RECORD OF DECISION

Peter Cooper Landfill Superfund Site
Village of Gowanda, Cattaraugus County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 2005

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Peter Cooper Landfill Superfund Site
Village of Gowanda, Cattaraugus County, New York

Superfund Site Identification Number: NYD980530265

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a remedy for the Peter Cooper Landfill Superfund site (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 the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. 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, together with this ROD, comprise the Administrative Record upon which the selection of the remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was provided with an opportunity to concur with the recommended remedy in accordance with CERCLA Section 121(f), 42 U.S.C. §9621(f). Any future letter from the State of New York regarding concurrence on the selected remedy will be added to the Site Repositories.

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 from actual or threatened releases of hazardous substances into the environment.

DESCRIPTION OF THE SELECTED REMEDY

The response action described in this document represents the only planned remedy for the Site. The major components of the selected remedy include the following:

- Excavating the three hot spot areas and consolidating them within the Elevated Fill Subarea, then capping the 5-acre Elevated Fill Subarea of the inactive landfill area with a low permeability, equivalent design barrier cap, consistent with the requirements of 6 NYCRR Part 360, including seeding with a mixture to foster natural habitat;

- Post-excavation confirmatory soil sampling;

- Backfilling of excavated areas with clean fill;

- Collecting the leachate seeps, pretreating the leachate as necessary, then discharging the leachate to the Public Owned Treatment Works (POTW) collection system for further treatment and discharge. As a contingency, if treatment of the leachate seep at the POTW is not available, the leachate would be treated and discharged to Cattaraugus Creek. Since the installation of the cap and groundwater diversion system (described below) should reduce leachate generation, the volume of seep leachate requiring treatment is anticipated to be reduced or eliminated over time;

- Installing a groundwater diversion system to limit groundwater migration through the Elevated Fill Subarea. However, should additional data collected in the remedial design phase of the project support the conclusion that the installation of a diversion wall will result in a minimal increase in the collection of contaminants by the leachate collection system, the diversion wall would not be installed;

- Installing a passive gas venting system for proper venting of the 5-acre Elevated Fill Subarea of the inactive landfill area;

- Stabilizing the banks of the Cattaraugus Creek;

- Performing long-term operation and maintenance including inspections and repairs of the landfill cap, gas venting, and leachate systems;

- Performing air monitoring, surface water and groundwater quality monitoring; and

- Evaluating Site conditions at least once every five years to determine if the remedy remains protective.

This remedy also includes institutional controls such as restrictive covenants and environmental easements for limiting future use of the Site and the groundwater to ensure that the implemented remedial measures will not be disturbed and that the Site will not be used for purposes incompatible with the completed remedial action. The institutional controls will include a Site Management Plan to ensure appropriate handling of subsurface soils during redevelopment. To ensure that the engineering and institutional controls remain in place and effective for the protection of public health and the environment, an annual certification, commencing from the date of implementation, must be made by the parties responsible for the remediation.

The selected remedy will address source materials constituting principal threats by excavating and consolidating and containing contaminated soil on the Site.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in CERCLA §121. It is protective of human health and the environment, complies with Federal and State requirements that

are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The selected remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. In keeping with the statutory preference for treatment that reduces toxicity, mobility, or volume of contaminated media as a principal element of the remedy, the leachate seeps will be treated.

While the groundwater component of the selected remedy does not satisfy the statutory preference to reduce the toxicity, mobility, or volume of hazardous substances, pollutants, or contaminants through treatment, the groundwater contamination will continue to decrease through natural processes such as dispersion, dilution, and volatilization.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review will be conducted no less often than once every five years after the start of construction of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

The ROD contains the remedy selection information noted below. More details may be found in the Administrative Record file for this Site.

- Contaminants of concern and their respective concentrations (see ROD, pages 5-9);
- Baseline human health and ecological risks are represented by the contaminants of concern (see ROD, pages 10-16);
- Cleanup levels established for contaminants of concern and the basis for these levels (see ROD, Appendix II, Table 14);
- Current and reasonably-anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (see ROD, pages 9-10);
- Manner of addressing source materials constituting principal threats (see ROD, page 27);
- Key factors used in selecting the remedy (*i.e.*, how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision)(see ROD, pages 27-28).

- Estimated capital, annual operation and maintenance, and present-worth costs; discount rate; and the number of years over which the remedy cost estimates are projected (see ROD, page 29); and

- Potential land and groundwater use that will be available at the Site as a result of the selected remedy (see ROD, page 30).

AUTHORIZING SIGNATURE

George Pavlou, Director
Emergency and Remedial Response Division

9/30/05
Date

RECORD OF DECISION FACT SHEET
EPA REGION II

Site

Site name:	Peter Cooper Landfill Site
Site location:	Gowanda, Cattaraugus County, New York
HRS score:	30.0
Listed on the NPL:	April 6, 1998

Record of Decision

Date signed:	September 30, 2005
Selected remedy:	Excavation, consolidation and containment of soils with a NYCRR Part 360-equivalent design barrier cap, collection of leachate seep, discharge of leachate to the Village of Gowanda treatment facility, installation of a groundwater diversion system, and institutional controls.
Capital cost:	$2,164,000-$2,734,000
Operation and maintenance cost:	$31,000-$88,000
Present-worth cost:	$2,680,000-$4,080,000
Lead	Potential Responsible Parties (PRPs)
Primary contact:	Sherrel Henry, Remedial Project Manager, (212) 637-4273
Secondary contact:	Kevin Lynch, Chief, Western New York Remediation Section, (212) 637-4287
Main PRPs	Wilhelm Enterprises Corporation, New York State Electric & Gas Corporation, Brown Shoe Company, Inc., GST Automotive Leather, Prime Tanning Company, Seton Leather, and Viad Corp.

Waste

Waste type:	Arsenic, chromium, zinc, chloroform, and carbontetrachloride
Waste origin:	Waste from on-site manufacturing of animal glue and synthetic industrial adhesives
Contaminated media:	Soil and groundwater

DECISION SUMMARY

Peter Cooper Landfill Superfund Site
Gowanda, Cattaraugus County, New York

United States Environmental Protection Agency
Region II
New York, New York
September 2005

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ATTACHMENTS

SITE NAME, LOCATION, AND DESCRIPTION

The Peter Cooper Landfill Site (the Site) consists of an inactive landfill area and land associated with the former Peter Cooper Corporation (PCC) glue-manufacturing plant. The Site is located in the Village of Gowanda, Cattaraugus County, New York approximately 30 miles south of Buffalo, New York. The Site is bounded to the north by Cattaraugus Creek, to the south by Palmer Street, to the west by a former hydroelectric dam and wetland area, and to the east by residential properties.

For purposes of the Remedial Investigation and Feasibility Study (RI/FS), the Site was divided into two sections. The western section of the Site, called the Inactive Landfill Area (ILA), is approximately 15.6 acres in size. A subarea within the ILA, approximately 5 acres in size and located in the northwest corner of the Site, is referred to as the Elevated Fill Subarea. The western portion of the Elevated Fill Subarea is located on property owned by the New York State Electric & Gas Corporation (NYSEG) and the remainder of the Elevated Fill Subarea, as well as the remaining areas of the Site, are on property previously owned by PCC, and currently owned by JimCar Development, Inc. The Former Manufacturing Plant Area (FMPA) is located on the eastern side of the Site and measures approximately 10.4 acres.

Regionally, the Village of Gowanda is located both in Erie County and Cattaraugus County and is separated by Cattaraugus Creek. In Erie County, the Village of Gowanda is included in the Town of Collins. The Town of Collins is bordered by the Seneca Nation of Indians Cattaraugus Reservation to the west. In Cattaraugus County, the Village of Gowanda is located in the Town of Persia.

Figure 1 shows the Site area.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The Site was previously used to manufacture glue and industrial adhesives. PCC and its predecessor, Eastern Tanners Glue Company, manufactured animal glue in Gowanda from 1904 until 1972. When the animal glue product line was terminated, PCC continued to produce synthetic industrial adhesives until the plant closed in 1985. The wastes from PCC's glue production were disposed of on the Elevated Fill Subarea. Between 1925 and October 1970, PCC used the northwest portion of the property to pile sludge remaining after the animal glue manufacturing process. These wastes, known as "cookhouse sludge" because of a cooking cycle that occurred just prior to extraction of the glue, are derived primarily from chrome-tanned hides obtained from tanneries. The waste material has been shown to contain elevated levels of chromium, arsenic, zinc, and several organic compounds. Observation of the cook-house sludge material during the RI indicated that the sludge appeared to be mixed with cinders, ash, and construction and demolition debris.

In June 1971, the New York State Supreme Court (8th J.D. Cattaraugus County) ordered PCC to remove the waste pile and terminate discharges to Cattaraugus Creek. In 1972, PCC reportedly removed approximately 38,600 tons of waste pile material and transferred it to a separate site in Markhams, New York. Between 1972 and 1975, the remaining waste pile at the Site was graded by

PCC, covered with a 6-inch clay barrier layer and 18-30 inches of soil and vegetated with grass. Stone rip-rap and concrete blocks were placed along the bank of the Creek to protect the fill material from scouring or falling into the Creek.

NYSDEC conducted preliminary site investigations in 1981 and 1983 and identified the presence of arsenic, chromium and zinc in soil and sediment samples. The results of these investigations are available in Appendices B-1 and B-2 of the 2003 RI. As a result of this investigation, NYSDEC oversaw PCC's conduct of an RI/FS for the site. PCC hired O'Brien and Gere Engineers, Inc. (OBG) to perform the RI/FS. The OBG investigation was limited to the ILA. Activities performed during the RI included collection of soil, surface water, sediments, waste material, seep and groundwater samples. The RI Report was issued in January 1989 and the results of this analysis are available in Appendix B-3 of the 2003 RI. The FS Report was submitted to NYSDEC in March 1991 and included recommendations for containment of source materials, leachate collection, access restriction through the building of a fence and deed restrictions. However, because the waste at the Site did not meet the statutory definition in effect in 1991 in New York State for an inactive hazardous waste disposal site, NYSDEC did not select a remedy for the Site and a remedy was not implemented.

In 1996, the EPA Superfund Technical and Assessment Response Team (START) collected and analyzed soil, groundwater and surface water and sediment samples from the Site. Results confirmed contamination, including the presence of arsenic, chromium and other hazardous substances from the Site.

During the site assessments, EPA personnel observed that the existing retaining wall was subject to severe erosion. It was determined that the retaining wall and rip-rap had to be repaired or upgraded to prevent the continued erosion of landfill materials into Cattaraugus Creek.

On October 24, 1996, EPA and NYSEG entered into an Administrative Order on Consent (AOC). Pursuant to the AOC, NYSEG installed approximately 150 feet of rip-rap revetment along the south bank of the Cattaraugus Creek and adjacent to the landfill to prevent further erosion of materials from the landfill into the Creek.

Based on the above information, the Site was added to the EPA's list of hazardous substance sites known as the Superfund National Priorities List (NPL) on April 6, 1998.

EPA's negotiations with the Potentially Responsible Parties (PRPs) for their conduct of the RI/FS were unsuccessful. On March 30, 2000, EPA issued a Unilateral Administrative Order (UAO) to fourteen PRPs directing that they complete the RI/FS for the Site. The UAO became effective May 1, 2000. The RI/FS was performed by Benchmark Environmental Engineering and Science, PLLC and Geomatrix Consultants, Inc, consultants for the PRPs, subject to EPA oversight.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS Reports, Proposed Plan and supporting documents were made available to the public in both the Administrative Record and information repositories maintained at the EPA Docket Room

in the Region 2 offices at 290 Broadway in Manhattan, at the Village of Gowanda Free Library, located at 56 W. Main Street, Gowanda, New York and the Seneca Nation of Indians Library, located at 3 Thomas Indian School Drive, Irving, New York. The Proposed Plan was prepared by EPA, with concurrence by NYSDEC, and finalized in July 2005. A notice of the Proposed Plan and commencement of the public comment period, the public meeting date, contact information, and the availability of the above-referenced documents was published in the *Dunkirk Observer* and the *Penny Saver* on July 30, 2005, consistent with the requirements of NCP §300.430(f)(3)(i)(A), and a copy of the Proposed Plan was mailed to all persons on the Site mailing list. The public notice established a thirty-day comment period from July 30, 2005 to August 28, 2005. An extension to the public comment period was requested. As a result, the comment period was extended to September 26, 2005.

EPA held a public meeting on August 10, 2005 at 7:00 P.M. at the Gowanda Central High School, 24 Prospect Street, Gowanda, New York, to present the findings of the RI/FS and to answer questions from the public about the Site and the remedial alternatives under consideration. Approximately 50 people, including residents, local business people, and state and local government officials, attended the public meeting. Responses to the written comments received during the public comment period and to comments received at the public meeting are included in the Responsiveness Summary (see Appendix IV).

EPA's 1984 Indian Policy recognizes the government-to-government relationship between EPA and the Nations, as one sovereign to another. EPA has committed to communicate with Nation governments before making decisions on environmental matters affecting Nation governments and/or Nation natural resources. To this end, copies of all documents generated as part of the RI/FS, including the RI and FS reports were submitted to the Seneca Nation of Indians for review and comment. In addition, on August 10, 2005, EPA met and discussed the preferred remedy and the basis for this preference with the Seneca Nation Environmental Protection Department representatives.

SCOPE AND ROLE OF RESPONSE ACTION

Cleanup at the Site is currently being addressed as one operable unit (OU). As noted above, to date, the following removal action has occurred at the Site:

- Installation of approximately 150 feet of rip-rap revetment along the south bank of the Cattaraugus Creek and adjacent to the landfill to prevent further erosion of materials from the landfill into the Cattaraugus Creek.

This ROD describes the comprehensive long-term remediation plan for the entire Site and is expected to be the only ROD issued for the Site. The primary objectives of this action are to remediate the sources of contamination at the Site, reduce and minimize the downward migration of contaminants to the groundwater, control landfill gas and minimize any potential future health and environmental impacts.

SUMMARY OF SITE CHARACTERISTICS

Chemical and physical data were collected to determine the nature and extent of contamination associated with the Site. Media sampled during the RI included landfill gas, groundwater, surface water, sediment, soil, waste material, and seepage emanating from the landfill. All field activities were conducted with oversight by EPA's contractor, CDM Federal Programs Corporation (CDM) and its subcontractor, TAMs Consultants, Inc., now known as Earth Tech. The RI was structured to supplement past investigations with the goal of using historical data, as well as new data collected during the RI, to evaluate current and future human health and ecological risks and develop a recommended remedial approach. The constituent concentrations detected during this RI are generally consistent with the data from the 1989 RI. The results of the RI are summarized below.

A. Geology and Hydrology

The Site is located on the southern bank of the Cattaraugus Creek. The ILA slopes on the northern side toward the edge of the Creek. The Site including the ILA and FMPA is underlain by shale bedrock of the Canadaway Formation. Shale outcrops are present in and along Cattaraugus Creek, across the northern site perimeter, and the hill slope south of Palmer Street. The elevation of the bedrock surface generally slopes in a northwesterly direction, toward the Creek. The depth to the top of the bedrock across the Site ranges from 4.5 feet to 25.4 feet. The 5-acre Elevated Fill Subarea which is located in the ILA consists of materials that appear to have been placed within an excavated area that is approximately five to 13 feet thick. Both the alluvial soil and the fill materials comprise the overburden at the Site. The fill material is characterized as cindery fill and sludge fill. The thickness of the sludge fill ranges from five to 23 feet. The sludge fill appears to extend down to the weathered bedrock surface near the Creek side of the Site.

The overburden and upper bedrock water bearing zones were investigated. Ground water from both zones discharges to Cattaraugus Creek. Groundwater elevation data indicate that the depth to groundwater varies across the Site from approximately five feet to 20 feet. This variability is largely due to topographic changes across the Site. Groundwater in the overburden generally flows toward the north/northwest, discharging into Cattaraugus Creek. The landfill creates a small mounding effect on the groundwater surface. Based on groundwater elevation data collected from the overburden, there is a horizontal hydraulic groundwater flow toward Cattaraugus Creek and a downward hydraulic potential into the upper bedrock. A localized westerly flow direction occurs in the overburden near the Elevated Fill Subarea. Groundwater flow in the bedrock is primarily along fractures and joint and bedding planes which tend to be strongly horizontally oriented toward the Creek. Although the groundwater in the area is classified as a potable water supply by NYSDEC, residents obtain their water from public water supplies that are monitored to ensure they meet appropriate federal and state regulations. Groundwater contour maps for the overburden and bedrock are provided in Figures 2 through 5.

The nearest surface water body associated with the Site is Cattaraugus Creek. The Cattaraugus Creek is suitable for fishing and secondary recreation (not primary contact recreation such as swimming) but not as a drinking water supply. In the vicinity of the Site, the Creek meanders through an incised

bedrock valley cut by thousands of years of stream flow. The creek channel width is 130 feet and of variable depth in the area forming the northern Site property boundary. The drainage area of the Creek is approximately 436 square miles and measures 70 miles in length and flows in a westerly direction eventually discharging into Lake Erie.

B. Sensitive Environments

Three federal wetland communities were delineated within the boundaries of the Site. An approximately 0.25-acre wetland area, characterized as a combination forested/ scrub-shrub wetland, was identified at the northeastern limit of the Site. A 36-inch municipal storm water outfall pipe discharges into the southern portion of this wetland. The second wetland is an emergent wetland, located in a depression along the southern side of the Elevated Fill Subarea, that measures less than 1,200 square feet. The other wetland is a scrub-shrub wetland, located in the center portion of the Site, that measures approximately 3,000 square feet. This scrub-shrub wetland appears to have been created as a result of storm water drainage at the Site. A 12-inch storm water outfall discharges to the Site at the southern end of this scrub-shrub wetland. The thickness of the wetland sediments was found to be greater than five feet deep.

The 100-year and 500-year floodplain areas are located at varying distances and elevations from the banks of Cattaraugus Creek and are positioned along the entire length of the Creek. The 100-year flood elevation is approximately 768 feet mean sea level.

No State or Federal-designated endangered species of plants or animals are known to exist at the Site.

C. Chemical Characteristics

Groundwater

Groundwater samples were collected for chemical analysis from the overburden and upper bedrock groundwater in both the ILA and the FMPA. Chemical data for groundwater samples collected prior to the RI can be found in Appendix B of the RI report. Groundwater data and sampling locations may be found in Tables 1 through 4 and Figures 6 and 7, respectively.

Groundwater samples in the ILA indicate the presence of volatile organic compounds (VOCs) and metals at levels above applicable New York State groundwater quality standards in both the overburden and bedrock aquifers. Of the 16 overburden well samples (two rounds of samples from eight wells), four contained VOCs, including benzene, chlorobenzene, 1,2-dichlorobenzene, and toluene above groundwater standards. Benzene was detected at a maximum concentration of 1.6 micrograms/liter (ug/L), slightly above the groundwater criteria of 1 ug/L. The compound detected at the highest concentration was chlorobenzene at 190 ug/L, followed by toluene (17 ug/L). The groundwater criteria for both compounds is 5 ug/L. 1,2-dichlorobenzene was detected in one sample at a concentration of 5 ug/L, which is above the groundwater criteria of 3 ug/L. Metals, including arsenic, at a maximum concentration of 196 ug/L and chromium, at a maximum concentration of 436 ug/L, were detected above groundwater quality standards of 25 ug/L and 50 ug/L, respectively. In

addition, elevated concentrations of leachate parameters (e.g., dissolved solids, chloride, ammonia, alkalinity, and hardness) indicated that groundwater is being impacted by leachate from the Elevated Fill Subarea.

Of the 14 upper bedrock groundwater samples (two rounds from seven wells) analyzed from the ILA for VOCs and semi-volatile organic compounds (SVOCs), only one chemical, chlorobenzene, exceeded groundwater criteria. The result was 6.8 ug/L, slightly above the groundwater criteria of 5 ug/L. Metals in the overburden aquifer were generally also found in the bedrock aquifer, but at lower concentrations slightly above the applicable groundwater standards.

Information from monitoring wells and soil borings indicates that a portion of the waste sludge in the inactive landfill is below the groundwater table. There are no natural barriers (clay layers) between the waste and the bedrock aquifer, to retard the migration of waste constituents to the bedrock aquifer. Groundwater in both the overburden and bedrock flows toward Cattaraugus Creek.

Groundwater samples in the overburden wells in the FMPA showed only one VOC, tetrachloroethene, detected at 5.5 ug/L, slightly above the groundwater criteria of 5 ug/L. No SVOCs were detected above the groundwater criteria. Metals including iron, manganese and sodium were detected above groundwater criteria.

Chemical data for six bedrock groundwater samples (two rounds from three wells) from the FMPA showed concentrations of VOCs and metals slightly above groundwater criteria. VOCs included acetone, benzene, cis-1,2-dichloroethene, m/p-xylene and toluene. SVOCs were not detected above groundwater criteria. The same metals detected in the overburden well were also detected in the bedrock wells at similar concentrations.

Seeps

Six samples were taken from three groundwater leachate seeps which emanate from the Elevated Fill Subarea on the bank of Cattaraugus Creek and flow into the Creek. Seeps were sampled in order to determine if contaminants in the seeps are entering surface water. Contaminants in seeps were compared to surface water standards and criteria in Table 5. Ammonia and sulfur-like odors have been frequently noted near the seeps. Ammonia concentrations ranged from 381 to 891 milligrams per liter (mg/l) and exceeded the surface water quality criterion of 1.3 mg/l. Sulfide concentrations ranged between less than 1 and 9 mg/l and exceeded the New York State surface water quality criterion of 2 mg/l. No VOCs or SVOCs were detected above surface water criteria in any of the samples taken from the seeps.

Chromium was found in all but one of the seep samples, at levels exceeding surface water standards. The detection of elevated levels of ammonia and sulfide in the seep samples, is consistent with reports of odors noted near the seeps.

Surface Water

Surface water samples were collected from Cattaraugus Creek adjacent to the Site to characterize contamination in the creek. Surface water sample locations are shown on Figure 8. Sample results were compared to New York State surface water quality criteria. One sample marginally exceeded the surface water quality criteria for ammonia. The water quality criterion for iron was exceeded in surface water samples at locations both upstream and downstream of the landfill; these levels do not appear to be attributable to the landfill. Sulfide, which was detected in seeps from the ILA at concentrations above guidance values, was not detected above guidance values in Cattaraugus Creek. In addition, discoloration from leachate seeps was observed on the banks of the Creek in contravention of the criteria outlined in 6 NYCRR Part 703.

Sediment Samples

Sediment samples were collected from Cattaraugus Creek and the wetland adjacent to the Site. Sediment sample locations are shown on Figure 8. Sediment in the Creek is sparse because of the high velocity stream flow and the shale bedrock that forms the side walls and stream beds of the Creek. Sample data were compared to New York State sediment quality criteria and guidance values.

Arsenic was detected above the sediment quality criterion of 6 milligrams per kilogram (mg/kg) in Cattaraugus Creek sediment at a maximum concentration of 9.61 mg/kg. One sample result for nickel of 18.2 mg/kg exceeded the sediment quality criteria (16 mg/kg). VOCs and SVOCs were not detected in sediment samples from Cattaraugus Creek.

Sediment samples collected in the wetland area adjacent to the Site exceeded sediment quality criteria and guidance values for arsenic, chromium, and zinc. Arsenic levels of 16.3 mg/kg exceeded the New York State sediment quality criterion (12 mg/kg) in all of the wetland sediment samples. The maximum chromium concentration of 55.3 mg/kg exceeded the sediment quality criterion (40 mg/kg). The maximum concentration of zinc of 290 mg/kg exceeded the sediment quality criterion (50 mg/kg). In addition to metals, a number of VOCs including benzene, toluene, ethylbenzene, and xylenes were detected at low concentrations in all of the sediment samples. (Results are discussed in Ecological Risk Assessment section).

Soils

Chemical data were collected from 30 surface and 23 subsurface soil samples from both the ILA and the FMPA. Soil results and sampling locations may be found in Tables 6 through 8, and Figures 9 through 11, respectively. There are currently no federal or state promulgated standards for contaminant levels in soils. In the absence of Applicable and Relevant or Appropriate Requirements (ARARs), "To Be Considered" (TBCs) values from the New York State Technical and

Administrative Guidance Memorandum (TAGM)[1] were used.

Metal concentrations were compared to the TAGM values. Three metals, arsenic, chromium and zinc, were detected above TAGM values in both surface and subsurface soils in the ILA. No VOCs were detected at or above the guidance values.

In surface soils at the ILA, arsenic was detected at six locations above the TAGM objective (12 mg/kg) at a maximum concentration of 919 mg/kg in sample LFSS-6. The area around sample LFSS-6 was identified as a hot spot. Chromium was detected at nine locations above TAGM values (50 mg/kg) at a maximum concentration of 550 mg/kg. Zinc was detected at 19 of the locations sampled above TAGM values (50 mg/kg) at a maximum concentration of 165 mg/kg. In subsurface soil samples collected in the ILA, arsenic, chromium and zinc were detected at maximum concentrations of 60.5 mg/kg, 623 mg/kg and 1,390 mg/kg, respectively. Except for the high arsenic value, the concentrations of the compounds detected during this RI are generally consistent with the data from the 1989 RI.

Surface soil samples collected from the FMPA indicated the presence of three VOCs above guidance values in one location, near MWFP-3S/D. At this location, three compounds, chloroform, carbon tetrachloride and tetrachloroethene, were detected at maximum concentrations of 5.7 mg/kg, 10 mg/kg and 54 mg/kg, respectively. The TAGM value for chloroform, carbon tetrachloride and tetrachlorocthene are 0.3 mg/kg, 0.6 mg/kg and 1.4 mg/kg, respectively. The presence of these VOCs in soil near MWFP-3S/D was further investigated to determine the areal extent of the contamination. The results of the investigation indicated a hot-spot area of approximately 20 feet by 40 feet by 4 feet that contains VOC contamination.

Metal concentrations also exceeded guidance values at nine locations sampled. The concentrations of arsenic, chromium, copper, mercury, lead and zinc exceeded their respective TAGM values. Arsenic was detected at five locations above the TAGM value at a maximum concentration of 168 mg/kg in sample SB-2. The area around sample SB-2 was identified as a hot spot. Chromium was detected at five locations above TAGM value (50 mg/kg) at a maximum concentration of 198 mg/kg. Copper was detected at three locations above TAGM value (50 mg/kg) at a maximum concentration of 177 mg/kg. Mercury was detected at three locations above TAGM value (0.2 mg/kg) at a maximum concentration of 3.1 mg/kg. Lead was detected at six locations above TAGM value (61 mg/kg) at a maximum concentration of 269 mg/kg. Zinc was detected at nine locations above TAGM value (50 mg/kg) at a maximum concentration of 1,390 mg/kg. Subsurface soil samples were collected from 12 soil boring locations.

A total of 12 subsurface soil samples was collected from the FMPA. No VOCs were detected above the guidance values. Metals (arsenic, chromium, copper, mercury and zinc) in several FMPA samples were also detected above their respective TAGM values.

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[1] Division Technical and Administrative *Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, Division of Hazardous Waste Remediation, January 24, 1994.*

Waste Material (Sludge Fill)

Chemical analytical results of the sludge fill present in the ILA are based on three samples (GMW-1 through GMW-3) that were analyzed for VOCs and one composite sample that was analyzed for SVOCs and metals. There are no sludge fill criteria values available for comparison. Samples of the sludge fill contained concentrations of some VOCs. The VOCs detected at the highest concentrations are as follows: acetone, 15 mg/kg; 2-butanone, 3.2 mg/kg; and toluene, 1.7 mg/kg. The following 12 VOCs were also detected at concentrations of less than 1 mg/kg: 1,1-dichloroethane, 1,2-dichloroethane, 2-hexanone, 4-methyl-2-pentanone, benzene, carbon disulfide, chlorobenzene, ethylbenzene, xylenes, methycyclohexane, styrene and tetrachloroethene. SVOCs and metals were detected in the composite sample. The SVOCs and the concentrations at which they were detected are as follows: 4-methylphenol, 150 mg/kg; naphthalene, 22 mg/kg; phenol, 15 mg/kg; pentachlorophenol, 6.8 mg/kg; and phenanthrene, 1 mg/kg. The metals arsenic, chromium and zinc were detected at concentrations of 34.8 mg/kg, 9,280 mg/kg and 6,060 mg/kg, respectively. The sludge fill material also contained 10 percent total organic carbon.

Landfill Gas

Landfill gas samples were collected from three gas monitoring wells and analysis found several volatile organic compounds (VOCs) including acetone, 2- butanone, benzene, carbon disulfide, toluene, ethylbenzene, and xylenes. Several gases associated with the decomposition of organic matter in the landfill were detected including hydrogen sulfide, carbon monoxide, carbon dioxide, and methane.

CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

The Site is located in an area characterized by mixed industrial-commercial/residential usage. Residential zoning is the dominant parcel designation within the Village. Industrialized zones are primarily concentrated in the southeast portion of the Village, primarily along Cattaraugus Creek. The site is located in an area zoned industrial.

Regional groundwater is a sole source of potable water and is designated as a drinking water source by NYSDEC. Industries, businesses, and residences obtain their drinking water from the Village of Gowanda municipal water supply.

In determining future land uses for the site, EPA considered the "Reuse Assessment and Conceptual Plan for the Peter Cooper Gowanda Superfund Site" (Reuse Assessment and Concept Plan) developed by the Village of Gowanda in association with the University of Buffalo Center for Integrated Waste Management. The Reuse Assessment and Concept Plan was funded in part by EPA through its Superfund Redevelopment Initiative. The plan envisions a publicly available Site incorporating elements such as a walking/biking trail, fishing access, outdoor picnic areas, small boat launch and other related recreational features.

SUMMARY OF SITE RISKS

A baseline human health risk assessment (BHHRA) was conducted for the ILA and the FMPA of the Peter Cooper Landfill site. The BHHRA is available in "Baseline Risk Assessment" prepared by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering and Science, PLLC, dated November 2003.

The BHHRA considered the Reuse Assessment and Conceptual Plan for the Peter Cooper Gowanda Superfund Site (Reuse Assessment and Concept Plan), described above. The BHHRA evaluated the potential future land uses for both the ILA and FMPA described in the Plan.

A Screening Level Ecological Risk Assessment (SLERA) was also prepared to evaluate the potential risks to ecological receptors from contaminants in soils, surface water, landfill seeps, and sediment at the ILA and the FMPA. The SLERA titled "Screening Level Ecological Risk Assessment" was developed by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering and Science, PLLC, dated November 2003. EPA evaluated potential ecological risk for the wetland area, the landfill, and Cattaraugus Creek. The SLERA used analytical data from samples collected during the RI and information on the ecological communities present at the site. The SLERA was prepared in accordance with EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA 1997).

Human Health Risk Assessment. A Superfund BHHRA is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these conditions under current and future land uses. The BHHRA was developed consistent with appropriate Agency guidelines, guidance and policies including specific Superfund guidance.

The BHHRA evaluated risks from exposure to chemical contaminants at the ILA and FMPA. The potential receptors evaluated in the BHHRA, based upon on- and off-site land use, are discussed below.

- Current Land Use: Adult and adolescent trespassers at the ILA and FMPA.
- Recreational Future Land Use. Adult, adolescent and child recreational users based on potential open-space recreational use of the former ILA and FMPA.
- Commercial/Industrial Future Land Use. Adult park, industrial and construction workers at the ILA and FMPA. Commercial workers at the FMPA.
- Future Off-Site Receptors. Future off-site receptors include people residing or working downwind of the site including recreational users located downstream of the Site on

Cattaraugus Creek. Members of the Seneca Nation who reside on the Cattaraugus reservation located approximately one-mile downstream of the site were also identified as potential receptors through ingestion of fish.

The results of the BHHRA found the cancer risks and non-cancer health hazards for the RME individual associated with exposures to the future ILA park worker and FMPA industrial worker exceeded the risk range. Ingestion of groundwater by these receptors exceeded the cancer risk range of 10^{-4} (one in ten thousand) to 10^{-6} (one in a million) and a non-cancer Hazard Index (HI) of 1 identified in the NCP. The BHHRA also found non-cancer health hazard of approximately an HI = 2 for the future construction worker on the ILA.

All other pathways evaluated were within or below the risk range of 10^{-4} (one in ten thousand) to 10^{-6} (one in a million) or an HI of 1 for individual health effects with a few exceptions. The exceptions are described in the Updates to the 2003 BHHRA section below.

Updates to 2003 BHHRA. At the request of NYSDEC, EPA conducted additional statistical analyses of the concentrations of arsenic in soil at the FMPA area. This analysis found a statistical outlier or hotspot area with a concentration of 168 mg/kg arsenic. All other concentrations in this area were below 30 mg/kg. The HI to the construction worker in this area is approximately 1.4.

At the current time, EPA is conducting a reassessment of the inhalation chemical toxicity of chloroform and carbon tetrachloride through the Integrated Risk Information System process (www.epa.gov/iris). IRIS provides the Agency's consensus toxicity values for over 500 chemicals. Based on this reassessment activity, the inhalation non-cancer toxicity values for chloroform and carbon tetrachloride were withdrawn by EPA's National Center for Environmental Assessment (NCEA). In the absence of these toxicity values, the non-cancer pathways of exposure from these chemicals (e.g., inhalation) can not be quantitatively evaluated. However, the cancer toxicity information for each chemical is currently available on IRIS and remains appropriate to use.

In the absence of the quantification of inhalation toxicity for carbon tetrachloride and chloroform, the BHHRA did identify potential cancer risks for the future commercial worker from exposures to these chemicals and other volatile organic chemicals of approximately 3×10^{-5} (3 in 100,000). The main chemicals contributing to the excess cancer risks were carbon tetrachloride and chloroform. As described above, risk from exposure to arsenic in groundwater under the FMPA also exceeded the risk range. Consistent with EPA's Directive on the Role of the Baseline Risk Assessment (OSWER DIRECTIVE 9355.0-30, dated April 22, 1991 and available at www.epa.gov/oswer/riskassessment/pdf/baseline.pdf): "... once a decision has been made to take an action, the Agency has expressed a preference for cleanups achieving the more protective end of the range (i.e., 10^{-6})." The cancer risks from inhalation of carbon tetrachloride and chloroform exceed EPA's goals of protection of 10^{-6}. The lack of non-cancer toxicity values for these chemicals is an area of uncertainty that will be addressed once the IRIS reassessments are completed.

As stated in the FS (page 23), "... Groundwater at MWFP-3 was also impacted by VOCs, indicating localized leaching of organic constituents from impacted soil/fill." The FS further states: "To reduce construction worker risks to within acceptable levels and provide a concurrent environmental benefit of protecting Cattaraugus Creek from possible VOC loadings via migration from MWFP-3 subarea soils to groundwater cleanup goals were set equivalent to NYSDEC TAGM HWR-94-4046 Recommended Soil Cleanup Objectives (RSCOs)." In the absence of non-cancer toxicity values, the concentrations found in the soil were compared to the NYS TAGMs of 0.6 mg/kg for carbon tetrachloride and 0.3 mg/kg for chloroform and were found to exceed these values. The preliminary remediation goals for industrial soil at a risk level of 10^{-6} for these chemicals are comparable to the TAGMs at 0.55 mg/kg for carbon tetrachloride and 0.47 mg/kg for chloroform.

Risk Assessment Process. A four-step process is utilized for assessing quantitative human health risks for reasonable maximum exposure (RME) scenarios. The methodology is presented below:

Data Collection and Analysis: In this step, the contaminants of potential concern (COPCs) in groundwater, soil, air, etc. are identified based on such factors as toxicity, frequency of occurrence, fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation. Table 9 (groundwater and soil) identifies the COPCs by media and location. As described previously, one hot spot location for arsenic in soil was identified in the FMPA. In addition a second hot spot in the FMPA was identified for chloroform and carbon tetrachloride.
Exposure Assessment: The different exposure pathways through which people might be exposed to the contaminants identified in the data collection and analysis are evaluated in this step. A description of the various pathways and receptors evaluated that did not pose an unacceptable risk were identified above.

The Exposure Point Concentrations for groundwater and soil were calculated using a 95% Upper Confidence Limit on the Mean where adequate data were available to support the statistical calculation. Where adequate statistical information was not available, the maximum concentration was used. ProUCL Version 3.0 software was used to perform the statistical calculations. Table 9 (soil and groundwater) provides the EPCs for the COPCs posing unacceptable risk. Two arsenic hot spot areas were identified, one in the ILA at a concentration of 919 mg/kg and the other in the FMPA with a concentration of 168 mg/kg.

Using default exposure factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated. This exposure assessment evaluated current/future land uses including children and adults who may consume groundwater or ingest soil from the FMPA and ILA. Table 10 and 11 summarize cancer risks and non-cancer health hazards exceeding the risk range for receptors at the ILA and FMPA.

Standard default exposure assumptions were used in the calculations for the adult workers on-site cancer risks and non-cancer health hazards (Table 10 and 11, respectively).

Professional judgment was used in developing exposure frequency and duration assumptions for trespassing and recreational users of the FMPA and ILA and this was combined with default values where available.

Dose-Response: Current toxicity factors from the IRIS database, EPA's consensus toxicity database were used in the calculations of cancer risks and non-cancer health hazards. This toxicity data is summarized in Tables 12 and 13 for both cancer and non-cancer health effects. The non-cancer toxicity values for chloroform and carbon tetrachloride are no longer supported by NCEA while EPA evaluates these chemicals through the IRIS program.

Risk Characterization: This step summarizes and combines exposure information and toxicity data to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund guidelines for exposures are an individual lifetime excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk). For non-cancer health effects, a "hazard index" (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding Reference Dose (RfD). The key concept for a non-cancer HI is that a "threshold level" (measured as an HI of less than 1) exists below which non-cancer health effects are not expected to occur. A calculated HI of greater than 1 does not predict a specific disease.

For human health, risks from chemical exposure were estimated for current and future RME individuals at the ILA and FMPA. Specifically, human cancer risks associated with exposure to the COPCs were evaluated.

- Future outdoor park workers at the landfill area had cancer risks of 4×10^{-4} (four in 10,000) and an HI = 2.2. The cancer risks exceed the risk range. The risk is primarily attributed to the ingestion of groundwater contaminated with arsenic underlying the Site (Tables 10 and 11).

- Future industrial workers at the FMPA had cancer risks of 4×10^{-4} (four in 10,000). Both the cancer risks and non-cancer HI (2) exceed acceptable levels. The risk is primarily due to ingestion of arsenic in groundwater. A separate statistical analysis of the arsenic soil data found a hotspot area where the concentration in area SB-2 of the FMPA of 168 mg/kg exceeded the goal of protection of 10^{-6} for future construction workers and had an HI = 1.4.

- Potential cancer risks for the future commercial worker at the FMPA from exposures to carbon tetrachloride and chloroform and other volatile organic chemicals were approximately 3×10^{-5} (3 in 100,000) (Table 10) and, for non-cancer health effects, an HI = 2.5 with arsenic in groundwater the primary risk. As described above, the lack of non-

cancer toxicity values prevents further quantification of the non-cancer HI with respect to chloroform and carbon tetrachloride. As discussed above, based on the uncertainties associated with this exposure pathway and consistent with the OSWER Directive regarding the role of the baseline risk assessment, once an action is deemed to be necessary at a Site, the preference is to achieve the more protective level of the risk range and a 3×10^{-5} (3 in 100,000) risk does not achieve the goal of protection.

- Potential non-cancer health hazards to the future construction workers at the ILA were 1.8 with arsenic as the main contributor to the non-cancer health hazards.

Discussion of Uncertainties in Risk Assessment

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

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

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

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the contaminants of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the contaminants 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. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the baseline human health risk assessment provides upper-bound estimates of the risks to populations near the Site, and it is highly unlikely to underestimate actual risks related to the Site.

Specifically, several aspects of risk estimation contribute uncertainty to the projected risks. Uncertainty associated with sample laboratory analysis and data evaluation is considered low as a result of a quality assurance program which included data validation of each sample result.

In addition to the calculation of exposure point concentrations, several site-specific assumptions regarding future land use scenarios, intake parameters, and exposure pathways are a part of the

exposure assessment stage of a baseline risk assessment. Assumptions were based on site-specific conditions to the greatest degree possible, and default parameter values found in EPA risk assessment guidance documents were used in the absence of site-specific data. However, there remains some uncertainty in the prediction of future use scenarios and their associated intake parameters and exposure pathways. The exposure pathways selected for current scenarios were based on the site conceptual model and related data. The uncertainty associated with the selected pathways for these scenarios is low because site conditions support the conceptual model.

Ecological Risk Assessment

A SLERA was prepared to evaluate the potential risks to ecological receptors from contaminants in soils, surface water, landfill seeps, and sediment. EPA evaluated potential ecological risk for a number of areas of the site including the wetland area, the landfill area, and Cattaraugus Creek. The SLERA used analytical data from samples collected during the RI and information on the ecological communities present at the site. The ecological risk assessment was prepared in accordance with EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA 1997).

The overall conclusions of the SLERA are summarized below:

The SLERA indicates no potential ecological risks from organic contaminants to receptor species including fish, terrestrial plants, wetland plants, benthic invertebrates, terrestrial invertebrates, birds, and mink.

With limited exceptions, benthic organisms and fish in Cattaraugus Creek show no potential ecological risks from organic chemicals in creek sediment and surface water. Where potential ecological risks to benthic organisms and fish from inorganic chemicals in creek sediment and surface water occur, the associated chemical was present in upstream samples at similar concentrations to downstream samples. This suggests that the Site is not a significant contributor to the ecological risk.

The SLERA indicates potential for ecological risk to terrestrial receptors from organic and inorganic contaminants in soils at the Site. The food web model used in the SLERA indicates potential ecological risk from exposure to semivolatile organic compounds in soil, in particular polynuclear aromatic hydrocarbons (PAHs), which are SVOCs, for terrestrial mammalian species. The SLERA also indicates potential risk to terrestrial receptors including terrestrial invertebrates and mammals from one or more inorganic chemicals in soil including arsenic, chromium, lead, and zinc.

Basis for Action

Based upon the results of the RI and the human health and ecological risk assessments, EPA has determined that the response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), TBC guidance, and site-specific risk-based levels, as well as the risks defined in the human health and ecological risk assessments, under the current and reasonably-anticipated future land use.

The following RAOs were established for the Site:

- Reduce or eliminate any direct contact threat associated with the contaminated soils/fill;
- Minimize or eliminate contaminant migration from contaminated soils to the groundwater; and
- Minimize or eliminate contaminant migration from groundwater to Cattaraugus Creek.

Table 14 summarizes cleanup objectives for chemical of potential concerns. Soil cleanup objectives, in the absence of EPA non-cancer toxicity values for chloroform and carbon tetrachloride, will be those established pursuant to the TAGM guidelines. Soil cleanup objectives for arsenic in the hot spot areas are based on potential risks to the construction worker associated with a non-cancer HI of 1. The risk-based level is 120 mg/kg. Groundwater cleanup goals will be the more stringent of the state or federal promulgated standards.

DESCRIPTION OF ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARS, 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).

Detailed descriptions of the remedial alternatives for addressing the contamination associated with the Site can be found in the FS report. Note that the FS report presented separate alternatives for five of the media associated with the Site (Leachate Seeps, Elevated Fill Subarea, Soils, Elevated Fill Subarea Gas and Groundwater). However, to facilitate the presentation and evaluation of these alternatives, the FS report alternatives were reorganized to formulate the remedial alternatives discussed below.

A number of institutional controls—deed notices, restrictive covenants, environmental easements – were considered to further control human exposure to contaminated groundwater underlying the Site. Residences and business in the vicinity of the Site obtain potable water from the Public Water Supply of the Village of Gowanda.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction. The remedial alternatives are described below.

REMEDIAL ALTERNATIVES

ALTERNATIVE 1: NO ACTION

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with other alternatives. Under this alternative, no action would be taken to contain wastes, reduce infiltration into the landfill, eliminate areas of exposed waste, or control and treat leachate discharging from the landfill or address groundwater. Because this alternative would result in contaminants remaining on-site above health-based levels, CERCLA requires that the Site conditions be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat, or contain the contaminated soils.

Capital Cost:	$0
O&M Cost:	$0
Present-worth Cost:	$0
Construction Time:	None

ALTERNATIVE 2: INSTITUTIONAL CONTROLS

This alternative would consist of deed and access restrictions. The deed restrictions would be comprised of restrictive covenants and environmental easements designed to prevent direct contact with the subsurface waste material in the Elevated Fill Subarea and the three hot spot areas by limiting future Site use. The deed restrictions would also be designed to prevent groundwater use on the Site for drinking water or potable purposes. In addition to the institutional controls, access would be restricted by the construction of a fence around the Elevated Fill Subarea where insufficient cover soils and/or vegetative cover exist. Access to the Elevated Fill Subarea by authorized personnel would be through one or more lockable gates. No remedial action would be

taken with regard to the leachate seep or landfill gases. To allow subsurface construction in the hot spot area a soils management plan will be required and developed to provide guidance for workers involved in handling of soil/fill from this area (e.g., personal protective equipment requirements during underground utilities construction, methods for disposing of soil/fill removed from excavation, etc.). Because this alternative would result in contaminants remaining on-site above health-based levels, CERCLA requires that the Site conditions be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat, or contain the contaminated soils.

Capital Cost:	$ 54,000
Annual O&M Cost:	$ 11,500
Present-worth Cost:	$190,000
Construction Time:	6 months

ALTERNATIVE 3: EXCAVATION/BANK STABILIZATION/OFF-SITE DISPOSAL

This alternative would involve excavation of a total of approximately 140 cubic yards (CY) of VOC-impacted soil (MWFP-3 Subarea) and arsenic-impacted soil (SB-2 Subarea) from the FMPA; 5,800 CY of arsenic-impacted soil/fill (LFSS-6 Subarea) from the ILA; and 100,000 CY of sludge fill material from the Elevated Fill Subarea, with transport of excavated materials to a permitted, off-site disposal facility for treatment and/or disposal. The alternative would require bank stabilization of the Cattaraugus Creek to the 100-yr floodplain elevation after the sludge fill removal is completed. The bank stabilization would extend from the existing concrete retaining wall (sluiceway wall) to the existing riprap stabilization on the NYSEG property. The areas would then be backfilled with clean soil to match the surrounding grade, covered with topsoil, and seeded to promote vegetative growth. On-site dewatering of the sludge fill and/or admixing with drier soils would be required during removal of saturated materials in order to eliminate free liquid. The estimated amount of material requiring disposal is 150,000 tons, assuming admixing was employed at a rate of approximately one ton dry soil to two tons of sludge fill material.

Since the waste would be removed, the Elevated Fill Subarea would no longer be acting as a source of contamination to the groundwater and the Creek. The remaining contaminated groundwater throughout the Site would be cleansed over time by operation of the natural mechanisms of dispersion and dilution. The impact of the groundwater discharge to the creek would also be

addressed by the removal of the waste. Because this alternative would result in contaminants remaining in the groundwater above health-based levels, CERCLA requires that the Site conditions be reviewed at least once every five years.

Capital Cost: $12,293,000

No annual cost is associated with this alternative.

Construction Time: 9 -21[2] Months

ALTERNATIVE 4: EXCAVATION/CONSOLIDATION/ CONTAINMENT/WITH SOIL ENHANCEMENT CAP AND A GROUNDWATER DIVERSION SYSTEM

This alternative would include the deed restrictions described in Alternative 2 above with the addition of the following remedial measures:

Excavation of approximately 140 cubic yards (CY) of VOC-impacted soil (MWFP-3 Subarea) and arsenic-impacted soil (SB-2 Subarea) from the FMPA; and 5,800 CY of arsenic-impacted soil/fill from the ILA (LFSS-6 Subarea), and consolidation of the excavated materials within the Elevated Fill Subarea. Confirmation sampling of the sidewalls and bottom of the excavation would be performed to verify that no residual soil/fill containing VOCs or arsenic above guidance levels remains. The area would then be backfilled with clean soil and seeded to promote vegetative growth.

Containing the waste by placing a minimum of 12 inches of low permeability ($<1 \times 10^{-5}$ cm/sec) soil across the entire 5-acre Elevated Fill Subarea (this will result in a soil cap of varying depth between 12 inches [in those areas where the cap has been eroded and wastes currently are exposed] and 57 inches [across most of the Elevated Fill Subarea where existing soil cover is already present at varying thicknesses up to 45 inches]). The soil cap would then be covered with top soil and seeded to promote vegetative growth; and

Limiting groundwater migration through the Elevated Fill Subarea via an upgradient groundwater diversion system. Typical groundwater subsurface lateral barriers such as slurry walls, compacted clay walls, grouting and sheet piling are often implemented in conjunction with a cover system and groundwater/leachate collection to reduce lateral contaminant migration. The upgradient groundwater diversion system would employ a slurry wall keyed into the upper 1-2 feet of soft shale bedrock. The slurry wall would be constructed upgradient of the perimeter of the Elevated Fill Subarea, extending from the remnants of the former hydroelectric dam on the creek bank to the southwestern site boundary. The natural mechanisms of dispersion and dilution would be relied upon to reduce the contamination of groundwater throughout the Site.

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[2] Nine months if work is completed in a single construction season, 21 months if a second construction season is required.

Reviewing site conditions at least once every five years as per CERCLA, because this alternative would result in contaminants remaining on-site above health-based levels; and

Selecting one of two leachate seep collection options described below.

Option A Bank Stabilization, Collection of Leachate Seep and discharge to the Public Owned Treatment Works (POTW) for Treatment and Disposal

On the northeastern side of the Elevated Fill subarea, the creek bank would be cleared of existing concrete and rock stabilization, a geosynthetic liner would extend down the top of the soft shale bedrock to protect against creek water intrusion during high water conditions. A geocomposite or geosynthetic fabric would be used to protect the liner from puncture during construction. The Creek banks would then be re-stabilized to the top of the 500-year floodplain (approx. 770 feet above mean sea level) using existing bank stabilization materials and additional large rip-rap, as necessary. To collect seeps, a trench would be excavated into the surface of the weathered shale bedrock at the toe of the slope to intercept the seeps. A perforated drainage pipe and granular media will collect and transmit the seep water to one or two small packaged leachate pump stations. If the POTW requires pretreatment, the collected seeps would be treated by aeration using a fine or course bubble diffuser. From the pump station, approximately 4,300 gallons per day of leachate seep water and shallow groundwater, would be conveyed via gravity to the Village of Gowanda's sewer collection system on Palmer Street. The slope of the regraded bank would be lined with a geocomposite drainage layer, leading to the collection trench, and covered by a geomembrane liner to prevent seep breakout and surface water infiltration during high water conditions. The construction and start-up time is estimated to be nine months.

Option B Bank Stabilization, Collection of Leachate Seep, Treatment and Discharge to Cattaraugus Creek

This option is similar to Option A, however, it would involve on-site treatment of the seep water with direct discharge of the treated effluent to Cattaraugus Creek. The treatment process would utilize biological treatment by a sequencing batch reactor (SBR). The SBR process is a sequential activated sludge process in which all major steps occur in the same tank in order. A single cycle would consist of five discrete periods: fill, react, settle, decant, and idle. The SBR system would first be filled with leachate seep water from a holding tank and aeration would begin. Depending on discharge limits, it may be necessary to post-treat the bio-treated effluent to remove inorganic compounds and/or suspended solids before discharging to the creek. The construction and start-up time is estimated to be 12 months.

Capital Cost:	4/A	$1,776,000
	4/B	$2,325,000

Annual O & M Cost:	4/A	$ 29,000[3]
	4/B	$ 86,000
Present-worth Cost:	4/A	$2,222,000
	4/B	$3,647,000
Construction Time:		17 - 20 Months

ALTERNATIVE 5: EXCAVATION/CONSOLIDATION/ CONTAINMENT WITH PART 360- EQUIVALENT DESIGN BARRIER CAP/ A GROUNDWATER DIVERSION SYSTEM/INSTITUTIONAL CONTROLS

This alternative would be identical to Alternative 4, above, except that the waste in the 5-acre Elevated Fill Subarea would be contained with a low permeability equivalent design barrier cap consistent with 6 New York Code Rules Regulations Part 360. Five-year reviews, and one of the two leachate seep collection, treatment, and disposal options described in Alternative 4 would be included. The cap would consist of the following components:

6-12 inches topsoil
18-24 inches protective barrier low permeability material.

Capital Cost:	5 /A	$2,055,000
	5/B	$2,625,000
O & M Cost:	5/A	$ 31,000
	5/B	$ 88,000
Present-worth Cost:	5/A	$2,571,000
	5/B	$3,971,000
Construction Time:		20-23 months

Additional Components of the Remedial Action Common to the Containment Portion of Alternatives 4 and 5

All of the containment alternatives, consistent with NYSDEC closure requirements, would require post-closure operation and maintenance to operate and maintain the vegetative cover and gas venting systems. In addition, a gas, air, and groundwater monitoring program would be required.

Current New York State landfill closure regulations require the installation of a passive gas venting system comprised of at least one gas vent riser per acre, to minimize landfill gas build-ups within the

[3] The O&M costs for Alternative 4A and 5A do not include any user fees that may be charged by the POTW for the treatment of leachate.

fill. If levels of VOCs or methane in landfill gases are expected to be high, then an active system would be appropriate.

In general, methane gas levels in the landfill waste at the Elevated Fill Subarea during the RI were detected in two samples up to 31.1%. Levels of other non-methane VOCs were detected at levels slightly above guideline values. Since the level of these VOCs are non-detect at the landfill surface under current conditions, it is expected that the levels of both methane and non-methane VOCs would be reduced once a venting system is in place. Therefore, based on landfill characteristics, it is anticipated that a passive gas venting system would be the appropriate method for gas control. However, the passive system would be designed and monitored so that it could easily be converted to an active system should levels of VOCs be detected in excess of ARAR emission standards. After the installation of the final cap and venting system, two quarterly rounds of sampling of the gas vents for methane and non-methane VOCs would be conducted. The sampling results would be utilized to determine whether the installed venting system is adequate or additional venting is necessary or whether it is necessary to convert the system to an active system with treatment of gas.

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy, EPA considered the factors set out in CERCLA Section 121, 42 U.S.C. §9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 C.F.R. §300.430(e)(9), and OSWER Directive 9355.3-01 (*Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA: Interim Final*, October 1988). 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 regulations or provide grounds for invoking a waiver. Other federal or state advisories, criteria, or guidance are TBCs. TBCs are not required by the NCP, but the NCP recognizes that they may be very useful in determining what is protective of a site or how to carry out certain actions or requirements.

The following "primary balancing" criteria are used to make comparisons and to identify the major tradeoffs 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, O&M, and net present-worth costs.

The following "modifying" criteria are used in the final evaluation of the remedial alternatives after the formal comment period, and may prompt modification of the preferred remedy that was presented in the Proposed Plan:

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

9. *Community acceptance* refers to the public's general response to the alternatives described in the RI/FS report, RI/FS report addendum, and Proposed Plan.

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

Overall Protection of Human Health and the Environment

Alternative 1 (no action) and Alternative 2 (institutional controls) are not protective of human health and the environment because they do not minimize infiltration and groundwater flow into the Elevated Fill Subarea, thereby allowing further leaching of contaminants into the aquifer and the surface water; they do not provide control or treatment of the leachate seeps or landfill gases; and they do not protect terrestrial mammals from soil contamination.

Alternative 3 would be the most protective because it would permanently remove the source of contamination to the groundwater and creek, although it would not actively address residual groundwater contamination. Alternatives 4 and 5 would provide good overall protection of human

health and the environment by containing waste with a landfill cap, controlling landfill gas through venting, controlling groundwater flow through the Elevated Fill Subarea with a groundwater diversion system and controlling and treating the leachate seeps. Alternative 5 is more protective than Alternative 4 because it requires a thicker cap of low permeability material to reduce infiltration, thereby reducing the generation of leachate which mobilizes contaminants into the groundwater. Options A and B for leachate seep collection, treatment, and discharge considered for Alternatives 4 and 5 are considered to be equally protective of human health and the environment.

Compliance with ARARs

There are currently no federal or state promulgated standards for contaminant levels in soils. However, EPA is utilizing New York State soil cleanup objectives as specified in the soil TAGM (which are used as "To-Be-Considered" criteria). Since the contaminated soils would not be addressed under Alternatives 1 and 2, these alternatives would not comply with the soil cleanup objectives

Action-specific ARARs include 6NYCRR Part 360 requirements for closure and post-closure of municipal landfills and the NYSDEC State Pollutant Discharge Elimination System (SPDES) program. The Part 360 regulations require that the landfill cap promote runoff, minimize infiltration, and maintain vegetative growth for slope stability. Alternative 3 would be subject to New York State and federal regulations related to the transportation and off-site treatment/disposal of wastes. Unlike Alternative 4, Alternative 5 is consistent with an equivalent cap design as specified in 6 NYCRR Part 360. The options for leachate collection, treatment and disposal considered under Alternatives 4 and 5 would be designed to ensure compliance with their associated ARARs, including SPDES limits for discharge to surface water and air emission standards for an air stripper. In addition, approvals from the NYSDEC Division of Fish and Wildlife and the US Army Corps of Engineers would be required prior to work on the creek bank and within the 100-year flood plain.

Chemical-specific ARARs at the Site include State and Federal Maximum Contaminant Levels (MCLs). None of the alternatives would meet chemical-specific ARARs under the Elevated Fill Subarea. However, Alternatives 4 and 5 would be consistent with EPA's groundwater policy to measure the performance of the remedy at the edge of the waste management area when waste is left in place. Although none of the alternatives would restore the on-site groundwater to MCLs, Alternatives 4 and 5 respectively would be progressively effective in preventing and/or reducing further groundwater migration through the waste and into the Creek. By constructing a proper cap to minimize infiltration and a collection system to collect leachate seeps in conjunction with the groundwater diversion system to limit lateral groundwater migration, the Elevated Fill Subarea would no longer be acting as a source of contamination to the groundwater and the Creek. The natural mechanisms of dispersion and dilution would be relied upon to reduce the residual contaminated groundwater throughout the Site. The impact of the groundwater discharge to the creek will also be addressed by the groundwater diversion system, in conjunction with the cap.

Long-Term Effectiveness and Permanence

Alternatives 1 and 2 would involve no active remedial measures and, therefore, would not be effective in eliminating potential exposure to contaminants in soil or groundwater. These alternatives would allow the continued migration of contaminants from the soil to the groundwater. Alternative 3 would be the most effective alternative over the long term by removing the contaminated soils from the Site.

A landfill cap is considered a reliable remedial measure that, when properly designed and installed, provides a high level of protection. Of the two cap alternatives considered in detail, Alternative 4 would be less reliable in protecting human health and the environment than Alternative 5 because it allows more precipitation to infiltrate through the Elevated Fill Subarea which would result in a greater degree of leaching of contaminants to groundwater. Post-closure operation and maintenance requirements would ensure the continued effectiveness of the landfill cap, landfill gas control system, and either of the two leachate system options for Alternatives 4 and 5. Options A and B for leachate seep collection, treatment, and discharge considered for Alternatives 4 and 5 would each effectively reduce the toxicity, mobility, and volume of contaminants in the leachate seeps. However, Option A provides the least risk of failure of process components, as it does not rely on site-specific treatment equipment.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternatives 1 and 2 would provide no reduction in toxicity, mobility or volume. Under Alternative 3, toxicity and mobility of the contaminants would be eliminated by removing the contaminated soil from the property. However, admixing the sludge fill with drier soils in order to meet landfill acceptance criteria would increase the volume of sludge fill requiring disposal. Alternatives 4 and 5 would reduce the toxicity and mobility of the leachate seeps by collecting and treating the leachate. With the groundwater diversion system being utilized in Alternatives 4 and 5, leachate seep generation is expected to be reduced and/or eliminated. Compared to Alternative 4, Alternative 5 would provide greater reduction in the mobility and volume of contaminants by restricting infiltration through a thicker low permeability landfill cap, which would reduce the further leaching of contaminants to groundwater.

Short-Term Effectiveness

Alternatives 1 and 2 do not include any physical construction measures in any areas of contamination and, therefore, would not present any potential adverse impacts to site workers or the community as a result of its implementation.

Alternative 3 could present some adverse impacts to on-property workers through dermal contact and inhalation related to excavation activities but this risk would be minimized through the use of personal protection equipment. In addition, there are short-term risks and the possibility of disruption of the community. These include: an increase in traffic flow along local roads for an approximately nine-month period (21 months if a second construction season is required); noise from heavy equipment

use; and strong odors. This traffic would raise dust and increase noise levels locally. However, proper construction techniques and operational procedures would minimize these impacts.

There are short-term risks associated with Alternatives 4 and 5 including increase traffic flow and noise from heavy equipment but to a lesser extent than Alternative 3. Alternative 4 can be implemented more quickly, in 17 to 20 months, while Alternative 5 is estimated to take 20 to 23 months.

Implementability

Alternatives 1 and 2 would be the easiest soil alternatives to implement, as there are no activities to undertake.

Alternative 3 presents many implementability issues including truck traffic coordination through the residential neighborhood and Village, odor and vector control difficulties, sludge dewatering issues, and available landfill capacity at an off-site location. Alternatives 4 and 5 can be readily implemented from an engineering standpoint and utilize commercially available products and accessible technology. However, for the construction of the groundwater diversion system, a specialty contractor would be required.

The treatment of the leachate seep under Options A and B can be implemented. Discharge of the treated leachate to the Cattaraugus Creek (Option B) would require compliance with technological limitations and water quality standards for protection of the creek. Discharge of the leachate to a local POTW may require pretreatment of the leachate, consistent with the pretreatment requirements of the POTW's SPDES permit, to remove inorganic chemicals prior to discharge. In addition, administrative implementability issues related to work on the creek bank which is located within the 500-year floodplain can be expected.

Cost

The estimated capital, operation, maintenance and monitoring (O&M), and 30-Year present-worth costs for each of the alternatives are presented in the table, below. The annual O&M cost for most of the alternatives include groundwater monitoring.

Alternative	Capital	Annual O&M	Total Present-Worth
1	$0	$0	$0
2	$44,000	$9,500	$190,000
3	$12,293,000	$0	$12,293,000
4/A-B	$1,776,000-$2,325,000	$29,000-$86,000	$2,222,000-$3,647,000

5/A-B	$2,164,000-$2,734,000	$31,000-$88,000	$2,680,000-$4,080,000

Alternative 3, excavation, has the highest cost of any alternative with a capital cost of $12.3 million. Of the two containment alternatives, Alternative 4 has the lower capital and O& M costs, resulting in a net present-worth ranging from $2,222,000 to $3,647,000 because it uses less cover and minimal fill. Alternative 5 has the higher cost, with a net present-worth ranging from $2,680,000 to $4,080,000, because it would use an estimated 20,000 CY of fill material to create a base for the landfill cap. The costs noted above for the two containment alternatives include the costs to implement leachate Options A and B which have net present-worth costs of $1.1 and $2.5 million, respectively. However, for option A the costs do not include any user fees that may be charged by the POTW for the treatment of leachate.

State Acceptance

The EPA provided the State of New York with an opportunity to concur with the recommended remedy. Any future letter from the State of New York regarding concurrence on the selected remedy will be added to the Site Repositories.

Community Acceptance

Comments received during the public comment period indicate that the public, although it favors Alternative 3, generally supports the selected remedy. These comments are summarized and addressed in the Responsiveness Summary, which is attached as Appendix IV to this document.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site wherever practicable (NCP Section 300.430 (a)(1)(iii)(A)). Identifying principal threat wastes combines concepts of both hazard and risk. The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained, or would present a significant risk to human health or the environment should exposure occur.

Consistent with OSWER directive.9380.8-06FS (dated November 1991), EPA compared the results of the risk assessment to the risk level of 10^{-3} (one in a thousand) identified with principal threat waste where treatment alternatives are recommended. The risk levels found at the site were below the level of 10^{-3} where treatment is recommended. The materials located in the Elevated Fill Subarea and FMPA are non-mobile contaminated source materials of low to moderate toxicity and, therefore, can be classified as non-principal threat wastes.

SELECTED REMEDY

Summary of the Rationale for the Selected Remedy

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative 5A (Excavation/Consolidation/Containment with Part 360- Equivalent Design Barrier Cap, Bank Stabilization/Collection of Leachate Seep/Treatment by Discharge to a POTW/Groundwater Diversion System/Institutional Controls) best satisfies the requirements of CERCLA Section 121, 42 U.S.C. §9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, 40 C.F.R. §300.430(e)(9).

While Alternative 3 and 4 would both effectively achieve the soil cleanup objective, Alternative 3 would be significantly more expensive and would take longer to construct and implement than Alternatives 4 and 5. Alternative 4, although similar to Alternative 5 in cost, would be less reliable in protecting human health and the environment than Alternative 5 because it allows more precipitation to infiltrate through the Elevated Fill Subarea which would result in a greater degree of leaching of contaminants to groundwater. Further, Alternative 4 would not comply with the NYCRR Part 360 regulations. Therefore, EPA and NYSDEC believe that Alternative 5 would effectuate the Site cleanup while providing the best balance of tradeoffs with respect to the evaluating criteria.

The selected remedy is protective of human health and the environment, provides long-term effectiveness, will achieve the ARARs in a reasonable time frame, and is cost-effective. Therefore, the selected remedy will provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria. EPA and NYSDEC also believe that the selected remedy will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Description of the Selected Remedy

The major components of the selected remedy include the following:

- Excavating the three hot-spot areas and consolidating them within the Elevated Fill Subarea, then capping the 5-acre Elevated Fill Subarea of the ILA with a low permeability equivalent design barrier cap, consistent with the requirements of 6 NYCRR Part 360, including seeding with a mixture to foster natural habitat.

- Post-excavation confirmatory soil sampling;

- Backfilling of excavated areas with clean fill;

- Collecting the leachate from the seeps, pretreating the leachate as necessary, then discharging the leachate to the POTW collection system for further treatment and discharge. As a

contingency, if treatment of the leachate in the POTW is not available, it would be treated using a sequencing batch reactor and discharged to Cattaraugus Creek. Since the installation of the cap and groundwater diversion system should reduce leachate generation, the volume of seep leachate requiring treatment is anticipated to be reduced or eliminated over time. For this reason, POTW treatment with any necessary pretreatment would likely be the most cost-effective option and, therefore, the preferred option. The specific treatment and disposal option will be further evaluated during the remedial design phase;

- Installing a groundwater diversion system to limit groundwater migration through the Elevated Fill Subarea. However, should additional data collected in the remedial design phase of the project support the conclusion that the installation of a diversion wall will result in a minimal increase in the collection of contaminants by the leachate collection system, the diversion wall would not be installed;

- Installing a passive gas venting system for proper venting of the 5-acre Elevated Fill Subarea of the ILA;

- Stabilizing the banks of the Cattaraugus Creek;

- Performing long-term operation and maintenance including inspections and repairs of the landfill cap, gas venting, and leachate systems;

- Performing air monitoring, surface and groundwater quality monitoring; and

- Evaluating Site conditions at least once every five years to determine if a modification to the selected alternative is necessary.

This alternative also includes institutional controls for limiting future use of the Site and the groundwater to ensure that the implemented remedial measures will not be disturbed and that the Site will not be used for purposes incompatible with the completed remedial action. To ensure that the engineering and institutional controls remain in place and effective for the protection of public health and the environment, an annual certification, commencing from the date of implementation, must be made by the parties responsible for the remediation.

Summary of the Estimated Remedy Costs

The estimated present-worth costs range from approximately $2,700,000 to $4,000,000 depending on whether the leachate seep is treated by the POTW (selected remedy) or on-site treatment with discharge to Cattaraugus Creek (contingent remedy). This includes an estimated O&M cost ranging from $31,000-$88,000 for 30 years. Table 15 provides the basis for the cost estimates for the selected remedy.

These cost estimates are order-of-magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual project cost. These cost estimates are based on the best available information regarding the anticipated scope of the selected remedy.

Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedy.

Expected Outcomes of the Selected Remedy

The results of the risk assessment indicate that the Site, if left unremediated, may present an unacceptable risk to park workers and commercial workers from groundwater ingestion and to commercial workers from direct exposure to contaminated soils at the Site.

The selected remedy will allow the following potential land and groundwater use:

Land Use

The Site is currently zoned for industrial use and has been used for this purpose since it was constructed. The remedial action goals considered potential industrial use of the landfill and FMPA and other recreational uses where the exposure frequency and duration would be less than those assumed under the industrial activities. Implementation of the remedy will eliminate potential risks associated with exposure to contaminated soils. Exposure to contaminated soil will be controlled through excavation, followed by containment, and institutional controls. Once implemented, the remedy will help restore the property to beneficial use. The Village of Gowanda would be able to utilize the Site for recreational purposes, walking/bike trail, fishing access, etc., as outlined in the Reuse Assessment and Conceptual Plan.

Groundwater Use

Under the selected remedy, the excavation and containment of contaminated soil will reduce the source of groundwater contamination at the Site. Institutional controls will be established to ensure that groundwater at the Site is not utilized as a source of potable water until MCL levels are attained.

STATUTORY DETERMINATIONS

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are 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. The following sections discuss how the selected remedy meets these statutory requirements

Protection of Human Health and the Environment

The selected remedy, Alternative 5A, will provide permanent overall protection of human health and the environment by containing waste with a landfill cap, by controlling landfill gas through monitoring and venting, and by controlling and treating the leachate seep. By reducing leachate production, the remedy limits further contamination of the ground and surface water.

Compliance with ARARs and Other Environmental Criteria

While there are no federal or New York State soil ARARs, one of the remedial action goals is to meet NYSDEC soil cleanup levels as TBCs. A summary of action-specific, chemical-specific, and location-specific ARARs, as well as TBCs, which will be complied with during implementation of the selected remedy, is presented below and in more detail in Table 16.

Action-Specific ARARs:

- National Emissions Standards for Hazardous Air Pollutants (40 C.F.R. Parts 52 and 61)
- 6 NYCRR Part 200 and 211, New York State Air Regulations for Prevention and Control of Air Contamination and Air Pollution
- 6 NYCRR Part 360, NY State Solid Waste Management Facility Regulations
- 40 C.F.R. Part 258, Criteria for Municipal Solid Waste Landfills

Chemical-Specific ARARs:

- 6 NYCRR Parts 701-703 Groundwater and Surface Water Quality Regulations
- 6 NYCRR Parts 256-257 New York State Air Quality Classifications and Standards

Location-Specific ARARs:

- 40 C.F.R. Part 6, Appendix A Floodplain Management
- 6NYRR Part 662-665 Freshwater Wetlands Act

Other Criteria, Advisories, or Guidance TBCs:

- 40 C.F.R. Part 6.302, Fish and Wildlife Coordination Act
- Soil cleanup levels specified in NYSDEC Technical Administrative Guidance Memorandum No. 94-HWR-4046

Cost-Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP §300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of: long-term effectiveness

and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. Based on the comparison of overall effectiveness (discussed above) to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost-effective.

The estimated present-worth cost of the selected remedy range from approximately $2,700,000 to $4,000,000 depending on whether the leachate from the seeps is treated by the POTW, the selected preferred remedy, or subject to on-site treatment with discharge to Cattaraugus Creek, the selected contingency remedy. Although Alternative 4, at a cost ranging from approximately $1,800,000-$2,300,000, is less expensive than Alternative 5, it does not meet the threshold criterion of compliance with ARARs because the enhanced soil cap would not minimize infiltration sufficiently to meet the regulatory requirements of the New York State landfill closure and post-closure requirements (6NYCRR PART 360) or the federal requirements contained in 40 C.F.R. Part 258, Subpart F. EPA and the State also believe that the Selected Remedy's combination of containment and leachate collection will provide an overall level of protection comparable to Alternative 3 (excavation and off-site disposal) at a significantly lower cost.

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

The selected remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable through collection, treatment, and proper disposal of the leachate seep.

Preference for Treatment as a Principal Element

The statutory preference for remedies employing treatment as a principal element would not be applicable for the Elevated Fill Subarea itself because the landfill waste does not meet the risk-based criteria for principal threat waste, and treatment of the waste is neither practicable nor cost-effective when compared to the other protective remedies. The exact location of any hazardous waste that may have been disposed in the Elevated Fill Subarea is unknown. Therefore, the entire landfill volume, approximately 150,000 tons, would require excavation and removal in order to effectively treat the waste. Odor controls would be required during the removal work due to strong odors expected during sludge fill excavation, handling and transport. Odor controls would be of limited effectiveness, however, for such an excavation. The excavation of such a large volume of waste would provide an overall level of protection comparable to the selected remedy, but at a significantly higher cost. Furthermore, in-situ treatment of waste is technically impractical because no discrete areas, contaminated by high level of an identifiable waste type which represented a principal threat to public health or the environment, were located within the Elevated Fill Subarea. However, the selected remedy calls for treatment of the leachate seep at the Site and, hence, satisfies the preference for treatment for this portion of the remedy.

Five-Year Review Requirements

Because this remedy will result in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review of Site conditions will be conducted within five years after the start of the construction to ensure that the remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan was released for public comment in July 2005. The Plan identified Alternative 5A, Excavation/Consolidation/ Containment with Part 360- Equivalent Design Barrier Cap/a Groundwater Diversion System, Institutional Controls, the Collection and Treatment of Leachate Seeps, as the Preferred Alternative for remediation. During the public comment period, new information, in the form of groundwater modeling, indicated that the mass loading to the creek might not change significantly with the addition of the groundwater diversion system. In addition, modeling showed that the leachate collection system would capture the majority of the contaminated shallow groundwater, thus achieving the remedial action objective of minimizing contaminant migration to Cattaraugus Creek and achieving the ambient water quality standards.

Additional data collected during the remedial design phase of the project will be analyzed to assess the conclusions of the modeling study that the majority of the contaminated groundwater flowing through the waste material would be captured by the leachate collection system and that the mass loadings of ammonia and other sludge fill contaminants to the creek would be reduced substantially without a diversion wall. If the design data support this hypothesis, EPA has determined that, as supported by the model and confirmed by the design, the diversion wall would not be necessary to meet the remedial action objectives and the diversion wall would not be installed.

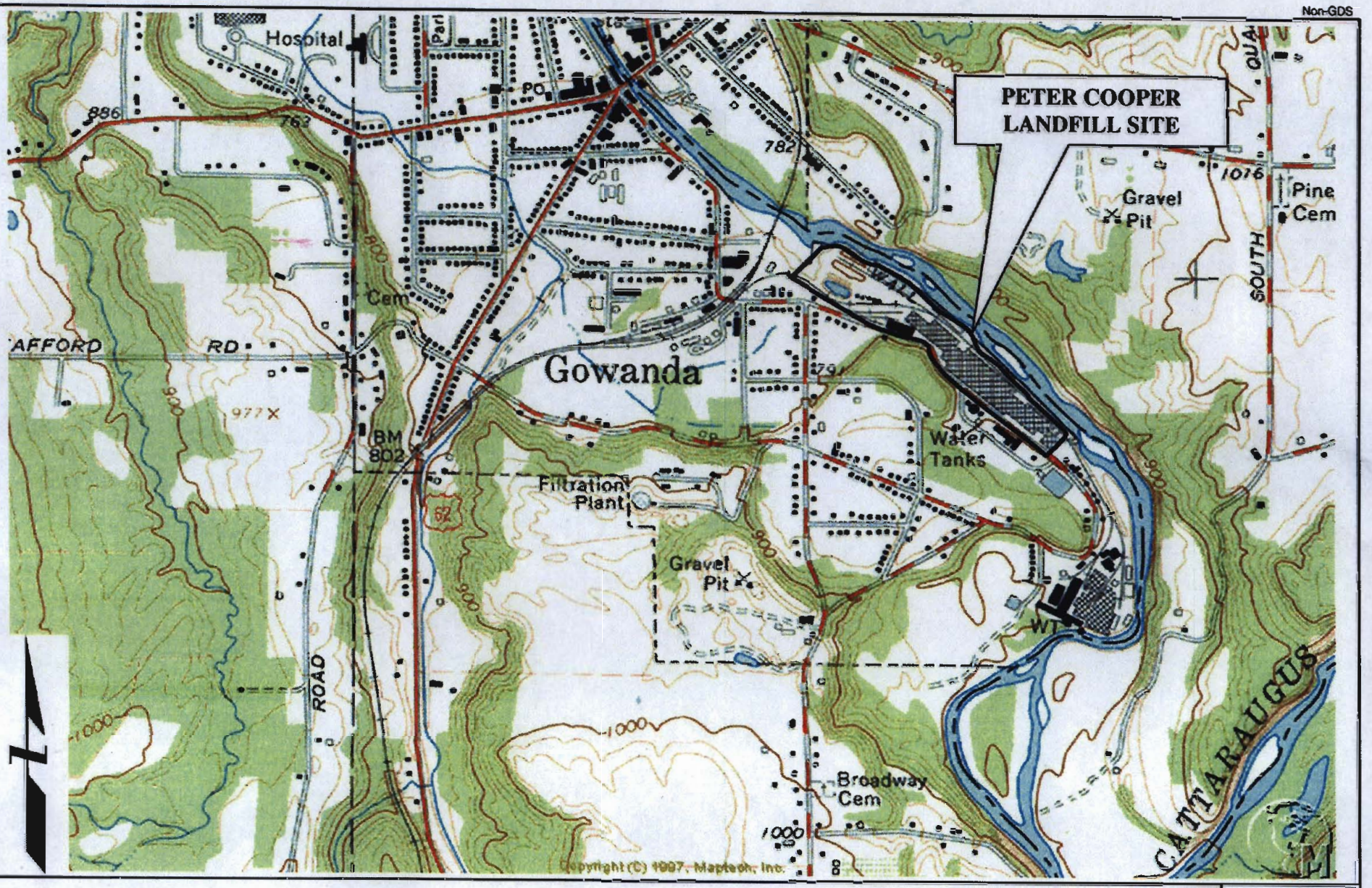
PETER COOPER LANDFILL SUPERFUND SITE
ROD

APPENDIX I

FIGURES

SUMMARY OF FIGURES

Non-GDS

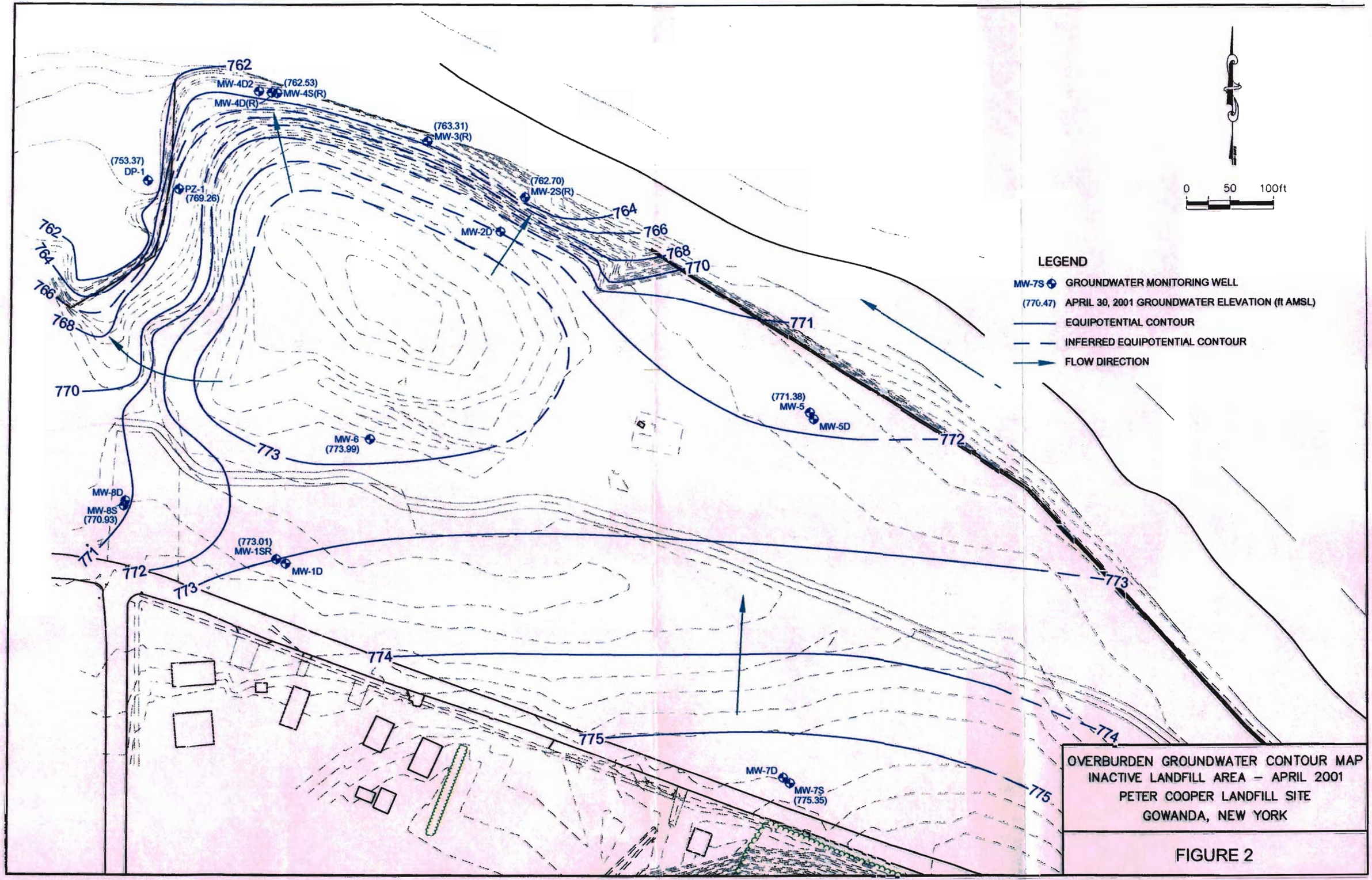


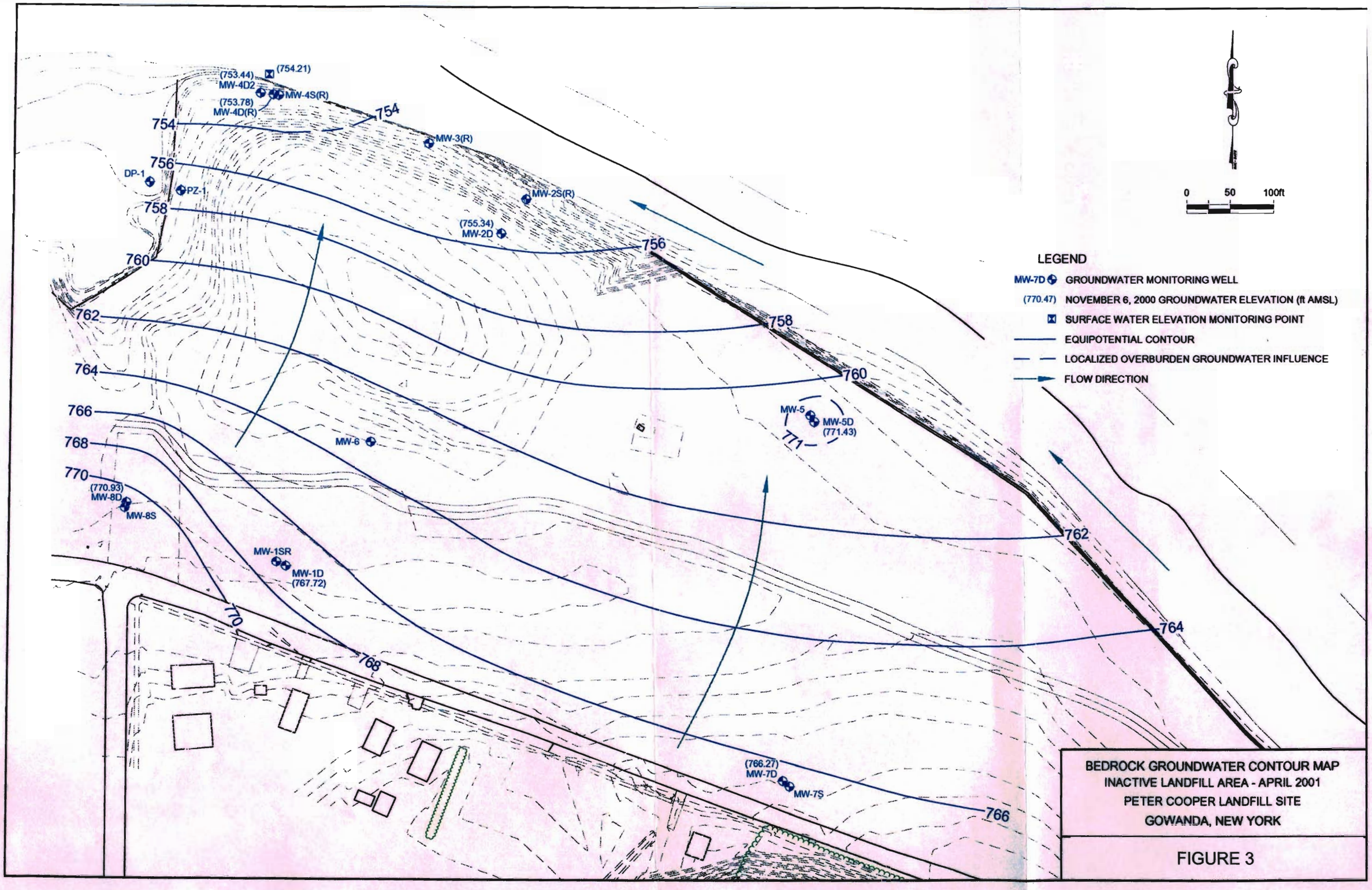
SITE BOUNDARY MAP
Peter Cooper Landfill Site
Gowanda, NY

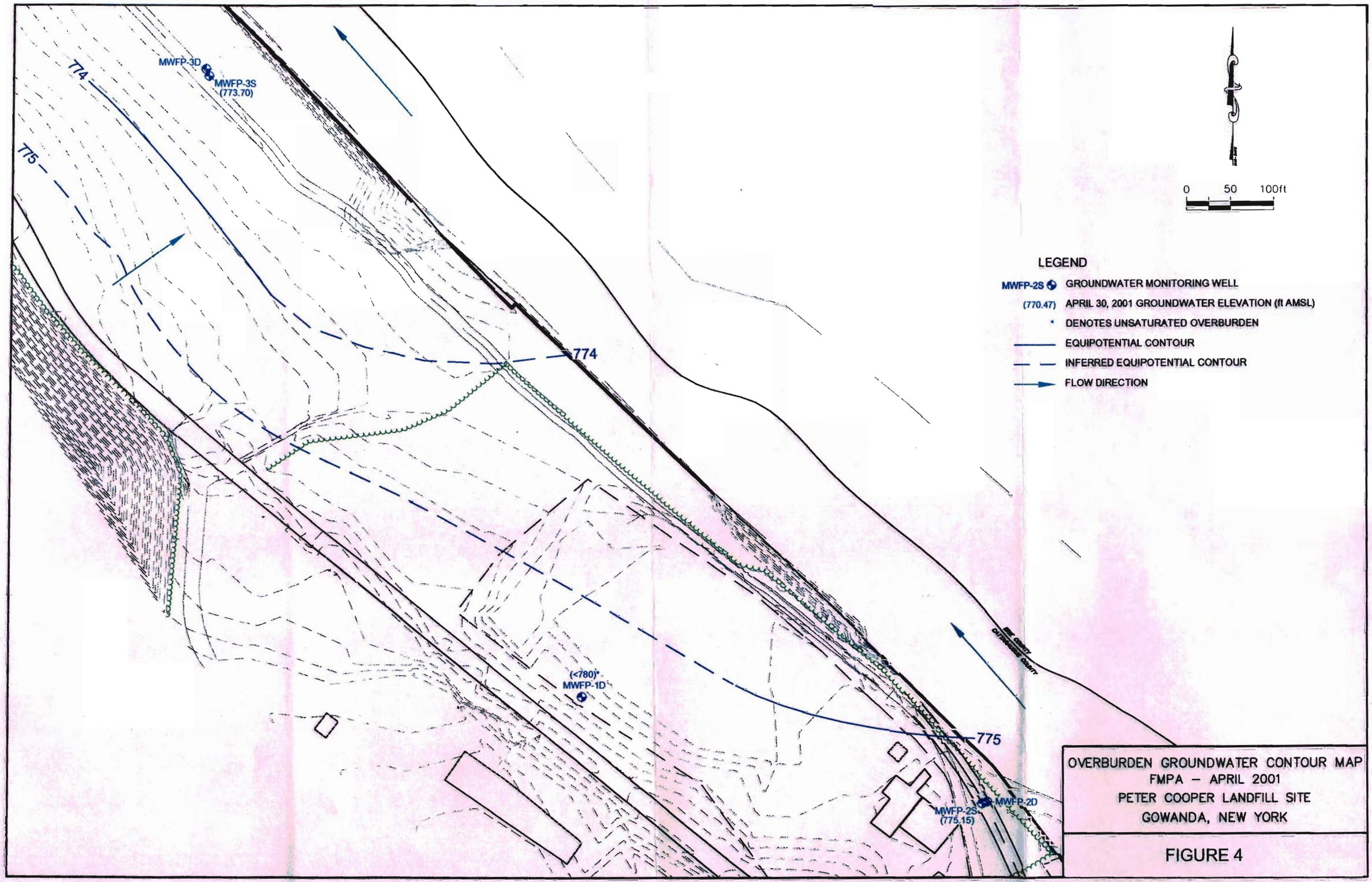
0 1200 Feet

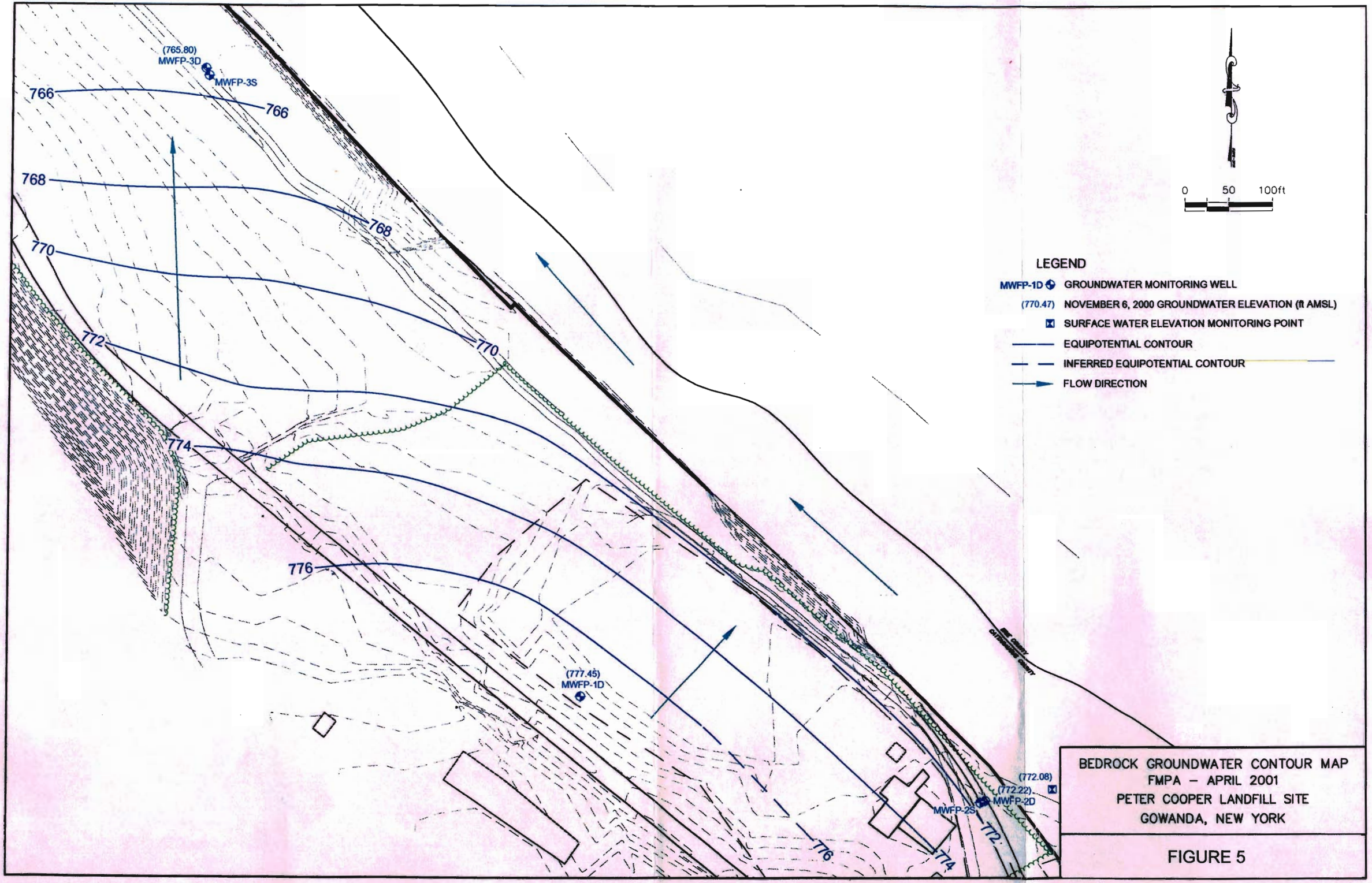
USGS Topographic Map
Gowanda Quadrangle

FIGURE 1


762
MW-4D2
(762.53)
MW-4S(R)
MW-4D(R)
(763.31)
MW-3(R)
(753.37)
DP-1
PZ-1
(769.26)
(762.70)
MW-2S(R)
MW-2D
764
766
768
770
771
772
773
774
775
762
764
766
768
770
MW-6
(773.99)
(771.38)
MW-5
MW-5D
MW-8D
MW-8S
(770.93)
(773.01)
MW-1SR
MW-1D
MW-7D
MW-7S
(775.35)
0
50
100ft
LEGEND
MW-7S GROUNDWATER MONITORING WELL
(770.47) APRIL 30, 2001 GROUNDWATER ELEVATION (ft AMSL)
EQUIPOTENTIAL CONTOUR
INFERRED EQUIPOTENTIAL CONTOUR
FLOW DIRECTION
OVERBURDEN GROUNDWATER CONTOUR MAP
INACTIVE LANDFILL AREA – APRIL 2001
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK
FIGURE 2


(753.44)
MW-4D2
(754.21)
MW-4S(R)
(753.78)
MW-4D(R)
754
MW-3(R)
DP-1
PZ-1
756
MW-2S(R)
(755.34)
MW-2D
758
760
762
764
766
768
770
MW-6
MW-5
MW-5D
(771.43)
771
(770.93)
MW-8D
MW-8S
MW-1SR
MW-1D
(767.72)
(766.27)
MW-7D
MW-7S
0
50
100ft
LEGEND
MW-7D GROUNDWATER MONITORING WELL
(770.47) NOVEMBER 6, 2000 GROUNDWATER ELEVATION (ft AMSL)
SURFACE WATER ELEVATION MONITORING POINT
EQUIPOTENTIAL CONTOUR
LOCALIZED OVERBURDEN GROUNDWATER INFLUENCE
FLOW DIRECTION
BEDROCK GROUNDWATER CONTOUR MAP
INACTIVE LANDFILL AREA - APRIL 2001
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK
FIGURE 3


MWFP-3D
MWFP-3S
(773.70)
774
775
774
(<780)*
MWFP-1D
775
MWFP-2D
MWFP-2S
(775.15)
0
50
100ft
LEGEND
MWFP-2S GROUNDWATER MONITORING WELL
(770.47) APRIL 30, 2001 GROUNDWATER ELEVATION (ft AMSL)
* DENOTES UNSATURATED OVERBURDEN
EQUIPOTENTIAL CONTOUR
INFERRED EQUIPOTENTIAL CONTOUR
FLOW DIRECTION
OVERBURDEN GROUNDWATER CONTOUR MAP
FMPA – APRIL 2001
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK
FIGURE 4



BEDROCK GROUNDWATER CONTOUR MAP
FMPA – APRIL 2001
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

FIGURE 5

MW-4D(R)
MW-4D2
MW-4S(R)
MW-3(R)
DP-1
PZ-1
MW-2S(R)
GMW-1
MW-2D
GMW-2
GMW-3
MW-5
MW-5D
MW-6
MW-8D
MW-8S
MW-1SR
MW-1D
MW-7D
MW-7S

0 50 100ft

LEGEND

MW-7S GROUNDWATER MONITORING WELL

GMW-3 LANDFILL GAS MONITORING WELL

MONITORING WELL LOCATIONS FOR
THE INACTIVE LANDFILL AREA
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

FIGURE 6

MWFP-3D
MWFP-3S
MWFP-1D
MWFP-2S
MWFP-2D

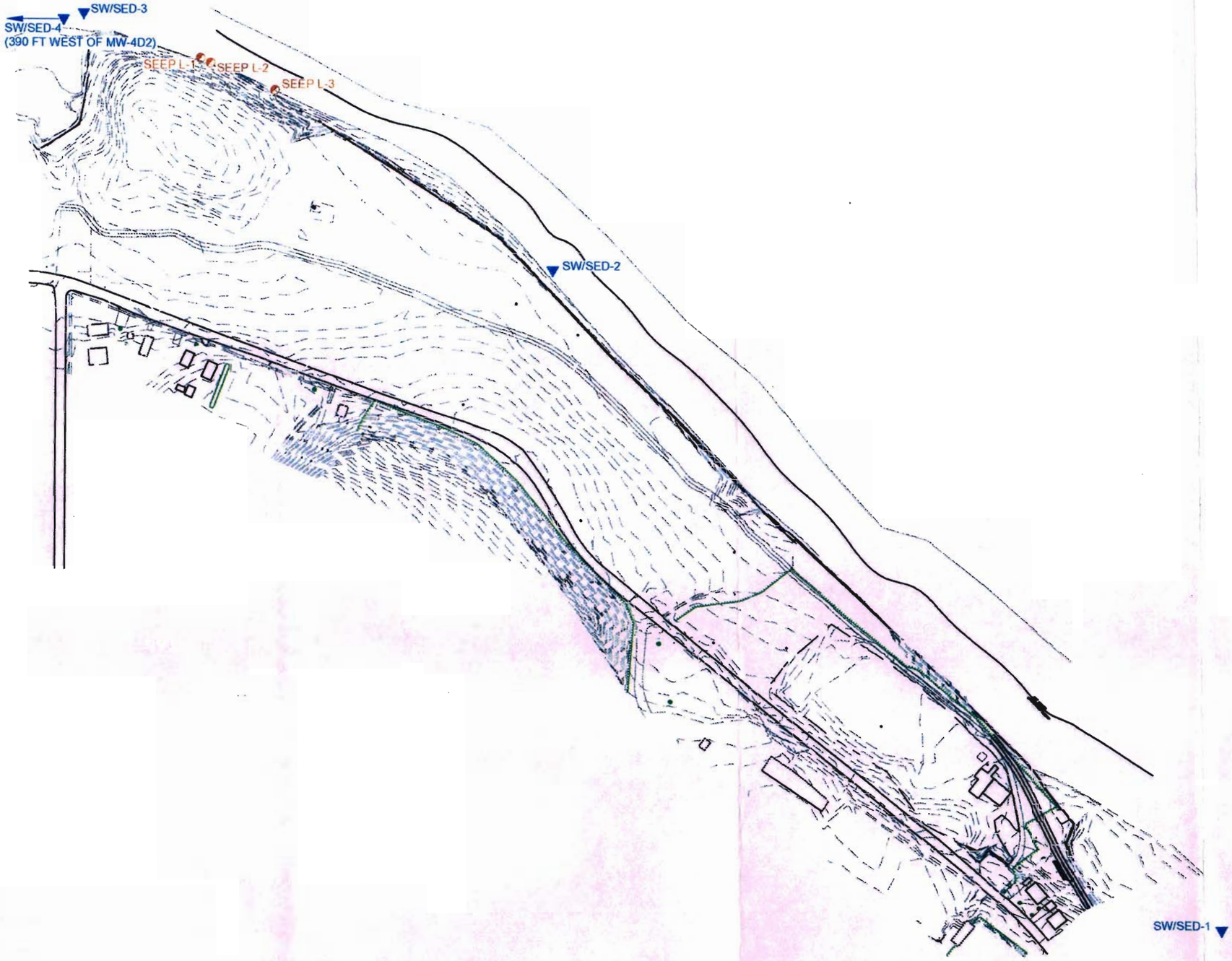
0 50 100ft

LEGEND

MW-7S GROUNDWATER MONITORING WELL

MONITORING WELL LOCATIONS – FMPA
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

FIGURE 7



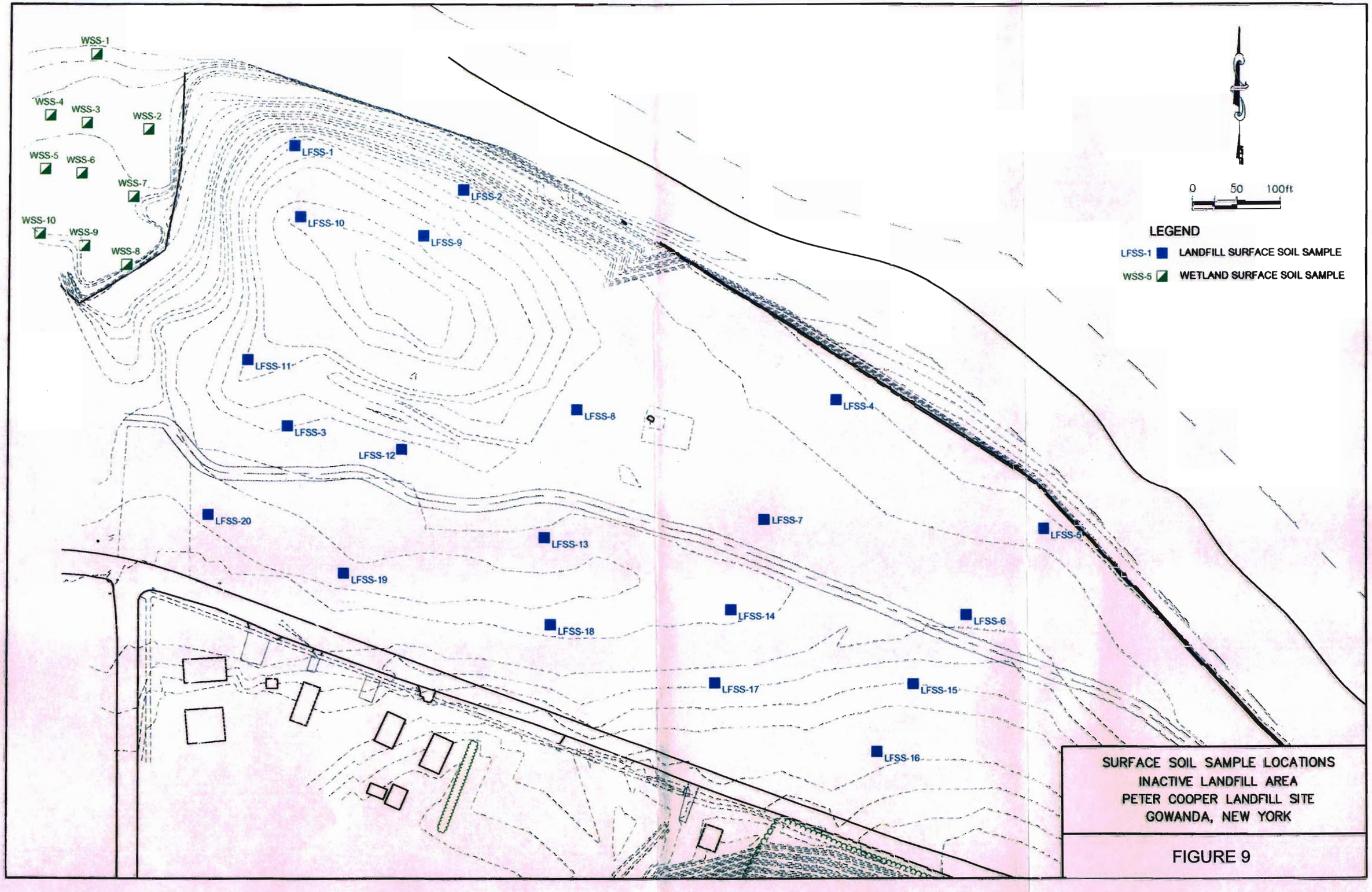
LEGEND

SW/SED-4 ▼ SURFACE WATER/SEDIMENT SAMPLE

SEEP L-3 ◐ SEEP SAMPLE

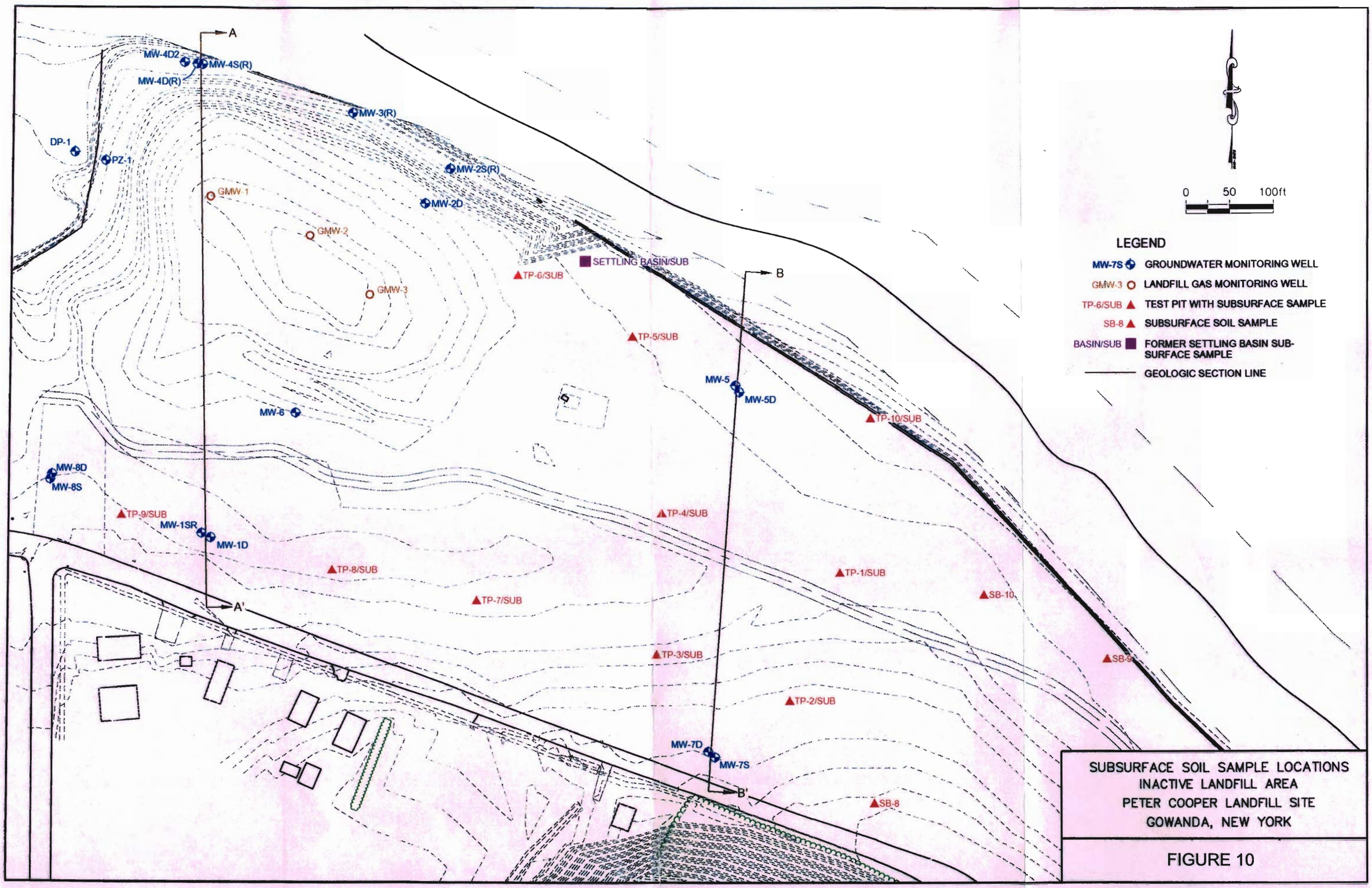
SURFACE WATER/SEDIMENT AND
SEEP SAMPLE LOCATIONS
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

FIGURE 8



SURFACE SOIL SAMPLE LOCATIONS
INACTIVE LANDFILL AREA
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

FIGURE 9



SUBSURFACE SOIL SAMPLE LOCATIONS
INACTIVE LANDFILL AREA
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

FIGURE 10

SURFACE AND SUBSURFACE SOIL SAMPLE LOCATIONS – FMPA PETER COOPER LANDFILL SITE GOWANDA, NEW YORK

FIGURE 11

PETER COOPER LANDFILL SUPERFUND SITE
ROD

APPENDIX II

TABLES

SUMMARY OF TABLES

TABLE 1
SUMMARY OF ANALYTICAL RESULTS FOR OVERBURDEN GROUNDWATER SAMPLES FROM THE INACTIVE LANDFILL AREA
Peter Cooper Landfill Site
Gowanda, New York

Compound[2]	Groundwater Criteria[3]	Sample Location, Identification and Date Collected[1]									
		MW-1SR		MW-2SR		MW-3SR		MW-4S		MW-5S	
		111000120 11/10/2000	050101123 5/1/2001	110700108 11/7/2000	050401147 5/4/2001	110700109 11/7/2000	050201136 5/2/2001	111000117 11/10/2000	050301144 5/3/2001	110900112 11/9/2000	050301143 5/3/2001
Volatile Organic Compounds (mg/l)											
Benzene	1	10 U	10 U	100 U	10 U	100 U	10 UJ	100 U	1.3 J	10 U	10 U
Chlorobenzene	5	10 U	10 U	100 U	10 U	100 U	10 UJ	100 U	47	10 U	10 U
1,2-Dichlorobenzene	3	10 U	10 U	100 U	10 U	100 U	10 UJ	100 U	5 J	10 U	10 U
Toluene	5	10 U	10 U	100 U	10	17 J	10 J	100 U	3.2 J	10 U	10 U
Semi-Volatile Organic Compounds (mg/l)											
Phenol	1	R	9.4 U	15	220 DJ	38	480 DJ	10 U	9.4 U	10 U	9.4 U
Total Metals (mg/l)											
Arsenic	0.025	0.01 U	0.01 U	0.151	0.196	0.0621	0.0479 J	0.0714	0.0582	0.01 U	0.01 U
Chromium	0.05	0.01 U	0.01 U	0.143	0.251	0.436	0.366	0.209	0.371	0.01 U	0.01 U
Iron	0.3	0.1 U	0.1 U	0.107	0.1 U	0.1 U	0.13	0.1 U	0.14	23	41
Magnesium	35*	25	16.8	90.2	154	167	136	83.6	160	41.6	37
Sodium	20	11.6	9.08	17.6	22.1	20.9	18.5	22.1	26.1	25.8	12.4
Soluble Metals[4] (mg/l)											
Arsenic	0.025	NA	NA	NA	NA	NA	0.0538 J	NA	NA	NA	NA
Chromium	0.05	NA	NA	NA	NA	NA	0.354	NA	NA	NA	NA
Iron	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other Geochemical Data (mg/l)											
Ammonia	2	3.26	1.05	523	633	837	693	NA	810	23.9	6.32
Chloride	250	8.13	9.74	21.7	17.2	32.8	22.7	NA	26.4	6.82	6.9
Nitrate Nitrogen	10	1.16	1.72	0.5 U	0.04 U	0.5 U	0.05 U	NA	0.05 U	0.5 UJ	0.05 U
Sulfate	250	416	168	463	48.2	24.0	99.3	NA	209	575	966
Total Sulfide	0.05*	1 U	2 U	38.0	55	52.0	37.0 J	34.0	19 J	1 U	2 UJ

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services.
3. Groundwater critiera for Class GA groundwater as provided in Division of Water Technical and Operational Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, October 22, 1993, reissued June 1998.
   * values are guidance values.
4. Samples collected for soluble metals analysis were field filtered.

mg/l = milligrams per liter
NA = not analyzed
(values) = laboratory reported value prior to data validation.

J = indicates an estimated value.
U = indicates compound was not detected.
D = indicates spike diluted out.
R= indicates value was rejected by data validator.
indicates exceedance of groundwater criteria.

UJ = indicates compound was not detected above the listed detection limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitiation necessary to accurately and precisely measure the compound in the sample.

Summarized from Table 4-8 of the Remedial Investigation Report

TABLE 1
SUMMARY OF ANALYTICAL RESULTS FOR OVERBURDEN GROUNDWATER SAMPLES FROM THE INACTIVE LANDFILL AREA
Peter Cooper Landfill Site
Gowanda, New York

Compound[2]	Groundwater Criteria[3]	MW-6S		MW-7S		MW-8S	
		110700110 11/7/2000	050401152 5/4/2001	111000116 11/10/2000	050401151 5/4/2001	110800091 11/8/2000	043001121 4/30/2001
Volatile Organic Compounds (mg/l)							
Benzene	1	1.6 J	1.5 J	10 U	10 U	10 U	10 U
Chlorobenzene	5	160	190	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	3	10 U	10 U	10 U	10 U	10 U	10 U
Toluene	5	10 U	10 U	10 U	10 U	10 U	10 U
Semi-Volatile Organic Compounds (mg/l)							
Phenol	1	10 U	9.4 U	10 U	9.4 U	10 U	9.4 U
Total Metals (mg/l)							
Arsenic	0.025	0.0338	0.025 U	0.0172	0.025 U	0.01 U	0.01 U
Chromium	0.05	0.0293	0.0228	0.0137	0.01 UJ	0.01 U	0.01 U
Iron	0.3	13.4	16.6	9.04	2.29	10.5	11.7
Magnesium	35*	73.9	61.8	22.9	34	25.7	20.7
Sodium	20	8.31	5 U	1670	229	28.2	28.6
Soluble Metals[4] (mg/l)							
Arsenic	0.025	NA	NA	0.0145	NA	NA	NA
Chromium	0.05	NA	NA	0.01 UJ	NA	NA	NA
Iron	0.3	NA	NA	4.61	NA	NA	NA
Sodium	20	NA	NA	1630	NA	NA	NA
Other Geochemical Data (mg/l)							
Ammonia	2	219	153	151	93.7	2.49	2.29
Chloride	250	10.6	3.82	2310	587	22.3	61.5
Nitrate Nitrogen	10	0.5 UJ	0.0502	22.7	0.05 U	0.5 U	0.5 U
Sulfate	250	2.64	4.22	127	236	260	181
Total Sulfide	0.05*	1 U	1 UJ	1 U	1 UJ	1.1 U	2 U

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services.
3. Groundwater critiera for Class GA groundwater as provided in Division of Water Technical and Operational Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, October 22, 1993, reissued June 1998.
   * values are guidance values.
4. Samples collected for soluble metals analysis were field filtered.

mg/l = milligrams per liter
NA = not analyzed
(values) = laboratory reported value prior to data validation.

J = indicates an estimated value.
U = indicates compound was not detected.
D = indicates spike diluted out.
R= indicates value was rejected by data validator.
indicates exceedance of groundwater criteria.

UJ = indicates compound was not detected above the listed detection limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitiation necessary to accurately and precisely measure the compound in the sample.

Summarized from Table 4-8 of the Remedial Investigation Report

TABLE 2
SUMMARY OF ANALYTICAL RESULTS FOR OVERBURDEN GROUNDWATER FROM THE FORMER MANUFACTURING PLANT AREA
Peter Cooper Landfill Site
Gowanda, New York

Constituent [2]	*Groundwater Criteria* [3]	*Sample Location, Identification and Date Collected* [1]			
		MWFP-2S		*MWFP-3S*	
		110700106 11/7/2000	*050301140 5/3/2001*	*110700088 11/7/2000*	*050201128 5/2/2001*
Volatile Organic Compounds, micrograms per liter					
Tetrachloroethene	5	10 U	10 U	5.5 J	3.1 J
Total Metals, milligrams per liter					
Chromium	0.050	0.0114	14	0.01 U	0.01 U
Iron	0.300	0.535	4.21	16	5.51
Manganese	0.300	0.43	0.68	2.08	1.49
Sodium	20	18.7	9.98	122	45.9
Other Geochemical Parameters (mg/l)					
Sulfate	250	346	301	651	448

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services.
3. Groundwater criteria for Class GA groundwater as provided in Division of Water Technical and Operational Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, October 22, 1993, reissued June 1998.

mg/l = milligrams per liter
NA = not analyzed
NTU = Nephelometric Turbidity Unit
uS/cm = microsiemens per centimeter at 25°C.
ppm = parts per million
mV = millivolts

J = an estimated concentration.
U = compound was not detected at or above the listed detection limit.
R = value was rejected by data validator.
D = indicates spike diluted out.
-- = indicates value does not exist.
indicates exceedance of groundwater criteria.

Summarized from Table 4-10 of the Remedial Investigation Report

TABLE 3
SUMMARY OF ANALYTICAL RESULTS FOR BEDROCK GROUNDWATER SAMPLES FROM THE INACTIVE LANDFILL AREA
Peter Cooper Landfill Site
Gowanda, New York

		Sample Location and Date Collected[1]													
		MW-1D		MW-2D		MW-4D2		MW-4D(R)		MW-5D		MW-7D		MW-8D	
Constituent[2]	Groundwater Criteria[3]	111000119 11/10/2000	050101124 5/1/2001	110800107 11/8/2000	050401148 5/4/2001	110900115 11/9/2000	050301146 5/3/2001	111000118 11/10/2000	050301145 5/3/2001	110900111 11/9/2000	050301141 5/3/2001	110700105 11/7/2000	050401149 5/4/2001	110900114 11/9/2000	040301122 4/30/2001
Volatile Organic Compounds (mg/l)															
Chlorobenzene	5	10 U	10 U	10 U	10 U	10 U	10 U	10	6.8 J	10 U	10 U	10 U	10 U	10 U	10 U
Total Metals (mg/l)															
Arsenic	0.025	0.01 U	0.01 U	0.0248	0.0283 U	0.01 U	0.0483 J	0.0192	0.01 U	0.01 U	0.01 U	0.01 U	0.025 U	0.01 U	0.01 U
Chromium	0.05	0.01 U	0.0113	0.0524	0.0551	0.0134	0.0492	0.133	0.088	0.01 U	0.01 U	0.01 U	0.01 UJ	0.01 U	0.0155
Iron	0.3	13.5	16.1 J	0.146	0.115	8.45	70	1.98	4.81	66.9	71.4	0.378	1.81	6.92	8.4
Magnesium	35*	6.81	8.3	104	107	15.9	22.5	89.4	75.2	36	35.4	5.84	15.7	9.05	2.6
Sodium	20	154	144	295	297	950	1030	197	185	21.2	27	384	347	163	109
Soluble Metals[4] (mg/l)															
Chromium	0.05	0.01 U	0.01 U	NA	NA	NA	0.0114	0.134	0.0821	NA	NA	NA	NA	NA	(0.01 U) UJ
Iron	0.3	0.708	0.105	NA	NA	NA	NA	0.926	NA	NA	NA	NA	NA	NA	NA
Magnesium	35*	4.76	6.88	NA	NA	NA	NA	90.8	NA	NA	NA	NA	NA	NA	NA
Sodium	20	154	140	NA	NA	NA	NA	203	NA	NA	NA	NA	NA	NA	NA
Other Geochemical Data (mg/l)															
Ammonia	2	0.826	0.8	353	349	9.35	8.99	241	186	10.4	10.5	1.31	1.8	0.762	0.716
Chloride	250	111	98.5	177	148	579	914	62.5	44.6	14.2	11	249	464	87.1	148
Sulfate	250	2.07	10.4	715	745	13.2	3.4	162	266	1620	1460	30.5	50.8	17.4	30.7
Total Sulfide	0.05*	1 U	1.2	9.7	6.4 J	1 U	2 UJ	7.6	6.8	1 U	2 U	1 U	1.2 J	1 U	2 U

Notes:

1. Sample locations provided on Plate 1
2. Data qualifications reflect 100% data validation performed by Data Validation Services
3. Groundwater criteria for Class GA groundwater as provided in Division of Water Technical and Operational Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, October 22, 1993, reissued June 1998
   * Values are guidance values.
4. Samples collected for soluble metals analysis were field filtered

NA = not analyzed
– = indicates value does not exist
mg/l = milligrams per liter
ppm = parts per million
mV = millivolts
J = indicates an estimated value.
U = indicates compound was not detected

R= indicates data rejected by data validator.
(value) = indicates value reported before data validation.
[redacted] indicates exceedance of groundwater criteria.
UJ = indicates compound was not detected above the listed detection limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the compound in the sample.

Summarized from Table 4-9 of the Remedial Investigation Report

TABLE 4

ANALYTICAL RESULTS FOR BEDROCK GROUNDWATER FROM THE FORMER MANUFACTURING PLANT AREA

Peter Cooper Landfill Site

Gowanda, New York

Compound[2]	*Groundwater Criteria*[3]	*Sample Location, Identification, and Date Collected*[1]					
		MWFP-1D		*MWFP-2D*		*MWFP-3D*	
		110600086	*050101125*	*110600087*	*050201135*	*110700090*	*050101126*
		11/6/2000	*5/1/2001*	*11/6/2000*	*5/2/2001*	*11/7/2000*	*5/1/2001*
Volatile Organic Compounds (mg/l)							
Acetone	50*	10 U	NA	80	NA	6.7 J	NA
Benzene	1	10 U	10 U	3.6 J	2.4 J	10 U	1.2 J
cis-1,2-Dichloroethene	5	10 U	NA	10 U	NA	8.2 J	NA
Toluene	5	10 U	NA	6.8 J	NA	10 U	NA
m-/p-Xylene	5	10 U	NA	6.4 J	NA	10 U	NA
Metals (mg/l)							
Iron	0.3	0.417	0.211	1.89	0.348	21.5	17.7
Manganese	0.3	0.112	0.122	0.0446	0.0579	2.06	1.96
Sodium	20	26.7	25	293	352	119	78.9
Soluble Metals[4] **(mg/l)**							
Iron	0.3	NA	NA	NA	NA	NA	16.4
Manganese	0.3	NA	NA	NA	NA	NA	1.89
Other Geochemical Parameters (mg/l)							
Sulfate	250	45.5	47.2	56.7	241	695	544

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services.
3. Groundwater criteria for Class GA groundwater as provided in Division of Water Technical and Operational Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, October 22, 1993, reissued June 1998.
   * Values are guidance values.
4. Samples collected for soluble metals analysis were field filtered.

mg/l = milligrams per liter
NA = not analyzed
NTU = Nephelometric Turbidity Unit

J = an estimated concentration.
U = compound was not detected at or above the listed detection limit.
R = value was rejected by data validator.
-- = indicates value does not exist.
indicates exceedance of groundwater criteria.

Summarized from Table 4-11 of the Remedial Investigation Report

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR SEEP SAMPLES FROM THE INACTIVE LANDFILL AREA

Peter Cooper Landfill Site

Gowanda, New York

Constituent[2]	*Surface Water Criteria*[3]	*Sample Location, Identification and Date Collected*[1]					
		Seep #1		*Seep #2*		*Seep #3*	
		110800102 11/8/2000	*052001137 5/20/2001*	*110800103 11/8/2000*	*052001138 5/20/2001*	*110800104 11/8/2000*	*052001139 5/20/2001*
Total Metals (mg/l)							
Chromium	0.120	0.374	0.221	0.423	0.312	0.0949	0.129
Iron	0.300	3.01	1.18	28.6	0.1 U	0.39	0.123
Soluble Metals[4] **(mg/l)**							
Chromium	0.120	0.369	NA	0.325	NA	0.0969	NA
Iron	0.3	4.78	NA	0.914	NA	0.107	NA
Other Geochemical Data (mg/l)							
Ammonia	1.1 Nov./1.3 Apr.[5]	891	627	734	678	381	393
Total Sulfide	2	9.00	5.9	3.70	5.2	1 U	2 U

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services.
3. Surface water criteria for Class A, A-S, AA, AA-S, B, C fresh water fish propogation as provided in Division of Water Technical and Operational Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, October 22, 1993, reissued June 1998.
4. Samples collected for soluble metals analysis were field filtered.
5. Total Ammonia calculated with the (T) or (TS) Specifications (most conservative) using an average pH of 8.1 (Nov) and 8.0 (Apr) and average temp of 13.2 °C (Nov) and 17.0°C (Apr).

NA = not analyzed
-- = indicates value does not exist.
mg/l - milligrams per liter

J = indicates an estimated value.
U = indicates compound was not detected.
R= indicates value was rejected by data validator.
indicates exceedance of surface water criteria.

Summarized from Table 4-12 in the Remedial Investigation Report

TABLE 6

SUMMARY OF ANALYTICAL RESULTS FOR SURFACE SOIL SAMPLES FROM THE INACTIVE LANDFILL AREA

Peter Cooper Landfill Site

Gowanda, New York

Constituent[2]	*Soil Criteria*[3]			*Sample Location, Identification, Depth, and Date Collected*[1]									
				LFSS-1 *101100058* *0-6 in. bgs* *10/11/2000*	*LFSS-2* *101100059* *0-6 in. bgs* *10/11/2000*	*LFSS-3* *101100060* *0-6 in. bgs* *10/11/2000*	*LFSS-4* *101100061* *0-6 in. bgs* *10/11/2000*	*LFSS-5* *101100062* *0-6 in. bgs* *10/11/2000*	*LFSS-6* *101100069* *0-6 in. bgs* *10/11/2000*	*LFSS-7* *101100064* *0-6 in. bgs* *10/11/2000*	*LFSS-8* *101100065* *0-6 in. bgs* *10/11/2000*	*LFSS-9* *101100066* *0-6 in. bgs* *10/11/2000*	*LFSS-10* *101100067* *0-6 in. bgs* *10/11/2000*
	Eastern USA Background	*Region 9 PRGs*	*Soil Screening Levels*										
Metals, milligrams per kilogram													
Arsenic	3-12**	1.6	29.0	9.3	8.7	10.2	6.6	10.6	919	21.1	7.2	11	8.7
Chromium	1.5-40**	210	38	18.4	15.4	267	13	32.8	341	208	550	33.8	36.4
Zinc	9-50	100,000	12,000	81.8	79.3	163	55	91.4	165	77.5	137	96.6	89.2

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services.
3. Soil criteria from U.S.EPA, Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil (October 2002) and from range of background metals concentrations measured in soil found in the eastern United States from NYSDEC Division of Technical and Administrative Guidance Memorandum (TAGM) #4046.

** A New York State Background value

in. bgs =inches below ground surface.

indicates concentration above soil criteria.

Summarized from Table 4-3 of the Remedial Investigation Report

TABLE 6

SUMMARY ANALYTICAL RESULTS FOR SURFACE SOIL SAMPLES FROM THE INACTIVE LANDFILL AREA

Peter Cooper Landfill Site
Gowanda, New York

Constituent[2]	Soil Criteria[3]			Sample Location, Identification, Depth, and Date Collected[1]										Maximum Conc.	Minimum Conc.
	Eastern USA Background	Region 9 PRGs	Soil Screening Levels	LFSS-11 101100068 0-6 in. bgs 10/11/2000	LFSS-12 101100070 0-6 in. bgs 10/11/2000	LFSS-13 101100071 0-6 in. bgs 10/11/2000	LFSS-14 101100072 0-6 in. bgs 10/11/2000	LFSS-15 101100073 0-6 in. bgs 10/11/2000	LFSS-16 101100074 0-6 in. bgs 10/11/2000	LFSS-17 101100075 0-6 in. bgs 10/11/2000	LFSS-18 101100076 0-6 in. bgs 10/11/2000	LFSS-19 101100077 0-6 in. bgs 10/11/2000	LFSS-20 101200078 0-6 in. bgs 10/12/2000		
Metals, milligrams per kilogram															
Arsenic	3-12**	1.6	29.0	9.1 J	7.5 J	7.2 J	21.5 J	6.5 J	9.4 J	38.8 J	6.9 J	128 J	4 J	919	4 J
Chromium	1.5-40**	210	38	40.1 J	92 J	15.5 J	134 J	11 J	17.2 J	117 J	17.1 J	169 J	10.6 J	550	10.6 J
Zinc	9-50	100,000	12,000	75.1 J	96.9 J	54 J	67.1 J	46.9 J	61.3 J	85.9 J	53.8 J	103 J	52.2 J	165	46.9 J

Notes.

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services
3. Soil criteria from U.S EPA, Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil (October 2002) and from range of background metals concentrations measured in soil found in the eastern United States from NYSDEC Division of Technical and Administrative Guidance Memorandum (TAGM) #4046.

** A New York State background value.

in. bgs =inches below ground surface.
-- = indicates value does not exist
SB = Site Background
UJ = indicates compound was not detected above the listed detection limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the compound in the sample

J = indicates an estimated value.
U = indicates compound was not detected
R = indicates data rejected by data validator.
(values) = indicates value reported before rejected.
indicates concentration above soil criteria.

TABLE 7
SUMMARY OF ANALYTICAL RESULTS FOR SUBSURFACE SOIL FROM THE INACTIVE LANDFILL AREA
Peter Cooper Landfill Site
Gowanda, New York

	Soil Criteria[3]			*Sample Location, Identification, Depth and Date Collected*[1]										
				TP-1 *10090025*	*TP-2* *10090024*	*TP-3* *10090023*	*TP-4* *10090026*	*TP-5* *10100028*	*TP-6* *10100030*	*TP-7* *10060022*	*TP-8* *10060021*	*TP-9* *10060020*	*TP-10* *10120031*	*settling basin* *101060029*
Constituent	*Eastern USA Background*	*Region 9 PRGs*	*Soil Screening Levels*	*6.5-7 fbgs* *10/6/2000*	*12.5 fbgs* *10/6/2000*	*8.5-9 fbgs* *10/6/2000*	*7 fbgs* *10/6/2000*	*9.5 fbgs* *10/6/2000*	*5 fbgs* *10/6/2000*	*3-4 fbgs* *10/6/2000*	*4-5 fbgs* *10/6/2000*	*6.5 fbgs* *10/6/2000*	*1 fbgs* *10/6/2000*	*7 fbgs* *10/6/2000*
Metals, milligrams per kilogram														
Arsenic	3-12**	1.6	29.0	13.5	9.1	60.5	4.3	6.5	29.8	58.4	29.2	22.1	67.1 U	9.8
Chromium	1.5-40**	210	38	270	9.1	137	10.3 J	15.3	149	623	55	7.9	8610 U	12.5
Zinc	9-50	100,000	12,000	277	58.6	214	57.3	70.2	1390	77.9 J	58.6 J	99 J	445	68.6

Notes.

1. Sample locations provided on Plate 1
2. Data qualifications reflect 100% data validation performed by Data Validation Services
3. Soil criteria from U.S.EPA, Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil (October 2002) and from range of background metals concentrations measured in soil found in the eastern United States from NYSDEC Division of Technical and Administrative Guidance Memorandum (TAGM) #4046

** A New York State Background value

fbgs = feet below ground surface

J = indicates an estimated value.

U = indicates compound was not detected above the listed detection limit.

indicates concentration above soil criteria

Summarized from Table 4-4 of the Remedial Investigation Report

TABLE 8
ANALYTICAL RESULTS FOR SUBSURFACE SOILS FROM THE FORMER MANUFACTURING PLANT AREA
Peter Cooper Landfill Site
Gowanda, New York

Constituent[2]	*Soil Criteria*[3]			*Sample Location, Identification, Depth, and Date Collected*[1]					
	Eastern USA Background	*Region 9 PRGs*	*Soil Screening Levels*	*SB-1 100500007 5-7' 10/05/00*	*SB-2 100500009 6-8' 10/05/00*	*SB-3 100600014 3-5' 10/06/00*	*SB-4 100500011 4-6' 10/05/00*	*SB-5 100600013 6-8' 10/06/00*	*SB-6 100900040 4-6' 10/9/2000*
Metals, milligrams per kilogram									
Antimony	--	410	5	6.6 UJ	6.5 UJ	7.1 UJ	8.3 UJ	8.5 UJ	7.1 UJ
Arsenic	3-12**	1.6	29.0	12.5	8.9	8.8	12.8	3.7	6.1
Cadmium	0.1-1	450	8	0.55 U	0.54 U	0.59 U	0.69 U	0.71 U	0.59 UJ
Calcium	130-35,000**	--	--	4800	2020	1270	6600	4600	14200
Chromium	1.5-40**	210	38	11.2	9.5	8.9	25.5	6.2	9
Copper	1-50	64	38	17.8	19.9	11.5	111	11.3	19
Lead	4-61***	750	--	37 J	8.8 J	8.4 J	37.1 J	7.2 J	8.8
Magnesium	100-5,000	--	--	2370	2760	2340	851	1250	3070
Mercury	0.001-0.2	310	--	0.06 U	0.05 U	0.06 U	0.17	0.07 U	0.17
Zinc	9-50	100,000	12,000	81.3 J	405 J	48.7 J	294 J	37.8 J	69.6

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services. The analytical results for the SVOC, 3-Nitroaniline, was rejected during data validation for each sample.
3. Soil criteria from U.S.EPA, Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil (October 2002) and from range of background metals concentrations measured in soil found in the eastern United States from NYSDEC Division of Technical and Administrative Guidance Memorandum (TAGM) #4046.

** A New York State Background value

*** Background levels for lead vary widely, average levels in undeveloped, rural areas range from 4-61 ppm while metropolitan/suburban areas range from 200-500 ppm.

J = indicates a laboratory estimated value or estimated as a result of data validation.
U = indicates compound was not detected at or above the listed detection limit.
UJ = indicates compound was not detected above the listed detection limit.
However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitiation necessary to accurately and precisely measure the compound in the sample.
R= indicates data rejected by data validator.
fbgs = feet below ground surface
SB = Site Background
-- = indicates value does not exist.
indicates concentration above soil criteria.

Summarized from Table 4-6 of the Remedial Investigation Report

TABLE 8
ANALYTICAL RESULTS FOR SUBSURFACE SOILS FROM THE FORMER MANUFACTURING PLANT AREA
Peter Cooper Landfill Site
Gowanda, New York

Constituent[2]	Soil Criteria[3]			Sample Location, Identification, Depth, and Date Collected[1]					
	Eastern USA Background	Region 9 PRGs	Soil Screening Levels	SB-7 100600019 7-9' 10/06/00	SB-8 100600033 10-12' 10/06/00	SB-9 100600035 7-9' 10/06/00	SB-10 100600037 7-9' 10/06/00	MWFP-2 100600017 5-7' 10/06/00	MWFP-3 100900039 5-7' 10/09/00
Metals, milligrams per kilogram									
Antimony	--	410	5	7.4 UJ	6.6 UJ	7.4 UJ	6.7 UJ	9.7 J	7.1 UJ
Arsenic	3-12**	1.6	29.0	6.6	5.8	14.6	6.9	23.6	10
Cadmium	0.1-1	450	8	1.3	0.55 U	0.61 U	0.56 U	0.96	0.59 U
Calcium	130-35,000**	--	--	10100	1930	7110	5640	67000	1550
Chromium	1.5-40**	210	38	48.3	8.2	13.2	8.5	155	10.7
Copper	1-50	64	38	187	13.5	25.8	15.2	94.6	22.3
Lead	4-61***	750	--	457 J	10 J	12.9 J	11.9 J	1950 J	9.1
Magnesium	100-5,000	--	--	1790	1750	5620	3800	4710	2340
Mercury	0.001-0.2	310	--	0.18	0.06 U	0.06 U	0.06 U	3.1	0.06 U
Zinc	9-50	100,000	12,000	154 J	47.7 J	222 J	84.2 J	605 J	64.2

Notes:

1. Sample locations provided on Plate 1.
2. Data qualifications reflect 100% data validation performed by Data Validation Services. The analytical results for the SVOC, 3-Nitroaniline, was rejected during data validation for each sample.
3. Soil criteria from U.S.EPA, Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil (October 2002) and from range of background metals concentrations measured in soil found in the eastern United States from NYSDEC Division of Technical and Administrative Guidance Memorandum (TAGM) #4046.

** A New York State Background value

*** Background levels for lead vary widely, average levels in undeveloped, rural areas range from 4-61 ppm while metropolitan/suburban areas range from 200-500 ppm.

J = indicates a laboratory estimated value or estimated as a result of data validation.
U = indicates compound was not detected at or above the listed detection limit.
UJ = indicates compound was not detected above the listed detection limit.
However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitiation necessary to accurately and precisely measure the compound in the sample.
R= indicates data rejected by data validator.
fbgs = feet below ground surface
SB = Site Background
-- = indicates value does not exist.
indicates concentration above soil criteria.

Summarized from Table 4-6 of the Remedial Investigation Report

Table 9
SUMMARY OF CHEMICALS OF POTENTIAL CONCERN
MEDIA-SPECIFIC EXPOSURE POINT CONCENTRATIONS
Peter Cooper Landfill Superfund Site
Gowanda, New York

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemicals of Potential Concern	Concentration Detected		Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
		Arithmetic Mean	Maximum					
Soil - ILA	Arsenic	62.6	919	mg/kg	20/20	141	mg/kg	95% UCL-N
	Arsenic (hot spot area)	NA	919	mg/kg	1/1	919	mg/kg	Hot Spot
	Antimony	NA	57.6	mg/kg	1/1	58	mg/kg	Max.
	Naphthalene	NA	22	mg/kg	1/1	22	mg/kg	Max.
Soil - FMPA	Carbon tetrachloride	1	10	mg/kg	4/22	2.84	mg/kg	95% UCL-N
	Chloroform	0.58	5.7	mg/kg	3/22	1.62	mg/kg	95% UCL-N
	Arsenic	32.4	168	mg/kg	10/10	61.4	mg/kg	95% UCL-N
	Arsenic (hot spot area)	NA	168	mg/kg	1/1	168	mg/kg	Hot Spot

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemicals of Potential Concern	Concentration Detected		Units	Frequency of Detection	Exposure Point Concentration	Exposure Point Concentration Units	Statistical Measure
		Arithmetic Mean	Maximum					
Groundwater-site wide	Arsenic	39	196	ug/l	8/18	61	ug/l	95% UCL-N

Key
NA = not applicable
"D" reflects compound identified in an analysis at a secondary dilution factor
"JD" reflects an estiamed value identified in an analysis at a secondary dilution factor.
"N" = normal

Table 9
SUMMARY OF CHEMICALS OF POTENTIAL CONCERN
MEDIA-SPECIFIC EXPOSURE POINT CONCENTRATIONS
Peter Cooper Landfill Superfund Site
Gowanda, New York

"T" = transformed
mg/kg: milligrams/kilogram
ug/l: micrograms/liter

Summary of Chemicals of Potential Concern and Media-Specific Exposure Point Concentrations.

The table presents chemicals of potential concern (COPCs) and exposure point concentrations for each of the COPCs detected in media at the Peter Cooper Landfill Superfund site (i.e., the concentration that will be used to estimate the exposure and risk from each COPC in each medium). Arsenic chloroform the main COPCs at the site and chloroform is the main contaminant at the FMPA. The table includes the range of concentrations detected for the main contaminants in groundwater and soil, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the exposure point concentration (EPC), and how the EPC was derived.

Table 10
RISK CHARACTERIZATION SUMMARY CARCINOGENS
Peter Cooper Landfill Superfund Site
Gowanda, New York

Scenario Timeframe: Future
Receptor Population: Outdoor Park Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Peotential Concern	Ingestion	Inhalation	Dermal	Exposure Routes Total Risks
Groundwater	Groundwater	Tap Water - ILA	Arsenic	2.9E-04	NA	NS	3.0E-04
Soil	Soil	ILA	Arsenic	6.7E-05	NS	1.3E-05	8.0 E-5
						Total Risk	4.4 E-04*

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Potential Concern	Ingestion	Inhalation	Dermal	Exposure Routes Total Risks
Groundwater	Groundwater	Tap Water - FMPA	Arsenic	2.9E-04	NA	NS	3.0E-04
Soil	Soil	FMPA	Carbon tetrachloride	NS	2.3E-06	NS	2.5E-06
		FMPA	Chloroform	NS	1.6E-06	NS	1.6E-06
		FMPA	Arsenic	2.9E-05	NS	5.7E-06	3.5E-05
						Total Risk	4E-04*

Scenario Timeframe: Future
Receptor Population: Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemicals of Potential Concern	Ingestion	Inhalation	Dermal	Exposure Routes Total Risks
Soil	Soil	FMPA	Carbon tetrachloride	NA	1.2E-05	NA	1.2E-05
		FMPA	Chloroform	NA	4.5E-06	NA	4.5E-06
						Total Risk	3.0 E-5*

KEY:

NA = not available. Toxicity criteria are not available to quantitatively evaluate this route of exposure.

Table 10
RISK CHARACTERIZATION SUMMARY CARCINOGENS
Peter Cooper Landfill Superfund Site
Gowanda, New York

NS = not significant (risk < 1E-06)

* Total risk includes

Risk Characterization Summary of Carcinogens

The cancer risk estimates represent risk associated with significant routes of exposure to the contaminants of potential concern, arsenic, carbon tetrachloride and chloroform, as well as the total cancer risk from exposure to all of the contaminants detected (*) As shown in the table, the most significant contribution to the total cancer risks is from arsenic, chloroform and carbon tetrachloride.

Table 11
RISK CHARACTERIZATION SUMMARY - NON - CARCINOGENS
Peter Cooper Landfill Superfund Site
Gowanda, New York

Scenario Timeframe: Future Outdoor Park Worker
Receptor Population: Adult
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total HI
Groundwater	Groundwater	Tap Water - ILA	Arsenic	Skin	1.8E+00	NA	NS	1.8
Soil	Soil	Soil Fug. Dust - ILA	Arsenic	Skin	0.4	NS	0.08	0.5
							TOTAL HI	2.3

Scenario Timeframe: Future Industrial Worker
Receptor Population: Adult
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total HI
Groundwater	Groundwater	Tap Water - FMPA	Arsenic	Skin	1.8	NA	NS	1.8
Soil	Soil	Soil Fug. Dust - FMPA	Arsenic	Skin	0.18	NS	0.04	0.22
							TOTAL HI	2

Scenario Timeframe: Future Construction Worker
Receptor Population: Adult
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total HI
Soil	Soil	Soil Fug. Dust - ILA	Antimony	Longevity, blood glucose and cholesterol	0.34	NS	0.04	0.4
			Arsenic	Skin	0.8	NS	0.05	0.82
			Naphthalene	Nasal, respiratory	NS	0.60	NS	0.6
							TOTAL HI	1.8

Table 11
RISK CHARACTERIZATION SUMMARY - NON - CARCINOGENS
Peter Cooper Landfill Superfund Site
Gowanda, New York

Scenario Timeframe: Future Construction Worker (Hot Spot Analysis)*
Receptor Population: Adult
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total HI
Soil	Soil	Soil Fug. Dust - ILA	Arsenic	Skin	7.1	NS	0.60	7.8
		Soil Fug. Dust - FMPA	Arsenic	Skin	1.3	NS	0.11	1.4

NA = not applicable.
NS = not significant < 0.01

* A separate calculation of non-cancer health hazards associated with construction worker exposure to hot spot areas in the ILA (919 mg/kg) and FMPA (168 mg/kg) were calculated using the default exposure assumptions from the 2003 BHHRA.

The noncancer hazard estimates presented represent non-cancer health hazards associated with exposure to arsenic,
As shown in the table, the most significant contribution to the non-cancer HI is from arsenic.

Table 12
SUMMARY OF CANCER TOXICITY DATA
Petter Cooper Landfill Site
Gowanda, New York

Pathways: Ingestion/Inhalation

Chemicals of Potential Concern	Oral Cancer Slope Factor	Dermal Cancer Slope Factor	Slope Factor Units	Inhalation Unit Risk Factor	Unit Risk Factor Units	Weight of Evidence Cancer Guidelines Description	Source	Date*
Arsenic	1.5	1.5	$(mg/kg\text{-}day)^{-1}$	4.3 E-03	$(ug/m^3)^{-1}$	A	IRIS	2/13/001
Carbon tetrachloride	0.13	0.13	$(mg/kg\text{-}day)^{-1}$	1.50E-05	$(ug/m^3)^{-1}$	B2	IRIS	2/13/001
Chloroform	NA	NA	NA	2.30E-05	$(ug/m^3)^{-1}$	B2	IRIS	11/10/2003

KEY

A - Known Carcinogen

B2 = Probable Human Carcinogen

IRIS - Integrated Risk Information System

NA - not applicable

*Current IRIS files have the same toxicity information.

This table provides carcinogenic risk information which is relevant to arsenic, carbon tetrachloride and chlorform.

Table 13
NON-CANCER TOXICITY SUMMARY TABLE
Peter Cooper Landfill Superfund Site
Gowanda, New York

Pathways: Inhalation

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ	Combined Uncertainty/ Modifying Factors	Source	Date
		Value	Units				
Naphthalene	Chronic	3.0 E-3	mg/m^3	Nasal effects: hyperplasia and metaplasia in respiratory and olfactory epithelium,respectively	3000	IRIS	7/12/2002

Pathways: Ingestion

Chemicals of Potential Concern	Chronic/ Subchronic	Oral RfD		Primary Target Organ	Combined Uncertainty/ Modifying Factors	Source	Date
		Value	Units				
Arsenic	Chronic*	3.00E-04	mg/kg-day	Hyperpigmentation, keratosis and possible vascular complications	3	IRIS	2/13/2003
Antimony	Chronic	4.00E-04	mg/kg-day	Longevisty, blood glucose and cholesterol	1,000	IRIS	7/30/2002
Napthalene	Chronic	2.00E-02	mg/kg-day	Decreased mean terminal body weight in males	3,000	IRIS	7/2/2002

Table 13
NON-CANCER TOXICITY SUMMARY TABLE
Peter Cooper Landfill Superfund Site
Gowanda, New York

Key

IRIS - Integrated Risk Information System

NA - not applicable

*Chronic Reference Dose used in assessment of construction worker scenario in absence of a subchronic RfD.

Summary of Toxicity Assessment

This table provides non-carcinogenic hazard information which is relevant to arsenic, antimony and naphthalene, the COPCs in both groundwater and surface soil.

Table 14
CLEAN-UP OBJECTIVES FOR CHEMICALS OF CONCERN
Peter Cooper Landfill Superfund Site
Gowanda, New York

Media Surface and Subsurface Soil
Site Areas: ILA and FMPA
Available Use: Recreational and Industrial
Controls to Ensure Restricted Use: Institutional Controls will be Developed

Chemical of Concern	Clean-up Level	Basis for Cleanup Level	Risk Associated with Cleanup Level
Arsenic	120* mg/kg (ppm)	Risk Assessment Construction Worker	HI = 1 (construction worker)
Chloroform	0.5 mg/kg (ppm)	NYS TAGM	10^{-6} (industrial)
Carbon tetrachloride	0.33 mg/kg (ppm)	NYS TAGM	10^{-6} (industrial)

Description of Clean up Obectives for Chemicals of Concern
The purpose of this response action is to control risks posed by direct contact with soil and groundwater in the ILA and FMPA areas. Risks were identified for the construction worker in both the ILA and FMPA from exposure to arsenic and for the future industrial worker in the FMPA from exposure to chloroform and carbon tetrachloride. Non-cancer hazards were associated with exposure to arsenic in hot spot areas in the ILA and FMPA.

* The arsenic value would apply to two hot spot areas. Because of the limited extent of elevated arsenic levels in these areas, excavation of the hot spots is expected to result in an average individual arsenic concentration < 20 ppm.

NYS TAGM - New York State Technical and Adminstrative Guidance Memorandum
mg/kg - milligrams per kilogram
ppm - parts per million

Table 15

Cost Estimate Alternative 5
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization				
LFSS-6	1	LS	$ 10,000.00	$ 10,000
MWFP-3	1	LS	$ 2,000.00	$ 2,000
SB-2	1	LS	$ 2,000.00	$ 2,000
Seep Collection / Bank Stabilization / Off-Site Discharge	1	LS	$ 100,000.00	$ 100,000
Passive Gas Venting	1	LS	$ 2,500.00	$ 2,500
Low Permeability Barrier	1	LS	$ 20,000.00	$ 20,000
Health and Safety/Community Air Monitoring				
LFSS-6	1	LS	$ 7,500.00	$ 7,500
MWFP-3	1	LS	$ 2,500.00	$ 2,500
SB-2	1	LS	$ 1,250.00	$ 1,250
Seep Collection / Bank Stabilization / Off-Site Discharge	1	LS	$ 50,000.00	$ 50,000
Passive Gas Venting	1	LS	$ 5,000.00	$ 5,000
Low Permeability Barrier	1	LS	$ 15,000.00	$ 15,000
Subtotal:				**$ 217,750**
Soil Removal				
LFSS-6				
Soil Excavation	5800	CY	$ 20.00	$ 116,000
On-site Consolidation (incl. trucking, place & compact)	5800	CY	$ 5.00	$ 29,000
Backfill	5220	CY	$ 15.00	$ 78,300
6" Topsoil	580	CY	$ 25.00	$ 14,500
Seeding	0.75	AC	$ 2,500.00	$ 1,875
Verification Sampling	20	EA	$ 25.00	$ 2,000
MWFP-3				
Soil Excavation	120	CY	$ 20.00	$ 2,400
On-site Consolidation (incl. trucking, place & compact)	120	CY	$ 5.00	$ 600
Backfill	102	CY	$ 15.00	$ 1,530
6" Topsoil	18	CY	$ 25.00	$ 450
Seeding (50' x 20')	1	LS	$ 500.00	$ 500
Verification Sampling	1	LS	$ 2,000.00	$ 2,000
SB-2				
Soil Excavation	46	CY	$ 20.00	$ 920
On-site Consolidation (incl. trucking, place & compact)	46	CY	$ 5.00	$ 230
Backfill	35	CY	$ 15.00	$ 525
6" Topsoil	12	CY	$ 25.00	$ 300
Seeding (50' x 20')	1	LS	$ 500.00	$ 500
Verification Sampling	1	LS	$ 1,500.00	$ 1,500
Subtotal:				**$ 253,130**
Seep Collection / Bank Stabilization				
Restore Former Haul Road	1	LS	$ 20,000.00	$ 20,000
Temporary Boulder Removal	1	LS	$ 10,000.00	$ 10,000
Bank Regrading / Excavation	1	LS	$ 25,000.00	$ 25,000
Seep Collection Trench Excavation	200	CY	$ 75.00	$ 15,000
Dewatering	20	Days	$ 500.00	$ 10,000
Temporary Bank Cover	1	LS	$ 5,000.00	$ 5,000
Washed Stone Collection Pipe Bedding (del. & place)	220	CY	$ 25.00	$ 5,500
6" Perforated LCS Piping	500	LS	$ 15.00	$ 7,500
Manholes (w/locking covers)	3	EA	$ 2,500.00	$ 7,500
Riprap Anchor Trench Excavation	305	CY	$ 60.00	$ 18,300
Geosynthetics:				
Mobilization	1	LS	$ 10,000.00	$ 10,000
40-mil LLDPE Geomembrane (purchase / install)	22700	SF	$ 0.60	$ 13,620
6 oz Geotextile (purchase / install)	5500	SY	$ 0.25	$ 1,375
6" Riprap Bedding Stone	450	CY	$ 25.00	$ 11,250
4" Riprap (2" diameter)	4500	Tons	$ 40.00	$ 180,000
Temporary Siltation & Erosion Control	1	LS	$ 10,000.00	$ 10,000
Subtotal:				**$ 350,045**

Table 15

Cost Estimate Alternative 5
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Seep / Leachate Management				
Packaged RFP Lift Station (15 gpm), installed	2	LS	$ 32,000.00	$ 64,000
Electrical Service	2	LS	$ 8,000.00	$ 16,000
Instrumentation / Valves / Appurtenances	2	LS	$ 5,000.00	$ 10,000
Force Main Trench Excavation	250	CY	$ 10.00	$ 2,500
Force Main Granular Bedding	60	CY	$ 40.00	$ 2,400
1" HDPE Force Main to Sanitary Sewer	650	LF	$ 10.00	$ 6,500
Force Main Backfill	166	CY	$ 5.00	$ 830
Force Main Topsoil & Seeding	1.5	AC	$ 3,500.00	$ 5,250
Flow Sensor Meter Pit / Meter Enclosure	1	LS	$ 1,500.00	$ 1,500
Flow Sensor / Meter	1	LS	$ 4,500.00	$ 4,500
POTW Sewer Permitting Tie-In	1	LS	$ 5,000.00	$ 5,000
Subtotal:				**$ 118,480**
Elevated Fill Area Geosynthetic Cover				
Clearing/Grubbing	5	Acre	$ 4,500.00	$ 22,500
Subgrade Preparation	5	Acre	$ 5,000.00	$ 25,000
Monitoring Well Extensions/Abandonment	6	Ea	$ 400.00	$ 2,400
24" $1x10^{-5}$ Barrier Soil	16133	CY	$ 20.00	$ 322,660
6" Topsoil	4033	CY	$ 15.00	$ 60,495
Seeding	5	Acre	$ 2,500.00	$ 12,500
Subtotal:				**$ 445,555**
Containment Slurry Wall				
Slurry Wall (excavate / backfill)	19000	SF	$ 10.00	$ 190,000
Subtotal:				**$ 190,000**
Gas Management				
Limited Clearing / Grubbing	5	AC	$ 500.00	$ 2,500
4" Passive Gas Vent + Extended Risers	120	LF	$ 60.00	$ 7,200
Initial Quarterly Sampling Events	2	Event	$ 1,500.00	$ 3,000
Subtotal:				**$ 12,700**
Institutional Controls				
Develop Soils Management Plans	1	LS	$ 5,750.00	$ 5,750
Well Sampling / Reporting	1	Ea	$ 2,000.00	$ 2,000
Clearing & Grubbing for Fencing	1	LS	$ 5,000.00	$ 5,000
Fencing (Elevated Fill Subarea)	1100	LF	$ 20.00	$ 22,000
Deed Restrictions	1	Ea	$ 10,000.00	$ 10,000
Subtotal:				**$ 44,750**
Subtotal Capital Cost				**$ 1,632,410**
Engineering/Contingency (35%)				**$ 571,344**
Total Capital Cost				**$ 2,203,754**

Table 15

Cost Estimate Alternative 5
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Annual Operation Maintenance & Monitoring (OM&M):				
CERCLA 5-Year Review				
Estimated Annual Contribution	1	/year	$ 1,000.00	$ 1,000
Well Sampling / Reporting				
Seep Remediation	2	Events	$ 4,500.00	$ 9,000
Low Permeability Barrier	2	Events	$ 4,500.00	$ 9,000
Passive Gas Venting (Vents)	1	Events	$ 1,500.00	$ 1,500
Discharge Monitoring / Reporting				
Seep Remediation	2	Events	$ 1,500.00	$ 3,000
Pump Station Maintenance, Power				
Seep Remediation	12	Mo	$ 250.00	$ 3,000
Site Maintenance/Mowing				
Low Permeability Barrier	2	Events	$ 2,500.00	$ 5,000
Passive Gas Venting	1	Events	$ 500.00	$ 500
Fence Maintenance				
Elevated Fill Subarea	1	Events	$ 500.00	$ 500
Total Annual OM&M Cost				**$ 32,500**
Number of Years (n):				30
Interest Rate (I):				5%
p/A value:				15.3725
OM&M Present Worth (PW):				**$ 499,606**
Total Present Worth (PW): Capital Cost + OM&M PW				**$ 2,783,360**

Table 15-A

Cost Estimate for Soil Excavation & Consolidation
Peter Cooper Landfill NPL Site, Gowanda NY

LFSS-6	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization	1	LS	$ 10,000.00	$ 10,000
Health and Safety/Community Air Monitoring	1	LS	$ 7,500.00	$ 7,500
Subtotal:				**$ 17,500**
Soil Removal				
Soil Excavation	5800	CY	$ 20.00	$ 116,000
On-site Consolidation (incl. trucking, place & compact)	5800	CY	$ 5.00	$ 29,000
Backfill	5220	CY	$ 15.00	$ 78,300
6" Topsoil	580	CY	$ 25.00	$ 14,500
Seeding	0.75	AC	$ 2,500.00	$ 1,875
Verification Sampling	20	EA	$ 25.00	$ 500
Subtotal:				**$ 240,175**
Institutional Controls				
Deed Restrictions	1	Ea	$ 6,500.00	$ 6,500
Subtotal:				**$ 6,500**
Subtotal Capital Cost				**$ 264,175**
Engineering/Contingency (35%)				**$ 92,461**
Total Capital Cost				**$ 356,636**

MWFP-3	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization	1	LS	$ 2,000.00	$ 2,000
Health and Safety/Community Air Monitoring	1	LS	$ 2,500.00	$ 2,500
Subtotal:				**$ 4,500**
Soil Removal				
Soil Excavation	143	CY	$ 20.00	$ 2,860
On-site Consolidation (incl. trucking, place & compact)	143	CY	$ 5.00	$ 715
Backfill	125	CY	$ 15.00	$ 1,875
6" Topsoil	18	CY	$ 25.00	$ 450
Seeding	1	LS	$ 500.00	$ 500
Verification Sampling	1	LS	$ 2,000.00	$ 2,000
Subtotal:				**$ 8,400**
Institutional Controls				
Deed Restrictions	1	Ea	$ 6,500.00	$ 6,500
Subtotal:				**$ 6,500**
Subtotal Capital Cost				**$ 19,400**
Engineering/Contingency (35%)				**$ 6,790**
Total Capital Cost				**$ 26,190**

SB-2	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization	1	LS	$ 2,000.00	$ 2,000
Health and Safety/Community Air Monitoring	1	LS	$ 1,250.00	$ 1,250
Subtotal:				**$ 3,250**
Soil Removal				
Soil Excavation	46	CY	$ 20.00	$ 920
On-site Consolidation (incl. trucking, place & compact)	46	CY	$ 5.00	$ 230
Backfill	35	CY	$ 15.00	$ 525
6" Topsoil	12	CY	$ 25.00	$ 300

Table 15-A

Cost Estimate for Soil Excavation & Consolidation
Peter Cooper Landfill NPL Site, Gowanda NY

LFSS-6	Quantity	Units	Unit Cost	Total Cost
Seeding	1	LS	$ 500.00	$ 500
Verification Sampling	1	LS	$ 1,500.00	$ 1,500
Subtotal:				**$ 3,975**
Institutional Controls				
Deed Restrictions	1	Ea	$ 6,500.00	NC
Subtotal:				**$ -**
Subtotal Capital Cost				**$ 7,225**
Engineering/Contingency (35%)				**$ 2,529**
Total Capital Cost				**$ 9,754**

Table 15-B

Cost Estimate for Passive Gas Venting
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization	1	LS	$ 2,500.00	$ 2,500
Health and Safety/Community Air Monitoring	1	LS	$ 5,000.00	$ 5,000
Subtotal:				**$ 7,500**
Gas Management				
Limited Clearing / Grubbing	5	AC	$ 500.00	$ 2,500
4" Passive Gas Vent + Extended Risers	120	LF	$ 60.00	$ 7,200
Subtotal:				**$ 9,700**
Subtotal Capital Cost				**$ 17,200**
Engineering/Contingency (35%)				**$ 6,020**
Total Capital Cost				**$ 23,220**

Annual Operation Maintenance & Monitoring (OM&M):				
Routine Sampling of Vents	1	Event	$ 1,000.00	$ 1,000
Site Maintenance	1	Event	$ 1,000.00	$ 1,000
Total Annual OM&M Cost				**$ 2,000**
Number of Years (n):				30
Interest Rate (I):				5%
p/A value:				15.3725
OM&M Present Worth (PW):				**$ 30,745**

Total Present Worth (PW): Capital Cost + OM&M PW	**$ 53,965**

Table 15-C

Cost Estimate for Groundwater Diversion
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Containment Slurry Wall				
Slurry Wall (excavate / backfill)	19000	SF	$ 10.00	$ 190,000
Subtotal:				**$ 190,000**
Subtotal Capital Cost				**$ 190,000**
Engineering/Contingency (35%)				**$ 66,500**
Total Capital Cost				**$ 256,500**

Table 15-D

Cost Estimate for Cap
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization	1	LS	$ 20,000.00	$ 20,000
Health and Safety/Community Air Monitoring	1	LS	$ 15,000.00	$ 15,000
Subtotal:				**$ 35,000**
Elevated Fill Area Geosynthetic Cover				
Clearing/Grubbing	5	Acre	$ 4,500.00	$ 22,500
Subgrade Preparation	5	Acre	$ 5,000.00	$ 25,000
Monitoring Well Extensions/Abandonment	6	Ea	$ 400.00	$ 2,400
24" $1x10^{-5}$ Barrier Soil	16133	CY	$ 20.00	$ 322,660
6" Topsoil	4033	CY	$ 20.00	$ 80,660
Seeding	5	Acre	$ 2,500.00	$ 12,500
Subtotal:				**$ 465,720**
Subtotal Capital Cost				**$ 500,720**
Engineering/Contingency (35%)				**$ 175,252**
Total Capital Cost				**$ 675,972**

Annual Operation Maintenance & Monitoring (OM&M):				
Groundwater Sampling / Reporting	2	Events	$ 4,500.00	$ 9,000
Site Maintenance/Mowing	2	Yr	$ 2,500.00	$ 5,000
Total Annual OM&M Cost				**$ 14,000**
Number of Years (n):				30
Interest Rate (I):				5%
p/A value:				15.3725
OM&M Present Worth (PW):				**$ 215,215**

Total Present Worth (PW): Capital Cost + OM&M PW	**$ 891,187**

Table 15-E

Cost Estimate for Bank Stabilization / Seep Collection / Discharge to POTW
Peter Cooper Landfill NPL Site, Gowanda NY

Item	Quantity	Units	Unit Cost	Total Cost
Contractor Mobilization/Demobilization	1	LS	$ 100,000.00	$ 100,000
Health and Safety/Community Air Monitoring	1	LS	$ 50,000.00	$ 50,000
Subtotal:				**$ 150,000**
Seep Collection / Bank Stabilization				
Restore Former Haul Road	1	LS	$ 20,000.00	$ 20,000
Temporary Boulder Removal	1	LS	$ 10,000.00	$ 10,000
Bank Regrading / Excavation	1	LS	$ 25,000.00	$ 25,000
Seep Collection Trench Excavation	200	CY	$ 75.00	$ 15,000
Dewatering	20	Days	$ 500.00	$ 10,000
Temporary Bank Cover	1	LS	$ 5,000.00	$ 5,000
Washed Stone Collection Pipe Bedding (del. & place)	220	CY	$ 25.00	$ 5,500
6" Perforated LCS Piping	500	LS	$ 15.00	$ 7,500
Manholes (w/locking covers)	3	EA	$ 2,500.00	$ 7,500
Riprap Anchor Trench Excavation	305	CY	$ 60.00	$ 18,300
Geosynthetics:				
Mobilization	1	LS	$ 10,000.00	$ 10,000
40-mil LLDPE Geomembrane (purchase / install)	22700	SF	$ 0.60	$ 13,620
6 oz Geotextile (purchase / install)	5500	SY	$ 0.25	$ 1,375
6" Riprap Bedding Stone	450	CY	$ 25.00	$ 11,250
4" Riprap (2" diameter)	4500	Tons	$ 40.00	$ 180,000
Temporary Siltation & Erosion Control	1	LS	$ 10,000.00	$ 10,000
Subtotal:				**$ 350,045**
Seep / Leachate Management				
Packaged RFP Lift Station (15 gpm), installed	2	LS	$ 32,000.00	$ 64,000
Electrical Service	2	LS	$ 8,000.00	$ 16,000
Instrumentation / Valves / Appurtenances	2	LS	$ 5,000.00	$ 10,000
Force Main Trench Excavation	250	CY	$ 10.00	$ 2,500
Force Main Granular Bedding	60	CY	$ 40.00	$ 2,400
1" HDPE Force Main to Sanitary Sewer	650	LF	$ 10.00	$ 6,500
Force Main Backfill	166	CY	$ 5.00	$ 830
Force Main Topsoil & Seeding	1.5	AC	$ 3,500.00	$ 5,250
Flow Sensor Meter Pit / Meter Enclosure	1	LS	$ 1,500.00	$ 1,500
Flow Sensor / Meter	1	LS	$ 4,500.00	$ 4,500
POTW Sewer Permitting Tie-In	1	LS	$ 5,000.00	$ 5,000
Subtotal:				**$ 118,480**
Subtotal Capital Cost				**$ 618,525**
Engineering/Contingency (35%)				**$ 216,484**
Total Capital Cost				**$ 835,009**

Annual Operation Maintenance & Monitoring (OM&M):				
Well Sampling / Reporting	2	Events	$ 4,500.00	$ 9,000
Discharge Monitoring / Reporting	2	Events	$ 1,500.00	$ 3,000
Pump Station Maintenance, Power	12	Mo	$ 250.00	$ 3,000
Total Annual OM&M Cost				**$ 15,000**
Number of Years (n):				30
Interest Rate (I):				5%
p/A value:				15.3725
OM&M Present Worth (PW):				**$ 230,588**

Total Present Worth (PW): Capital Cost + OM&M PW	**$ 1,065,596**

TABLE 16
SUMARY OF POTENTIAL CHEMICAL-SPECIFIC ARARs
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

Standard, Requirement, Criteria or Limitation	Citation or Reference	Description/Comments
Surface Water and Groundwater:		
RCRA Groundwater Protection Standards and Maximum Concentration Limits	40 CFR 264, Subpart F	Establishes criteria for groundwater consumption. Groundwater is/will not be used for potable purposes. Potentially relevant for off-site groundwater quality.
NYSDEC Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations	6NYCRR Parts 701- 703	Establishes groundwater and surface water quality criteria. Applicable to existing surface water quality , off-site groundwater quality , and runoff/groundwater migration into Cattaraugus Creek. Establishes criteria for groundwater consumption.
NY Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations	TOGS 1.1.1, June 1998 (April 2000 addendum)	Compilation of ambient water quality standards and guidance values. To be considered for off-site groundwater quality.
Air:		
New York State Air Quality Classifications and Standards	6NYCRR Parts 256 and 257	Establishes air quality standards protective of public health. Potentially applicable to disruptive activities.
National Primary and Secondary Ambient Air Quality Standards (NAAQS)	40 CFR Part 50	Establishes primary and secondary ambient air quality standards to protect public health and welfare. Potentially applicable to disruptive activities.
Soil and Sediment:		
NYSDEC Determination of Soil Cleanup Objectives and Cleanup Levels	NYSDEC TAGM HWR-94-4046, January 1994 and Dec. 2000 Addendum	Establishes residential soil cleanup goals based on human health criteria, background levels, and groundwater protection. To be considered for site soils.
USEPA Soil Screening Guidance	Technical Background Document and Users Guide, May 1996 revisions	Presents a framework for developing risk-based, soil screening levels for protection of human health. Provides a tiered approach to site evaluation and screening level development for NPL sites. To be considered for site soils.
USEPA Preliminary Remediation Goals	USEPA Region IX, October 2002, Updated per EPA Toxicity Guidance Memo of 12/12/04	Presents residential and non-residential soil cleanup goals based on human health criteria and groundwater protection. To be considered for site soils.
NYSDEC Technical Guidance for Screening Contaminated Sediment	NYSDEC, January 1999	Presents preliminary sediment screening criteria for consideration against further ecological assessment. To be considered for site sediments

TABLE 16
SUMMARY OF POTENTIAL LOCATION-SPECIFIC ARARs
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

Standard, Requirement, Criteria or Limitation	Citation or Reference	Description/Comments
Executive Order 11990, Protection of Wetlands	40 CFR Part 6, Appendix A	Requires evaluation of actions to minimize the destruction, loss, or degradation of wetlands. Potentially applicable to remedial alternatives involving construction near wetland areas.
Executive Order 11988, Floodplain Management	40 CFR Part 6, Appendix A	Requires evaluation of actions relative to local floodplain to avoid adverse effects, minimize potential harm, and restore and preserve natural and beneficial values of the floodplain. Potentially applicable to remedial alternatives involving construction along Creek bank.
Wetlands Permit Regulations	40 CFR Part 232	Potentially relevant and appropriate to remedial alternatives involving construction near wetland areas.
National Historic Prservation Act	16 CFR Part 470	Requires avoiding impacts on cultural resources having historical significance. Potentially applicable to remedial alternatives involving construction..
Endangered Species Act	50 CFR Part 402	Actions must not threaten the continued existence of a listed species nor destroy critical habitat. Potentially applicable to remedial alternatives involving construction..
NY State Use and Protection of Waters	6NYCRR Part 608	Must have a permit to change, modify or disturb any protected stream, its bed or banks; or remove from its bed or banks sand, gravel or other material. Must have a permit to excavate from or place fill, either directly or indirectly, in any of the navigable waters of the state or in marshes, estuaries, tidal marshes and wetlands that are adjacent to and contiguous at any point to any of the navigable waters of the state. Potentially applicable to remedial alternatives involving construction along Creek bank
Freshwater Wetlands Act (ECL Article 24 and Article 71, Title 23)	6NYCRR Part 662-665	Requires evaluation of actions to preserve, protect, and conserve freshwater wetlands to prevent the despoliation and destruction of freshwater wetlands, and to regulate use and development of such wetlands to secure the natural benefits of freshwater wetlands. Potentially applicable to remedial alternatives involving construction near wetland areas
Endangered and Threatened Species of Fish and Wildlife	6NYCRR Part 182	Requires evaluation of actions to conserve endangered or threatened species. Potentially applicable to alternatives involving changes in site cover or topography.

TABLE 16
POTENTIAL ACTION-SPECIFIC ARARs
PETER COOPER LANDFILL SITE
GOWANDA, NEW YORK

Standard, Requirement, Criteria or Limitation	Citation or Reference	Description/Comments
Solid and Non-hazardous Waste (cont.): NY State Solid Waste Transfer Permits	6NYCRR Part 364	Establishes procedures to protect the environment from mishandling and mismanagement of all regulated waste transported from a site of generation to the site of ultimate treatment, storage, or disposal. Potentially applicable for alternatives involving off-site disposal.
RCRA Subtitle D Non-hazardous Waste Management Standards	40 CFR Part 257	Establishes procedures for constructing, monitoring, and closing waste management facilities that accepted RCRA listed or characteristic waste after the effective date of RCRA. Potentially relevant for elevated fill area.
RCRA Subtitle D Closure and Post-Closure Standards	40 CFR Part 258	Establishes procedures for constructing, monitoring, and closing municipal solid waste management facilities that accepted waste after 1991. Potentially applicable for Elevated Fill Subarea.
NYSDEC Land Disposal Restrictions	6NYCRR Part 376	Describes chemical-specific treatment requirements for land disposal of hazardous waste. Potentially relevant to off-site waste disposal alternatives for MWFP-3 soils.
NYSDEC Guidelines for the Selection of Remedial Actions at Inactive Hazardous Waste Sites	TAGM HWR-90-4030, May 1990	Establishes procedures for evaluating remedial alternatives at listed inactive hazardous waste sites undergoing remediation. To be considered.
Proposed Requirements for Hybrid Closures	52 Federal Register 8711	Combined waste-in-place and clean closures – to be considered.
DOT Rules for Hazardous Materials Transport	(49 CFR 107, 171.1 - 171.5).	Establishes requirements for shipping of hazardous materials. Potentially applicable for alternatives involving off-site disposal
Occupational Safety and Health Act (29 USC 651 *et seq.*)	29 CFR Part 1910 and 1926	Describes procedures for maintaining worker safety. Applicable to site construction activities.
Other: CERCLA/SARA/NCP	(40 CFR Part 300)	Provides foundation for federal hazardous waste/hazardous material regulations. Applicable to remedial alternative selection.
Fish and Wildlife Coordination Act (16 UC 661 *et seq.)*	40 CFR 6.302	Requires consultation with the Fish and Wildlife Service before taking any action that would result in the control or structural modification of any natural stream or body of water for any purpose. Potentially applicable to alternatives involving work in Cattaraugus Creek.
USEPA Policy on Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites	OSWER Directive 9200.4-17p, April 1999	Clarifies USEPA's policy regarding the use of monitored natural attenuation for the cleanup of contaminated soil and groundwater. To be considered.

PETER COOPER LANDFILL SUPERFUND SITE
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APPENDIX III

ADMINISTRATIVE RECORD INDEX

PETER COOPER LANDFILL SUPERFUND SITE
ADMINISTRATIVE RECORD FILE UPDATE
INDEX OF DOCUMENTS*

2.0 REMOVAL RESPONSE

2.7 Correspondence

P. 200001 - 200065 Letter (with attached report) to Mr. Robert Montgomery, On-Scene Coordinator, U.S. EPA, Region 2, from Mr. Charles E. Dusel, Jr., Project Manager, URS Consultants, Inc., re: Peter Cooper Corporation Landfill, New York State Electric & Gas Corporation, Removal Action Index Number II - CERCLA 97-0201, Final Report for Stream Bank Stabilization Near Peter Cooper Corporation Landfill, February 28, 1997.

3.0 REMEDIAL INVESTIGATION

3.4 Remedial Investigation Reports

P. 302876 - 302887 Report: Evaluation of Arsenic Site Data for Peter Cooper - Gowanda Site, Gowanda, New York, prepared by Dr. Anita Singh, Lockheed Martin, May 27, 2003.

* Data are summarized in several of these documents. The actual data, QA/QC, chain of custody, etc. are compiled at various EPA offices and can be made available at the record repository upon request. Bibliographies in the documents and in the references cited in this Record of Decision are incorporated by reference in the Administrative Record. Many of these documents referenced in the bibliographies are publically available and readily accessible. Most of the guidance documents referenced in the bibliographies are available on the EPA website (www.epa.gov). If copies of the documents cannot be located contact the EPA Project Manager (Sherrel Henry at (212) 637-4273). Copies of administrative record documents that are not available in the administrative record repository files at the Gowanda Free Library or the Seneca Nation of Indians Library can be made available at one of these locations upon request.

P. 302888 - 302976 Report: Peter Cooper, Gowanda, Cattaraugus County, New York, EPA Facility ID: NYD980530265, Integrated Risk Information System, Chemical Files for: Antimony, Arsenic, Carbon Tetrachloride, Chloroform, and Naphthalene, September 18, 2005.

P. 302977 - 302979 Report: Peter Cooper, Gowanda, Cattaraugus County, New York, EPA Facility ID: NYD980530265, Integrated Risk Information System, Updated List of Status of IRIS Chemical Review for Carbon Tetrachloride and Chloroform, September 18, 2005.

P. 302980 - 302980 Letter: EPA's National Center for Environmental Assessment regarding non-cancer toxicity values for carbon tetrachloride and chloroform.

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Reports

P. 400001 - 400191 Report: Feasibility Study Report-Final, Volume I of II - Text, Tables, Plate, and Figures, Peter Cooper Landfill Site, Gowanda, New York, prepared by Benchmark Environmental Engineering Science, PLLC, July 2004, Revised June 2005.

P. 400192 - 400478 Report: Feasibility Study Report-Final, Volume II of II - Appendices, Peter Cooper Landfill Site, Gowanda, New York, prepared by Benchmark Environmental Engineering Science, PLLC, July 2004, Revised June 2005.

7.0 ENFORCEMENT

7.3 Administrative Orders

P. 700001 - 700025 United States Environmental Protection Agency, Region II, Administrative Order on Consent for Removal Action, Index Number II-CERCLA-97-0201, In the Matter of the Peter Cooper Landfill Site, Gowanda, New York, New York State Electric & Gas Corporation, Respondent, Proceeding under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. § 9606(a), October 24, 1996.

P. 700026 - 700056 United States Environmental Protection Agency, Region II, Administrative Order for Remedial Investigation/Feasibility Study, Index No. CERCLA-02-2000-2014, In the Matter of the Peter Cooper Landfill Superfund Site, Albert Trostel & Sons Co; Badger State Tanning Co.; Blackhawk Leather Ltd.; Brown Group, Inc; Cudahy Tanning Co., Inc.; Garden State Tanning, Inc.; Irving Tanning Company; New York State Electric & Gas Corporation; Prime Tanning Company, Inc.; S.B. Foot Tanning Company; Seton Company; Superior Tanning Company; Viad Corp.; Wilhelm Enterprises Corporation, Respondents, Proceeding under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. § 9606(a), March 30, 2000.

8.0 HEALTH ASSESSMENTS

8.1 ATSDR Health Assessments

P. 800001 - 800069 Report: Public Health Assessment, Peter Cooper Gowanda, Cattaraugus County, New York, EPA Facility ID: NYD980530265, prepared by New York State Department of Health Under the Cooperative Agreement with the Agency for Toxic Substances and Disease Registry, August 31, 2000.

PETER COOPER LANDFILL SUPERFUND SITE
ADMINISTRATIVE RECORD FILE
INDEX OF DOCUMENTS

3.0 REMEDIAL INVESTIGATION

3.2 Sampling and Analysis Data/Chain of Custody Forms

P. 300001 - 300001 Map: Peter Cooper Gowanda Site, Gowanda, New York, Remedial Investigation, Sample Locations & Site Topography, prepared by Benchmark Environmental Engineering & Science, PLLC, prepared for U.S. EPA Region 2, December 2000.

3.3 Work Plans

P. 300002 - 300252 Report: Remedial Investigation/Feasibility Study Work Plan, Inactive Landfill Area, Peter Cooper Site, Gowanda, NY, prepared by Geomatrix Consultants, Inc., and Benchmark Environmental Engineering & Science, PLLC, prepared for Collier, Shannon, Rill & Scott, October 1999, Revised March 2000.

P. 300253 - 300284 Report: Addendum to Remedial Investigation/ Feasibility Study Work Plan, Inactive Landfill Area, Peter Cooper Site, Gowanda, NY, Scope of Work to Address the Former Manufacturing Plant Area, prepared by Geomatrix Consultants, Inc., and Benchmark Environmental Engineering & Science, PLLC, May 2000, Revised August 2000.

P. 300285 - 300568 Report: Quality Assurance Project Plan for Remedial Investigation/Feasibility Study, Peter Cooper Site, Gowanda, NY, prepared by Geomatrix Consultants, Inc., and Benchmark Environmental Engineering & Science, PLLC, prepared for U.S. EPA Region 2, May 2000, Revised August 2000.

P. 300569 - 300639 Report: Site Health and Safety Plan for Remedial Investigation Activities, Peter Cooper Site, Gowanda, NY, prepared by Benchmark Environmental Engineering & Science, PLLC, May 2000.

3.4 Remedial Investigation Reports

P. 300640 - 300745 Report: Pathways Analysis Report, Peter Cooper Gowanda Site, Gowanda, New York, prepared by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering & Science, PLLC, March 2001.

P. 300746 - 300786 Report: Data Evaluation Report, Including Seneca Nation Surface Water and Sediment Samples Collected August, 2001, Peter Cooper Landfill Site, Remedial Investigation and Feasibility Study Oversight, Gowanda, Cattaraugus County, New York, Work Assignment No.: 037-RSBD-02GA, prepared by TAMS Consultants, Inc., prepared for U.S. Environmental Protection Agency, July 19, 2002.

P. 300787 - 300799 Report: Reuse Assessment and Conceptual Plan for the Peter Cooper Gowanda Superfund Site (Summary), with CD, prepared by University at Buffalo Center for Integrated Waste Management, December 2002.

P. 300800 - 301000 Report: Reuse Assessment and Conceptual Plan for the Peter Cooper Gowanda Superfund Site, (Full-Text), prepared by University at Buffalo Center for Integrated Waste Management, December 2002.

P. 301001 - 301179 Report: Remedial Investigation Report - Final, Volume I of II - Text, Tables, Plate, and Figures Peter Cooper Landfill Site, Gowanda, New York, prepared by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering & Science, PLLC, November 2002, Revised November 2003.

P. 301180 - 301830 Report: Remedial Investigation Report - Final, Volume II of II - Appendices, Peter Cooper Landfill Site, Gowanda, New York, prepared by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering & Science, PLLC, November 2002, Revised November 2003.

P. 301831 - 302588 Report: Baseline Risk Assesment, Peter Cooper Landfill Superfund Site, Gowanda, New York, prepared by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering & Science, PLLC, November 2003.

P. 302589 - 302778 Report: Screening Level Ecological Risk Assessment, Peter Cooper Landfill Site, Gowanda, New York, prepared by VHB/Vanasse Hangen Brustlin, Inc., prepared for Benchmark Environmental Engineering & Science, PLLC, Gowanda, New York, April 2004.

P. 302779 - 302786 Report: Ecological Impact Under a Hypothetical Flood Scenario, Peter Cooper Landfill Site, Gowanda, New York, Project: RAC Region II, EPA Contract No.: 68-W-98-210, Work Assignment No.: 137-RSBD-02GA, Document No.: 3223-137-CO-EPOU-05304, Letter Report prepared by CDM Federal Programs Corporation, February 18, 2005.

P. 302787 - 302791 Report: Identification of Outliers in Surface Soil Samples, Peter Cooper Gowanda Site, New York, July 13, 2005.

3.5 Correspondence

P. 302792 - 302805 Letter to Mr. Tom Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Ecological Risk Assessment, Peter Cooper Landfill Site, Gowanda, New York, April 17, 2003.

P. 302806 - 302822 Letter to Mr. Thomas Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Baseline Risk Assessment, Peter Cooper Landfill Site, Gowanda, New York, July 11, 2003.

P. 302823 - 302837 Letter to Mr. Thomas Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Remedial Investigation, Peter Cooper Landfill Site, Gowanda, New York, July 18, 2003.

P. 302838 - 302844 Letter to Mr. Thomas Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Ecological Risk Assessment, Peter Cooper Landfill Site, Gowanda, New York, October 9, 2003.

P. 302845 - 302847 Letter to Mr. Thomas Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Responses to the Remedial Investigation and the Human Health Risk Assessment Reports, Peter Cooper Landfill Site, Gowanda, New York, October 29, 2003.

P. 302848 - 302857 Letter to Mr. Tom Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Ecological Risk Assessment, Peter Cooper Landfill Site, Gowanda, New York, April 23, 2004.

P. 302858 - 302864 Letter to Mr. Tom Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Feasibility Study Report, for the Peter Cooper Landfill Site, Gowanda, New York, December 30, 2004.

P. 302865 - 302875 Letter to Mr. Tom Forbes, P.E., Benchmark Environmental Engineering & Science, from Mr. Kevin Lynch, Section Chief, Western New York Remediation Section, U.S. EPA, Region 2, re: Comments on the Responses to EPA's Comments on the Feasibility Study Report for the Peter Cooper Landfill Site, Gowanda, New York, May 3, 2005.

10.0 PUBLIC PARTICIPATION

10.2 Community Relations Plans

P. 10.00001 - 10.00049 Report: Community Involvement Plan, Peter Cooper Corporation Superfund Site, Village of Gowanda, Cattaraugus County, New York, prepared by Ecology and Environment, Inc., prepared for United States Environmental Protection Agency, Region II, March 1999.

PETER COOPER LANDFILL SUPERFUND SITE
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APPENDIX IV

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR ALTERNATIVE 5A
FOR THE PETER COOPER LANDFILL SUPERFUND SITE
VILLAGE OF GOWANDA, CATTARAUGUS COUNTY, NEW YORK

RESPONSIVENESS SUMMARY
FOR THE
PETER COOPER LANDFILL SUPERFUND SITE
VILLAGE OF GOWANDA, CATTARAUGUS COUNTY, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of citizens' comments and concerns received during the public comment period related to the Peter Cooper Landfill Superfund site (Site) remedial investigation and feasibility study (RI/FS) and Proposed Plan. This Summary provides the responses of the U.S. Environmental Protection Agency (EPA) to those comments and concerns. All comments summarized in this document have been considered in EPA's final decision in the selection of a remedy to address the contamination at the Site.

The Responsiveness Summary is divided into the following sections:

I. OVERVIEW: This section briefly outlines EPA's preferred alternative for the Site.

II. SUMMARY OF COMMUNITY RELATIONS ACTIVITIES: This section provides a brief history of community interest and concerns raised during remediation planning for the Site.

III. SUMMARY OF COMMENTS AND EPA'S RESPONSES: This section provides a summary of oral comments received by EPA at the August 10, 2005 public meeting for the Site and written comments received during the public comment period.

I. OVERVIEW

EPA's preferred remedy, Alternative 5A, includes:

- Excavating soils in the three hot spot areas and consolidating them within the Elevated Fill Subarea, then capping the 5-acre Elevated Fill Subarea of the inactive landfill area with a low permeability, equivalent design barrier cap, consistent with the requirements of 6 NYCRR Part 360, including seeding to foster natural habitat.

- Post-excavation confirmatory soil sampling;

- Backfilling of excavated areas with clean fill;

- Collecting the leachate seeps, pretreating the leachate, as necessary, then discharging the leachate to the public owned treatment works (POTW) collection system for further treatment and discharge. As a contingency, if treatment of the leachate at the POTW is not available, the leachate would be treated and discharged to Cattaraugus Creek. Installation

of the cap should reduce leachate generation, and therefore, the volume of leachate requiring treatment is anticipated to be reduced or eliminated over time.

- Installing a groundwater diversion system to limit groundwater migration through the Elevated Fill Subarea. However, should additional data collected during the development of the remedial design indicate that installation of a diversion wall will result in a minimal increase in the collection of contaminants by the leachate collection system, the diversion wall would not be installed;

- Installing a passive gas venting system for proper venting of the 5-acre Elevated Fill Subarea of the inactive landfill area;

- Stabilizing the banks of Cattaraugus Creek;

- Performing long-term operation and maintenance, including inspections and repairs of the landfill cap, gas venting, and leachate systems;

- Establishing institutional controls in the form of deed restrictions/environmental easements and restrictive covenants on future uses of the Elevated Fill Subarea in order to maintain the integrity of the cap and to prevent use of groundwater on the Site for potable purposes;

- Performing air monitoring, surface water and groundwater quality monitoring; and

- Evaluating Site conditions at least once every five years to determine if a modification to the selected alternative is necessary.

II. SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The RI and FS Reports describe the nature and extent of the contamination at and emanating from the Site and evaluate remedial alternatives to address this contamination. The Proposed Plan was prepared by EPA, with concurrence by the New York State Department of Environmental Conservation (NYSDEC), and finalized in July 2005. A notice of the Proposed Plan and commencement of the public comment period, the public meeting date, contact information, and the availability of above-referenced documents was published in the *Dunkirk Observer* and the *Penny Saver* on July 30, 2005, consistent with the requirements of National Oil and Hazardous Substances Pollution Contingency Plan (NCP) §300.430(f)(3)(i)(A).

A copy of the Proposed Plan was mailed to all persons on the Site mailing list. The public notice established a thirty-day comment period from July 30, 2005 to August 28, 2005. An extension to the public comment period was requested and the comment period was subsequently extended to September 26, 2005. The RI and FS Reports, Proposed Plan and supporting documents were made available to the public in both the Administrative Record and information repositories maintained at the EPA Docket Room in the Region 2 offices at 290 Broadway in Manhattan, at the Village of Gowanda Free Library, located at 56 W. Main Street, Gowanda, New York and the Seneca Nation

of Indians Library, located at 3 Thomas Indian School Drive, Irving, New York.

EPA held a public meeting on August 10, 2005 at 7:00 P.M. at the Gowanda Central High School, 24 Prospect Street, Gowanda, New York, to present the findings of the RI/FS and to answer questions from the public about the Site and the remedial alternatives under consideration. Approximately 50 people, including residents, local business people, a representative from the Seneca Nation, and state and local government officials attended the public meeting. Responses to the written comments received during the public comment period and to comments received at the public meeting are included in this Responsiveness Summary.

EPA's 1984 Indian Policy recognizes the government-to-government relationship between EPA and the Nations, as one sovereign to another. EPA has committed to communicating with Nation governments before making decisions on environmental matters affecting Nation governments and/or Nation natural resources. To this end, copies of all documents generated as part of the RI/FS, including the RI and FS reports were submitted to the Seneca Nation of Indians for review and comment. In addition, on August 10, 2005, EPA met and discussed the preferred remedy and the basis for this preference with the Seneca Nation Environmental Protection Department representatives.

III. SUMMARY OF COMMENTS AND EPA'S RESPONSES

A summary of the comments provided at the public meeting and in writing, as well as EPA's responses to them, are provided below. The comments and responses have been organized as follows:

A. Oral Comments Received at the August 10, 2005 Public Meeting concerning regulatory issues, remedial investigation, exposure and health effect, remedial alternative selection, effectiveness of the remedy, scope of the remediation, and operation and maintenance

B. Written Comments Received During the Comment Period

C. Written Comments Received During the Comment Period pertaining to matters concerning the Seneca Nation of Indians

A. ORAL COMMENTS RECEIVED AT THE AUGUST 10, 2005 PUBLIC MEETING

Regulatory Issues

Comment #1: A citizen asked who would be responsible for monitoring activities during implementation of the preferred remedy.

EPA Response #1: The responsibility for monitoring at the Site is dependent on whether the Potentially Responsible Parties (PRPs) or EPA performs the remedy. If the PRPs perform the remediation under a legal agreement (see response to next question), the PRPs would be responsible for monitoring and EPA would oversee these activities,both for the implementation of the remedy as well as for the period after the remedy has been implemented. If EPA performs the remediation, it would be responsible for the monitoring that would be required during the implementation of the remedy. Once all components of the remedy (the cap system, leachate collection system, passive gas venting system, groundwater diversion system and institutional controls) are deemed to be functional, the New York State Department of Environmental Conservation (NYSDEC) would be responsible for monitoring the remedy.

Comment #2: A citizen asked how soon it will be known whether the PRPs or the EPA will implement the remedy for the Site.

EPA Response # 2: Following the signing of the Record of Decision by EPA, the Agency typically would send notice letters to the PRPs and invoke the 120-day period established by the Superfund law for negotiations between EPA and PRPs. At the end of the 120-day period, if no agreement is reached, then EPA has the following options:

> EPA may decide to perform the remedy utilizing the Superfund and then pursue a Section 107 cost recovery claim against the PRPs; or
>
> EPA may issue a Unilateral Administrative Order to the PRPs under Section 106(a) of CERCLA directing the PRPs to implement the remedy.

The time frames for these activities will vary based on a number of factors including the response from the PRPs and potential litigation. A general time frame from other sites varies from six to nine months, but an exact time frame cannot be predicted at this time.

Comment #3: A citizen asked if the PRPs could conduct remedial activities at the Site without EPA or NYSDEC approval.

EPA Response #3: This Site is on EPA's National Priorities List and is a federal Superfund site. Under the Superfund program, PRPs cannot conduct voluntary actions to clean a site. Any remedial work that is performed at the Site would be conducted under the supervision of EPA.

Comment # 4: A representative of the Village of Gowanda stated that the preferred remedy calls

for a five-year evaluation and if the concentrations of gas contaminants were found to be unacceptable, even before that five-year evaluation, would they be addressed.

EPA Response #4: Sampling would be conducted throughout the remediation process during the remedial design, remedial construction and long-term maintenance activities, not just every five years. NYSDEC has regulatory authorities for landfills that include the on-going monitoring of gas releases from the Site. As such, NYSDEC requires any landfill remedy to include monitoring. If unacceptable levels of gas contaminants are found they will be addressed. See EPA's responses to Comments 10 and 19, below.

Under the Superfund law, for remedial actions that result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a review will be conducted at least once every five years after the start of the construction of the remedial action components for the Site to ensure that the remedy continues to provide adequate protection of human health and the environment. Consistent with this requirement, EPA will conduct five-year evaluations of the remedy.

Comment # 5: A citizen asked why the comment period is established for 30 days and is there a separate comment period for the Seneca Nation of Indians.

EPA's Response # 5: A 30-day comment period is established by the Superfund regulations known as the NCP. In response to a request from the community, the comment period was extended to September 26, 2005.

Also as noted above, the United States has a nation-to-nation relationship with the Seneca Nation of Indians and additional discussions were held with the Seneca Nation throughout the RI/FS process pursuant to EPA's 1984 Indian Policy. No separate comment period was established for the Seneca Nation.

Comment # 6: A citizen asked what the projected time frame is for implementation of the remedy.

EPA Response # 6: EPA expects the Record of Decision to be signed by September 30, 2005. EPA will then conduct negotiations with the PRPs to implement the remedy. Negotiations typically take between six and nine months. Following negotiations, the design development generally takes one to two years depending on complexity. Construction will begin once the design has been completed and a qualified contractor selected.

Remedial Investigation

Comment #7: A citizen asked how far downstream of the Elevated Fill Area were the sediment and the surface water samples collected and what were the results.

EPA Response #7: As part of the RI, samples were taken approximately 400 feet downstream of

the Elevated Fill Subarea. The surface water samples indicated the NYSDEC Surface Water criterion was exceeded for ammonia by a slight amount (the criterion is 0.440 ug/l and the concentration found was 0.442 ug/l). In addition, at the request of the Seneca Nation, EPA conducted additional sampling approximately one mile downgradient from the Site in the area of Cattaraugus Creek that borders the Seneca Nation's land. The only contaminants detected were arsenic and nickel at concentrations which did not exceed NYSDEC surface water criteria.

Comment #8: A citizen asked whether there was a distribution of concentrations of contaminants including arsenic and chromium in Cattaraugus Creek from the Site downstream to the Seneca Nation.

EPA's Response #8: RI sampling was conducted directly downstream from the Elevated Fill Subarea, which is the area expected to have the highest contaminant concentrations. The sampling did not find contaminants, including arsenic and chromium, at levels exceeding regulatory concerns. Based on these results, additional sampling was not conducted to evaluate the distribution of contaminants.

Exposure and Health Effects

Comment # 9: A citizen asked if the gas from the landfill can readily disperse and hang over the site and the valley, formed by the topography of the area, and then travel to the neighborhoods that are in close proximity to the Site.

EPA Response #9: EPA does not expect landfill gases to disperse from the Site. During the remedial investigation, landfill gases were detected in gas monitoring wells drilled through the waste (i.e., five feet below the surface of the landfill). However, landfill gases were not detected at the surface using hand-held instruments, although waste is exposed at several locations. The landfill was originally closed in 1972 and the generation of gas from the decomposition of waste in the landfill has significantly decreased. This historical decline in landfill gas generation is anticipated to continue and the levels of gas will be further reduced once a venting system is in place. In addition, gas emissions from the landfill will be monitored consistent with NYSDEC Part 360 regulations.

Remedial Alternative Selection

Comment # 10: A representative of the Village of Gowanda read a brief statement on behalf of the Village of Gowanda with regard to the Village's position on this landfill. Although the Village would prefer Alternative 3, Excavation and Off-site Disposal, as its first choice for remediation of the Site, the Village acknowledged that it may not be a feasible or cost-effective alternative. The preferred alternative, Alternative 5A, is its second choice for remediation of the Site, with the exception of the passive gas venting system. The Village would like the property returned to a beneficial use to the community. If a cap is placed on the Site, it would concentrate gas that may create issues in surrounding neighborhoods, both in the Village and out of the Village.

EPA Response #10: EPA acknowledges the Village's position regarding the proposed remedy. With respect to the selection of a passive gas venting system, current New York State landfill closure regulations require the installation of a passive gas venting system comprised of at least one gas vent riser per acre to minimize landfill gas build-ups within the fill. If levels of VOCs or methane in landfill gases are expected to be high, then an active system would be appropriate.

In general, methane gas levels in the Elevated Fill Subarea during the RI were detected in two samples at levels as high as 31.1%. The lower explosive limit (LEL) for methane is a 5% mixture in air. The upper explosive limit (UEL) for methane is a 15% mixture in air. A mixture of 31% methane in air would be above the UEL and, therefore, would not be an explosive mixture. However, if the methane becomes diluted with air through dilution or dispersion, the concentration could decrease to a point that would be within the explosive limits (i.e., between 5 and 15% mixture in air). Other nonmethane VOCs were detected at levels slightly above guideline values. Since the level of these VOCs (including hydrogen sulfide gas) are non-detect at the landfill surface under current conditions, it is expected that the levels of both methane and nonmethane gases would be reduced once a cap is in place. Therefore, based on landfill characteristics, it is anticipated that a cap and passive gas venting system would be an appropriate method for gas control. However, the passive system would be designed and monitored so that it could easily be converted to an active system should levels of VOCs or landfill gases be detected in excess of ARAR emission standards or Part 360 regulations.

Comment #11: A citizen stated that an earlier version of the FS stated that the no action alternative was protective of human health and the environment.

EPA Response #11: The draft FS was revised to indicate that the no action alternative was not protective of human health and the environment. In addition, Page 11 of the Proposed Plan reiterates the fact that the No Action Alternative, Alternative 1, is not protective of human health and the environment.

Comment #12: A citizen asked why excavation and off-site disposal, Alternative 3, was not identified as the preferred remedy.

EPA's Response #12: EPA's preferred remedy, Alternative 5A, which includes capping meets the expectations established by the NCP 300.430(a)(iii)(B) which states that EPA expects to use engineering controls, such as containment, for wastes that poses a relatively low long-term threat or where treatment is impracticable. Capping is also a presumptive remedy under EPA guidance.

EPA believes that the preferred remedy's combination of containment and leachate collection will provide an overall level of protection comparable to Alternative 3. As described in the Proposed Plan and the FS Report, EPA relies on the nine criteria in the NCP in making its decision. The preferred remedy is protective of human health and the environment, provides long-term effectiveness, and will achieve the ARARs in a reasonable time frame, and is cost-effective. Therefore, the preferred remedy will provide the best balance of tradeoffs among the alternatives

with respect to the evaluation criteria

To implement Alternative 3, approximately 150,000 tons of sludge/fill waste would require excavation and removal. Odor controls, which are difficult to implement, would be required during the removal work due to strong odors expected during sludge/ fill excavation, handling and transport. The excavation of this large volume of waste would provide an overall level of protection somewhat, but not substantially, greater than the selected remedy, but at a significantly higher cost. The cost for Alternative 3 is approximately $10 million more than the cost of the Preferred Remedy.

Comment #13: A citizen asked the cost of the Preferred Alternative, 5A.

EPA Responses #13: As indicated in the Proposed Plan, the anticipated capital cost of Alternative 5A is $2.2 million. The present-worth costs which include maintenance and monitoring at the Site over a 30-year period, are estimated at $2.7 million in present-day dollars. These cost estimates do not include any user fees that may be charged by the POTW for treatment of leachate.

Comment #14: A consultant representing the PRPs read a joint statement on behalf of the PRP Group (Wilhelm Enterprises Corporation, New York State Electric & Gas Corporation, Brown Shoe, Garden State Tanning, Prime Tanning, Seton Tanning, and Viad Corp.) that performed the RI/FS. The parties requested that EPA reconsider the selection of Alternative 5A and instead select the capping alternative presented in Alternative 4A as the remedial action for the Site, with the removal of the following two elements: the groundwater diversion system and the excavation and consolidation of hot spot area SB-2. The parties felt that these two elements were not necessary for the protection of human health and the environment. The statement also indicated that formal comments would be submitted which would include groundwater modeling to justify their position.

EPA Response #14: EPA's response to this comment is included in the written comment section (Section B) below.

Effectiveness of the Remedy

Comment #15: A citizen asked what would prevent the contaminants in the landfill from leaching underneath the waste and into the groundwater.

EPA Response #15: The proposed landfill cap will utilize low permeability material designed to reduce infiltration of rainfall into waste material, thereby reducing the generation of leachate which mobilizes contaminants into the groundwater.

Scope of the Remediation

Comment # 16: A citizen asked if the Site will be bulldozed.

EPA Response #16: Prior to placement of the cap on the landfill, the site actions will involve

clearing and grubbing of the approximately 5-acre Elevated Fill Subarea, moderate regrading to promote surface water drainage, and other activities consistent with capping the landfill.

Comment #17: A citizen asked will a synthetic liner or other types of materials be placed on the Elevated Fill Subarea prior to the three hot spot areas being consolidated onto the subarea.

EPA Response #17: The excavated soil from the three hot-spot areas will be consolidated within the Elevated Fill Subarea as it presently exists without adding a liner or other material. Once the three hot spot areas are consolidated within the Elevated Fill Subarea, the area will then be capped with a low permeability barrier cap, consistent with the requirements of 6 NYCRR Part 360 regulations.

Comment #18: A citizen identified that leachate is currently being generated from the Elevated Fill Subarea. The addition of products being consolidated within the Elevated Fill Subarea will increase leachate generation. How will the additional leachate be addressed?

EPA Response #18: The volume of materials that will be consolidated into the Elevated Fill Area will be very small compared to the volume that is there already. Therefore, the consolidation of materials is not expected to significantly affect leachate generation. Furthermore, once the remedy is in place, any leachate from the Elevated Fill Subarea will be collected from a trench that will be excavated into the surface of the weathered shale bedrock at the toe of the slope. The proposed remedy would require any collected leachate seep water to be treated by the Village of Gowanda's treatment system or in an on-site treatment system.

Operation and Maintenance

Comment #19: A citizen from the Village of Gowanda asked if there would be some definite criteria set as to what would trigger the need for treatment for the landfill gas.

EPA Response #19: Based on landfill characteristics, it is anticipated that a cap and passive gas venting system would be an appropriate method for gas control. However, as a contingency, the passive system would be designed and monitored so that it could easily be converted to an active system should a level of VOCs or landfill gases be detected in excess of ARAR emission standards or NYCRR Part 360 regulations. Specific criteria will be developed during the remedial design. NYCRR Part 360 regulations define how the criteria are developed. Specifically, the regulation states that gas venting systems must: 1) prevent the accumulation of methane and other explosive gases at concentrations greater than 25 percent of the lower explosive limit in structures on- site and off- site and not exceed the lower explosive limit at or beyond the property boundary; 2) prevent damage to vegetation both on the final cover and off-site; and, 3) control objectionable odors due to any gas emissions. The landfill will meet all appropriate NYSDEC closure requirements including post-closure requirements to operate and maintain the vegetative cover and gas venting systems, including quarterly gas monitoring. In the event that the NYSDEC regulations are exceeded, appropriate actions will be taken. Such actions require notification of NYSDEC and

implementation of a contingency plan. The O&M plan, which will include the contingency plan and a landfill gas monitoring plan, will be included as part of the remedial design.

B. WRITTEN COMMENTS RECEIVED DURING THE COMMENT PERIOD.

Comment # 20: One commentor indicated that Alternative 3 should be selected as the preferred remedy because the proposed remedy would not be as effective in preventing further migration of contaminants from the landfill.

EPA Response #20: EPA's preferred remedy, Alternative 5A, which includes capping meets the expectations established by the NCP 300.430(a)(iii)(B) which states that EPA expects to use engineering controls, such as containment, for wastes that poses a relatively low long-term threat or where treatment is impracticable. Capping is also a presumptive remedy under EPA guidance.

EPA believes that the preferred remedy's combination of containment and leachate collection will provide an overall level of protection comparable to Alternative 3 (excavation and off-site disposal). As described in the Proposed Plan and the FS report, EPA relies on the nine criteria in making its decision. The preferred remedy is protective of human health and the environment, provides long-term effectiveness, will achieve the applicable or relevant and appropriate requirements (ARARs) in a reasonable time frame, and is cost-effective. Therefore, the preferred remedy will provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria.

The cost for implementation of Alternative 3 is ten million dollars more than the preferred remedy and EPA does not believe that the risk posed by the Site would justify spending an additional $10 million for a remedy that does not offer substantially greater protection than the EPA proposed remedy.

Comment #21: Another commentor indicated that only a total removal and cleanup of the waste site would be acceptable (Alternative 3), and that the $12 million cost of this alternative could be paid by the Wilhelm Estate and potentially by insurance coverage.

EPA Response #21: This comment requests the selection of Alternative 3, Excavation/Bank Stabilization/Off-Site Disposal. EPA does not select a remedy based on what a potentially responsible party (PRP) can or cannot afford. The Superfund law and the NCP require that EPA evaluate remedial alternatives against nine criteria. For any remedy to be selected, it must satisfy the threshold criteria of protection of human health and the environment and compliance with ARARs . EPA then assesses those alternatives that satisfy these threshold criteria against the seven remaining criteria. The cost of a remedy is one of the criteria that are considered . EPA believes that Alternative 5A represents the best balance among the evaluating criteria.

EPA's preferred remedy, Alternative 5A, which includes capping meets the expectations established by the NCP 300.430(a)(iii)(B) which states that EPA expects to use engineering controls, such as

containment, for wastes that poses a relatively low long-term threat or where treatment is impracticable. Capping is also a presumptive remedy under EPA guidance.

The following comments are from a member of the community submitted in a letter dated September 27, 2005. EPA's response to each comment is provided below.

Comment #22: The Proposed Plan does not sufficiently characterize the extent and movement of the known groundwater contamination/groundwater plume and what effects it is having and will continue to have on human health and the environment. It also fails to address clean up measures for the contaminated groundwater. The Proposed Plan does not address how the contamination is affecting and will continue to affect the public drinking water supply for the greater Buffalo area, namely, from the intake on the Lake Erie shore that is down flow of the mouth of Cattaraugus Creek, and what effect this may be having and will have on human health.

EPA Response #22: As part of the RI, groundwater data were collected from both the shallow and bedrock water bearing zones and were evaluated in the BHHRA (a summary of the results of the sampling results are available in the BHHRA Tables 3.5 and 3.6). Basically, the groundwater is classified a potential drinking water source by NYSDEC (Classification "GA"). At the current time, residents of Gowanda receive their drinking water from municipal drinking water supplies which meet all appropriate drinking water standards. The BHHRA evaluated the potential use of groundwater as a drinking water supply.

Groundwater samples were analyzed for a target compound list of VOCs, SVOCs, metals (arsenic, chromium, zinc) and hexavalent chromium. In the portion of the Site designated as the landfill area, eight wells were sampled in the shallow zone and seven wells were sampled from the deeper zone. Within the former manufacturing plant area, two monitoring wells were sampled from the shallow zone and three monitoring wells were sampled from the deeper zone. Based on a review of these data, it was concluded that groundwater from the Site discharges to Cattaraugus Creek and there is no defined groundwater plume.

By constructing a proper cap to minimize infiltration and a collection system to collect leachate seeps, the Elevated Fill Subarea would no longer act as a source of contamination to the groundwater and the Creek. The natural mechanisms of dispersion and dilution would reduce the residual contaminated groundwater throughout the Site.

Sampling of surface water and sediment in the Cattaraugus Creek, immediately downstream, and one mile downstream did not identify chemicals of potential concern. Therefore, these chemicals would not be found further downstream due to natural mechanisms of dispersion and dilution.

Comment #23: The Proposed Plan does not address whether vapor intrusion is occurring in the area, whether mitigation is necessary, and how the health of residents living near the Site may be affected.

EPA Response #23: The BHHRA evaluated the potential for vapor intrusion. Volatile chemicals present in soil and groundwater at certain locations may be released to ambient or indoor air through volatilization either from or through the soil or fill underlying future building structures. Volatile chemicals of potential concern in landfill gas are present at the Site. The release of these chemicals was evaluated. Volatile Chemicals of Potential Concern were also detected in groundwater at the Site, and therefore the groundwater to air pathway was also evaluated in the BHHRA. The potential future estimates of indoor air concentrations were evaluated using a model to predict indoor air concentrations in a future building at the former manufacturing plant area. There is no pathway of exposure to vapor intrusion to residents living near the Site.

The BHHRA evaluated the potential risks to future workers from volatilization from the soil (Former Manufacturing Plant Area only); landfill gas (landfill area only) and groundwater (site wide). The BHHRA found the risks were within the risk range for the landfill gas and that chloroform levels in the Former Manufacturing Plant Area were above NYS TAGMs for soil. The Proposed Plan calls for the remediation of a hotspot area to address potential impacts on groundwater from chloroform and carbon tetrachloride.

Comment #24: The Proposed Plan failed to address the issue of off-site migration of contamination, for instance into neighboring yards, etc., and what effects this has had and will continue to have on human health and the environment.

EPA Response #24: The site-wide investigation did not find off-site migration of contaminants with the exception of a slight increase in ammonia in the Creek above the Water Quality Criteria. In the absence of migration of contaminants off-site, further evaluation of risks was not conducted based on the mechanisms of fate and transport of contaminants. In addition, as noted above, a defined groundwater plume was not identified for the Site (See response to Comment # 22).

Comment #25: The Proposed Plan does not address how the contamination is affecting and will continue to affect Lake Erie and the Great Lakes basin and the ongoing and resulting effects on human health and the environment.

EPA Response #25: The Remedial Investigation concluded that groundwater from the Site discharges to Cattaraugus Creek and there is no defined groundwater plume. The site-wide investigation did not find off-site migration of contaminants above the Water Quality Criteria with the exception of a slight increase in ammonia in the Creek. Samples taken downstream from the Site did not indicate site-related contaminants of potential concern. Based on the significant distance between the Cattaraugus Creek and Lake Erie, impacts on Lake Erie and the Great Lakes basin are not expected.

Comment #26: The Proposed Plan does not address the thrust fault across the creek from the Site and, if it is an active fault, its potential effect on groundwater flow and on any future barrier or other

planned mitigating infrastructure put in place.

EPA Response #26: The bedrock geology in the Site area consists of a sequence of Devonian shales and siltstones overlain by alluvial deposits. Structurally, the bedrock dips to the south at about half a degree and is characterized by joint sets and faults. These structural features indicate that compressional forces were once active on the rock sequence after their formation. Currently, the area is not tectonically active and the fault zones have remained static.

Comment #27: The Proposed Plan was developed with insufficient data taken from the Cattaraugus Creek during periods of high turbidity/high flow, and what effects are occurring and may occur on human health and the environment during these periods, and what effects would occur under the proposed mitigation plans.

EPA Response #27: The remedy includes bank stabilization to ensure the protectiveness of the remedy during periods of high flow.

Comment #28: The Proposed Plan relies on insufficient minimal downstream sampling a short distance from Gowanda, and fails to characterize how and where sediment has been and is being deposited throughout the length of this dynamically changing river, and the resultant effects on human health and the environment.

EPA Response #28: As indicated in EPA's response to Comment # 25, the site-wide investigation did not find off-site migration of contaminants above the Water Quality Criteria with the exception of a slight increase in ammonia in the Creek. In the absence of migration of contaminants off-site further evaluation of risks was not conducted. In addition, as noted above, a defined groundwater plume was not identified for the Site (see response to Comment # 22). The river was surveyed for areas of deposition between the Site and the Seneca Nation Lands and no depositional areas were found.

Comment #29: The Proposed Plan does not incorporate field survey information of the Seneca Nation of Indians Lands, for instance plant, aquatic and animal species affected, and does not incorporate fish studies from anywhere on the river.

EPA Response #29: At the request of a member of the Seneca Nation, surface water and sediment samples were collected in that area of Cattaraugus Creek which borders the Nation's Lands in 2001. The BHHRA evaluated risks from exposures to the surface water and seep areas and identified arsenic and cis-1,2-dichloroethylene as the Chemicals of Potential Concern (COPCs). Cis-1,2-dichloroethylene does not readily bioaccumulate in fish since volatile organic compounds are rapidly biodegraded in the environment. Arsenic has the potential to bioconcentrate in aquatic organisms. However, the arsenic concentrations in downstream sediment samples were similar to concentrations in the upstream sediment samples, indicating that the Site does not contribute significant arsenic concentrations to the Creek. Based on these data, the potential bioaccumulation of COPCs from surface water and sediments into fish, and subsequent uptake into the food chain is not a completed

exposure pathway for the plants and aquatic and animal species.

Comment #30: The Proposed Plan fails to take into account the population of the downstream residents of the Seneca Nation of Indians and other downstream communities, such as Irving. Only the population of the Village of Gowanda is cited in the health study.

EPA Response #30: Based on the discussion in EPA's previous response, considering the distance between the Seneca Nation's Lands and the Site, and the limited quantity of sediment that exists in the rock-bottomed creek, the potential exposure of members of the Seneca Nation to site-related chemicals of potential concern via fish consumption is not a complete exposure pathway. This would hold true for other downstream communities as well.

Comment #31: The two-mile downstream and upstream area considered by the plan is too small. There are approximately 30 miles of river from the Site to the mouth of Lake Erie, and the entire river is approximately 70 miles long. The contaminants are not confined to the four-mile stretch considered, and humans, fish, birds, etc. from outside the four mile area come into contact both within and out of the considered area.

EPA Response #31: Sampling in the Cattaraugus Creek, immediately downstream, and one mile downstream did not identify chemicals of potential concern. Therefore, these chemicals would not be found further downstream due to natural mechanisms of dispersion and dilution.

Comment #32: The Proposed Plan fails to account for hexavalent chromium, which was previously detected at the Site by the EPA, and its effects on human health and the environment.

EPA Response #32: The BHHRA evaluated the potential risks from a number of chemicals including hexavalent chromium. Arsenic, chloroform, and carbon tetrachloride were identified as the main contributors to the cancer risk and non-cancer health hazards. Hexavalent chromium was within or below the risk range for which EPA requires remedial action.

Comment #33: The passive gas/burning off of gases put forth in the Proposed Plan is an unacceptable solution within a populated village. The Site is in a community and is surrounded by homes, a nursing home, a park, churches, schools, etc.

EPA Response #33: The remedy does not include the "burning off of gases." The remedy calls for passive gas venting. The remedy will follow current New York State landfill closure regulations that require the installation of a passive gas venting system comprised of at least one gas vent riser per acre to minimize landfill gas build-up within the fill. If levels of VOCs or methane in landfill gases are expected to be high, then an active system would be appropriate.

Comment #34: EPA has not pursued the PRPs as vigorously as possible. The $400,000 offer from the Wilhelm heirs, for example, is wholly insufficient, especially in light of the current value of this estate. The EPA should pursue these PRPs more vigorously and require a greater contribution to a

complete cleanup.

EPA Response #34: EPA has not discussed settlement terms with the Wilhelm Enterprises Corporation or any other PRP except for PRPs who have sought protection under bankruptcy laws or who were dissolved corporations. EPA selects a remedy under the Superfund law in a Record of Decision. Until the Record of Decision is issued, there typically are no settlement discussions with PRPs with respect to their liability to conduct the remediation or to reimburse EPA for its costs of response. EPA has not received a settlement offer from the Wilhelm heirs. EPA will seek to have the PRPs conduct the remedy or, in the alternative, will seek to have the PRPs reimburse EPA for the costs of response.

Comment #35: The NYS Natural Heritage information relied on and contained in the SLERA (Benchmark/VHB) of April 2004 omits several endangered/threatened/rare species found in and around Cattaraugus Creek. The comment identified a number of protected species that should be considered and concluded that a thorough and proper review of affected species has not yet been completed. The four-mile area considered is too small - for instance, the bald eagles may be affected through fish ingestion anywhere from Gowanda west.

EPA Response #35: EPA conducted a Screening Level Ecological Risk Assessment (SLERA) for the Site. The SLERA found no potential ecological risks from organic contaminants to receptor species including fish, terrestrial plants, wetland plants, benthic invertebrates, terrestrial invertebrates, birds, and mink. Although all risk to individual species was not specifically determined, they are represented in the groups that were evaluated.

Comment #36: The high levels of many of the contaminants warrant full cleanup, to exhumation, to ensure that the environment and human health are protected.

EPA Response #36: See EPA's responses to Comment # 20.

Comment #37: The proposed plan would leave all of the contaminants in place, posing such a risk of future exposure that the EPA would impose deed restrictions on the land.

EPA Response #37: With respect to the risk of future exposure at the Site, the Superfund law does not require that all sites be cleaned up to residential standards notwithstanding current uses and projected future uses of the property. The Site property has been zoned and used for industrial purposes for the last one hundred years. EPA worked with the Village of Gowanda to understand the potential future uses of the property. The "Reuse Assessment and Conceptual Plan for the Peter Cooper Gowanda Superfund Site (Reuse Assessment and Concept Plan) developed by the Village of Gowanda in association with the University of Buffalo Center for Integrated Waste Management," was developed with EPA funding. The projected uses of the Site property are recreational and commercial. The risk assessment addressed the risks at the Site with respect to projected exposures to individuals under these reasonably anticipated future land uses. EPA determined that several alternatives, if implemented, including the selected Alternative 5A would be protective under

reasonably anticipated future land uses. The residual risks at the Site after remediation will not be high, but the remediation will not be conducted to levels that would assure the safe use of the property for residential purposes. Consequently, Institutional Controls would be utilized to ensure that the property is not utilized for residential purposes without further remediation.

Comment #38: This Site, combined with the effects of the failed landfill at the nearby creek side Moench Tannery site, the leaking landfill at the top of Peter Road (within the aquifer boundary and at the top of the watershed of Gowanda's public drinking water supply), the hazardous site on Thatcher Brook in Gowanda, and the effects of the upstream West Valley nuclear waste site, create an undue and unfair toxic burden on these poor and minority communities (Gowanda, Irving, etc.), including the Seneca Nation of Indians. This constitutes a violation of federal and state *Environmental Justice* laws.

EPA Response #38: There are no federal environmental statutes that contain Environmental Justice (EJ) mandates. EPA applies EJ policies to existing laws and regulations to address EJ concerns. With respect to Superfund sites, EPA's EJ policies recognize that the Superfund law and regulations require that a site-specific risk assessment be performed to determine whether there are any cancer risks or non-cancer health hazards associated with a site. The Superfund law requires remediation of a site to levels which are protective of human health and the environment. Such remedies will also serve to minimize any disproportionately high and adverse environmental burdens attributable to the site which may be impacting an EJ community. EPA conducted such a risk assessment for this Site and determined that there were several alternatives that, if implemented, would be protective of human health and the environment. The selected Alternative 5A was one of the alternatives determined to be protective of human health and the environment. EPA further determined that Alternative 5A provided the best balance among the protective alternatives under consideration when assessed against the other criteria which the Superfund law and regulations require EPA to assess. The other sites mentioned in this comment are unrelated to the Peter Cooper Site. To the extent that any of these other sites have not been properly addressed, they should be addressed to reduce any disproportionate environmental load and burden on the community associated with those facilities. Any such problems, however, cannot be addressed in the context of the ROD for this Site.

Comment #39: There has been a negligent failure to fence and secure the Site and post warnings so humans are not in contact with the contaminants. Barrels of material were also identified on the Site.

EPA Response #39: EPA evaluated potential risks to current trespassers and future recreational users of the site and determined that the risks did not exceed EPA's risk range. The drums were removed and signs were posted in the past.

Comment #40: Full cleanup of the Site is required in a timely manner to protect nearby communities, the Cattaraugus Creek and Great Lakes basin, and the plant and animal species affected.

EPA Response #40: See response to Comment #12 regarding protecting the community. Comments regarding the timeliness of action are provided in the response to Comments # 6.

The Cooperating PRP Group submitted a letter to EPA dated September 12, 2005. The attachments to this letter present 200 pages of the Group's technical and legal arguments supporting the selection of Alternative 4A with the removal of the ground water diversion system and the excavation and consolidation of hot spot area SB-2, rather than the cover system selected in Alternative 5A. In a follow-up letter dated September 26, 2005, the PRP group essentially reiterated the comments outlined in their September 12, 2005 letter. The September 26, 2005 letter discusses the application of ARARs and the principle of "cost effectiveness," to the remedy selection process at this Site. EPA's response to each comment is provided below.

Comment #41: Groundwater Diversion System Evaluation. The PRPs commented that contaminant mass loadings to the Creek from the Elevated Fill Subarea would not be significantly reduced by the proposed groundwater diversion wall. Included in their comments were the results of groundwater flow simulation modeling run to estimate influx rates of groundwater into a collection drain proposed as a component of remedial measures. Among the remedial scenarios simulated, were cover systems with and without the proposed upgradient groundwater diversion wall.

The report concluded that the proposed diversion wall would neither eliminate or materially reduce groundwater flows through the fill and into the Creek or the Village of Gowanda's sewer system, nor reduce the contaminant mass loading to the Creek or sewer system. The report also concluded that 80% of the contaminated groundwater flow would be captured by the leachate collection system and that the mass loadings of ammonia and other sludge/fill contaminants to the creek would be reduced by approximately 70%, thus achieving the remedial action objective of minimizing contaminant migration to Cattaraugus Creek and achieving the ambient water quality standards.

EPA Response #41: The PRPs' contentions hinge on the relative groundwater flow rates in the fill, the overburden, the shallow weathered bedrock, and the deeper rock -- and the effectiveness of the downgradient seep collection system running along the river, between the river and the landfill in intercepting these flows.

The modeling effort presents a reasonable hydrogeological perspective. On balance, however, the model lacks sufficient data to justify the conclusions presented. The model would need to be better calibrated with additional hydraulic data to those presented. Data needs would include greater definition of the hydraulic characteristics of the geologic formations involved, including the hydraulic relationships between the river and the groundwater flow system, and the hydraulic conductivity contrasts between the deeper, more competent bedrock and the more permeable layers above, and the relative depths and thicknesses of each contrasting layer. The amount of testing -- in terms of lateral and vertical coverage, and frequency -- and the types of data collected need to be augmented significantly, to provide assurances that the flow system is adequately characterized.

Additional data will be collected in the remedial design phase of the project. If the additional data support the conclusions of the modeling report and indicate that the majority of the contaminated groundwater flowing through the waste material would be captured by the leachate collection system, and that the mass loadings of ammonia and other sludge fill contaminants to the creek would be substantially reduced (by approximately 70%) without the construction of the diversion wall, then EPA agrees that the diversion wall would not be necessary to meet the remedial action objectives and the diversion wall would not be installed.

Comment #42: Cover System Performance Evaluation. The Alternative 4 cover system (without groundwater diversion) is fully protective of human health and the environment and the Alternative 5 cover system, which proposes 18-24 inches of low permeability barrier layer soils and 6-12 inches of topsoil over the existing low-permeability soil cover system, provides no additional human health or environment benefit, and will unnecessarily and significantly increase construction costs. Because Alternative 4 provides a level of performance equivalent to Alternative 5 and Part 360, and because the design criteria for cover systems contained in Part 360 are not consistently applied to sites like the Peter Cooper Site, Alternative 4 satisfies the ARAR requirements of the NCP. The remedy provisionally selected in the Proposed Plan does not comply with the design requirements of NYCRR Part 360.

EPA Response #42: Any remedy selected at a site must meet the two threshold criteria, protection of human health and the environment and compliance with ARARs. While the cover system which is part of Alternative 4 is protective, the low permeability, equivalent barrier cap which is part of the proposed remedy (Alternative 5A) is more protective because the proposed slope will promote runoff and minimize infiltration, thereby reducing mobilization of contaminants from the Elevated Fill Subarea into the groundwater.

The second threshold criteria, compliance with ARARs will not be satisfied with Alternative 4. The NYSDEC NYCRR Part 360 requirements are considered an ARAR for the Site. As such, NYSDEC may accept an equivalent cap design to the 6 NYCRR Part 360 requirements in accordance with the equivalent cap design provisions. NYSDEC has informed EPA that the cover system proposed in Alternative 4 would not be an acceptable equivalent to the Part 360 requirements. Therefore, Alternative 4 does not satisfy the ARAR requirements of the NCP. However, the Alternative 5A cover system was accepted as an equivalent cap design by the NYSDEC and therefore satisfies the ARAR requirement of the NCP.

Comment #43: The provisions of 6NYCRR Part 360-1.7(a)(3)(viii)(d) which provide that: "final cover requirements for landfills with an approved closure plan that have ceased to accept waste before October 9, 1993 must meet the closure and post-closure requirements of the regulations in effect the day the closure plan was approved." Since there were no Part 360 regulations in effect at the time of the landfill closure in 1971, the closure of the landfill at the Site in accordance with a court order implemented subject to the supervision of the NYSDEC satisfied these regulatory requirements. Accordingly, the NYCRR Part 360 regulations are not an applicable requirement for the Elevated Fill Subarea because it is not consistently applied. Alternative 4 would meet the

"equivalent performance" test of Part 360.

EPA Response #43: NYSDEC's regulation for closure and post-closure of solid waste landfills, that are not hazardous waste landfills, 6 NYCRR Part 360, is properly identified as an ARAR for the Site. The Site is currently classified as a Class 2 Site on the New York State Registry of Inactive Hazardous Waste (IHW) Sites. IHW sites are those sites which are determined by the NYSDEC to present a significant threat to the public health or the environment and are subject to requirements established under the Environmental Conservation Law (ECL) Article 27, Title 13 and regulated under 6 NYCRR Part 375. Part 375 establishes different and additional requirements than those set forth in Part 360. NYSDEC, accordingly, does not apply the provisions of 6NYCRR Part 360-1.7(a)(3)(viii)(d) to the closure of CERCLA and IHW sites. If a CERCLA/IHW site, however, does not contain "categorical" or "listed wastes" as defined in the federal Resource Conservation and Recovery Act or the ECL, the provisions of Part 360 may be deemed "relevant and appropriate" for use at such sites, even though it would not be deemed "applicable" to the CERCLA/IHW site.

The provisions of 6NYCRR Part 360-1.7(a)(3)(viii)(d) are clearly inapplicable to the Site by the very language of the provision which requires that the proposed "grandfathered" closure would have been in compliance with the regulations in effect the day the closure plan was approved. In the instant case, there was no approval of a closure plan pursuant to regulations in effect at the time of closure, since there simply were no regulations in effect at the time addressing such landfill closures. NYSDEC supervision of the landfill closure pursuant to a court order does not satisfy the prerequisites of 6NYCRR Part 360-1.7(a)(3)(viii)(d) which was intended to address closure of solid waste landfills that were effectuated under pre-1993 regulatory provisions for closure of solid waste landfills. These provisions were not intended to relate back to 1971 when no such regulations existed, nor were they intended to address CERCLA or IHW sites. In fact, NYSDEC deems these provisions inapplicable when additional work beyond an approved closure plan is required at any site, not just CERCLA or IHW sites.

Furthermore, remedial actions under CERCLA must attain ARARS identified at the time of ROD signature [40 CFR §300.430(f)(1)(ii)(B); see Fed. Reg. 8757-58 (March 8, 1990)]. Notwithstanding the nature of any closure of the landfill in the 1970's and the facts that the landfill was not properly maintained and the cap was allowed to erode, the above-cited provision in the NCP leads inexorably to the conclusion that the current requirements of Part 360 are relevant and appropriate to the conditions at the Site.

In addition to the requirements of Part 360, EPA closure requirements for municipal solid waste landfills set forth in 40 CFR Part 258, Subpart F have also been identified as an ARAR for the Site. The capping component set forth in Alternative 4, which is the favored capping alternative in the PRPs' comment, does not meet some of the minimum requirements for landfill closure set forth in 40 CFR Part 258 such as that the final cover system must be designed to "minimize infiltration and erosion" (40 CFR § 258.60(a)); "use an infiltration layer that contains a minimum 18-inches of earthen material (40 CFR § 258.60(a)(2); and also contain a "minimum 6-inches of earthen material that is capable of sustaining native plant growth."

The requirements of Part 360 are relevant and appropriate to the Site. Even if they were deemed not to be relevant and appropriate to the Site, the federal requirements contained in 40 CFR Part 258 are relevant and appropriate to the Site and those requirements would necessitate closure as specified in Alternative 5A, and would preclude closure as specified in Alternative 4.

The Part 360 variance provisions are not indicative of inconsistent application. The NCP recognizes that the variance provisions of a regulation can be taken into consideration when the "relevance and appropriateness" of an ARAR is being assessed [40 C.F.R. § 300.400(g)(2)(v); see NCP Preamble at 55 Fed. Reg. 8744 (March 8, 1990)]. While Part 360, as well as the federal requirements set forth in 40 C.F.R. Part 258, allow for some flexibility in closure requirements depending upon site conditions, minimal standards to prevent erosion and minimize infiltration must still be met. Alternative 5 meets these requirements; Alternative 4 does not.

While Part 360 does not use the specific term "equivalent performance" the NCP does in the context of discussion of categories of ARAR waivers [40 C.F.R. § 300.430(f)(1)(ii)(C)(4)]. The NCP preamble clarifies that "... the purpose of the waiver is to allow alternative technologies that provide a degree of protection as great or greater as the specified technology. ...EPA believes that the... degree of protection, level of performance, and future reliability, should at least be equaled for an alternative to be considered equivalent. While it is possible that there may be redundancy among the three, a lesser level in any of these criteria would compromise equivalency with the original standard" [55 Fed. Reg. 8749-8750 (March 8, 1990)]. The PRPs' comment is not made in the context of a proposal of an alternative technology, but instead in the context of a proposed application of the same technology, but an application of that technology to a lesser extent. As stated above, the PRPs proposed Alternative 4 does not meet minimum standards for erosion control and minimization of infiltration and would not offer the same degree of future reliability.

Comment #44: The Alternative 5A cover system is not consistent with the NCP, because it is not cost-effective. The letter also cites 40 C.F.R. § 300.430(e)(7)((iii) in support of this argument and asserts that the costs of Alternative 5A are "grossly excessive."

EPA Response #44: A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP §300.430(f)(1)(ii)(D)).

The estimated present worth cost of Alternative 5A ranges from approximately $2,700,000 to $4,000,000 depending on whether the leachate seep is treated by the POTW (the selected preferred remedy) or on-site treatment with discharge to Cattaraugus Creek (the selected contingency remedy). Although Alternative 4 is less expensive (approximately $1,800,000-$2,300,000), it does not meet the threshold criterion of compliance with ARARs because the enhanced soil cap would not minimize infiltration sufficiently to meet the regulatory requirements of the New York State landfill closure and post-closure requirements (6NYCRR PART 360) or the federal requirements contained in 40 CFR Part 258, Subpart F.

Furthermore, the NCP provision cited in the letter is inapposite: "Costs that are grossly excessive

compared to the overall effectiveness of alternatives may be considered as one of several factors used to eliminate alternatives" [40 C.F.R. § 300.430(e)(7)((iii)]. In the Preamble to the NCP, EPA explained when costs would be deemed to be "grossly excessive" for the effectiveness they provide. This last category would include those situations where cost is so excessive that a remedy is virtually unimplementable and is, therefore, "impracticable to consider" [55 Fed. Reg. 8714 (March 8, 1990)]. The costs of Alternative 5A clearly is not "grossly excessive" pursuant to the NCP.

Comment #45: Technical basis for excavation of soil surrounding boring SB-2 in the Former Manufacturing Plant. The SB-2 removal aspect of the Proposed Plan is inconsistent with the Human Health Risk assessment (HHRA) and the FS and should be eliminated from the proposed remedy.

EPA Response #45: A statistical analysis of the arsenic soil concentrations in the FMPA following completion of the BHHRA in 2003 found an outlier of 168 mg/kg of arsenic. The 2003 BHHRA found that the risks to the future industrial worker associated with the 95% upper confidence limit on the mean concentration for arsenic of 61.4 mg/kg were 3.5×10^{-5} (approximately 4 in 100,000). Consideration of exposures to the construction worker only to the area where the outlier was found yielded a noncancer HI = 1.4 and a cancer risk of 9×10^{-6} (nine in 1,000,000). Therefore, excavation and removal of hotspot SB-2 was deemed by EPA to be appropriate.

The following comments were received from the Village of Gowanda by letter dated September 15, 2005. The Village essentially commented on each component of the proposed alternative: Excavation; Consolidation; Containment with Part 360-Equivalent Design Barrier Cap; a Groundwater Diversion System.

Comment #46: The Village stated that it supported excavation of VOC and arsenic-contaminated soil.

EPA Response #46: EPA acknowledges the comment.

Comment #47: The collection and treatment of leachate emanating from the Site is required. However, the option of discharging leachate to the Village POTW should be further developed and it would be premature to remove all other options for treatment of leachate from the ROD.

EPA Response #47: EPA agrees. Page 3 of the Declaration for the Record of Decision reads "As a contingency, if treatment of the leachate seep in the POTW is not available, the leachate would be treated and discharged to Cattaraugus Creek."

Comment #48: To the extent that the groundwater diversion system would not increase the efficiency of the remedy and would impose additional cost to construct and operate the diversion system, EPA should carefully examine the effectiveness of the inclusion of this feature in the ROD.

EPA Response #48: See EPA Response to Comment #41.

Comment #49: The Village is concerned with the passive venting of landfill gas. EPA should establish specific performance standards and monitoring to ensure that impacts on the Site and adjacent residents and neighborhoods will be minimized. In the event that noxious (hydrogen sulfide gas) impacts occur, there should be defined established protocols to remedy such impacts in a timely manner. If performance standards are not included, the burden of ensuring performance may unfairly shift from the PRP Group to DEC or the Village at public expense.

EPA Response #49: With respect to the selection of a passive gas venting system, current New York State landfill closure regulations require the installation of a passive gas venting system comprised of at least one gas vent riser per acre to minimize landfill gas build-ups within the fill. If levels of VOCs or methane in landfill gases are expected to be high, then an active system would be appropriate.

In general, methane gas levels in the landfill waste at the Elevated Fill Subarea sampled during the RI were detected in two samples up to 31.1%. Levels of other nonmethane VOCs were detected at levels slightly above guideline values. Since the levels of these VOCs (including hydrogen sulfide gas) were not detected at the landfill surface under current conditions, it is expected that the levels of both methane and nonmethane VOCs would be reduced once a venting system is in place. Therefore, based on landfill characteristics, it is anticipated that a passive gas venting system would be the appropriate method for gas control. However, the passive system would be designed and monitored so that it could easily be converted to an active system should levels of VOCs be detected in excess of ARAR emission standards.

Specific criteria will be developed during the remedial design. NYCRR Part 360 regulations define how the criteria are developed. Specifically, the regulation states that gas venting systems must prevent the accumulation of gas at greater than 25 percent of the lower explosive limit in structures on- site and off-site; prevent damage to vegetation both on the final cover and off-site; and control objectionable odors due to any gas emissions. The landfill will meet all appropriate NYSDEC closure requirements including post-closure requirements to operate and maintain the vegetative cover and gas venting systems. In the event that the NYSDEC regulations are exceeded, appropriate actions will be taken.

Comment #50: The Village would support construction of a landfill cover system that would minimize leachate generation, prevent migration of waste material, protect the landfill area from erosion and cover settlement fractures, and minimize infiltration of groundwater. EPA should consider the cost-benefit effectiveness associated with the various cover options to the extent that cost may impede implementation of a remedy.

EPA Response #50: EPA carefully considered each remedial alternative and selected Alternative 5A as the remedy for the Site because it satisfies the threshold criteria, which are protection of human health and the environment and compliance with ARARs, and provides the best balance among the alternatives according to EPA's nine evaluation criteria. The low permeability soil cover in Alternative 5A will be more effective than the enhanced soil cover in Alternative 4 in achieving

the remedial action objectives of the Site, which are reduce or eliminate any direct contact threat associated with the contaminated soils/fill, minimize or eliminate contaminant migration from contaminated soils to the groundwater, and minimize or eliminate contaminant migration from groundwater to Cattaraugus Creek. Alternative 5A requires a thicker, low permeability soil cap to minimize infiltration which will reduce leachate generation. Further, even though it is less expensive, Alternative 4 does not meet the threshold criterion of compliance with ARARs because its enhanced soil cap would not minimize infiltration sufficiently to meet the regulatory requirement of New York State landfill closure and post-closure requirements (6 NYCRR Part 360) or the federal requirements contained in 40 CFR Part 258, Subpart F.

C. WRITTEN COMMENTS RECEIVED DURING THE COMMENT PERIOD PERTAINING TO MATTERS CONCERNING THE SENECA NATION OF INDIANS

EPA received three letters pertaining to matters concerning the Seneca Nation of Indians. Comments provided by letter dated September 26, 2005 from the National Tribal Environmental Council (NTEC) dated September 26, 2005 in Albuquerque, New Mexico and EPA's responses are provided below.

Comment #51: Affected Tribes were not consulted nor were the Tribes' resource uses considered in the remedial plans.

EPA Response #51: The Seneca Nation was a valued member of the government team that reviewed and commented on all of the relevant technical documents concerning the Peter Cooper Landfill site, including the Remedial Investigation/Feasibility Study Work Plan and the Feasibility Study Report.

The EPA project manager for the Site met with the Seneca environmental coordinator and other members of the Seneca Nation at various times during the RI/FS process, starting in Fall 1999. On August 10, 2005, prior to the public meeting, the EPA met with members of the Nation to discuss the Proposed Plan and solicit comments. In addition, an information repository was established at the Seneca Nation of Indians Library.

Comment #52 : Sources of contamination exist both within and outside Indian lands. Whether on- or off-reservation, the consequence is contamination of resources that are utilized by Tribes. Hazardous substances and contamination related activities and determinations must include Tribal government participation in a meaningful manner such that a Tribe may affect decisions that result in protection of Tribal resources where they may be located.

EPA Response #52: EPA believes that there is no impact to the people of the Seneca Nation from the Peter Cooper Landfill Site. The Seneca Nation lands are located over one mile downstream from the Site. As such, collecting surface water and sediment samples in the portion of Cattaraugus Creek which borders Seneca land was not in the original scope of work for the Site. However, in

response to the comments made by Lisa Maybee, the former Director of the Environmental Protection Department for the Seneca Nation of Indians, EPA sampled the surface water and sediment of the Cattaraugus Creek and the sediment in the wetland area identified as the place where reeds used in basket weaving are gathered. The analytical results did not indicate any contamination from the Peter Cooper Landfill site.

Comment #53: Development of thorough and comprehensive Site assessment documents including field sampling plans, sampling and analysis plans and quality assurance plans should be developed to account for Tribal specific criteria.

EPA Response #53: Input from the Seneca Nation was solicited during the development of the planning documents that outlined the activities conducted during the investigation of the site. Comments from the Nation resulted in EPA's collecting additional data, outside the scope of the approved RI/FS Work Plan, to assess any potential impact of the site on the Nation and its lands.

Comment #54: Human Health and Ecological risk assessments should be thorough and comprehensive, including an accounting of cumulative risk and Tribal member's predispositions to involuntary contaminant risks. It is important to develop a Tribal subsistence scenario.

EPA Response #54: In the human health risk assessment, sediment samples and surface water samples from Cattaraugus Creek were evaluated. These data indicated no site-related chemicals of potential concern. The majority of the sample results indicated nondetectable levels of contaminant parameters. Also, the chemical concentrations were consistent in samples obtained both upstream and downstream of the Site. Based on this information, and considering (1) the distance between the Seneca Nation Reservation and the Site (over one mile), (2) the limited quantity of sediment that exists in the rock-bottomed creek, and (3) that the contaminants of potential concern do not tend to bioaccumulate in fish tissue, potential exposures of members of the Seneca Nation to site-related chemicals of potential concern via fish consumption was not evaluated in the baseline Human Health Risk Assessment.

Comment #55: Site reuse should be based on the Tribe's health and welfare principles as well as resource and cultural use considerations.

EPA Response #55: As the investigations determined there was no measurable effect from the Site on the Seneca Nation lands, the risk assessments did not separately assess the Site reuse as it affects Tribal members.

Comment #56: EPA and NYSDEC should adopt the proposed Remedial Alternative as an interim measure until such time as the Seneca Nation has been consulted, and has the opportunity to adequately review all relative documents.

EPA Response #56: EPA has consulted with the Seneca Nation throughout the RI/FS process over the last five years. The Seneca Nation has received and has had the opportunity to review and

comment on all technical documents produced in addressing this Site. EPA has considered and has been responsive to the comments made by the Seneca Nation's representatives. As such, EPA feels confident in selecting a final remedy and not an interim measure.

Comments provided by letter dated September 26, 200 sent by the Indigenous Environmental Network (IEN) located in Bemidji, Minnesota.

Comment #57: EPA has not had meaningful involvement with the Seneca Tribal Nation.

EPA Response #57: The Seneca Nation was a valued member of the government team that reviewed and commented on all of the technical documents involved concerning the Peter Cooper Landfill site, including the Remedial Investigation /Feasibility Study Work Plan and the Feasibility Study Report.

The EPA project manager for the Site met with the Seneca Director of Environmental Protection and other members of the Seneca Nation at various times during the RI/FS process. Prior to the public meeting on August 10, 2005, the EPA met with members of the Nation to discuss the Proposed Plan and solicit comments. In addition, an information repository was established at the Seneca Nation of Indians Library.

Comment #58: Sources of contamination exist both within and outside the Seneca lands. Whether on- or off-reservation, the consequence is contamination of natural and cultural resources that are utilized by the Seneca Tribal Nation. The contamination affects the inherent sovereignty and self-determination of the Seneca Nation and its members.

EPA Response #58: EPA believes that there is no impact to the Seneca Nation's people from the Peter Cooper Corporation Site. See EPA's responses to Comments # 29 and 30.

Comment #59: EPA and NYSDEC should consult immediately with the Seneca Tribe for the adoption, as an interim Record of Decision, of two of the remedial alternatives identified in the Proposed Plan: Alternative 3: Excavation; Bank Stabilization; and Off-Site Disposal and Option B of Alternative 4: Excavation/Consolidation/Containment with Soil Enhancement Cap and A Groundwater Diversion System.

EPA Response #59: The EPA has consulted with the Seneca Nation throughout the Site study process. The Seneca Nation has received and has had the opportunity to review and comment on all technical documents produced in addressing this site. The ROD is the decision document by which the EPA specifies one of the remedial alternatives as the selected remedy. Only one alternative can be selected. In this case, EPA specified Alternative 5A as the selected remedy. The remedy selected in the ROD is a final remedy and not an interim measure. (Also see response to comment #12)

The following are comments made by a member of the Seneca Nation by letter dated September 26, 2005. EPA's responses are provided below.

Comment #60: What are the impacts to the fish and foods from Cattaraugus Creek and why are there no fish consumption warnings. How often, and for what chemicals, are fish tested for in the Cattaraugus Creek.

EPA Response #60: The New York State Department of Health (NYSDOH) evaluates fish data to determine whether to issue fish consumption advisories for specific water bodies within the State of New York. The current NYSDOH analyses are issued on an annual basis and summarized in the document "Health Advisories Chemicals in Sportfish and Game 2005/2006".The document is available at: http://www.health.state.ny.us/nysdoh/fish/fish.htm. One can also obtain information concerning fish consumption advisories from the NYSDOH at: 1-800-458-1158, extension 27815 (toll-free). Calls are taken from 8:00AM-4:30PM, Monday through Friday.

Review of the 2005/2006 Advisories document indicates that there are currently no fish consumption advisories applicable to Cattaraugus Creek other than state-wide advisories applicable to all freshwaters of the State. This finding is consistent with the results of the risk assessment that found the Chemicals of Concern in the Creek were primarily volatile organic contaminants and metals including arsenic, which have limited potential to bioaccumulate within the food chain. Therefore, no special fish consumption advisories are in place for the Creek. It should be noted that the NYSDOH has issued a general fish advisory, applicable to all freshwaters (and some marine waters at the mouth of the Hudson River) in the State, that a person should eat no more than one meal (one-half pound) per week. But again, there are no Creek-specific advisories for Cattaraugus Creek beyond the general state-wide advisory.

Comment #61: Is the harm to the species, including the Blandings turtle and the eagles, who visit the Creek considered in the studies.

EPA Response #61: The evaluation of risks from the site includes both human health and ecological risk assessment. The Screening Level Ecological Risk Assessment (SLERA) is used to determine whether chemicals found in soils, surface water, landfill seeps and sediment suspected to be from the Site pose a potential risk to plants, animals and ecologically valuable habitats in the vicinity of the Site. EPA evaluated potential ecological risk for a number of areas of the Site including the wetland area, the landfill area, and Cattaraugus Creek. The SLERA used analytical data from samples collected during the Remedial Investigation (RI) and information on the ecological communities present at the Site. The ecological risk assessment was prepared in accordance with EPA's Ecological Risk Assessment Guidance for Superfund Process for Designing and Conducting Ecological Risk Assessments (EPA 1997).

The SLERA found no potential ecological risks from organic contaminants to receptor species including fish, terrestrial plants, wetland plants, benthic invertebrates, terrestrial invertebrates, birds, and mink. Although risk to the blanding turtle and eagles were not specifically determined, they are represented in the groups that were evaluated.

With limited exceptions, benthic organisms and fish in Cattaraugus Creek show no potential ecological risks from organic chemicals in creek sediment and surface water. Where potential ecological risks to benthic organisms and fish from inorganic chemicals in creek sediment and surface water occur, the associated chemical was present in samples collected upstream of the Peter Cooper Landfill site at similar concentrations to downstream samples. This suggests that the Site is not a significant contributor to ecological risks.

Comment #62: Where did the heavy metals and VOCs from the former operations of the tannery and glue factory go?

EPA Response #62: A tannery was not operated at the site, but tanning wastes (i.e., hide trimmings, fleshings (unprocessed hide scraps) and tanned leather scraps) were used in the process of making glue and then were disposed of in the Elevated Fill Subarea on the Site. Other wastes from the process were also disposed of in the landfill. In 1972, the Peter Cooper Corporation removed approximately 38,600 tons of waste pile material and transferred it to a separate site in Markhams, New York.

The studies conducted at the Site identified contaminants in the soil, sediment and the groundwater. The RI/FS contains figures and tables that identify where those contaminants are located. The results of the RI/FS confirmed previous studies. Contaminated seeps and groundwater enter the Cattaraugus Creek, however, contaminants are not detected in samples of surface water and sediment immediately downstream of the landfill.

By constructing a proper cap to minimize infiltration and a collection system to collect leachate seeps the Elevated Fill Subarea would no longer be acting as a source of contamination to the groundwater and the Creek. The natural mechanisms of dispersion and dilution would be relied upon to reduce the residual contaminated groundwater throughout the Site. By reducing leachate production, the remedy limits further contamination of the groundwater and surface water.

Comment #63: As the creek may flood, there is a concern with leaving the waste where it is. The most beneficial remedy is to fully remove the waste.

EPA Response #63: The selected remedy (Alternative 5A) will be designed to take into account high water conditions in Cattaraugus Creek. The remedy will require the creek bank to be cleared of existing concrete and rock , a geosynthetic liner would then be placed and would extend down the top of the soft shale bedrock to protect against creek water intrusion during high water conditions. The Creek bank will then be stabilized.

Comment #64: The waste at the Site impacts the health, economic, and culture of the people of the Seneca Nation.

EPA Response #64: EPA believes that there is no impact to the Seneca Nation's people from the Peter Cooper Corporation Site. See EPA's responses to Comments # 29 and 30 and 54, above.

Comment #65: Within the Seneca Nation community, there are areas that have high instances of diseases that are above the norm for our population. Has this been addressed?

EPA Response #65: EPA believes that there is no impact to the Seneca Nation's people from the Peter Cooper Corporation Site. See EPA's responses to Comment # 29 and 30.

However, at all Superfund Sites, the Agency for Toxic Substances and Disease Registry of the Centers for Disease Control and Prevention (CDC), conducts public health assessments to evaluate potential health concerns. A copy of the Public Health Assessment conducted for the Peter Cooper Landfill site is available at the repositories for the Site in the Town of Gowanda and at the Seneca Nation's library.

As indicated in the Public Health Assessment (available at the Repository at the Seneca Nation Library and http://www.atsdr.cdc.gov/HAC/PHA/petercooper/pet_p3.html#phap) at the time of the study, the NYSDOH was conducting a cancer study for the Village of Gowanda, the Cattaraugus Reservation and the Towns of Perrysburg, Persia, Dayton, New Albion and Otto. Further information regarding this study can be obtained by contacting either the Agency for Toxic Substances and Disease Registry at (212) 637- 4307 or the New York State Department of Health at (1-800-458-1158 ext. 27950).

Comment #66: There are laws that should protect our people and the land for traditional indigenous uses. Why have the laws not been followed in protecting the Seneca Nation community?

EPA's Response #66: EPA disagrees with this comment. EPA followed the Superfund law including appropriate policies, guidance, and regulations in the conduct of the RI/FS, Proposed Plan, and communication with the community. Consistent with the Superfund law, EPA is required to meet the protection of human health and the environment and all Applicable and Relevant and Appropriate Requirements (ARARs). The proposed remedy is protective of human health and the environment since exposures are interrupted and the remedy will meet the ARARs.

Comment #67: Notice of the public comment period was not provided.

EPA Response #67: Consistent with the NCP, EPA developed a Community Involvement Plan, which included interviews with members of the Seneca Nation to understand community concerns and methods to aid in the distribution of information. EPA mailed announcements to over 350 individuals regarding the public meeting based on a mailing list that has been continually updated to include all individuals who registered at previous site meetings or contacted the Agency for information on the project. Further, EPA announced the meeting in the *Dunkirk Observer* and the

Penny Saver newspapers and on the internet. EPA held a meeting on August 10, 2005 at the Gowanda Central High School Auditorium to provide an overview of the remedial investigation and proposed site remedy. At that time, EPA responded to comments from the audience and also provided contact numbers so that individuals would have the ability to contact EPA project managers for further discussion during the comment period. At the request of the community, EPA also extended the comment period to provide additional time for comments to be submitted.

RESPONSIVENESS SUMMARY

APPENDIX IV-a

JULY 2005 PROPOSED PLAN

Peter Cooper Landfill Superfund Site

Cattaraugus County, New York

EPA

Region 2

July 2005

PURPOSE OF PROPOSED PLAN

This Proposed Plan describes the remedial alternatives considered for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site (Site), and identifies the preferred remedy with the rationale for this preference. This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA) in consultation with the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Sections 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The nature and extent of the contamination at the Site and the alternatives summarized in this Proposed Plan are described in the November 2003 remedial investigation (RI) report and May 2005 feasibility study (FS) report, respectively. EPA and NYSDEC encourage the public to review these documents to gain a more comprehensive understanding of the Site and the Superfund activities that have been conducted at the Site.

This Proposed Plan is being provided as a supplement to the FS report to inform the public of EPA's and NYSDEC's preferred remedy and to solicit public comments pertaining to all of the remedial alternatives evaluated. EPA's preferred remedy consists of capping contaminated soils, collecting leachate and controlling landfill gas. A subsurface barrier will be used to limit lateral groundwater migration and in conjunction with the cap, the Elevated Fill Subarea will no longer be acting as a source of contamination to the groundwater and the Creek and the remaining contaminated groundwater would rely primarily on the natural mechanisms of dispersion and dilution to reduce the contamination throughout the Site. Institutional controls would also be used to prevent disturbance of the cap and limit groundwater use at the Site.

The remedy described in this Proposed Plan is the preferred remedy for the Site. Changes to the preferred remedy, or a change from the preferred remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments. EPA is soliciting public comment on all of the alternatives considered in this Proposed Plan and in the detailed analysis section of the FS report because EPA and NYSDEC may select a remedy other than the preferred remedy.

MARK YOUR CALENDAR

July 30, 2005 - August 28, 2005: Public comment period on the Proposed Plan.

August 10, 2005 at 7:00 p.m.: Public Meeting at Gowanda Central High School, 24 Prospect Street, Gowanda, New York

COMMUNITY ROLE IN SELECTION PROCESS

EPA and NYSDEC rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the RI and FS reports and this Proposed Plan have been made available to the public for a public comment period which begins on July 30, 2005 and concludes on August 28, 2005.

A public meeting will be held during the public comment period at the Gowanda Central High School on August 10, 2005 at 7:00 p.m. to present the conclusions of the RI/FS, to elaborate further on the reasons for recommending the preferred remedy, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

INFORMATION REPOSITORIES

Copies of the Proposed Plan and supporting documentation are available at the following information repositories:

Gowanda Free Library
56 W. Main Street
Gowanda, New York 14070
(716)532-3451

Hours: Monday, Tuesday and Thursday:
2:00 p.m- 5:30 p.m.; 7:00 p.m - 9:00 p.m.;
Wednesday: 10:00 a.m. - Noon
Friday: Noon-5:30 p.m.

Seneca Nation of Indians Library
3 Thomas Indian School Drive
Irving, New York 14081
(716)532-9449

Hours: Monday, Wednesday, Thursday and Friday:
8:30 a.m- 5:00 p.m.
Tuesday: 8:30 a.m. - 8:30 p.m.

Written comments on this Proposed Plan should be addressed to:

Sherrel Henry
Remedial Project Manager
New York Remediation Branch
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Telefax: (212) 637-3966
Internet: henry.sherrel@epa.gov

SCOPE AND ROLE OF ACTION

The primary objectives of this action are to remediate the sources of contamination at the Site, reduce and minimize the downward migration of contaminants to the groundwater, control landfill gas and minimize any potential future health and environmental impacts.

SITE BACKGROUND

Site Description

The Peter Cooper Landfill Site (the "Site") consists of an inactive landfill area and land associated with the former Peter Cooper Corporation (PCC) glue-manufacturing plant located in Gowanda, Cattaraugus County, New York. The Site is located on approximately 26 acres of property between Palmer Street and the Cattaraugus Creek. The Site is bounded to the north by Cattaraugus Creek, to the south by Palmer Street, to the west by a former hydroelectric dam and wetland area, and to the east by residential properties.

For purposes of the RI/FS, the Site was divided into two sections. The western section of the Site, called the Inactive Landfill Area (ILA), is approximately 15.6 acres in size. A subarea within the ILA, approximately 5 acres in size and located in the northwest corner of the Site, is referred to as the Elevated Fill Subarea. The wastes from PCC's glue production were disposed of on the Elevated Fill Subarea. The western portion of the Elevated Fill Subarea is located on property owned by the New York State Electric & Gas Corporation (NYSEG) and the remainder of the Elevated Fill Subarea, as well as the remaining areas of the Site, are on property previously owned by PCC, and currently owned by JimCar Development, Inc. The Former Manufacturing Plant Area (FMPA) is located on the eastern side of the Site and measures approximately 10.4 acres. Figure 1 shows the Site area.

Site History

The Site was previously used to manufacture glue and industrial adhesives. PCC and its predecessor, Eastern Tanners Glue Company, manufactured animal glue in Gowanda from 1904 until 1972. When the animal glue product line was terminated, PCC continued to produce synthetic industrial adhesives until the plant closed in 1985. Between 1925 and October 1970, PCC used the northwest portion of the property to pile sludge remaining after the animal glue manufacturing process. These wastes, known as "cookhouse sludge" because of a cooking cycle that occurred just prior to extraction of the glue, are derived primarily from chrome-tanned hides obtained from tanneries. The waste material has been shown to contain elevated levels of chromium, arsenic, zinc, and several organic compounds. Observation of the cook-house sludge material during the RI indicated that the sludge appeared to be mixed with cinders, ash, and construction and demolition debris.

In June 1971, the New York State Supreme Court (8th J.D. Cattaraugus County) ordered PCC to remove the waste pile and terminate discharges to Cattaraugus Creek. In 1972, PCC reportedly removed approximately 38,600 tons of waste pile material and transferred it to a separate site in Markhams, New York. Between 1972 and 1975, the remaining waste pile at the Site was graded by PCC, covered with a 6-inch clay barrier layer and 18-30 inches of barrier protection soil and vegetated with grass. Stone rip-rap and concrete blocks were placed along the bank of the Creek to protect the fill material from scouring or falling into the Creek.

Previous Investigations

NYSDEC conducted preliminary site investigations in 1981 and 1983 and identified the presence of arsenic, chromium and zinc in soil and sediment samples. The results of these investigations are available in Appendices B-1 and B-2 of the 2003 RI. As a result of this investigation, NYSDEC

oversaw PCC's conduct of an RI/FS for the site. PCC hired O'Brien and Gere Engineers, Inc. (OBG) to perform the RI/FS. The OBG investigation was limited to the ILA. Activities performed during the RI included collection of soil, surface water, sediments, waste material, seep and groundwater samples. The RI Report was issued in January 1989 and the results of this analysis are available in Appendix B-3 of the 2003 RI. The FS Report was submitted to NYSDEC in March 1991 and included recommendations for containment of source materials, leachate collection, access restriction through the building of a fence and deed restrictions. However, because the waste at the Site did not meet the statutory definition in effect at the time in New York State for an inactive hazardous waste disposal site, NYSDEC could not use State funds to implement a remedial program. Therefore, in 1991, NYSDEC removed the Site from its Registry of Inactive Hazardous Waste Sites. At that time, NYSDEC and the Village of Gowanda requested EPA to evaluate the Site.

In 1996, the EPA Superfund Technical and Assessment Response Team (START) collected and analyzed soil, groundwater and surface water and sediment samples from the Site. Results confirmed contamination, including the presence of arsenic, chromium and other hazardous substances from the Site.

During the site assessments, observations were made of remnants of a concrete dam at the Site which was taken out of service in 1957. The remnants of the dam in conjunction with rip-rap were being used as a retaining wall for the landfill. EPA personnel observed that the existing retaining wall was subject to severe erosion. It was determined that the retaining wall and rip-rap had to be repaired or upgraded to prevent the continued erosion of landfill materials into Cattaraugus Creek.

On October 24, 1996, EPA and NYSEG entered into an Administrative Order on Consent (AOC). Pursuant to the AOC, NYSEG installed approximately 150 feet of rip-rap revetment along the south bank of the Cattaraugus Creek and adjacent to the landfill to prevent further erosion of materials from the landfill into the Creek.

Based on the above information, the Site was added to the EPA's list of hazardous substance sites known as the Superfund National Priorities List (NPL) on April 6,1998.

EPA's negotiations with the Potentially Responsible Parties (PRPs) for their conduct of the RI/FS were unsuccessful. On March 30, 2000, EPA issued a Unilateral Administrative Order (UAO) to fourteen PRPs directing that they complete the RI/FS for the Site. The UAO became effective May 1, 2000. The RI/FS was performed by Benchmark Environmental Engineering and Science, PLLC and Geomatrix Consultants, Inc, consultants for the PRPs, subject to EPA oversight.

Site Geology

The Site is located on the southern bank of the Cattaraugus Creek. The ILA slopes on the northern side toward the edge of the Creek. The Site including the ILA and FMPA is underlain by shale bedrock of the Canadaway Formation. Shale outcrops are present in and along Cattaraugus Creek, across the northern site perimeter, and the hill slope south of Palmer Street. The elevation of the bedrock surface generally slopes in a northwesterly direction, toward the Creek. The depth to the top of the bedrock across the Site ranges from 4.5 feet to 25.4 feet. The 5-acre Elevated Fill Subarea which is located in the ILA consists of materials that appear to have been placed within an excavated area that is approximately five to 13 feet thick. Both the alluvial soil and the fill materials comprise the overburden at the Site. The fill material is characterized as cindery fill and sludge fill. The thickness of the sludge fill ranges from five to 23 feet. The sludge fill appears to extend down to the weathered bedrock surface near the Creek side of the Site.

Hydrogeology

The overburden and upper bedrock water bearing zones were investigated. Groundwater from both zones discharges to Cattaraugus Creek. Seeps are observed at the overburden/bedrock contact and the bedrock outcrop along the Creek. Groundwater elevation data indicate that the depth to groundwater varies across the Site from approximately five feet to 20 feet. This variability is largely due to topographic changes across the Site. Groundwater in the overburden generally flows toward the north/northwest, discharging into Cattaraugus Creek. The landfill creates a small mounding effect on the groundwater surface. Based on groundwater elevation data collected from the overburden, there is a horizontal hydraulic groundwater flow toward Cattaraugus Creek and a downward hydraulic potential into the upper bedrock. A localized westerly flow direction occurs in the overburden near the Elevated Fill Subarea. Groundwater flow in the bedrock is primarily along fractures and joint and bedding planes which tend to be strongly horizontally oriented toward the Creek. Although the groundwater in the area is classified as a potable water supply by NYSDEC, residents obtain their water from public water supplies that are monitored to assure they meet appropriate federal and state groundwater regulations. The public water supply well is located approximately 1-mile northeast of the Village of Gowanda and is not being affected by the Site.

RESULTS OF THE REMEDIAL INVESTIGATION

The ILA and the FMPA were the primary subjects of the RI. The ILA received wastes from the plant operations and the FMPA contained plant buildings and processing operations. Areas adjacent to the plant, including Cattaraugus Creek (north of the facility) and a wetland area to the west of the ILA and adjacent to Cattaraugus Creek, were also included in the RI.

Chemical and physical data were collected to determine the nature and extent of contamination associated with the Site. Media sampled during the RI included landfill gas, groundwater, surface water, sediment, soil, waste material, and seepage emanating from the landfill. All field activities were conducted with oversight by EPA's contractor, TAMs Consultants, Inc., now known as Earth Tech. The RI was

structured to supplement past investigations with the goal of using historical data, as well as new data collected during the RI, to evaluate current and future human health and ecological risks and develop a recommended remedial approach. The constituent concentrations detected during this RI are generally consistent with the data from the 1989 RI. The results of the RI are summarized below.

Landfill Gas Contamination

Analysis of landfill gas samples found several volatile organic compounds (VOCs) including acetone, 2- butanone, benzene, carbon disulfide, toluene, ethylbenzene, and xylenes. Several gases associated with the decomposition of organic matter in the landfill were detected including hydrogen sulfide, carbon monoxide, carbon dioxide, and methane. Oxygen levels in two of the three landfill gas samples were below normal atmospheric oxygen levels. The lower explosive limit (LEL) of a flammable gas or vapor (percent by volume in air) indicates that an explosion can occur upon ignition in a confined area if the limit is exceeded. The LEL was exceeded in two of the landfill gas wells.

Since landfill gases were not detected at the landfill surface using hand-held instruments even though waste is exposed at several locations, it appears that landfill gases are currently diffused through overlying soil materials and enter the atmosphere at lower concentrations than those found in the gas monitoring wells.

Groundwater Contamination

Groundwater samples collected from monitoring wells located in the overburden and upper bedrock water bearing zones were compared to groundwater regulatory levels including water quality standards. Data were also collected to evaluate the movement of groundwater in these areas and the extent of contamination.

Groundwater samples in the ILA indicate the presence of VOCs and metals at levels above applicable groundwater quality standards in both the overburden and bedrock aquifers. Of the 16 overburden wells samples (two rounds of samples from eight wells), four contained VOCs, including benzene, chlorobenzene, 1,2-dichlorobenzene, and toluene above groundwater standards. Benzene was detected at a maximum concentration of 1.6 micrograms/liter (ug/L), slightly above groundwater criteria of 1 ug/L. The compound detected at the highest concentration was chlorobenzene at 190 ug/L, followed by toluene (17 ug/L). The groundwater criteria for both compounds is 5 ug/L. 1,2-dichlorobenzene was detected in one sample at a concentration of 5 ug/L, which is above the groundwater criteria of 3 ug/L. Metals, including arsenic, at a maximum concentration of 196 ug/L and chromium, at a maximum concentration of 436 ug/L, were detected above groundwater quality standards of 25 ug/L and 50 ug/L, respectively. In addition, elevated concentrations of leachate parameters (e.g., dissolved solids, chloride, ammonia, alkalinity, and hardness) indicated that groundwater is being impacted by leachate from the Elevated Fill Subarea.

Of the 14 upper bedrock groundwater samples (two rounds from seven wells) analyzed for VOCs and semi-volatile organic compounds (SVOCs), only one chemical, chlorobenzene, exceeded groundwater criteria. The result was 6.8 ug/L, slightly above the groundwater criteria of 5 ug/L. Metals in the overburden aquifer were generally also found in the bedrock aquifer, but at lower concentrations slightly above the applicable groundwater standards.

Information from monitoring wells and soil borings indicates that a portion of the waste sludge in the inactive landfill is below the groundwater table. There are no natural barriers (clay layers) between the waste and the bedrock aquifer, to retard the migration of waste constituents to the bedrock aquifer. Groundwater in both the overburden and bedrock flows toward Cattaraugus Creek.

Groundwater samples in the overburden wells in the FMPA showed only one VOC, tetrachloroethene, detected at 5.5 ug/L, slightly above the groundwater criteria of 5 ug/L. No SVOCs were detected above the groundwater criteria. Metals including iron, manganese and sodium were detected above groundwater criteria.

Chemical data for six bedrock groundwater samples (two rounds from three wells) showed concentrations of VOCs and metals slightly above groundwater criteria. VOCs included acetone, benzene, cis-1,2-dichloroethene, m/p-xylene and toluene. SVOCs were not detected above groundwater criteria. The same metals detected in the overburden well were also detected in the bedrock wells at similar concentrations.

Surface Water Contamination

Surface water samples were collected from Cattaraugus Creek adjacent to the Site to characterize contamination in the creek. Sample results were compared to surface water quality criteria. One sample marginally exceeded the surface water quality criteria for ammonia. The water quality criterion for iron was exceeded in surface water samples at locations both upstream and downstream of the landfill; these levels do not appear to be attributable to the landfill. Sulfide, which was detected in seeps from the ILA at concentrations above guidance values, was not detected above guidance values in Cattaraugus Creek. Ammonia and sulfurous-type odors are frequently noted near leachate seeps. In addition, discoloration from leachate seeps were observed on the banks of the Creek and does not meet the criteria outlined in 6 NYCRR Part 703.

Sediment Contamination

Sediment samples were collected from Cattaraugus Creek and the wetland adjacent to the Site. Sample data were compared to New York State sediment quality criteria and guidance values.

Arsenic was detected above the sediment quality criterion (6 mg/kg) in Cattaraugus Creek sediment at a maximum concentration of 9.61 mg/kg. One sample result for nickel of 18.2 mg/kg exceeded the sediment quality criteria (16

mg/kg). VOCs and SVOCs were not detected in sediment samples from Cattaraugus Creek.

Sediment samples collected in the wetland area adjacent to the Site exceeded sediment quality criteria and guidance values for arsenic, chromium, and zinc. Arsenic levels of 16.3 mg/kg exceeded the New York State sediment quality criterion (12 mg/kg) in all of the wetland sediment samples. The maximum chromium concentration of 55.3 mg/kg exceeded the sediment quality criterion (40 mg/kg). The maximum concentration of zinc of 290 mg/kg exceeded the sediment quality criterion (50 mg/kg). In addition to metals, a number of VOCs including benzene, toluene, ethylbenzene, and xylenes were detected at low concentrations in all of the sediment samples. (Results are discussed in Ecological Risk Assessment section).

Soils

Surface and subsurface soil samples were collected across the ILA and the FMPA. There are currently no federal or state promulgated standards for contaminant levels in soils. In the absence of Applicable and Relevant or Appropriate Requirements (ARARs), "To Be Considered" (TBCs) values from the New York State Technical and Administrative Guidance Memorandum (TAGM)[1] were used.

Metal concentrations were compared to the TAGM values. Surface soil samples were collected from 20 locations in the ILA. Three metals, arsenic, chromium and zinc, were detected above TAGM values in both surface and subsurface soils in the ILA. No VOCs were detected at or above the guidance values.

In surface soils at the ILA, arsenic was detected at six locations above the TAGM objective (12 mg/kg) at a maximum concentration of 1,190 mg/kg in sample LFSS-6. The area around sample LFSS-6 was identified as a hot spot. Chromium was detected at nine locations above TAGM values (50 mg/kg) at a maximum concentration of 550 mg/kg. Zinc was detected at 19 of the locations sampled above TAGM values (50 mg/kg) at a maximum concentration of 165 mg/kg. Subsurface soil samples were collected from 11 locations in the ILA. Arsenic, chromium and zinc were detected at maximum concentrations of 60.5 mg/kg, 623 mg/kg and 1,390 mg/kg, respectively. Except for the high arsenic value, the concentration of the compounds detected during this RI are generally consistent with the data from the 1989 RI.

Surface soil samples were collected from 10 soil boring locations in the FMPA. The sample results indicated the presence of three VOCs above guidance values in one location in the FMPA, near MWFP-3S/D. At this location, three compounds, chloroform, carbon tetrachloride and tetrachloroethene, were detected at maximum concentrations of 5.7 mg/kg, 10 mg/kg and 54 mg/kg, respectively. The TAGM value for chloroform, carbon tetrachloride and tetrachloroethene are 0.3 mg/kg, 0.6 mg/kg and 1.4 mg/kg, respectively. The presence of these VOCs in soil near MWFP-3S/D was further investigated to determine the areal extent of the contamination. The results of the investigation indicated a hot-spot area of approximately 20 feet by 40 feet by 4 feet that contains VOC contamination. Metal concentrations also exceeded guidance values at nine locations sampled. The concentrations of arsenic, chromium, copper, mercury, lead and zinc exceeded their respective TAGM values. Arsenic was detected at five locations above the TAGM value at a maximum concentration of 168 mg/kg in sample SB-2. The area around sample SB-2 was identified as a hot spot. Chromium was detected at five locations above TAGM value (50 mg/kg) at a maximum concentration of 198 mg/kg. Copper was detected at three locations above TAGM value (50 mg/kg) at a maximum concentration of 177 mg/kg. Mercury was detected at three locations above TAGM value (0.2 mg/kg) at a maximum concentration of 3.1 mg/kg. Lead was detected at six locations above TAGM value (61 mg/kg) at a maximum concentration of 269 mg/kg. Zinc was detected at nine locations above TAGM value (50 mg/kg) at a maximum concentration of 1,390 mg/kg. Subsurface soil samples were collected from 12 soil boring locations. A total of 12 subsurface soil samples was collected from the FMPA. No VOCs were detected above the guidance values. Metals (arsenic, chromium, copper, mercury and zinc) in several FMPA samples were also detected above their respective TAGM values.

Waste Material (Sludge Fill)

Chemical analytical results of the sludge fill present in the ILA are based on three samples (GMW-1 through GMW-3) that were analyzed for VOCs and one composite sample that was analyzed for SVOCs and metals. Samples of the sludge fill contained concentrations of some VOCs. The VOCs detected at the highest concentrations are as follows: acetone, 15 mg/kg; 2-butanone, 3.2 mg/kg; and toluene, 1.7 mg/kg. The following 12 VOCs were also detected at concentrations of less than 1 mg/kg: 1,1-dichloroethane, 1,2-dichloroethane, 2-hexanone, 4-methyl-2-pentanone, benzene, carbon disulfide, chlorobenzene, ethylbenzene, xylenes, methycyclohexane, styrene and tetrachloroethene. SVOCs and metals were detected in the composite sample. The SVOCs and the concentrations at which they were detected are as follows: 4-methylphenol, 150 mg/kg; naphthalene, 22 mg/kg; phenol, 15 mg/kg; pentachlorophenol, 6.8 mg/kg; and phenanthrene, 1 mg/kg. The metals arsenic, chromium and zinc were detected at concentrations of 34.8 mg/kg, 9,280 mg/kg and 6,060 mg/kg, respectively. The sludge fill material also contained 10 percent total organic carbon.

Seep Contamination

Groundwater seeps in the ILA adjacent to Cattaraugus Creek flow into the Creek. Seeps were sampled in order to determine if contaminants in the seeps are entering surface water. Contaminants in seeps were compared to surface

[1] *Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, Division of Hazardous Waste Remediation, January 24, 1994.*

water standards and criteria. Ammonia and sulfur-like odors have been frequently noted near the seeps. Ammonia concentrations ranged from 381 to 891 mg/l and exceeded the surface water quality criterion of 1.3 mg/l. Sulfide concentrations ranged between less than 1 and 9 mg/land exceeded the surface water quality criterion of 2 mg/l. No VOCs or SVOCs were detected above surface water criteria in any of the samples taken from the seeps.

Chromium was found in all but one of the seep samples, at levels exceeding surface water standards. The detection of elevated levels of ammonia and sulfide in the seep samples, is consistent with reports of odors noted near the seeps.

SUMMARY OF SITE RISKS

As part of the RI/FS, a baseline human health risk assessment (HHRA) and screening level ecological risk assessment (SLERA) were conducted to estimate the current and future effects of contaminants in soils, groundwater, fish, sediment, and surface water on human health and the environment. The HHRA and SLERA provide analyses of the potential adverse human health and ecological effects caused by the release of hazardous substances from the Site. Both assessments evaluate the risks in the absence of any actions or controls to mitigate these releases under current and future land uses. Potential future uses of the ILA include a recreational park. Uses of the FMPA include a recreational park and industrial/commercial uses. Consistent with the NYSDEC GA groundwater classification, the groundwater was evaluated as a potable water supply although the site groundwater is not currently used as a drinking water source.

Human Health Risks

Detailed results of the HHRA can be found in a document titled "Baseline Risk Assessment" prepared by Geomatrix Consultants, Inc. and Benchmark Environmental Engineering and Science, PLLC, dated November 2003. The risk estimates are based on reasonable maximum exposure (RME) scenarios for current and future land uses and were developed by taking into account various default health protective assumptions about the frequency and duration of an individual's exposure to the surface and subsurface soils, groundwater, sediment, fish, and seep areas. In addition to the RME exposure scenarios, central tendency exposures (CTE) or average exposures were also evaluated and are described in the HHRA. The data used in the assessments included current data from the RI and historical data.

In determining future land uses for the site, EPA considered the "Reuse Assessment and Conceptual Plan for the Peter Cooper Gowanda Superfund Site" (Reuse Assessment and Concept Plan) developed by the Village of Gowanda in association with the University of Buffalo Center for Integrated Waste Management. The Reuse Assessment and Concept Plan was funded in part by EPA through its Superfund Redevelopment Initiative. The plan envisions a publicly available Site incorporating elements such as a walking/biking trail, fishing access, outdoor picnic areas, small boat launch and other related recreational features. Although this plan has not yet been formalized, the HHRA did consider potential uses of the property consistent with the Reuse Assessment and Concept Plan. For example, risks to a current adolescent trespasser, current/future recreational users of the Cattaraugus Creek; future recreational users of the park, and future outdoor worker and construction worker were evaluated in the HHRA as described below.

Determinations regarding further remedial action are based on the RME scenarios and exceeding EPA's risk range. Cancer risks are compared to the risk range outlined in the National Contingency Plan (NCP) that ranges from a cancer risk of one in a million (1×10^{-6}) to one in ten thousand (1×10^{-4}) and a Hazard Index of 1 for noncancer health effects.

As described in the box "WHAT IS RISK AND HOW IS IT CALCULATED?", the HHRA followed a four-step process that includes: Hazard Identification, Dose-Response, Exposure Assessment and Risk Characterization. A brief description of the results of each of these steps is provided below.

The assessment identified a number of Contaminants of Potential Concern (COPC) that were evaluated in the HHRA. Based on this analysis, the primary COPCs that exceeded the risk range and/or the HI described above included: arsenic in groundwater and soil at both the ILA and FMPA; and chloroform and carbon tetrachloride in the soil at the FMPA.

Toxicity values for inhalation, dermal and ingestion of COPCs at the ILA and the FMPA were selected based on the potential routes of exposure and available toxicity information.

The HHRA focused on current and future health effects to both children and adults. The most likely current and future receptors at the ILA and FMPA include: adult and adolescent trespassers (under current conditions and future recreational use); adult/child off-site residents exposed outdoors, construction workers; and recreational users of the Cattaraugus Creek and surrounding areas including the wetlands and seeps. Exposure routes included: incidental ingestion and dermal contact with soils and sediment; ingestion of fish; ingestion of groundwater; and inhalation of volatile organic compounds from groundwater and soils; and inhalation of landfill gas.

The HHRA evaluated exposures in the absence of remedial actions. The exposure point concentration was calculated using EPA statistical software. EPA approved models for estimating indoor air and fugitive dust emissions were also used.

Data were combined to calculate cancer risks and non-cancer health hazards expressed as an HI. The results of this analysis are provided below.

- Future outdoor park workers at the landfill area had cancer risks of 4×10^{-4} (four in 10,000) and a noncancer health HI of approximately 4 (HI = 4). The cancer risks and noncancer HI exceed the

WHAT IS RISK AND HOW IS IT CALCULATED?

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these releases under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the COPCs at the site in various media (*i.e.*, soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil. Factors relating to the exposure assessment include, but are not limited to, the concentrations that people might be exposed to and the potential frequency and duration of exposure. Using these factors, a "reasonable maximum exposure" scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other non-cancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health effects.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk) with 10^{-6} being the point of departure. For non-cancer health effects, a "hazard index" (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding reference doses. The key concept for a non-cancer HI is that a "threshold level" (measured as an HI of less than 1) exists below which non-cancer health effects are not expected to occur.

acceptable levels. The risk is primarily attributed to the ingestion of groundwater contaminated with arsenic underlying the Site.

- Future outdoor industrial workers at the FMPA had cancer risks of 4×10^{-4} (four in 10,000) and a non-cancer health HI of approximately 4 (HI = 4). Both the cancer risks and non-cancer HI exceed acceptable levels. The risk is primarily due to ingestion of arsenic in groundwater.

- Future construction workers at the landfill had potential cancer risks of 6×10^{-6} (six in 1,000,000); these risks are within the acceptable risk range. The noncancer HI of approximately 3 (HI = 3) exceeds the acceptable level with arsenic in soil being the primary contaminant contributing to this HI.

- Future construction workers at the FMPA had a cancer risk of 5×10^{-6} (five in 1,000,000) which is within the risk range and an HI = 4, which exceeds the acceptable level. Chloroform and carbon tetrachloride in soil are the primary chemicals contributing to the HI value under future conditions during construction.

The HHRA found that all other exposure scenarios for all other receptors were either within or below the risk range and are not discussed further. The assessment found potential future recreational uses of the FMPA by children, adolescents and adults under exposure scenarios identified in the HHRA, were at or within the risk range. The HHRA provides details regarding the results of these individual assessments.

Ecological Risks

A Screening Level Ecological Risk Assessment (SLERA) was prepared to evaluate the potential risks to ecological receptors from contaminants in soils, surface water, landfill seeps, and sediment. EPA evaluated potential ecological risk for a number of areas of the site including the wetland area, the landfill area, and Cattaraugus Creek. The SLERA used analytical data from samples collected during the Remedial Investigation (RI) and information on the ecological communities present at the site. The ecological risk assessment was prepared in accordance with EPA's Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (EPA 1997).

The overall conclusions of the SLERA are summarized below:

The SLERA indicates no potential ecological risks from organic contaminants to receptor species including fish, terrestrial plants, wetland plants, benthic invertebrates, terrestrial invertebrates, birds, and mink.

With limited exceptions, benthic organisms and fish in Cattaraugus Creek show no potential ecological risks from

organic chemicals in creek sediment and surface water. Where potential ecological risks to benthic organisms and fish from inorganic chemicals in creek sediment and surface water occur, the associated chemical was present in upstream samples at similar concentrations to downstream samples. This suggests that the Site is not a significant contributor to the ecological risk.

The SLERA indicates potential for ecological risk to terrestrial receptors from organic and inorganic contaminants in soils at the Site. The food web model used in the SLERA indicates potential ecological risk from exposure to semivolatile organic compounds in soil, in particular polynuclear aromatic hydrocarbons (PAHs), which are SVOCs, for terrestrial mammalian species. The SLERA also indicates potential risk to terrestrial receptors including terrestrial invertebrates and mammals from one or more inorganic chemicals in soil including arsenic, chromium, lead, and zinc.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and site-specific risk-based levels.

The following RAOs were established for the Site:

- Reduce or eliminate any direct contact threat associated with the contaminated soils/fill;
- Minimize or eliminate contaminant migration from contaminated soils to the groundwater; and
- Minimize or eliminate contaminant migration from groundwater to Cattaraugus Creek.

Soil cleanup objectives will be those established pursuant to the TAGM guidelines. These levels are the more stringent cleanup level between a human-health protection value and a value based on protection of groundwater as specified in the TAGM. All of these levels fall within EPA's acceptable risk range.

Groundwater cleanup goals will be the more stringent of the state or federal promulgated standards.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARS, 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).

Detailed descriptions of the remedial alternatives for addressing the contamination associated with the Site can be found in the FS report. Note that the FS report presented separate alternatives for six of the media associated with the Site (Leachate Seeps, Elevated Fill Subarea, Three Hot Spots, Elevated Fill Subarea Gas and Groundwater). However, to facilitate the presentation and evaluation of these alternatives, the FS report alternatives were reorganized to formulate the remedial alternatives discussed below.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

The remedial alternatives are described below.

REMEDIAL ALTERNATIVES

ALTERNATIVE 1: NO ACTION

The Superfund program requires that the "no-action" alternative be considered as a baseline for comparison with other alternatives. Under this alternative, no action would be taken to contain wastes, reduce infiltration into the landfill, eliminate areas of exposed waste, or control and treat leachate discharging from the landfill or address groundwater. Because this alternative would result in contaminants remaining on-site above health-based levels, CERCLA requires that the Site conditions be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat, or contain the contaminated soils.

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

ALTERNATIVE 2: INSTITUTIONAL CONTROLS

This alternative would consist of deed and access restrictions. The deed restrictions would be designed to prevent direct contact with the subsurface waste material in the Elevated Fill Subarea and the three hot spot areas by limiting future Site use. The deed restrictions would also be designed to prevent groundwater use on the Site for drinking water or potable purposes. In addition to the institutional controls, access would be restricted by the construction of a fence around the Elevated Fill Subarea where insufficient cover soils and/or vegetative cover exist. Access to the Elevated Fill Subarea by authorized personnel would be through one or more lockable gates. No remedial action would be taken with regard to the leachate seep or

landfill gasses. To allow subsurface construction in the hot spot area a soils management plan will be required and developed to provide guidance for workers involved in handling of soil/fill from this area (e.g., personal protective equipment requirements during underground utilities construction, methods for disposing of soil/fill removed from excavation, etc.). Because this alternative would result in contaminants remaining on-site above health-based levels, CERCLA requires that the Site conditions be reviewed at least once every five years. If justified by the review, remedial actions may be implemented to remove, treat, or contain the contaminated soils.

Capital Cost:	$ 54,000
Annual O&M Cost:	$ 11,500
Present Worth Cost:	$190,000
Construction Time:	6 months

ALTERNATIVE 3: EXCAVATION/BANK STABILIZATION/OFF-SITE DISPOSAL

This alternative would involve excavation of a total of approximately 140 cubic yards (CY) of VOC-impacted soil (MWFP-3 Subarea) and arsenic-impacted soil (SB-2 Subarea) from the FMPA; 5,800 CY of arsenic-impacted soil/fill (LFSS-6 Subarea) from the ILA ; and, 100,000 CY of sludge fill material from the Elevated Fill Subarea with transport of excavated materials to a permitted, off-site disposal facility for treatment and/or disposal. The alternative would require bank stabilization of the Cattaraugus Creek to the 100-yr floodplain elevation after the sludge fill removal is completed. The bank stabilization would extend from the existing concrete retaining wall (sluiceway wall) to the existing riprap stabilization on the NYSEG property. The areas would then be backfilled with clean soil to match the surrounding grade, covered with topsoil, and seeded to promote vegetative growth. On-site dewatering of the sludge fill and/ or admixing with drier soils would be required during removal of saturated materials in order to eliminate free liquid. The estimated amount of material requiring disposal is 150,000 tons, assuming admixing was employed at a rate of approximately one ton dry soil to two tons of sludge fill material.

Since the waste would be removed, the Elevated Fill Subarea will no longer be acting as a source of contamination to the groundwater and the Creek. The remaining contaminated groundwater would rely primarily on the natural mechanisms of dispersion and dilution to reduce the contamination throughout the Site. The impact of the groundwater discharge to the creek would also be addressed by the removal of the waste. Because this alternative would result in contaminants remaining in the groundwater above health-based levels, CERCLA requires that the Site conditions be reviewed at least once every five years.

Capital Cost:	$12,293,000

No annual cost is associated with this alternative.

Construction Time:	9 -21[2] Months

ALTERNATIVE 4: EXCAVATION/CONSOLIDATION/ CONTAINMENT/ WITH SOIL ENHANCEMENT CAP AND A GROUNDWATER DIVERSION SYSTEM

This alternative would include the deed restrictions described in Alternative 2 above with the addition of the following remedial measures:

- Excavating of approximately 140 cubic yards (CY) of VOC-impacted soil (MWFP-3 Subarea) and arsenic-impacted soil (SB-2 Subarea) from the FMPA; and 5,800 CY of arsenic-impacted soil/fill from the ILA (LFSS-6 Subarea), and consolidating the excavated materials within the Elevated Fill Subarea. Confirmation sampling of the sidewalls and bottom of the excavation would be performed to verify that no residual soil/fill containing VOCs or arsenic above guidance levels remains. The area would then be backfilled with clean soil and seeded to promote vegetative growth.

- Containing the waste by placing a minimum of 12 inches of low permeability ($<1 \times 10^{-5}$ cm/sec) soil across the entire 5-acre Elevated Fill Subarea (this will result in a soil cap of varying depth between 12 inches [in those areas where the cap has been eroded and wastes currently are exposed] and 57 inches [across most of the Elevated Fill Subarea where existing soil cover is already present at varying thicknesses up to 45 inches]). The soil cap would then be covered with top soil and seeded to promote vegetative growth; and

- Limiting groundwater migration through the Elevated Fill Subarea via an upgradient groundwater diversion system. Typical groundwater subsurface lateral barriers such as slurry walls, compacted clay walls, grouting and sheet piling are often implemented in conjunction with a cover system and groundwater/leachate collection to reduce lateral contaminant migration. The upgradient groundwater diversion system would employ a slurry wall keyed into the upper 1-2 feet of soft shale bedrock. The slurry wall would be constructed upgradient of the perimeter of the Elevated Fill Subarea, extending from the remnants of the former hydroelectric dam on the creek bank to the southwestern site boundary. The remaining contaminated groundwater would rely primarily on the natural mechanisms of dispersion and dilution to reduce the contamination throughout the Site.

- Reviewing site conditions at least once every five years as per CERCLA, because this alternative

[2] Nine months if work is completed in a single construction season, 21 months if a second construction season is required.

would result in contaminants remaining on-site above health-based levels; and

- Selecting one of two leachate seep collection options described below.

Option A — Bank Stabilization, Collection of Leachate Seep and discharge to the Public Owned Treatment Works (POTW) for Treatment and Disposal.

Prior to seep collection, the banks of the Cattaraugus Creek adjacent to the Elevated Fill Subarea would be stabilized to the top of the 100-year floodplain (approx. 770 feet above mean sea level) using existing bank stabilization materials and additional large rip-rap, as necessary. To collect seeps, a trench would be excavated into the surface of the weathered shale bedrock at the toe of the slope to intercept the seeps. A perforated drainage pipe and granular media would collect and transmit the seep water to one or two small packaged leachate pump stations. If the POTW requires pretreatment, the collected seeps would be treated by aeration using a fine or course bubble diffuser. From the pump station, approximately 4,300 gallons per day of leachate seep water and shallow groundwater, would be conveyed via gravity to the Village of Gowanda's sewer collection system on Palmer Street. The slope of the regraded bank would be lined with a geocomposite drainage layer, leading to the collection trench, and covered by a geomembrane liner to prevent seep breakout and surface water infiltration during high water conditions. The construction and start-up time is estimated to be nine months.

Option B — Bank Stabilization, Collection of Leachate Seep, Treatment and Discharge to Cattaraugus Creek

This option is similar to Option A, however, it would involve on-site treatment of the seep water with direct discharge of the treated effluent to Cattaraugus Creek. The treatment process would utilize biological treatment by a sequencing batch reactor (SBR). The SBR process is a sequential activated sludge process in which all major steps occur in the same tank in order. A single cycle would consist of five discrete periods: fill, react, settle, decant, and idle. The SBR system would first be filled with leachate seep water from a holding tank and aeration would begin. Depending on discharge limits, it may be necessary to post-treat the bio-treated effluent to remove inorganic compounds and/or suspended solids before discharging to the creek. The construction and start-up time is estimated to be 12 months.

Capital Cost:	4/A	$1,776,000
	4/B	$2,325,000
Annual O & M Cost:	4/A	$ 29,000[3]
	4/B	$ 86,000
Present Worth Cost:	4/A	$2,222,000
	4/B	$3,647,000
Construction Time:		17 - 20 Months

ALTERNATIVE 5: EXCAVATION/CONSOLIDATION/ CONTAINMENT WITH PART 360- EQUIVALENT DESIGN BARRIER CAP/ A GROUNDWATER DIVERSION SYSTEM/INSTITUTIONAL CONTROLS

This alternative would be identical Alternative 4 above except that the waste in the 5-acre Elevated Fill Subarea would be contained with a low permeability equivalent design barrier cap consistent with 6 New York Code Rules Regulations Part 360. Five-year reviews, and one of the two leachate seep collection, treatment, and disposal options described in Alternative 4 would be included. The cap would consist of the following components:

6-12 inches topsoil
18-24 inches protective barrier low permeability material.

Capital Cost:	5 /A	$2,055,000
	5/B	$2,625,000
O & M Cost:	5/A	$ 31,000
	5/B	$ 88,000
Present Worth Cost:	5/A	$2,571,000
	5/B	$3,971,000
Construction Time:		20-23 months

Additional Components of the Remedial Action Common to the Containment Portion of Alternatives 4 and 5

All of the containment alternatives, consistent with NYSDEC closure requirements, would require post-closure operation and maintenance to operate and maintain the vegetative cover and gas venting systems. In addition, a gas, air, and groundwater monitoring program would be required.

Current New York State landfill closure regulations require the installation of a passive gas venting system comprised of at least one gas vent riser per acre, to minimize landfill gas build-ups within the fill. If levels of VOCs or methane in landfill gases are expected to be high, then an active system would be appropriate.

In general, methane gas levels at the Elevated Fill Subarea during the RI were detected in two samples up to 31.1%. Levels of other nonmethane VOCs were detected at levels

[3] The O&M costs for Alternative 4A and 5A do not include any user fees that may be charged by the POTW for the treatment of leachate.

slightly above guideline values. It is expected that the levels of both methane and nonmethane VOCs would be reduced once a venting system is in place. Therefore, based on landfill characteristics, it is anticipated that a passive gas venting system would be the appropriate method for gas control. However, the passive system would be designed and monitored so that it could easily be converted to an active system should levels of VOCs be detected in excess of ARAR emission standards. After the installation of the final cap and venting system, two quarterly rounds of sampling of the gas vents for methane and nonmethane VOCs would be conducted. The sampling results would be utilized to determine whether the installed venting system is adequate or additional venting is necessary or whether it is necessary to convert the system to an active system with treatment of gas.

SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, Overall protection of human health, and the environment, Compliance with applicable, or relevant and appropriate requirements, Long-term effectiveness and permanence, Reduction of toxicity, mobility, or volume through treatment, Short-term effectiveness, Implementability, Cost, and State and Community acceptance.

The evaluation criteria are described below.

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

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

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, that a remedy may employ.

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

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

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

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

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.

Overall Protection of Human Health and the Environment

Alternative 1 (no action) and Alternative 2 (institutional controls) are not protective of human health and the environment because they do not minimize infiltration and groundwater flow into the Elevated Fill Subarea, thereby allowing further leaching of contaminants into the aquifer and the surface water; they do not provide control or treatment of the leachate seeps or landfill gases; and they do not protect terrestrial mammals from soil contamination.

Alternative 3 would be the most protective because it would permanently remove the source of contamination to the groundwater and creek, although it would not actively address residual groundwater contamination. Alternatives 4 and 5 would provide good overall protection of human health and the environment by containing waste with a landfill cap, controlling landfill gas through venting, controlling groundwater flow through the Elevated Fill Subarea with a groundwater diversion system and controlling and treating the leachate seeps. Alternative 5 is more protective than Alternative 4 because it requires a thicker cap of low permeability material to reduce infiltration, thereby reducing the generation of leachate which mobilizes contaminants into the groundwater. Options A and B for leachate seep collection, treatment, and discharge considered for Alternatives 4 and 5 are considered to be equally protective of human health and the environment.

Compliance with ARARs

There are currently no federal or state promulgated standards for contaminant levels in soils. However, EPA is utilizing New York State soil cleanup objectives as specified in the soil TAGM (which are used as "To-Be-Considered" criteria). Action-specific ARARs include 6NYCRR Part 360

requirements for closure and post-closure of municipal landfills and the NYSDEC State Pollutant Discharge Elimination System program. The Part 360 regulations require that the landfill cap promote runoff, minimize infiltration, and maintain vegetative growth for slope stability. Alternative 3 would be subject to New York State and federal regulations related to the transportation and off-site treatment/disposal of wastes. Unlike Alternative 4, Alternative 5 is consistent with an equivalent cap design as specified in 6 NYCRR Part 360. The options for leachate collection, treatment and disposal considered under Alternatives 4 and 5 would be designed to ensure compliance with their associated ARARs, including SPDES limits for discharge to surface water and air emission standards for an air stripper. In addition, approvals from the NYSDEC Division of Fish and Wildlife and the US Army Corps of Engineers would be required prior to work on the creek bank and within the 100-year flood plain.

Chemical-Specific ARARs at the Site include State and Federal Maximum Contaminant Levels (MCLs). None of the groundwater alternatives would meet chemical-specific ARARs under the Elevated Fill Subarea. However, Alternatives 4 and 5 would be consistent with EPA's groundwater policy to measure the performance of the remedy at the edge of the waste management area when waste is left in place. Although none of the alternatives would restore the on-site groundwater to MCLs, Alternatives 4 and 5 would be effective in preventing and/or reducing further groundwater migration through the waste and into the Creek. By constructing a proper cap to minimize infiltration and a collection system to collect leachate seeps in conjunction with the groundwater diversion system to limit lateral groundwater migration, the Elevated Fill Subarea will no longer be acting as a source of contamination to the groundwater and the Creek. The residual contaminated groundwater would rely primarily on the natural mechanisms of dispersion and dilution to reduce the contamination throughout the Site. The impact of the groundwater discharge to the creek will also be addressed by the groundwater diversion system, in conjunction with the cap.

Long-Term Effectiveness and Permanence

Alternatives 1 and 2 would involve no active remedial measures and, therefore, would not be effective in eliminating potential exposure to contaminants in soil or groundwater. These alternatives would allow the continued migration of contaminants from the soil to the groundwater. Alternative 3 would be the most effective alternative over the long term.

A landfill cap is considered a reliable remedial measure that, when properly designed and installed, provides a high level of protection. Of the two cap alternatives considered in detail, Alternative 4 would be less reliable in protecting human health and the environment than Alternative 5 because it allows more precipitation to infiltrate through the Elevated Fill Subarea which would result in a greater degree of leaching of contaminants to groundwater. Post-closure operation and maintenance requirements would ensure the continued effectiveness of the landfill cap, landfill gas control system, and either of the two leachate system options for Alternatives 4 and 5. Options A and B for leachate seep collection, treatment, and discharge considered for Alternatives 4 and 5 would each effectively reduce the toxicity, mobility, and volume of contaminants in the leachate seeps. However, Option A provides the least risk of failure of process components, as it does not rely on site-specific treatment equipment.

Reduction in Toxicity, Mobility, or Volume

Alternatives 1 and 2 would provide no reduction in toxicity, mobility or volume.

Alternative 3 would reduce the mobility of waste in the Elevated Fill Subarea. However, admixing the sludge fill with drier soils in order to meet landfill acceptance criteria would increase the volume of sludge fill requiring disposal. Alternatives 4 and 5 would reduce the toxicity and mobility of the leachate seeps by collecting and treating the leachate. With the groundwater diversion system being utilized in Alternatives 4 and 5, leachate seep generation is expected to be reduced and/or eliminated. Compared to Alternative 4, Alternative 5 would provide greater reduction in the mobility and volume of contaminants by restricting infiltration through a thicker low permeability landfill cap, which would reduce the further leaching of contaminants to groundwater.

Short-Term Effectiveness

Alternatives 1 and 2 do not include any physical construction measures in any areas of contamination and, therefore, would not present any potential adverse impacts on property workers or the community as a result of its implementation.

There are short-term risks and the possibility of disruption of the community associated with Alternative 3. These include: an increase in traffic flow along local roads for an approximately nine-month period (21 months if a second construction season is required); noise from heavy equipment use; and strong odors. This traffic would raise dust and increase noise levels locally. However, proper construction techniques and operational procedures would minimize these impacts.

Short-term risks to workers could be increased to the extent that surficial wastes are encountered during excavation activities, but this risk would be minimized through the use of personal protection equipment. Once the surface of the Elevated Fill Subarea is completely covered or removed, these short-term impacts to the community, workers, and the environment would no longer be present.

There are short-term risks associated with Alternatives 4 and 5. These alternatives include caps, which would involve clearing, grubbing, and regrading of the Elevated Fill Subarea. Alternative 5 is more effective in the short-term than Alternative 4 because it limits leachate production to a greater extent than Alternative 4. Alternative 4 can be implemented more quickly, in 17 to 20 months, while Alternative 5 is estimated to take 20 to 23 months.

Implementability

Alternatives 1 and 2 would be the easiest soil alternatives to implement, as there are no active remedial measures to undertake.

Alternative 3 faces many implementability issues including truck traffic coordination through the residential neighborhood and Village, odor and vector control difficulties, sludge dewatering issues, and available landfill capacity at an off-site location. Alternatives 4 and 5 can be readily implemented from an engineering standpoint and utilize commercially available products and accessible technology. However, for the construction of the groundwater diversion system, a specialty contractor would be required.

The treatment of the leachate seep under Options A and B can be implemented. Discharge of the treated leachate to the Cattaraugus Creek (Option B) would require compliance with technological limitations and water quality standards for protection of the creek. Discharge of the leachate to a local POTW may require pretreatment of the leachate, consistent with the pretreatment requirements of the POTW's SPDES permit, to remove inorganics prior to discharge. In addition, administrative implementability issues related to work on the creek bank which is located within the 100-year floodplain can be expected.

Cost

The estimated capital, operation, maintenance, and monitoring (O&M), and 30-Year present-worth costs for each of the alternatives are presented below. The annual O&M cost for most of the alternatives include groundwater monitoring.

Alternative	Capital	Annual O&M	Total Present Worth
1	$0	$0	$0
2	$44,000	$9,500	$190,000
3	$12,293,000	$0	$12,293,000
4/A-B	$1,776,000-$2,325,000	$29,000-$86,000	$2,222,000-$3,647,000
5/A-B	$2,164,000-$2,734,000	$31,000-$88,000	$2,680,000-$4,080,000

Alternative 3, excavation, has the highest cost of any alternative with a capital cost of $12.3 million. Of the two containment alternatives, Alternative 4 has the lower capital and O& M costs, resulting in a net present worth ranging from $2,222,000 to $3,647,000 because it uses less cover and minimal fill. Alternative 5 has the higher cost, with a net present worth ranging from $2,680,000 to $4,080,000, because it would use an estimated 20,000 CY of fill material to create a base for the landfill cap. The costs noted above for the two containment alternatives include the costs to implement leachate Options A and B which have net present worth costs of $1.1 and $2.5 million, respectively. However, for option A the costs do not include any user fees that may be charged by the POTW for the treatment of leachate.

State Acceptance

NYSDEC concurs with the preferred alternatives.

Community Acceptance

Community acceptance of the preferred alternatives will be assessed in the ROD following review of the public comments received on the proposed Plan.

PROPOSED REMEDY

Based upon an evaluation of the various alternatives, EPA and NYSDEC recommend Alternative 5A (Excavation/Consolidation/Containment with Part 360-Equivalent Design Barrier Cap, Bank Stabilization/Collection of Leachate Seep/Treatment by Discharge to a POTW) and Institutional Controls as the preferred remedy for the Site. Specifically, this would involve the following:

- Excavating the three hot-spot areas and consolidating them within the Elevated Fill Subarea, then capping the 5-acre Elevated Fill Subarea of the ILA with a low permeability equivalent design barrier cap, consistent with the requirements of 6 NYCRR Part 360, including seeding with a mixture to foster natural habitat.

- Collecting the leachate seeps, pretreating the leachate, as necessary, then discharging the leachate seep to the POTW collection system for further treatment and discharge. As a contingency, if treatment of the leachate seep in the POTW is not available, the leachate would be treated using a sequencing batch reactor and discharged to Cattaraugus Creek. Since the installation of the cap and groundwater diversion system should reduce leachate generation, the volume of seep leachate requiring treatment is anticipated to be reduced or eliminated over time. For this reason, POTW treatment with any necessary pretreatment would likely be the most cost-effective option and, therefore, the preferred option. The specific treatment and disposal option will be further evaluated during the remedial design phase.

- Installing a groundwater diversion system to limit groundwater migration through the Elevated Fill Subarea. The upgradient groundwater diversion system would employ a slurry wall keyed into the upper 1-2 feet of soft shale bedrock. The slurry wall would be constructed upgradient of the perimeter of the Elevated Fill Subarea, extending from the remnants of the former hydroelectric dam on the creek bank to the southwestern site boundary;

- Installing a passive gas venting system for proper venting of the 5-acre Elevated Fill Subarea of the ILA;
- Stabilizing the banks of the Cattaraugus Creek;
- Establishing institutional controls in the form of deed restrictions/environmental easement and restrictive covenants on future uses of the Elevated Fill Subarea and to prevent use of groundwater on the Site for potable purposes;
- Performing long-term operation and maintenance including inspections and repairs of the landfill cap, gas venting, and leachate systems;
- Performing air monitoring, surface and groundwater quality monitoring; and
- Evaluating Site conditions at least once every five years to determine if a modification to the selected alternative is necessary.

The selected alternative provides the best balance of trade-offs among alternatives with respect to the evaluating criteria. EPA and NYSDEC believe that the selected alternative will be protective of human health and the environment, comply with ARARs, be cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

RESPONSIVENESS SUMMARY

APPENDIX IV-b

PUBLIC NOTICE PUBLISHED IN THE DUNKIRK OBSERVER AND THE PENNY SAVER ON JULY 30, 2005

THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY INVITES PUBLIC COMMENT ON THE PROPOSED REMEDY FOR THE PETER COOPER LANDFILL SUPERFUND SITE

The U.S. Environmental Protection agency (EPA) and the New York State Department of Environmental Conservation (NYSDEC) will hold a public meeting on August 10, 2005 at 7:00 p.m., in the Gowanda Central High School Auditorium, 24 Prospect Street, Gowanda, New York to discuss the findings of the remedial investigation and feasibility study (RI/FS) and the Proposed Plan for the Peter Cooper Landfill Superfund site (Site).

EPA is issuing the Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, and Section 300.430(f) of the National Oil and Hazardous Substances Pollution Contingency Plan.

The primary objectives of this action are to reduce or eliminate any direct contact threat, eliminate or minimize the migration of contaminants to the groundwater, and minimize any potential future health and environmental impacts. The main features of the preferred remedy include capping of contaminated soils, collecting leachate seeps, venting landfill gas, installing a groundwater diversion system and institutional controls.

The remedy described in this Proposed Plan is the preferred remedy for the Site. Changes to the preferred remedy or a change from the preferred remedy to another remedy may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after EPA has taken into consideration all public comments. EPA is soliciting public comment on all of the alternatives considered in the detailed analysis of the RI/FS report because EPA and NYSDEC may select a remedy other than the preferred remedy.

The administrative record file, which contains the information upon which the selection of the response action will be based, is available at the following locations:

Gowanda Free Library
56 W. Main Street
Gowanda, New York 14070

Seneca Nation of Indians Library
3 Thomas Indian School Drive
Irving, New York 14081

Responses to the comments received at the public meeting and in writing during the public comment period, which runs from July 30th, 2005 to August 28th, 2005, will be documented in the Responsiveness Summary section of the Record of Decision, the document which formalizes the selection of the remedy. All written comments should be addressed to:

Sherrel Henry
Remedial Project Manager
New York Remediation Branch
United States Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866
Telefax: (212) 637-3966
E-mail: henry.sherrel@epa.gov

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RESPONSIVENESS SUMMARY

APPENDIX IV-c

AUGUST 10, 2005 PUBLIC MEETING SIGN-IN SHEET

PETER COOPER LANDFILL SITE – ATTENDANCE

Gowanda Central High School (Auditorium)
24 Prospect Street, Gowanda, NY 14070
August 10, 2004

PLEASE PRINT

NAME	ADDRESS	PHONE #
David M Farris	9653 Allen St Dayton NY 14041 mailing P.O. Box 26 " " "	532-0261
Nancy Steves	Dunkirk OBSERVER	532-0478
Karen Blake	Gowanda News	532-5314
Allison Ellis	Cass-Co Legislator	9389111
Phil Pak	PO Box 199, Collins, NY 14034	532-4064
Rich Pecnik	PO Box 198 Perrysburg	2295
Jeff Smith	MOENCH 465 PALMER GOWANDA	532-2201
Mark	144 Aldrich Gowanda	532-1161
Julie Broyles	4408 milestrip Rd., Box 151 Blasdell NY 14219	380-1430
Michael Joy	333 International Dr. Rt Williamsville NY 14221	633-3200
Henry Killeen	4214 N. Buffalo Rd Orchard Park NY 14127	662 0352
Tom Forbes	726 Exchange St Suite 624 Buffalo, NY 14210	856-0599
Ogayla Ogay	11394 Rt 39 Perrysburg NY 14129	5324529 5322546
Jack Torrance	35 N. Chapel St GOWANDA, NY 14070	532-0728

PETER COOPER LANDFILL SITE – ATTENDANCE

Gowanda Central High School (Auditorium)
24 Prospect Street, Gowanda, NY 14070
August 10, 2004

PLEASE PRINT

NAME	ADDRESS	PHONE #
Carol Sheibley	95 Torrance Pl. Gowanda	532-3494
Jim Ellis	7869 Ellis Rd, Gowanda	267-9765
MAURICE MOORE	270 Michigan Ave Buffalo 14203	851-7220
Cameron O'Connor	NYS DOH 584 Delaware Buffalo 14202	847-4385
Mike Eddy	2868 Vail Rd Gowanda NY 14070	532-2879
Edward Palen	31 Caroline Rd Gowanda 14070	532-3912
Paul Werthman	726 Exchange St., Suite 624 Buffalo	856-0599
John Wittenborn	3050 K St. Washington DC 20007	202 342-8514
Dick Kramer	41 Frederick	572-5966
Bob Nephew	28 Aldrich St. Gowanda	532-5779
Richard Leimer	9420 Broadway Rd Gowanda	532-5136
John Curtis	57 South Chapel Gowanda	532-4964
LISA CURTIS	57 S. Chapel Gowanda	532-4964

PETER COOPER LANDFILL SITE – ATTENDANCE

Gowanda Central High School (Auditorium)
24 Prospect Street, Gowanda, NY 14070
August 10, 2004

PLEASE PRINT

NAME	ADDRESS	PHONE #
ROBERT WENKE	14687 BUFFALO ST GOWANDA 14057	532-3176
Kathy Kellogg Buffalo News Correspondent	8061 Healy Rd Franklinville NY 14737	676-2135

RESPONSIVENESS SUMMARY

APPENDIX IV-d

AUGUST 10, 2005 PUBLIC MEETING TRANSCRIPT

PETER COOPER LANDFILL SUPERFUND SITE

Wednesday, August 10, 2005

7:00 p.m.

Gowanda Central High School, Auditorium

24 Prospect Street

Gowanda, New York 14070

APPEARANCES:

KEVIN LYNCH/US EPA Region 2
Chief, Western New York Remedial Section

SHERREL HENRY/US EPA Region 2
Project Manager Peter Cooper Landfill Site

MARIAN OLSEN/US EPA Region 2
Risk Assessor

GEORGE A. SHANAHAN, ESQ.
Attorney for EPA

:11P

MR. LYNCH: Thank you very much for coming tonight. My name is Kevin Lynch. I am chief of the western New York mediation for the Environmental Protection Agency and today we're here to get your comments on the proposed plan for the Peter Cooper Landfill Superfund Site. What we will be doing is putting on a short presentation where we will describe rules governed in making a decision. We will briefly describe the study we have done. We will describe what we think is the best solution to solving the problems to the site. We will then answer questions and listen to comments. One was the proposed plan itself. This is the document where we summarize the studies, the history and put out what we believe the best solution is. There is also an

agenda. Many of you will hopefully have gotten the proposal that I mailed to you. If you're not on the mailing list, if you did sign in on the way in, you will be on the mailing list now. Written comments should be sent to Sherrel Henry Regional Project Manager for the site. The address is, goes both in the proposed plan and on the agenda. Another few items, detailed studies themselves are in the repository for the site which is in your library.

The agenda as it is, I will be doing the introduction which I am doing now and talk about the Superfund process. Sherrel Henry will be giving site history and summary of remedial investigation. Marian Olsen will be describing the risks that are caused by the site as it exists right now and then Sherril will present the feasibility study

and preferred remedy. Then we'll be taking questions and comments. We do have a court reporter here reporting all, everything we say. So the comments you make will be official comments. What we will ask you to do, when you give a comment, please speak slowly, clearly and identify yourself for the Court Reporter.

Back in 1979 the Federal Government had no way to address a site like this. At that time we were pretty much a regulatory agency. We could do a lot of thou shall nots. So, hopefully a site like this wouldn't occur. If it was out there, there was no way we could go out there and address Congress. In 1986 the Consultation Liability Act which did a couple of things for us. One, it gave us the authority to address sites and the other, it

gave us a way to pay for that. Now, we could address in two different manners; one by doing a quick action, what we call removal action. This is generally done in an emergency or we could take action so that emergency doesn't occur in the site. A couple of examples of this are if we went to an area and the site is contaminated, drinking water, drinking water wells, people are drinking contaminated water. We can go in and provided alternate water. Another thing we do, often people will abandon warehouses, garage full of drums of chemicals. We can go in immediately and clean those out. Actually, a short-term action has been taken on this site already. When we started the study, gee, we noticed the creek was eroding the landfill. One of the responsible parties, New York State

Electric Gas who owns part of the property went out, under orders by us, under our supervision and put riffraff on the river taking the short action which allowed us time to go out and perform the studies.

Next, responsible parties, the two ways we have to pay for these things, one is Congress created a fund of, at that point, one point six billion dollars which is a lot of money. People call it the Superfund where they thought there were only a very limited amount of sites out there, there should be enough to clean things up. The more we looked, the more sites we found. That was not enough to address all these sites. Congress also gave us the ability to go after what we could - - potentially responsible parties who could be anyone who either owned the site who operated

that site, who generated hazardous substance that came to the site or who transported those substances to that site. Now any of these people are liable to pay the expenses or to actually go in and do the clean-ups. The Superfund process, I will describe now is - - how our regulations have us address a site.

The site discovery. Most of the sites are identified to us by our state, New York State Public Environmental Conservation usually will become, specially be, the state agency will come to us and say that there is a site that they think needs remediation and could possibly be based on a national priority list. We then go through a process where we go out and gather the information that exists on the site. Some of it - - state files some under Public Health files or local

information. Sometimes we will go out and do a quick study. We will grab samples.

The other things, we will look, is, are there wetlands, streams, what's the population, looking for all the information we can find about the site, and it comes out resulting in a number. If the site is a above that number it is eligible to be placed on a national priority list. What that list is, is an attempt to address sites for the potential, for the most hazard first and getting on the national priorities list also gives us the ability to spend Federal monies from that Superfund to address these sites. Once a site is placed on a national priority list, we then go out and do a study, called remedial investigation. What that is, is that we're not looking for the

nature and extent of the problem, we go out to the site and the areas around the site, put in monitoring wells, take samples of the soil, the waste, the air, if there is any surface water near there and look at the local geology and what we're looking to find is the nature of the problems, what contaminants are at the site, how far are they moving and what is the extent of where they are, where do we think they will be going in the future.

As part of this we do what we call a risk assessment. We have the information here, the chemicals are and where they're going but what we want to find out is what risk do they pose. One of the pathways for people to come in contact with it, what problems could it cause if the people do come in contact with it. We take that information and then

perform a feasibility study. What that does is, we look at different alternative solutions to the problem and we analyze them using nine criteria that were given in your regulations. The first criteria is Overall Protection of Human Health in the Environment. We cannot pick a remedy. Does that protect the human health in the environment.

The second one is, Compliance with Applicable or Relevant and Appropriate Requirements. Or what we refer to. And what this means is applicable requirements, meaning laws, regulations that are out there that directly apply to the site. We obviously have to meet those regulations. The relevant or appropriate requirements means that there is something that is out there that is similar but maybe it doesn't meet that level of exactly being

applicable but it make sense to apply it as if a landfill is out there and doesn't meet a definition of landfill regulations today but the waste was placed there, it is covered, it looks like a landfill, smells like a landfill. We then have to treat it like a landfill. That is another requirement we have to meet, if any, decisions we make.

7:21P The others are what we call Modifying. One is Long-term Effectiveness and Permanence, that once we do this, we want to know, is it going to be effective and permanent. What we want to do is pick a remedy that its permanent. We don't want to go and think we did a great job and two years later come back and do it over again. We look at volume by treatment. Our preference, if we can, we want to go out and treat it so the problem

doesn't exist anymore. What we want to see is what more action to address this, will they cause problems, will they cause more problems. Some remedies will cause more immediate problems. We don't want to expose local residents to things when we're trying to solve the long term problems. We don't want to create a short-term problem. There has to be something that we can go out there and do. There are theories how you can do things. We want something practical. We look at costs. We compare remedies to one another. What we're looking for is the lowest cost remedy that will give us more protection and compliance. We look for state exemptions, action of how the state concurred with our proposed plan with the remedy we think is best to implement and we also then look at

community acceptance; that's what we're doing here tonight is, we're going out and presenting our study, presenting what we think are the best remedies. We would like input from the community toward this decision.

7:23P I will introduce Sherril Henry who will give a short history of the site.

MS. HENRY: Good evening, ladies and gentlemen. My name is Sherril Henry and I am project manager for the Peter Cooper Landfill site. As many of you know, the sheet is located I am sure most of you know where the Peter Cooper Landfill Site is located. It is basically a twenty estate property and located between Palmer Street and Cattaraugus Creek.

For purposes of the RI, the site was divided into two sections.

Basically one section was referred to as the inactive landfill area and within that area there was a five acre portion where the waste that was generated from the manufacturing plants was disposed of. During the course of this operation several investigations were previously performed by EPA and the State. Several of these investigations lead to the site being placed on the national priority list as Kevin spoke about earlier. And after the site was listed on the national priority list, EPA started negotiations, started looking for potential responsible parties and attempted to negotiate for the responsible parties to perform the remedial investigation.

7:25P Those negotiations were not successful. So, in March of 2000 EPA issues a unilateral order

directing the PRPs to perform remedial investigation at the site. Benchmark and Deomatrix who are the consultants performed the remedy at investigation feasibility sites. I should point out all them, the PRPs did the actual remedial investigation feasibility site. EPA was in site during the field work when samples were taken. All documents that were generated EPA thoroughly reviewed and submitted comments. So, we were always there during the entire process.

During the history, the Peter Cooper Corporations manufactured animal fluid and at the plant area and the waste that was generated as part of the process was that that was generated in the plant area was the deposited, deposed of in the landfill area. And this waste was referred to as cook out sludge.

What was happening, too much waste was being put over in the landfill area and waste was entering Cattaraugus Creek. So, in 1971 there was an order for Peter Cooper Corporation to remove the waste and stop discharge into the Cattaraugus Creek. The waste was removed from the site and sent to Markams, New York. After the waste was removed, the site was graded and was covered. In 1976, assets of Peter Cooper Corporation was purchased by a French company and then they changed their name too - - they also took the name Peter Cooper Corporation and in 1988 Peter Cooper Corporation sold the site to the current owner, Jim Car Development Inc. As part of the remedial investigation, various mediators were investigating samples that were taken from landfill gas, ground water and surface water. And

waste material and seeped, the PRPs, and through their consultants went out on-site and samples were taken at various locations on the site. I know that the picture is not very clear, but it is the red and green represent areas where samples were taken. The result of this investigation were that the landfill gas organic compounds were found and as to be expected from the landfill as the way to decompose their certain gas that are generated, for example carbon dioxide and hydrogen sulfide.

7:29P Ground water samples. The highest concentrations were found near the landfill material. And one thing that came out of this investigation was that the waste that was buried in the landfill area has come in contact with ground water and ground water flows towards Cattaraugus

Creek. And the result of analytical samples were that DOCs and metals were detected above state standards. Surface water samples were taken in the surface water of Cattaraugus Creek and the locations where surface water was taken, sediment samples were also taken and given. The results indicate the presence of metals and volatile organic compounds, the same sort of chemicals that were detected in the soil were detected in the surface water and sediments.

7:31P The soil at the site, that's where we, most samples were taken. The area was divided into a landfill area and a plant area and basically we identified three areas of concern. One area was an area, arsenic, elevated levels of arsenic was identified in the landfill areas. Area of concern in the plant

area, we identified two areas, one with arsenic, high levels of arsenic, one with DOC concentration.

Samples was taken from the waste that was deposited in the landfill. That was to see what was, you know, what was actually in the waste and volatile organic compounds were detected, also arsenic Chromium and zinc seep. There is seep being generated in the elevated - - right where the waste was buried. There were three seeps observed on the banks of Cattaraugus Creek. Samples were taken from this and elevated levels of ammonia and sulfides were detected above state value. One sample of chromium exceeded those values. No volatile compounds or semi volatile, semi compounds were detected and in the seeps we found, you know ammonia sulfide and chromium. But when we measure, we

know that seep was going into the creek, but the samples we got from the surface water only showed a ammonia. Although we detected some chemicals in the seep, we didn't find them in the creek.

7:33P I think that basically, you know, the conclusions of the RI was that four areas needed to be looked at more closely. The inactive landfill area or where the waste was buried there was a marked area in the area where waste was buried, sample location LFSX, elevated levels of arsenic was found in that area, and in the manufacturing plant areas we found one area with volatile organic compounds that were at elevated levels. So, we identified that as an area that needed to be addressed.

There was a small area of arsenic contamination also found at

the plant.

So, when you look at the site, what you're dealing with is in the landfill area gases are being released from the composition from the gas and seeps are being generated on the banks of Cattaraugus Creek, so associated with the landfill. There is also gas and seeps and then the three high spot areas, that is basically the conclusion of the RI was that these areas needed to be looked at. The ground water, we found that contaminants at the site were being leached into ground water. So, ground water also had to be addressed.

Now, Marian Olson will talk about the risk assessment.

7:35P MS. OLSEN: Good evening. Thank you for the opportunity to meet with you tonight. At all sites

we conducted a human health risk assessment. We also conduct an ecological risk assessment. This is the last stage of remedial investigation. What it provides is a mechanism for looking at all of the data that Sherril was talking about, it provides us a way of looking at all the chemicals that were found, looking at the various media, where they're found and looking at how people may be exposed to them.

The risk assessment has two components. One is exposure. How might someone come into contact with this material. And the second part is the toxicity of the chemicals.

Within Superfund we conduct what is called a base line risk assessment. A base line risk assessment is basically looking at what would happen at the site if we

did absolutely nothing. It provides a mechanism for comparing this to the various remedial options that Sherril will talk about in a moment.

We also look at future conditions, if this property was shaped into the future and as you may be aware, the Town of Gowanda and the University of Buffalo developed a reuse plan. So in developing our future scenarios or future evaluations, we considered what was included in the reused plan.

The goal of the human health risk assessment is to protect the reasonable maximally exposed to the individual. It is that individual whose activities at the site will bring them in contact with material at the site on a more frequent basis than an average person.

The risk assessment looks at,

for all the chemicals that are found, the potential development of cancer and non cancer health effects. When we conducted the risk assessment and copy of this report is available in the library, we looked at each of the individual areas that Sherril just talked about. We looked at the landfill areas. So we looked at - - currently there is a potential for adult or adolescent trespassers on the site. We looked at off-site residents, the construction and outdoor workers in that area and potential recreational use which would be of future use for the manufacturing area. We conducted similar type of analysis in the creek. We looked at recreational uses of the creek. So, this gives us information about various age groups of individuals who may

potentially be exposed both currently and in the future.

And, as part of the assessment we would adjust any of the ingestion rates for the children or the adults to reflect the ages of the individuals who may potentially be exposed. The results of exposure we looked at are basically incidental ingestion or - - we looked at ground water ingestion and inhalation of volatile organic chemicals which was just mentioned by Sherril.

7:39P After these evaluations of all these different pathways, potential exposure results, what the risk assessment provides is a framework, it provides a measure so we can compare the risks and see which ones are above EPAs levels of concern and what we found for the potential future ingestion of ground water,

that we had unacceptable risks to the outdoor worker. This would be in the case where a well would be put in that area and would be used for consumption of drinking water. I will mention here, at the current time the drinking water within this community is provided by a public water supply system and meets all Federal and State standards and the wells associated with that public water system are over a mile away from this area. They have not been impacted by the site. So, again, what we're looking at is if someone were to drill a well and take water from that area, if this property was developed for an occupational exposure, potential exposure, we also looked at the outdoor industrial worker and also found again, arsenic was the main contaminant of concern in the ground

water.

7:40P For the future construction worker, exposure of the landfill was above EPA levels of concern for cancer. based, on arsenic and soil and for the future construction worker.

At the manufacturing plant we found levels above our level of concern for ignoring cancer, health affects and the chemicals of concern that were found were, include Chloroform and carbon tetrachloroethane. This provides information that can be used in the feasibility study, to look at how to mediate or clean up this contamination. As I mentioned, there was also a separate ecological risk assessment that was conducted and this is a different type of assessment. It is looking at birds, mammals that may be on the site and how they may be impacted and what

was found is that for the ecological for organic contaminants, that they did not exceed levels of concern for firm wetland plants, birds and how the ecological risk to terrestrial receptors, those are receptors on land were found to be above levels of concern for organic an inorganic contaminants in soils. There is a separate ecological risk assessment available in the repository.

What I would like to do now is turn the microphone back to Sherril who will give you information about the conclusion of the remedial investigation as well as the discussion about the feasibility study

7:42P MS. HENRY: I would like - - as I discussed previously in addition to the area where waste was deposited, three hot spots areas where identified. One in the active

landfill area which as an elevated concentration of arsenic and two areas in the manufacturing plant area. One area contained volatile organic compound, chloroform and elevated levels of chloroform and the tetrachorathine. We also found that ground water was being impacted by contaminants from the site. Also surface water was being affected.

Based on the conclusions of the RI, the following remedial action objectives were developed:

First was to reduce or eliminate any direct contact threat associated with the contaminated soils/fill.

Minimize or eliminate contaminant migration from contaminated soil to the groundwater and Cattaraugus creek.

7:43P The RI identified the areas that needed to be remediated and the

feasibility study provides an analysis of the all available technologies to remediate the site. The FS report that is located in the repository, each media was evaluated and alternatives were presented for all six media as identified earlier. However, for the FS, those alternatives were combined. These alternatives were combined and presented in the proposed plan.

For the, a proposed plan, we came up with five remedial alternatives. The first was a no action alternative and for all Superfund sites we are required to evaluate the no action alternative as a base line. If basically no action would be taken at the site and as part of superfund we are required to evaluate this option.

7:45P Alternative two, Institution and Control would involve deed and

access restrictions. These deeds would be put in place to prevent anyone from drinking the ground water and also from coming in contact with waste at the site. In addition, access restriction, a fence would be placed around the elevated fill area or the landfill area where waste was buried.

Alternative three would involve excavation of contaminated soil from the three hot spots areas that were identified. The soil would then be placed, would be consolidated in the landfill area, I am sorry, I am jumping ahead, excuse me. Alternative three, the soil would be excavated. There would be, it would be disposed of off site and the bank of Cattaraugus creek would be stabilized.

Alternative four and five involve containment alternatives.

What would happen is that the soils from the hot spots would be excavated and they would be placed in the landfill area that would be consolidated in the landfill area and 12 inches of soil would be placed over that waste to contain it and to address the groundwater diversion system would be placed up grade to minimize ground water from infiltrating through the waste.

Alternative five is basically identical to alternative four with the exception that site would be contained, a cap would be placed over the site and it would be a state regulated cap which would be placed over the waste.

Alternatives four and five also involve a number of components. This component is to address the seep and to stabilize the bank of Cattaraugus Creek. Under Option A

the seeps would be collected and they would be discharged to the local treatment facilities.

Alternative Option B is similar to Option A except once the leachate was collected, it would be treated on-site and then would by discharged to Cattaraugus Creek. So, what we are looking at, alternatives four and five, Option A or B would go with that alternative.

7:48P The five alternatives were compared to EPAs nine criteria that Kevin went into detail about earlier. And all alternatives must meet criteria one and criteria two. So, we did an evaluation to compare the alternative, to see how they would match up with the nine criteria.

In consultation with New York State EPA felt that alternative five, Option A provides the best balance of all of the nine criterias

and this alternative would involve excavation and consolidation with and covering, with a state approved cap, the leachate would be collected and be discharged to the local treatment facility. The banks would be stabilized and to address the ground water, a diversion system would be installed.

As part of any remedy for a landfill, that involves capping. There is gas at the site and has to be, you know, you have to look at the gas at the site and for this particular site we're proposing to install vents, too, so that the gas can be vented into the atmosphere. However, there are parameters that will be looked at so that if two levels get above a certain level, there is a possibility that it would be, we would like at that, during, you know, during, we would evaluate

that further during the remedial design.

7:51P What we're talking about, we're talking about this area. This is where the area (Indicating), that's where you identified the areas that were identified as problem areas. Three spots would be excavated. They would be consolidated within this area and the state cap, state approved cap would be placed over this area.

And, along the bank of the creek, a seep collection system would be installed where seep would be collected and sent to the local treatment facility. The diversion system would be installed approximately in this area (Indicating) so that water could be diverted around the waste and, you know, and would be around the waste and wouldn't come in contact with

the waste and the gases that are being developed in this area would be vented into the atmosphere. And that is basically it, you know, the preferred remedy that the EPA and the state has agreed to for the site. If you have any questions - -

MS. BLAKE: Karen Blake, B-l-a-k-e. I am with the Gowanda news but I am speaking as a resident.

7:53P What will prevent the contaminants from leaching underneath. You seem to be capping the top and directing some sort of collection around the sides. But, what will prevent the stuff from leaching down into ground water and soil.

MS. HENRY: What we're trying to do, that's exactly the - - that's what the remedy is trying to do by placing the cap over the waste. When it rains, it will minimize the

rain water from going through the waste material and being released to the ground water. In addition with the diversion system, since the water wouldn't be going - - we would minimize water going through the waste and, you know, leach. That's exactly what the remedy is trying to prevent

7:54P MR. LYNCH: The driving force that causes the contaminant to leave the landfill is basically the water, either rain water through the soil, as it goes through the waste picks up contaminants and leaves of the site. Also as Sherril described, the waste in the landfill is below the level where it stands. Now, water from upgrade moves into that area, again contaminants dissolve into that water and leave the site, either at the seeps or through the ground water and stopping that or

minimizing the amount of rainfall that comes through. In diverting that ground water, it should remove most of that driving force that causes the things to go out. It will continue for awhile, it will continue to migrate for a time but over time that should get less and less. The seeps that are coming out now are also caused by this process, just on steep banks. It pops out before it gets into the ground water. That area will be collecting contaminants also and that should be minimized by the cap in the diversion system over time.

MS. BLAKE: Okay. The venting system for the gases, I am concerned because of the topography of the area with the cliffs and hills on either side, that if this was up on top of a hill somewhere, the gases would disperse more readily but when

you have a close situation like we have here and another part of this valley around Gowanda, the gases, I would imagine, would not really disperse; they would just kind of go up and hang there and travel into the village, into the adjoining residences or we have a nursing home right above that area on top of the hill and I am very leery of dispersing gases because, in my experience with the area, they stay put, they don't dissipate very readily.

MR. LYNCH: One of the things we will be doing in the design is looking at this when you design the cap to see how much gas we think will be generated. The gases that we found now were actually in the landfill itself. There were gases that were gone as well as placed inside the waste and the gases were

measured down below the surface. There was no measurement of gases actually venting from the landfill as it is today. As I said, the design will be looking at this and we will be monitoring it after it is put in place. When you are talking about venting into the atmosphere and like a large municipal landfill, it's an old landfill where there has been a lot of decomposition. Over time, gas generation does slow down. But, we will be monitoring any emission that would come out of these vents and if we believe causes a problem, we would then change it in to a deposit treatment to inspect, to have monitoring and gas vents on the other part of the property, also, or just in the landfill area.

More of the gas would be just in the landfill area. We will be

monitoring also around the site and also monitoring some in the other areas, the ground water, to see what affect the remediation does have on it, to see if it is approved.

MS. BLAKE: Okay, thank you.

MR. EDDY: Mike Eddy, E-d-d-y. On your consolidating the waste, your three hot spots into one area, what kind of material are you putting on the bottom of this, the landfill portion. Are you using the existing soil, are you bringing in outside soil, are you using a vinyl or rubber liner system

7:59P MR. LYNCH: The consolidated soil will be just - - the excavated soil will be consolidated into the landfill as it is today. The top of it will be taken off. Any of the growth material and (Inaudible) - - not that we are going to be, build another cell to put this material

into that. It will then mix with the material and we will cap over all of it.

MR. EDDY: You presently have leachate coming out of that existing fill area. Now, you're going to be putting more product on top of it. What's your plan to keep it from going into the shale. We don't have bedrock here. We have shale. Shale is very porous and has cracks and that's where a lot of your leakage is coming out of there. How are you going to address this.

MS. HENRY: The seeps will be collected and I know we said that it seeps. But there is also ground water that would be collected and sent off for treatment. And the results of the, you know, the remedial investigation indicates that the groundwater is flowing into Cattaraugus Creek and when you

measure the results in the creek, we really weren't picking up a lot of contamination. I think the only chemical that we found above guidelines was ammonia

8:01P MR. LYNCH: These areas that we're excavating aren't areas of waste. The areas of contaminated soil, it isn't like we're putting a product in, like were putting a pure chemical in there that would be, would expect to migrate through it. It's in the soil itself. The volume we put in is very small compared to the volume that is there already.

MR. EDDY: When Karen was talking, you were talking about area monitoring, water monitoring. Who is going to by responsible for this monitoring down the road. I mean, the present day site, you guys would be there to come in. Who is going to be overseeing this whole project,

the air quality, water quality from a day-to-day operation.

MR. LYNCH: That depends on who is to do the remediation. If the PRs perform the remediation, then EPA will have the responsibility of overseeing that and monitoring. No matter who does it, if it is us or the PRP we have mentioned since we're leaving waste on sites at levels where the site can be just used for anything, we are required by the law to go back every five years and revisit the site and make sure that this remedy is still protective. But, if the EPA ends up performing the site that the PRPs don't do it, then the state will have the responsibility down the road.

MR. EDDY: How soon will we know whether the PRP or the EPA will take care of this?

8:02P

MR. LYNCH: After, what we will do, we will be approaching the PRPs and looking for their interest in doing the site. What the law has, a time of special notice where we will note, is the PRPs and 120 day negotiations cycle. No one will know before that 120 days. Hopefully we find out at the end of it who will be doing it.

MR. EDDY: Presently.

MR. LYNCH: I am trying to come up with a good timeframe.

MR. SHANAHAN: It's all over the spectrum. I think having this, the first thing we would do after the record of decision is made, we would send out notice letters to PRPs. The standard thing we would do that would establish a 120 day period for negotiations. Hopefully, at the end of that negotiation period, we would have a commitment

from the PRPs to do the remedy. If we didn't have a commitment at that time, the agency would have the open number of options. We could do the remedy ourselves, and then seek cost recovery from the PRPs. We could issue a unilateral order they didn't agree to do it. We could take an administrative enforcement action and require them to do it. That's sets up another chain of events. You know, people, if they're issued an enforcement order, can comply with the order or maybe they will not comply with the order. If they comply with the order, they're doing the work. If they don't comply with the order, we, again, have a couple of options. We can go back, we can use the money in the Superfund and do the work ourselves and once again seek cost recovery, you know, or we could take the PRPs to court and try

to force the issue to get them to do the remedy. So, it is difficult to put a time schedule on it. It's not anything that we can sit down at a table and say we're going to do this in four months, five months. It varies from site to site.

8:05P MR. LYNCH: In general, it normally takes about six to nine months to go through the processed.

MR. EDDY: After the PRP has been notified?

MR. LYNCH: Yes.

MR. EDDY: What if the PRPs decide to do something on their own, do they have to follow this plan now or if they have if they start something on their own. Who is to monitor them to make sure they're going to do it to a safe level.

MR. SHANAHAN: This is - - 'a National priority list, a Federal Superfund site. So, it's not an

option for somebody to do voluntary action to clean up on the site. Anything that is done at the site has to be done under the supervision of EPA, whether we're doing it directly. So, obviously we can supervise ourselves or if private parties are doing the clean-up, which they will require by the action as EPA to supervise what is being done. So, there is no question of the PRPs coming to the site and doing something voluntarily. You know, there is a question at the site, you know people sometimes can take voluntary action going beyond something a little which is different from what we're doing and if it is consistent with our requirements, we can give people permission and say, that's not going to interfere with the remedy so you can take the following

action as well. That's the only voluntary action.

MR. EDDY: They can go up above but they can't - -

MR. SHANAHAN: That's correct.

8:06P MIKE HUTCHINSON: Mike Hutchinson with the Village of Gowanda. I have been asked to make a brief statement with regards to the village's position on this landfill. The village for a better part of a decade at this location, we have invested interest in the proper clean-up and remediation of the site. We also have vested interest in seeing site remediation that affords opportunity for beneficial reuse of the site. Somehow this property has to be returned to some beneficial use to the community. To that end, we did a Superfund redevelopment study, looked at likely scenarios for

reuse. We also evaluated the remedial investigation feasibility study supported by PRPs and reviewed by the EPA study. On December 17th of 2004, we submitted or comment our the RIFS. For the most part EPA recommended an alternative does fit our second alternative for site remediation. First alternative would be removal of all waste material. If that's not feasible or cost affective, we acknowledge in scenerios presented to us, that would not occur. For the most part the recommended alternatives meets the criteria we outlined in our letter of September 17th with the exception of the passive gas venting. We remained concerned if a cap is placed on the site would the concentration of gas that would occur be discharged from the site may create issues in surrounding

neighborhoods, both in the village and out of the village.

There is an escarpment across the creek from this location. There are homes built there.

You mentioned in your proposed action that there would be a five year evaluation however if these concentrations were found to be unacceptable even before that five year evaluation are we assured that they would be addressed

8:09P MS. HENRY: The five year review is a requirement by EPA but there are state regulations that require any remedy has to be monitored on a regular basis and plans would be developed to say how frequent, you know, will the sampling take place. So the five year review is required by EPA but New York State has their own regulations of requirements as far

as how often. So, the answer is, yes, there would be sampling throughout the process and not just every five years.

MR. HUTCHINSON: Would there be a definite criteria set as to what would trigger the need for treatment. Would there - - it would have to be non compliant for a year, six months, one day?

8:10P MR. LYNCH: What I was going to say, however, I would envision if it is consistent with the proposed plan would say that the landfill has to meet the requirement of the state regulations with the state's 360 regulations and after that, there is a, you have to adhere to the air portion of the regulations. So, that if we do decide to change, it wouldn't necessarily be that we would put the remedy in place then monitor and then change it later.

We could change it during the design. We could change it as part of the decision based on comments. We could do it during the design, if we think that the passive system isn't going to be enough. So, I can't tell you. It is not something that we have to wait until a problem occurs before we take action.

MR. HUTCHINSON: At some point through the remediation process, is there a performance requirement whereby the PRP would have to demonstrate performance, could in the process, could there be a definite standard set for the discharge from these passive events.

8:11P MR. LYNCH: The standard has been set by New York State and whatever we do on that, has to meet those standards.

MS. HENRY: Keep in mind, that, you know, the state regulations

state that unless there is, you know, volatile organic problems at the site, you would start out by using a passive system and if you look at the results, you know, from this site, the levels weren't screaming at us, the levels weren't that elevated. So that's why the regulations, you start out passive, something changes along the way then, you know, there is opportunity to, for change. But, the regulations say unless there is a problem, you start out with a passive system.

MR. HUTCHINSON: The other issue is the - - we agree and we kind of concur with EPA that in the review of the reinvestigation feasibility study, several alternatives, it was represented that a no action was protective of human health and environment. In

our comment letter we stated our disagreement with that position. We want to reiterate, the study is part of your decision, is part of public record, we want to make sure that we are on record that no action does not protect human health and environment, even though it is representative of that in the report.

8:13P MR. LYNCH: One thing about that remedial investigation feasibility leads us to decision. It is not part of the decision itself. The decision we will publish.

MR. HUTCHINSON: Thank you.

MR. WERTHMAN: Paul Werthman, president of Benchmark Evnironmental Engineering & Science, the firm that performed the Remedial Investigation/Feasibility Study at the Peter Cooper Landfill Superfnd

site for the "Cooperating" PRP Group...those entities that have been working together with the USEPA since April 2000 toward a remedy at this site.

The following comment are being offered by us as technical advisors to the PRP Group that funded the RI/FS. Generally, EPA's Proposed Plan is consistent with out Recommended Remedial Approach that is included in the FS. We believe the basic elements of EPA's Plan provide a sufficient remedy for the Gowanda Site and adequately addresses the contamination found at the Site.

There are, however, a few elements included in EPA's PLan that we believe provide no additional environmental benefit and may create both nuisance concerns for adjacent landowners and significant

disincentives for a near term remedy. Our comments tonight focus primarily upon the elements of EPA's Plan that are inconsistent with the Recommended Remedial Approach as presented in the RI/FS. These comments are being offered primarily for the benefit of the general public who otherwise may not understand exactly what those differences are and why we differ with the EPA on them. Our comments should be considered as preliminary; we are preparing more detailed technical analysis of several elements of EPA's Proposed Plan and a comparison to the Recommended Remedial Approach as presented in the FS.

COMMON REMEDIAL ELEMENTS

Before I commence my remarks on the technical issues on which we differ, I thought it might be useful

to point out the elements of the remedial plan that both we and EPA agree upon. Both the REcommended Remedial Approach in the FS and EPA's Proposed Plan include the following common remediation elements:

Collecting the leachate seeps and ground water along the Creek bank adjacent to the Elevated Fill Subarea, pretreating the leachate groundwater as necessary, then discharging to the Village sewerage system for final treatment.

The existing soil cover system on the Elevated Fill Subarea would be improved to reduce infiltration and leachate formation by regrading, placement of additional

low-permeability sil, and reseeding with a mixture to foster natural habitat consistent with the requirements of 6 NYCRR Part 360. A synthetic membrane barrier system would be added along the Creek bank to above the 100-year flood elevation to prevent creek water intrusion during seasonal high-water conditions.

Stabilizing the Cattaraugus Creek bank to protect the Elevated Fill Area from ice scour during Spring snow melt and from surface water run-off erosion.

Installing a passive gas venting system in the Elevated Fill Subarea.

Establishing institutional controls in the form of deed

restrictions/environmental easement an restrictive covenants on future uses of the Elevated Fill Subarea an to prevent use of groundwater on the Site for potable purposes.

Performing long-term operation and maintenance including inspections and repairs of the Elevated Fill Subarea cover, gas vents, and leachate seep/groundwater collection and conveyance systems.

Performing air, surface water, and groundwater quality monitoring.

Excavation of hotspot soil/fill from the MWFP -3 and LFSS-6 Subarea of the Former Manufacturing Plant Area.

Evaluating Site conditions every five years.

Disputed EPA "Add-Ons"

There are two primary elements of EPA's Proposed Plan that were recently "added on: to the Recommended Remedial Approach in the FS that we believe provide no additional environmental benefit and are neither technically, legally, or economically justified.

1. Installing a groundwater diversion system employing a slurry wall keyed into the upper 1-2 feet of soft shale bedrock upgradient of the Elevated Fill Subarea.

2. Constructing of another 12-24 inches of soil on top of the existing low-permeability soil cover system in place, over the elevated fill subarea.

We were surprised by the last minute addition by EPA of the groundwater diversion system/slurry

wall to the recommended remedial plan as this alternative was initially "screened out" in the FS and was never given serious consideration by EPA or us in developing the FS due to significant technical concerns - -

MR. LYNCH: Please do not talk for the EPA. When we say we didn't give it serious consideration, we will talk to the EPA. You can make comments to us.

MR. WERTHMAN: - - related to effectiveness and implementation. Similarly, we were surprised by EPA's last-minute changes to the cover system as we had previously agreed with EPA upon details of cover system alternatives during Work Plan scoping and subsequently after initial screening of alternatives. EPA's new proposed cover system has never been

technically analyzed nor have costs been estimated to any substantial degree for this system by us or by EPA. Our concerns regarding the "add-ons" proposed by EPA will be discussed in greater detail in a moment.

There are secondary elements and/or details of EPA's Proposed Plan of lesser importance that are questionable and/or not well defined. These will be addressed subsequently in our written comments but not here tonight, and we will continue to work with EPA to iron out these issues.

GROUNDWATER DIVERSION SYSTEM

The EPA apparently is proposing installing slurry wall upgradient (i.e. along the south, east and south west perimeter) of the Elevated fill Subarea "to limit

groundwater migration through the Elevated Fill Subarea". They further suggest that "installation of the cap and groundwater diversion system should reduce leachate generation, the volume of seep leachate requiring treatment is anticipated to be reduced or eliminated over time".

Our initial analysis suggests to us that this sort of system is likely not going to be effective. There are significant constructability issues related to the groundwater diversion system. For the slurry wall to effectively divert groundwater around the sludge fill it must connect to a low-permeability layer (typically silty-clay or compact glacial till soil) to prevent or substantially limit flow under the wall. Simply put, a box with no bottom will not

hold water. In this site-specific circumstance and as proposed by EPA, the slurry wall would be terminated in the upper 1-2 feet of weathered shale bedrock, which is soft and has many fractures. The weathered shale is highly permeable and capable of high lateral and vertical groundwater flows, rendering the so-called diversion system ineffective. Based on limited bedrock data available, this element of EPA's Proposed Plan as described will not effectively achieve their stated objectives.

Even if the groundwater diversion system could be constructed to function as intended by EPA, it would not substantially reduce the volume of seepage/groundwater collected nor would it substantially improve the overall protection of human health

or the environment. Ammonia was the only contaminant of concern detected in the Creek water immediately adjacent to the Elevated Fill Subarea at concentrations slightly above water quality standards. No other groundwater contaminants associated with the Site were present in the Creek at or above WQS. The ammonia was found in the seeps adjacent to the landfill. Our proposed seep/leachate collection system is specifically designed to intercept and remove this contamination. In fact, the seep/groundwater collection system, will substantially reduce the amount of ammonia and other sludge fill contaminants going to the Creek from the Elevated Subarea. The quantity of contaminants in the sludge fill that may be released to the environment (in this situation into

Cattaraugus Creek) flowing remediation must be evaluated holistically considering how all the components of the cover system, seep/groundwater collection, and proposed groundwater diversion systems work together. Installing an upgradiant groundwater diversion wall will not improve the efficiency of the overall remedial approach.

To demonstrate that the EPA-proposed groundwater diversion system will not provide any quantifiable environmental improvement or protection, we are currently performing a quantitative assessment of contaminant mass loadings to the Creek with and without the groundwater diversion system. Because the, seepage/groundwater from the Elevated Fill Subarea reaching the Creek is more significantly affected

by the proposed seep/groundwater collection system efficiency rather than by lateral groundwater recharge through the shallow overburden soils, we expect the modeling will show no substantial improvement resulting from the groundwater diversion system as proposed by EPA. We further expect the Recommended Remedial Approach in the FS to fully comply with applicable surface water quality standards. We will include the results of our analysis in the written comments we provided to EPA.

The last concern we have with the EPA's proposed groundwater diversion system is that EPA has not assessed the potential for negative offsite groundwater elevation impacts on adjacent residential properties resulting from the groundwater diversion system. If the groundwater diversion system

could be constructed to function as EPA proposes, it would increase groundwater elevations outside and adjacent to the slurry wall to the south, east and southwest of the Elevated Fill Subarea. This could manifest itself in seasonal flooding or leakage into the basements of several homes located near the Elevated Fill Subarea along Palmer Street.

COVER SYSTEM ADD-ONS

EPA proposed to add 18-24 inches of soil cover on top of the existing low permeability soil cover that already averages approximately 18-inches thick (with a maximum measured thickness of 45 inches) This additional soil cover will not significantly reduce surface water infiltration through the cover system nor will it significantly reduce the quantity of

seepage/groundwater collected when compared to the additional 12 inches of low-permeated soil cover recommended in the FS. Reducing infiltration is primarily a function of slope, permeability, and vegetative cover quality. We are currently performing a quantitative assessment of both the EPA's proposed cover system and the cover system as recommended in the FS using EPA's Hydrologic Evaluation of Landfill Performance (HELP) model.

Our proposal already contains a cover system that, in conjunction with the seep/groundwater collection system recommended in the FS, would perform as well as or better than a 6 NYCRR Part 360 landfill final cover system.

Although reduction in cover system infiltration would translate into reduced quantities of

seepage/groundwater collected and treated, the quantities of collected groundwater projected in the FS are relatively small (i.e. 5,800 gpd average, 15,000 gpd max., about the size of a small backyard swimming pool) and the Village sewerage system has already been determined to have more than sufficient available capacity to handle it.

Furthermore, for the same basic reasons previously discussed relative to the groundwater diversion system, EPA's proposed cover system add-ons will not increase the efficiency of the seep/groundwater collection system and therefore will not result in any quantifiable reduction to human health or ecological risks related to the Site above those to be achieved by implementation of the remedial approach recommended in the

FS. In other words, neither of these add-ons will result in any meaningful environmental benefit, but will cause technological and economic problems.

Some nearby residents have previously commented on concerns about how potential remedies might affect their view of the Creek. The additional soil cover proposed by EPA will raise the crest of the Elevated Fill Subarea potentially obscuring some views from Palmer Steet. The additional finished height of the cover system may also adversely impact some aspects of the Villages proposed reuse plans.

CONTINUED COOPERATION AND OPEN DIALOGUE

I offer these comments in the spirit of cooperation and professionalism that the cooperating

PRPs and their consultants have maintained with representatives of EPa, the Village of Gowanda, and the Seneca Nation throughout this long site investigation, remedy evaluation and selection process. We have already informed EPA of our concerns over these select elements in the proposed plan. We plan to share our forthcoming detailed written comments further explaining our position and analysis with these project stakeholders and invite them to do the same. Our mission has been to develop a remedy for the Gowanda site that is fully protective of human health and the environment and consistent with the Village's proposed ReUse Plan.

MR. LYNCH: We look forward to the comments from you and the group. I won't comment on your opinion because that is your opinion what

you think the proper remedy for the site is. I will make a couple statements. What you said you gave the impression that we agreed on certain things that we would be doing at this site. What we agreed on, you would perform a remedial investigation and feasibility study. The remedy decision process and governmental process, remedial investigation and feasibility study gives us information that we can go ahead and make our decision. The recommended alternative, as you describe it, is no longer in the feasibility study. As we commented on your draft study, is that doesn't belong in there because we do have the process - - that the regulations have us go through. The process is, you do that remedial investigation feasibility study, we take out, we come up with a proposed plan of what

we think is the best thing to do at the site. We present it to the public. We get input and we make our decision. We look forward to your comments. We look forward to any other comments that we get from anyone else. What we will do with these comments is, we will digest the comments. We will put together what we called a responsiveness summary which will address every comment that we get. We will then take those comments and take those responses, present them to the Regional Administrator decision maker at this site, come up with that final remedy, what we will do at the site and publish it in that record of decision.

Any other questions or comments.

MS. BROYLES: Judy Broyles. B-r-o-y-l-e-s. I have a question

about the public comment period. EPA has been working on a solution for this site for 18 years or more and I see in the paper work the only 17 or 18 days left. Why is it so short and what governs the length of time it is set for?

8:37P MR. SHANAHAN: The thirty day comment period is established in the National Contingency Plan which is the site of EPA regulations for comments on proposed remedies. It is establish by - -

MS. BROYLES: Half of that time has elapsed before this presentation is being made to the community.

MR. LYNCH: We try to time the public meeting, is that we put a proposed plan out and give people time to digest that plan and also to look at the other studies that are in the repository and they be in the investigation feasibility studies.

This way they can educate them self toward it and ask questions

MS. BROYLES: Are you having a separate comment period, other residents for instance, downstream residents, like the Seneca Nation of Indians?

MR. LYNCH: The public comment period for the site is the public comment period for the site.

MS. BROYLE: Thank you.

MS. BLAKE: I don't know whether you should address it or possibly the village. But I know way in the beginning there were many many people, including administration in the village that were very concerned and wanted the waste to be removed and I don't feel that has been adequately addressed as to where the village and the EPA concur on this particular alternative. I don't think it has

been answered as to why removal would not be a better option and also I have a question, will the remediation of the entire site require it to be all bulldozed down and started over again and when would this possibly be done. I have a comment from someone who couldn't be here who is a resident of the area and she said she would like something done in her lifetime, which is probably not too long, and she wondered how long it was going to be before an actual - - something would be done?

8:39P MR. LYNCH: I can't talk to the village, however I did hear comments from the village today. Their preference is actually we do, remove everything from the site. So, they have expressed those preferences. That's what they would also like to see how - - make our decision is

based on the nine criteria. We talked about one of those criteria is cost, when we went through the study. The cost to remove everything from the site is ten million dollars more than other remedies that are protective and we don't believe that the risk posed by the site, that the risks proposed by the site aren't such that spending an extra $10 million would make it anymore protective than the remedy that we are proposing today.

As to the timeframe, our schedule right now has us signing this record of decision by September 30th of this year. We will go through a period of negotiations with the responsible parties before. Usually averages between six and nine months. We will then go through a design process which generally averages a year. So, the

8:41P

earliest I would project, we would be out there actually performing construction would be approximately two years from now.

MS. BLAKE: You would be able to do it at that time?

MR. LYNCH: We would start it at that time and the remedies as proposed today would take how long?

MS. HENRY: Two years.

MR. HUTCHINSON: Mike Hutchinson, Village of Gowanda. I did want to reiterate the Village's preference as stated in our comment letter of December 17th was that the waste be removed but we have in, and the Board has had extensive discussions, they do acknowledge the impact on quality of life that may have on the community. I think there is a significant impact that would occur if we would dig that up and the estimates I got from one of

the PRP consultants, there may be two years of disruption. In terms of odor and issues of that nature, in order to remove the material long term, we still believe it's the best solution for the community. We acknowledge there is a lot of impediments. Cost is not one we consider. We do consider quality of life in our community, a two year disruption of that quality of life might be unacceptable to a lot of people in the community.

8:42P MR. TORRANCE: Jack Torrance, T-o-r-r-a-n-c-e, from the Village of Gowanda. I have a question and it concerns where I saw the report about seepage. And the question is this: How far downstream of the seepage site was the sediment and the water tested and what were those results. I didn't see any data. Maybe it's in the library, I don't

know. But, could you comment on that, please

8:43P MS. HENRY: Why took samples of sediment directly downgrading of the landfill, the elevated fill area, in addition, and the only chemical that we found above - - let me - - Arsenic and Nickel were the only criteria that were detected above standards.

MR. LYNCH: The question was where.

MS. HENRY: In addition, what we, what EPA, this wasn't part - - PRP - - we actually took samples down right near the Seneca Nation, near the Seneca Nation. That's about approximately three miles downgrade. EPA with their contractor, we went out some time in 2001 and we took samples all the way downgrading near the Seneca Nation and the results were consistent with

the Arsenic and Nickel were detected. But not at levels of concern.

MR. TORRANCE: Was there a result then from the Seneca Nation back up to the seepage site or what kind of distribution, was there a distribution?

8:45P MR. LYNCH: We didn't sample - -

MS. HENRY: Not all the way through. But, Seneca Nation, we're concerned that there, they could be impacted from the site, you know, near the nation. So, what we did, what EPA did, we went out and took separate sampling downgrading. We didn't take samples from the site all the way down to the nation. We went close to the nation and we took several samples.

MR. LYNCH: We went at the site, went directly downgraded to,

well the seepage was still occurring where we would expect it to be the highest. We did not find it at a level to impose a risk. So, we did not continue.

MR. TORRANCE: Just looking at the history of Cattaraugus Creek, has a tendency of having very high flows at different periods of time which would then follow, there would be a distribution of sediment along the way. I would think, at least a couple of alternate sites might have been worth testing since Arsonic is there. I am surprised that chrome wasn't present or were they below -

8:46P MS. HENRY: Below.

MR. TORRANCE: Below the standard, the New York State standard?

MS. HENRY: Yes.

MR. TORRANCE: Thank you.

MS. BROYLES: Is there, at this

time, a projected cost for this 5A Plan that you're proposing.

MS. HENRY: Actually, I prepared - - the alternative that is preferred is alternative 5, Option A and the cost estimated would be 2 point 2 million dollars with a total present worth of 2.7 million dollars.

8:48P

MR. LYNCH: If there are no more questions, I would like to thank everybody to take this time to come out and express your opinions to us and give us your comments. We're looking forward to getting any comments in writing. Thank you.

MS. HENRY: At the close of the comment period, August 28 - - is August 28 - - the close of the comment period is August 28. Thank

you.

(Proceedings concluded)

I, Brian E. Walters, Notary Public, in and for the County of Chautauqua, State of New York, do hereby certify:

That the witness whose testimony appears hereinbefore was, before the commencement of their testimony, duly sworn to testify the truth, the whole truth and nothing but the truth; that said testimony was taken pursuant to notice at the time and place as herein set forth; that said testimony was taken down by me and thereafter transcribed into typewriting, and I hereby certify the foregoing testimony is a full, true and correct transcription of my shorthand notes so taken.

I further certify that I am neither counsel for nor related to any party to said action, nor in anyway interested in the outcome thereof.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my seal this 24th day of August, 2005.

Brian E. Walters RPR

Brian E. Walters
Notary Public,
State of New York, County of Erie
My commission expires 12/31/06

RESPONSIVENESS SUMMARY

APPENDIX IV-e

LETTERS AND E-MAIL SUBMITTED DURING THE PUBLIC COMMENT PERIOD

To; SherrelHenry

Remedial Project Manager

I have been a resident of Gowanda, N.Y. for over fifty years. I wish to state my choice regarding the plan for the Petear Cooper Landfill Superfund Site.

My choice is Alternative III.

I have concerns about the other alternatives and the five acre "landfill" area. I am not convinced that the waste would truly be contained. Limiting ground water migration seems to me to be only an "educated" guess if what I read about the problems in this area at West Valley are true.

Yours truly,

Dorothy Holocinski

Dorothy Holocinski

Ms Dorothy Holocinski
37 Miller St
Gowanda NY
14070-1514

Mr. Sherrel Henry

Remedial Project Manager

New York Remediation Branch

290 Broadway 20th Floor

New York, New York 10007-1866

10007-1823

September 13, 2005

Ms. Sherrel Henry
Remedial Project Manager
New York Remediation Branch
U. S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Dear Ms. Henry:

As part of the public comment on the proposed remediation of the Peter Cooper Corporation site in Gowanda, New York, I enclose a copy of a newspaper article from the June 9, 1927 *Gowanda News* about a similar matter of concern to this community.

Whereas today's concern is over public health and safety and the risks associated with the five-acre inactive landfill site on the PCC property on Palmer Street, the concern in 1927 was over job loss should the glue factory be closed down for failure to solve their toxic waste disposal problem. The newspaper claimed that the discharge from the glue factory, probably not unlike the material that is contained in the landfill, may have had a beneficial effect on the creek and the environment by neutralizing the "bad" discharges from other sources along the creek. This included sewage generated by the Gowanda State Hospital whose patients were "troubled with all kinds of diseases". I am sure that modern science would prove these claims as totally absurd.

The News article further expressed support for the owner of Eastern Tanners Glue Company, Mr. Richard Wilhelm, and published both a resolution adopted unanimously by the Board of Trustees of the Village of Gowanda, and a petition signed by approximately 125 businessmen and residents of Gowanda, calling on the State Conservation Commission to cease their enforcement actions against Mr. Wilhelm and the glue company.

Despite efforts to curtail pollution of Cattaraugus Creek and the surrounding land, hazardous waste continued to pose a problem until the 1970s, when glue manufacturing was phased out, and still does to this day, with the legacy of these industrial operations, the five-acre landfill that continues to leak toxic waste into the creek.

I have attended nearly every public meeting that various local, State and Federal agencies have held in Gowanda in recent years to address this issue. At long last it appears that a decision on cleanup and remediation is about to be made. For the sake of Gowanda and vicinity and its future, I hope that decision is the right one.

At the last public meeting held at the Gowanda Central School auditorium last month, you and other EPA representatives presented a plan for remediation of the Peter Cooper Gowanda site, followed by a statement from the engineering firm representing the Wilhelm family heirs and other potentially responsible parties. The spokesman from Benchmark Engineering disputed the effectiveness of the two main components of the EPA proposal, namely the groundwater diversion system and the improved soil covering over the existing landfill area. In my opinion, the Benchmark plan would amount to little more than the status quo. To me, their plan is totally unacceptable.

While the EPA's proposal represents a move in the right direction, it does not go far enough. The main reason given in support of this proposal, when compared with total removal and cleanup of the site, seems to be the expense involved, approximately $2.7 million compared with $12 million for total cleanup.

No doubt these are large sums of money, and if we are to believe the claims of Benchmark made at a previous meeting held at the Gowanda Middle School cafeteria, this expense would fall on the backs of "small Mom and Pop tanneries" who contributed to the problem by supplying waste hides and other raw materials to Peter Cooper over many decades. This is only part of the truth, and it excludes the enormous wealth that the Wilhelms accumulated prior to Richard Wilhelm's death in 1940, his wife Alice's death in 1962, and even to the present day in the form of investments and trust accounts founded on the profits of this corporation.

Richard Wilhelm, operating from his corporate headquarters in Gowanda, had branch offices in major American cities, including New York, Boston, Chicago, Milwaukee and others. He had controlling interests in most all of the glue manufacturing and distribution facilities nationwide, and perhaps worldwide. His was not a "Mom and Pop" nickel and dime operation.

One point that was never discussed publicly at the Gowanda meetings was the status of the Wilhelm family trust, which has carried generations of Wilhelm descendants (collateral descendants, since Richard and Alice had no children). It is my understanding that this fund contains amounts in the tens of millions of dollars, possibly even exceeding one hundred million dollars. Nor was there mention of the possible existence of insurance coverage for such a risk.

If economics determine the level of remediation of this site, the EPA should know where to look for funding to carry out this project. There should be no room for negotiations or bargaining here. The Wilhelms built their fortune on the backs of lower, working class people, many of whom were immigrants from Eastern Europe, under working conditions that you would not want to imagine.

For the sake of these families and their descendants, the present and future residents of Gowanda and vicinity, and those living downstream along Cattaraugus Creek, particularly in the Seneca Nation of Indians between Gowanda and Lake Erie, it is imperative that EPA demand enforcement of all environmental laws and regulations that would bring about a total removal and cleanup of this toxic waste site. Anything less would represent a sellout of this area to corporate greed, and the triumph of the wealthy and influential over the public interest.

As an agency charged with protecting the environment, as your name indicates, the only proper way to solve this problem that has been hanging over our heads for decades is to completely remove all hazardous waste from this site and send the bill to those who left it behind. Now go and do the right thing.

Sincerely yours,

Phillip J. Palen
PO Box 199
Collins, NY 14034

Gowanda News.

SEND REPRESENTATIVES TO ALBANY

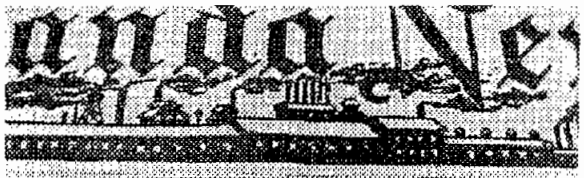
SCHOOL NEWS

CHAMPIONSHIP

Business Men and Residents of Gowanda Would Avoid Closing Down of Mammoth Plant of Eastern Tanners Glue Co. because of Alleged Pollution of Cattaraugus Creek-Big Meeting held on Tuesday-Resolutions Adopted and Subscribed to by Nearly Two Hundred-NEWS Points Out That Unfair Attacks and Charges Are Unfounded.

Pollution of Creek, If Any, of Little Consequence-People of Gowanda Stand Solid in Praising Mr. Wilhelm for Disposal Plans Already Carried Out-Appeal to Conservation Commission.

June 9, 1927



GOWANDA, N. Y., THURSDAY, JUNE 9, 1927

ENTATIVES

REPRESENTATIVES TO ALB

Business Men and Residents of Gowanda Would Avoid Closing Down of Mammoth Plant of Eastern Tanners Glue Co. because of Alleged Pollution of Cattaraugus Creek-Big Meeting held on Tuesday-Resolutions Adopted and Subscribed to by Nearly Two Hundred-NEWS Points Out That Unfair Attacks and Charges Are Unfounded.

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Charges Are Unfo

Pollution of Creek, If Any, of Little Consequence-People of Gowanda Stand Solid in Praising Mr. Wilhelm for Disposal Plans Already Carried Out-Appeal to Conservation Commission.

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For some time past articles have been appearing in the papers with reference to the pollution of the Cattaraugus creek, especially by the Eastern Tanners Glue Co.

These articles have grossly misrepresented the whole affair, proving that the author or authors are either misinformed as to the true situation or have continued these attacks with the purpose of embarassing this great institution.

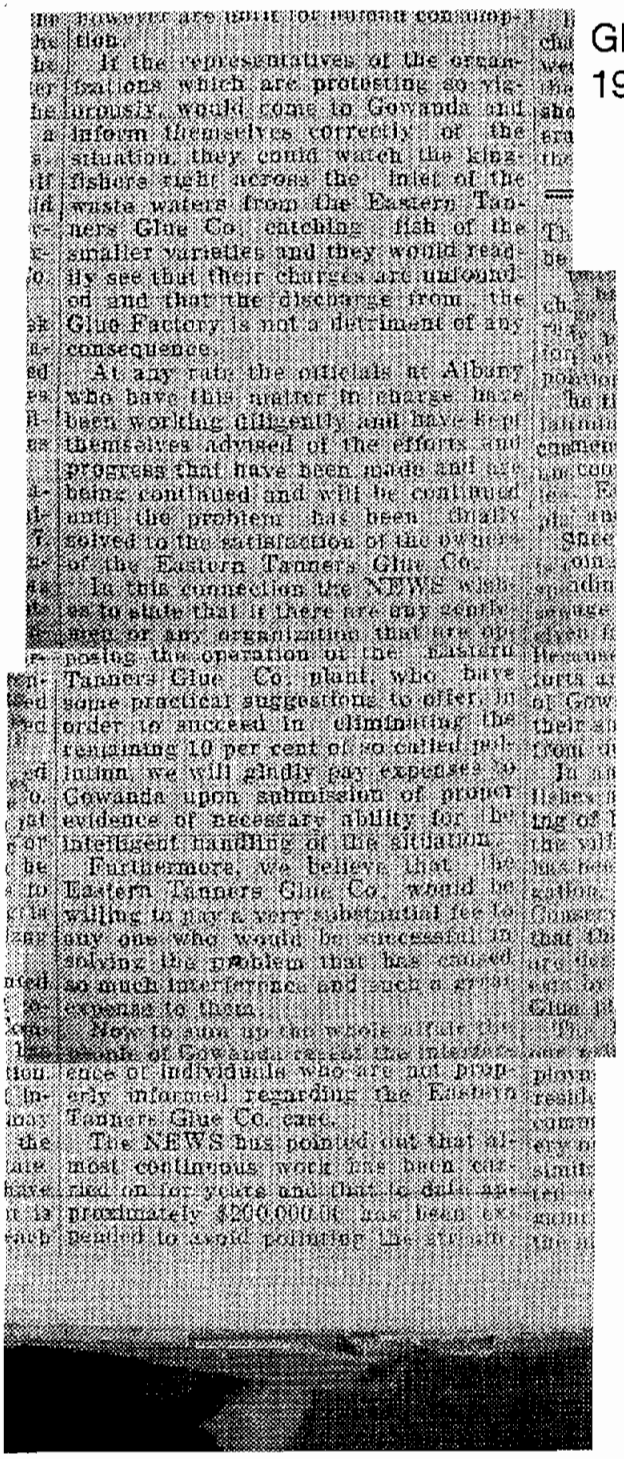
In order that the public may be correctly informed the NEWS has made an investigation and presents in this article, the true status of conditions of the matter referred to.

The Eastern Tanners Glue Company has for years been working on plans to eliminate the pollution of the Cattaraugus from their plant and has encountered extremely difficult problems while carrying on this work. Engineers of national reputation have visited the Glue Factory on numerous occasions and after many costly experiments have succeeded in accomplishing a truly commendable result. After an expenditure of upwards of $200,000.00 it is found that 90 per cent of all solids that enter the great sewage system of the factory are caught in settling tanks that have been constructed for that purpose and which have a capacity of three and one half million gallons of water every 24 hours. It is noted that the pollution at present, if any, appears to be of little detriment to the water. The only remaining problem is the alkalinity of the water caused by the lime contained in the wash water emanating from the factory.

The Cattaraugus Creek

The north branch of Cattaraugus creek has its source in the vicinity of Arcade and winds it course some fifty miles before reaching Gowanda. It carries away the murky waters of a vast watershed. The south branch starts somewhere near Cattaraugus. The two branches are the main drainage channels for the northern section of Cattaraugus county and the south-

Glue Factory
1927 - p. 3



tion.

If the representatives of the organizations which are protesting so vigorously, would come to Gowanda and inform themselves correctly of the situation, they could watch the kingfishers right across the inlet of the waste waters from the Eastern Tanners Glue Co. catching fish of the smaller varieties and they would readily see that their charges are unfounded and that the discharge from the Glue Factory is not a detriment of any consequence.

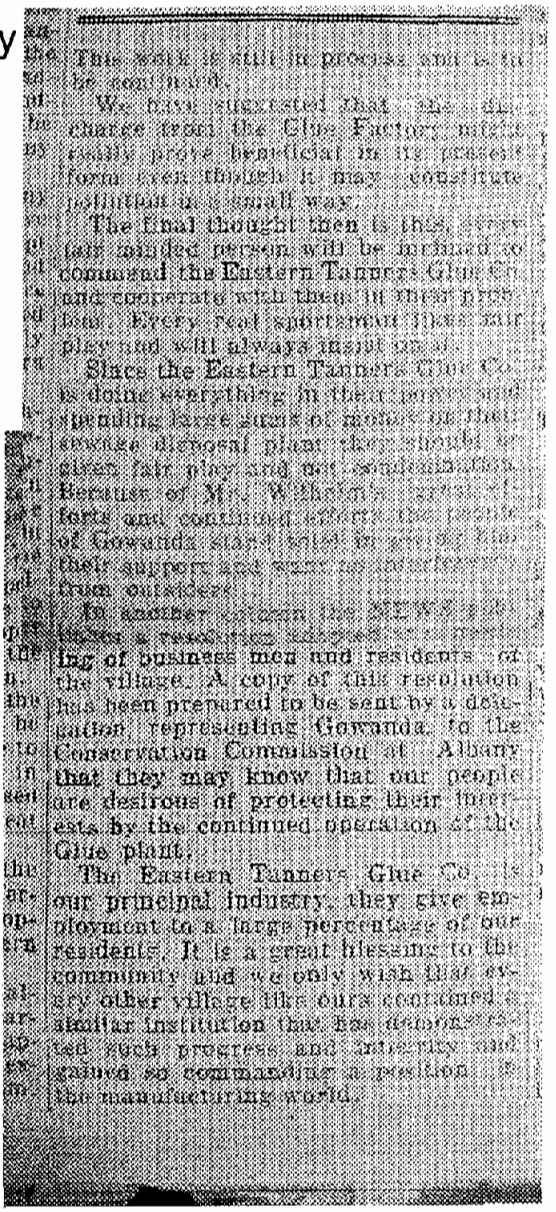
At any rate the officials at Albany who have this matter in charge have been working diligently and have kept themselves advised of the efforts and progress that have been made and are being continued and will be continued until the problem has been finally solved to the satisfaction of the owners of the Eastern Tanners Glue Co.

In this connection the NEWS wishes to state that if there are any people or any organizations that are opposing the operation of the Eastern Tanners Glue Co. plant, who have some practical suggestions to offer, in order to succeed in eliminating the remaining 10 per cent of so called pollution, we will gladly pay expenses to Gowanda upon submission of proper evidence of necessary ability for the intelligent handling of the situation.

Furthermore, we believe that the Eastern Tanners Glue Co. would be willing to pay a very substantial fee to any one who would be successful in solving the problem that has caused so much interference and such a great expense to them.

Now to sum up the whole affair the people of Gowanda resent the interference of individuals who are not properly informed regarding the Eastern Tanners Glue Co. case.

The NEWS has pointed out that almost continuous work has been carried on for years and that to date approximately $200,000.00 has been expended to avoid polluting the stream.



This work is still in process and is to be continued.

We have suggested that the discharge from the Glue Factory might really prove beneficial in its present form even though it may constitute pollution in a small way.

The final thought then is this: every fair minded person will be inclined to commend the Eastern Tanners Glue Co. and cooperate with them in their program. Every real sportsman likes fair play and will always insist on it.

Since the Eastern Tanners Glue Co. is doing everything in their power and spending large sums of money on their sewage disposal plant they should be given fair play and not sensational stories. Because of Mr. Wheeler's efforts and continued efforts the people of Gowanda stand willing to grant them their support and want no interference from outsiders.

In another column the NEWS publishes a resolution adopted by a meeting of business men and residents of the village. A copy of this resolution has been prepared to be sent by a delegation, representing Gowanda, to the Conservation Commission of Albany that they may know that our people are desirous of protecting their interests by the continued operation of the Glue plant.

The Eastern Tanners Glue Co. is our principal industry, they give employment to a large percentage of our residents. It is a great blessing to the community and we only wish that every other village like ours contained a similar institution that has demonstrated such progress and integrity and gained so commanding a position in the manufacturing world.

Volume XXIII. Number 14

PROTESTS

Business Men Petition State Conservation Commission in Behalf of Local Industry Send Delegates to Albany

Resolution

WHEREAS: It is reported to us—the Business Men of the village of Gowanda, N. Y.—that the Conservation Commission of the State of New York intends to take such action, that the Eastern Tanners Glue Company of this village will be compelled to close down, and

WHEREAS: It is further reported to us that this threatened action is connected with the permitting by said company of lime to enter Cattaraugus creek, and

WHEREAS: We know that this company has expended a great deal of money and to date has succeeded in eliminating at least 90% of any possible pollution and has installed machinery and tanks and expended a great deal of labor in endeavoring to overcome this difficulty and to prevent lime from entering Cattaraugus creek, and

WHEREAS: As a result of these efforts, the quantity of lime entering Cattaraugus creek has been greatly reduced and we know that this company is continuing to try to overcome this situation, and

WHEREAS: This company is the largest and principal industry in this village and employs the larger portion of the residents of this village, and it would be a real calamity to this village if that industry were closed down, NOW,

BE IT RESOLVED: That we, the Business Men of the village of Gowanda, hereby petition the Conservation Commission of the State of New York that no such action be taken that this company cannot be permitted to continue in its work and in the employ-

tion of the residents of this village, and it would be a real calamity to this village if that industry were closed down, NOW,

BE IT RESOLVED: That we, the Business Men of the village of Gowanda, hereby petition the Conservation Commission of the State of New York that no such action be taken that this company cannot be permitted to con-tinue in its work and in the employment of our residents, and the maintenance of our other places of business in this village and of ourselves and our families;

FURTHER RESOLVED: That a copy of this Resolution be sent to the Conservation Commission of the State of New York, and that such Commission be earnestly requested not to close down said industry, but to permit it to continue in operation and in endeavoring to overcome any pollution of Cattaraugus creek.

C. J. Richards	W. A. Stuart
E. L. Gowrett	H. Arnold
S. A. Neilson	A. C. Brown
R. H. Ritz	H. J. Fries
J. L. Hart	R. G. Keeler
H. E. Bentley	W. J. Foster
S. Walkers	S. A. Rouse
J. K. Smith	C. Geer
R. K. Carpenter	S. Wise
H. W. Inslon	W. A. Becker
J. E. VanDeusen	C. E. Supple
R. E. Congdon	F. J. Moll
R. L. Cross	G. A. Tyler
D. D. Dalrymple	L. R. Hanson
F. J. Herdez	V. M. Armes
W. Eaton	Mrs. M. W. Stelzer
L. A. Parke	F. J. Supple
B. L. Dalrymple	A. W. Bettcher
R. T. Colley	F. F. Kleinfelder
W. H. Himelein	H. Hagerson
C. A. Moll	H. Lamont
C. J. Shults	J. Rogers
C. J. Mentley	Witt & Anderson Motor Co.
W. Weston	W. A. Buckland
W. M. Muir	C. N. Ubel
F. L. Brown	L. B. Spillman
J. Beach	H. F. Stelzer
F. E. Bard	M. Rousse
P. F. Miller	C. R. Schock
W. F. Ley	J. Kiss
L. A. Thiele	E. Kiss
L. M. Lessler	J. Kirk
E. T. Kimbrough	C. Ross
L. B. Temple	W. F. Hall
C. S. Hussey	R. C. Holmes
R. H. Schaack	M. Straub
H. C. Allen	Mrs. A. R. Sieler
F. Mills	M. Kleinfelder
W. C. Bubinger	A. W. Cole
R. Muir	A. J. Hunter
B. R. Thomson	W. P. Hardon
F. C. Rogers	C. E. Hoerbelt
J. J. Volk	W. Hecker
A. L. Mentley	S. DeJohn
L. E. Shuttleworth	J. Wantz
L. M. Himelein	D. J. Drauat
E. P. Witt	L. A. Collins
S. G. Keyes	B. H. Papageorge
K. J. Holzen	L. L. Weston
A. Nelson	J. S. Woodward
C. A. Ryder	C. Nagle
W. B. Temple	F. E. Place
A. E. Chapman	B. J. Burs
J. H. Vaughn	A. Holcomb
C. Wallace	D. Forpiella
W. C. Witt	F. J. Hartman
W. F. Vallance	H. Pinker
A. O. Minner	A. Krzywosz
H. C. Derby	F. Straub
H. S. Dahm	C. J. Stoll
M. O. Vallance	J. F. Rouse
M. Vallance	

Glue Factory
1927 - p. 5

Gowanda News
Gowanda, N. Y., Thursday, June 9, 1927

SEND REPRESENTATIVES TO ALBANY

Business Men and Residents of Gowanda Would Avoid Closing Down of Mammoth Plant of Eastern Tanners Glue Co. because of Alleged Pollution of Cattaraugus Creek – Big Meeting held on Tuesday – Resolutions Adopted and Subscribed to by Nearly Two Hundred – *NEWS* Points Out That Unfair Attacks and Charges Are Unfounded.

Pollution of Creek, If Any, of Little Consequence - People of Gowanda Stand Solid in Praising Mr. Wilhelm for Disposal Plans Already Carried Out – Appeal to Conservation Commission.

For some time past articles have been appearing in the papers with reference to the pollution of the Cattaraugus creek, especially by the Eastern Tanners Glue Co.

These articles have grossly misrepresented the whole affair, proving that the author or authors are either misinformed as to the true situation or have continued these attacks with the purpose of embarrassing this great institution.

In order that the public may be correctly informed the NEWS has made an investigation and presents in this article, the true status of conditions of the matter referred to.

Literally there are thousands of industries, cities and villages that may be counted as offenders against the Conservation laws of New York state. Why pick on Gowanda, when we have one of the very few concerns that is actually working continually to reach a point of strict compliance with the law?

Now the only remaining problem in order to meet the requirements of the law 100 per cent is the elimination of the alkalinity contained in the wash waters that come from the huge settling reservoirs. The alkalinity is due to lime in solution. Water will dissolve and can carry only 14 lbs. of lime salts in solution for each 1000 gallons. It is obvious that this influx is only a fraction of one per cent of that matter which the creek carries before it reaches the confines of the Glue Factory.

It should be understood that the alkalinity of the water discharged by the Eastern Tanners caused by lime salts in solution, is finally absorbed by dilution in the current, while the bacteria already contained in the creek continue to live and multiply.

The State Hospital has for many years since its inception discharged the waste of the sewage of nearly 2000 patients troubled with all kinds of diseases, into the creek. If the alkalinity in the water is still retained as far as the effluent of the Hospital entering the creek, it would have a beneficial effect and neutralize the terrible contamination of the State Hospital waste.

Then again, let us remember that practically all of the sewage of the great city of Buffalo is dumped into the lake. Some of the bigger industries discharge vast volumes of sewage into the Buffalo creek. Hundreds of other communities dump everything into the lakes and waterways thruout the state. No doubt there are some who are trying to eliminate their problems but no individual or concern is making any greater efforts than the Eastern Tanners Glue Co. at Gowanda.

There have been complaints made of dead fish being found in the waters of the Cattaraugus creek and quite naturally, without investigating the particular occurrence, the fishermen blamed the industries along the creek.

Investigation however would invariably prove the fact that a certain class of sportsmen were dynamiting fish in the creek, picking out the large ones and allowing the rest to float on to Irving.

On account of its big fall from the uplands, the Cattaraugus creek never was and never can be an ideal fishing stream. Any freshet will wash the creek to the bottom and the solid matter carried will kill anything living.

In fact, the oldest inhabitants here know that there has never been any fishing in the creek of any consequence, even before the advent of industries, excepting perhaps some fish preferring muddy environments: they however are unfit for human consumption.

In another column the NEWS publishes a resolution adopted at a meeting of business men and residents of the village. A copy of this resolution has been prepared to be sent by a delegation, representing Gowanda, to the Conservation Commission at Albany that they may know that our people are desirous of protecting their interests by the continued operation of the Glue plant.

The Eastern Tanners Glue Co. is our principal industry, they give employment to a large percentage of our residents. It is a great blessing to the community and we only wish that every other village like ours contained a similar institution that has demonstrated such progress and integrity and gained so commanding a position in the manufacturing world.

WHEREAS: That this industry and other industries upon the banks of this creek has no effect upon the waters of Lake Erie – see the recent report of Dr. Charles A. Bentz on the conditions of the waters along the South Shore of Lake Erie. NOW

BE IT RESOLVED: That the Conservation Commission be and hereby is memorialized upon the facts above stated and for a dismissal of such complaint.

ADOPTED BY A FULL VOTE IN THE AFFIRMATIVE.

Ralph Schaack, President
Walter F. Ley, Trustee
Paul F. Miller, Trustee
Frank L. Brown, Trustee
Thomas Mills, Trustee
Julius A. Metz, Clerk
H. C. Allen, Health Officer

C. J. Richards
E. L. Gayvert
S. A. Neilson
R. H. Ritz
T. E. Hart
H. E. Bentley
S. Wallace
F. X. Smith
R. R. Carpenter
H. W. Inskip
J. E. VanDeusen
R. E. Congdon
R. L. Cross
D. D. Dalrymple
F. J. Herdeg
W. Eaton
L. A. Parke
B. L. Dalrymple
R. T. Gulley
W. H. Himelein
G. A. Moll
C. J. Shults
G. J. Mentley
W. Westin
W. M. Muir
F. L. Brown
J. Besch
F. E. Bard
P. F. Miller
W. F. Ley
L. A. Thiele
L. M. Leisner
E. T. Kimbrough
G. B. Temple
C. S. Hussey
R. N. Schaack
H. C. Allen
T. Mills
W. C. Babinger
R. Muir
B. R. Thomson
J. C. Rogers
J. J. Volk
A. L. Mentley
J. E. Shuttleworth
L. M. Himelein
W. A. Stuart
H. Arnold
A. C. Brown
H. J. Fries
R. G. Kramer
W. T. Parker
W. F. Eaton
G. Geary
D. Pliss
W. A. Becker
C. E. Sipple
F. T. Moll
G. A. Tyler
L. R. Hansen
V. M. Armes
Mrs. M. W. Stelzer
F. J. Sipple
A. W. Bettcher
E. F. Kleinfelder
H. Hagerdon
H. Lamont
I. Rogers
Witt & Anderson Motor Co.
W. A. Buckland
C. N. Ubel
L. B. Spillman
H. F. Stelzer
M. Roussie
C. R. Schutt
J. Rink
E. Rink
J. Rink
F. Rink
M. C. Rink
R. C. Holmes
M. Straub
Mrs. A. R. Sieler
M. Kleinfelder
A. W. Cole
A. J. Hunter
W. P. Hardon
C. B. Hoerbelt
W. Hooker
S. DeJohn
J. Wanti

September 21, 2005

Sherrel Henry
Remedial Project Manager
New York Remediation Branch
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Dear Ms. Henry:

We are writing to urge you to consider a more permanent and effective alternative to cleaning up contaminants at the Peter Cooper Superfund site on Cattaraugus Creek in the City of Gowanda.

Although the EPA and the State DEC have agreed that alternative 5 would be the most cost-effective, that alternative insures that a stockpile of over 100,000 tons of long-lived, highly toxic substances will remain adjacent to Cattaraugus Creek and upstream from the Seneca Nation and other communities who live and drink from Lake Erie for generations to come.

This is an issue both of environmental justice and Great Lakes water quality. Arsenic and chromium are on the short list of persistent toxic substances identified in the Great Lakes Water Quality Agreement for virtual elimination from the Great Lakes ecosystem. The presence of these metals at the Peter Cooper site makes removal imperative.

Most of us concerned with contaminated soils and sediments in the Great Lakes ecosystem are not interested in exporting our problem to some other community, but in cleaning it up to the maximum extent possible right here. We take as our baseline the principle that stockpiles of persistent toxic substances should be removed from bioavailability to present and future generations. No capping scenario, especially in a riparian corridor, can guarantee this.

And so we urge the EPA and the DEC to more seriously explore the options within option 3. If $12 million is too high a cost, how can that cost be lowered while still removing the contaminants of concern and minimizing the risk to other communities? For example, it appears that the high cost of removal is partly based on the need to greatly increase the amount of material that would need to be landfilled by mixing the sludge with dry soil. One option would be to consider on-site separation and treatment alternatives that instead would reduce the amount of material destined for a hazardous waste landfill.

In sum, the Great Lakes Water Quality Agreement mandates that removal should be the baseline for clean-up alternatives. The question then is "What is the most environmentally-sound, cost-

effective way to remove these contaminants from bioavailability in perpetuity." This question remains to be answered.

Sincerely,

Margaret Wooster
Great Lakes consultant

Reg Gilbert
Senior Coordinator, Great Lakes United

Larry Beahan
Sierra Club, Niagara Group

Vicki Deisner,
Executive Director, Ohio Environmental Council

"julie@zoarvalley.org"
<julie@zoarvalley.org>
09/27/2005 05:56 PM

To Sherrel Henry/R2/USEPA/US@EPA
cc
bcc
Subject Peter Cooper Superfund Site - Gowanda, New York

History: This message has been forwarded.

Julie Broyles
P.O. Box 55
Gowanda, NY 14070
(716) 380-1430

September 27, 2005

Sherrel Henry
Remedial Project Manager
New York Remediation Branch
U.S. EPA, Region 2
290 Broadway, 20th Floor
New York, NY 10007-1866

Re: Public Comment on Proposed Remedy for the Peter Cooper Landfill Superfund Site

Ms. Henry:

Thank you for granting me an extension to allow me to submit my comments today, September 27, 2005. This issue is of great importance to me, as five generations of my direct and extended family have resided in Gowanda for over 50 years, many family and friends continue to reside in Gowanda and will likely reside in Gowanda long into the future, members of my family were employed at the site, and members of my family were employed to dismantle the former factory.

I offer the following points for consideration by the EPA:

1. The proposed plan does not sufficiently characterize the extent and movement of the known groundwater contamination/groundwater plume and what effects it is having and will continue to have on human health and the environment. It also fails to address clean-up measures for the contaminated groundwater.

2. The proposed plan does not address whether vapor intrusion is occuring in the area, whether the proposals would provide mitigation, and does not address how this may be affecting/will affect the health of residents living adjacent to and near the site and how it may be affecting the environment.

3. The proposed plan fails to address the issue of off-site migration of contamination, for

instance into neighboring yards, etc., and what effects this has had and will continue to have on human health and the environment.

4. Cattaraugus Creek is the longest and largest volume tributary from NYS into Lake Erie. The proposed plan does not address how the contamination is affecting and will continue to affect Lake Erie and the Great Lakes basin and the ongoing and resulting effects on human health and the environment.

5. The proposed plan does not address how the contamination is affecting and will continue to affect the public drinking water supply for the greater Buffalo area, namely from the intake on the Lake Erie shore that is downflow of the mouth of Cattaraugus Creek, and what effect this may be having and will have on human health.

6. The proposed plan does not address the thrust fault across the creek from the site and, if it is an active fault, its potential effect on groundwater flow and on any future barrier or other planned mitigating infrastructure put in place.

7. The proposed plan was developed with insufficient data taken from the Cattaraugus Creek during periods of high turbidity/high flow, and what effects are occuring and may occur on human health and the environment during these periods, and what effects would occur under the proposed mitigation plans.

8. The proposed plan was developed without any data from sediment, water, fish, and the like taken from the downstream land of the Seneca Nation of Indians and the community of Irving.

9. The proposed plan relies on insufficient minimal downstream sampling a short distance from Gowanda, and fails to characterize how and where sediment has been and is being deposited throughout the length of this dynamically changing river, and the resultant effects on human health and the environment.

10. The two-mile down and upstream area considered by the plan is too small. There is approximately 30 miles of river from the site to the mouth of Lake Erie, and the entire river is approximately 70 miles long. The contaminants are not confined to the 4-mile stretch considered, and humans, fish, birds, etc. from outside the 4-mile area come into contact both within and out of the considered area.

11. The proposed plan fails to take into account the population of the downstream residents of the Seneca Nation of Indians and other downstream communities, such as Irving. Only the population of the Village of Gowanda is cited in the health study.

12. The proposed plan fails to account for hexavalent chromium, which was previously detected at the site by the EPA, and its effects on human health and the environment.

13. The passive gas/burning off of gases put forth in the proposed plan is an unacceptable solution within a populated village. The site is in a community and is surrounded by homes, a

nursing home, a park, churches, schools, etc.

14. The EPA has not pursued the PRP's as vigorously as possible. The $400,000 offer from the Wilhelm heirs, for example, is wholly insufficient, especially in light of the current value of this estate. The EPA should pursue these PRP's more vigorously and require a greater contribution to a complete clean-up. The PRP's should not be allowed to keep the lion's share of the spoils of this egregious contamination while people, the environment and the community have suffered and will continue to suffer.

15. The NYS Natural Heritage information relied on and contained in the RA (Benchmark/VHB) of April 2004 omits several endangered/threated/rare species found in and around Cattaraugus Creek (as reported in the Lake Erie Gorges Biodiversity Inventory & Landscape Integrity Analysis, prepared by the New York Natural Heritage Program of NYSDEC and The Nature Conservancy, October 15, 2002, Hunt et al.). While the RA lists the White Mountain Tiger Beetle (as unprotected) it omits the Cobblestone Tiger Beetle, which is protected and extremely rare - found in only one other place in NYS. While the RA list the White Mountain Tiger Beetle as unprotected, the DEC/TNC report lists it as globally rare and especially significant as an excellent population. While the RA lists the red-tailed hawk, an unprotected bird, it does not list the red-shouldered hawk, a protected bird which is nesting in the area. The RA also does not list the protected America! n Bald Eagle, which is noted in the DEC/TNC report and is known to nest in approximately five places along the creek from Springville to Versailles. The RA also omits the protected American Rubyspot, which is noted in the DEC/TNC report. The RA also omits beavers, which have a large dam a very short distance from the site. The RA omits the Blanding's Turtle, a protected turtle the DEC has been tracking on the Seneca reservation in recent years. Known additional data is available that has not been incorporated into the EPA's review. A thorough and proper review of affected species has not yet been completed. The 4-mile area considered is too small - for instance, the bald eagles may be affected through fish ingestion anywhere from Gowanda west.

16. The proposed plan does not incorporate field survey information of the Seneca Nation of Indians reservation land, for instance plant, aquatic and animal species affected, and does not incorporate fish studies from anywhere on the river.

17. The high levels of many of the contaminants warrant full clean-up, to exhumation, to ensure that the environment and human health are protected.

18. The proposed plan would leave all of the contaminants in place, posing such a risk of future exposure that the EPA would impose deed restrictions on the land. This site, combined with the effects of the failed landfill at the nearby creekside Moensch Tannery site, the leaking landfill at the top of Pt. Peter Road (within the aquifer boundary and at the top of the watershed of Gowanda's public drinking water supply), the hazardous site on Thatcher Brook in Gowanda, and the effects of the upstream West Valley nuclear waste site, create an undue and unfair toxic burden on these poor and minority communities (Gowanda, Irving, etc.), including the Seneca Nation of Indians. This constitute a violation of federal and state *Environmental Justice* laws.

19. There has been a negligent failure to fence and secure the sight and post warnings so humans are not in contact with the contaminants. The EPA itself has noted people crossing the site, recreating on the site, fishing from the site, standing in leachate, fishing in leachate, etc. The lack of fences and warning signs is inexcusable. I attach here a photograph taken this summer showing children's toys on top of a pile of earth where children play at the far western end of the property, the most highly contaminated section, at the foot of Broadway on Palmer street. Children have played here for years. I also attach a photograph of barrels of hazardous substances stored on the site approximately 10 yards from where the children play.

A full exhumation clean-up is called for in order to protect these communities, the Cattaraugus Creek and Great Lakes basin, and the plant and animal species affected. This site has been on the back-burner for so many years, all the while with gross exposure risks and incidents occuring, and it is past time for the EPA to prioritize this project and ensure the contamination at this site is fully cleaned up.

Thank you for your time and consideration of these issues,


Julie Broyles Kids Play at Peter Cooper 2005.JPG Barrels at Peter Cooper 2004.JPG

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

September 13, 2005

Ms. Sherrel Henry
Peter Cooper Landfill Superfund Site Project Coordinator
U.S. Environmental Protection Agency
Region II
Emergency and Remedial Response Division
290 Broadway - 20th Floor
New York, NY 10007-1866

Re: Peter Cooper Landfill Superfund Site
Comments on July 2005 Proposed Plan

Dear Ms. Henry:

Enclosed for your consideration are five (5) bound copies of comments on USEPA's July 2005 Proposed Plan for the Peter Cooper Landfill Superfund Site.

We look forward to meeting with you on the 20th to discuss the comments. In the interim, please do not hesitate to contact us if you have any questions.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC

Thomas H. Forbes, P.E.
Project Manager

enc.

C: J. Wittenborn (Collier Shannon)
M. Joy (Lipman & Bieltekoff)
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J. Simone (NYSEG)
R. Frappa (Geomatrix)
M. Moore (NYSDEC - 2 copies)
D. Chadsey (V. Gowanda)
M. Hutchinson (V. Gowanda – 3 copies)
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THE TECHNICAL APPENDIX TO THIS LETTER IS INCLUDED IN THE ADMINISTRATIVE RECORD BUT IS NOT ATTACHED IN THIS RECORD OF DECISION.

Detailed Technical Comments
On
USEPA Superfund Proposed Plan
For
Peter Cooper Landfill Superfund Site,
Cattaraugus County, NY

By
Paul H. Werthman, P.E., Benchmark Environmental Engineering & Science, PLLC
Thomas H. Forbes, P.E., Benchmark Environmental Engineering & Science, PLLC
Richard H. Frappa, P.G., Geomatrix Consultants

1.0 INTRODUCTION

Benchmark Environmental Engineering & Science, PLLC (Benchmark) and Geomatrix Consultants, Inc. (Geomatrix) submit the following comments for the U.S. Environmental Protection Agency's ("USEPA") consideration in development of a final remedy that fully complies with the National Contingency Plan, is technically and economically justified, and receives local public support. Benchmark and Geomatrix submit these comments on behalf of Wilhelm Enterprises, NYSE&G, Brown Shoe Company, Inc., Garden State Tanning (n/k/a GST Autoleather), Prime Tanning Co., Seton Company, and Viad Corp (collectively, the "Cooperating PRP Group"), who have worked together with USEPA since April 2000 toward a final remedy at the Peter Cooper Land Superfund Site.

Preliminary comments were presented to the USEPA at the Public Meeting of August 10, 2005 which summarized the elements of the Proposed Plan that are generally consistent with the findings and conclusions in the Remedial Investigation/Feasibility Study ("RI/FS"). Those comments are not reiterated herein.

2.0 DISPUTED ELEMENTS OF THE PROPOSED REMEDY

The following three elements of the Proposed Plan do not provide additional environmental or public health benefits and are not technically, legally, or economically justified:

1. A groundwater diversion system (i.e, slurry wall) rooted in the upper 1-2 feet of weathered bedrock upgradient of the Elevated Fill Subarea.

2. The Alternative 5 cover system, which proposes 18-24 inches of low-permeability barrier layer soils and 6-12 inches of topsoil over the existing low-permeability soil cover system.

3. Excavation of soil surrounding boring SB-2 in the Former Manufacturing Plant Area.

Technical analyses of the disputed components of the Proposed Plan are discussed below.

3.0 GROUNDWATER DIVERSION SYSTEM EVALUATION

3.1 Summary

The EPA has proposed a groundwater diversion system "to limit groundwater migration through the Elevated Fill Subarea" and states that "with the groundwater diversion system being utilized in Alternatives 4 and 5, leachate seep generation is expected to be reduced and/or eliminated." The Proposed Plan does not contain scientific support or justification for the diversion wall.

Numerical modeling presented herein demonstrates that:

- The proposed diversion wall does not eliminate or materially reduce groundwater flows into and through the Elevated Fill Subarea into the Creek or to the Village of Gowanda sewerage system.
- Contaminant mass loadings to the Creek from the Elevated Fill Subarea are not reduced by the proposed groundwater diversion wall.

Therefore, the modeling demonstrates that addition of the diversion wall to either Alternative 4 or Alternative 5 does not improve the overall protection of human health and the environment. In summary, the groundwater diversion system cannot be constructed to effectively reduce or eliminate the volume of seepage/groundwater collected and transported to the Village of Gowanda's sewerage system by the groundwater collection system, nor would it improve the overall protection of human health or the environment.

Implementation concerns and potential adverse consequences of constructing the proposed groundwater diversion system also are presented below.

3.2 Effectiveness

3.2.1 Modelling

Water balance modeling was performed around the Elevated Fill Subarea using USEPA's Hydrologic Evaluation of Landfill Performance (HELP) Model. Groundwater and collected seepage/groundwater flows to the Village sewerage system were estimated using the USGS Modular Groundwater Flow Model (MODFLOW). Site-specific inputs simulating the hydrogeologic characteristics of the Site were used in both models (see Appendices A and B). The use of HELP and MODFLOW modeling is an accepted engineering practice for quantifying water flow through and around landfills.

The modeling results are illustrated in Figures 1 though 5, attached. Figure 1 illustrates the hydrologic balance of the site under existing/baseline conditions. Figure 2 illustrates the impact of the enhanced cover system and seep/groundwater collection system on subsurface water flows through and around the Elevated Fill Subarea. Figure 3 illustrates the impact of EPA's proposed cover system and the seep/groundwater collection system on subsurface water flows through and around the Elevated Fill Subarea. Figures 4 and 5 illustrate the effects of adding a groundwater diversion system to these cover and seep/groundwater collection systems.

3.2.2 Impact of Groundwater Diversion System on Flows to Creek

Comparison of Figures 2 through 5 shows that the groundwater flow to the Creek through the upper and deeper bedrock beneath the proposed seep/groundwater collection system is unchanged at 120 cubic feet per day, both with and without the proposed groundwater diversion system. Hence, the proposed groundwater diversion system adds nothing to control the flow of groundwater from the Elevated Fill Subarea to the Creek.

3.2.3 Impact of Groundwater Diversion System on Flows to the Village Sewerage System

The reduction in flow to the Village of Gowanda's sewerage system is inconsequential.

Under Alternative 5 with the groundwater diversion system, the volume of seeps and groundwater collected for treatment equate to an average of approximately 162 cubic feet per day, or 1,210 gallons per day. See Figure 5.

In comparison, Figure 3 shows that by eliminating the proposed groundwater diversion system from Alternative 5, the average volume of seeps and groundwater

predicted to be collected for treatment are approximately 295 cubic feet per day, or 2,210 gallons per day.

The flows projected in Figures 5 and 3 are considered insignificant, as they represent less than 0.10 and 0.17 percent, respectively, of the 1.33 million gallon per day total average daily influent flow to the Village sewerage system.

Figures 2 and 4 show similar predicted results without and with the groundwater diversion system in conjunction with the Alternative 4 enhanced cover system alternative. The estimated volumes of seepage/groundwater are greater but still insignificant (i.e. 0.14 to 0.23 percent) relative to the total average daily flow to the Village sewerage system.

To put it in practical terms, the flows projected to be collected from the site under either Alternative 4 or Alternative 5, with or without the proposed groundwater diversion system, are roughly equivalent to the flow from five to ten residential homes.

Appendix F to the Feasibility Study clearly demonstrated that the Village sewer system has ample capacity to handle these collected seepage/groundwater flows.

Given the extremely low level of projected flows from the proposed seep/groundwater collection system with or without the groundwater diversion system, any reduction of flows to the Village sewerage system attributable to the groundwater diversion system provides no significant benefit to the operation of the Village sewerage system or to the protection of human health or the environment.

3.2.4 Impact of Groundwater Diversion System on Contaminant Mass Loadings to Creek

The potential human health and environmental benefits of the groundwater diversion system can be quantitatively evaluated by reductions in contaminant mass loadings to the Creek.

Ammonia was the only contaminant of concern detected in Creek water at concentrations above applicable water quality standards.[1] Ammonia was detected above applicable surface water quality standards in one Creek sample collected and analyzed during the Remedial Investigation. Specifically, ammonia was detected at a

[1] Although other seep/groundwater constituents migrating from the Elevated Fill Subarea are expected to be reduced along with ammonia, no such reductions are necessary to protect human health and the environment as all other constituents already meet all ARARS.

concentration of 0.442 mg/l in a single surface water sample adjacent to the Elevated Fill Subarea.

The applicable water quality criteria standard for ammonia is 0.440 mg/l. (*Ref. RI pg. 74*). Hence, a 0.5 % reduction of ammonia mass load to the Creek would reduce the ammonia concentration to the applicable water quality standard

The calculated reduction of ammonia mass loadings to the Creek under the remedial alternatives are presented in Appendix C. These calculations demonstrate that the proposed seep/groundwater collection system in conjunction with either the Alternative 4 or Alternative 5 cap will reduce the mass loading of ammonia and other sludge fill contaminants to the Creek by approximately 70%, with or without the groundwater diversion system.

Thus, under either Alternative 4 or Alternative 5, contaminant mass loadings to the Creek (using ammonia as an example) are reduced 140 times more than is necessary to meet the applicable water quality standard – without the addition of the groundwater diversion system.

The proposed groundwater diversion system is therefore not required to meet the applicable water quality standards. The proposed groundwater diversion system is essentially superfluous in reducing the mass loading of ammonia or other contaminants to the Creek.

3.3 Implementation Concerns

The hydrogeologic system underlying the Site poses significant problems to the construction of an effective groundwater diversion system. An effective slurry wall that diverts groundwater around the Elevated Fill Subarea must be rooted in a low-permeability confining layer to prevent or substantially limit groundwater flow under the wall. Suitable confining layers include competent non-porous bedrock, compact glacial till, silty-clay or clay soil.

The proposed slurry wall would terminate in the upper 1-2 feet of the Canadaway Formation, which is weathered and extensively fractured. Hydraulic conductivity values ranging from $1x10^{-4}$ to $1x10^{-2}$ cm/sec (*Ref. RI pg.54*) were estimated for the shallow bedrock. Thus, it is not a confining unit and is a geo-technically incompetent base for the slurry wall.

The lack of a site-specific competent confining layer would render the proposed groundwater diversion system ineffective at reducing or eliminating lateral groundwater flow into the sludge fill. In other words, a box with no bottom cannot hold water. We are unaware of any comparable example of slurry wall technology being successfully applied to a Superfund site in a similar geologic setting.

3.4 Potential Adverse Consequences

The Proposed Plan does not present a quantitative analysis of off-site groundwater elevation impacts on adjacent residential properties. A groundwater diversion system that functions as proposed would increase hydrologic head on the south, east and southwest sides of the slurry wall upgradient of the Site. Increased groundwater saturation upgradient of the Site increases the risk of seasonal flooding and the potential for leakage into the basements of homes located near the Elevated Subfill Subarea along Palmer Street.

4.0 COVER SYSTEM PERFORMANCE EVALUATION

4.1 Summary

The Alternative 4 cover system (without groundwater diversion) is fully protective of human health and the environment. The Alternative 5 cover system provides no additional human health or environmental benefit, and will unnecessarily and significantly increase construction costs. Furthermore, the Alternative 5 cover system provides no appreciable reduction in the volume of seep/groundwater flow to the Village of Gowanda's sewerage system. These points are more fully discussed below.

4.2 Effects on Village Sewerage System

As discussed in Section 3.2.3, projected flows from the proposed seep/groundwater collection system under Alternative 4 constitute 0.14 to 0.23 % of the total daily average flow to the Village sewerage system, with and without the groundwater diversion wall. As demonstrated, these flows are insignificant to the operation of the sewerage system and its ability to protect human health or the environment.

Since the flows to the Village sewerage system are insignificant under Alternative 4, the modest additional flow reduction achieved with the Alternative 5 cover system (591 to 890 gallons per day, with and without the groundwater diversion system) provides no significant additional benefit to system operation or protection of human health or the environment.

4.3 Human Health Benefit

The Human Health Risk Assessment performed as part of the RI/FS identified only two potential unacceptable exposure pathways for current and future uses of the Inactive Landfill Area: those associated with ingestion of site groundwater, and those associated with construction worker exposure to soil/fill, the latter of which is primarily attributable to arsenic concentrations at LFSS-6.

Alternative 4 of the Proposed Plan will remedy these exposures via consolidation of LFSS-6 soils in the Elevated Fill Subarea, followed by institutional controls that will prevent groundwater use for potable purposes and preclude direct contact with subsurface material in the Elevated Fill Subarea.

No additional measures are necessary to prevent unacceptable exposure in the Inactive Landfill Area. The additional 12 inches of cover soil proposed under Alternative 4 will provide further assurance against contact with subsurface material in the Elevated Fill Subarea. Additional cover soil thickness suggested under Alternative 5 provides no additional human health benefit.

4.4 Environmental Benefit

The environmental benefit of the cover systems can be measured in terms of their relative performance in reducing impacts to Cattaruagus Creek.

As previously discussed in Section 3.2.4, the estimated reduction in contaminant loadings to the Creek using the Alternative 4 cap in conjunction with the proposed seep/groundwater collection system is approximately 70%, or 140 times the reduction necessary to meet water quality criteria.[2]

The proposed seep/groundwater collection system coupled with the Alternative 4 cap can therefore reliably be expected to comply fully with all applicable surface water quality criteria.

Appendix G of the FS demonstrates that the Alternative 4 cap used in conjunction with the proposed seep/groundwater collection system would perform equivalent to or better than a Part 360 landfill final cover and meets or exceeds all applicable, relevant and appropriate requirements under CERCLA.

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[2] Both cover systems were modeled assuming a collection system efficiency of 80%.

Cover system improvements beyond those associated with the Alternative 4 cap are not technologically nor economically justified, and are inconsistent with the National Contingency Plan under CERCLA.

4.5 ARAR Compliance

The Alternative 5 cap is based on the remedial criteria set forth at 6NYCRR Part 360. Part 360-1.7(a)(3)(viii)(d) states "landfills with an approved closure plan that have ceased to accept waste before October 9, 1993 must meet the closure and post-closure requirements of the regulations in effect the day the closure plan was approved." The Part 360 regulations did not exist at the time the Elevated Fill Subarea was closed. The June 17, 1971 State Supreme Court Order (Index No. 30356), which resulted in the relocation of a portion of the sludge fill material to the Markhams site, addressed closure of the remaining Elevated Fill Subarea wastes and required Peter Cooper Corporation to regrade the remaining waste, cover it with the present layer of barrier soil, and seed it to promote vegetation. Each component of the Supreme Court order was performed under the supervision and to the satisfaction of the New York State Department of Environmental Conservation. Accordingly, Part 360 is not an applicable requirement for the Elevated Fill Subarea.

5.0 TECHNICAL BASIS FOR SB-2 SOIL REMOVAL QUESTIONED

The Proposed Plan characterizes the soils surrounding boring SB-2 in the Former Manufacturing Plant Area as a "hot spot" requiring remediation. The SB-2 removal aspect of the Proposed Plan is inconsistent with the Human Health Risk Assessment (HHRA) and FS. The FS identifies LFSS-6 and MWFP-3 as contaminant "hot-spots" requiring remediation based on their contribution to potential unacceptable human health risks to future construction workers in the Inactive Landfill Area and Former Manufacturing Plant Area, respectively. Arsenic at boring SB-2 does not pose unacceptable human health risks under the HHRA.

The arsenic concentration at SB-2 was 168 mg/kg. The FS identified an arsenic cleanup goal of 128 mg/kg for LFSS-6 soils in the Inactive Landfill Area because of contributing factors from other constituents in the Inactive Landfill Area, particularly antimony and naphthalene. Antimony and naphthalene together contribute approximately half of the elevated hazard quotient for the soil medium at LFSS-6.

Arsenic remediation at SB-2 or other locations in the Former Manufacturing Plant Area are not necessary for protection of human health due to lower concentrations of other constituents in soil. The elimination of chlorinated organic compounds at MWFP-3 drops the hazard index for the Former Manufacturing Plant Area construction worker to well below 1.0.

The potential unacceptable risk to construction workers in the Former Manufacturing Plant area is addressed through the removal of chlorinated organics in MWFP-3. No other exposure scenarios related to Former Manufacturing Plant Area soil yielded unacceptable risks. Remedial actions at SB-2 are unnecessary and should be eliminated from the Proposed Plan.

6.0 CONCLUSION

The Proposed Plan recommends three elements that are not necessary for protection of human health or the environment. The Proposed Plan did not quantitatively analyze these three components. The quantitative analysis presented herein demonstrates that Alternative 4 without the groundwater diversion system fully protects human health and the environment, complies with all applicable regulations and minimizes unnecessary costs. Therefore, the ground water diversion system, the Alternative 5 cover system and the excavation and removal of soil surrounding the SB-2 boring should be removed from further consideration.

Killeen & Killeen

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We do not accept service of process
by facsimile transmission or E-mail

September 26, 2005

Ms. Sherrel Henry
Peter Cooper Landfill Superfund Site Project Coordinator
U.S. Environmental Protection Agency
Region II
Emergency and Remedial Response Division
290 Broadway – 20th Floor
New York, NY 10007-1866

Dear Ms. Henry:

Enclosed herewith please find Additional Comments from the Cooperating PRP Group on the issues raised by the Proposed Remedial Action Plan at the Peter Cooper Site, which supplement the comments filed on our behalf by Benchmark Environmental Engineering & Science, PLLC on September 13, 2005.

Respectfully submitted,

Henry W. Killeen, III

Cc: Cooperating PRP Group
Benchmark
D. Chadsey, Esq.

Peter Cooper Landfill Superfund Site

Cattaraugus County, New York

Additional Comments From Cooperating PRP Group

I. Introduction

The "Cooperating PRP Group"[1] hereby supplement their comments, filed September 13, 2005, regarding the Preliminary Remedial Action Plan (PRAP) issued by EPA in July, 2005.

These comments are designed to document additional views of the Participating PRPs on remedy selection at the Peter Cooper Site, including the application of "Applicable or Relevant and Appropriate Requirements," or "ARARs," and the principle of "cost effectiveness," to the remedy selection process at this site.

II. Threshold Criteria.

Under the National Contingency Plan ("NCP"), the "threshold criteria" for remedy selection are "overall protection of human health and the environment" and "compliance with ARARs (unless a specific ARAR is waived.)" 40 CFR §300.430(f)(1)(i)(A).

As explained in the Feasibility Study and our September 13, 2005 submission, we believe that the Alternative 4 remedy, without the groundwater diversion system, is fully protective of human health and the environment. Therefore, for purposes of evaluating the need for an enhanced landfill cover system, the question is whether or not any particular cover system is required pursuant to an ARAR.

Much of the discussion of ARARs at this Site has concerned the application of 6 NYCRR Part 360, and in particular the Part 360 requirements applicable to landfill cap design. For numerous reasons, we believe that the landfill cap requirements contained in Part 360 do not constitute an ARAR for this site.

The State of New York does not consistently require that remedies at inactive hazardous waste disposal sites regulated under Title 24, Article 13 of the New York Environmental Conservation Law meet the cover system design requirements of Part 360. Because this aspect of Part 360 is not "consistently applied" at such sites, it is not an ARAR at this site.

The actual practice in New York is to determine appropriate cover system design at inactive hazardous waste disposal sites on a case by case basis, using the kinds of engineering and science-based analyses reflected in our September 13, 2005 comments.

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[1] Wilhelm Enterprises; NYSE&G; Brown Shoe Co., Inc.; Garden State Tanning (n/k/a GST Autoleather); Prime Tanning Co.; Seton Company; and Viad Corp.

We believe that our preferred alternative, as supported by our September 13th comments, is consistent with this practice.[2]

Part 360 itself contemplates that landfill cover system designs may vary from those specified under that Part when the requirements of the Part tend to impose an unreasonable economic burden, and where an alternative design will have no significant impact on the public health, safety or welfare, or the environment or natural resources, and will provide an equivalent level of performance. 6 NYCRR §360-1.7(c).[3]

Because Alternative 4 provides an equivalent level of protection to Part 360, as demonstrated in our September 13th comments, we respectfully submit that the performance requirements of Part 360 are met by our preferred alternative as well. Thus, Alternative 4 meets the requirements of Part 360, even if it were an ARAR.

We note that even Alternative 5, the remedy provisionally selected in the PRAP, does not comply with the design requirements of Part 360. Instead, the PRAP describes this Alternative as providing environmental protection "equivalent to" Part 360.

Our September 13, 2005 submission shows that our preferred remedy (Alternative 4 without the diversion wall) will provide a level of environmental protection and performance "equivalent to" Alternative 5. Alternative 4 therefore meets the same "equivalent performance" test as Alternative 5.

In summary, because our preferred alternative provides a level of performance equivalent to Alternative 5 and Part 360, and because the design criteria for cover systems contained in Part 360 are not consistently applied to sites like this one, we respectfully submit that our preferred alternative satisfies the ARAR requirements of the NCP.

III. Primary Balancing Criteria.

A. The Requirement of "Cost Effectiveness" Under the NCP

Under the NCP, once "threshold criteria" have been met, the remedy selection process requires the application of "primary balancing criteria." 40 CFR §300.430(f)(1)(i)(B).

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[2] For example, the original NYSDEC Record of Decision at the Urbana Landfill Site (NYSDEC Site No. 8-51-007) required the consolidation of waste under a Part 360 cover system. Following the issuance of the ROD, the PRPs proposed and the DEC issued a Finding of Significant Differences allowing the installation of a cover system equivalent to the Alternative 4 cover system proposed for the present site, using *in situ* 10 (-6) soils regraded to a minimum 24" thickness coupled with a groundwater/leachate collection/treatment system. DEC accepted this alternative on the basis of a demonstration of "equivalent performance" essentially identical to the demonstration contained in our September 13, 2005 comments.

[3] See, for example, the Ketchum Road Landfill in the Town of North Collins, Erie County, where the New York State Department of Environmental Conservation determined that simply regrading the existing cover soils with the addition of six-inches of topsoil for establishment of a vegetative growth was an acceptable Part 360 final cover system.

The primary balancing criteria most at issue in the matters addressed in our September 15, 2005 comments appear to be short and long term effectiveness and permanence, and cost.

The NCP offers significant guidance in balancing these considerations, specifically in the following language:

> Costs that are grossly excessive compared to the overall effectiveness of alternatives may be considered as one of several factors used to eliminate alternatives. Alternatives providing effectiveness and implementability **similar to** that of another alternative by employing a similar method of treatment or engineering control, but at greater cost, may be eliminated.

40 CFR §300.430(e)(7)(iii)(emphasis added).

Under this language, so long as a less expensive remedial alternative provides effectiveness "similar to" another alternative with a significantly higher cost, selection of the higher cost alternative is not consistent with the NCP.

The same conclusion is supported by 40 CFR §300.430(f)(1)(ii)(D), which requires that the selected remedy must be "cost effective," and provides that "cost effectiveness" shall be determined by using a proportionality test as between cost and effectiveness.

B. Determination of "Cost Effectiveness" at the Peter Cooper Site

It is not possible to make final cost evaluations until design criteria are established for the selected remedy. It is possible, however, to provide some cost estimation on the basis of currently available information.

Attached hereto in Table 1 are certain cost comparisons among the alternatives currently under consideration. In order to simplify this analysis, Table 1 does not consider costs associated with the diversion wall.[4]

Table 1 includes a range of anticipated costs for Alternative 5 to reflect various construction variables present in the description of Alternative 5 contained in the PRAP.

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[4] We believe that our prior submissions have already shown that the diversion wall does not enhance the effectiveness of the proposed remedy in the protection of human health and the environment, nor is it implementable as proposed. For these reasons, we do not believe that further cost analysis of the diversion wall is appropriate, beyond noting that its inclusion in either Alternative 4 or Alternative 5 would add costs of at least $250,000 – and likely several times that if it were to be made to actually perform the task for which it was intended – without adding any significant benefit in terms of protection of human health or the environment.

Variables include such factors as the definition of "low permeability" soils, quantitics, and ability to use on-site materials as part of the remedial construction.

Table 1 shows that even the lowest cost implementation of Alternative 5 increases the costs necessary to complete Alternative 4 by over 40%. Imposing a requirement of 10(-7) soils makes the differential even more dramatic, imposing increased costs of 80% and 134% over the Alternative 4 cover, depending on quantity variables.

Table 1 thus shows that under any interpretation, the Alternative 5 cover system is not consistent with the NCP, because it is not cost effective. At higher cost levels, the case for rejecting Alternative 5 as inconsistent with the NCP is even more dramatic.

IV. Conclusion

Alternative 4, without the diversion wall, is fully protective of human health and the environment, complies with ARARs, and is the most cost effective Alternative under consideration. We therefore respectfully submit that the selection of any other remedy would not be consistent with the NCP.

Table 1

Peter Cooper Landfill Superfund Site
Comparison of Costs for
Elevated Fill Subarea Soil/Fill Cover System Alternatives

Item	Alternative 4 Cover (12" $1x10^{-6}$ cm/sec Barrier Soils)	USEPA Alternative 5 Cover w/ 18" $1x10^{-6}$ cm/sec Barrier Soils, 6" Topsoil	USEPA Alternative 5 Cover w/ 18" $1x10^{-7}$ cm/sec Barrier Soils, 6" Topsoil	USEPA Alternative 5 Cover w/ 24" $1x10^{-7}$ cm/sec Barrier Soils, 12" Topsoil
Capital Costs				
Contractor Mobilization/Demobilization	$10,000	$10,000	$20,000	$20,000
Health and Safety/Community Air Monitoring	$10,000	$10,000	$15,000	$15,000
Clearing/Grubbing	$15,000	$15,000	$15,000	$15,000
Subgrade Prep	$25,000	$25,000	$25,000	$25,000
Monitoring Well Extensions/Abandonment	$2,400	$2,400	$2,400	$2,400
Barrier Soil Place & Compact	$162,000	$242,000	$363,000	$483,990
Topsoil	$ -	$81,000	$81,000	$162,000
Seeding	$12,500	$12,500	$12,500	$12,500
Engineering/Contingency (35%)	$82,915	$139,265	$186,865	$257,562
Total Capital Cost	**$319,815**	**$537,165**	**$720,765**	**$993,452**
Annual Maintenance & Monitoring:				
Groundwater Sampling / Reporting	$9,000	$9,000	$9,000	$9,000
Site Maintenance, Mowing	$3,000	$3,000	$3,000	$3,000
Total Annual Maint./Monitor Cost	**$12,000**	**$12,000**	**$12,000**	**$12,000**
Present Worth:				
Number of Years (n):	30	30	30	30
Interest Rate (I):	5%	5%	5%	5%
p/A value:	15.3725	15.3725	15.3725	15.3725
M&M Present Worth (PW):	**$184,470**	**$184,470**	**$184,470**	**$184,470**
Total Present Worth:	**$504,285**	**$721,635**	**$905,235**	**$1,177,922**
Percentage Cost Increase Over Alternative 4 Cover:	**0%**	**43.1%**	**79.5%**	**133.6%**

VILLAGE OF GOWANDA

"Gateway to the Southern Tier"
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9/15/05

U.S. Environmental Protection Agency
Region II
290 Broadway - 20th Floor
New York, New York 10007-1866

Attn: Sherrel Henry

Re: Peter Cooper Proposed Record of Decision

Dear Ms. Henry

The Village of Gowanda has reviewed the EPA proposed remedy for the Gowanda Peter Cooper site. The Village of Gowanda in partnership with the Town of Persia, Cattataugus County, and the Seneca Nation and numerous concerned citizens has worked collectively to facilitate the remediation of this site for over a decade. The cleanup of this site and the removal of the associated pollution stigma will have a significant beneficial impact on our community.

The Village of Gowanda would like to offer the following comments on the proposed remediation.

The village's preferred alternative remains removal of the waste material. However should this alternative not be feasible or funded by EPA or the PRP's the Village, in an effort to facility a remedy to the on going human health and environmental problems at the site, would support the following:

* Removal of VOC and arsenic contaminated soil - The Village of Gowanda supports the removal of the VOC and arsenic contaminated soil from the factory end of the site and incorporation into a properly capped on site landfill or off site disposal.

* Leachate Collection and Treatment - The Village of Gowanda concurs with EPA that the collection and treatment of leachate emanating from the site is required and accepts EPA's conclusion that the proposed system would be protective of human health and the environment. The leachate discharges from this site have been a health concern of the village for many years. The proposal for leachate to be discharged to the Village POTW has not been fully analyzed. The Village cannot guarantee such treatment will occur. While the Village will continue to work with the PRP group to further develop the option of discharging leachate to the village POTW, it would be premature to remove all other options for treatment of leachate from the Record of Decision and from cost estimates valuing the remedy.

* Installation of a ground water diversion system - While the Village of Gowanda does not oppose the installation of this system we express no opinion on the efficiency of the proposed ground water diversion system. To the extent that the ground water diversion system would not increase the efficacy of the remedy and the imposition of the additional cost to construct and operate the diversion system impedes the implementation of the remedy, the Village encourages EPA to carefully examine the effectiveness of inclusion of this element in the ROD.

* Passive Venting of Landfill gases - The village is concerned with the passive venting of landfill gas. Currently landfill gases are vented through various breaches in the landfill cap. This results in significant odor problems at the site and the discharge of unknown quantities of Hydrogen Sulfide and other noxious gases. Once the landfill is capped, landfill gas concentrations may be significantly higher in the discharge vents resulting in increased odor or Hydrogen Sulfide exposure on site or at adjacent residential neighborhoods. The village requests that EPA establish specific performance standards and monitoring to ensure that impacts on the site and adjacent residents and neighborhoods will be minimized. In the event that noxious gas impacts occur there should be defined, established protocols to remedy such impacts in a timely manner. If the PRP Group's analysis is correct and there are no impacts to the community from landfill gas venting, the EPA inclusion of performance standards cost the PRP's nothing. However by not including performance standards, EPA will unfairly shift the burden of ensuring performance from the PRP Group to DEC or the Village at public expense.

* Landfill Cap - The Village of Gowanda would support construction of a landfill cover system that would minimize leachate generation, prevent migration of waste material, protect the landfill area from erosion and cover settlement fractures, minimize infiltration of creek and surface water into the landfill and leachate collection system, provide an adequate barrier to prevent human and animal contact with the buried waste and support the reuse of the site. The Village of Gowanda requests that EPA consider the cost benefit effectiveness associated with the various cover options to the extent that the cost may impede implementation of a remedy. The Village is concerned that any landfill cap system consider the long term durability of the proposed remedy and maintenance cost.

On behalf of the Village of Gowanda, I would like to thank EPA for affording the Village the opportunity to take an active role in the remediation and re-use planning for this site. The cleanup of this site is essential to the economic and social future of this community. It is the community expectation that EPA must obtain remediation of the Peter Cooper site from the PRP Group of provide for site remediation from the Superfund. The adverse impacts that this abandoned hazardous waste site have had on the community are immeasurable. Local Governments and the University of Buffalo, using EPA grant funding, have developed a Re-Use Plan for the site that has broad community acceptance and is imminently 'do-able' if the site is appropriately remediated. The Village will work with and fully support any party whose goal also is the implementation of a clean-up that is fully protective of human health and the environment and brings this strategically located property back to productive use.

Should you have any questions regarding this matter please feel free to contact me at 716-532-3353 or Public Works Superintendent Michael Hutchinson 716-913-1455.

Sincerely,

Richard Klancer
Mayor
Village of Gowanda

cc: Michael Hutchinson, Public Works Superinrendent
Mark Burr, Cattaraugus County
Deborah Chadsey, Village Attorney
Eric Wohlers, Cattaraugus County Health Department
Gaya Gray, Seneca Nation of Indians
Marty Doster, New York DEC
Cattaraugus Creek Task Force
Paul Worthman, Bench Mark Environmental
Alan J. Rabediau, State University of New York at Buffalo

September 26, 2005

Sherrel Henry
Remedial Project Manager
New York Remediation Branch
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Re: Remedial alternatives considered for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site. .

Dear Ms. Sherrel Henry:

We are submitting comments on the remedial alternatives that EPA and the State of New York are considering for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site located in Cattaraugus County, New York. The Indigenous Environmental Network (IEN) has been requested by both tribal community members and the Tribe of the Seneca Tribal Nation to support them in their concerns with the proposed plan for remedial alternatives for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site.

IEN is deeply concerned with the failure of the United States Environmental Protection Agency (USEPA) to have meaningful involvement with the Seneca Tribal Nation. The Seneca Tribal Nation is an affected tribe by this Peter Cooper Landfill Superfund site and any remedial alternatives that are being discussed.

On April 29, 1994, President Clinton executed a Presidential Memorandum outlining principles that executive agencies should follow in their interactions with Tribal governments. The purpose of this memorandum is to clarify the federal government's responsibility to operate within a government-to-government relationship with Tribes. It directs agency heads to ensure that their agency personnel are familiar with memorandum and that they comply with its requirements. There are five main principles that agencies are required to do:

(a) Operate within a government-to-government relationship with tribes.
(b) Consult, to the greatest extent practicable, with tribes prior to taking actions that affect tribes. These consultations must be open and candid so that all interested parties may determine the potential impact of proposed actions.
(c) Assess the impact of all federal plans, projects, and activities on tribal trust resources, and assure those tribes' rights and concerns are considered during the development of plans, projects, programs and activities.
(d) Take appropriate steps to remove procedural impediments to working directly and effectively with tribes on activities affecting the property or rights of tribes.
(e) Work cooperatively with other agencies to accomplish the goals of this memorandum.

The memorandum also directs agencies to apply the requirements of two other Executive Orders to address unique needs of tribes – Executive Orders No. 12875 "Enhancing the

Intergovernmental Partnership" and 12866 "Regulatory Planning and Review. It appears the USEPA did not adhere to these Executive Orders.

We would like to further note that in 1986, the Superfund Amendments and Reauthorization Act (SARA) amended the Comprehensive Environmental Restoration, Compensation and Liability Act (CERCLA). Through SARA, Congress made important revisions that, among other things:

- Stress the importance of permanent remedies;
- Require Superfund remedial actions to determine and meet all Applicable or Relevant and Appropriate Regulations (ARARs), (standards and requirements of State, Federal and Tribal environmental laws and regulations);
- Increase State and Tribal involvement in the Superfund program;
- Clarify Tribal government roles similar to State Roles in Superfund;
- And recognize Tribes as Trustees along with State and Federal agencies

It is the understanding that the scope of a Tribe's interests in contamination and hazardous substances is not confined to the formal reservation boundaries. This important fact is highlighted in the Inspector General's Report on the USEPA Office of Solid Waste and Emergency Response (OSWER) Plan to Enhance State and Tribal Roles in Superfund activities.

As in the case of the Peter Cooper Landfill Superfund site located in Cattaraugus County, New York, the sources of hazardous substance contamination exist both within and outside the Seneca lands. Whether on or off-reservation, the consequence is the contamination of natural and cultural resources that are utilized by the Seneca Tribal Nation. This contamination affects the inherent sovereignty and self-determination of the Seneca Nation and its members.

IEN recommends the following:

1. We recommend the remedial plan include consultation and meaningful involvement of the Seneca Tribal government, including its membership.

2. The USEPA consult with the Seneca Tribes to determine what mechanisms could be determined to assure that the Seneca Tribe has adequate funding to meaningfully participate in all remedial planning processes, phases and risk assessment activities. For the Seneca Tribe to achieve meaningful participation in the Peter Cooper Landfill Superfund activities, they need adequate funding mechanisms for staff participation in literature research, maintaining the administrative record, technical review, meetings, document development, and related items.

3. We recommend that EPA and the New York State Department of Environmental Conservation consult immediately with the Seneca Tribe for the adoption, **as an Interim Record of Decision** of the two proposed Remedial Alternatives:

   A. Alternative 3. Excavation/Bank Stabilization/Off Site Disposal.
   B. Option B of Alternative 4. Excavating/Consolidation/Containment/With Soil Enhancement Cap and A Groundwater Diversion System.

Adoption of these two alternatives as an Interim Record of Decision would allow the Seneca Tribe to adequately review all relevant documents, and fully participate in the decision-making

process with the USEPA and the NYSDEC. This is assuming that the remedial alternative is the most protective measure.

Sincerely,

Tom B.K. Goldtooth
Executive Director
Indigenous Environmental Network
P.O. Box 485
Bemidji, MN 56619
Tel: (218) 751-4967

Cc: The Honorable Barry E. Snider, President, Seneca Nation
Senator Hillary Clinton
Senator Charles Schumer
Barry Breen, Deputy Administrator, EPA OSWER
Alan J. Steinberg, Administrator, EPA Region 2
Denise M. Sheehan, Acting Commissioner, NYSDEC

PO Box 173
Lawtons, NY 14091
mmaybee@msn.com

September 26, 2005

In regards to: Peter Cooper Landfill Superfund Site Proposed Plan

Sherrel Henry
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866
henry.sherrel@epa.gov

Subject: Public Comment

Dear Ms. Henry;

I appreciate this opportunity to comment on the remedial alternatives EPA and the State of New York have considered for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site located in Cattaraugus County, New York.

My name is Maria Maybee; I am a tribal member of the Seneca Nation born into the Heron clan. I have lived downstream from the Peter Cooper Landfill Superfund site on the Cattaraugus Territory for most of my life; I am now 46 years young. My earliest education of this creek concerned the geology, I was taught that creek and the lakes in this region were a gift from the creator to bring waters to the people and the animals, because they needed it. The teaching speaks of the soils containing spaces so all the creatures would be able to access and therefore benefit from the waters. That was confirmed in earth science studying how "Great Lakes" were created. It is a gift that in this region we are near two of the Great Lakes, which hold 25% of the world's fresh waters. The glacial till in this region does not seem practical to house this waste in the manner proposed.

My family fishes, fished and hopefully will be able to fish for generations to come in the Cattaraugus Creek. We know what fish live or visit our waters, we know where the fish spawn, we know when the fish run, we know what fish to eat, and we know our fish. Now we are told that we should fish only for recreation. The terms "Great Lakes" and "fishing" is part of who we are as Seneca's. Despite is history of hazardous waste it is one of the best trout fishing creeks in the Great Lakes and beyond. My tribe sells over 6000 fishing licenses a year to non-tribal members. We need fish that will not harm us as a source of nourishment. We need the fish to continue passing on our naturalized knowledge of the region, it is a means of passing on our culture, language, spirituality and so much more. Can you please tell me the impacts to the fish and our access to foods from the creek? And what are the impacts to the recreational economic benefits of fishing in this creek? Why are there no fish consumption warnings to let people know what chemicals they may be exposing themselves to if they eat fish from the Cattaraugus Creek? Is there a means to determine the amount of chemicals from this plant our

community members may have "taken in" from eating fish from the creek? How often and for what chemicals are fish tested for in the Cattaraugus Creek? Is this adequate considering an indigenous population living along the banks and the mouth of the Cattaraugus Creek? Also, what about impacts from other foods such as the corn in the fields that get flooded every year and the wild plants harvested for food and ceremonies.

I am concerned for the critters who swim, who walk on four legs, who have feathers, they cannot comment to the proposed plan. Is the harm to the species who live of visit the Cattaraugus Creek considered in these studies? I did not see impacts noted concerning the blandings turtle the New York State Department of Conservation was tracking with GPS equipment this summer. Nor did I see documentation regarding the eagles. Please consider impacts to them as well? What would be the greatest benefit to flora and fauna if the waste was fully removed and cleaned from the soils and waters?

When I first read reports on the Peter Cooper tannery and glue factory wastes the list was well over two columns of one page. Where did all those chemicals go, I worry about that very much, where are the heavy metals, voc's and other chemicals noted in every sample study conducted concerning this site? The earliest noted in the preferred plan was in 1993, the site has been there since the early 1900's creating this waste and its waste issues are noted as early as the 1920's. Why is there no documentation as to where it went to? I worry that it was in or is in our fish, plants, our soils and if it is all gone from the site is in those of us who live downstream or near the site? What would be the greatest benefit human health of my tribe if the waste was fully removed and cleaned from the soils and waters? Would it protect our children and generations to come if the waste was fully removed from the site and the waters?

The waters move quickly through this creek. The Cattaraugus is the largest tributary to Lake Erie. My reservation had high amounts of radon in our drinking wells along the creek. Now we drink treated water from Lake Erie. I am not sure if this is better for us, especially if these wastes from the site are not there, the probability of those chemicals being fully extracted when treated are not realistic. Can you please provide my nation with the means to protect and obtain waters from the aquifer that is on our territory? I understand these waters are the best in the state.

This is what concerns me the most about leaving that waste where it is. It floods every year along this creek. Waste has been allowed to "rely primarily on the natural mechanisms of dispersion and dilution to reduce the waste throughout the site" (the preferred remedy method) and flows downstream into my community. This is not right. My tribe estimates that 2000 of our tribal members live on the Cattaraugus Territory. I feel that we would truly benefit the most if the waste at this site was fully removed and the waters restored as much as humanly possible.

Please understand that I appreciate efforts to properly manage this site, but please understand my concern when I am read the proposed plan is to leave the waste there, this is not acceptable to me. I have over 70 nieces and nephews who are most probably still impacted from this waste. My community has areas that have high instances of diseases that are above the norm for our population. Has this been addressed?

I also understand that there are laws that should protect our peoples better because of our unique relationship to the waters and the land for traditional indigenous uses. Why have

these laws not been followed in protecting my community? Why was I not notified of the public comment period after I called and spoke with several EPA staff whom I gave my contact information to several times? Why do regional directors not have time in their schedule to at least listen to my concerns? I truly believe they are valid community health concerns. This waste impacts our health, our economics, our cultural and mostly our children.

This may sound odd to your office and the business of taking care of superfund sites, but I strongly encourage your office to work with the responsible parties, the Village of Gowanda, the Seneca Nation, the Gowanda School Board and community members to provide full clean up of the soil, groundwater, surface waters on and near the site; this should include waste washed onto surrounding creek properties, the mouth of the creek and especially areas ***where our children go to school***, where our children play, swim and catch fish. This site hosted the largest glue factory in the world at one time, much money was made and the responsible parties benefited greatly. Please have them pay for full removal of this waste as much as humanly possible at the site, near the site and downstream where appropriate. Please initiate an interim decision to clean up what is directly flowing into the creek through the failed retaining wall. Please work with my tribe and ensure that tribal peoples are represented in the following processes before determining the final record of decision.

Respectfully;

Maria Maybee
PO Box 173
Lawtons, New York 14091
mmaybee@msn.com

cc:

New York Attorney General
ENVIRONMENTAL PROTECTION DIVISION
Justice Bldg. Room 255
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Acting Commissioner Denise M. Sheehan
New York State Department of Environmental Conservation
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Albany, NY 12233-1011

The Honorable Charles Schumer
United States Senate
313 Hart Senate Building
Washington, DC 20510

The Honorable Hillary Rodham Clinton
United States Senate

476 Russell Senate Office Building
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Alan J. Steinberg, Administrator
EPA Region 2
MAIN REGIONAL OFFICE
290 Broadway
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The Honorable Barry Snider, President
Seneca Nation
12837 Rte. 438
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September 26, 2005

National Tribal Environmental Council

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Sherrel Henry
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Internet: henry.sherrel@epa.gov

Re: Remedial alternatives considered for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site

Dear Ms. Henry:

The National Tribal Environmental Council's Superfund Working Group (SWG) is a coalition of 22 Tribal Government Representatives formed to provide a resource for Tribes, States and EPA. The SWG has provided recommendations to the EPA Office of Solid Waste and Emergency Response (OSWER) and the Office of Pollution Prevention and Toxic Substances (OPPTS) for the purpose of protecting tribal resource uses and promoting tribal government involvement in the decision-making processes at Superfund and other contaminated sites.

We appreciate this opportunity to comment on the remedial alternatives EPA and the State of New York have considered for the contaminated soil and groundwater at the Peter Cooper Landfill Superfund site located in Cattaraugus County, New York.

Our comments are based on the observation that the affected Tribe and or Tribes were not consulted nor were the Tribes' resource uses considered in the remedial plans.

We recommend the remedial plan include meaningful involvement of the Seneca Nation and the following pages list recommendations for fulfilling the EPA's obligations of the federal trust relationship, EPA's Indian Policy and the Comprehensive Environmental Restoration, Compensation and Liability Act (CERCLA) with regard to the proposed plan and remediation at the Peter Cooper Landfill Superfund site.

In 1980, Congress responded to the problem of uncontrolled and abandoned hazardous waste sites by establishing the Superfund Program which charges EPA with the responsibility to locate, investigate, and clean up the worst sites nationwide.

The Superfund Amendments and Reauthorization Act (SARA) amended CERCLA in 1986. Through SARA Congress made important revisions that, among other things:

- Stress the importance of permanent remedies;
- Require Superfund remedial actions to determine and meet all applicable or relevant and appropriate regulations (ARARs) (standards and requirements of State, Federal and Tribal environmental laws and regulations);
- Increase State and Tribal involvement in the Superfund program;
- Clarify Tribal government roles similar to State Roles in Superfund;
- And recognize Tribes as Trustees along with State and Federal agencies

The scope of a Tribe's interests in contamination and hazardous substances is not confined to formal reservation boundaries and the federal statutes recognize this circumstance. This important fact is highlighted in the Inspector General's Report on the OSWER Plan to Enhance State and Tribal Roles in Superfund.

Sources of hazardous substance contamination exist both within and outside Indian lands. Whether on or off-reservation, the consequence is contamination of resources that are utilized by Tribes. The interests of Tribes are protected as treaty rights, usual and accustomed places, ceded territories and historic gravesites and other areas of significance to a Tribe's historical and traditional uses.

Hazardous substances and contamination related activities and determinations must include Tribal government participation in a meaningful manner such that a Tribe may affect decisions that result in protection of tribal resources where they may be located.[1]

EPA recognizes that "Native Americans represent a segment of the population . . . with different risk profiles from the national population profile."[2] EPA acknowledges that traditional foods and ways of life may lead to higher levels of exposure to certain toxics. We believe that the most effective approach to controlling the risks and maximizing the effectiveness of response and cleanup actions cannot be accomplished without supporting and embracing tribal government meaningful participation in site investigations, risk assessments and cleanup decisions. This partnership will ensure that human health and the environment are protected and that Indian lands and resources are restored.

EPA's June 2004 document "Risk Assessment Principles and Practices" contains

[1] OIG Report No. 2004-P-00003 ("Immediate Action Needed to Address Weaknesses in EPA Efforts to Identify Hazardous Waste Sites in Indian Country" January 30, 2004).

[2] 2003-2008 EPA Strategic Plan, page 78.

much valuable information that should be applied to Tribal risk assessment activities. However, EPA's document is not inclusive of some essential Tribal risk considerations and we outline those considerations below.

Risk Assessment Planning Recommendations:

- Tribes must have adequate funding to meaningfully participate in the risk assessment activities, beginning with the planning phases.
- Tribal specific information pertinent to planning includes relevant Treaties (an original record of land uses), Executive Orders, judicial decrees and other documents, Tribal health and environmental laws and standards, Tribal research on lifeways (subsistence) and cultural activities.
- Tribal resource uses and cultural concerns must be recorded in terms that both EPA and the Tribe understand. The Tribe's principles regarding health and welfare must be addressed and documented in risk assessment activities; value-laden words used in the risk assessment process should represent the resource and cultural values as described by the impacted Tribe.

Site Risk Assessment Documents Recommendations

- Development of thorough and comprehensive Site assessment documents including conceptual Site models (CSM), field sampling plans (FSP), sampling and analysis plans (SAP) and quality assurance plans (QAP) to account for the Tribal specific criteria documented in recommendations. 2.3 (Planning) and 2.4 (Regulations, Guidance Documents and Policies) above.
- Define and record what acceptable involuntary risk means to the potentially impacted Tribe.
- All potential Tribal exposure pathways must be evaluated for completion (Harper and Harris, 1997; Spokane Tribe Scenario, 2002; LLBO, 2003; Richards, 2003).
- Background or reference areas used for comparative analysis must have relevance to the Site from both a matrix and Tribal resource use perspective
- Relevant peer reviewed literature must be researched and assessed for objectivity and EPA must ensure that Tribes are funded to participate in the evaluation of these issues.

Performing the Risk Assessment Recommendations

- For production of thorough and comprehensive Site assessment documents, the human health and ecological risk assessments will be thorough and comprehensive, including an accounting of cumulative risk and Tribal members' predispositions to involuntary contaminant risks.

- Many Tribes hold the presumption that human health is inseparable from the environment; this principle must be factored into risk assessment activities.
- An impacted Tribe must be assessed as the general population, not treated as a sensitive subset of a larger population. Tribal (traditional and cultural) resource uses are distinct from the general U.S. population (EPA, 2004). When Tribes are treated as sensitive subsets of the general U.S. population, the sensitive subsets within the Tribal population are often under-assessed or not assessed at all. The Tribal population scenario will permit a more accurate assessment of children (including pre-natal and nec-natal affects) and elders, who are the sensitive subsets within the general Tribal population.
- It is important to emphasize that the objective of developing a Tribal subsistence scenario (See, for example, Figure 1) is to describe the respective Tribes' original lifestyle and resource uses, not to present current restricted or suppressed use scenarios. The current resource uses for many Tribes are suppressed due to Tribal awareness of contamination, resource depletion, damage and other circumstances.
- Impacts to Tribal cultural and spiritual sites must be assessed and expressed in context of the Tribe's description of their health and welfare.
- The uncertainty analysis for assessed risks must be complete and discussed thoroughly in the risk assessment document. Uncertainty is inherent to most, if not all, facets of risk assessment, from composited samples (Fabrizio, 1995; EPA, 2000; LLBO, 2003) to variation within discrete samples (EPA, 2002) to contaminant solubility (Huijbregts, 2005). Fetal and children's health is an often overlooked source of uncertainty (E.O. 13045 April 21, 1997 - Children's Health). Science literature and other relevant information must be used in deriving an uncertainty analysis.

Remedy Development Recommendations

- The remedy should be developed in context with the Tribal specific information that was documented in the above recommendations along with Site specific conditions learned through the planning and assessment process.
- Site reuse should be based first and foremost on the Tribes health and welfare principles as well as resource and cultural use considerations as outlined in the recommendations above.

Funding needs

Tribal Government Superfund Program Funding

Tribes need funding agreements (e.g., MOU, SMOA) for Superfund or other contamination situations that are reliable, and not subject to a competitive process. The funds provided for tribal Superfund program activities need to be adequate for staff participation in literature research, maintaining the administrative record, technical review, meetings, document development, and related items including:

- Seed money to do work that develops cost recoverable expenditures. This may include document research, data review, or sampling among other costs.
- Funding to participate in EPA advisory committees and review processes. Tribes often have to spend their own time attending meetings and reviewing documents whereas EPA contractors are funded. This inequity should be rectified.
- Appropriate and adequate data collection – i.e., environmental sampling according to tribal resource uses; adequate environmental statistics; reference areas, background data.

FINAL COMMENT:

Under the circumstances, we recommend that EPA and the New York State Department of Environmental Conservation adopt the selected proposed Remedial Alternative as an interim measure – assuming that the remedial alternative is the most protective measure - until such time as the Seneca Nation has been consulted, has had the opportunity to adequately review all relevant documents, and has otherwise participated in the decision-process as a partner with EPA and the NYSDEC (especially as outlined in the recommendations presented above) and to the Tribe's satisfaction.

Respectfully submitted.

Lisa N. Gover
For the NTEC Superfund Working Group

Cc: The Honorable Barry E. Snider, President, Seneca Nation
Senator Hillary Clinton
Senator Charles Schumer
Barry Breen, Deputy Administrator, EPA OSWER
Alan J. Steinberg, Administrator, EPA Region 2
Denise M. Sheehan, Acting Commissioner, NYSDEC