LOCKPORT CITY LANDFILL

Site No. 9-32-010

RECORD OF DECISION

Prepared by;

New York State

Department of Environmental Conservation

November 1992

DECLARATION STATEMENT - RECORD OF DECISION

Site Name and Location:

Lockport City Landfill
City of Lockport, Niagara County, New York
Site Registry Number: 9-32-010
Classification Code: 2

Statement of Purpose:

This Record of Decision (ROD) sets forth the selected Remedial Action Plan (RAP) for the Lockport City Landfill site. This remedial action plan was developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the New York State Environmental Conservation Law (ECL). The selected remedial plan complies to the maximum extent practicable with the Standards, Criteria and Guidelines (SCGs) of the State and Federal environmental statutes and would be protective of human health and the environment.

Statement of Basis:

This decision is based on the Administrative Record for the Lockport City Landfill site and upon public input to the Proposed Remedial Action Plan (PRAP). A copy of the Administrative Record is available at the New York State Department of Environmental Conservation (NYSDEC) Offices in Albany at 50 Wolf Road or in Buffalo at 270 Michigan Avenue. Copies of the Remedial Investigation/Feasibility Study (RI/FS) and the PRAP are available at the Lockport City Library, 23 East Avenue, Lockport, New York. An index of those documents included as a part of the Administrative Record is contained in the ROD. A responsiveness summary that documents the public's concerns has also been included.

Description of Selected Remedy:

- Landfill Cap

A Part 360 type clay cap will be installed over the landfill to eliminate direct contact as well as greatly reduce the amount of leachate being generated.

- Excavation of steep embankment

The waste material along the steep embankment (western boundary of landfill) will be excavated from the embankment and placed under the landfill cap.

- Long term monitoring program

The monitoring program will be used to evaluate the effectiveness of the remedial program.

- Operation and maintenance program

Regular inspection and repair of the landfill cap will be conducted to insure that the integrity of the cap is maintained.

- Deed restrictions

Deed restrictions will be implemented which will prevent any activities which would cause potential exposure of waste material or which would jeopardize the integrity of the cap.

Declaration:

The selected RAP will be protective of public health and the environment and will also meet SCGs and Federal Applicable and Relevant and Appropriate Requirement (ARARs) with the installation of a Part 360 cap, excavation of waste material along the steep embankment and placement of the material under the cap, long term monitoring program, operation and maintenance of the cap and deed restrictions. The remedy will effectively contain the landfill and prevent off-site migration of contaminants. .

December 16, 1992
Date

Ann Hill DeBarbieri
Deputy Commissioner
Office of Environmental Remediation

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Section I - Site Location and Description

The Lockport City Landfill is a 30 acre site located partially in the City of Lockport and partially in the Town of Lockport, Niagara County. The site is bordered by the Gulf Creek to the west and north, by Sutliff Rotary Park and Railroad Street on the east, and by the City Highway Garage on the south. The property is still owned by the City of Lockport. The site lies on an angular indentation of the Niagara escarpment. The site topography is variable. The eastern and southern sections of the site are relatively flat. The western edge of the landfill is a steep embankment (escarpment) which leads down to the Gulf Creek. To the north there is a much more gradual change in elevation, which leads to a swampy area adjacent to the Gulf. The Gulf flows north along the base of the landfill, discharging into Eighteen Mile Creek approximately one mile north of the site. The Gulf is classified by the New York State Department of Environmental Conservation (NYSDEC) as a Class D water body. A three acre unclassified wetland is located north of The Gulf at the toe of the landfill. A small pond is located south of the landfill. A 36-inch concrete pipe, which was installed to drain a spring near Oakhurst Street, lies within the fill. The outfall pipe is located near The Gulf in the southwestern portion of the site. An 18-inch storm sewer located in The Gulf runs adjacent to the landfill.

The landfill is composed of two fill areas. These areas are separated by the Somerset Railroad tracks which run in a north-south direction. The main portion of the landfill is located west of the tracks. A smaller fill area, located east of the tracks, served as a borrow pit for cover material for the western portion of the landfill. The eastern area was later filled with refuse, and was covered and graded.

The area east of the tracks is sparsely vegetated, with small trees and scrub brush. The western portion of the landfill is heavily vegetated with trees and brush. Large piles of tree limbs are scattered on the surface. The sideslopes are heavily vegetated. Numerous empty drums and other refuse items protrude from this area.

Section 2 - Site History

The Lockport City Landfill was operated by the City of Lockport as a municipal and industrial waste landfill from the early 1950s until 1976. It has been reported that unknown quantities of a variety of wastes were disposed of at the landfill including sewage sludge, wood starch contaminated with peroxide paste; keto and oxylite waste; steel barrels, plastics, glass, cardboard, and waste paper (Recra 1983, 1985). The method of disposal at the facility reportedly consisted of trenching into the overburden, depositing and then burning the wastes, and finally covering the wastes with excavated materials each day. A small northwest - southeast trending ravine identified from aerial photographs and geophysical survey, and confirmed by borings, had been filled with wastes by 1968.

The Lockport City Landfill has been the subject of a number of investigations, beginning in 1981, at which time the landfill was inactive. The following is a summary of findings from each of these investigations:

3/3/81 - NCDOH: A site inspection uncovered numerous violations of Part 360 of the Environmental Conservation Code. Among these violations were an orange-colored leachate entering The Gulf through the 36-inch outfall pipe and from the face of the landfill. Large amounts of garbage, refuse, and debris had been placed without cover and too close to surface waters, causing leachate and runoff to enter the stream. No final cover, including vegetative cover, had been applied to it.

12/14/81 - NYSDEC: A site inspection by John Tygert, Robert Wozniak, and Thomas Christoffel of NYSDEC Region 9. Three water samples and three sediment samples were obtained from The Gulf. Sediment samples showed high concentrations of iron (110,000 ppb), chromium (150 ppb), copper (40 ppb), lead (640 ppb), and zinc (1,500 ppb). There were also detectable concentrations of halogenated organics in all three samples.

One water sample taken from a leachate outbreak at the midway point of the landfill showed concentrations of arsenic (52 ppb), iron (10 ppm), and lead (0.2 ppm) in excess of the effluent standards for Class D waters.

11/28/83: - NYSDEC: Phase I investigation. A Phase I summary report was prepared for NYSDEC by RECRA Research, Inc. A preliminary Hazard Ranking System score of 23.9 was obtained.

8/85 - NYSDEC: Phase II investigation. A Phase II investigation was carried out for NYSDEC by RECRA Research, Inc. Field work was performed from May 3, 1984, through July 3, 1984. A final Hazard Ranking System score of 23.2 was obtained. Field work involved placement of six monitoring wells, a geophysical survey, and a soil, surface water, and groundwater sampling program.

4/92 - City of Lockport: Title 3 funded Remedial Investigation (RI). The RI Report summarizes the findings from the two rounds of field work, as well as the Health Risk Assessment (HRA) performed as a part of the RI. The analytical data from the RI is presented in Appendix M of the RI, while analytical data from the previous investigations, summarized above, is presented in Appendix A.

7/92 - City of Lockport: Title 3 funded Feasibility Study (FS) is finalized. The FS presents the evaluation of possible remedial alternatives taking into account the site specific conditions as well as the information generated during the RI.

Section 3 - Current Status

The RI for this site was finalized in April 1992 and documents the findings of the site investigation. The purpose of that investigation was to collect data and characterize the site in sufficient detail to allow an identification and evaluation of remedial alternatives as part of the FS. The key findings of the RI, upon which the FS is based, are as follows:

- The Lockport City Landfill is a 30 acre parcel of land located partially in the City and partially in the Town of Lockport, Niagara County, New York (see attached

site map). The site, owned by the City, lies on an angular indentation of the Niagara escarpment, has variable topography, and is divided into two unequal areas by the Somerset Railroad right-of-way, which runs in a generally north-south direction.

- The site was operated by the City of Lockport as a municipal and industrial landfill from the early 1950s until 1976. Wastes deposited included sewage sludge, chemicals, steel barrels, and plastics, along with normal municipal wastes. Deposited wastes were burned daily and the residue covered with excavated materials.

- A small Class D stream, The Gulf, flows from south to north along the western edge of the landfill. The water surface is approximately 60 feet below the upper fill surface at the southern end of the area, with very steep (30% slope) banks occurring about 500-700 feet to the north. The land surface descends to the north, ending in a wetland area through which The Gulf flows eastward, forming the northern edge of the property.

- The fill areas are underlain by a low permeability (3.37×10^{-6} cm/sec to 7.78×10^{-6} cm/sec) silty clay. The clay layer is, in turn, underlain by a series of stratigraphic units, with the Rochester Formation (shale) most commonly found immediately below. The Irondequoit Formation, which lies next beneath the Rochester, forms the bed of The Gulf adjacent to the fill area to the south. As the stream passes through the canyon (steep sided) area, it rests on bedrock and, for the balance of its run along the western edge of the fill and through the wetlands, the bed is the silty clay layer.

- Sediment samples taken from The Gulf at locations upstream of, adjacent to, and downstream of the fill area were found to have similar contaminant concentrations (i.e. - the highest semivolatile concentration adjacent to the site was 19 ppm for Phenanthrene; the concentrations of Phenanthrene upstream were as high as 14 ppm). Surface water samples taken upstream and adjacent to the landfill, as well as the downstream sample nears the landfill, exhibited similar characteristics. The sample taken further downstream contained a much greater number of SVOCs (concentrations were generally in the parts per billion (ppb) range; 1000 ppb = 1 ppm).

- A 36 inch diameter concrete pipe, installed to drain a natural spring in the upper reaches of the fill area, lie within the fill and discharges near The Gulf in the southwestern portion of this fill. Contaminants detected in water samples taken from the outfall are similar to those found in some downgradient wells (vinyl chloride - 47 ppb; 1, 2- dichloroethene 140 ppb).

- Groundwater samples taken from wells installed in this and prior investigations were divided into three general groups: shallow wells screened in the unconfined aquifer, intermediate wells completed in the second water-bearing zone, and deep wells completed in the Irondequoit formation. In the shallow wells, only one organic compound (1, 2-dichloroethene at 9 ppb) was detected in more than

one round of sampling. Metals were detected more frequently, but at generally lower concentrations, in downgradient samples. Organic contamination in intermediate and deep well samples was either undetected or below quantitation limits except in 8D or 9I, both of which are considered down gradient (MW-8D: Vinyl chloride - 23 ppb/81 ppb, 1, 2-dichloroethene - 460 ppb/790 ppb, trichloroethene - 51 ppb/130 ppb; MW-9I: Vinyl chloride - 12 ppb/11 ppb, 1, 2-dichloroethene - 17 ppb/21 ppb). Vinyl chloride and 1, 2-dichloreothene are the same contaminants found in the discharge of the 36 inch diameter concrete pipe.

- Subsurface soil samples were obtained at three locations outside the landfill (MW -1, 6 and 8) and one location on site (MW-7 in the wetland area). SVOCs and pesticides were detected at MW-1 and one SVOC at MW-7. On-site surficial soil samples were taken at five locations (SPS -1 thru 5) at depths of 0 to 6 inches. There were two detections of VOCs (both below quantitation limits), 26 of SVOCs, of which PAHs were the most common, and two of pesticides. PCBs were found in all five samples (the highest concentration of PCBs was 9.3 ppm; concentrations greater than 50 ppm are considered a hazardous waste). Some metals were detected at elevated concentrations.

- Surficial waste samples were obtained from three locations (WS -1, 2, 3). Analysis showed small quantities of VOCs, 18 SVOCs, (with PAHs the most common), and 19 metals in greater than background concentrations. Subsurface waste samples (11 samples: MW -2, 5, 9; SB -1, 5, 9, 13, 14, 18, 19, 25) showed three VOCs, 27 SVOC detections, six detections of pesticides, and three PCBs. (PCB concentrations in subsurface waste samples were as high as 43 ppm, as stated earlier a concentration of 50 ppm or greater would be considered a hazardous waste). Complete RCRA characterization was performed on eight fill samples. The analyses of these samples did not indicate the presence of a characteristic hazardous waste.

- No significant habitats occur in the vicinity of the site and there are no known sightings of threatened or endangered species at or near the site. No fish were observed in The Gulf. There are five classified (I or II) wetlands in the area, the nearest being approximately one-half mile away, upstream of The Gulf's entrance into Eighteen Mile Creek, another Class D water body.

- To determine the impact of the site contaminants in the absence of remedial measures, a baseline health risk assessment was performed in accordance with USEPA guidelines. The results of that assessment show that contact (dermal and ingestion) with landfill soil/waste, without remedial action, would create a health risk that would exceed the USEPA acceptable range. In addition, potential erosion along the steep embankment and the reduction of infiltration through the landfill were identified as areas of concern.

Section 4 - Enforcement Status

The Phase I and Phase II Investigations were prepared by consultants for NYSDEC in November 1983 and August 1985, respectively. A Consent Order was executed on May 15,

1989 between the Department and the City of Lockport. This Consent Order addresses the performance of the RI/FS, design and construction phases of the remedial program.

Section 5 - Goals for the Remedial Actions

As stated in Section 3, during the Risk Assessment it was determined that if no remedial action was carried out direct contact with the soils/waste at the landfill would cause an excess health risk. In addition, erosion of the embankment and continued percolation of water through the landfill was identified as a potential source of contaminants migrating from the site. Based on the findings from the RI, the following list of New York State Standards, Criteria and Guidances (SCGs) have been considered for this site:

- 6 NYCRR Part 360 (action specific)
- 6 NYCRR Parts 700 - Water Quality Standards (chemical specific)
- New York State Sanitary Code, Part 5 (Department of Health maximum contaminant levels)
- Article 24 of the Environmental Conservation Law (ECL) - Freshwater Wetlands
- 6 NYCRR Part 663
- Article 15 of the ECL - Water Resources
- 6 NYCRR Part 608

As a result of evaluating the RI data relative to the SCGs identified above, the following goals have been established for the remedial program at this site:

- Prevent direct contact with on-site contaminated soil/fill.
- Reduce erosion of on-site contaminated soil/fill into the Gulf Creek.
- Reduce infiltration through the landfill; this will in term reduce migration of contaminants in the groundwater and surface water.

The remedial goals have been developed in order to provide protection for human health and the environment. Fulfillment of these goals will prevent this site from creating any unacceptable impacts upon the area.

Section 6: Description and Evaluation of Alternatives

In the development and screening of alternatives for an inactive hazardous waste site, preference is given to alternatives that reduce the toxicity, mobility and/or volume of the waste at the site. It needs to be emphasized that there are instances where the implementation of such permanent remedies will not be practicable. For landfill sites conventional isolation technologies are generally the most feasible alternatives.

Treatment of the mixed, heterogeneous waste in the landfill is not possible. As a result, the possible remedial actions evaluated included containment technologies to contain and control the wastes present on-site, as well as removal and off-site disposal options. The evaluation of alternatives focused upon containment and control options rather than treatment options (treatment at this site is not feasible). A table listing the four remedial alternatives, evaluated as a part of the detailed analysis, has been attached.

Removal and off-site disposal was eliminated because 1) the extremely high costs involved made this option unfeasible, and 2) the actual removal of the wastes would cause severe short term impacts. The No Action alternative was also unacceptable at this site since the site was never properly closed and, unless remedial measures were taken, would act as a potential source in the future. This left containment and control technologies as the only acceptable approach for the remedial program at the site.

During the screening of remedial alternatives four options were evaluated during the detailed analysis (final phase of the FS). Based on the site conditions and the goals established for the remedial program, these four options were narrowed down to two: containment option A - a Part 360 cap (gas venting layer, low permeability layer [permeability of less than 10^{-7} cm/sec] barrier protection layer and a topsoil layer) and containment option B - a cap with variations from the Part 360 requirement (a soil cap with permeability of 10^{-4} to 10^{-5} cm/s covered by a topsoil layer).

The requirements of Title 6 of the official compilation of New York Codes, Rules and Regulations (6 NYCRR), Part 360, specifically states the performance goals for the capping of a solid waste landfill. There are provisions for variations from the Part 360 requirements; however, justification for the variations need to be demonstrated and the remedial program must still be consistent with the provisions of the ECL and the performance standards expected from the application of Part 360.

The cap proposed in containment option B would not meet all of the goals of the remedial program. Specifically, the permeability of 10^{-4} to 10^{-5} cm/sec is far short of the performance expected from a solid waste landfill cap (10^{-7} cm/s). In addition, the cap included in containment option B would be very suspectable to damage caused by desiccation cracking, frost action, and root penetration.

The detailed evaluation of remedial alternatives led to the selection of containment option A. This alternative described in the following section.

Section 7 - Summary of Government's Decision

Alternative number 3 from the FS - Containment Option A - has been selected for the Lockport City Landfill site. Containment Option A includes the following components:

- Installation of a Part 360 cap over all areas of fill except the steep embankment. The cap includes a gas venting layer, a low permeability layer [less than 10^{-7} cm/sec], a barrier protection layer and a topsoil layer.

- The waste along the steep embankment at the western edge of the site (empty drums, trash, etc.) will be excavated from the bank and placed under the cap.

- A long term monitoring program is included in order to evaluate the effectiveness of the remedial program.

- Regular inspection/repair of the cap will be made to insure that the integrity is maintained.

One issue which was raised during the detailed analysis of remedial alternatives included concerns relative to potential impacts from construction activities in the wetland area located at the northern portion of the site. A cap is necessary at this site. As a result, these concerns will be addressed by designing the cap in order to minimize the effects construction activities may have, and by making efforts to restore the wetland area after the remedial construction has been completed. The FS (page 13-1) states that "... the design documents must be written in a manner which will keep these concerns paramount during construction."

Deed restrictions on future use of land will be implemented in order to prevent activities which could lead to direct contact with the contamination present at the site or jeopardize the integrity of the cap. Also, a fence will be installed around the site as a component of the remedial program.

Existing monitoring wells will be used to monitor the performance of the implemented remedial program as a part of the long term monitoring program. In addition, the downstream end of the 36 inch diameter concrete pipe, which runs through the landfill, will be included in the long term monitoring program. This sampling will be conducted to determine if the site has any significant impact on groundwater or surface water quality in the future. The results from the monitoring will be used to evaluate the performance of the implemented remedial program.

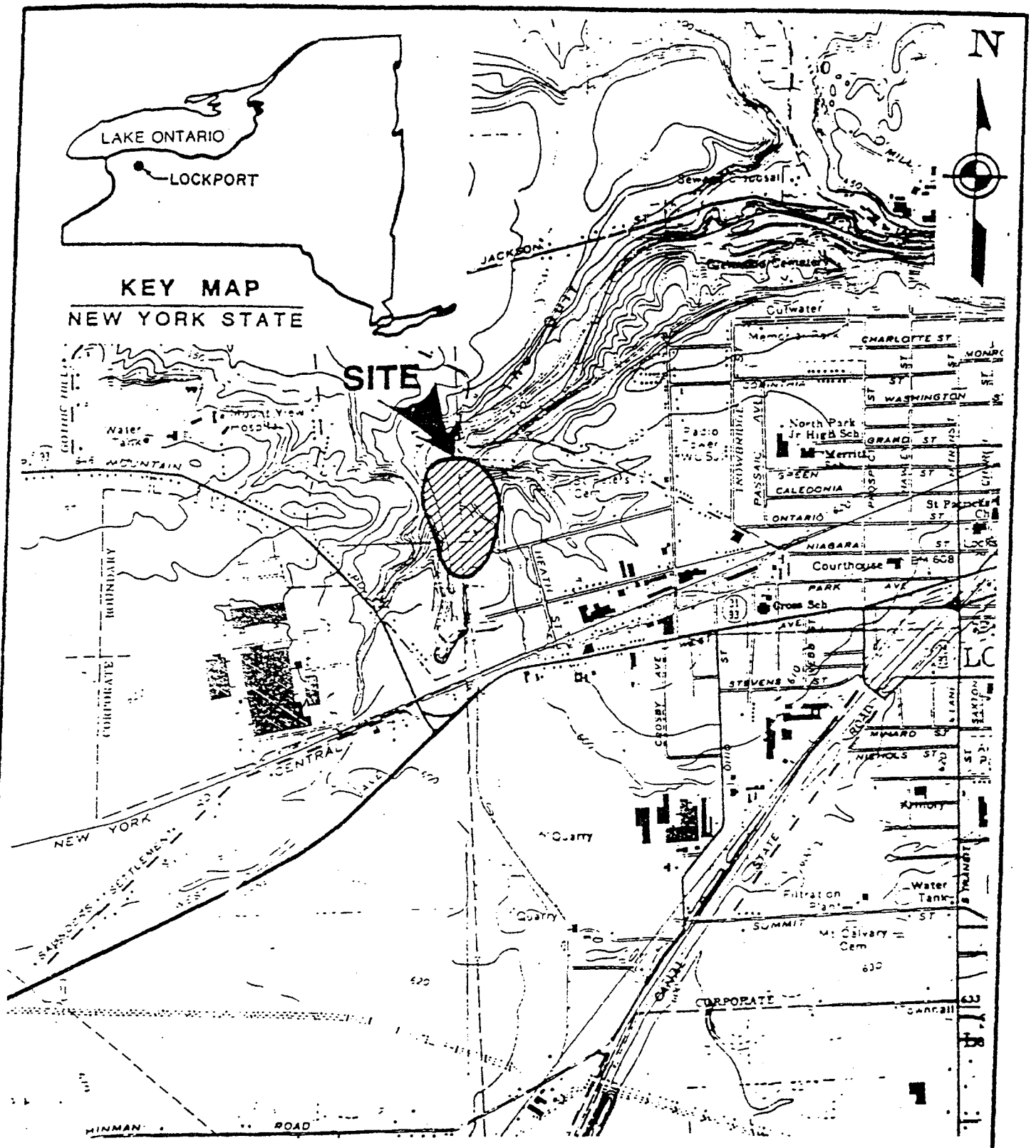
Construction of the cap is expected to be completed in approximately 18 months (two construction seasons) from the time the construction contract is awarded.

FIGURES

TABLE 11-1

REMEDIAL ALTERNATIVES

Number	Name	Major Components
1	No Action	Not Applicable
2	Institutional Action	a. Chain link fence with barbed wire surrounding the site. b. Deed restrictions limiting current and future onsite activities. c. Annual monitoring of groundwater using existing wells.
3	Containment Option A	a. Part 360 cap (includes gas venting layer, low permeability layer [10^{-7} cm/sec] with barrier protection and topsoil layer). b. Excavation of fill in area of steep embankment (fill placed underneath cap). c. Annual monitoring of groundwater using existing wells.
4	Containment Option B	a. Part 360 cap with variances (includes low permeability layer [10^{-5} to 10^{-4} cm/s] and topsoil layer). b. Excavation of fill in area of steep embankment (fill placed underneath cap). c. Annual monitoring of groundwater using existing wells.

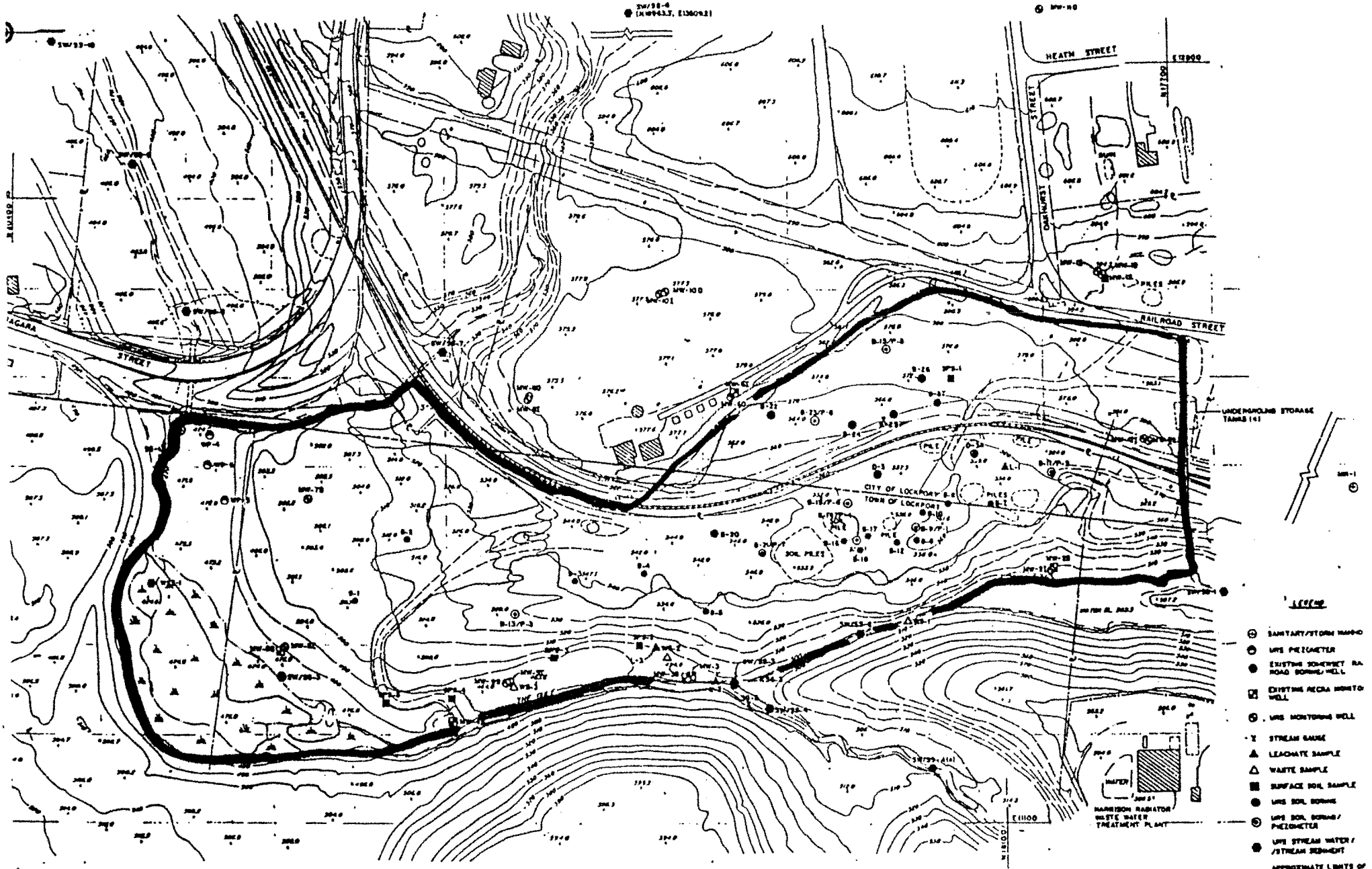


USGS LOCKPORT QUADRANGLE
7.5 MINUTE SERIES
(1965)

SCALE 0 1000 2000 FT.

A-3201

URS CONSULTANTS, INC.	SITE LOCATION MAP LOCKPORT CITY LANDFILL	FIGURE 1-1



URS Consultants, Inc.
CONSULTING ENGINEERS
NEW YORK NEW JERSEY

REMEDIAL INVESTIGATION REPORT

LOCKPORT CITY LANDFILL

SITE SAMPLING, WELLS & BORING LOCATIONS

Section 9 - Administrative Record

Phase I Summary Report, prepared by Recra Research, November 1983

Phase II Investigation, prepared by Recra Research, August 1985

Consent Order between New York State and City of Lockport, executed on May 15, 1989

State Assistance Contract between New York State and City of Lockport, executed in December, 1989

Citizen Participation Plan, October 1989

Remedial Investigation/Feasibility Study (RI/FS) Work Plans, prepared by URS Consultants, November 1989

Project Management Work Plan, prepared by URS Consultants, January 1990

Scope of Work for the Second Phase RI, prepared by URS Consultants, January 1991

Remedial Investigation Report, prepared by URS Consultants, April 1992

Feasibility Study Report, prepared by URS Consultants, July 1992

Lockport City Landfill RI/FS Correspondence File

Detailed Analysis of Remedial Alternatives, prepared by NYSDEC, July 1992

Responsiveness Summary to Comments Received During Public Comment Period, prepared by NYSDEC, November 1992

Attachment 1

RESPONSIVENESS SUMMARY

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

November 6, 1992

Thomas C. Jorling
Commissioner

Dear Interested Citizen:

This letter summarizes the Lockport City Landfill public meeting held by the New York State Department of Environmental Conservation (NYSDEC) on October 8, 1992. The following presents the questions asked and the answers provided, for those who were there, as well as for those who were unable to attend and would like to be updated on the information exchanged.

At the October 8th meeting representatives of NYSDEC and URS Consultants gave a short presentation explaining the Proposed Remedial Action Plan (PRAP). The PRAP includes the following:

- Installation of a cap which meets the requirements of Part 360 (NYSDEC solid waste regulations)
- Excavation of waste material, from the steep embankment along the western edge of the landfill, and placement of this material beneath the cap
- Long term monitoring program to evaluate the effectiveness of the remedial program
- Regular inspection/repair of the cap to insure its integrity is maintained

Copies of the PRAP continue to be available for public review at the Lockport Public Library, 23 East Avenue in Lockport.

The following is a review of the questions and answers which were discussed at the public meeting:

Question: Will this site create a problem for development of adjacent land? How does this landfill and the remediation influence or affect development of a housing project on land adjacent to the landfill?

Answer: The Remedial Investigation (RI) indicated that there were no off-site receptors of contamination from this site. This is reflected in the remedial goals that were established: eliminate direct contact with the landfill and greatly reduce the potential for migration of contaminants from the site. The components of the remedial action are for on-site remedial measures to be taken. In the PRAP there are no off-site remedial measure necessary and there will be no land use restrictions for the land adjacent to the site.

Question: Why doesn't the map show the Harrison Radiator plant? Does Harrison Radiator discharge into the Gulf? How do you differentiate between contamination from different sources discharging into the same stream?

Answer: One of the overheads (taken from plate 2 of the RI) did show the edge of the Harrison Radiator plant, located just west of the site. Harrison Radiator has a waste water treatment plant which treats water used in their plant operations. After this water has been treated it is discharged to the Gulf through a permitted outfall. For the Lockport City Landfill RI samples were taken from the Gulf upstream, adjacent to the site and downstream. The upstream samples were compared to the samples taken adjacent to the site to determine if the site was contributing to contaminant migration to the Gulf. As stated in the PRAP, the results from the samples taken adjacent to the site were very similar to those samples taken upstream.

Question: 1) How do you balance human health concerns and the cost of remediation as opposed to Harrison's discharges and their impact on health? 2) Is human contact a remedial concern considering that the adjacent city property is a passive park and no one is really going to come on to the site? 3) Because of all the burning that took place does the remediation still have to treat it as a sanitary landfill? 4) Is venting necessary? 5) Is there any remediation that could be done under a variance to the Part 360 closure rules?

Answer: 1) As I stated earlier, the discharges from the Harrison Radiator plant are permitted discharges. As far as the Lockport City Landfill, the various remedial alternatives were screened based on a number of evaluation criteria including effectiveness, protection to human health and the environment and cost. In this way a remedial plan was chosen that is a most cost effective alternative which still meets the goals of the remedial program. 2) Eliminating direct contact is one of the remedial goals. The potential for direct contact includes more than people wandering to the site from the adjacent city property. As was discussed earlier, there are plans for a housing development near the site. This greatly increases the potential for people to be walking across the site. In addition, simply because there is little activity on land adjacent to the site, that does not mean that the situation will remain the same. These are some of the reasons why elimination of direct contact was included as a remedial goal. 3) Simply because there was open burning at the landfill during its operation does not mean that there is no problem left at the site. This site is a former municipal landfill which received municipal and industrial waste. The landfill was never properly closed so the proposed cap is necessary considering the history of the site. 4) Although the

landfill closed 16 years ago there was methane gas encountered during the installation of monitoring wells. As a result some type of gas venting is necessary as a part of the cap installation. 5) One of the alternatives evaluated included a Part 360 type cap with variances. A request for a variance must demonstrate that the cap with variances will still meet the performance requirements of a Part 360 cap. The fill material at the site is mostly above the water table. As a result a large part of the water which passes through the waste material is the result of percolation from the surface. The alternative which included the variances would not be consistent with the remedial goal of greatly reducing the potential for migration of contaminants from the site.

Question: 1) Is there any way of knowing if the moisture from this very wet past summer will continue to carry contaminants out of the landfill after the cap is installed? 2) Because there is clay below the landfill, won't the bottom of the landfill fill up and eventually leak? 3) How are you going to stop it? 4) How much leachate will there be? 5) What is the depth of the fill material? 6) There are reports that because the pipe under the landfill is plugged water is bubbling up into the landfill; what will be done?

Answer: 1) Every year there are seasonal fluctuations in groundwater levels. Granted, this summer was rather wet, however increased groundwater due to seasonal changes is normal. The purpose of the cap is to greatly reduce the amount of infiltration through the landfill which leaves the site as leachate. The proposed cap is a long term solution aimed at reducing leachate from the landfill throughout the future. Until the proposed remediation is implemented this leachate generation will not be reduced. However this situation will be changed once the remedial plan is implemented. 2) There is clay below the landfill, however the landfill is not a "bowl" that has been cut out of clay. As a result, the landfill is not "filling up". The current landfill cover is not preventing infiltration from migrating downward so if the landfill were to "fill up" it would have done so by now. The contour of the subsurface clay layer is such that the groundwater moves towards the Gulf. 3) As stated in response 2) the landfill is not a bowl and is not "filling up". 4) Annual precipitation averages 35.7 inches. Of this 5.35 inches runs off in surface drainage, 22.18 leaves via evaporation and transpiration leaving just under 8.2 inches for infiltration into the landfill. This corresponds to a total infiltration through the fill area (16 acres) of 6.75 gallons per minute. The cap will reduce infiltration by more than 90% so leachate generation from infiltration after the installation of the cap will be less than .675 gallons per minute. 5) The depth of the fill varies across the site due to the nature of the history of

landfilling into ravines. The fill thickness varies from non-existent to approximately 40 feet with an average thickness of 15 feet. 6) There is a plug at the outlet of the 36 inch storm sewer (the plug does have a slow leak) to prevent it from being a preferential path for migration of groundwater that has leaked into it from the landfill. The effect of the plug is to prevent free flowing water; water in the pipe could not exceed the level of the groundwater around the pipe. The level of the groundwater is well below the ground surface. As a result there is no way the plugging of the outlet could be causing water to bubble up into the landfill.

Question: Why does the city have to pay part of the remediation costs? Why aren't the industries that put the material there paying for the remediation?

Answer: The city is one of the listed responsible parties because of its role as the owner and operator of the landfill that accepted hazardous waste. The responsible parties were offered the opportunity to perform the work at the site. The city was the only party that stepped forward in order that they could take advantage of the 75% State funding under the Title 3 program. Under the Title 3 program the city is responsible for pursuing the other responsible parties in order to recover costs for which those other parties are responsible.

Question: Is there a difference of opinion between URS Consultants and the DEC on what is necessary to take care of the problem? What has led up to the present capping solution?

Answer: The recommended remedial action included in the Feasibility Study (FS) has been modified as a result of the review and comment process. The recommended alternative in earlier drafts of the FS did not meet the goals of the program. Based upon NYSDEC's comments the FS was revised appropriately. The comment/resubmission process is common when reviewing and finalizing reports. The proposed remediation included in the PRAP (prepared by NYSDEC) includes the Part 360 type cap. The selection of the Part 360 cap was relatively straightforward. Once it was determined that a cap was needed the requirements of Part 360 were triggered. As a result either a Part 360 cap needed to be installed or the request for a variance needed to be justified. The proposed variance from the Part 360 cap (alternative 4 in the FS) did not meet the requirements for a variance, which are very explicitly spelled out in the regulation. As a result the Part 360 cap was chosen. This proposed alternative is included in both the PRAP and the July 1992 draft final version of the FS, prepared by URS.

Question: The city is supposed to be reimbursed for 75% of the cost; what happens if the DEC runs out of money? Do the regulations include

pursuing the companies for remedial costs? Who will pursue the companies?

Answer: The city is eligible for 75% State funding under Title 3 of the 1986 Environmental Quality Bond Act (EQBA). Projections indicate that all of the money available under Title 3 of the EQBA will be obligated by 1996. A Consent Order between the DEC and the City of Lockport includes provisions for the execution of the design and construction phases of the remedial program. Since the city is moving forward with the program it is anticipated that adequate funds will be available for the city. The regulations require that the city pursue other responsible parties in an effort to recover an equitable portion of the remedial costs from them. If the city does not do this the State may consider action against the other responsible parties.

Question: What chemicals did you find in the wells that are not on the DEC's, or other agency's lists of hazardous chemicals?

Answer: The environmental samples collected at the site were analyzed for the parameters on the Target Compound List (TCL). This list was developed by the U.S. Environmental Protection Agency (USEPA) to be used as a general list of parameters analyzed for when there is little to no analytical information already available. Many parameters were identified at relatively low concentrations. Some of the parameters identified in more than one sample at elevated concentrations include 1, 2-dichloroethene, vinyl chloride and trichloroethene.

Question: What effect does the Somerset Rail line have on your plans? Will water drain from the cap into the railroad bed?

Answer: The proposed cap will be placed over the area of historical landfilling with the exception of the path of railroad tracks referred to in the question. The cap will run to the area of the tracks and the surface drainage will be designed to carry surface runoff away from the track and off-site to prevent infiltration through the landfill. The surface drainage will be designed to drain surface water away from the bedding of the railroad tracks rather than the other way around.

Question: How many monitoring wells are there? Is there enough information to determine how the groundwater flows? Did you find any cracks in the bedrocks when the wells were drilled? Were core samples taken and can they be viewed?

Answer: Twenty-two monitoring wells were installed and eight piezometers were installed. The monitoring wells were installed to monitor groundwater levels as well as to collect representative groundwater samples for chemical analyses. The piezometers were installed to monitor only groundwater elevations. Based on the information

collected during the RI groundwater flow directions were evaluated (as presented in the RI). During the installation of the bedrock monitoring wells fractures and bedding planes were seen in the core samples taken. These types of features are common for the bedrock found in the area. Details on the type and condition of the rock cores collected during the monitoring well installations are presented in Appendix F to the RI (boring logs).

Question: Is the removal on one or both sides of the tracks? What effect will rail traffic have on the cap? Will Somerset pay for repairs if the rail traffic causes any damage? Has anyone contacted Somerset Railroad about your plans? Modern Disposal has proposed a rail spur by their transfer station; is this in the same area? Will it effect the remediation?

Answer: The landfill is on both sides of the railroad tracks so the cap will also be on both sides of the tracks (as shown in Figure 13-1 of the July 1992 FS). The cap will be rather flexible and will be able to absorb the vibration caused by a train passing by on the tracks. There is no reason to believe that the passing trains will cause any problems with the integrity of the cap. Somerset Railroad has not been contacted to this point because there has not been a need to contact them. They will be contacted when/if it is necessary. As far as the proposed rail spur, there were no details provided at the meeting; I have not heard of the proposal in question, however nothing will be allowed that will jeopardize the effectiveness of the remedial program.

Question: What are the chemicals that have been found?

Answer: As stated earlier there were many compounds detected at relatively low concentrations. Some of the parameters identified in more than one samples at elevated concentrations include 1, 2-dichloroethene, vinyl chloride and trichloroethene. For a full list of the analytical results you can refer to Appendix M of the RI.

Question: How many other municipal landfills are being investigated in Niagara County with the same degree of intensity?

Answer: I am currently involved in negotiations with the responsible parties to perform the remedial design and construction at the Gratwick Riverside Park inactive hazardous waste site, a former municipal landfill for which the City of North Tonawanda is a responsible party. The Niagara County Refuse inactive hazardous waste site is another former landfill which is currently being investigated by the USEPA. These sites are being investigated because they are inactive hazardous waste sites, not simply because they are former municipal landfills.

If you have any questions or comments you can contact Mr. Michael Podd at (716) 297-9637 or myself at (518) 457-0315, or you can call our "800" number at 1-800-342-9296 and leave a short message. In addition, at times when new information becomes available, information sheets will be sent to everyone who is on the mailing list for this site. If you are not on the mailing list and would like to be placed on it, please contact me at the address on the letterhead, or call one of us at the phone numbers listed above. At important points in the remedial process public meetings will be held, such as the one held on October 8th, which presented the proposed remediation. Once again, if you have any further questions you should contact one of us at the phone numbers listed above.

Sincerely,

James A. Moras, P.E.
Project Manager
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation

RESPONSIVENESS SUMMARY FOR COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD FOR THE LOCKPORT CITY LANDFILL PROPOSED REMEDIAL ACTION PLAN

A public meeting was held on October 8, 1992 to present the Lockport City Landfill Proposed Remedial Action Plan (PRAP). The public comment period remained open until October 23, 1992. During that time period, two comment letters were received and have been attached to this document in Appendix A. The concerns expressed in these letters are addressed in the responsiveness summary presented below.

Response to October 22, 1992 letter from the Niagara County Environmental Management Council

The following response corresponds directly to the comments presented in the subject letter which has been included in Appendix A of this document.

Concern: Will the removal of the debris result in the potential for increased erosion of the embankment? Will this action also involve vegetation and/or soil removal? Will removal of the soil and vegetation along the embankment result in the increased potential for erosion? What measures are being considered to prevent erosion of the steep embankment into the Gulf Tributary of Eighteen Mile Creek during and after construction?

Response: As stated on page 8 of the PRAP, "...all construction activities must occur in a manner protective of New York State surface water standards. This includes using proper sediment and erosion control measures throughout the construction phase." The nature of the waste removal along the steep embankment will cause the removal of all material down to the natural soil. At the completion of the waste removal, the bank will be re-seeded so that new vegetation will grow to protect against future erosion.

Concern: Will the cap extend far enough on all sides to meet the layer of low permeability soil forming the landfill base, thus encapsulating existing leachate? Will the cap extension prevent subsurface water from migrating into and through the landfill? If not, will existing leachate be allowed to enter the Gulf? A subsurface leachate collection mechanism paralleling the Gulf would capture the leachate before reaching the Gulf. If leachate leaving the site does not meet the standards, how do you propose to meet those standards?

Response: On the upgradient side of the landfill, the naturally occurring low permeability clay layer is at the ground surface. The cap will meet the clay layer at the upgradient side to greatly reduce the amount of water flowing from upgradient through the landfill. On the downgradient

side, the cap will not be in contact with the clay layer below the fill. Since there will be no leachate collection, it is not desirable to fully encapsulate the landfill. The majority of the leachate currently being generated is the direct result of surface infiltration. Once the cap is in place this leachate generation will be greatly reduced. As a result, leachate collection has not been included in the PRAP. A relatively small amount of leachate will continue to migrate to the Gulf, however there is a long-term monitoring program that will monitor and evaluate the effectiveness of the remedial program. If the findings of the long-term monitoring indicate that unacceptable amounts of contamination are still migrating from the site, the remedial program can be modified.

Concern: The proposed alternative includes the restriction on future land use. There does not appear to be any discussion on the placement of fences to deter trespassing on the site for health protection of the public. A fence, however, will not keep leachate from entering surface water and impacting water quality downstream.

Response: Deed restrictions will be placed on the future land use that will restrict any activities which could impact the integrity of the cap (i.e., subsurface excavation). Based on comments from the New York State Department of Health, installation of a fence has been included as a component of the remedy. As discussed above, the amount of leachate generated will be reduced to the point that it will not be causing a contravention of standards in the downgradient groundwater and surface water. The long-term monitoring program will evaluate the effectiveness of the remedial program.

Concern: Due to the absence of a leachate collection system, if water enters the landfill the soils at the base of the fill material are the only thing preventing contaminants from migrating down into the bedrock. Are the soils to the base of the fill adequately deep and impermeable to prevent the migration of contaminants down into the bedrock? How are the soils at the base of the fill affecting the seasonably high water table?

Response: The clay below the landfill is at least two to five feet thick. The permeability of the fill material is so much greater than that of the clay layer (approximately 1000 times greater) that the horizontal flow will be greatly favored over the tendency for downward flow. In addition, the hydraulic head in the water table, even at seasonal highs, will be so low there will be very little driving force for downward flow of the groundwater.

Concern: There are numerous tires within the landfill. Will the tires be removed from the landfill in order to insure that the Part 360 cap will not be breached by the upheaval of tires?

Response: It is not anticipated that there will be an upheaval of tires. The landfill has been closed for over 16 years so whatever is present within the landfill has settled quite a bit. As a result, this concern is not foreseen to be a problem. The operation and maintenance plan will include regular inspection and repair of the cap so that its integrity will be maintained in case of any potential erosion or settling.

Response to October 22, 1992 Letter from Ms. Doralyn Marshall

The following response corresponds directly to the comments presented in the subject letter which has been included in Appendix A of this document. There are no specific questions asked in the referenced letter, rather there is a general tone established throughout the letter that the proposed remedial action greatly exceeds what is required for this site.

The Lockport City Landfill is a former solid waste landfill which accepted both municipal and industrial waste. The landfill ceased operation in 1976, but it was never closed properly. After a review of the history of industrial waste accepted, it was determined that hazardous waste had been disposed of in the landfill. The site was listed on the list of inactive hazardous waste sites. With a large, mixed waste (municipal and industrial) landfill it is difficult to determine the exact location of the hazardous waste present in the landfill. Attempts were made during the RI to identify highly concentrated source areas. Although contamination was found, highly contaminated source areas were not identified during the RI. This does not mean that there are none present, it simply means that we were unable to identify any specific locations.

The findings of the RI also indicated that there were no off-site receptors of contamination (i.e., groundwater was not migrating to an off-site potable water supply). The purpose of the remedial program is to protect human health and the environment. The former landfill accepted hazardous waste during its operation; the main source of water leaching through the landfill is from surface infiltration; the remedial program needs to address this source of leachate generation to reduce the amount of off-site migration of the landfill leachate to the surrounding environment. Had there been significant groundwater contamination threatening any potable drinking water sources, the remedy would have to address that contamination and probably be much more costly.

The National Contingency Plan (NCP), required by CERCLA, provides the organizational structure and procedures for the development and implementation of the remedial program at an inactive hazardous waste site. The NCP identifies nine elevation criteria broken down into threshold criteria, primary balancing criteria and modifying criteria. The threshold criteria are requirements that each alternative must meet to be eligible for selection. One of these threshold criteria is compliance with appropriate regulations. For the Lockport City Landfill, Part 360 is a regulation whose

requirements must be met. As a result, the Part 360 cap was included as a part of the proposed remedial program. As defined by the NCP, meeting the provisions of Part 360 is a minimum requirement of the proposed remedial plan. In the referenced letter, statements are made indicating that this remedy is too expensive and is placing an unjust financial burden on the City. During the development of the remedial program the Department remained conscious of this situation. However, the goals and requirements of the program could not be compromised. The requirements of Part 360, included in the remedial program, are the same requirements which must be met by every solid waste (municipal) landfill in the state. However, since this site is on the list of inactive hazardous waste sites, the municipality is eligible for 75 percent state funding to perform the capping of this landfill in conformance with the Part 360 requirements.

JAM/kk

APPENDIX A

NIAGARA COUNTY
ENVIRONMENTAL MANAGEMENT COUNCIL
COURT HOUSE
LOCKPORT, NEW YORK 14094
(716) 439-6170 FAX (716) 439-6175

October 22, 1992

James Moras, P.E.
Project Manager
NYSDEC
Div. of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233-7010

RE: PROPOSED REMEDIAL ACTION PLAN (PRAP)
LOCKPORT CITY LANDFILL # 932010

Dear Mr. Moras:

The Proposed Remedial Action plan (PRAP) for the Lockport City Landfill (3932010) selected as a result of the Remedial Investigation Feasibility Study performed by URS Consultants is Alternative # 3 - Containment Option A. As outlined, this plan calls for a Part 360 cap over all areas of fill except the steep embankment; removal of debris from the steep embankment which will be placed under the cap; long term monitoring; and inspection/maintenance of the cap.

The Niagara County Environmental Management Council (EMC) offers the following comments on the Proposed Remedial Action Plan for the City of Lockport inactive hazardous waste disposal site:

1. The details for the removal of debris from the steep embankment are not fully described in the PRAP.
- Will the removal of the debris result in the potential for increased erosion of the embankment?
- Will this action also involve vegetation and/or soil removal?
- Will removal of the soil and vegetation along the embankment result in the increased potential for erosion ?
- What measures are being considered to prevent erosion of the steep embankment into the Gulf Tributary of Eighteen Mile Creek during and after construction?

2. Placement of the Part 360 cap will provide appropriate regulatory closure of this municipal landfill and is intended to prevent future absorption of precipitation into the landfill thus

reducing potential leachate. No action is considered in the PRAP for the collection of leachate currently within the landfill site. As noted, the Part 360 cap is not intended to be placed on the steep embankment.

- Will the cap extend far enough on all sides to meet the layer of low permeable soil forming the landfill base, thus "encapsulating" existing leachate? Will the cap extension prevent subsurface water from migrating into and through the landfill?

- If not, will existing leachate be allowed to enter the Gulf Tributary of Eighteen Mile Creek, resulting in an incomplete closure of this site?

- In 1981 leachate from the site was in excess of Class D Surface Water Quality Standards. A subsurface leachate collection mechanism paralleling the Gulf Tributary would capture leachate before being allowed to discharged to the stream.

- If leachate found leaving the site into Eighteen Mile Creek does not meet Class D Standards, how do you propose to meet those standards?

3. Alternative #3 restricts future land use. There does not appear to be any discussion on the placement of fences to deter trespassing on the site for health protection of the public. A fence, however, will not keep leachate from entering surface water and impacting water quality down stream.

4. Due to the absence of a leachate collection system if water enters the landfill, the soils at the base are the last line of defense against contaminants migrating into the bedrock or groundwater. Are the soils at the landfill base adequately deep and impermeable enough to prevent migration of contaminants down to the bedrock or groundwater? How are the base soils affected by the seasonable high water table?

5. There are numerous whole tires within the landfill. Will the tires be removed from the landfill separately in order to insure that the Part 360 cap will not be breached by the upheaval of tires?

The Niagara County Environmental Management Council appreciates this opportunity to submit comments.

Sincerely,

Bruce D. Aikin

Bruce D. Aikin

Council Chairman
Niagara County
EMC

Glenn Hazelet

Glenn Hazelet

Committee Chairman
Solid & Haz. Waste
EMC

LOCKPORT CITY LANDFILL
INACTIVE HAZARDOUS WASTE SITE
CITIZEN COMMENT
Site Code: 932010

October 22, 1992

James Moras, Project Engineer
NYS Dept. of Environmental Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, NY 12233-7010

Dear Sir:

The municipal landfill located in the City and Town of Lockport, has now been very extensively and expensively investigated so as to determine the logical action needed to achieve the stated objective of protecting human health, the environment, and meet state and local regulation. The Proposed Remedial Action Plan prepared by NYSDEC for this site is excessive, in that the financial commitment required by the PRAP is unequal to the benefits derived.

This citizen's comment is based not only on the excessive financial burden NYSDEC's PRAP choice would place on a City already cutting basic services for lack of money and a taxing burden on homeowners sufficient to force fixed income people from their homes, but also on the rationale that a less expensive alternative can still fix the problem and meet CERCLA objectives.

The Lockport landfill, after exhaustive study, has been identified to pose a risk to people coming in contact with it only if:

(1) they ate the dirt; and/or

(2) came in contact with the soil for extensive periods of time.

The landfill is isolated, covered with vegetation rather than exposed soil, and the degree of health risk from soil contact is so low that it would require exposure of something like three days per week for many hours daily from age 2 to old age to pose any measurable real risk. Not hardly high enough risk at a place no one uses, has no near neighbors or residents living on it, and can easily be maintained in restricted access with fencing. To force a more expensive remediation action does not balance out with the results achieved.

The 15 non-potable well users within a mile of the site are all on municipal (Niagara County Water District) water service and use the wells only for livestock or grass watering. Removal of any potential human health risk posed by inadvertent potable use of these wells which do not have any indication of contamination now,

can also be achieved through local enforcement measures. Those wells were not an issue when Lockport's sludge composting plant was approved by NYSDEC and they are equally distant from that facility as they are to the old municipal landfill.

Within the same distance parameters from the site is Harrison's, a General Motors division that according to its own report to EPA, has discharged a million pounds of cancer-causing pollutants into the air annually and is now only spewing forth a half-million pounds a year. The landfill site and the nearest residents with non-potable wells are downwind from Harrison's and under far greater human health threat than anything the old landfill could possibly effect.

To emphasize the degree of remote potential for human health risk posed by the Lockport City Landfill, below is printed verbatim NYSDEC's own description of this site:

'During the RI there were **no concentrated areas** of contamination identified. The findings of the RI did indicate **some** elevated levels of certain contaminants (volatiles/semi-volatiles/metals) in surface soils and **slightly** elevated volatile contaminant concentrations in two of the groundwater monitoring wells. Groundwater is **not migrating** to **any** potable water supply. There were indications that **long term** exposure to **on-site** surface soils **could** cause an elevated health risk. In addition, the site, if unremediated, presents **at least the potential** ~~no potential~~ for future migration of contaminants.'

If the RI/FS-PRAP was indeed a criminal trial, this old municipal landfill site would have to be found innocent of the charges, because not even NYSDEC can state a convincing case that the Lockport landfill is guilty as charged beyond reasonable doubt. The City of Lockport should at least be able to plea bargain to avoid an expensive method of remediation that doesn't fit the past crime.

In summary, it is the citizen's comment to NYSDEC's PRAP for the Lockport City Landfill that the lesser alternative #2 - institutional actions be reconsidered as sufficient to meet the criteria requirements and would be adequately beneficial to the community, human health and the environment to meet the remediation needs.

Sincerely,

Doralyn Marshall

Doralyn Marshall
240 Waterman Street
Lockport, NY 14094