

2021 Hazardous Waste Scanning Project

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Specific File Naming Convention Label:

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1991 Love Canal Annual Report

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
THOMAS C. JORLING, COMMISSIONER**

**DIVISION OF HAZARDOUS WASTE REMEDIATION
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JUNE 1992

FORWARD

The 1991 Love Canal Annual Report covers only those developments which actually occurred in the 1991 calendar year. For a more complete discussion of these topics and activities prior to 1991, please contact:

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1991 LOVE CANAL ANNUAL REPORT

SUMMARY

1991 marked another year of progress for the Department of Environmental Conservation (DEC) in its efforts and commitment to operate and maintain the Love Canal Inactive Hazardous Waste Site. Numerous activities took place both within the Love Canal Containment Facility and in the surrounding Emergency Declaration Area (EDA). The following major initiatives took place in 1991:

Love Canal Containment Facility

- ◆ The leachate collection system was inspected and cleaned. A preliminary assessment found the system in good condition.
- ◆ The Love Canal Leachate Treatment Facility's discharges met all the operating requirements of the Sewer Use Ordinance during the year.
- ◆ The leachate collection system continued to function as designed drawing groundwater toward the underground drain system from both the landfill and the surrounding area beyond the cap.
- ◆ The Long Term Monitoring Program supports the conclusion, through both hydrological and chemical evidence, that the barrier drain system is functioning as designed.

Emergency Declaration Area

- ◆ The investigation of relatively higher levels of BHC contamination in EDA 4 was undertaken and completed. Remediation of the contaminated areas is scheduled to begin in the summer of 1992.
- ◆ An investigation of historic contamination in the Frontier Avenue storm sewer pipe bedding was completed and remediation is scheduled to begin in the summer of 1992.
- ◆ The United States Environmental Protection Agency has reviewed the remedial alternatives for the 93rd Street School and has amended the 1988 Record of Decision to include excavation and off-site disposal of the contaminated material. Remedial work began in December 1991 and will be completed in 1992.
- ◆ The sampling report for the remediation of EDA 2 and 3 was received and a feasibility study including a cost analysis of the remedial alternatives was completed.

OPERATION AND MAINTENANCE ACTIVITIES

The collection system continues to function properly, as reported in past Annual Reports, however it has not been inspected in over eight years. The Department believed an inspection was needed to insure the integrity of the collection system and to provide for timely repairs, if necessary. The work included:

- ◆ Hydraulically flushing approximately 8000 feet of 6" and 8" leachate collection pipe.
- ◆ An inspection of the cleaned line using video equipment. - Collection of leachate or sludge waste generated during the project by a vacuum truck.
- ◆ Drumming of the wastes and temporary storage of the drums in the Treatment Facility's drum building.

The project required about three weeks to complete and, in the future, it is expected such inspections will take place every five years.

In 1991 the Leachate Treatment Facility continued to meet all the requirements of its discharge permit. The discharge permit has been renewed until July 1995.

A Pump and Electrical Project, begun in April 1990, is now complete. The project included installation of:

- ◆ New field pump control starters and wires.
- ◆ Advanced flow metering and level controls.

These improvements have enabled all field pump controls to be computer automated this year. These computer controls are now fully operational.

All field pumps are on a rotating preventative maintenance and/or replacement schedule. As a result there were no field pump failures in 1991.

An updated topographic survey of the Love Canal containment facility was completed in 1991. The survey, which began in May 1990 with aerial photos, includes contour maps with accurate benchmarks.

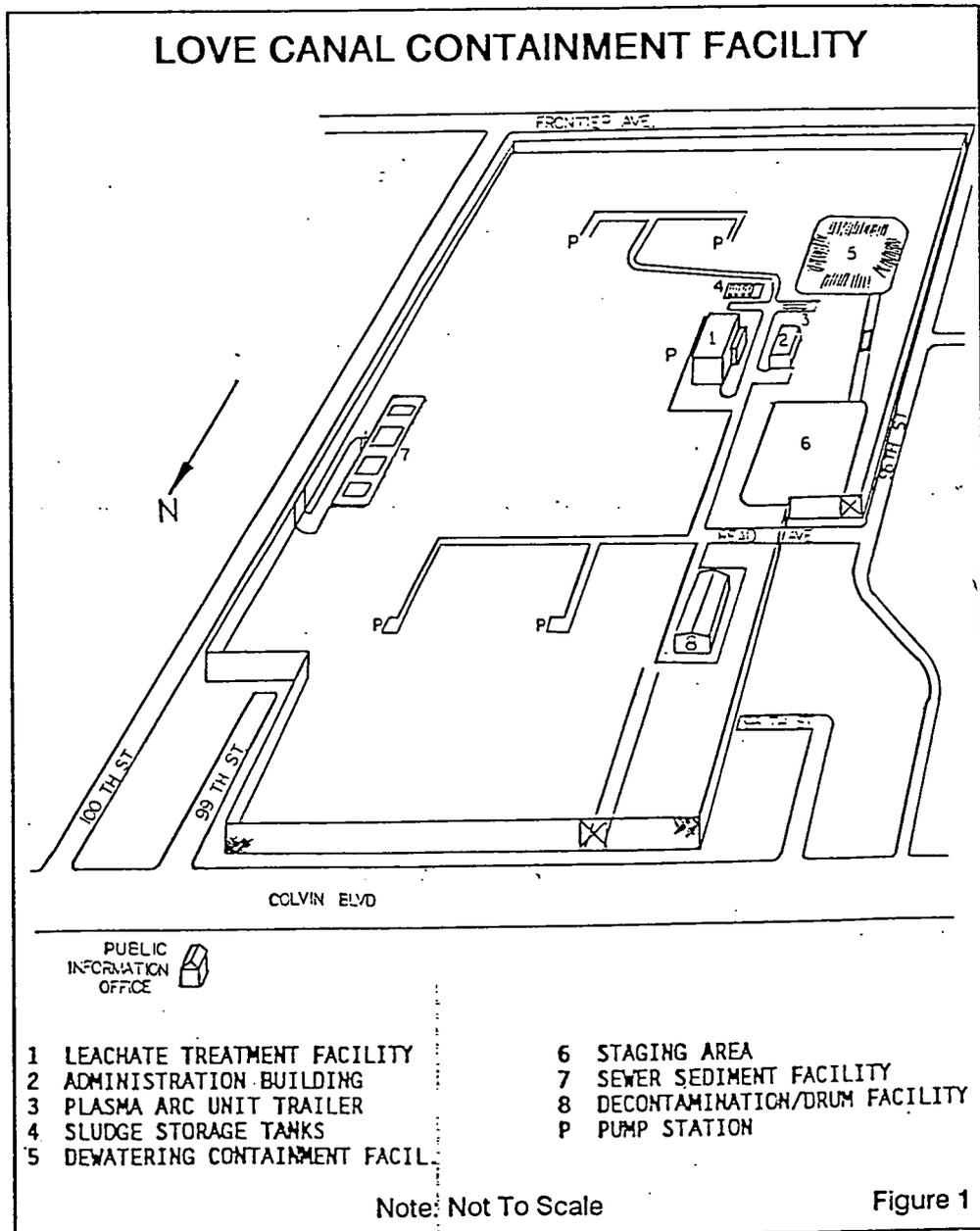


Figure 1

THE LONG TERM MONITORING PROGRAM

The Long Term Monitoring Program examines hydrological and chemical data from the Love Canal area in order to evaluate the overall effectiveness of the containment system. In 1991, one round of samples was collected from 52 long term monitoring wells that surround the site. Included in the sampling program were selected wells on the west side of the Dewatering Containment Facility (DCF). Approximately bi-monthly, groundwater elevations are taken in six groups of piezometers located around the site.

The basic conclusion from the 1991 data is that they are similar to 1989's and 1990's, and that the barrier drain is functioning as designed.

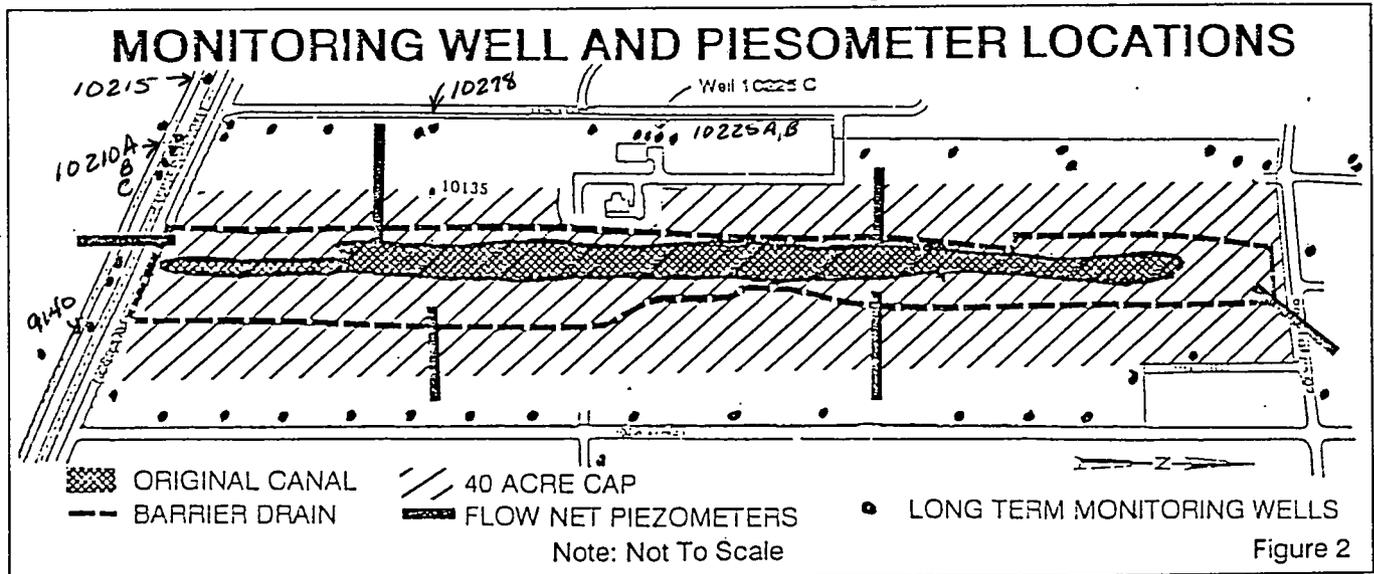
This conclusion is supported by both the hydrological and chemical evidence.

scale, to aid in interpretation.

An evaluation of the cross-sections, as in past years, leads to the conclusion that the barrier drain is capturing all leachate migrating horizontally outward from the Canal, as well as pulling groundwater, which is outside the barrier drain, back toward the drain. Vertical groundwater migration is limited by layers of extremely low permeability clay and glacial till, which underlays all of the site.

Results of Groundwater Monitoring Chemistry

In addition to the piezometers, there is a system of overburden and bedrock wells designed primarily for monitoring the chemical quality of groundwater at



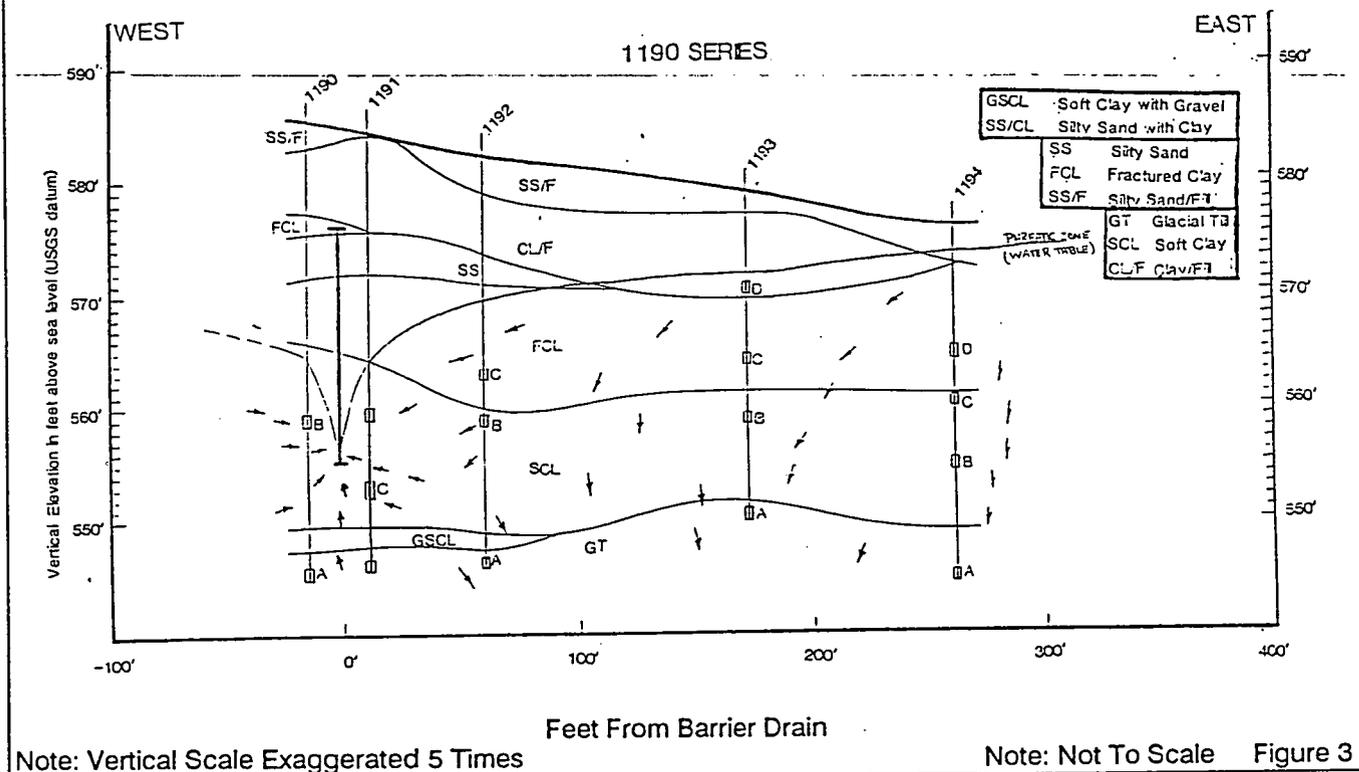
Results of Groundwater Monitoring Hydrology

Readings were taken on six dates during the year from the six series of piezometers identified on Figure 2. From these piezometers readings flow nets, or cross-sections which show the direction of groundwater flow, were developed. Figure 3, which represents groundwater conditions in May 1991, was selected as typical of the six cross-sections and shows that the direction of groundwater flow is toward the leachate collection system. The vertical scale on the cross-section is exaggerated 5 times over the horizontal

the Love Canal site. These wells are installed in locations which maximize the likelihood of detecting any failure that might occur in the barrier drain system. During 1991, samples were collected from 52 wells, and nine blanks were submitted for quality control purposes. Figure 2 indicates the location of the wells. The 52 wells consist of 43 long term monitoring wells, 7 wells associated with the DCF, and 2 additional off site wells.

As in previous years, the analytical results are characterized by a predominance of non-detect ("ND") values.

MAY 1991 GROUNDWATER FLOW NET CROSS SECTION



Each instance where contaminants were detected is discussed in the following section.

Well #10135

As noted in previous reports, Well #10135 is the only well in the Long Term Monitoring network intentionally installed into an area of known contamination. It monitors groundwater close to the leachate collection system. This well has consistently shown elevated levels of chemical compounds such as chlorobenzenes, chlorophenols, benzoic acid, and hexachlorocyclohexane (BHC).

In 1991, 21 compounds were identified in samples from this well.

- ◆ These compounds are typical of Love Canal chemistry and are considered to represent contamination which escaped into the environment prior to construction of the barrier drain system.
- ◆ The results from this well are used as a baseline for comparison with findings from the other monitoring wells.

- ◆ If the Canal were to leak, similar compounds at similar levels would begin to be detected in other wells.

Independent hydraulic evidence indicates that Well #10135 is within the hydraulic influence of the barrier drain system, thus groundwater in the vicinity and contaminants are flowing back toward the leachate collection system. The well is approximately 85 feet outside the barrier drain, which is closer to the drain than other long term monitoring wells. (Refer to Figure 2 for its location.)

Well #10225C

Well #10225C was installed in 1989 to replace an earlier well (also numbered 10225C) which was eliminated by construction activity. Low levels of contaminants were found in the new well during the 1989 Long Term Monitoring program. As a result, prior to the 1990 sampling, the NYSDEC performed repeated samplings and requested a consulting firm to review the data from Well #10225C and provide an independent assessment.

The firm responded that:

- ◆ It is early to draw final conclusions concerning the presence of a trend.
- ◆ The data should be used as a basis for comparing future data from these wells to determine whether there is a trend.

The data from the 1991 sampling round is consistent with the **previous analyses**. The low levels of contamination in this well do not indicate the need for action at this time. However, future results from this well will be tracked with special attention to

any evidence of a change in groundwater conditions.

Well Inventory

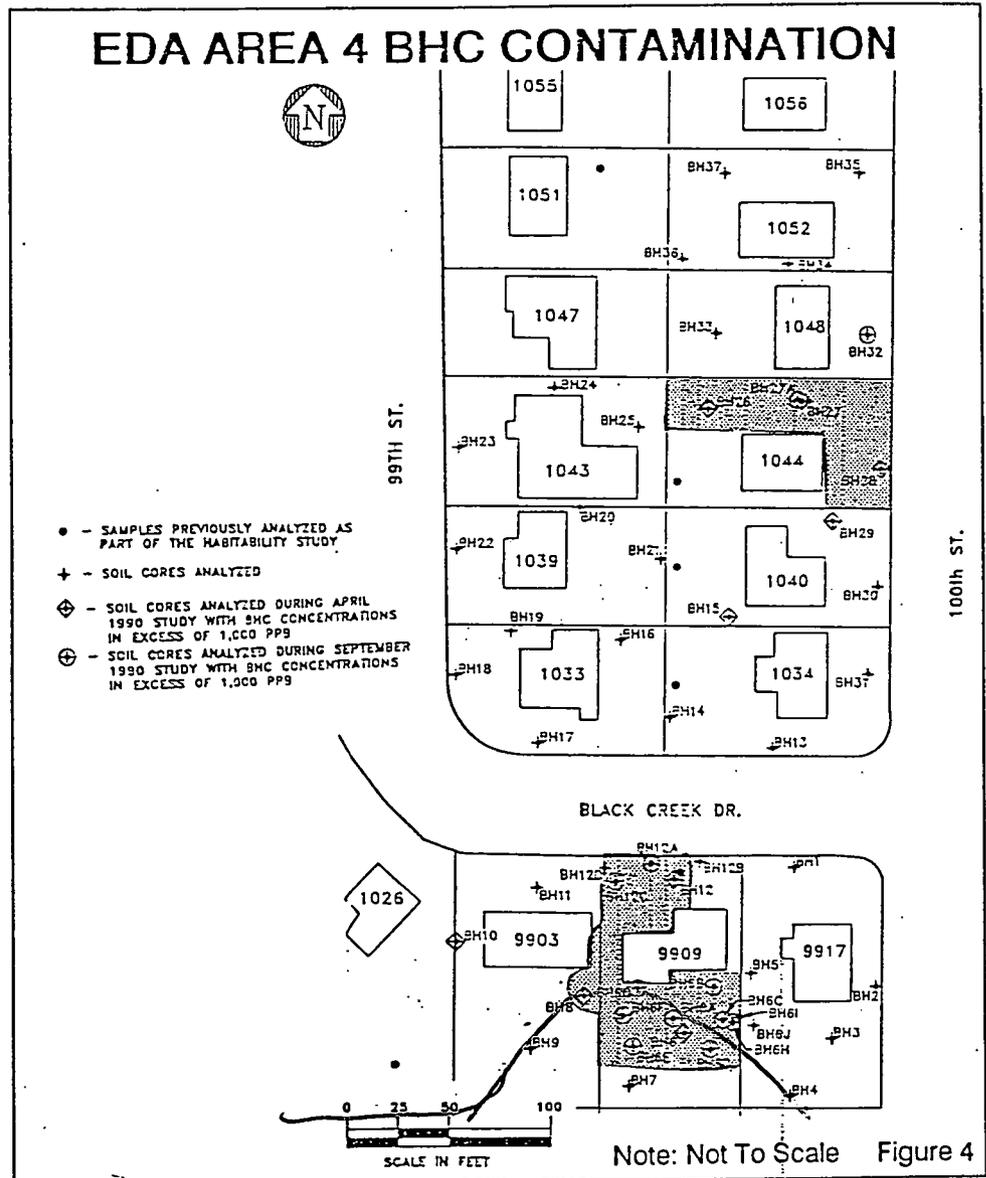
An inventory of groundwater monitoring wells on the site, and in the EDA, was undertaken by a consultant in the summer of 1990 and the NYSDEC is continuing to study their conclusions. A total of 327 wells were inventoried as part of a selection process to determine which wells will remain available for the Long Term Monitoring Program.

EDA REMEDIAL PROJECTS

EDA Area 4 Soil Investigation

The investigation by NYSDEC and NYSDOH of previously identified elevated levels of B-BHC contamination in EDA Area 4 has been completed. After a review of all the data available, it was determined the contamination was confined to three lots: 9909 and 9903 Black Creek Drive, and 1044 100th Street. The NYSDOH recommended the Department pursue removal of the contaminated fill from these three lots.

Work to implement these recommendations will begin in the summer of 1992 and will involve the removal of 900 - 1,000 cu. yds. of soil as outlined in Figure 4. As it has been determined these soils do not contain RCRA hazardous wastes, the soils will be disposed as fill for the 102nd Street Landfill. After the contaminated soils have been removed, the excavated areas will be backfilled with clean soils, graded and seeded.

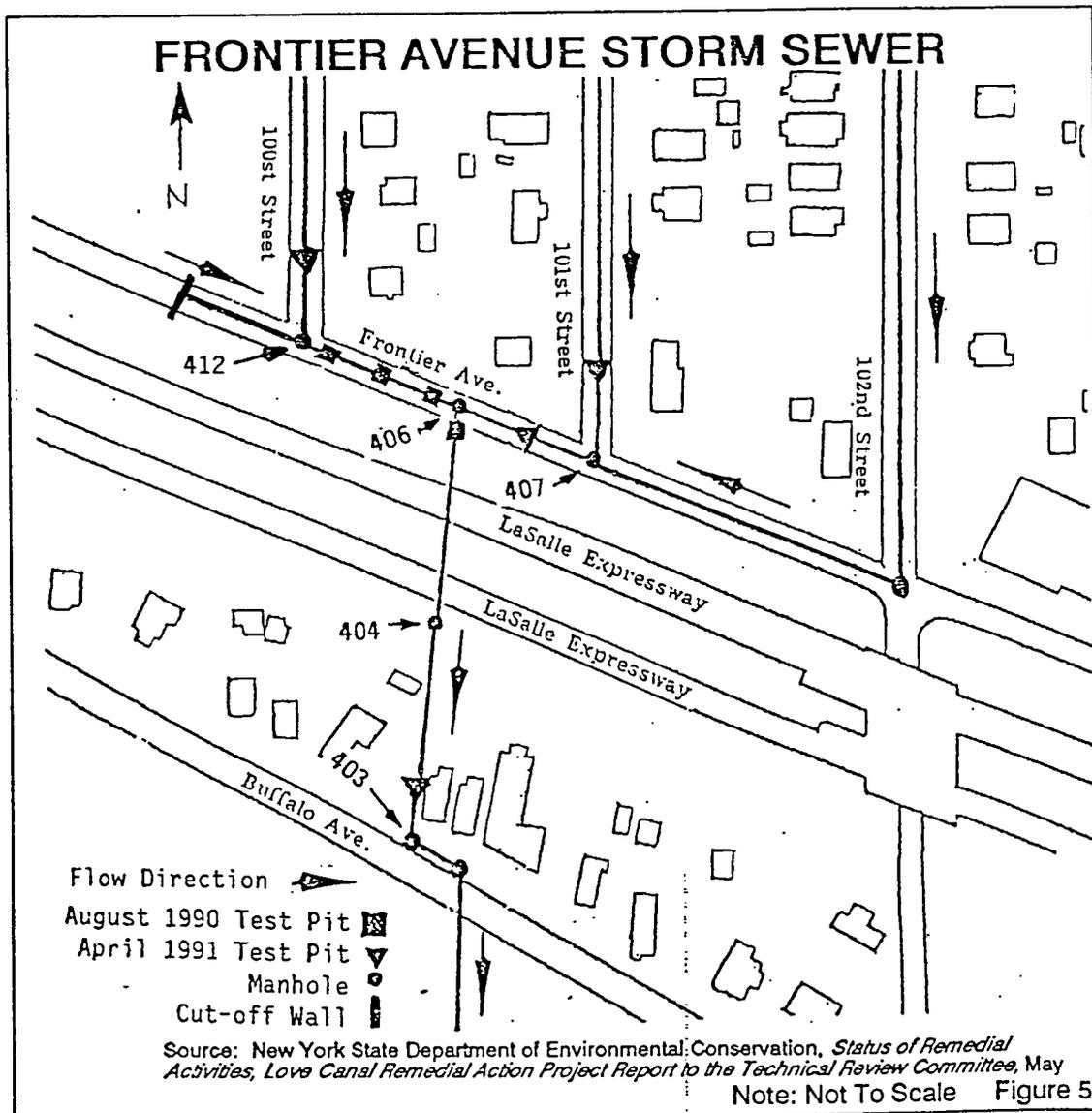


Investigation Of The Frontier Avenue Storm Sewer Pipe Bedding

During construction of a cutoff wall in August 1990 at the intersection of Frontier Avenue and 100th Street, contamination was discovered in the storm sewer pipe bedding. After an initial investigation of the problem in 1990, the NYSDEC conducted a comprehensive test pit investigation in the area between 100th Street and 102nd Street and Wheatfield Avenue and Buffalo Avenue. The investigation began on April 15, 1991 and consisted of four test pits being excavated; one pit south of the LaSalle Expressway, and one pit each on 100th Street, 101st Street and Frontier Avenue, between 100th and 101st Streets. The locations of both the 1990 and 1991 test pits are noted on Figure 5.

In all four pits, the storm sewer pipe bedding was found to be stiff clay and there was no indication of NAPL migration or contamination of any kind. Analysis of samples, for the full range of volatile and semi-volatile compounds, found no contamination above levels of concern. This confirmed that the contamination was confined only to the Frontier Avenue storm sewer pipe bedding from the cutoff wall installed in August 1990 to manhole 406 (located where the sewer turns south [between 100th and 101st Streets] and under the LaSalle Expressway).

Currently, the Department is having construction documents prepared. The remediation will consist of excavating the contaminated sewer pipe and bedding, and storing them in closed containers for future disposal at OCC's Buffalo Avenue plant. A new sewer pipe will be installed along the existing sewer alignment under Frontier Avenue and, if conditions warrant, the plans also call for lining the section of sewer under the LaSalle Expressway. Remedial work is scheduled to begin in the summer of 1992.



97th Street Methodist Church

Sample collection and field work for the Phase II Investigation at this site was completed on October 29, 1990. The investigation found no evidence of hazardous waste disposal at the site. The report recommends "No Further Action". As a result, the site was removed from the Registry Of Inactive Hazardous Waste Sites on January 9, 1991.

93rd Street School Site

The USEPA issued a Record of Decision Amendment in May 1991 selecting a remedy for the site which included excavation and off-site disposal of the contaminated soils, after which the area was to be backfilled, graded to provide proper drainage and seeded. To explain the construction phase to area residents and to address any concerns they may have, a Public Availability session was held at the PIO on October 24, 1991. During this meeting residents expressed concern over the trucks using residential streets. Steps have been taken to ensure trucks avoid these residential areas where ever possible.

NYSDEC awarded the contract to the low bidder, Tricil Environmental Response, Inc. of Houston, Texas (TRICIL), for \$1,123,078.50 dollars. TRICIL mobilized on November 18, 1991 with actual construction starting in early December 1991. The contract completion time is nine months which includes approximately three months winter shutdown. Under the contract TRICIL will transport all excavated material to the 102nd Street Landfill Material Placement Cell, constructed by OCC.

Cayuga Creek Fish Study

In October 1987 the Department's Division of Fish and Wildlife began a study of fish in the Cayuga Creek system in order to assess the impacts of the sewer cleaning and the Black and Bergholtz Creek remediation projects. The first two rounds of three planned sampling events were performed in October 1987 and October 1990 with the final round scheduled for October 1992.

A second interim report, which is available at the Love Canal Public Information Office, concluded that the 2,3,7,8-TCDD concentration in Young-of-the-Year fish from the creek's drainage basin continues to decline since the 1982 and 1987 sampling events.

Black and Bergholtz Creeks Remediation

The analytic results from the October 1990 sampling of OCC's Processing Facility indicated that the entire processing area has been adequately decontaminated to below levels of concern. In 1991 OCC transported the uncontaminated reusable construction material (the building's structural members and the asphalt and gravel) to the 102nd Street Landfill for storage and reuse in that project. OCC also restored the processing area to grades which are consistent with the remediation plans for the 93rd Street School site. A final inspection of the area was conducted by NYSDEC staff on August 28, 1991. This inspection found the restoration of the site complete.

EDA Areas 2 and 3

At the May 15, 1991 Technical Review Committee (TRC) meeting, the NYSDEC released the Cost Analysis Report (CAR) which had been sent to LCARA on May 13, 1991. The CAR evaluated the construction costs of a range of alternatives for remediating EDA Areas 2 and 3 that could meet the Habitability Criteria for residential development. The CAR was developed to assist LCARA in responding to the issues and concerns identified by the Disaster Preparedness Commission's (DPC) Findings Statement regarding LCARA's Environmental Impact Statement for EDA Areas 2 and 3.

The DPC has received LCARA's response to the DPC's Findings Statement and is currently reviewing it. The DPC expects to conduct a hearing in 1992 to gather the public's comments on the revitalization plan proposed for EDA 2 and 3. The DPC will then consider these comments in preparing supplemental findings with respect to those portions of the Master Plan related to EDA 2 and 3.

Public Participation

In 1991 the Love Canal Public Information Office (PIO) continued in its many roles. Primary among these roles is fulfilling its Citizen Participation mission to Niagara Falls area residents. As the primary outlet for information concerning the Department's remediation efforts in the Love Canal area, the PIO provided over 900 visitors with an overview of the general history, past remedial work and the current status of the Emergency Declaration Area.