited PCB concentrations, with the highest concentration (1,400 μg/l) being detected in close proximity to and downgradient of the former waste oil disposal pit. The PCB plume is less extensive aerially than the VOC plume, and is centered around the former waste oil disposal pit.

The groundwater quality data collected in the past six years shows a historic similarity in plume geometrics and magnitude of concentrations, suggesting that the VOCs and PCBs are in equilibrium.

The shallow bedrock groundwater at the landfill contains similar VOC and PCB constituents as in the overburden groundwater. (The primary VOCs in the shallow bedrock groundwater are 1,2-DCE and TCE.) Generally, VOC concentrations in the shallow bedrock groundwater are an order of magnitude less than the concentrations detected in overburden groundwater. The total VOCs located downgradient of the former waste oil disposal pit and downgradient of the southern portion of the landfill have ranged from 2,510μg/l to 7,770μg/l. PCBs were detected in the shallow bedrock groundwater at concentrations ranging up to 1.3μg/l.

VOCs and PCBs were not detected in the deep bedrock groundwater downgradient of the landfill, indicating that this zone is probably isolated from the overburden and shallow bedrock groundwater.

Two private water supplies (springs) located in the North Area show chemical contamination above drinking water standards. Both springs have whole-house treatment systems, which are being maintained by the potentially responsible parties, pursuant to an AOC. As a result of the treatment systems, the water supplies show no contamination at the point of use.

Table 3 summarizes groundwater quality data.

Surface Water and Sediment Investigations

The objectives of the surface water, leachate, and sediment investigations were to determine if site-generated contaminants have migrated to North Pond, South Pond, the adjacent wetlands, and downstream, and to determine site-specific background contaminant concentrations.

Table 4 summarizes surface water data.

Surface water samples collected from South Pond contained total VOCs ranging from 3μg/l to 1,982 μg/l. The highest VOC concentrations were detected adjacent to a leachate seep area along the western shore of South Pond. PCBs in South Pond ranged in concentration from non-detectable to 2.9μg/l.

VOCs detected in surface water samples collected downstream of South Pond include 1,2-DCE (1μg/l to 4 μg/l), methylene chloride (0.9μg/l to 8 μg/l), and carbon disulfide (10μg/l to 12 μg/l). PCBs were detected at concentrations ranging from 0.15μg/l to 0.42 μg/l. PCBs were not detected at sampling points beyond approximately 2,600 ft downstream of South Pond.

Surface water in North Pond contained TCE (4 μg/l) and 1,2- DCE (1 μg/l). PCBs in North Pond surface water ranged from nondetectable to 0.3μg/l. A sample collected from a small pond in the North Area contained TCE at 9 μg/l, but did not contain PCBs.

Prior to the excavation of contaminated sediments, the total VOCs in South Pond sediments ranged from 0.013 mg/kg to 4.96 mg/kg. The most prevalent VOCs were 1,2-DCE (3.5 mg/kg) and toluene (1.4 mg/kg). South Pond sediments also contained low concentrations of methylene chloride, acetone, 2-butanone, xylene, ethylbenzene, chlorobenzene, 1,1-DCE, 1,1,1-TCA, TCE, chloromethane, carbon disulfide, and vinyl chloride. PCB concentrations in South Pond sediments ranged up to 1,300 mg/kg. Post-excavation sediment sampling results showed maximum concentrations of methylene chloride at 0.003 mg/kg, carbon disulfide at 0.002 mg/kg, toluene at 0.003 mg/kg, xylenes at 0.06 mg/kg, and PCBs at 0.37 mg/kg.

During the downstream investigations, sediments in the Herrick Hollow Creek, the southern portion of the South Pond, and the floodplain located downstream of South Pond showed PCB concentrations ranging up to 180 mg/kg, 150 mg/kg, and 24 mg/kg, respectively. Chloromethane (0.008 mg/kg) was the only VOC detected (in one sample) downstream of South Pond. PCB levels exceeding 1 mg/kg were not detected at sampling points beyond approximately 3,600 ft downstream of South Pond. (See Figure 4 and Table 5.)

SUMMARY OF SITE RISKS

Based upon the results of the RI, 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 and ecological risk which could result from the contamination at the Site, if no remedial action were taken.

Human Health Risk Assessment

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

The baseline risk assessment began with selecting contaminants of concern that would be representative of site risks. The contaminants included 18 VOCs, 11 metals and PCBs. Several of the contaminants, including vinyl chloride, benzene, and arsenic, are known to cause cancer in laboratory animals and are suspected to be human carcinogens. (See Table 6).

The baseline risk assessment evaluated the health effects which could result from exposure to contamination as a result of ingestion, dermal contact, and inhalation of groundwater; ingestion and dermal contact with surface and subsurface soils; ingestion and dermal contact with surface water and sediment; dermal contact with leachate; and inhalation of chemicals on respirable particles. The potential receptor population includes current and future adolescent trespassers and recreationalists, on-site utility/maintenance workers, and resident children and adults.

Current federal guidelines for acceptable exposures are an individual lifetime excess carcinogenic risk in the range of 10^{-4} to 10^{-6} (e.g., a one-in-ten-thousand to a one-in-a-million excess cancer risk) and a maximum health Hazard Index (HI) (which reflects noncarcinogenic effects for a human receptor) equal to 1.0. (An HI greater than 1.0 indicates a potential of noncarcinogenic health effects.)

All of the carcinogenic risks calculated were within the acceptable cancer risk range. The results of the baseline risk assessment indicate that the ingestion of drinking water in the current-use scenario represents a total cancer risk of 6.4×10^{-6} for adults and 3.7×10^{-6} for children and in the future-use scenario represents a total cancer risk of 1×10^{-4} for adults and 5.9×10^{-5} for children. (See Table 7).

Concerning the noncarcinogenic risks, the results of the baseline risk assessment indicate that the ingestion of drinking water in the current-use scenario (an HI of 1.3 for adults and 5.6 for children) and in the future-use scenario (a HI of 2.2 for adults and 7.9 for children) result in HIs greater than 1.0. These elevated values are caused, primarily, by volatile organic compounds, especially TCE. The potential child trespasser showed a noncancer HI of 1.4 for ingestion of site soil, an HI of 10 for dermal contact with site soil, an HI of 1.6 for ingestion of South Pond sediment, an HI of 12 for dermal contact with South Pond sediment, and an HI of 4.5 for dermal contact with South Pond surface water. Aroclor 1248 is the predominant contributor to all of these high HI values. Ingestion of and dermal contact with subsurface soils by utility/maintenance workers showed HI values greater than 1.0 (HI of 28 and 41, respectively), with Aroclor 1248 as the predominant contributor. For the North Pond, the total HI for recreationalist exposure to the chemicals of potential concern from dermal contact and ingestion of surface water and dermal contact with sediment is 0.2. An HI of less than 1.0 indicates that adverse, noncarcinogenic health effects from such exposures are unlikely. (See Table 8).

Ecological Risk Assessment

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

Habitats which presently exist at the Site include palustrine emergent marsh wetlands, open water areas (ponds and streams), successional shrub land and mixed hardwood forest upland. Surface soils on the Site may provide a source of exposure for wildlife through direct contact, ingestion, and uptake of contaminants by vegetation or biota and subsequent dietary ingestion. Surface runoff may transport soil contaminated particles into the various streams and wetland areas, potentially contaminating surface water and sediments in these areas.

If contaminants are discharged into the wetland areas, fish and wildlife can be exposed to them through dietary ingestion via bioaccumulation of contaminants into plant or biota tissues. Also, direct contact with water and sediments can occur during feeding and nesting activities of waterfowl and on a constant basis for fish and other aquatic organisms inhabiting open water areas of the wetlands. Terrestrial wildlife may also be exposed to contaminants via ingestion of water, aquatic vegetation, and organisms, such as fish.

The risk assessment evaluated the potential risks to several indicator species through exposure to the contaminants of concern. The control pond was found to be dominated by a mixed-age sunfish population and also contained fathead minnow, creek chub and blacknose dace. However, only fathead minnow were found in the South Pond Area. Therefore, the fathead minnow is used as an indicator of conditions in the ponded areas in the vicinity of the Site. For assessment of risks from exposure to surface soils and through the terrestrial food chain, the deer mouse was used as an indicator. The mink and the great blue heron were chosen as indicators for analysis of risk through potential exposures from the aquatic food chain, since these species may inhabit the vicinity of the landfill, the South Pond and its downstream areas.

The hazard quotient (HQ) method is used to evaluate the potential risk to wildlife by comparing estimated total daily intakes of chemicals of potential concern (COPCs) from environmental media to toxicologic endpoints or benchmarks shown to cause adverse ecological effects. The HQ is expressed as the ratio of the estimated exposure levels to the benchmarks. An HQ which exceeds 1.0 is interpreted as a level at which deleterious effects may occur.

HQ results

COPCs in surface water, sediment, and soil that could bioconcentrate through the food chain were modeled for exposures to the great blue heron, mink and deer mouse using mean media concentrations detected in South Pond Area. The chosen receptors are representative of trophic levels potentially exposed to site-related releases, and therefore, calculated risks are representative of risks to other receptors at the same trophic level. The results of the HQ modeling show that PCB Aroclor 1248 and zinc resulted in a calculated HQ of greater than 1.0 for the great blue heron (HQ = 2.8 and 1.2, respectively) in South Pond. Aluminum, arsenic, and PCB Aroclor 1248 resulted in a risk to the mink (HQ = 93, 9.1, and 3.2, respectively). Cadmium (HQ = 2.7) and PCB Aroclor 1248 (HQ = 8.6) pose a risk to the deer mouse.

Site-related chemicals are present in surface water at concentrations that exceed ecological screening criteria. A chronic bioassay conducted on fathead minnow larvae using surface water from the western portion of South Pond indicated effects on survival and growth which may suggest that conditions in the western portion of South Pond may be a factor in the mortality of fish fry. The results of a caged fish study indicate that PCBs in the surface water and sediments of South Pond and outlet pond are bioavailable to fish residing in these areas. Although resident fish would not be limited to constant exposures in a specific area of the pond, uptake of PCBs is likely. Young-of-the-year fish sampling exhibited PCB concentrations between 6.2 mg/kg and 8.4 mg/kg. Adult fish collected from South Pond and downstream water bodies indicated PCB body burdens ranging from 5.6 mg/kg to 33 mg/kg. A food chain exposure model indicates that fish with elevated PCB body burdens present a risk to the piscivorous wildlife.

The presence of PCBs and inorganic compounds in environmental media, at concentrations which present a potential risk based on HQs, are likely to have some adverse effect on wildlife utilizing the Site and its vicinity. If the Site is unremediated, contaminants may continue to be released (e.g., via leachate, surface runoff, groundwater discharge) into the environment. Effects of contaminants could be more pronounced over time as a result of increasing concentrations in the media of concern and bioaccumulation through the food chain.

For North Pond, mink and osprey were chosen as indicators for analysis of risk through exposure to contaminants in fish tissue. Based on the HQs, it appears that aluminum, bis[2-ethylhexyl]phthalate, cadmium, copper, iron, and manganese in the surface water of North Pond pose a potential risk to aquatic biota. Based on the average DDT, DDE, and DDD concentrations, there appears to be no potential risk to benthic organisms in North Pond (HQ = 0.08). Based on the HQs for these compounds, the presence of DDT, endrin, and nickel in fish tissue presents no potential risk to wildlife consumers of fish from North Pond. Potential risk to the ecological receptors impacted by North Pond will be minimized when the Site (and the Sidney Landfill Site) are remediated, thereby limiting future contaminant releases and allowing the affected media to recover over time through natural processes, such as dilution, sedimentation, and biodegradation.

Uncertainties

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

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

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

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

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

In summary, actual or threatened releases of hazardous substances from this Site, if not addressed by the preferred remedy or one of the other active measures considered, may present a current or potential threat to public health, welfare and the environment.

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 and risk-based levels established in the risk assessment.

The following remedial action objectives have been established for the Site:

- reduce/eliminate contaminant leaching to groundwater;
- control surface water runoff and erosion;
- mitigate the off-Site migration of contaminated groundwater;
- restore groundwater quality to levels which meet state and federal drinking-water standards;
- prevent human contact with contaminated soils, sediments, and groundwater; and
- minimize exposure of fish and wildlife to contaminants in surface water, sediments, and soils.

DESCRIPTION OF REMEDIAL ACTION ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that a remedial action must be protective of human health and the environment, cost-effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) 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 §121(d), 42 U.S.C. §9621(d), 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 pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

This ROD evaluates in detail six remedial alternatives for addressing the contamination associated with the Richardson Hill Road Landfill site. Various processes are considered and are assembled into remedial alternatives which can accomplish the remedial action objectives. Cost and construction time, among other criteria, were evaluated for each remedial alternative. The time to implement a remedial alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate with the responsible parties, procure contracts for design and construction, or conduct operation and maintenance (O&M) activities at the Site.

The remedial alternatives are:

Alternative 1A: No Action

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0
Construction Time:	0

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with the other alternatives. The no-action remedial alternative does not include any physical remedial measures that address the problem of contamination at the Site. This alternative assumes no additional activity takes place beyond the previously-implemented activities and the continued maintenance of the two residential water treatment systems.

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

Alternative 1B: Institutional Controls

Capital Cost:	$83,000
Annual O&M Cost:	$56,000
Present-Worth Cost:	$821,000
Construction Time:	3 months

Alternative 1B includes the installation of a chain-link fence around the landfill and the North Area, the implementation of institutional controls (the placement of restrictions on the installation and use of groundwater wells at the Site and limitations on the future use of the Site), and a long-term groundwater monitoring program and monitoring of sediment related media such as fish and surface water.

This alternative also includes the development and implementation of a public awareness and education program for the residents in the area surrounding the Site. This program would include the preparation and distribution of informational press releases and circulars and convening public meetings. These activities would serve to enhance the public's knowledge of the conditions existing at the Site. This alternative would also require the involvement of local government, various health departments, and environmental agencies.

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

Alternative 2: Contaminated Soil Excavation, Contaminated Sediment Dredging/Excavation, Consolidation, On- and/or Off-Site Disposal, Disposal Cell Construction, and Installation of Landfill Cap

Capital Cost:	$5,116,000
Annual O&M Cost:	$206,000
Present-Worth Cost:	$7,725,000
Construction Time:	12 months

This alternative includes excavating waste material and contaminated soil in the North and South Areas (other than the landfill) which exceed TAGM limits and excavating and/or dredging sediments exceeding 1 mg/kg PCB from South Pond and downstream areas. All excavated/dredged sediments would be dewatered, as necessary. Clean material would be used as backfill in the excavated areas. Any wetlands impacted by remedial activities would be fully restored. This alternative would also address the disposition of the contaminated sediments previously excavated from South Pond. .

All excavated/dredged waste materials, soils, and sediments would be subjected to RCRA hazardous waste characteristic testing. Those waste materials, soils, and sediments that do not pass the RCRA characteristic testing would be sent off-Site for treatment/disposal at a RCRA-compliant facility (or a TSCA-compliant facility, if applicable). Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations which equal or exceed 500 mg/kg would be sent off-Site for treatment/disposal at a TSCA-compliant facility. Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations less than 50 mg/kg would be consolidated at the on-Site landfill; those with PCB concentrations between 50 and 500 mg/kg would be placed in a TSCA-compliant landfill constructed adjacent to the existing landfill. The on-Site TSCA landfill (estimated volume of 8,500 cubic yards), which would include a double composite liner and a final cover equivalent to a RCRA cap, would meet the requirements of 40 CFR 761.75, except that it would not be in strict compliance with the requirements of 40 CFR 761.75(b)(3), as the bottom of the landfill would not be located at least 50 feet higher than the nearest high groundwater elevation. Therefore, a waiver of these requirements would be necessary.

In the area to be capped (primarily, in the vicinity of the former waste oil disposal pit), soil with PCB concentrations which equal or exceed 500 mg/kg would be excavated and sent off-Site for treatment/disposal at a TSCA-compliant facility. Following such excavation and after the excavated/dredged waste materials, soil, and sediments with PCB concentrations less than 50 mg/kg are consolidated onto the existing landfill, a New York State 6 NYCRR Part 360 or equivalent closure cap would be constructed. A shallow leachate collection trench would be installed on the downgradient edge of the landfill cap. In addition, a chain-link fence would be constructed around the landfill.

An outlet control/sediment trap would be installed downgradient of South Pond to minimize migration of contaminated sediment further downstream from the main beaver pond.

Prior to the construction of the landfill cap, the landfill mound and the consolidated sediments, soil, and waste materials would have to be regraded and compacted to provide a stable foundation for the placement of the various layers of the cap and to promote runoff. A landfill cap meeting these requirements of New York State 6 NYCRR Part 360 regulations would consist of a filter fabric, 6 inches of top soil and vegetation, 2 feet of soil barrier protection layer, a 40-mil geomembrane, and geonet (or equivalent).

This alternative would also include the implementation of institutional controls (the placement of restrictions on the installation and use of groundwater wells at the Site and restrictions on the future use of the Site in order to protect the integrity of the new TSCA landfill and the cap installed on the existing landfill), the implementation of a public awareness program to ensure that the nearby residents are familiar with all aspects of this response action, and long-term monitoring of the groundwater, surface water, fish, and sediments.

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

Alternative 3A: Contaminated Soil Excavation, Contaminated Sediment Dredging/Excavation, Consolidation, On- and/or Off-Site Disposal, Disposal Cell Construction, Installation of Landfill Cap, and Groundwater Extraction (North Area via Extraction Wells and South Area via an Interceptor Trench) and Treatment

Capital Cost:	$7,871,000
Annual O&M Cost:	$479,000
Present-Worth Cost:	$13,864,000
Construction Time:	16 months

This alternative is identical to Alternative 2, except that it also includes extraction and treatment of the contaminated overburden and weathered bedrock interface groundwater exceeding federal and state Maximum Contaminant Levels (MCLs) in the North and South Areas. This would be accomplished by the installation of a downgradient interceptor trench keyed into the top of the bedrock in the South Area and vertical overburden and bedrock extraction wells in the North Area. Following pretreatment for solids and inorganic constituent removal, the extracted groundwater would be treated by air-stripping and activated carbon (or other appropriate treatment) and then discharged to surface water.

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

Alternative 3B: Contaminated Soil Excavation, Contaminated Sediment Dredging/Excavation, Consolidation, On- and/or Off-Site Disposal, Disposal Cell Construction, Installation of Landfill Cap, and Groundwater Extraction (via Extraction Wells for both North and South Areas) and Treatment

Capital Cost:	$6,990,000
Annual O&M Cost:	$469,000
Present-Worth Cost:	$12,858,000
Construction Time:	16 months

This alternative is identical to Alternative 3A, except that the groundwater extraction would be accomplished by vertical overburden and bedrock extraction wells for both the North and South Areas. In addition, hydro-fracing would be performed to enhance weathered bedrock groundwater recovery. In hydro-fracing, water and other fluid mixtures are injected under sufficient pressure to open existing fractures and induce new fractures along areas of bedrock weakness to increase the specific yield of the well. Hydro-fracing will not shatter the bedrock, since significantly higher pressures than those attainable during hydro-fracing are required. The hydro-fracing pressures are sufficient to part the rock matrix at bedding planes, existing fractures or other weak points in the bedrock.

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

Alternative 4: Contaminated Soil Excavation, Contaminated Sediment Dredging/Excavation, Consolidation and/or Off-Site Disposal, Installation of Landfill Cap, and Groundwater Extraction (North Area via Extraction Wells and South Area via an Interceptor Trench) and Treatment

Capital Cost:	$9,791,000
Annual O&M Cost:	$462,000
Present-Worth Cost:	$15,564,000
Construction Time:	16 months

This alternative is identical to Alternative 3A, except that there would be no on-Site construction of a TSCA-compliant landfill. Instead, those excavated/dredged waste materials, soils, and sediments that pass the RCRA hazardous waste characteristics testing and have PCB concentrations between 50-500 mg/kg—that would have been disposed of in the on-Site TSCA-compliant landfill under Alternative 3A—would, under this alternative, be sent off-Site for treatment/disposal at a TSCA-compliant facility.

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

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA §121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 CFR §300.430(e)(9) and OSWER Directive 9355.3-01. The detailed analysis consisted 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 are the most important and must be satisfied by any alternative in order to be eligible for selection:

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

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

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

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

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

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

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

7. *Cost* includes estimated capital and O&M costs, and net present worth costs.

8. *State acceptance* indicates whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the selected remedy at the present time.

9. *Community acceptance* will be assessed in the ROD and refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports.

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

<u>Overall Protection of Human Health and the Environment</u>

Since Alternative 1A (no action) would not address the risks posed through each exposure pathway, it would not be protective of human health and the environment. Alternative 1B, which would include installing a fence around the waste disposal areas, would prevent or reduce the likelihood of trespassers from entering the waste disposal areas. Institutional controls would limit the intrusiveness of future activity that could occur on the Site. However, this alternative would not provide any protection to the ecological receptors.

Alternatives 2, 3A, 3B, and 4 would be significantly more protective than Alternatives 1A and 1B, in that the risk of incidental contact with waste by humans and ecological receptors would be reduced by excavating the contaminated soil and waste material, excavating and/or dredging the contaminated sediments from South Pond and downstream areas, consolidating the excavated waste material and soils and excavated/dredged sediments on the landfill, placing it in a new TSCA landfill (Alternatives 2, 3A, and 3B only), and/or transporting it off-Site for treatment/disposal, and installation of a cap on the existing landfill. Additionally, sediment traps would provide effective restriction of sediment migration and impact to the environment. Collecting and treating the contaminated groundwater under Alternatives 3A, 3B, and 4 would reduce the possibility of additional groundwater contamination originating from this area and would restore water quality in the aquifer. Also, Alternatives 2, 3A, 3B, and 4 would provide for overall protection of human health and the environment in that the capping of the landfilled materials would reduce infiltration, thereby reducing the migration of contaminants of concern from the landfill to the groundwater.

Compliance with ARARs

A 6 NYCRR landfill cap is an action-specific ARAR for landfill closure. Therefore, Alternatives 2, 3A, 3B, and 4 would satisfy this action-specific ARAR. Alternatives 1A and 1B would not meet this ARAR, since they do not include any provisions for a landfill cap.

Since Alternatives 2, 3A, 3B, and 4 would involve the excavation/dredging of PCB-contaminated waste material, soils, and sediments, their disposition would be governed by the requirements of TSCA. Under Alternatives 2, 3A, and 3B, those excavated/dredged waste materials, soils, and sediments which equal or exceed 500 mg/kg PCB would be sent off-Site for treatment/disposal at a TSCA-compliant facility. Under Alternative 4, all excavated/dredged waste materials, soils, and sediments which equal or exceed 50 mg/kg PCB would be sent off-Site for treatment/disposal at a TSCA-compliant facility. Under Alternatives 2, 3A, and 3B, those excavated/dredged waste materials, soils, and sediments with PCB concentrations between 50-500 mg/kg would be placed in an on-Site TSCA-compliant landfill constructed adjacent to the existing landfill. The TSCA landfill would meet the requirements of 40 CFR 761.75, except that it would not be in strict compliance with the requirements of 40 CFR 761.75(b)(3), as the bottom of the landfill would not be located at least 50 feet higher than the nearest high groundwater elevation. Therefore, a waiver of this requirement would be necessary, pursuant to 40 CFR 761.75(c)(4). Considering the nature of the waste, the intended design and operation of the TSCA landfill would be sufficient to prevent the migration of PCBs from the landfill.

To comply with RCRA land disposal restrictions, under Alternatives 2, 3A, 3B, and 4, only those excavated/dredged waste materials, soils, and sediments which pass RCRA hazardous waste characteristic testing could be disposed of on-Site without treatment.

Alternatives 1A and 1B do not provide for any direct remediation of groundwater and would, therefore, not comply with chemical-specific ARARs. Similarly, Alternative 2 does not include any active groundwater remediation and it would not meet groundwater MCLs (chemical-specific ARARs) in a reasonable time. These alternatives, therefore, are not considered protective with regard to groundwater. Alternatives 3A, 3B, and 4 would, however, be the most effective in reducing groundwater contaminant concentrations below MCLs because not only would the lower precipitation infiltration rate associated with placing an impermeable cap over the landfilled area significantly reduce the generation of additional groundwater contamination, but these alternatives include the collection and treatment of contaminated groundwater.

Long-Term Effectiveness and Permanence

Alternative 1A, no action, would not provide reliable protection of human health and the environment over time. The institutional controls associated with Alternative 1B would provide some protection of human health, but would not be as reliable as the remaining alternatives. Alternatives 3A, 3B, and 4 would be more effective over the long term than Alternative 2, because they include the collection and treatment of the contaminated overburden and bedrock groundwater. Excavating the contaminated soil and waste material from the North Area, excavating and/or dredging the contaminated sediments from South Pond and downstream areas, consolidating the excavated waste material and soils and excavated/dredged sediments on the landfill and/or off-Site treatment/disposal, and the installation of a landfill cap would substantially reduce the residual risk of untreated waste on the Site by essentially isolating it from contact with human and environmental receptors and the mobility caused by infiltrating rainwater. The adequacy and reliability of the cap on the existing landfill (Alternatives 2, 3A, 3B, and 4) and the new TSCA landfill (Alternatives 2, 3A, and 3B) to provide long-term protection from waste remaining at the Site should be excellent.

The 6 NYCRR Part 360 cap or equivalent closure cap and the TSCA landfill would require routine inspection and maintenance to ensure long-term effectiveness and permanence. Routine maintenance of the two caps, as a reliable management control, would include mowing, fertilizing, reseeding and repairing any potential erosion or burrowing rodent damage.

While a large volume of contaminated groundwater would be treated during remediation, Alternatives 3A, 3B, and 4 may not be completely effective in removing all of the groundwater contamination, because some of the contamination may remain in the fractured bedrock at the completion of remediation. The long-term effectiveness would also be affected by any on-going migration of contaminants from the source areas. In the existing hydrogeological conditions, Alternatives 3A and 4 would be more effective than Alternative 3B, because the interceptor trench would be more effectual in collecting contaminated groundwater at the South Area than groundwater recovery wells would be.

Reduction in Toxicity, Mobility, or Volume through Treatment

Alternatives 1A and 1B would not actively reduce the toxicity, mobility, or volume of contaminants through treatment. These alternatives would rely on natural attenuation to reduce the levels of contaminants.

While excavating the contaminated soil and waste material from the North Area, excavating and/or dredging the contaminated sediments from South Pond and downstream areas, consolidating the excavated waste material and soils and excavated/dredged sediments on the landfill, placement in an on-Site TSCA landfill, and/or off-Site treatment/disposal, and the installation of a landfill cap under Alternatives 2, 3A, 3B, and 4 would prevent further migration of and potential exposure to these materials and would nearly eliminate the infiltration of rainwater into the waste disposal areas and the associated leaching of contaminants from these areas, the reduction in mobility would not be accomplished through treatment.

Collecting and treating contaminated groundwater under Alternatives 3A, 3B, and 4 would reduce the toxicity, mobility, and volume of contaminants through treatment and it would also reduce the possibility of additional groundwater contamination. Alternative 2 would rely on natural attenuation to reduce the levels of groundwater contamination.

Short-Term Effectiveness

Alternatives 1A and 1B do not include any physical construction measures in any areas of contamination and, therefore, do not present a risk to the community as a result of their implementation. Alternatives 2, 3A, 3B, and 4 involve excavating, moving, placing, and regrading waste. Alternatives 3A and 4 involve the installation of an interceptor trench and extraction wells and Alternative 3B involves the installation of extraction wells, through potentially contaminated soils and groundwater. While all of the action alternatives present some risk to on-Site workers through dermal contact and inhalation, these exposures can be minimized by utilizing proper protective equipment. The vehicle traffic associated with landfill cap construction, TSCA landfill construction, and the off-Site transport of contaminated soils/sediments could impact the local roadway system and nearby residents through increased noise level. While Alternative 4 would not require the delivery of materials for the construction of TSCA landfill (Alternatives 2, 3A, and 3B), this alternative would require the off-Site transport of a considerable amount of contaminated waste material, soils, and sediments. Disturbance of the land during construction could affect the surface water hydrology of the Site. There is a potential for increased stormwater runoff and erosion during excavation, dredging, and construction activities that must be properly managed to prevent excessive water and sediment loading.

Implementability

Fencing the Site, performing routine groundwater monitoring, and effecting institutional controls are all actions that can be readily implemented. These actions are technically and administratively feasible and require readily available materials and services. Excavating and relocating the contaminated soil and waste material from the North Area to the landfill, excavating and/or dredging and relocating the contaminated sediments from South Pond and downstream areas to the landfill and/or to an off-Site treatment/disposal facility, and the installation of a landfill cap over the waste disposal area (Alternatives 2, 3A, 3B, and 4), the construction of a TSCA landfill (Alternatives 2, 3A, and 3B), and installing interceptor trenches and extraction wells (Alternatives 3A, 3B, and 4), although more difficult to implement than the no-action alternative, can be accomplished using technologies known to be reliable and can be readily implemented. Equipment, services and materials for this work are readily available. These actions would also be administratively feasible.

Air stripping is a process through which volatile contaminants are transferred from the aqueous phase to an air stream. Air stripping has been effectively used to remove over 99 percent of volatile organic compounds from groundwater at numerous hazardous waste and spill sites.

The use of blasted trenches (Alternatives 3A and 4) is technically feasible. Additionally, the use of an experienced blasting firm would be required during the design and the implementation of the trenches. Hydro-fracing (Alternative 3B) is a common method used to open existing fractures in bedrock and increase hydraulic conductivity. The equipment used for hydro-fracing is readily available throughout the drilling industry. All of the components for the treatment system are readily available.

Cost

The present-worth costs are calculated using a discount rate of 7 percent and a 30-year time interval. The estimated capital, annual O&M, and present-worth costs for each of the alternatives are presented below.

Alternative	*Capital Costs*	*Annual O & M Costs*	*Present Worth Costs*
1A	$0	$0	$0
1B	$83,000	$56,000	$821,000
2	$5,116,000	$206,000	$7,725,000
3A	$7,871,000	$479,000	$13,864,000
3B	$3,990,000	$469,000	$12,858,000
4	$9,791,000	$462,000	$15,564,000

As is indicated from the cost estimates, there are no costs associated with the no action alternative, Alternative 1A. The costs associated with Alternative 1B are for fencing, institutional controls and monitoring. The major cost component of Alternative 2 is for the excavation/dredging of contaminated waste material, soils, and sediments and the construction and maintenance of the landfill cap and TSCA compliant landfill. The capital and present-worth costs related to the construction of an on-Site TSCA landfill would be approximately $391,000 and $611,000, respectively. If the TSCA landfill is not constructed, the excavated/dredged waste material, soils, and sediments containing PCBs at concentrations greater than 50 mg/kg would have to be treated or disposed of at an off-Site TSCA-compliant facility (Alternative 4), which would increase the implementation cost by about $1.7 million. Alternatives 3A, 3B, and 4 include the collection and treatment of contaminated groundwater. The more expensive of these options are Alternatives 3A and 4, which utilize interceptor trenches in the South Area and extraction wells in the North Area rather than extraction wells for both North and South Areas (Alternative 3B).

State Acceptance

NYSDEC concurs with the selected alternative.

Community Acceptance

While the majority of the public in attendance at the public meeting accepted the preferred remedy, a petition signed by 18 individuals requesting the complete excavation and off-site disposal of the 8-acre landfill was mailed to EPA. Comments received during the public comment period are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V to this document.

SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, EPA and NYSDEC have determined that Alternative 3A is the appropriate remedy, because it best satisfies the requirements of CERCLA §121, 42 U.S.C. §9621 and the NCP's nine evaluation criteria for remedial alternatives, 40 CFR §300.430(e)(9). The selected remedy involves:

- Excavation of contaminated waste material and soil exceeding NYSDEC's Soil Cleanup Objectives[2] in the North and South Areas (other than the landfill). Clean fill will be used as backfill in the excavated areas;

- Based upon pre-design sampling of soil in the area to be capped (primarily, in the vicinity of the former waste oil disposal pit), soil with PCB concentrations which equal or exceed 500 mg/kg will be excavated and sent off-Site for treatment/disposal at a TSCA-compliant facility;

- Excavation and/or dredging of sediments exceeding 1 mg/kg PCB from South Pond and all areas downstream for approximately 2,400 feet. A monitoring plan for those areas further downstream will be developed during the design phase. The need for remediation in areas further downstream will be evaluated based on an assessment of sediment concentrations and biological receptors (*i.e.*, fish tissue concentrations over the 5-year time period subsequent to the completion of upstream remediation activities). Baseline data for this evaluation will be collected prior to the commencement of upstream remedial activities. Removal of sediment "hot spots" may be conducted in conjunction with upstream remedial activities, if

[2] NYSDEC's soil cleanup objectives are specified in NYSDEC Technical Administrative Guidance Memorandum No. 94-HWR-4046.

warranted, subsequent to an evaluation of the baseline data. Further remediation may be required in the downstream areas if it is determined through monitoring that the remedial activities conducted upstream were not effective in addressing the ecological risk. All excavated/dredged sediments will be dewatered, as necessary. Any wetlands impacted by remedial activities will be fully restored. Ambient PCB monitoring will be conducted during the sediment excavation/dredging and handling in compliance with the Occupational Safety and Health Administration standard of 1,000 micrograms per cubic meter time-weighted average (8 hour day/40 hour work week);

- Installation of an outlet control/sediment trap downgradient of South Pond to minimize migration of contaminated sediment further downstream from the main beaver pond;

- All excavated/dredged waste materials, soils, and sediments will be subjected to RCRA hazardous waste characteristic testing. Those waste materials, soils, and sediments that do not pass the RCRA characteristic testing will be sent off-Site for treatment/disposal at a RCRA-compliant facility (or a TSCA-compliant facility, if applicable). Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations which equal or exceed 500 mg/kg will be sent off-Site for treatment/disposal at a TSCA-compliant facility. Those waste materials, soils, and sediments that pass the RCRA characteristic testing and have PCB concentrations less than 50 mg/kg will be consolidated on the on-Site landfill; those with PCB concentrations between 50-500 mg/kg will be placed in a TSCA-compliant landfill constructed adjacent to the existing landfill. The on-Site TSCA landfill (estimated volume of 8,500 cubic yards), which will include a double composite liner and a final cover equivalent to a RCRA cap, will meet the requirements of 40 CFR 761.75, except that it will not be in strict compliance with the requirements of 40 CFR 761.75(b)(3), as the bottom of the landfill will not be located at least 50 feet higher than the nearest high groundwater elevation. Therefore, a waiver of these requirements will be necessary pursuant to 40 CFR 761.75(c)(4). It is EPA's assessment that, considering the nature of the waste, the design and operation of the landfill will be sufficient to prevent migration of PCBs from the landfill. Consequently, a waiver of this requirement is justified;

- Following the consolidation of the excavated/dredged waste materials, soils, and sediments with PCB concentrations less than 50 mg/kg onto the existing landfill, a New York State 6 NYCRR Part 360 or equivalent closure cap will be constructed;

- Construction of a chain-link fence around the landfill;

- Construction of a shallow leachate collection trench, keyed into the top of the bedrock, on the downgradient edge of the cap that will be installed on the existing landfill, and installation of vertical overburden and bedrock extraction wells in the North Area;

- Extraction of contaminated groundwater from the overburden and shallow bedrock in the South Area utilizing the downgradient interceptor trench, and in the North Area utilizing the extraction wells, and treatment of the extracted groundwater by air-stripping and activated carbon (or other appropriate treatment), followed by discharge to surface water;

- Taking steps to secure institutional controls (the placement of restrictions on the installation and use of groundwater wells at the Site and restrictions on the future use of the Site in order to protect the integrity of the new TSCA landfill and the cap installed on the existing landfill); and

- Long-term monitoring of groundwater, surface water, fish and sediments to ensure the effectiveness of the selected remedy.

In addition, the water treatment systems that were installed on the contaminated wells at two residences will continue to be maintained.

Under the selected remedy, the source of the bedrock groundwater contamination is expected to be significantly reduced or possibly eliminated due to the reduction of infiltrating precipitation by the capping of the landfill and the extraction and treatment of the contaminated groundwater.

The selected remedy is believed to be able to achieve the ARARs more quickly, or as quickly than the other alternatives. Therefore, the selected remedy will provide the best balance of trade-offs among alternatives with respect to the evaluating criteria. EPA and the NYSDEC believe that the selected remedy will 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. The selected remedy will meet the statutory preference for the use of treatment as a principal element (for the groundwater) and is generally consistent with landfill closure requirements applied to municipal landfills in the State of New York. However, since the landfill's contaminant source areas cannot be effectively excavated and treated due to its size, none of the alternatives considered satisfied the statutory preference for treatment as a principal element of the remedy with respect to the sources of contamination.

The selected remedy will comply with all the ARARs except that it will not be in strict compliance with the requirements of 40 CFR 761.75(b)(3), as the bottom of the on-Site TSCA landfill will not be located at least 50 feet higher than the nearest high groundwater elevation. Therefore, a waiver of this requirement will be necessary, pursuant to 40 CFR 761.75(c)(4). It is EPA's assessment that, considering the nature of the waste, the design and operation of the landfill will be sufficient to prevent migration of PCBs from the landfill. Consequently, a waiver is justified.

STATUTORY DETERMINATIONS

As was previously noted, CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), 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. Section 121(b)(1) 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 §121(d), 42 U.S.C. §9621(d), 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 pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

For the reasons discussed below, EPA has determined that the selected remedy meets the requirements of CERCLA §121, 42 U.S.C. §9621.

Protection of Human Health and the Environment

The selected remedy protects human health and the environment by reducing levels of contaminants in the groundwater, soil and sediment through extraction/treatment and excavation, respectively, as well as the implementation of institutional controls. The risk of incidental contact with waste by humans and other ecological receptors will be reduced by the landfill cap. Capping of the landfill will also reduce infiltration, thereby reducing the migration of contaminants of concern from the landfill to the groundwater and to the sediment. The selected remedy will also provide overall protection by reducing the toxicity, mobility, and volume of contamination, through extraction/treatment of the contaminated groundwater and the effluent will meet surface water discharge requirements.

Compliance with Applicable or Relevant and Appropriate Requirements of Environmental Laws

While there are no federal or New York State soil and sediment ARARs, one of the remedial action goals is to meet NYSDEC soil cleanup objectives. The selected remedy will be effective in reducing groundwater contaminant concentrations below MCLs (chemical-specific ARARs) because the lower precipitation infiltration rate associated with placing low-permeability caps over the landfilled areas will significantly reduce the generation of additional groundwater contamination. The extraction of the contaminated groundwater at this location, combined with the capping of the waste disposal area, should significantly reduce the source of the overburden and bedrock groundwater contamination.

The on-Site TSCA landfill will meet the requirements of 40 CFR 761.75, except that it will not be in strict compliance with the requirements of 40 CFR 761.75(b)(3), as the bottom of the landfill will not be located at least 50 feet higher than the nearest high groundwater elevation. Therefore, a waiver of this requirement will be necessary, pursuant to 40 CFR 761.75(c)(4). However, considering the nature of the waste, the design and operation of the landfill will be sufficient to prevent migration of PCBs from the landfill and, therefore, a waiver will be justified.

A summary of action-spectific, chemical-specific, and location-specific ARARs which will be complied with during implementation is presented below. A listing of the chemical-specific ARARs is presented in Tables 9 and 10.

Action-specific ARARs:

- National Emissions Standards for Hazardous Air Pollutants
- 6 NYCRR Part 257, Air Quality Standards
- 6 NYCRR Part 212, Air Emission Standards

- 6 NYCRR Part 373, Fugitive Dusts
- 40 CFR 50, Air Quality Standards
- State Permit Discharge Elimination System
- Resource Conservation and Recovery Act

Chemical-specific ARARs:

- Safe Drinking Water Act Maximum Contaminant Levels and Maximum Contaminant Level Goals (MCLs and MCLGs, respectively, 40 CFR Part 141)
- 6 NYCRR Parts 700-705 Groundwater and Surface Water Quality Regulations
- 10 NYCRR Part 5 State Sanitary Code

Location-specific ARARs:

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

Other Criteria, Advisories, or Guidance To Be Considered:

- Executive Order 11990 (Protection of Wetlands)
- Executive Order 11988 (Floodplain Management)

- EPA Statement of Policy on Floodplains and Wetlands Assessments for CERCLA Actions

- New York Guidelines for Soil Erosion and Sediment Control

- New York State Sediment Criteria, December 1989

- New York State Air Cleanup Criteria, January 1990

- SDWA Proposed MCLs and MCL Goals

- NYSDEC Technical and Operational Guidance Series 1.1.1, November 1991

- EPA Ambient Water Quality Criteria (Federal Register, Volume 57, No. 246, December 22, 1992)

- *Technical Guidance for Screening Contaminated Sediments* (November 1993, NYSDEC, Division of Fish and Wildlife, Division of Marine Resources).

- Soil cleanup objectives specified in NYSDEC Technical Administrative Guidance Memorandum No. 94-HWR-4046.

Cost-Effectiveness

The selected remedy provides for overall effectiveness in proportion to its cost. The estimated cost for the selected remedy has a capital cost of $7,871,000, annual operation and maintenance of $479,000, and present-worth costs of $13,864,000.

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

Given the size of the landfill, containment of the waste mass is the only practical means to remediate the Site. By constructing a cap over the landfill which is consistent with New York State NYCRR Part 360 for landfill closure, hazardous wastes will be isolated from the environment and their mobility will be minimized. The closure cap is a permanent technology that must be maintained at regular intervals to ensure its structural integrity and impermeability. The extraction and subsequent treatment of groundwater from the bedrock aquifer will permanently and significantly reduce the toxicity, mobility, and volume of contaminants in the ground water.

Preference for Treatment as a Principal Element

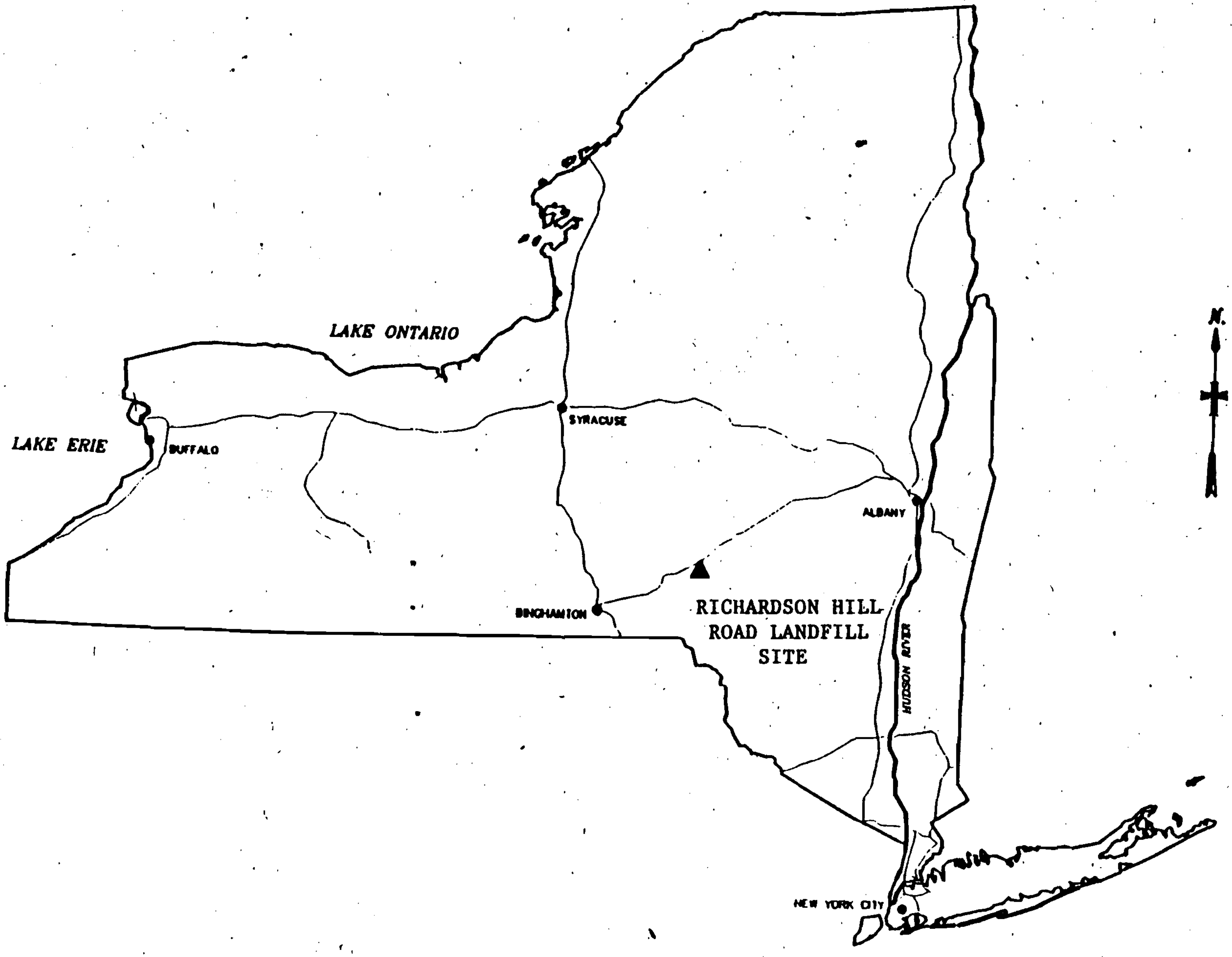
The statutory preference for remedies that employ treatment as a principal element cannot be satisfied for the landfill itself, since treatment of the landfill material is not practicable due to its size. However, the statutory preference for remedies that employ treatment as a principal element is satisfied by treating the contaminated groundwater.

DOCUMENTATION OF SIGNIFICANT CHANGES

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

APPENDIX I

FIGURES



RICHARDSON HILL ROAD LANDFILL
SIDNEY, NEW YORK

REGIONAL LOCATION MAP

FIGURE 1

FIGURE 2 RICHARDSON HILL ROAD MUNICIPAL LANDFILL SITE
Site Location Map

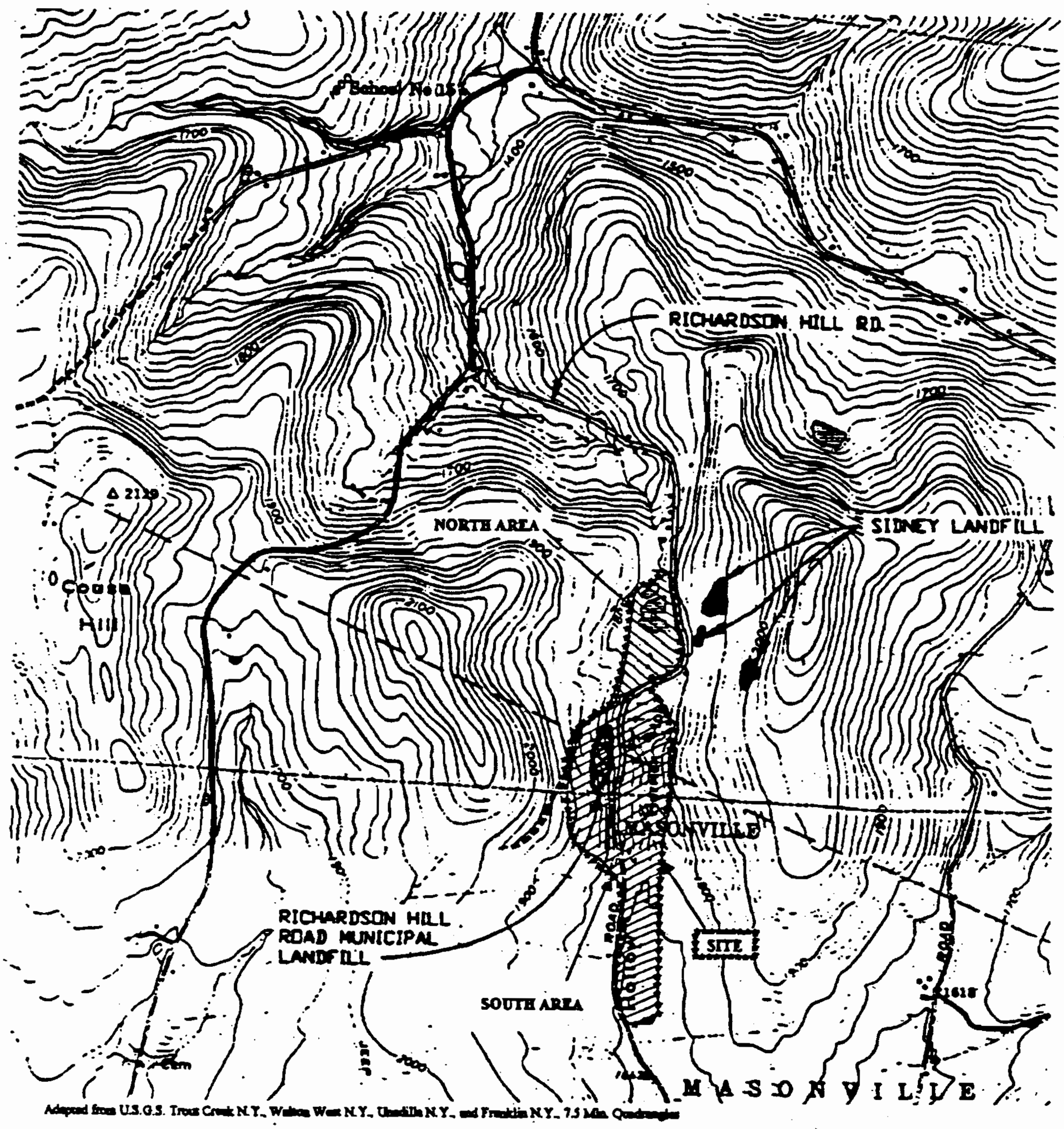


FIGURE 1

RICHARDSON HILL ROAD
MUNICIPAL LANDFILL SITE

SITE MAP

LEGEND

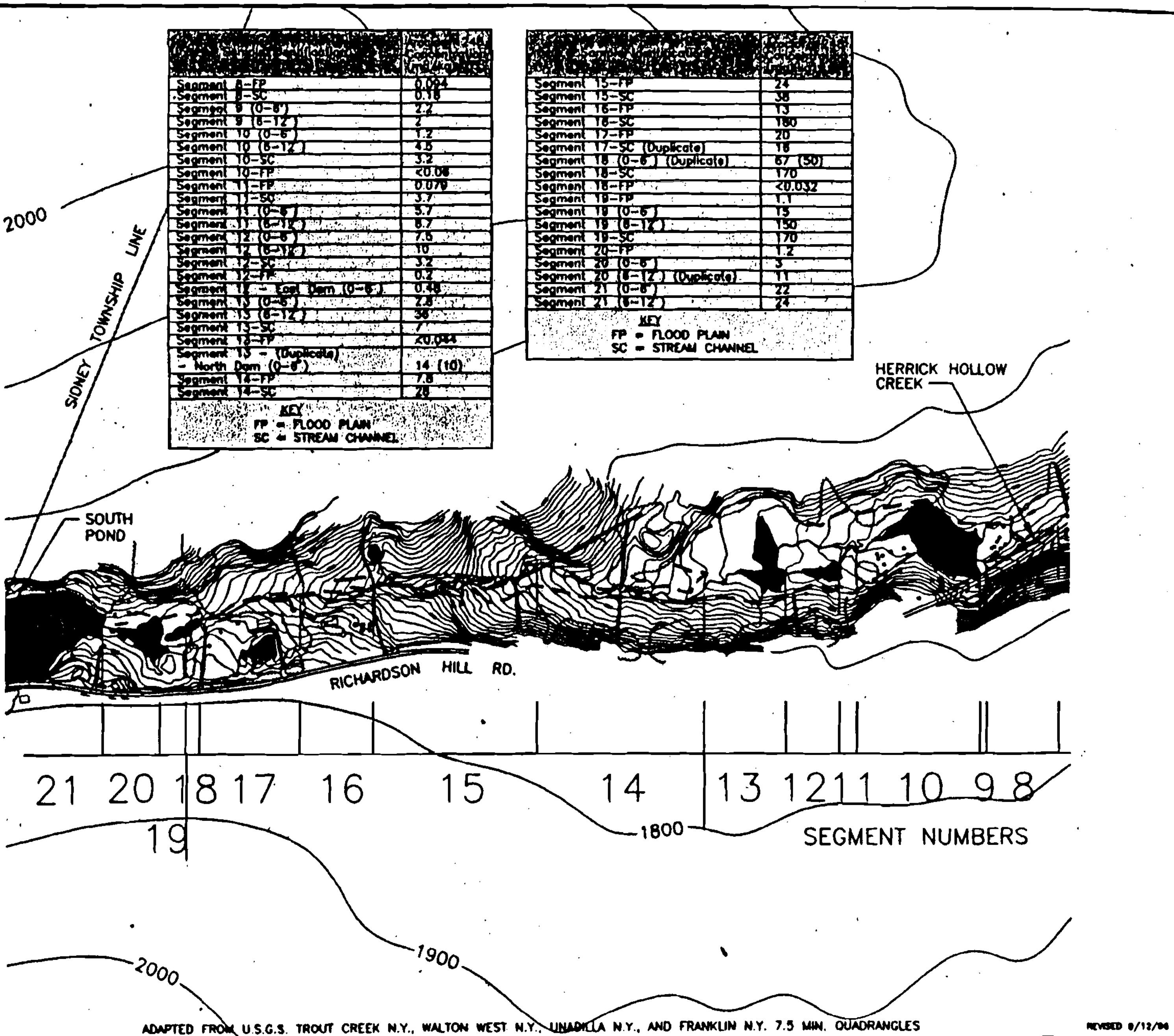
LANDFILL SECTION
WASTE PIT AREA
TREE LINE
ROADWAY
ROAD ADJACENT STONE WALL

0 300 600
SCALE IN FEET
3729.015.876

O'BRIEN & GERE
ENGINEERS, INC.

FIGURE 4

Downstream Sediment



[illegible]	[illegible]
Segment 8-FP	0.094
Segment 8-SC	0.16
Segment 9 (0-6")	2.2
Segment 9 (6-12")	2
Segment 10 (0-6")	1.2
Segment 10 (6-12")	4.5
Segment 10-SC	3.2
Segment 10-FP	<0.08
Segment 11-FP	0.079
Segment 11-SC	3.7
Segment 11 (0-6")	5.7
Segment 11 (6-12")	8.7
Segment 12 (0-6")	7.6
Segment 12 (6-12")	10
Segment 12-SC	3.2
Segment 12-FP	0.2
Segment 13 - East Dam (0-6")	0.48
Segment 13 (0-6")	2.8
Segment 13 (6-12")	38
Segment 13-SC	7
Segment 13-FP	<0.044
Segment 13 - (Duplicate) - North Dam (0-6")	14 (10)
Segment 14-FP	7.8
Segment 14-SC	28

KEY
FP = FLOOD PLAIN
SC = STREAM CHANNEL

[illegible]	[illegible]
Segment 15-FP	24
Segment 15-SC	38
Segment 16-FP	13
Segment 16-SC	180
Segment 17-FP	20
Segment 17-SC (Duplicate)	18
Segment 18 (0-6") (Duplicate)	67 (50)
Segment 18-SC	170
Segment 18-FP	<0.032
Segment 19-FP	1.1
Segment 19 (0-6")	15
Segment 19 (6-12")	150
Segment 19-SC	170
Segment 20-FP	1.2
Segment 20 (0-6")	3
Segment 20 (6-12") (Duplicate)	11
Segment 21 (0-6")	22
Segment 21 (6-12")	24

KEY
FP = FLOOD PLAIN
SC = STREAM CHANNEL

RICHARDSON HILL ROAD MUNICIPAL LANDFILL SITE

PCB CONCENTRATIONS IN SEDIMENT

3729.028-001

O'BRIEN & GERE ENGINEERS, INC.

APPENDIX II

TABLES

TABLE 1
SUMMARY OF SURFACE SOIL DATA

Analyte	Number of Detections	Number Analyzed	Min. Conc. mg/kg	Mean Conc. mg/kg	Max. Conc. mg/kg	Background Conc. mg/kg
PCBs:						
Aroclor 1248	29	34	0.016	39	480	
INORGANICS:						
Aluminum	3	3	12000	13000	15000	32200
Arsenic	3	3	9	11	11.5	28
Barium	3	3	63	83	110	165
Beryllium	1	2	0.35	0.575	0.8	1.03
Cadmium	1	3	0.19	0.413	0.7	0.69
Calcium	2	3	295	1198	2100	
Chromium	3	3	15	22.4	37.2	31
Cobalt	3	3	10	12	14	17
Copper	3	3	39	62	76.4	31
Iron	3	3	22000	25133	28400	59400
Lead	3	3	24	35	46	62
Magnesium	3	3	2600	3457	3970	4480
Manganese	3	3	726	909	1200	881
Nickel	3	3	18	23	26.6	28
Potassium	2	3	630	803	750	1335
Vanadium	3	3	16	18	20	55
Zinc	2	2	81	90	91	154

Notes:

1. Background levels based on tow times the main background concentration
2. Source of table from OB&G RI tables.
3. These data are the laboratory datas, it does not include the field testing datas.

TABLE 2
SUMMARY OF SUBSURFACE SOIL DATA

Analyte	Number of Detections	Number Analyzed	Min. Conc. mg/kg	Max. Conc. mg/kg	Background Conc. mg/kg
PCBs:					
Aroclor 1248	9	14	0.13	14000	
PCB	109	123	0.08	7000	
VOLATILES:					
1,1,1-Trichloroethane	2	7	0.3	6.5	
1,1,2,2-Tetrachloroethane	1	7	0.2	0.2	
1,1-Dichloroethene	2	7	5.6	6	
1,2-Dichloroethene	6	7	1.02	23	
2-Butanone	3	7	13	25	
Acetone	3	7	8.2	13	
Benzene	2	7	6.6	7.1	
Butylbenzylphthalate	1	7	0.1	0.1	
Chlorobenzene	3	7	0.2	8.1	
Chloroform	1	7	0.3	0.3	
Ethylbenzene	4	7	1.4	3.9	
Napthalene	1	2	700	700	
Tetrachloroethene	1	7	0.3	0.3	
Toluene	7	7	24	110	
Trichlorethene	5	7	2.3	220	
Xylenes	4	7	2.7	5.2	
INORGANICS:					
Aluminum	6	6	12300	17500	32200
Arsenic	6	6	3.29	10.9	28
Barium	6	6	59.2	220	165
Beryllium	6	6	0.451	2.1	1.03
Cadmium	3	6	1.8	2.77	0.69
Calcium	6	6	547	3500	
Chromium	6	6	14.4	48.6	31
Cobalt	6	6	8.6	14.6	17
Copper	6	6	7.37	424	31
Iron	6	6	19600	53100	59400
Lead	6	6	3.1	136	62
Magnesium	6	6	2440	6370	4480
Manganese	6	6	277	1450	681
Mercury	1	6	0.13	0.13	28
Nickel	6	6	22.8	37.6	
Potassium	6	6	733	1780	1335
Selenium	1	6	0.612	0.612	2.1
Silver	1	6	1.17	1.17	
Sodium	5	6	107	533	140.6
Vanadium	6	6	15.1	23.1	55
Zinc	6	6	64.3	413	154

Notes:

1. Background levels based on tow times the main background concentration
2. Source of table from OB&G RI tables.

TABLE 3
SUMMARY OF GROUNDWATER DATA

Analyte	Number of Detections	Number Analyzed	Min. Conc. ug/l	Max. Conc. ug/l	Screening Conc. ug/l
PCBs:					
Aroclor 1248	41	56	0.1	560	0.0087
VOLATILES:					
1,1,1-Trichloroethane	25	80	6	1300	130
1,1-Dichloroethane	10	76	27	390	81
1,1-Dichloroethene	5	55	13	100	0.04
1,2-Dichloroethene	3	3	1000	26000	6.1
1,2-Dichloroethene(total)	7	20	2	6800	5.5
Acetone	9	18	26	3800	370
Benzene	1	74	1	1	0.36
Benzyl Alcohol	3	10	2	16	1100
Bromodichloromethane	1	74	1	1	0.17
Chlorobenzene	4	75	4	19	3.9
Chloroethane	1	74	20	20	860
Chloroform	4	76	1	410	0.15
Dichloromethane	10	68	1	130	4.1
Ethylbenzene	10	78	2	220	130
Naphthalene	2	10	2	2	
Toluene	15	78	7	1800	75
Tetrachloroethene	6	55	3	68	1.1
Trichloroethane	3	3	450	3800	130
Trichloroethene	44	75	1	8400	1.6
Vinyl chloride	13	79	150	3500	0.019
Xylene	4	55	24	180	1200
SEMIVOLATILES:					
Butylbenzyl phthalate	1	5	1	1	730
Di-n-butyl phthalate	2	5	1	1	370
Diethylphthalate	1	10	4	4	2900
4-Methylphenol	1	10	1	1	18
bis(2-Ethylhexyl)phthalate	3	5	1	7	4.8
cis-1,2-Dichloroethene	1	2	100	100	6.1
cis-1,3-Dichloropropylene	1	20	1	1	0.77
trans-1,2-Dichloroethene	28	54	1	24000	12
m-Xylene	1	1	4	4	140
o-Xylene	1	1	2	2	140
p-Xylene	2	2	1	100	52
INORGANICS:					
Aluminum	12	17	0.207	46500	3700
Antimony	2	17	0.68	50	1.5
Arsenic	18	25	0.014	86	1.1
Barium	11	17	0.214	412	260
Beryllium	3	17	0.028	4	0.016
Cadmium	4	17	0.006	3	1.8
Calcium	16	17	5.93	61900	
Chromium	10	17	0.011	564	18
Cobalt	4	17	0.899	95	220
Copper	9	17	0.034	214	140
Iron	22	25	0.206	1680000	1100
Lead	16	25	0.008	510	15
Magnesium	14	17	2	5320	3920
Manganese	14	17	0.094	22400	18
Mercury	6	17	0.0012	3.19	1.1
Nickel	6	17	0.048	323	73
Potassium	8	17	5.79	30700	
Silver	4	17	0.047	4	18
Sodium	14	17	6.64	28900	
Vanadium	5	17	0.065	67	26
Zinc	14	17	0.012	385	1100

Notes:

TABLE 3 cont.
SUMMARY OF GROUNDWATER DATA
NORTH AREA

Analyte	Number of Detections	Number Analyzed	Min. Conc. ug/l	Max. Conc. ug/l	Screening Conc. ug/l
PCBs:					
Aroclor 1248	3	10	0.1	0.29	0.0087
VOLATILES:					
1,1,1-Trichloroethane	3	13	0.008	23	130
Tetrachloroethene	2	10	3	7	1.1
Trichlorethene	7	7	2	340	1.6
SEMIVOLATILES:					
Butylbenzyl phthalate	1	1	1	1	730
Di-n-butyl phthalate	1	1	1	1	370
trans-1,2-Dichloroethene	4	10	2	8	12
INORGANICS:					
Aluminum	1	2	6.46	6.46	3700
Arsenic	2	4	3	3	1.1
Chromium	1	2	0.14	0.14	18
Copper	1	2	0.03	0.03	140
Manganese	2	2	0.1	0.43	18
Nickel	1	2	0.1	0.1	73
Zinc	2	2	0.012	0.05	1100

Notes:

1. Background levels based on tow times the main background concentration
2. Source of table from OB&G RI tables.

TABLE 4
SUMMARY OF SURFACE WATER DATA

Analyte	Number of Detections	Number Analyzed	Min. Conc. ug/l	Mean Conc. ug/l	Max. Conc. ug/l	Background Conc. ug/l
PCBs:						
Aroclor 1248	26	43	0	1.77	4.6	
VOLATILES:						
1,1,1-Trichloroethane	2	39	0.5	3.01	65	
1,1-Dichloroethane	1	39	0.5	2.59	48	
1,2-Dichloroethylene(total)	25	33	0.5	56.53	1600	
Acetone	3	18	5	5.556	9	
Carbon Disulfide	7	18	1	6.8	29	
Dichloromethane	8	38	0.5	0.105	0.17	
Tetrachloroethylene	1	39	0.5	1.95	0.7	
Toluene	1	39	0.5	1.61	10	
Trichlorethylene	6	40	0.5	3.13	59	
Vinyl chloride	2	39	0.5	7.6	200	
SEMIVOLATILES:						
di-n-Butylphthalate	2	3	1	2.6	2	
cis-1,2-Dichloroethene	4	6	2	5.83	23	
INORGANICS:						
Aluminum	7	7	43.5	265	723	225.05
Barium	3	3	42.8	44.3	88	28.45
Calcium	8	8	7	4818	15800	9015
Copper	1	1	25	25	25	10.05
Iron	8	8	2	2934	11600	1090
Lead	1	2	0.5	1.95	7.4	3.5
Magnesium	5	5	2	3	4640	3152
Manganese	8	8	1	848.9	3010	158.25
Mercury	3	8	0.05	0.105	0.17	
Potassium	4	6	1	167	1090	
Zinc	3	3	12.1	26.7	38	

Notes:

1. Background levels based on tow times the main background concentration
2. Source of table from OB&G RI tables.

TABLE 5
SUMMARY OF SEDIMENT DATA

Analyte	Number of Detections	Number Analyzed	Min. Conc. mg/kg	Mean Conc. mg/kg	Max. Conc. mg/kg	Background Conc. mg/kg
PCBs:						
Aroclor 1248	65	76	0.059	44.3	1300	
VOLATILES:						
1,4-Dichlorobenzene	1	9	0.003	0.041	0.003	
1,1-Dichloroethane	6	40	0.0005	0.063	0.3	
1,2-Dichloroethylene(total)	10	41	0.0005	0.128	3.5	
Acetone	5	6	0.0075	0.177	0.41	
Benzene	1	9	0.004	0.041	0.004	
2-Butanone	13	17	0.0065	0.109	0.25	
Carbon Disulfide	8	19	0.002	0.052	0.058	
Chlorobenzene	5	38	0.0005	0.024	0.083	
Chloroethane	2	39	0.0005	0.023	0.031	
Chloromethane	3	38	0.0065	0.106	0.046	
Dichloromethane	5	19	0.0005	0.02	0.18	
Toluene	15	40	0.0005	0.118	1.4	
Vinyl chloride	2	9	0.0125	0.209	0.41	
SEMIVOLATILES:						
cis-1,2-Dichloroethene	6	11	0.003	0.113	0.82	178.35
trans-1,2-Dichloroethene	3	11	0.001	0.067	0.26	
m-Xylene	2	2	0.003	0.092	0.18	
o-Xylene	2	2	0.003	0.043	0.083	
p-Xylene	1	2	0.001	0.018	0.034	
INORGANICS:						
Aluminum	7	7	8750	14879	34100	21105
Barium	7	7	125	264.7	500	213.9
Calcium	3	3	2860	3533	4180	9015
Copper	3	7	10.6	27	80.3	52.75
Iron	7	7	10500	16043	23800	31550
Lead	7	7	32.4	88.9	380	107.1
Magnesium	2	2	2450	3425	4400	3920
Manganese	8	8	462	1220	2860	921
Nickel	1	1	29.3	29.3	29.3	25.5
Potassium	1	2	200	1051	1725	
Selenuim	1	4	0.4545	1	2.4	5
Vanadium	5	5	15.7	24.4	33.3	
Zinc	7	7	66.1	85.4	118	

Notes:

1. Background levels based on tow times the main background concentration
2. Source of table from OB&G RI tables.

TABLE 6
EXPOSURE PATHWAY SUMMARY

Medium	Receptors	COPCs	Exposure Mechanism	Pathway Status
Surface Water	invertebrates, amphibians, reptiles, birds, mammals	Al, Ba, Ca, Cu, Fe, Mg, Mn, Hg, K,, Na, Zn, vinyl chloride, 1,1-DCA, 1,2-DCE, 1,1,1-TCA, TCE, toluene, CS_2, methylene chloride, acetone, tetrachloroethene, di-N-butylphthalate, PCB Aroclor 1254 and PCB Aroclor 1248	dermal contact, ingestion	Complete
Sediments	amphibians, reptiles, fish, birds, mammals	Al, As, Ba, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, V, vinyl chloride, methylene chloride, CS_2, 1,1-DCA, 1,2-DCE, 1,1,1-TCA, TCE,tolene, ethylbenzene, xylenes, chloroethane, PCB Aroclor 1254 and PCB Aroclor 1248	dermal contact, ingestion	Complete
Soil	terrestrial birds and mammals	Cd, Ca, Cr, Cu, Pb, Mg, Mn, Ni, Zn, PCB Aroclor 1254 and PCB Aroclor 1248	dermal contact, ingestion	Complete
Aquatic biota	great blue heron, kingfisher, waterfowl, mink,	Al, As, Cr, Cu, Fe, Pb, Mn, Ni, Zn, 1,1-DCA, 1,2-DCE, 1,1,1-TCA, CS_2, vinyl chloride, benzo(a)pyrene, PCB Aroclor 1248	ingestion	Complete

TABLE 7
SUMMARY OF CARCINOGENIC RISKS

Receptor	Pathway	Compound	Chronic Daily Intake (mg/kg-day)	Slope Factor (mg/kg-day)	Cancer Risk	Pathway Total	Receptor Cancer Risk
Construction Worker	Incidental Ingestion of Subsurface Soils	Aroclor-1248	7.80E-06	9.6E+00	6.0E-05		
		Beryllium	2.70E-08	4.3E+00	1.2E-07		
		Trichloroethene	2.95E-06	1.1E-02	3.2E-08	6.0E-05	
	Dermal Contact Soils	Aroclor-1248	5.67E-06	9.6E+00	5.5E-05		
						5.5E-05	0.0
Adolescent Recreator	Incidental Ingestion of Surface Soils	Arochlor 1248	1.51E-06	9.6E+00	1.2E-05	1.2E-05	
	Dermal Contact with Surface Soils	Arochlor 1248	5.24E-06	9.6E+00	5.0E-05	5.0E-05	
	Incidental Ingestion of Sediments - South Pond	Arsenic	7.12E-07	1.8E+00	1.2E-06		
		Aroclor-1248	1.57E-06	7.7E+00	1.2E-05		
		Benzo(a)pyrene	2.00E-08	7.3E+00	1.5E-07		
		Vinyl chloride	1.00E-07	1.9E+00	1.9E-08		
		Beryllium	4.10E-08	4.3E+00	1.8E-07	1.3E-05	
	Dermal Contact with Sediments - South Pond	Arsenic	1.24E-06	1.9E+00	2.3E-06		
		Aroclor-1248	5.45E-06	9.6E+00	5.2E-05		
						5.5E-05	
	Incidental Ingestion of Surface Water - South Pond	Arsenic	3.70E-08	1.5E+00	5.5E-08		
		Aroclor-1248	1.20E-08	7.7E+00	9.4E-08		
		Benzo(a)pyrene	9.40E-08	NA			
		Trichloroethene	2.40E-07	1.1E-02	2.6E-09		
		Vinyl Chloride	3.00E-08	1.9E+00	5.8E-08	2.1E-07	
	Dermal Contact With Surface Water - South Pond	Arsenic	2.10E-08	1.9E+00	4.0E-08		
		Aroclor-1248	4.96E-06	9.6E+00	4.8E-05		
		Dichloromethane (Methylene chloride)	6.50E-08	1.0E-02	6.5E-10		
		Trichloroethene	2.20E-06	1.1E-02	2.5E-08		
		Vinyl Chloride	1.29E-07	1.9E+00	2.4E-07	4.8E-05	0.0

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TABLE 7 cont.
SUMMARY OF CARCINOGENIC RISKS

Receptor	Pathway	Compound	Chronic Daily Intake (mg/kg-day)	Slope Factor (mg/kg-day)	Cancer Risk	Pathway Total	Receptor Cancer Risk
Current Adult Resident	Ingestion of Spring Water	Trichloroethene	5.8E-04	1.1E-02	6.4E-06	6.4E-06	
	Dermal Contact with Spring Water	Trichloroethene	1.8E-05	1.1E-02	2.0E-07	2.0E-07	
	Inhalation Vapors while Showering Water	Trichloroethene	2.0E-03	6.0E-03	1.2E-05	1.2E-05	1.9E-05
Future North Area Adult Resident	Ingestion of North Area Ground Water	Tetrachloroethene	7.0E-05	5.2E-02	3.4E-06		
		Aroclor 1248	0.0E+00	7.7E+00	2.1E-05		
		Arsenic	3.0E-05	1.5E+00	4.2E-05		
		Trichloroethene	3.2E-03	1.1E-02	3.5E-05	1.0E-04	1.0E-04
Current Child Resident	Ingestion of Spring Water	Trichloroethene	3.4E-04	1.1E-02	3.7E-06	3.7E-06	
	Dermal Contact with Spring Water	Trichloroethene	1.0E-05	1.1E-02	1.1E-07	1.1E-07	
	Inhalation Vapors while Showering Water	Trichloroethene	2.3E-03	6.0E-03	1.4E-05	1.4E-05	1.8E-05
Future North Area Child Resident	Ingestion of North Area Ground Water	Tetrachloroethene	3.8E-05	5.2E-02	2.0E-06		
		Aroclor 1248	2.0E-06	7.7E+00	1.2E-05		
		Arsenic	1.6E-05	1.5E+00	2.5E-05		
		Trichloroethene	1.9E-03	1.1E-02	2.0E-05	5.9E-05	5.9E-05

NOTES: 1. A Hazard Index less than one is considered to be acceptable to USEPA with respect to potential carcinogenic effects.
2. Cancer risks less than the range of 10^-4 to 10^-6 are considered acceptable to the USEPA as cited in NCP.

TABLE 8
SUMMARY OF NON-CARCINOGENIC RISKS

Receptor	Pathway	Compound	Chronic Daily Intake (mg/kg-day)	Reference Dose (RfD) (mg/kg-day)	Hazard Quotient	Pathway Total	Receptor Hazard Index
Construction Worker	Ingestion of Subsurface Soils	1,1-Dichloroethene	5.60E-06	9.0E-03	6.3E-04		
		Aroclor-1248	5.48E-04	2.0E-05	2.7E+01		
		Beryllium	1.90E-06	5.0E-03	3.8E-04		
		Copper	3.98E-04	4.0E-02	1.0E-02		
		Manganese	1.36E-03	2.3E-02	5.9E-02		
		Trichloroethene	2.07E-04	6.0E-03	3.4E-02	27	
	Dermal Contact with Subsurface Soils	Aroclor-1248	3.97E-04	1.6E-05	2.5E+01	25	52
Adolescent Recreator	Incidental Ingestion of Surface Soils	Arochlor 1248	1.76E-05	2.0E-05	8.8E-01		
		Manganese	2.85E-04	2.3E-02	1.2E-02	0.89	
	Dermal Contact with Surface Soils	Arochlor 1248	6.11E-05	2.0E-05	3.8E+00	3.80	
	Incidental Ingestion of Sediments - South Pond	Arsenic	8.31E-06	3.0E-04	2.8E-02		
		Aroclor-1248	1.83E-05	2.0E-05	9.1E-01		
		Benzo(a)pyrene	2.40E-07	C*			
		Beryl.ium	4.70E-07	5.0E-03	9.5E-05		
		Manganese	6.79E-04	2.3E-02	3.0E-02		
		Vinyl Chloride	1.10E-07	C*		0.97	
	Dermal Contact with Sediments - South Pond	Arsenic	1.45E-05	3.0E-04	6.0E-02		
		Aroclor-1248	6.36E-05	2.0E-05	4.0E+00	3.23	
	Incidental Ingestion of Surface Water - South Pond	1,2-Dichloroethene (total)	6.93E-06	9.0E-03	7.7E-04		
		cis-1,2-Dichloroethene	1.09E-06	1.0E-02	1.1E-04		
		Arsenic	4.30E-07	3.0E-04	1.4E-03		
		PCB/Aroclor-1248	1.40E-07	2.0E-05	7.1E-03		
		Manganese	1.43E-04	2.3E-02	6.2E-03		
		Dichloromethane (Methylene chloride)	3.80E-07	6.0E-02	6.3E-06		
		Trichloroethene	2.80E-06	6.0E-03	4.7E-04		
		Vinyl Chloride	5.00E-08	C*		0.02	
	Dermal Contact With Surface Water - South Pond	1,2-Dichloroethene	3.45E-06	C*			
		cis-1,2-Dichloroethene	6.33E-06	1.0E-02	7.0E-04		
		Arsenic	2.50E-07	3.0E-04	1.0E-03		
		PCB/Aroclor-1248	5.76E-05	2.0E-05	3.6E+00		
		Manganese	1.66E-04	2.3E-02	1.8E-01		
		Dichloromethane (Methylene chloride)	9.90E-07	6.0E-02	2.2E-05		
		Trichloroethene	2.60E-05	6.0E-03	4.3E-03		
		Vinyl Chloride	1.50E-06	C*		3.81	14

* Evaluated based on carcinogenic effects.

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TABLE 8 cont.
SUMMARY OF NON-CARCINOGENIC RISKS

Receptor	Pathway	Compound	Chronic Daily Intake (mg/kg-day)	Reference Dose (RfD) (mg/kg-day)	Hazard Quotient	Pathway Total	Receptor Hazard Index
Current Adult Resident	Ingestion of Spring water	1,1,1-Trichloroethane	5.46E-05	NA			
		Trichloroethene	1.69E-03	6.0E-03	2.8E-01		
		Naphthalene	1.14E-04	4.0E-02	2.7E-03	0.29	
	Dermal Contact with Spring Water	1,1,1-Trichloroethane	1.81E-06	NA			
		Trichloroethene	5.27E-05	6.0E-03	8.8E-03		
		Naphthalene	1.46E-05	4.0E-02	4.1E-04	0.01	
	Inhalation of Vapors while Showering	1,1,1-Trichloroethane	1.87E-04	NA			
		Trichloroethene	6.80E-03	NA			
		Naphthalene	3.75E-04	4.0E-02	9.4E-03	0.01	0.3
Future North Area Adult Resident	Ingestion of North Area Ground Water	Tetrachloroethene	1.92E-04	1.0E-02	1.9E-02		
		Aroclor-1248	1.90E-04	1.0E-02	1.9E-02		
		Arsenic	8.22E-05	3.0E-04	2.7E-01		
		Trichloroethene	9.32E-03	6.0E-03	1.6E+00	2.20	2
Current Child Resident	Ingestion of Spring water	1,1,1-Trichloroethane	1.28E-03	NA			
		Trichloroethene	3.94E-03	6.0E-03	6.6E-01		
		Naphthalene	2.56E-04	4.0E-02	6.4E-03	0.67	
	Dermal Contact with Spring Water	1,1,1-Trichloroethane	4.05E-06	NA			
		Trichloroethene	1.18E-04	6.0E-03	2.0E-02		
		Naphthalene	3.29E-05	4.0E-02	9.1E-04	0.02	
	Inhalation of Vapors while Showering	1,1,1-Trichloroethane	8.76E-04	NA			
		Trichloroethene	2.70E-02	NA			
		Naphthalene	1.76E-03	4.0E-02	4.4E-02	0.04	0.1
Future North Area Child Resident	Ingestion of North Area Ground Water	Tetrachloroethene	4.50E-04	1.0E-02	4.5E-02		
		Aroclor-1248	2.00E-05	2.0E-05	9.3E-02		
		Arsenic	1.90E-04	3.0E-04	6.4E-01		
		Trichloroethene	2.17E-02	6.0E-03	3.6E+00	5.20	5

* Evaluated based on carcinogenic effects.
NA - Not Available

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TABLE 9
EPA and NEW YORK STATE MAXIMUM CONTAMINANT LIMITS

Compound	EPA ug/l	New York State ug/l
Aroclor 1248	0.5	1
1,1,1-Trichloroethane	200	5
1,1-Dichloroethane		5
1,1-Dichloroethene	7	5
1,2-Dichloroethene(total)	70	5
Acetone		50
Benzene	5	5
Benzyl Alcohol		
Bromodichloromethane		100
Chlorobenzene		5
Chloroethane		5
Chloroform		100
Dichloromethane	5	
Ethylbenzene	700	5
Naphthalene		50
Toluene	1000	5
Tetrachloroethene	5	5
Trichloroethane		
Trichloroethene	5	5
Vinyl chloride	2	5
Xylene(total)	10,000	5
Butylbenzyl phthalate		
Di-n-butyl phthalate		50
Diethylphthalate		50
4-Methylphenol		50
bis(2-Ethylhexyl)phthalate	6	50
cis-1,2-Dichloroethene	70	
cis-1,3-Dichloropropylene		
trans-1,2-Dichloroethene	100	
Aluminum		
Antimony	6	
Arsenic	50	50
Barium	2000	1000
Beryllium	4	
Cadmium	5	10
Calcium		
Chromium	100	50
Cobalt		
Copper		1000
Iron		300
Lead		50
Magnesium		
Manganese		300
Mercury		2
Nickel		
Potassium		
Silver		50
Sodium		
Vanadium		

TABLE 10

Recommended soil cleanup objectives (mg/kg or ppm)

Volatile Organic Contaminants

Contaminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ppm. Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	Systemic Toxicants	CRQL (ppb)	*** Rec. soil Clnup Obj. (ppm)
Acetone	2.2	50	0.0011	0.11	N/A	8,000	10	0.2
Benzene	83	0.7	0.0006	0.06	24	N/A	5	0.06
Benzoic Acid	54*	50	0.027	2.7	N/A	300,000	5	2.7
2-Butanone	4.5*	50	0.003	0.3	N/A	4,000	10	0.3
Carbon Disulfide	54*	50	0.027	2.7	N/A	8,000	5	2.7
Carbon Tetrachloride	110*	5	0.006	0.6	5.4	60	5	0.6
Chlorobenzene	330	5	0.017	1.7	N/A	2,000	5	1.7
Chloroethane	37*	50	0.019	1.9	N/A	N/A	10	1.9
Chloroform	31	7	0.003	0.30	114	800	5	0.3
Dibromochloromethane	N/A	50	N/A	N/A	N/A	N/A	5	N/A
1,2-Dichlorobenzene	1,700	4.7	0.079	7.9	N/A	N/A	330	7.9
1,3-Dichlorobenzene	310 *	5	0.0155	1.55	N/A	N/A	330	1.6
1,4-Dichlorobenzene	1,700	5	0.085	8.5	N/A	N/A	330	8.5
1,1-Dichloroethane	30	5	0.002	0.2	N/A	N/A	5	0.
1,2-Dichloroethane	14	5	0.001	0.1	7.7	N/A	5	0.
1,1-Dichloroethene	65	5	0.004	0.4	12	700	5	0.
1,2-Dichloroethene(trans)	59	5	0.003	0.3	N/A	2,000	5	0.
1,3-dichloropropane	51	5	0.003	0.3	N/A	N/A	5	0.
Ethylbenzene	1,100	5	0.055	5.5	N/A	8,000	5	5.
113 Freon(1,2 Trichloro-1,2,2 Trifluoroethane)	1,230*	5	0.060	6.0	N/A	200,000	5	6.
Methylene chloride	21	5	0.001	0.1	93	5,000	5	0.
4-Methyl-2-Pentanone	19*	50	0.01	1.0	N/A	N/A	10	1.
Tetrachloroethene	277	5	0.014	1.4	14	800	5	1.
1,1,1-Trichloroethane	152	5	0.0076	0.76	N/A	7,000	5	0.
1,1,2,2-Tetrachloroethane	118	5	0.006	0.6	35	N/A	5	0.
1,2,3-trichloropropane	68	5	0.0034	0.34	N/A	80	5	0
1,2,4-Trichlorobenzene	670 *	5	0.034	3.4	N/A	N/A	330	3
Toluene	300	5	0.015	1.5	N/A	20,000	5	1
Trichloroethene	126	5	0.007	0.70	64	N/A	5	0
Vinyl chloride	57	2	0.0012	0.12	N/A	N/A	10	0
Xylenes	240	5	0.012	1.2	N/A	200,000	—	1

a. Allowable Soil Concentration Cs = f x Cw x Koc

b. Soil cleanup objective = Cs x Correction Factor (CF)

N/A is not available

* Partition coefficient is calculated by using the following equation: log Koc = -0.55 log S + 3.64, where S is solubility in water in ppm. All other Koc values are experimental values.

** Correction Factor (CF) of 100 is used as per TAGM #4046

*** As per TAGM #4046, Total VOCs ≤ 10 ppm.

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1%, and should be adjusted for the actual soil organic carbon content if it is known.

TABLE 10

Recommended Soil Cleanup Objectives (mg/kg or ppm)

Semi-Volatile Organic Contaminants

Contaminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ppm. Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	USEPA Health Based (ppm) Systemic Toxicants	CRQL (ppb)	Rec.soil Clnup Obj (ppm)
Acenaphthene	4,600	20	0.9	90.0	N/A	5,000	330	50.0*
Acenaphthylene	2,056*	20	0.41	41.0	N/A	N/A	330	41.0
Aniline	13.8	5	0.001	0.1	123	N/A	330	0.1
Anthracene	14,000	50	7.00	700.0	N/A	20,000	330	50.0*
Benzo(a)anthracene	1,380,000	0.002	0.03	3.0	0.224	N/A	330	0.224 or
Benzo(a)pyrene	5,500,000	0.002(ND)	0.110	11.0	0.0609	N/A	330	0.061 or
Benzo(b)fluoranthene	550,000	0.002	0.011	1.1	N/A	N/A	330	1.1
Benzo(g,h,i)perylene	1,600,000	5	8.0	800	N/A	N/A	330	50.0*
Benzo(k)fluoranthene	550,000	0.002	0.011	1.1	N/A	N/A	330	1.1
bis(2-ethylhexyl)phthalate	8,706*	50	4.35	435.0	50	2,000	330	50.0*
Butylbenzylphthlate	2,430	50	1.215	122.0	N/A	20,000	330	50.0*
Chrysene	200,000	0.002	0.004	0.4	N/A	N/A	330	0.4
4-Chloroaniline	43 ****	5	0.0022	0.22	200	300	330	0.220 or
4-Chloro-3-methylphenol	47	5	0.0024	0.24	N/A	N/A	330	0.240 or
2-Chlorophenol	15*	50	0.008	0.8	N/A	400	330	0.8
Dibenzofuran	1,230*	5	0.062	6.2	N/A	N/A	330	6.2
Dibenzo(a,h)anthracene	33,000,000	50	1,650	165,000	0.0143	N/A	330	0.014 or
3,3'-Dichlorobenzidine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dichlorophenol	380	1	0.004	0.4	N/A	200	330	0.4
2,4-Dinitrophenol	38	5	0.002	0.2	N/A	200	1,600	0.200 or
2,6 Dinitrotoluene	198*	5	0.01	1.0	1.03	N/A	330	1.
Diethylphthlate	142	50	0.071	7.1	N/A	60,000	330	7.
Dimethylphthlate	40	50	0.020	2.0	N/A	80,000	330	2.
Di-n-butyl phthalate	162*	50	0.081	8.1	N/A	8,000	330	8.
Di-n-octyl phthlate	2,346*	50	1.2	120.0	N/A	2,000	330	50.
Fluoranthene	38,000	50	19	1900.0	N/A	3,000	330	50.
Fluorene	7,300	50	3.5	350.0	N/A	3,000	330	50.
Hexachlorobenzene	3,900	0.35	0.014	1.4	0.41	60	330	0.
Indeno(1,2,3-cd)pyrene	1,600,000	0.002	0.032	3.2	N/A	N/A	330	3.
Isophorone	88.31*	50	0.044	4.40	1,707	20,000	330	4.
2-methylnaphthalene	727*	50	0.364	36.4	N/A	N/A	330	36.
2-Methylphenol	15	5	0.001	0.1	N/A	N/A	330	0.100
4-Methylphenol	17	50	0.009	0.9	N/A	4,000	330	0.
Naphthalene	1,300	10	0.130	13.0	N/A	300	330	13.
Nitrobenzene	36	5	0.002	0.2	N/A	40	330	0.200
2-Nitroaniline	86	5	0.0043	0.43	N/A	N/A	1,600	0.430
2-Nitrophenol	65	5	0.0033	0.33	N/A	N/A	330	0.330
4-Nitrophenol	21	5	0.001	0.1	N/A	N/A	1,600	0.100
3-Nitroaniline	93	5	0.005	0.5	N/A	N/A	1,600	0.500
Pentachlorophenol	1,022	1	0.01	1.0	N/A	2,000	1,600	1.0 or
Phenanthrene	4,365*	50	2.20	220.0	N/A	N/A	330	50
Phenol	27	1	0.0003	0.03	N/A	50,000	330	0.03
Pyrene	13,295*	50	6.65	665.0	N/A	2,000	330	50
2,4,5-Trichlorophenol	89*	1	0.001	0.1	N/A	8,000	330	1

TABLE 10
Recommended soil cleanup objectives (mg/kg or ppm)
Organic Pesticides / Herbicides and PCBs

Contaminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ppm. Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	USEPA Health Based (ppm) Systemic Toxicants	CRQL (ppb)	*** Rec.soil Clnup Obj (ppm)
Aldrin	96,000	ND(<0.01)	0.005	0.5	0.041	2	8	0.04
alpha - BHC	3,800	ND(<0.05)	0.002	0.2	0.111	N/A	8	0.11
beta - BHC	3,800	ND(<0.05)	0.002	0.2	3.89	N/A	8	0.2
delta - BHC	6,600	ND(<0.05)	0.003	0.3	N/A	N/A	8	0.3
Chlordane	21,305*	0.1	0.02	2.0	0.54	50	80	0.54
2,4-D	104*	4.4	0.005	0.5	N/A	800	800	0.5
4,4'-DDD	770,000*	ND(<0.01)	0.077	7.7	2.9	N/A	16	2.9
4,4'-DDE	440,000*	ND(<0.01)	0.0440	4.4	2.1	N/A	16	2.1
4,4'-DDT	243,000*	ND(<0.01)	0.025	2.5	2.1	40	16	2.1
Dibenzo-P-dioxins(PCDD)								
2,3,7,8 TCDD	1709800	0.000035	0.0006	0.06	N/A	N/A	N/A	N/A
Dieldrin	10,700*	ND(<0.01)	0.0010	0.1	0.044	4	16	0.0
Endosulfan I	8,168*	0.1	0.009	0.9	N/A	N/A	16	0.9
Endosulfan II	8,031*	0.1	0.009	0.9	N/A	N/A	16	0.9
Endosulfan Sulfate	10,038*	0.1	0.01	1.0	N/A	N/A	16	1.0
Endrin	9,157*	ND(<0.01)	0.001	0.1	N/A	20	8	0.1
Endrin keytone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
gamma - BHC (Lindane)	1,080	ND(<0.05)	0.0006	0.06	5.4	20	8	0.0
gamma - chlordane	140,000	0.1	0.14	14.0	0.54	5	80	0.5
Heptachlor	12,000	ND(<0.01)	0.0010	0.1	0.16	40	8	0.1
Heptachlor epoxide	220	ND(<0.01)	0.0002	0.02	0.077	0.8	8	0.[illegible]
Methoxychlor	25,637	35.0	9.0	900	N/A	400	80	***
Mirotane	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/[illegible]
Parathion	760	1.5	0.012	1.2	N/A	500	8	1.[illegible]
PCBs	17,510*	0.1	0.1	10.0	1.0	N/A	160	1.0(Sur[illegible] 10(sub-[illegible]
Polychlorinated dibenzo-furans(PCDF)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/
Silvex	2,600	0.26	0.007	0.7	N/A	600	330	0.
2,4,5-T	53	35	0.019	1.9	N/A	200	330	1.

a. Allowable Soil Concentration Cs = f x Cw x Koc

b. Soil cleanup objective = Cs x Correction Factor (CF)

N/A is not available

* Partition coefficient is calculated by using the following equation: log Koc = -0.55 log S + 3.64, where S is solubility in water in ppm. All other Koc values are experimental values.

** Correction Factor (CF) of 100 is used as per TAGM #4046

*** As per TAGM #4046, Total Pesticides ≤ 10 ppm.

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1% (5% for PCBs as per PCB guidance document), and should be adjusted for the actual soil organic Carbon content if it is known.

APPENDIX III

ADMINISTRATIVE RECORD INDEX

RICHARDSON HILL ROAD LANDFILL SITE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

1.0 SITE IDENTIFICATION

1.1 Background - RCRA and other Information

P. 100001- 100020 Letter to Mr. John Frisco, U.S. EPA, Hazardous Waste Site Branch, from Mr. Irving L. Bonsel, P.E., Associate Sanitary Engineer, Region IV, New York State Department of Environmental Protection, re: Enclosed Report, April 1, 1983. (Attachment: Report: Investigation and Removal of Contaminated Soil at the Hill Site, Sidney, New York, prepared by Geraghty & Miller, Inc., prepared for the Bendix Corporation, March 30, 1983.

1.2 Notification/Site Inspection Reports

P. 100021- 100033 Report: Potential Hazardous Waste Site: Site Inspection Report, Richardson Hill Road Landfill, prepared by Mr. Walter E. Demick, June 20, 1984.

1.4 Site Investigation Reports

P. 100034- 100059 Report: Richardson Hill Road Landfill, TDD 02-8011-27A, Draft Final Report, prepared by Fred C. Hart Associates, Inc., prepared for the U.S. EPA, Region II, March 12, 1982.

P. 100060- 100215 Hazardous Ranking System Package, reviewer Mr. Sui Leong, prepared for U.S. EPA, July 17, 1985.

3.0 REMEDIAL INVESTIGATION

3.3 Work Plans

P. 300001- 300272 Report: Draft Site Operations Plan, Richardson Hill Road Landfill Site, Remedial Investigation, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, October, 1987.

P. 300273-300380 Report: Health and Safety Plan, Richardson Hill Road Landfill Site, Remedial Investigation, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, July, 1988.

P. 300381-300422 Report: Human Health Risk Assessment, Richardson Hill Road Municipal Landfill Site, Work Plan, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, October 1993.

3.4 Remedial Investigation Reports

P. 300423-300461 Report: Richardson Hill Road Water Supply System, Amphenol Corporation, Bendix Connector Operations, Sidney, New York, prepared by O'Brien and Gere Engineers, Inc., August, 1987.

P. 300462-300587 Report: Interim Technical Memorandum - Phase I, Field Investigations, Richardson Hill Road Municipal Landfill Site, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, May 1989

P. 300588-300801 Report: Interim Technical Memorandum - Phase II, Field Investigations, Richardson Hill Road Municipal Landfill Site, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, June 1991

P. 300802-300954 Report: Laboratory Data Report, Richardson Hill Road Municipal Landfill Site, prepared by O'Brien and Gere Laboratories Inc., prepared for Amphenol Corporation, Sidney, New York, February 25, 1992.

P. 300955-301376 Report: Unilateral Administrative Order (UAO), Index No. II-CERCLA-93-0217, Richardson Hill Road Municipal Landfill Site, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, November 1994.

P. 301377-301682 Report: Administrative Order on Consent (AOC), Index No. II-CERCLA-93-214, Whole House Treatment System Installation, prepared by O'Brien and Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, New York, July 1995.

P. 301683-301862 Report: Remedial Investigation Report, Richardson Hill Road Municipal Landfill, Sidney, New York, prepared by O'Brien Engineers, Inc., March 1997.

P. 301863-302038 Report: Remedial Investigation Report - Tables, Richardson Hill Road Municipal Landfill, Sidney, New York, prepared by O'Brien Engineers, Inc., March 1997.

P. 302039-302291 Report: Remedial Investigation Report - Figures 1-44 and Appendices A-E, Richardson Hill Road Municipal Landfill, Sidney, New York, prepared by O'Brien Engineers, Inc., March 1997.

P. 302292-303070 Report: Remedial Investigation Report - Appendices F-R, Richardson Hill Municipal Landfill, Sidney, New York, prepared by O'Brien Engineers, Inc., March 1997.

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Reports

P. 400001-400157 Letter to Reviewer, from Ms. Young S. Chang, Remedial Project Manager, U.S. EPA, Region II, re: Richardson Hill Road Landfill Feasibility Study Report, June 27, 1997. (Attachments: (1) Report: Draft Final Report, Feasibility Study, Richardson Hill Road Municipal Landfill, prepared by O'Brien & Gere Engineers, Inc., prepared for Amphenol Corporation, Sidney, N.Y., May 1997, and (2) Addendum (w/ attachments) to the May 1997 Draft Final Feasibility Study Report, Richardson Hill Road Landfill Superfund Site, undated).

7.0 ENFORCEMENT

7.1 Enforcement History

P. 700001-700061 Report: Richardson Hill Road Landfill, Responsible Party Search, Revised Final Site Report, prepared by Mr. Jay B. Eidson and Ms. Susan O'Rourke, Alliance Technologies Corporation, prepared for Planning Research Corporation, September 1987. (NOTE: This document is **CONFIDENTIAL.** It is located at the U.S. EPA Superfund Records Center, 290 Broadway, 18th Floor, N.Y., N.Y., 10007-1866.)

7.3 Administrative Orders

P. 700062- 700077 Administrative Order on Consent, Index No. II-CERCLA-70205, In the Matter of Allied Corporation, as successor to The Bendix Corporation and Amphenol Corporation, Respondents, July 22, 1987. (Note: Remedial Investigation/Feasibility Study)

P. 700078- 700102 Unilateral Administrative Order (Removal), Index No. II-CERCLA-93-0217, In the Matter of the Richardson Hill Road Landfill Site, Sidney, New York, Amphenol Corporation and AlliedSignal, Inc., Respondents, September 30, 1992. (Note: LNAPL Migration Control)

P. 700103- 700122 Unilateral Administrative Order (Removal), Index No. II-CERCLA-93-0212, In the Matter of the Richardson Hill Road Landfill Site, Sidney, New York, Amphenol Corporation, Respondent, June 21, 1993. (Note: To Deploy and Maintain Absorbent Booms in South Pond)

P. 700123- 700146 Administrative Order on Consent for Removal Action, Index No. II-CERCLA-93-0214, In the Matter of the Richardson Hill Road Landfill Site, Sidney, New York, Amphenol Corporation , and AlliedSignal, Inc., Respondents, September 22, 1993. (Note: For Residential Water Supply)

10.0 PUBLIC PARTICIPATION

10.9 Proposed Plan

P. 1000001- 1000015 Plan: Superfund Proposed Plan, Richardson Hill Road Landfill Site, Town of Sidney, Delaware County, New York, prepared by U.S. EPA, Region II, July 1997.

APPENDIX IV

STATE LETTER OF CONCURRENCE

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

John P. Cahill
Commissioner

SEP 26 1997

Post-it® Fax Note 7671	Date 9/26	# of pages ▶
To J. Singerman	From J. McCullough	
Co./Dept.	Co.	
Phone #	Phone #	
Fax #	Fax #	

[redacted]

Mr. Richard Caspe
Director
Emergency & Remedial Response Division
U.S. Environmental Protection Agency
Region II
290 Broadway
New York, NY 10007-1866

Dear Mr. Caspe:

Re: Richardson Hill Road Landfill ID No. 413008

The New York State Department of Environmental Conservation has reviewed the draft Record of Decision (ROD) for the Richardson Hill Road Landfill site. The Department concurs with the selected remedy of Alternative 3A, as it is detailed in the draft ROD for the site.

If you have any questions, please call Mr. Jeffrey McCullough, of my staff, at (518) 457-3976.

Sincerely,

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

c: J. Singerman/Y. Chang, USEPA

APPENDIX V

RESPONSIVENESS
SUMMARY

RESPONSIVENESS SUMMARY

Richardson Hill Road Landfill Superfund Site

INTRODUCTION

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

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The July 1997 Proposed Plan, which identified EPA's and NYSDEC's preferred remedy and the basis for that preference, and remedial investigation and feasibility study (RI/FS) reports were made available to the public in the administrative record file at the EPA Superfund Records Center in the Region II New York City office and at the Sidney Memorial Public Library. The notice of availability for these documents was published in the *Binghamton Press & Sun Bulletin* on July 28, 1997. The public comment period was held from July 28, 1997 through August 26, 1997 to give interested parties the opportunity to comment on the Proposed Plan. On August 13, 1997, a public meeting was held at the Sidney Civic Center to inform local officials and interested citizens about the Superfund process, to review current and planned remedial activities at the site, to receive and discuss comments on the Proposed Plan, and to respond to questions from area residents and other interested parties. Approximately 40 people, consisting of local businessmen, residents, representatives of the media, the potentially responsible parties and their contractor, and state and local government officials, attended the public meeting.

OVERVIEW

The preferred remedy includes, among other things, excavating/dredging of contaminated soil and sediment, consolidating, installing a landfill cap, on-site and/or off-site disposal, constructing a disposal cell, and extracting contaminated groundwater followed by air-stripping, activated carbon, and discharge to surface water. While the majority of the public in attendance at the public meeting accepted the preferred remedy, a petition signed by 18 individuals requesting the complete excavation and off-site disposal of the 8-acre landfill was mailed to EPA.

SUMMARY OF COMMENTS AND RESPONSES

The following correspondence (see Appendix V-a) was received during the public comment period:

- Letter to Young S. Chang, dated August 12, 1997, from John A. Spizziri, Sr., Esq., P.A.
- Petition, dated August 25, 1997, from Tianaderha Alliance.
- Letter to Young S. Chang, dated July 17, 1997, from Patrick R. McElligott, Tianaderha Alliance.
- Letter to Young Chang, dated July 22, 1997, from Patrick R. McElligott, Tianaderha Alliance
- Letter to Young S. Chang, dated August 25, 1997, from Karen L. Radner, the City of New York Department of Environmental Protection.
- Letter to Young Chang, dated August 25, 1997, from S. K. Sen Gupta, Ph.D.
- E-mail to Young Chang, dated August 26, 1997, from Edward Szymkowiak, Delaware County E-Mail News.

A summary of the comments contained in the above letters and the comments provided at the August 13, 1997 public meeting, as well as EPA's and NYSDEC's response to those comments, follows.

Groundwater Remediation

Comment #1: Alternative 3A states that the contaminated overburden and weathered bedrock groundwater exceeding the federal and state Maximum Contaminant Levels will be extracted in the North Area by extraction wells and in the South Area by installation of a downgradient interceptor trench. Please explain why these two methods are being used to address the groundwater contamination in the two different areas of the site.

Response #1: Groundwater contamination in the North Area is restricted to a localized hot spot, which can be efficiently removed with extraction wells. In the South Area, because the contaminated groundwater is in both overburden and bedrock aquifers and because the plume is much more expansive, a downgradient interceptor trench keyed into the bedrock will be more effective in capturing the contaminated groundwater than a series of extraction wells.

Comment #2: Are the contaminants in the groundwater in the North Area attributable to the Sidney Landfill, which is located directly across the road from the North Area of the Richardson Hill Road Landfill site?

Response #2: Based upon the presence of two disposal trenches, surface and subsurface soil contamination, and surface debris in the North Area and higher concentrations of groundwater contamination in this area than in a monitoring well between the North Area and the Sidney Landfill, EPA believes that this groundwater contamination is attributable to disposal activities in the North Area, not the Sidney Landfill.

Site Cleanup

Comment #3: The cleanup of the site should include the elimination of all PCBs, volatile organic compounds (VOCs), and metal contamination. The remediation of the site should begin immediately.

Response #3: To eliminate all of the PCBs, VOCs, and metals at the site would require the complete excavation and off-site disposal of the 8-acre landfill's contents. This action, while technically feasible, would consume a considerable amount of limited off-site disposal facility capacity at a substantial cost, yet would provide only a marginal increase in protectiveness, as compared to the selected remedy.

The source containment portion of the selected remedy is consistent with EPA's *Presumptive Remedy for CERCLA Municipal Landfill Sites*[1], which calls for a landfill cap, measures to control landfill leachate, source area groundwater control to contain the plume, and institutional controls to supplement engineering controls.

The selected remedy, which includes excavating the contaminated waste material and NYSDEC's Soil Cleanup Objectives[2] in the North

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1 EPA Publication 9203.1-021, SACM Bulletins, *Presumptive Remedies for Municipal Landfill Sites*, April 1992, Vol. 1, No. 1, and February 1993, Vol. 2, No.1, SACM Bulletin *Presumptive Remedies*, August 1992, Vol.1, No. 3. and EPA Directive No. 9355.0-49FS, *Presumptive Remedy for CERCLA Municipal Landfill Sites*, September 1993.

2 NYSDEC's soil cleanup objectives are specified in NYSDEC Technical Administrative Guidance Memorandum No. 94-HWR-4046.

and South Areas (other than the landfill) and excavating and disposing off-site the heavily-contaminated PCB soils in the area to be capped (primarily, in the vicinity of the former waste oil disposal pit), will be fully protective of public health and the environment. Excavated contaminated soils will either be disposed of in the existing landfill, a newly constructed on-site disposal cell, or an off-site facility, depending upon how contaminated the soils are. The selected remedy also includes capping the landfill and extracting and treating contaminated groundwater.

It is EPA's intention to remediate the site as quickly as possible. Once the remedy is selected, EPA will commence negotiations related to the performance of the remedial design (RD) and construction of the selected remedy with the potentially responsible parties (PRPs). Should these negotiations result in a settlement, the PRPs will perform the RD. If the negotiations do not result in a settlement, EPA can order the PRPs to undertake the work. After the RD is completed, remedial construction can begin. It is anticipated that remedial construction will commence in the summer of 1999 or the spring of 2000.

Comment #4: Since EPA does not propose complete excavation of the contamination, it appears that EPA is more concerned about the interests of the PRPs (i.e., saving them money) than the interests of the people of Sidney Center.

Response #4: Not selecting complete excavation and off-site disposal of the entire landfill contents is not motivated by a desire to save the PRPs money. Cost was only one of the nine criteria that was considered in the evaluation of the various alternatives. Under the Superfund regulations, EPA is required to consider eight other evaluation criteria. The primary criteria are the ability of the various remedial alternatives to protect human health and the environment and compliance with applicable or relevant and appropriate requirements. Other factors that are considered include long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, state acceptance, and community acceptance.

The selected remedy is protective of public health and the environment, is consistent with landfill closure requirements applied to municipal landfills in the State of New York, and is consistent with EPA's *Presumptive Remedy for CERCLA Municipal Landfill Sites* (a landfill cap, measures to control landfill leachate, source area groundwater control to contain the plume, and institutional controls to supplement engineering controls).

Comment #5: What has been done at this site since it was listed on the Superfund National Priorities List? Why has the RI/FS taken so long to complete.

Response #5: The site was listed on the National Priorities List on July 1, 1987. On July 22, 1987, EPA entered into an Administrative Order on Consent (AOC) with the PRPs, requiring them to perform an RI/FS to determine the nature and extent of the contamination at and emanating from the site and to identify and evaluate remedial alternatives.

After property access agreements were obtained in September 1988, site investigative work commenced. This work, which included the sampling of on- and off-site soil, surface water, and groundwater was completed in June 1991. Because the extent of the site-related groundwater contamination was found to be much more expansive than originally thought, EPA determined that additional groundwater monitoring wells needed to be installed and sampled to better quantify the horizontal and vertical extent of the groundwater contamination.

In 1993, while the final phase of the RI was being conducted, a fish kill in South Pond attributable to the seep of contaminants from the former waste oil disposal pit prompted EPA to issue an AOC and a Unilateral Administrative Order (UAO) to the PRPs. The work performed pursuant to these orders included the excavation of approximately 2,200 cubic yards of contaminated sediments from South Pond (the excavated sediments are being temporarily stored on-site in lined storage cells), the installation of seep interceptor collection basins upgradient of South Pond, and a sediment trap weir system at the outlet of South Pond to prevent the downstream migration of contaminated sediments, and the installation and maintenance of water supply treatment systems on two contaminated private wells.

During this effort, the RI was further delayed because of the need to reassess the extent of the contamination in light of the release of contaminants from the former waste oil disposal pit and the contaminated sediment excavation work. As part of this effort, successive rounds of sediment sampling were undertaken to characterize the downstream migration of site-related contaminants. This effort was completed in summer of 1996.

Following the completion of an RI report, risk assessment, and FS report, EPA prepared a Proposed Plan and released all of these documents for public review in July 1997.

Comment #6: A well defined post-closure monitoring plan should be implemented for both surface and groundwater routes to determine how far the landfill-derived water quality impacts extend.

Response #6: A plan for the long-term monitoring of the groundwater, surface water, fish, and sediments will be prepared as part of the remedial design.

Comment #7: What is the purpose of the landfill cap and what is involved in capping the landfill?

Response #7: Capping the landfill will prevent direct contact with the wastes and leachate seeps and will eliminate the infiltration of rainwater into the waste disposal area (which will significantly reduce the leaching of contaminants to the groundwater).

Before the construction of the landfill cap, test pits will be excavated to determine the actual limits of the waste disposal area. Following the consolidation of the excavated/dredged waste materials, soil, and sediments with PCB concentrations less than 50 mg/kg onto the existing landfill, the landfill will be regraded and compacted to provide a stable foundation for placement of the various layers of the cap and to provide rapid runoff of rainwater. Since decomposing wastes produce methane gas, a gas-venting layer will be installed. A 40-mil plastic cap, which will be thermally seamed so that it's a continuous sheet, will then be installed over the entire waste area. Vents will be installed through the cap into the gas-venting layer. On top of the cap, a drainage layer will be installed so that precipitation that does not run off the surface can drain off the cap. On top of this, six inches of top soil will be placed to support grass, which will be mowed and maintained. The grass prevents erosion of the surface of the cap and draws moisture out of the cap.

Public Health Concerns

Comment #8: After the remedial action is completed, who will test the water at the homes with the water treatment systems?

Response #8: Under the terms of an AOC with EPA, the PRPs are responsible for maintaining the water treatment systems on the two private wells. Since the two impacted private wells with the treatment systems are only used intermittently (the residents are not present year-round), the PRPs test the water after the treatment system is turned on after a period of inactivity. The PRPs will continue to test the water until the groundwater meets state and federal drinking water standards.

Comment #9: Is it safe to eat deer and turkey caught on or near the site?

Response #9: Since deer and turkey eat only vegetation and because they have large feeding areas, it's unlikely that they would obtain most of their food from contaminated areas of the landfill. Since the levels of site-related contaminants in their tissues should be low, EPA believes that it is safe to eat these wildlife.

Comment #10: One resident who lives northwest of the site inquired whether there was any danger of their well becoming contaminated.

Response #10: The groundwater from this site moves southeast toward South Pond. Therefore, the subject well would not be contaminated by the site.

Comment #11: A resident raised a concern about two small ponds on her property.

Response #11: Since the ponds had never been sampled, on September 11, 1997, the New York State Department of Health (NYSDOH) sampled the surface water and sediments in the ponds. NYSDOH will inform the resident of the results of the sampling once they become available in October 1997. Should contaminated sediments be present, the need to take remedial action will be evaluated.

Comment #12: A commenter voiced concern that the Sidney Center reservoir was closed twenty-five years ago because of the contamination from the site.

Response #12: According to NYSDOH, the reservoir was closed because of high bacterial levels, not because of contamination from the site.

Comment #13: Several residents expressed concern that their drinking wells have not been sampled on a routine basis.

Response #13: In 1985, NYSDOH sampled all operating private wells that were located in the vicinity of the site as a baseline. At that time, two wells were found to have contamination. Since the two impacted private wells were only used intermittently (the residents were not present year-round), they were subsequently provided with bottled water by the PRPs. In 1993, at EPA's request, the PRPs installed water treatment systems at both of the homes.

Although private wells in the area were subsequently sampled, but not on a routine basis, several monitoring wells were installed upgradient of private wells in the path of the contaminated groundwater flow to serve as early warning indicators.

In July 1997, NYSDOH discovered contamination in a private well that was not previously sampled because it was not being utilized. (It was sampled at this time because the resident wanted to start using this well.) The PRPs are currently providing bottled water to the residence and are presently designing a treatment system for the well.

In response to requests made at the August 13, 1997 public meeting, on September 11, 1997, NYSDOH sampled three residential wells located near the well where contamination was detected in July. NYSDOH also sampled one residential well downgradient of the site, which previously had shown high levels of lead (unrelated to the site). The water in each of the three wells was found to be within the New York State's drinking water standards; the downgradient residential well, however, was contaminated with VOCs[3]. The PRPs offered bottled water to the people living in the residence with the contaminated well. They, however, declined to accept the bottle water and are presently obtaining water from a neighbor. EPA and the PRPs are currently assessing what long-term measures should be taken to provide potable water to this residence.

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3 The sample was analyzed for lead; the laboratory results are not currently available.

Comment #14: Who is liable for the health damage that has already been done to local residents from exposure to contamination from the site since 1964 (when waste disposal activities commenced at the site)? The remediation of the site should provide full coverage for health problems relating to exposure to site contaminants.

Response #14: The purpose of Superfund actions is to protect public health and the environment from current and future exposure to hazardous substances. There is no provision in the Superfund statute for providing monetary compensation for health problems relating to past exposure to site contaminants.

NYSDOH has indicated that they looked for cancer clusters and unusual health problems in this area and did not find any. There are, however, a few residents that were exposed to site-related groundwater contamination before they were provided with bottled water and treatment units were installed on their wells. Residents who were exposed to site-related VOCs in their drinking water will be considered for inclusion in NYSDOH's VOC Registry. Residents of eligible households will be contacted by NYSDOH to obtain detailed information on water use and health history.

Property-Related Concerns

Comment #15: The remediation of the site should provide for compensation of homeowners for property value losses.

Response #15: There is no provision in the Superfund statute for providing compensation for loss of property value. Once the site is remediated, any property value losses should be minimized.

Comment #16: Federal Emergency Management Agency (FEMA) funding should be utilized to buy out the Richardson Hill Road area landowners wishing to sell their land.

Response #16: For FEMA relocation funds to be utilized, there must be an unacceptable heath threat posed to the residents if they continue to live in their homes. With the provision of bottled water and the installation and maintenance of water treatment systems on contaminated private wells, area residents are not at risk by continuing to live in their homes, since exposure to the contaminated groundwater has been eliminated. Therefore, it would not be appropriate to use FEMA monies to buy Richardson Hill Road area properties.

Comment #17: Once the work is complete at the site, will the residents get a certificate saying the whole area around us is clean so that they can sell their land?

Response #17: The groundwater remediation portion of the work may take 30 or more years to complete. However, once the landfill has been capped and the groundwater extraction and treatment systems are in place, upon request, EPA can issue a letter indicating that the source control measures in combination with the groundwater remedy and institutional controls (related to the placement of restrictions on the installation and use of groundwater wells at the site) are protective of public health and the environment.

Extent of Contamination

Comment #18: How deep is the soil contamination?

Response #18: The deepest soil contamination was found at approximately 15 feet deep.

Comment #19: What is the estimated total volume if all contaminated areas, including the landfill were excavated? What is the total volume of the medium to high range contamination (PCB contamination of 50 mg/kg and over)? What is the estimated cleanup cost to excavate all contaminated areas (including the landfill) and take it off-site?

Response #19: The rough estimated volume of excavating all contaminated areas, including the landfill, is 155,700 cubic yards. Approximately 9,200 truck loads would be required to transport the excavated materials off-site. For just the medium and high range PCB-contaminated soils, the total estimated volume is 7,200 cubic yards (approximately 425 truck loads).

The estimated cost for excavating all contaminated areas is $55 million. Adding in the cost of groundwater extraction and treatment, the estimated present-worth cost for this remedy would be $61 million.

Comment #20: Drums were present on the site. Weren't hazardous substances disposed of at the site in the drums?

Response #20: There is no indication that drums were buried at the site and no drums related to hazardous waste disposal activities were found on the site. During the RI and the removal actions, drums were used to temporarily store monitoring well soil cuttings, development water, spill absorbent pads and booms, glassware, and personal protective equipment worn by on-site workers. After the completion of the RI, these drums were taken off-site and disposed of properly.

Comment #21: What will be done with the former waste oil disposal pit that is located on the landfill?

Response #21: Contaminated oils were disposed of in the 25 ft. wide by 105 ft. long by 14 ft. deep former waste oil disposal pit located on the landfill. Samples collected from the former waste oil disposal pit in 1990 indicated significant levels of PCBs. After contaminated oils from the former waste oil disposal pit seeped out and contaminated South Pond sediments (requiring the excavation of a significant volume of contaminated sediments), samples collected in the former waste oil disposal pit showed a substantial reduction in contaminant levels. Since it appears that the bulk of the contents of the former waste oil disposal pit have seeped out, it will be capped with the rest of the landfill. However, prior to capping, any soils with PCB concentrations which equal or exceed 500 mg/kg in this area (i.e., those soils which pose a principal threat) will be excavated and sent off-site for treatment/disposal.

APPENDIX V-a

RESPONSIVENESS
SUMMARY

Letters Submitted During the Public Comment Period

LAW OFFICES OF John A. Spizziri, Sr., Esq. P.A.
"A Professional Corporation"

August 12, 1997

Young S. Chang, Project Manager
Central New York Remediation Sec.
Emergency and Remedial Response Div.
U. S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

RE: Richardson Hill Road Landfill Site

Dear Mr. Chang:

I am a property owner in Sidney Center, New York on Richardson Hill Road and directly affected by the Superfund Proposed Plan for the Richardson Hill Road Landfill Site.

At the outset I wish to correct certain misinformation contained in your site background description with specific reference to the site history. The site history indicates that in "1969 and 1970 the properties comprising the North Area were sold to John Spizziri, Jr.. In 1972 these properties were transferred to John Spizziri, Sr." Please note that this is incorrect. In 1969 I purchased said lands and premises with my former spouse Sandra S. Spizziri. In 1972 these properties were conveyed by Deed, signed by both she and I to myself and then new spouse. I think this important to the site history that this be rectified in your records, if you will refer to the Deeds of Conveyance you will note there is no reference to a John Spizziri, Jr. in the 1969 Deed whatsoever.

With respect to the balance of the remedial investigation summary, I am unfortunately unable to attend the hearing on August 13, 1997 in the Sidney Civic Center in Sidney, New York since I am a resident of New Jersey and as a practicing attorney, will be engaged in Court on the 13th thereby precluding me from attending. However I wish to make the following comments:

356 Franklin Avenue
Wyckoff, NJ 07481
(201) 891-1370
Fax: (201) 891-1686

I have thoroughly read and believe I understand what is contained in the summary of remedial alternatives. With respect to the preferred alternative, Alternative 3A, it states that the contaminated overburden and weathered bedrock interface groundwater exceeding the federal and state Maximum Contaminant Levels (MCLs) in the North and South Areas would be accomplished by the installation of a downgradient interceptor trench keyed into the top of the bedrock in the South Area and vertical overburden and bedrock extraction wells in the North Area. I do not understand what this means and how this is to be accomplished, since the Richardson Hill Road Landfill is south of the north area.

I assume when I read Alternative 2 that the alternative proposed would not only take care of the contamination in the Richardson Hill Road Landfill Site, but also in the North as delineated on Figure 1 Site Location Map, which is my property. In essence what is being proposed here is a remedial alternative, including not only the Richardson Hill Road Landfill Site, which is south of my home in the South Area, but also the North Area which is on my property and north of my home.

I also wish to know whether or not the wetlands impacted by any remedial activities would be restored in Alternative 3A as it would be in Alternative 2.

I also wish you to respond as to the effect of Alternative 3A with respect to the North Area without a remediation plan with respect to the Sidney Landfill, which is directly across the road from the North Area and which contaminants seem to leach from and onto my property in the North Area.

Looking forward to a prompt response to these questions.

Very truly yours,

John A. Spizziri, Sr.

JAS:am

TIANADERHA ALLIANCE

Young Chang
USEPA
290 Broadway
20th Floor
New York, NY 10007-1866

July 22, 1997

re:Richardson Hill

Dear Ms. Chang:

I am writing as a follow-up to our 8-21 telephone conversation. You stated that you believe the residents of Richardson Hill in Sidney Center voiced support for the EPA proposals at the 8-13 meeting in Sidney. Enclosed please find two newspaper articles, (Binghamton Press & Sun-Bulletin, and Oneonta Daily Star), which report on the meeting. These articles clearly show that to the contrary, the EPA has no support from area residents.

It seems that Allied does support your proposal. I think that it is important for the EPA to distinguish the difference between local residents and Allied. Please recognize that Allied is looking out for its own interests, and not for Sidney Center's. And, that Allied does not speak for our community.

I have been looking through the 15 volume, 200,006-page report that the EPA sent to the Sidney Library. I

RR#1 BOX 250-D Mount Upton, NY 13809

TIANADERHA ALLIANCE

Young S. Chang, Projest Manager
Central New York Remediation Section
Emergency and Remedial Response Division
USEPA
290 Broadway, 20th Floor
New York, NY 10007-1866

July 17, 1997

Re; Richardson Hill Dump Site

Dear Ms. Chang:

I am writing in regard to the on-going controversy concerning the proposed "clean-up" of the Richardson Hill toxic waste dump site in Sidney Center, NY. It was apparent at the 8-13 meeting in Sidney that none of the EPA's six options were acceptable to area residents. Hence, it is necessary for you to consider Alternative 7, a complete clean-up of the entire site.

I note that your six options ranged from "do nothing," to various partial cleanings. However, your panel said that, due to cost, a complete clean-up was not being considered.

Still, we strongly believe that Alternative 7 is the only acceptable option. We have contacted the Natural Resources Defense Fund for help. Our contacts at this time are David

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Gorden from the River Keeper, and Robert Kennedy,Jr., from Pace Law School.

We are requesting a copy of 1.10 (pg. 100556), the Endangerment/Risk Assessments, per the Wildlife Kill Investigation from Richardson Hill.

Further, I am requesting your estimate of the cost of Alternative 7, the removal of all PCP and VOC contaminated soils.

Finally, I am requesting documents concerning the responsible party, (Bendix-Allied-Amphenol), and their willingness or unwillingness to pay for this clean-up.

I cannot stress the importance of the health concerns of the people residing near the Richardson Hill and related toxic dump sites in the Sidney area. I find it curious that this most important component remains unaddressed by the EPA or NYSDOH. I suggest that you reconsider this as part of the clean-up.

Thank you for your attention to this matter.

Sincerely,

Patrick R. McElligott

Patrick R. McElligott

cc: Chief Paul Waterman, Onondaga Nation
David Goren, River Keeper
Robert Kennedy, Jr., Pace Law School

find it curious that there is not a single paragraph, much less a page, that voices the very real concerns of the local residents. What is evident is that the entire dialogue is between the EPA, DEC, DOH, and Allied.

As we discussed, I do not presently live in Sidney Center. I did for a decade. My two sons were born there. They go to school there, and have family and friends in Sidney Center. I founded the hamlet's historical society, was president of the school's PTA, and still speak to their classes about local history.

Sidney Center was this countries' "western front" at the time of the Revolutionary War. Local residents were involved in the Anti-Rent War in the mid-1800s. They served their country in WW1, WW2, and Korea. And, in the Vietnam War, this tiny hamlet, with a population of under 500, lost 8 sons. And so, while Sidney Center is representative of every small community, it does have its own, unique history.

Sidney Center has been a typical farming community. Some of the families from Richardson Hill have been there for generations. However, as small farms went out of buisness, people from NYC, Long Island, and New Jersey bought property here for summer and retirement homes. This is why there have been two distict "neighborhood" groups concerned with the five toxic waste dump sites on Richardson Hill.

It is unfortunate that, in the past, the two groups did not enjoy good communication. However, today, they do. They recognize that they have common interests, and common goals. They want to have the poison cleaned out of their neighborhood. They do not want to live with PCB, VOC, or other industrial pollutants in their land, water, or air. They want their health concerns addressed, not ignored. And they want to be compensated for the loss in value of their homes and properties.

Both groups are convinced that neither Allied nor the EPA represents their best interests. How could they feel otherwise? How could they trust Allied, when the industry claims that it stopped dumping on Richardson Hill in 1969, when they know the industry continued to illegally dump there until 1974 ?

The EPA uses a "do nothing" policy as a baseline for proposed options, yet fails to consider a total clean-up, because "it is too expensive." Think about that. Is it evident why residents are convinced the EPA is representing Allied, at the expense of the people of Sidney Center?

At the 8-13 meeting, Richard Weintrap asked about a document missing from your 15 volume report. But, in a phone conversation on 8-20, he was told that there was no record of his request. Can you see why residents are concerned that their voices are not being heard?

More and more, this inability of government and buisness to hear the voices of people such as the Richardson Hill residents has resulted in our looking for leadership in other directions. Hence, we are looking to the original people from this land to represent our interests. The Onondaga Nation, which is part of the Haudenosaunee, or Six Nations Iroquois Confederacy, once lived here. Chief Paul Waterman, who is a Wisdom Keeper on the Grand Council of Chiefs, advises our alliance of enviromentally concerned groups along the Susquehanna and Delaware Rivers.

You stated that if we oppose your plan, it will hold-up any clean-up for perhaps years. While I am certain you were saying this out of a shared concern that action needs to be taken very soon, I hope you can appreciate how from our position, it sounds like a threat. "Agree with me, or else," is a type of hold-up in itself.

But why hold work up? Indeed, don't we all agree that immediate action is needed? Isn't it clear that the inexcusable delays have only resulted in the contaminants doing more extensive damage?

The only question is, how far do clean-up efforts go? How diligent are we going to be in insuring this illegal and life-threatening pollution will be removed?

From our conversation, I am convinced that you as an individual are sincere in wanting to understand our concerns. I hope this letter is helpful. I am also enclosing another article, "In the Name of the Father," which I hope is of use to you. Let me know if it is.

Yes, please do come to see us, in a more informal setting. We would welcome that.

Sincerely,

Patrick R. McElligott

Patrick R. McEligott
RR#1 Box 250-D
Mt. Upton, NY 13809

cc: Chief Paul Waterman
David Gorden
Robert Kennedy, Jr.

8-25-97

TIANADERHA ALLIANCE

We, the undersigned, believe that the EPA's clean-up option for the Richardson Hill toxic dump site needs to include the following: (1) planning to eliminate all PCB, VOC, and metal contamination; (2) full coverage for health problems relating to exposure to the toxic dumps; (3) compensation for the loss of investments for land and home owners; (4) coordination of a similar clean-up of the Sidney land fill; (5) immediate action.

Name	Address
1- Patrick McElligott	RR#1 Box 250-D Mt Upton NY 13809
2- Rebecca Jacobs	PO Box 45 Unadilla NY 13849
3- Samuel H. G. Smith	Rd 1 Box 137m Sidney center N.Y. 138
4- Brian Carollo	139 B Richardsonhill RD Sidney Center
5- Jeffrey Sternberg	139B Richardson Hill RD Sidney Cent
6- George Barnes	Box 142 Richardson Hill RD 1 Sidney Center NY
7- Richard + Ella Morley	Box 141 R.D. #1 Sidney Center 13839
8- Julia Rosa	Box 140 A Sidney Center NY 13839
9- Zilphia Furman	Box 139 A Sidney Ct., N.Y. 13839

Richardson [illegible] Sidney Center NY 13839

10- Sharlene Merwin RD1 Bx 141A

11- Jim Fulmer Box 139A RR1 Sidney Center N.Y. 13839

12- Christine Maclundy 17 Terrace Hill Rd Bainbridge NY 13733

13- [illegible] Schel 149 West Stone Rd. Norwich N.Y. 13815

14- Christine Ewing PO Box 4873 Ithaca, NY 14852

15- Linda Hanson 5 Taylor Ave Norwich N.Y. 13815

16- Jonathan Loomis 41 Hayes St., Norwich, N.Y. 13815

17- Gretchen Cornacto 37 Union St. Oneonta, NY 13820

18- Catherine Young 23 S. Main St., Earlville, NY 13332

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THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION
JOEL A. MIELE, SR., P.E. Commissioner

WILLIAM N. STASIUK, P.E.,Ph.D.
Deputy Commissioner

PHONE (914) 657-6972
FAX (914) 657-6976

Bureau of Water Supply,
Quality and Protection

August 25, 1997

Young S. Chang, Project Manager
Central New York Remediation Section
Emergency and Remedial Response Division
United States Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Re: Richardson Hill Road Landfill
(T) Sidney, Delaware County
NYCDEP Log # 3685

Dear Ms. Chang:

Enclosed please find the New York City Department of Environmental Protection's (DEP's) comments on the United States Environmental Protection Agency's (EPA's) proposed cleanup plan for the remaining contamination located at the Richardson Hill Landfill Federal Superfund site located in Sidney, New York.

Thank you for your consideration of these comments. We look forward to having the opportunity to comment on the upcoming Remedial Work Plan and associated project specifications, the Erosion and Sediment Control Plan, in addition to the Stormwater Plan. If you have any questions, please feel free to contact me at (914) 657-5770. Please keep the City apprised of any and all developments in this matter.

Very truly yours,

Karen L. Radner

Karen L. Radner
Project Manager

cc: Drake/Rider
West/Baxter

rhllet.let

THE CITY OF NEW YORK DEPARTMENT OF ENVIRONMENTAL PROTECTION
JOEL A. MIELE, SR., P.E. Commissioner

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Bureau of Water Supply,
Quality and Protection

Richardson Hill Road
Town of Sidney, Delaware County
NYCDEP Comments on Superfund Proposed Plan
August 25, 1997

New York City Department of Environmental Protection (DEP) has reviewed the remedy described in the July 1997 Superfund Proposed Plan for the Richardson Hill Road Landfill Site, in addition to attending the August 13, 1997 public information meeting at the Sidney Civic Center.

Herrick Hollow Creek and South Pond, in addition to its downstream floodplain are in close proximity to the Cannonsville Reservoir. These three areas have been found to contain both PCB and VOC contamination. Therefore, DEP's main concern is the ultimate removal, containment, and remediation of these surface waters and sediments that contribute to the drinking water supply of New York City.

Of the proposed alternatives, DEP agrees that Alternative 3A, which was also chosen by EPA and NYSDEC seems to be the preferred alternative, as a remedy for site cleanup/remediation. In addition, the following should also be implemented as part of those proposed activities outlined in this July 1997 Plan:

- During the above excavation and consolidation efforts of the contaminated waste material and any soil exceeding TAGM limits from these areas of concern, including the excavated/dredged sediments from the South pond and other downstream areas, efforts should also be taken to install a leachate collection system.

  The installation of a reliable leachate collection system, installed within the wastemass and not necessarily "a shallow system keyed into the top of bedrock" as discussed in the proposed plan, will further ensure the interception and containment of leachate for proper off-site disposal in conjunction with the already proposed interceptor trench.

- During the construction phase of this plan, all erosion and sediment control practices should be developed utilizing the standards and specifications in the "New York Guidelines for Urban Erosion and Sediment Control". This Office looks forward to commenting on the sediment and erosion control plan for this project. DEP staff are available, upon request, to provide assistance in reviewing the proposed erosion and sediment control plan or to conduct on-site inspections.

- Any leachate seeps that are evident, should be addressed by field locating and documentation by mapping and then remediated by pumping and treating or by the implementation of another EPA approved technology.

- A well defined post-closure monitoring plan should be implemented for both surface and groundwater routes to ensure and determine how far the landfill-derived water quality impacts extend.

(2) Fax transmissions on Aug 25, 1997 at 3:45 PM

DR. S. K. SEN GUPTA,
B.Sc.(HONS.), B.TECH.(MECH.), PH. D.(LIVERPOOL),
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Ms. Young Chang
Project Manager, US EPA
290 Broadway, FLOOR 20
New York, New York 10007

August 25, 1997

RICHARDSON HILL : THE 'LOVE CANAL' OF DELAWARE COUNTY

Dear Ms. Chang:

Thank you for your telephone call of today. Here are my written comments following the EPA Public Hearing, held on August 13, 1997. The 'original' is in mail.

According to historical information, many many years ago Bendix, Perry Shelton's former employer, merged with Allied Signals. Subsequently, Amphenol broke off from Allied Signals and became an independent company.

The original two dumps were owned and operated by Devere Rosa under contract with the TOWN OF SIDNEY. The toxic material was carted away by Rosa from Bendix and deposited in the dumps. Although in theory not responsible for dumping, Amphenol accepted responsibilty for the clean-up and according to available information the Company has always cooperated. They have currently agreed to pay $13.9 million for the 30 year clean-up program, proposed by the EPA. However, the EPA program is inherently faulty. The whole idea seems to basically be to dig up some polluted earth and dump it on someone else's land!

On August 22, 1997, Ed Szymkowiak and I visited the Richardson Hill area and spoke to local residents. Samuel Smith, who was born and brought up locally, told us that HIS WATER WAS LAST TESTED ABOUT 3 YEARS AGO! We were also told that the EPA had always dragged its feet and Government Agencies always spoke to everyone else except the local residents. Smith told us that 2 years ago some Government Agency drained a pond on his land and deposited the polluted water and earth in plastic sheets in trenches, a few hundred yards away, on the higher slopes of the hill over the road! The seepage is so highly inflammable that Smith has heard of people lighting the hillside with a naked torch. Struggling through the heavily polluted marshy bogs and marshlands and undergrowth, all THREE of us inspected the 'dug-up' pond. The pond had filled up again and Smith said that it became full within about two months of the digging-up operation! There was a 'metal dam', camouflaged by stones, which was heavily corroded. Heavily polluted 'oily' water, used by migratory birds, was trickling towards Trout Creek, on its way to the Cannonsville Reservoir. The hillside was dotted with steel tubes: residents were unaware whether they were for inspection purposes or not.

(Contd.)

According to Richard Morely, a 30 year long resident, HIS WATER WAS LAST TESTED ABOUT 6 TO 8 YEARS AGO! Morely says that property prices have nosedived. He believes that the "Responsible Parties" should buy out their properties. Devere Rosa is now deceased: the Town of Sidney and its retiring Supervisor Walter Johnson don't want to talk about it: the EPA is not in the business of buying out properties: Amphenol's responsibility extends only up to paying for the clean-up program. A part of the area is not in the NYC Watershed: so NYC will not be interested in buying out properties in that region. In the Watershed portion, NYC can NOT buy HOUSES according to the MOA. Some residents even have objections, on principles, to selling out to NYC. Morely is now holding regular meetings of the local residents to realise his goal.

My proposal is that the Town of Sidney, Delaware County Board of Supervisors, Assemblyman Crouch, NYS Senator Cook, Congressman Boehlert, US Senators Moynihan and D'Amato should press for the BUYING OUT OF THE RICHARDSON HILL AREA PROPERTIES BY FEMA MONEY. After the clean-up of the LOVE CANAL LAND OF DELAWARE COUNTY, it should be re-sold, with the current owners having the FIRST OPTIONS to buy back.

Thank you.

Shyamal K. Sen Gupta

Shyamal K. Sen Gupta, Ph. D., Mem. ASME*

HC 65 Box 90C, Bovina Center, NY 13740: 607-832-4480
*Member of the American Society of Mechanical Engineers