2021 Hazardous Waste Scanning Project

File Form Naming Convention.

(*File_Type*).(*Program*).(*Site_Number*).(*YYYY-MM-DD*).(*File_Name*).pdf

Note 1: Each category is separated by a period "."
Note 2: Each word within category is separated by an underscore "_"

Specific File Naming Convention Label:

File. HW. 932020. 1900-01-01. Factsheets_and_Press_Release.pdf

UPDATE DESCRIPTIONS

Issue 1	2/83	Hearing re: Love Canal Habitability History of Remedial Actions at Love Canal
Issue 2	6/83	Opening of DEC Public Information Office Demolition of 99th Street School Inspections & Repairs to Existing Leachate Collection System
Issue 3	7/83	Transporting of 99th St. School debris Public Meeting to be held 7/28/83 Soil Sampling by E.C. Jordan Sewer & Creek Sampling by Malcom Pirnie
Issue 4	8/83	Meeting of 7/28/83 recap Ground Cut-off wall deleted Public Meeting to be held 9/ 7/83 Current and Future Remedial Activities Leachate Collection System Under Repair
Issue 5	11/83	Public Meeting 11/19/83 Site Investigation & Remedial Action Borehole Inv. Vol I Text & Vol II Appendices Work Shop 12/13/83 Alternatives for Management of Wastes generated by Leachate Collection System
Issue 6	1/84	Technical Review Committee formed Fencing of Creeks Sewer & Creek Investigation by Malcom Pirnie
Issue 7	5/84	TRC Public Meeting 6/ 5/84 TRC Purpose and Functions Creek Remediation On-Site Remedial Work Leachate Collection System w/diagrams
Issue 8	11/84	Public Information Meeting 12/ 6/84 Problems in Disposing of Dioxin Conventional & Innovative Technologies Love Canal Renters
Issue 9	1/85	Disposal of Contaminated Sediments Disposal Alternatives Off-Site Landfill Disposal On-Site Storage Off-Site Incineration On-Site Incineration

Issue 10	7/86	TRC Meeting 8/21/86 Creeks Posted and Sampled Sewer Cleaning Project with photos Plasma Arc Open House Administration Building to be built
Issue 11	10/86	Public Meeting 11/13/86 On-going Remediation Creek Cleanup Frontier Avenue Sewer 93rd Street School Plasma Arc Update
Issue 12	12/86	SPECIAL EDITION Black/Bergholtz Creek Remediation Temporary Storage Facility Truck Routes
Issue 13	3/87	Public Availability Session 4/ 7 & 8/87 Black & Bergholtz Creek 93rd Street School Cayuga Creek Results Frontier Avenue Storm Sewer Home Maintenance Plasma Arc Project Development
Issue 14	1/88	Appointment of Commissioner Jorling DEC Reorganizational Chart Nosenchuck's Re-assignment TRC Stoller Resignation Creek Cleanup Project 93rd St. Investigation Cayuga Creek Fish Sampling Frontier Avenue Sewer Modification Home Maintenance in the EDA
Issue 15	3/88	SPECIAL EDITION 93rd Street School Public Meeting 4/13/88 Availability Session 4/14/88 93rd Street School History
Issue 16	10/90	Habitability Decision 9/27/88 EDA Area 2, 3, 4 Sampling 93rd St. School Cleanup Creek Restoration Frontier Avenue Storm Sewer Investigation 97th Street Church Investigation Long-Term Monitoring Operation & Maintenance at L.C. Treatment Facility

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
THOMAS C. JORLING, *Commissioner* MICHAEL J. O'TOOLE, P.E., *Director*

ISSUE 15 SPECIAL EDITION MARCH 1988

About This Issue

This is a special edition of the Love Canal newsletter. It provides you with general information on the recently completed Remedial Investigation and Feasibility Study (RI/FS) for the 93rd Street School site located within the Love Canal Emergency Declaration Area. The NYSDEC encourages you to read this information carefully. It is a condensation of the information contained in the draft final report entitled "Remedial Investigation and Feasibility Study (RI/FS) Report for the 93rd Street School Site" prepared for NYSDEC by Loureiro Engineering Associates of Avon, Connecticut.

If you would like to review this (RI/FS) document, copies are available at the NYSDEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

A Public Information Meeting will be held by the NYSDEC on April 13, 1988 and Public Availability Sessions will be held the following day (See: Public Meetings To Be Held, page 2.)

Written comments on this report will be accepted by the NYSDEC until May 6, 1988. Additional information on submitting comments is provided later in this newsletter.

The NYSDEC encourages you to take this opportunity to participate in the ongoing remedial cleanup work at the Love Canal Site and at the 93rd Street School Site. If you have any questions, please telephone us at the NYSDEC Public Information Office at 716/297-9637.

The following articles appear in this newsletter:

Information on other on-going activities at the Love Canal site will be provided in the next regular edition of this newsletter.

Public Meeting to be Held

The NYSDEC and USEPA will hold a Public Information Meeting to discuss the "Remedial Investigation/Feasibility Study Report for the 93rd Street School Site" and to obtain public comments on the report and its recommended approach for cleanup at the site. All comments received during this meeting will be recorded for the public record and will be responded to in a Responsiveness Summary to be issued as part of the Record of Decision (ROD).

DATE: Wednesday, April 13, 1988

TIME: 7:30 p.m.

PLACE: Frontier Vounteer Fire Hall, 102nd Street and Frontier Avenue, Town of Wheatfield New York

* * * * * * * * * * * * * * * * * * * *

The NYSDEC will also hold Public Availability Sessions on Thursday April 13, 1988. These sessions will provide citizens having specific questions, concerns, and/or comments with an opportunity to discuss the 93rd Street School Site report in more detail on a one-on-one basis with Project Staff. These Availability Sessions are scheduled as follows:

DATE: Thursday, April 14, 1988

TIME: 11:00 a.m. to 1:00 p.m.
3:00 p.m. to 5:00 p.m.
7:00 p.m. to 9:00 p.m.

PLACE: NYSDEC
Public Information Office
9820 Colvin Boulevard
Niagara Falls, New York

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As mentioned earlier, in addition to the public meeting and availability sessions, comments on the 93rd Street School Site RI/FS Report may be submitted in writing to the NYSDEC until May 6, 1988. All comments received will be addressed to in a Responsiveness Summary at the close of the comment period.

Please send written comments to:

NYSDEC
c/o Mr. Amarinderjit S. Nagi, P.E.
Division of Hazardous Waste Remediation
50 Wolf Road, Room 222
Albany, New York 12233-7010

or telephone us at 716/297-9637.

We hope to hear from you!

Site Description

The 93rd Street School site is located in the northwest corner of the Love Canal Emergency Declaration Area in the City of Niagara Falls, New York. It is bounded by Bergholtz Creek to the north, 93rd Street to the west, residential properties and 96th Street to the east, and Niagara Falls Housing Authority property and Colvin Boulevard to the south. (See: Figure 1) The total area studied in this investigation covers approximately 19.4 acres and includes both the 93rd Street School and Housing Authority properties.

Although the site is relatively flat, it does slope gently from the east and west to a drainage swale located in the central portion of the site. This swale slopes from the southeast to the northwest and discharges into a small on-site swale which in turn discharges into the Bergholtz Creek. (See: Figure 1)

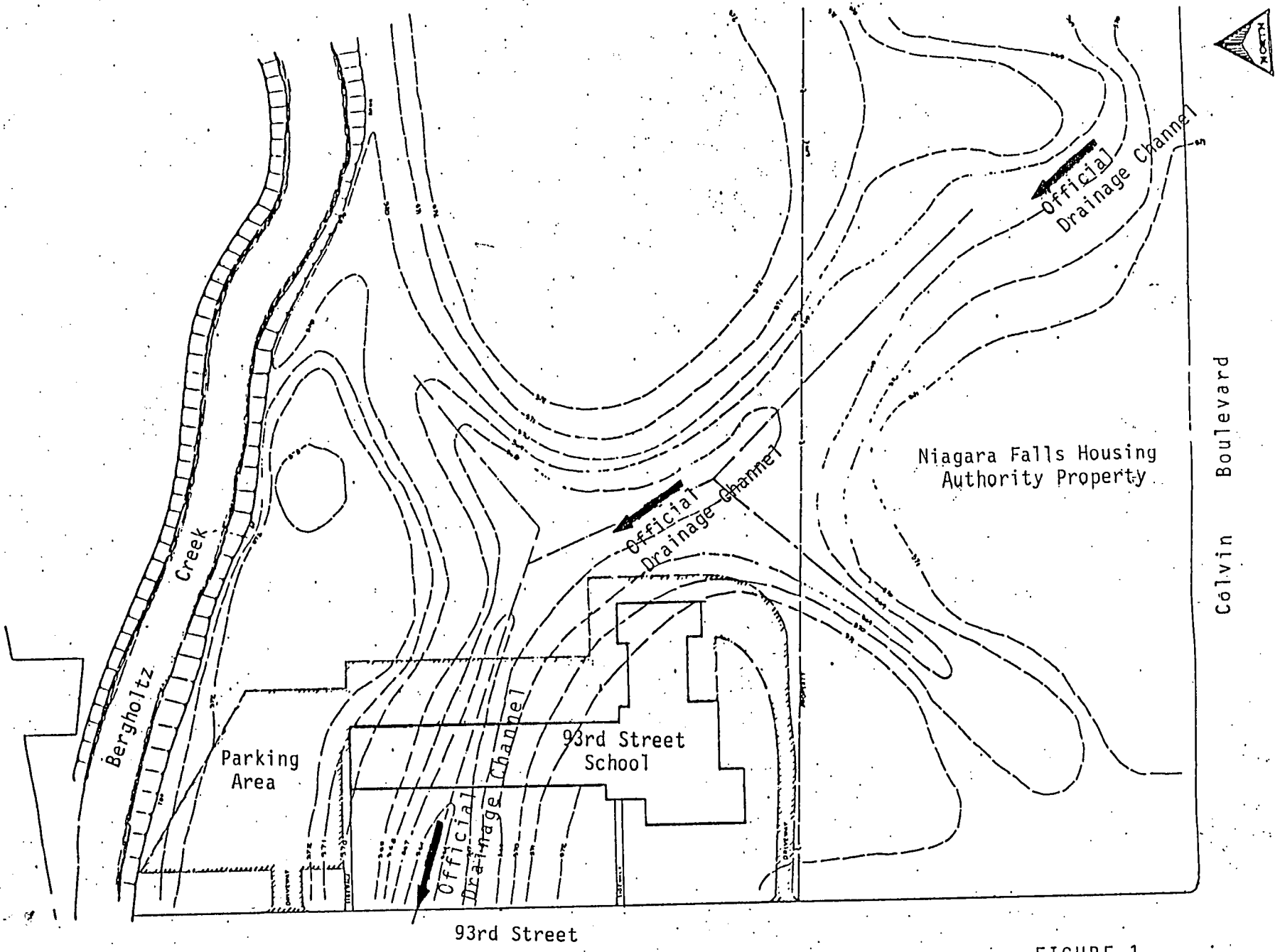


FIGURE 1
93rd Street School Site

Site History

The 93rd Street School is an elementary school that was designed in 1947 and was constructed in 1950. Prior to construction of the school, a drainage swale crossed the site from the southeast to the northwest. The swale intersected 93rd Street and discharged into Bergholtz Creek.

Between 1938 and 1951, this swale was partially filled with soil and rock debris followed by fly ash. The site was graded in 1954 to its existing contours utilizing approximately 3000 cubic yards of fill material from the 99th Street School Site which was located adjacent to the Love Canal. Low areas east of the 93rd Street School including the playground (which had previously been filled with fly ash) and the swale just south of the playground were filled with the 99th Street School material and then covered with approximately one to three feet of top soil. It is reported that the fill material obtained from the 99th Street School contained fly ash and BHC (lindane) cake.

In 1980, the 93rd Street School was closed due to public health concerns raised regarding the fill materials brought from the Love Canal site.

Remedial Investigation/Feasibility Study

The Remedial Investigation and Feasibility Study prepared by the New York State Department of Environmental Conservation's Consultant, Loureiro Engineering Associates, evaluated the nature and extent of contamination at the site and identified and evaluated potential remedial alternatives which could be implemented to correct these problems.

During the Remedial Investigation and Feasibility Study, information was obtained on site background, site features, hazardous substances present, hydrology, groundwater and surface water contamination, and human health and environmental concerns.

Based on the information obtained, it was concluded that the groundwater and surface water at the site are not contaminated at levels exceeding the detection limits required under the contract. However for some compounds, these detection limits exceeded the New York State Department of Health Drinking Water Standards. Since the detection limits were greater than these standards for some compounds, additional groundwater sampling will be performed to confirm that the standards are not exceeded.

Soils at the site are contaminated with metals, volatile organics, base/neutral/acid extractable organics and alpha and beta BHC. These soils are believed to include the approximate 3,000 cubic yards of fill brought to the site from the 99th Street School.

Although dioxin was not detected in subsoil, groundwater and surface water during the Remedial Investigation/ Feasibility Study, it was previously detected in two soil samples (one surface soil sample at 1.2 ppb and one subsurface soil sample at 2.3 ppb) at levels exceeding the Centers for Disease Control level of concern for dioxin in residential soils of 1 ppb.

The Risk Assessment performed under the Remedial Investigation/Feasibility Study concluded that a significant cancer risk exists for contaminants found at some locations at the site in its unremediated condition. This is primarily due to the presence of arsenic, polynuclear aromatic hydrocarbons (PAH's), and dioxins. The primary route of exposure for these contaminants is through ingestion of soils. These contaminants of concern were plotted relative to their concentration and location on-site. From this analysis an area containing approximately 7,500 cubic yards of soils was identified at the site (etc. as above) where arsenic, PAH's and dioxin are present at significantly higher levels than background levels in New York State. (See: Figure 2)

Alternatives Evaluated

To remediate the problems identified during the environmental investigations at the 93rd Street School site, a number of alternatives were evaluated. The Superfund law requires that the selected site remedy be protective of human health and the environment. The alternatives must also be evaluated for cost-effectiveness, and compliance with all statutory requirements. These requirements include the selection of permanent solutions which treat wastes on-site and utilize innovative technologies whenever possible.

The 93rd Street School Feasibility Study evaluated six alternatives for addressing the contaminated soils at the site. These were:

1) No action

2) Installation of a low permeability soil cover

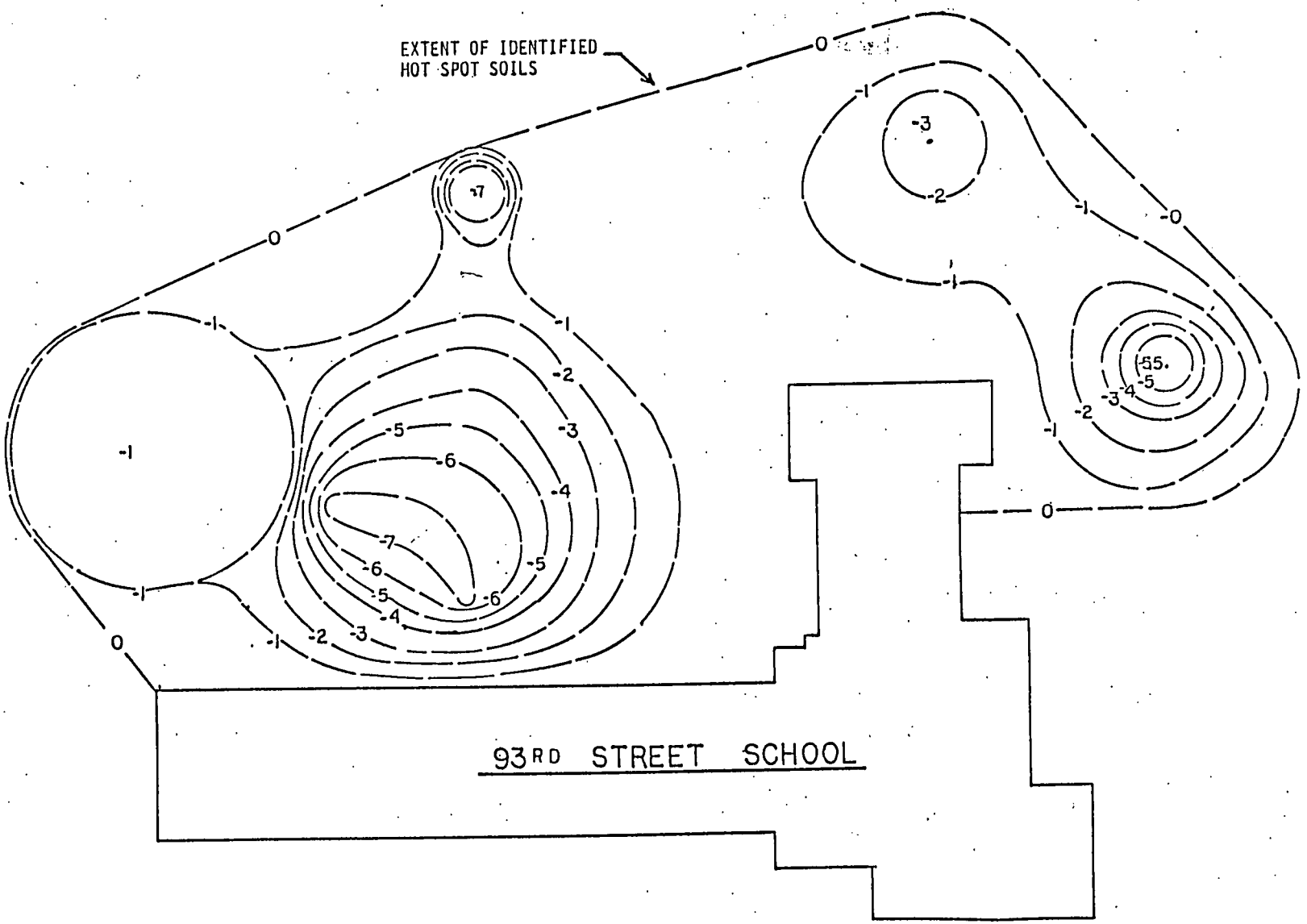
3) Excavation of the soil hot-spot areas, off-site disposal of these soils at an approved Resource, Conservation and Recovery Act (RCRA) landfill and installation of a low per meability cover

4) Excavation of the soil hot-spot areas, on-site solidification of contaminated soils and installation of low permeability cover

5) Excavation of the soil hot-spot areas, on-site thermal treatment of contaminated soils on the 93rd Street School grounds and installation of a low permeability cover

6) Excavation of the soil hot-spot areas, on-site thermal treatment of contaminated soils in the proposed transportable thermal destruction unit to be used for destruction of the Black and Bergholtz Creek sediments at the Love Canal site proper and installation of a low permeability cover

On-site thermal treatment would be performed with the intent that the residues would be delistable. If, however, no transportable treatment unit was available which could achieve this result, then a unit capable of reducing the levels of contaminants in the soils might be selected. Following treatment, the partially treated by-products could then be disposed either at an approved off-site landfill or on-site. Before being disposed of onsite, these byproducts would be treated by a solidification technology capable of rendering them delistable. Each alternative also includes continued monitoring of surface and groundwater.



NOTE:
EXCAVATION CONTOURS SHOWN ARE APPROXIMATE AND ARE BASED ON REMOVAL OF MATERIAL TO A DEPTH AT LEAST ONE FOOT BELOW THE DEPTH WHERE SIGNIFICANT CONTAMINATION WAS FOUND.

FIGURE 2
Hot Spot
Excavation

Recommended Alternatives

Based on an evaluation of these alternatives, the USEPA and the NYSDEC selected alternative 4 as the preliminary choice for the remediation of the 93rd Street School site. This alternative requires the excavation of 7,500 cubic yards of contaminated soil and its solidification in a mobile on-site treatment unit. The treated soil will be placed back on site and a soil cover will be installed over these areas and other areas of identified contamination at the site. The estimated cost for this alternative ranges from $3,400,000 to $4,800,000.

The criteria used to evaluate the final remedial alternatives are:

* Protection of human health and the environment
* Compliance with all legally applicable or relevant and appropriate requirements (ARAR's)
* Reduction of toxicity, mobility or volume
* Short-term effectiveness
* Long-term effectiveness and permanance
* Implementability
* Cost

Once these criteria were applied to the remedial alternatives, the solidification alternative was selected for the following reasons.

Of the treatment options, solidification (alternative 4) permanently immobilizes the hot-spot soils and eliminates any future leaching of both organic and inorganic contaminants. All threats associated with soils ingestion, inhalation and dermal contact would be eliminated. Thermal treatment (alternatives 5 and 6) would provide the same degree of protection as solidification only if the byproducts are delistable.

The no action alternatives will not result in a reduction of either the toxicity, mobility or volume of the waste. The containment options will reduce exposure to the waste but they do not meet the criteria for reducing the toxicity, mobility or volume of waste. In addition, the no action alternative does not reduce the existing risks and it is anticipated that these risks would increase over time due to erosion.

While comparing treatment Alternatives 4, 5 and 6, which result in the same degree of remediation, solidification of the hot-spot soils has been identified as the most cost-effective alternative. The total present worth cost for this options, range from approximately $3.4 to $4.8 million for solidification to $7.7 to $11.1 million for thermal treatment. The lower end of the cost range for thermal treatment assumes treatment at the Love Canal proper with a delistable byproduct disposed of on-site. The higher cost assumes thermal treatment at the 93rd Street School with the byproducts solidified.

The containment options (Alternatives 2 and 3) vary from approximately $3 million to $4.8 million, respectively, but do not provide a substantial degree of protection to human health and the environment.

A more detailed analysis of these points may be found within the RI/FS report. Copies of the complete Proposed Remedial Action Plan for the 93rd Street School Site are available at the NYSDEC Public Information Office located at 9820 Colvin Boulevard, Niagara Falls, New York. This Proposed Remedial Action Plan, along with the Remedial Investigation and Feasibility Study provide you with more details on the studies conducted at this site. We encourage you to review these documents and to submit your comments. For additional information call the Public Information Office at 716/297-9637.

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

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Published By
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Division of Hazardous Waste Remediation
THOMAS C. JORLING, *Commissioner* MICHAEL J. O'TOOLE, JR.,P.E., *Director*

ISSUE 15 OCT. 1990

ABOUT THIS ISSUE

Since the last issue of "Update" substantial progress has been made, on a number of fronts, in the continuing efforts to remediate the Love Canal area. This issue contains a map of the Emergency Declaration Area (EDA) using the new simplified numbering scheme which will be referred to throughout this edition of "Update" in addition to highlights and progress reports on:

- New York State Commissioner of Health David Axelrod's "Decision of Habitability".
- Sampling completed in EDA 2 & 3, and exploration of higher levels of BHC contamination in Area 4.
- Black and Bergholtz Creeks remediation complete, including property restoration.
- Remediation efforts in the Love Canal Area.

  Lot C, 100th St. EDA Area 1.
- Clean-up plans for the 93rd Street School.
- On-going investigation of the Frontier Avenue Storm Sewer.
- Phase II Investigation of the 97th Street Methodist Church.
- Interim report on the Long Term Monitoring Program.
- Maintenance and Operations Highlights.

In addition this issue will contain short notes on personnel changes and new directions at the Public Information Office.

The Habitability Decision

A major milestone in the remediation efforts for Love Canal was passed on September 27, 1988 when Dr. David Axelrod, Commissioner of the New York State Department of Health, issued his "Decision of Habitability" for the Emergency Declaration Area (EDA). This report marked a turning point in the effort to remediate the area and is a step toward resettling neighborhoods around the Love Canal.

In making his decision, Dr. Axelrod followed criteria which were first developed in conjunction with a panel of independent scientists and the public. These criteria were pilot tested in the winter of 1986-87 and further modified on the basis of public and peer review, and a critique by the Technical Review Committee (TRC).

This process resulted in the TRC developing a definition of HABITABLE as: "Suitable for normal residential use without any restrictions." This meant that individuals could live in the EDA and feel comfortable about raising their families there, with children living and playing in the area.

The ruler that was used to measure whether an area met this definition focused on applicable known guidelines and on a comparison of environmental data from the EDA with data from three similar neighborhoods within Western New York. All comparison areas were required to be at least one half mile from any known landfill and were chosen by the TRC, with the assistance of the public.

This comparative approach was necessary because there were no standards for exposure to many of the chemicals found in the canal and most of the experts felt that a qualitative risk assessment for all these chemicals was not feasible.

To compare the different neighborhoods, all were tested for evidence of particular Love Canal Indicator Chemicals (LCIC). These chemicals were selected because they are known to be present in the Love Canal, they are long-lasting, and they move easily through the soil or water and would indicate chemical migration from the Love Canal.

The testing process itself involved collecting over 2,500 soil and air samples from the EDA and the comparison areas. These samples were tested for three air LCICs and eight soil LCICs. In addition, because a federal guideline exists for dioxin, this compound was specifically tested for within the EDA.

Results based on these tests which were conducted as part of the Habitability Study indicate:

- No enduring levels of air contamination were detected.
- Statistically, the soil from EDA 1 had significantly higher levels of all LCICs than soil from all the other parts of the EDA and from the comparison neighborhoods.
- Soil from EDA 2 and 3 had higher LCIC levels than soil from the comparison areas and EDA 4 - 7.
- Soil from EDA 4 - 7 did not have consistently elevated levels compared to soil from the comparison areas in Niagara Falls. However, soils from EDA 4 - 7 and Niagara Falls comparison neighborhoods were significantly more contaminated with LCICs than soil from the Erie County comparison area.

Applying the results of this study against the agreed upon habitability criteria, Dr. Axelrod determined that:

- EDA areas 4 - 7 met all of the habitability criteria and were suitable for unrestricted residential use or other purposes.
- EDA areas 1 - 3 do not meet the criteria for habitability. Thus, these areas are not suitable for normal residential use without remediation.
- EDA areas 2 and 3 do not meet the criteria for habitability, although to a lesser extent than EDA 1. Remediation may make these areas as habitable as other neighborhoods in Niagara Falls, but they cannot, at the present time, be considered appropriate for unrestricted residential use.
- EDA 1 - 3 are deemed suitable for other purposes such as commercial or industrial use without remediation.

For a more complete discussion of how the habitability criteria were developed, the test results for each area and Dr. Axelrod's decision are contained in "Love Canal

Emergency Declaration Area Decision on Habitability, September 1988". Copies of this informative document are available at the DEC's Public Information Office.

This decision enabled the Love Canal Area Revitalization Agency (LCARA) to develop a Master Plan, with input from a Land Use Advisory Committee, and prepare a Generic Environmental Impact Statement for the Plan. These documents, along with their Finding Statement, have been completed and submitted for review to the New York State Disaster Preparedness Commission (DPC).

The DPC held a special meeting on August 7, 1990. At this meeting they issued their own Findings Statement for the Love Canal Area Master Plan. It agreed with the Master Plan with respect to Areas 1 and 4 through 7 of the EDA but issues no such finding for Areas 2 and 3 because future remediation alternatives are still under study. In addition, the DPC designated the N.Y.S. Division of Housing and Community Renewal to oversee the activities of LCARA.

Sampling in EDA Areas 2, 3 and 4

One of the results of the Habitability Decision was a renewal of the commitment by the Department of Environmental Conservation (DEC) to remediate Areas 2 and 3, even though the U.S. Environmental Protection Agency has declined to participate in funding the remediation. However, the DEC needed more information about the depth of the contamination in order to design an appropriate remedial program.

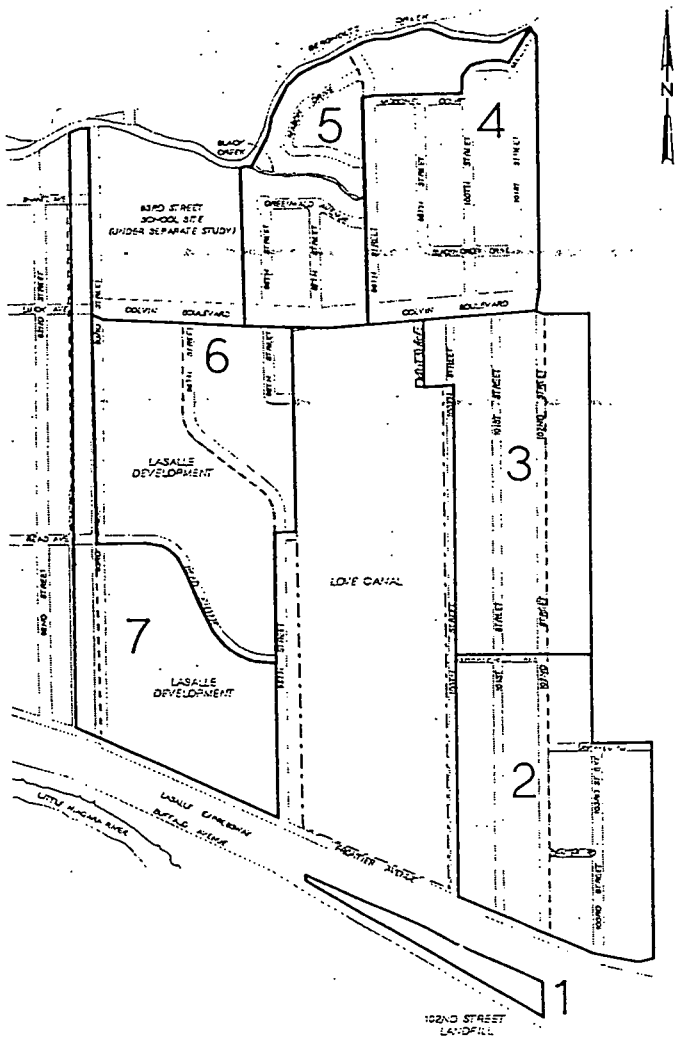
To this end, meetings were held between the DEC and the Department of Health (DOH) during October and November 1989. A sampling plan was developed which called for taking 12 inch cores. These were then divided into three separate samples covering the surface to a depth of 3", from 3" to 6" and from 6" to 12". Each individual section of the core was then analyzed.

NYSDEC and NYSDOH staff sampled 82 locations in Areas 2 and 3 during the week of December 4, 1989. The samples were shipped to NYSDOH labs in Albany for analysis. The results are currently being tabulated by the DOH. The NYSDEC consultant, E. C. Jordan, has conducted as aerial survey of the area for future mapping to be used in remedial planning and other site activities.

Also, as a result of the testing done to develop the Habitability Decision, two areas of higher levels of BHC contamination were discovered in EDA Area 4. The NYSDOH, NYSDEC and the Environmental Protection Agency agreed to further investigate these to determine their extent.

Continued next page

Figure - 1



Map of EDA Sampling Areas

Source: Adapted from Love Canal Emergency Declaration Area Proposed Habitability Criteria.

Sampling Continued

The NYSDEC Consultant, Ecology & Environment, Inc. completed sampling of these areas during April. Soil cores from 31 locations, to a maximum depth of 6 feet, or to native soil, were collected in the vicinity of 100th Street and Black Creek Drive. Samples collected from the top 2 feet in each bore hole will initially be analyzed. Based on those results additional samples may be analyzed. The preliminary analytical data was received on June 22, 1990.

A meeting was convened among NYSDOH, USEPA and NYSDEC on July 25, 1990 to discuss future needs. The preliminary data indicates that there will be some need for additional sampling and hot spot removal in this area. Two lots (9909 Black Creek Drive and 1044 100th Street) were found to have high levels of B-BHC in the soil. However, further refinement of the aerial limits of contamination is required. Also the north boundary of contamination on lot 1044 100th Street has not been established yet. As a result it was further agreed that additional sampling in lots 9909 Black Creek Drive, 1044 100th Street and the two lots adjacent, to the north of 1044 100th Street, should be conducted to better define and limit the quantity of soils to be remediated. The additional sampling is expected to be done in late 1990.

LOVE CANAL AREA REMEDIATION EFFORTS

School Clean-up Plans

The New York State Department of Environmental Conservation (DEC) released the Remedial Investigation and Feasibility Study (RI/FS) in April of 1988. A public meeting and availability session was also held during April and a Responsiveness Summary to address the issues raised was prepared and released. The United States Environmental Protection Agency (EPA) presented the Record of Decision (ROD) which selected a remedy for the site.

The ROD provides for the excavation of up to 7,500 cubic yards of soils, treatment of these soils by a solidification and stabilization technology, on site placement of the treated soils and construction of a low permeability cover over both the treated soils and adjacent area.

In August of 1989, soil samples were collected from the site and given to five vendors to conduct a treatability study. The treatability study is to assess and compare their treatment systems effectiveness. The study has been completed and the report is expected this month. In addition, the DEC consultant has completed and submitted the preliminary design documents for the Department's review.

Originally the Niagara Falls Board of Education had planned to use the building for storage. However, in light of the Habitability

Continued next page

Black and Bergholts Creeks Remediation Completed

The Remediation Program for Black and Bergholtz Creeks has been completed since the last issue of "Update". This project was a major undertaking which called for the excavation of over 3,300 feet of creek bank, cleaning of storm sewers with outfalls leading into the creeks within the area to be remediated, rehabilitation of the 93rd Street Sanitary Sewer and the replacement of the existing footbridge at 93rd Street.

Included in the work was: the temporary diversion of Bergholtz Creek, the construction of a dewatering containment facility for storage of contaminated creek sediments and other debris; the building of a drum storage and decontamination facility; the erection and removal of security fencing, haul roads, a silt screen and cofferdams.

Construction of the facilities to process the sediments commenced in the first quarter of 1989 and preliminary work for the creek excavation effort started in April 1990.

A significant change in the scope of work for this project was realized on June 1, 1989 when the Partial Consent Decree was recorded in federal court requiring Occidental Chemical Corporation (OCC) to transport remedial wastes from the Love Canal site to their Niagara Falls Plant.

Continued next page

School Plans Continued

Decision and the possibility of many more families living in the area. the school board has notified the Love Canal Revitalization Agency and the DEC of their desire to again reopen the school to students. They also requested that the contaminated soils be physically removed from the site rather than proceed with the planned solidification and capping.

On March 14, 1990 a meeting was held to discuss further action in view of the School District's desire to use the building for the 1993 school year. Currently the DEC is developing a Proposed Remedial Action Plan and will probably call for the removal of the contaminated soil, which will then require the EPA to issue an amendment to the September 1988 ROD.

The site is not included in the Superfund project list to be funded for this year. However, it is expected that funds will be available for next year.

Creeks Cleaned Continued

OCC committed to construct a staging facility and pug mill to process creek sediments and then transport these sediments to their Niagara Falls plant. As part of OCC's obligation under the Decree, 3,164 drums of material from the Love Canal Site was also processed at the mill and transported for final disposition to their Niagara Falls plant.

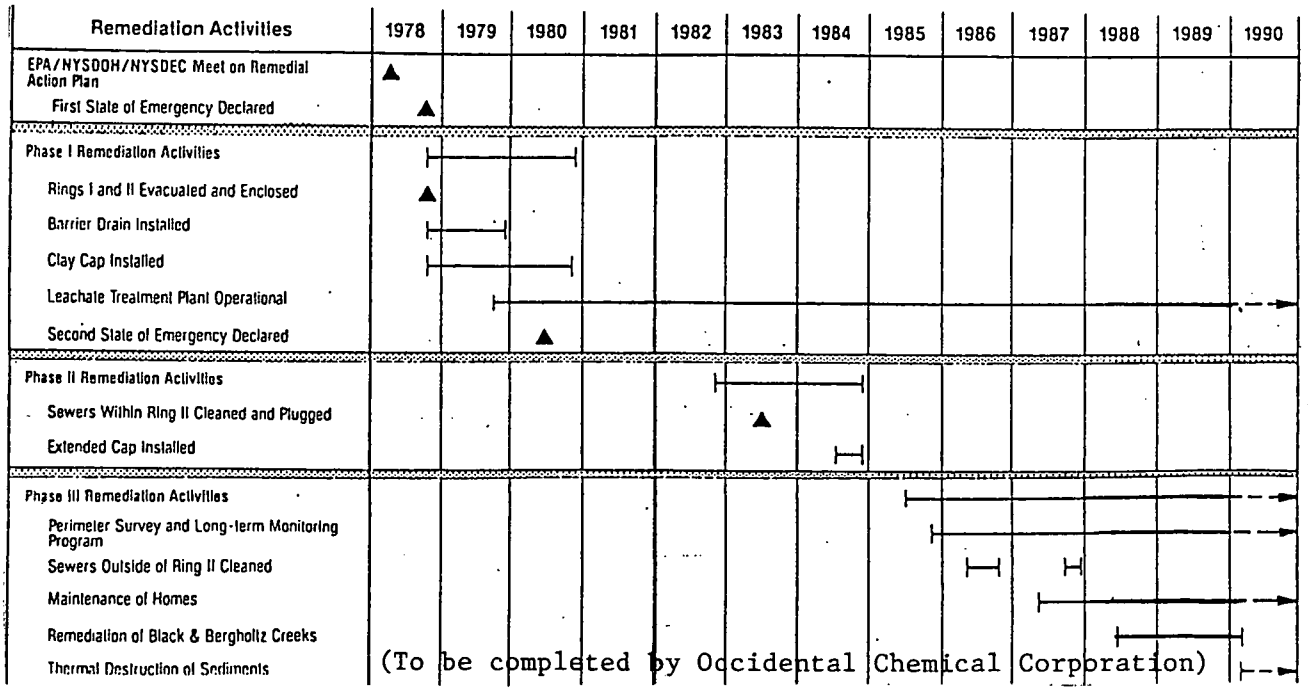
This change resulted in excavation of creek sediments beginning on August 3, 1989. By mid-September creek excavation was substantially complete and the installation of a crib wall upstream of 91st Street was completed in late October.

On October 26, 1989 water was again allowed to flow through the creek's natural channels. The Black and Bergholtz Creeks Remediation contract was declared substantially complete as of December 16, 1989.

Final restoration work including: reseeding, asphalt repair, re-vegetation, final grading and final punch list items are to be completed in the summer of 1990. This summer should also see the above mentioned pug mill dismantled. Non-contaminated debris will be placed in the remaining unfilled cell of the DCF and any contaminated material will be transported to OCC for final disposition.

Figure - 2

Timeline of Love Canal Remediation Activities



Source: Love Canal Emergency Declaration Area Havitability Study, Volume I (Updated December 1989)

Frontier Avenue Storm Sewer Investigation

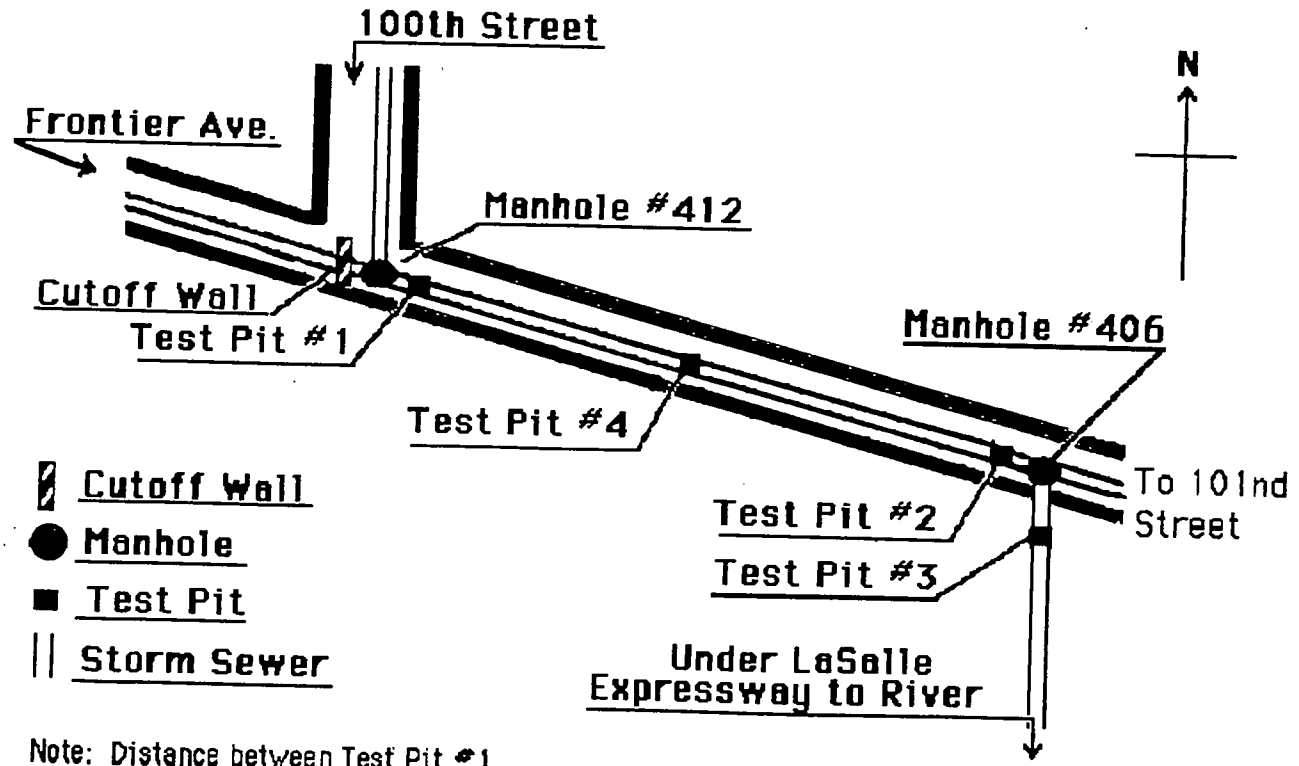
Frontier Avenue is located at the southern boundary of the Love Canal Site. The storm sewer located in Frontier Avenue has been the subject of several investigations and actions since contaminants were detected migrating from the Love Canal in the late 1970's. Historically, Love Canal contaminants were found in the bedding stone under this sewer at different times and different locations during various remedial contracts. Cutoff walls have been installed to eliminate the potential for contaminant migration along the Frontier Avenue storm sewer from the Love Canal. In the spring of 1988 chemicals were identified in samples of water from the storm sewer and reported at the June 21, 1988 Technical Review Committee (T.R.C) meeting. This led to a decision to install an additional cut off wall and abandon the storm sewer in order to isolate the chemicals known to exist in the sewer bedding in this area. The scope of this work was first reported at the May 17, 1989 T.R.C. meeting.

On August 6, 1990, as part of a recent contract, the cutoff wall was installed adjacent to the west side of storm sewer manhole no. 412 (see Figure 3) to further isolate any potential contaminant migration along the pipe bedding. During the excavation for the cutoff wall, contamination was discovered in the bedding stone of the storm sewer. As a result of this discovery, additional test pit excavations along the pipe east of manhole 412 and south of manhole 406 were initiated on August 21 and 22, 1990. Four test pits were dug into the pipe bedding of the storm sewer with three out of four pits identifying the presence of contamination in the bedding stone. Samples were collected of the contaminated bedding material, the groundwater in the bedding, as well as the water inside manhole 406. These samples will be analyzed for the full range of volatile and semi-volatile compounds.

The N.Y.S.D.E.C. is planning further investigations to determine the extent of the contaminated bedding and will implement an appropriate remedial action.

Figure - 2 Not To Scale

Frontier Avenue Investigation



Note: Distance between Test Pit #1 and Test Pit #4; and between Test Pit #4 and Test Pit #2 is about 85 feet.

97th Street Methodist Church Investigation Nears Completion

The New York State Department of Environmental Conservation, after an extended Phase I investigation of the site, began to plan a Phase II investigation in September of 1988. The work plan called for investigating the site using surface and subsurface soil sampling, seismic soundings, ground-penetrating radar, soil borings, the installation of more groundwater monitoring wells and ground water sampling.

This work started on October 11, 1989 and was completed just before Christmas. These tests will determine the nature and extent of any fill that was used at the site and if any dangerous contamination is present.

The Phase II draft investigation report for the site was received on May 21, 1990 and is being review by the DEC. This report will determine the potential need for any remedial action at this site. Preliminary findings indicate no significant impact to health and the environment and no remedial activities are necessary.

Short Notes

♦ The 250 unit LaSalle Development Housing Project was razed in the spring of 1989. Federal funding for the demolition was approved by the U.S. Department of Housing and Urban Development in October of 1987 and the last tenants moved out in July of 1988.

♦ The Citizen Participation Specialist duties at the Public Information Office for Love Canal have been assumed by Mr. Michael Podd, who joined the Department in March 1990. Michael will not only continue these duties for the Love Canal site but will also be given some responsibilities for the 102nd Street, Hyde Park, S-Area and other OCC Landfills.

These new responsibilities will provide the public with another source, in addition to the EPA, for convenient access to documents and information regarding these areas. The Department believes this is necessary as remediation plans are developed and remains committed to ensuring that the public be kept informed.

Other Remediation Efforts

♦ Remediation has been completed in the vicinity of Lot C, 100th Street, where testing discovered dioxin (2,3,7,8-TCDD) in concentrations above 17 ppb. In April of 1988, as a first step the NYSDEC erected a chain link fence around the site and an extensive testing program was undertaken.

Based upon the results of this investigation, a 10 by 17 foot area was excavated to a maximum depth of 18 inches to remove the contaminated soils. The soils were placed in drums and eventually removed to Occidental Chemical Corporation's Buffalo Avenue Plant. No contamination detected after retesting, the fence was removed and the site was backfilled with clean soil, graded and landscaped.

♦ Dr. Axelrod, in his Habitability Decision, found Area 1 did not meet the criteria for habitability although it was deemed suitable for commercial or industrial use. On February 8, 1990, Occidental Chemical Corporation released the Draft Final Report of their Remedial Investigation of the 102nd Street Landfill Site. This investigation discovered that some soils north of Buffalo Avenue, within sections of Area 1, contain contaminants associated with the 102nd Street Site.

The Proposed Preferred Remedial Plan calls for these soils to be removed and returned to the 102nd Street Site. A public hearing was held on August 15, 1990 and a final decision is expected soon. If the preferred plan is approved, remedial work at the 102nd Street Site could begin by next year.

Long Term Monitoring Program

The long term monitoring program provides first-hand evidence that the containment system is working. It is also designed to provide early warning in the event problems develop with the containment system, and do so before contamination could move off site.

The various monitoring wells indicate that the direction of the hydraulic gradient at the site continues to be directed toward the barrier drain. This means that the collection system is exerting an influence over groundwater flow at distances of 200 feet and possibly more. This ground water flow has been confirmed on all sides of the site, with the majority of this flow taking place horizontally in the upper layers of the overburden.

It was reported in the 1989 Love Canal Annual Report, dated February 1990, as part of this monitoring program, that 42 of 43 long-term monitoring wells showed no contamination. One well, No. 10225-C, (See figure 3, item #1) showed 12.5 parts per billion (ppb) of the compound trichloroethene. This well was installed as a replacement for one eliminated by construction activities. Its location was suitable for immediate incorporation into the Long-Term Monitoring Program.

The 1989 Annual Report also included results from new wells installed to monitor the new Dewatering Containment Facility (DCF). The results indicated that some of these wells contained low levels of contamination. These wells are being evaluated for inclusion into the Long-Term Monitoring Program for the overall site (See figure 3, Key).

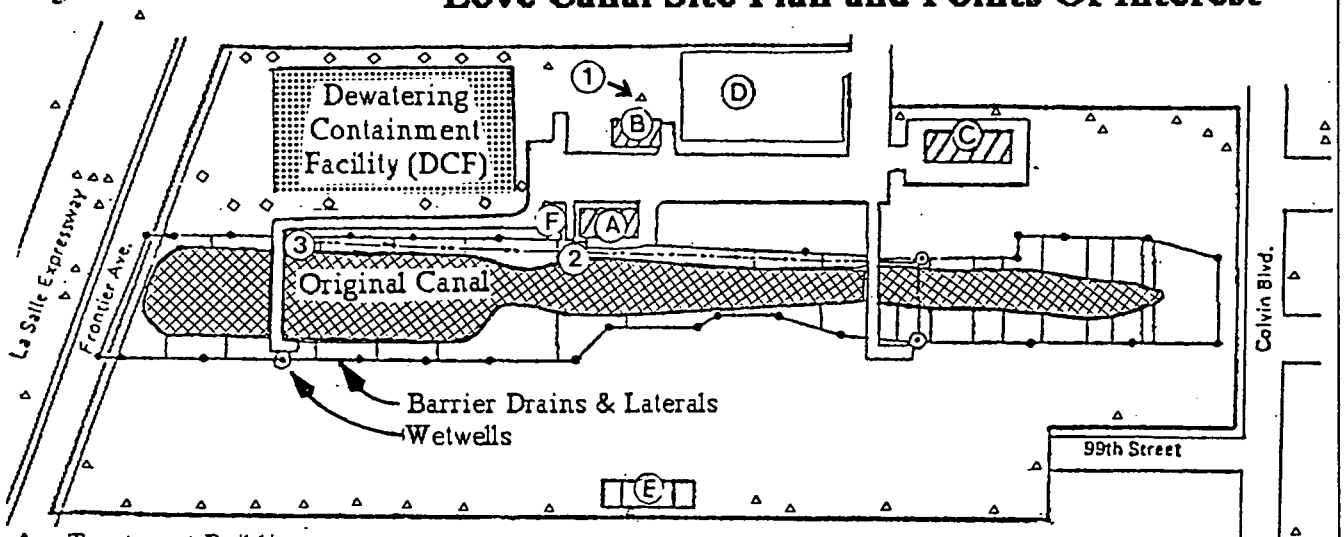
As a result of the finding at well No. 10225-C, the New York State Department of Environmental Conservation (N.Y.S.D.E.C.) has performed follow-up activities at this well. In response to requests, the N.Y.S.D.E.C. is reporting on its follow-up activities and laboratory findings at well No. 10225 -C. The well was redeveloped with extensive pumping and sampling twice in 1990. Redevelopment and sampling were conducted on January 17-19, 1990 and again on May 9-11, 1990. Analytical work was performed by two separate laboratories. The only data from this well which has not previously been released was collected during these activities. Similar low levels of contaminants were found during these activities. All data is available for review at the Public Information Office.

The N.Y.S.D.E.C. requested that a consulting firm which is familiar with the Love Canal site and monitoring well program review the data and provide independent

Continued next page

Figure - 3 Not To Scale

Love Canal Site Plan and Points Of Interest



A - Treatment Building
B - Administration Building
C - Decontamination/Drum Storage Building
D - Permanent Staging Area
E - Sewer Dewatering Facility
F - Sludge Storage Tanks

1 - Well 10225 C
2 - Leachate Holding Tanks
3 - Modified Pump Station
Δ - Long Term Monitoring Wells
◇ - DCF Monitoring Wells

Long Term Monitoring Continued

comments. The Department was particularly interested in the question of whether the data suggested an increasing trend in levels of contamination. The firm has responded with a letter dated July 30, 1990, which is available for inspection in the Public Information Office. The letter states that:

1. It is early to draw final conclusions concerning the presence of a trend.

2. The data should be used as a basis for comparing future data from this well to determine whether there is a trend.

N.Y.S.D.E.C.'s engineers and geologists agree with the consultant's comments and feel that the low levels of contamination in this well do not indicate a need for remedial action. However, the Department will continue to monitor this well and to evaluate it in the context of the overall Long-Term Monitoring Program.

The 1990 Love Canal Annual Report will contain a summary of long-term monitoring activities and findings. Any further developments in connection with well No. 10225-C and the DCF wells chosen, up to the time of publication, will be reported there. We hope to have the report available early in 1991.

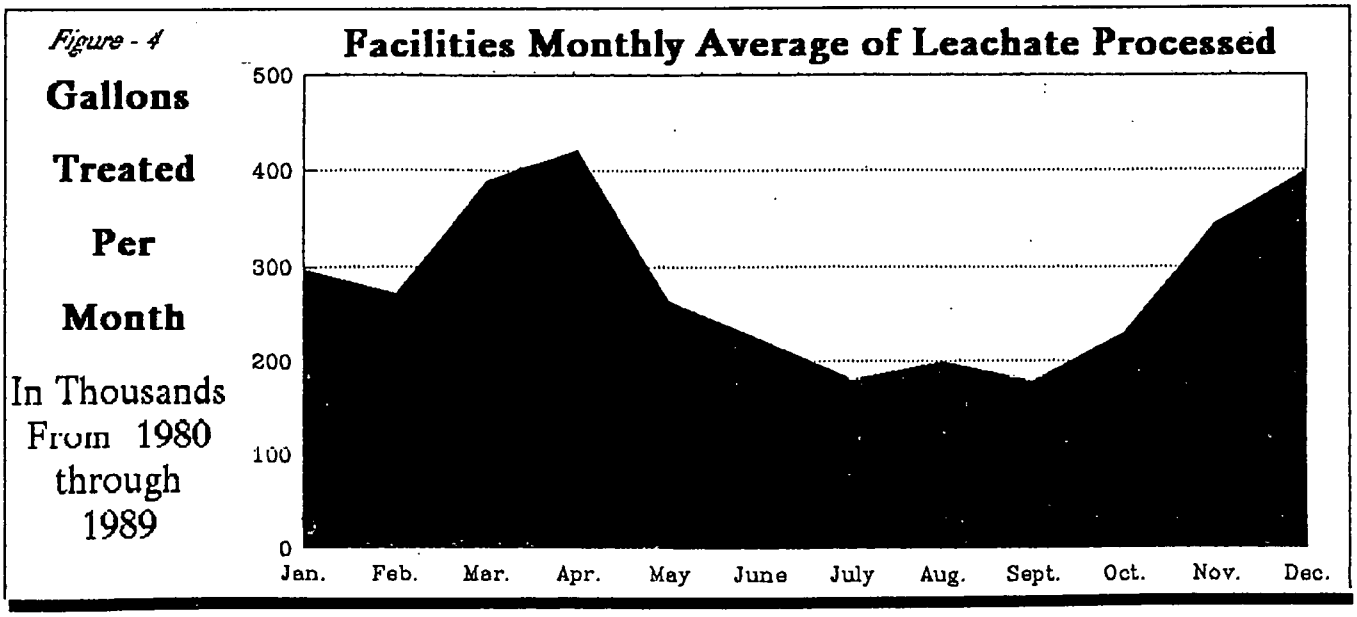
Operations and Maintenance

The New York State Department of Environmental Conservation is pleased to say that there has been continued progress in its efforts to operate and maintain the Love Canal Inactive Hazardous Waste Site as an example of the State's commitment to a clean environment.

The Leachate Treatment Facility had no violations of the Sewer Use Ordinance in 1989 and the treatment facility continues to meet its discharge standards. The Department's daily operating practices remain conservative, with moderate flow rates and careful monitoring of the leachate. (Figure 4). In addition, the Department is continuing to manage this facility as efficiently and safely as possible. This means continuing changes to the facilities and updating of the equipment. As part of this program a pump station is being modified to increase the safety and ease of maintenance procedures (Figure 3, item #3) and new wiring has been installed throughout the site. In addition, all the inground leachate holding tanks have been cleaned and equipped with access chambers (Figure 3, item #2).

All buildings are now tied into the fire pull box system, with only the Decontamination/Drum Storage building (Figure 3, item C) remaining to be equipped with security and smoke detectors. In addition, the Emergency Coordinators for Region 9 have all been given the latest Contingency Plan for the facility and each individual will be scheduled for yearly site training which includes use of this Contingency Plan.

Figure - 4



New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste
HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 11 *OCTOBER 1986*

About This Issue

This issue of the Love Canal Update provides information on a number of projects currently in progress relating to remedial activities at the Love Canal landfill. Projects discussed in this newsletter are:

Upcoming Meetings

The New York State Department of Environmental Conservation will hold a Public Information Meeting to provide a status report for the ongoing remedial work at the Love Canal landfill site.

Date: Thursday, Nov. 13, 1986

Place: Frontier Volunteer Fire Hall, Frontier Avenue and 102nd Street

Time: 7:30 P.M.

This meeting is open to the public and anyone interested is encouraged to attend.

Documents Available

The New York State Department of Environmental Conservation has a Public Information Office located near the Love Canal landfill. Documents related to remedial activities conducted at the Love Canal are available for public review at the Public Information Office.

The office, located at 9820 Colvin Boulevard in Niagara Falls, New York, is open from 8:30 a.m. to 6:00 p.m. Monday through Friday. If you have any questions, stop in and visit or give us a call. Our telephone number is (716) 297-9637.

Cleanup of Black & Bergholtz Creeks Under Design

In early July 1986, the DEC awarded a $598,975 contract to Tippetts-Abbet-McCarthy-Stratton Consultants, Inc. (TAMS) of New York, New York to design a cleanup program for the Black and Bergholtz Creeks and to oversee these creek cleanup activities. The Black and Bergholtz Creeks form the northern boundary of the Love Canal Emergency Declaration Area (EDA). Results of sampling and analysis of water and sediments from these creeks, performed for the DEC by Malcolm Pirnie, Inc. in 1983, indicate that Love Canal contaminants including 2,3,7,8-TCDD (or dioxin), are present in the sediments in these creek beds. As a result, the DEC is taking steps to remediate these creeks.

The design of this cleanup effort includes: a review of all existing information regarding Black and Bergholtz Creeks; a re-evaluation of the option of disposing of the creek sediments at an off-site location; design of an on-site storage facility for the creek sediments if on-site storage is the recommended disposal option; a review and evaluation of the different methods for removing the creek sediments; and the selection and design of a particular cleanup approach. The two methods for removing creek sediments currently under review are 1) dredging and 2) excavating.

Reports will be prepared by TAMS Consultants, Inc. at the following milestone points in this project:

1) upon completion of the on-site vs. off-site disposal options review and the evaluation of the dredging vs. excavating of sediments as methods of remediation

2) upon completion of the design of the storage facility

Fig. 1 Design of the Black and Bergholtz Creek cleanup is currently underway. Bergholtz Creek forms the northern boundary of the Love Canal Emergency Declaration Area.

Although the requests for proposals (RFP) for engineering services for DEC this project were sent out in October 1985, there was a delay in awarding of the contract. This delay was due to the contractor's inability to obtain liability insurance while providing professional services involving hazardous wastes. Because of the potential for claims against New York State without this liability insurance, the New York State Controller refused to approve the contract. A decision made by the Governor this summer to establish a liability task force, however, has satisfied the Controller's concerns, resulting in the approval of a contract for the design of the creek cleanup. The task force will review the liability insurance problem and provide recommendations to the Governor. While this review takes place, the creek cleanup efforts will proceed.

Additional sampling of the Black and Bergholtz Creek banks and the bed of Cayuga Creek was performed in May of 1986 to determine the extent of dioxin contamination. The results of the analysis of these samples will help determine the amount of sediment that must be removed from the creeks. These results are discussed on p. Additional Creek and Sewer Sampling Results.

Information gathering activities are expected to take place in late October 1986. Drilling will take place along the creek banks and also at the Love Canal site near the proposed location of the dewatering and containment facility. These drilling activities will provide information such as: the average size of soil particle; the type of soil present; whether the soil holds or releases water; how tightly the soil compacts; and the soils ability to be dewatered. This information will be used to determine such things as how large the dewatering and containment facility must be and whether the soil below the dewatering and containment facility is stable enough to support the facility. A preliminary design report is due in December 1986. Copies of this report will be available for public review and comment at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

The design of the creek cleanup effort is expected to be complete in early 1987. If on-site containment is selected as the temporary storage option, construction of this dewatering and containment facility would begin in the Spring of 1987. Once the containment facility has been constructed, the cleanup of the creeks will take place. This project is expected to be completed in 1988.

Frontier Avenue Sewer Work Planned

Remedial work performed by the DEC and its contractors at the Love Canal Site included cutting and plugging of the storm and sanitary sewers that serviced the homes immediately adjacent to the Site. The houses which these sewers serviced were demolished and the area is now surrounded with an 8 foot high chain link fence. The cutting and plugging of the storm and sanitary sewers was completed in the summer of 1982, except for the Frontier Avenue storm sewer.

Although the Frontier Avenue storm sewer lies within the area influenced by the Love Canal barrier drain, it continues to remain a potential route for Love Canal containments to reach the Niagara River. As a result, the DEC is preparing to complete the plugging of the Frontier Avenue storm sewer. The DEC advertised for bids in August of 1986 and received two bidders. The contract is expected to be awarded in early November of 1986.

The Frontier Avenue storm sewer currently collects surface runoff from the Love Canal cap and from Frontier Avenue. Under this contract, the runoff will be redirected to the catch basins between the south side of Frontier Avenue and the LaSalle Expressway. These catch basins are located beyond the Love Canal barrier drain system.

The Frontier Avenue storm sewer pipe, which is about ten to twelve feet deep, will be taken out of service. The sewer pipe will be cut at the former 97th and 99th Street and will be plugged with concrete. In addition, the catch basins on Frontier Avenue will be cleaned and plugged with concrete. Any sediments removed from the catch basins will be drummed and stored at the Love Canal drum storage site.

Finally, this contract also includes sewer repair work on 100th Street. During the storm and sanitary sewer cleaning project conducted earlier this year, the sanitary sewer on 100th Street between Wheatfield Avenue and Colvin Boulevard was found to be obstructed. This section of sewer will be repaired.

Work on this project may take place in November 1986 and will take about six weeks to complete. During these construction activities, Frontier Avenue between 96th Street and 100th Street will be closed to traffic. Additional notice will be provided at the time of construction. Bid documents are available for public review at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

E.C. Jordan Drilling to Resume

Work on the implementation of the long-term monitoring program by DEC at the Love Canal Site is expected to resume in November. Work was suspended on this project in May when threats of violence and acts of vandalism at the site jeopardized the safety of project personnel.

The long-term monitoring program will provide additional information regarding the extent of groundwater contamination from the site. A series of 32 wells have been installed near the perimeter of the site and groundwater samples have been collected for chemical analysis. To date, two sets of samples have been collected and analyzed. Results are available at the Love Canal Public Information Office. A third set of groundwater samples will be collected in the last week of October. Once these samples are analyzed, a final report will be prepared summarizing the results of the monitoring program. The report is expected to be available in February or March 1987.

The long-term monitoring program will also provide additional information regarding the extent of the leachate collection system's influence and what effect the system has on groundwater near the Love Canal Site. Data collected to date indicate that the leachate collection system is effective in preventing contaminated groundwater from moving horizontally away from the Love Canal Site. In fact, the data indicate that chemically contaminated groundwater that had migrated away from Love Canal is being drawn back (recovered) by the drain.

The monitoring program also includes the installation of 13 wells directly into the Love Canal. These wells will provide the valuable information regarding the exact depth of the wastes, and the degree to which the wastes in the Canal have been dewatered.

Wells have also been installed into the bedrock underlying the Love Canal Site. Chemical analysis of groundwater samples collected from the bedrock wells along with the water quality information the Department has collected over the past 5-6 years will give a basis to determine if additional remedial action may be required to address chemical contamination present in the bedrock and attributable to the Love Canal Site.

Black & Bergholtz Creeks Posted

As discussed in Issue 10 of the Love Canal update, the DEC posted signs along the Bergholtz Creek. This creek forms the northern boundary of the Love Canal Emergency Declaration Area and is contaminated with 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin).

The DEC contacted 20 landowners along Bergholtz Creek to request permission to post warning signs on their property. Seven of these property owners agreed to allow the DEC to post signs.

On August 19 through 21, 1986 the DEC posted 22 signs on private property and City property along Bergholtz Creek. The signs were riveted to steel poles which were driven into areas immediately adjacent to the creek banks on both sides of the creek where permission to post was obtained.

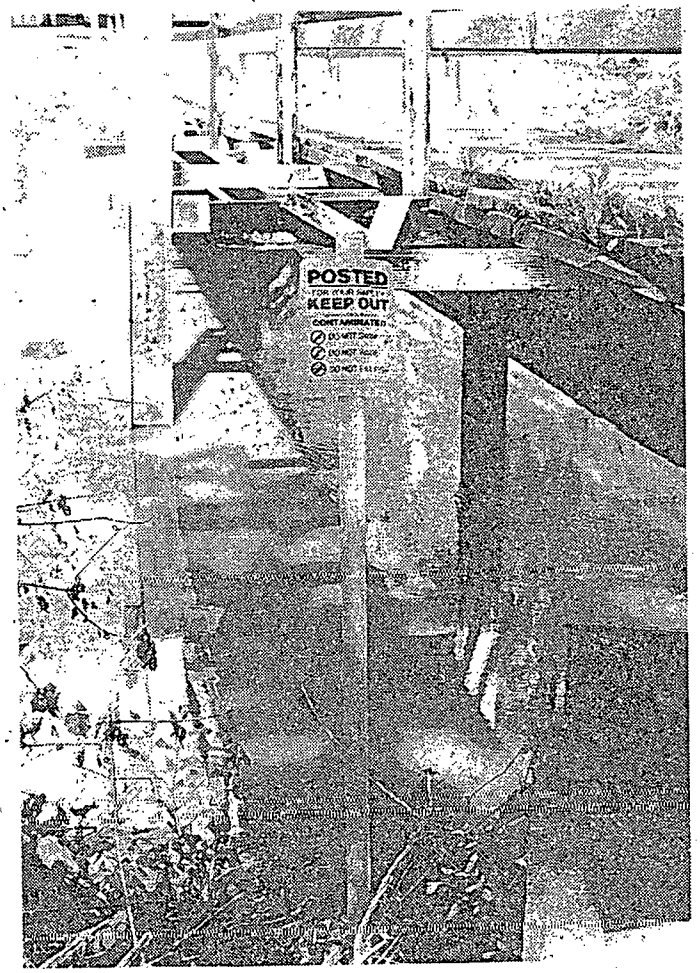


Fig. 2 In August of 1986, the DEC posted signs warning of contamination in the Bergholtz Creek.

93rd Street School to be Investigated

In March of 1985, a Phase II Investigation Report for the 93rd Street School grounds was submitted to the DEC by RECRA Research, Inc. of Tonawanda, New York. Results of sampling activities indicated that 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin) was present in one soil sample and two water samples. The soil sample was collected at a depth of four to six feet below the surface in a fly ash fill layer. The analysis of this soil sample indicated the presence of 1.63 parts per billion (ppb) of dioxin. Analysis of the water sample indicated the presence of 4 parts per trillion (ppt) and 7 ppt of dioxin.

Based on these findings, the DEC requested the Environmental Protection Agency's Field Investigation Team (FIT) to undertake additional surface soil sampling at the 93rd Street School site. Forty-seven surface soil samples were collected to a depth of 2 to 3 inches. In addition, 13 sub-surface soil samples were taken. All samples were analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin. Dioxin was found in three surface soil samples in concentrations of 1.2 parts per billion (ppb), 0.11 ppb and 0.19 ppb. These three surface soil samples, indicating the presence of dioxin, were taken from the northwest corner of the school yard.

The purpose of this sampling effort was to determine if there was a need to restrict access to the field by fencing or some other means. Additionally, this sampling effort was to define the depth of soil cover over the fill. For this reason, the sampling was restricted to a near surface investigation. The results of this sampling effort were submitted to the New York State Department of Health (DOH) for recommendations on restricting access to the site. DOH recommended that an expanded sampling effort take place to determine the extent of contamination and the potential for public exposure. In addition, DOH requested that this sampling program address a long-term remedy for the surface soil contamination.

The DEC concluded contract negotiations with Loureiro Engineering Associates (LEA) of Avon, Connecticut in July of 1986 to conduct a two-phase Remedial Investigation and Feasibility Study (RI/FS) at the 93rd Street School site. The execution of of the contract with LEA was delayed due to the unavailability of pollution related liability insurance.

The purpose of the two-phase Remedial Investigation and Feasibility Study is to better define the extent of contamination at the site through additional sampling efforts and to evaluate the alternatives for remediation of the site based on the analysis of these samples.

Under this RI/FS contract, the consulting engineer will prepare Work Plans for Phase I and Phase II a Health and Safety Plan, and a Data Management Plan. Copies of these documents are available for public review at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

The Phase I Work Plan requires surveying; the installation of 8 to

10 monitoring wells to a depth of about 25 feet; and 15 soil borings up to a depth of one to two feet below the fill into native soil. These soil borings will be along the centreline of the original swale that drained the area. The sampling efforts will determine the extent of contamination and whether the swale serves as a pathway for contaminant migration. All ground water and soil samples collected will be analyzed for the full range of Priority Pollutants and for 2,3, 7,8-tetrachlorodibenzo-p-dioxin (dioxin). These activities are expected to begin in early November of 1986.

Once the sampling activities are complete, the consultant will review the analytical data and determine the extent of additional samples that should be collected during Phase II of this Field Investigation. All available remedial alternatives will then be evaluated and a specific remedial approach will be recommended. A preliminary design for the selected remedial approach will also be prepared.

During these work activities, Mr. Amar Nagi, the DEC project engineer and/or other DEC personnel will be present at the site. Sampling crews will wear Level C or D protective equipment based on the site conditions. Level C consists of hard hats, safety glasses or goggles, rubber boots, outer protective disposable tyvek suits, rubber gloves, inner steel-toed work boots, work clothes, and full-face respirators with chemical cartridges. Level D consists of all of the above without the full-face respirator. Organic vapor meters will be used to monitor the worker site for volatile organics. Soil collected during soil boring and monitoring well installation will either be placed into the hole or will be placed in 55-gallon drums and taken to the drum storage area within the fence at the Love Canal site.

A Remedial Investigation and Feasibility Study Report is expected to be submitted to the DEC in the fall of 1987. Copies of this report will be available for public review and comment a the DEC Public Information Office.

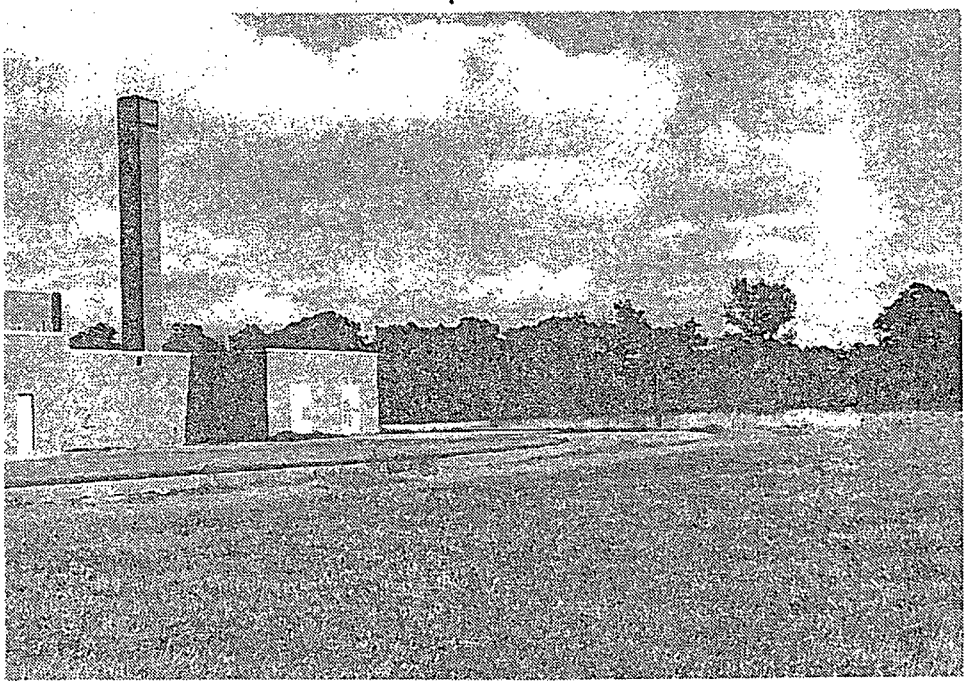


Fig. 3 Sampling activities at the 93rd Street School Site will take place this fall to determine the extent of contamination.

PROJECTS BRIEFS

A number of activites discussed in previous Love Canal Updates are currently underway or have been completed at the Love Canal landfill. A brief status report on these activities follows:

I. Administration Building Construction Underway

Construction of the Love Canal Leachate Treatment Plant support building began on July 8, 1986 with the grading of the site in preparation for construction. Trenches for utility lines were then dug. During the trenching activities, 21 soil samples were collected to a depth of 4 feet and were combined to form six composite samples. These samples were analyzed for the Priority Pollutants and for volatiles.

Although most of the results indicate that there was no contamination present, a few low level volatiles were found. These volatiles were in such low concentrations, however, that they were of very little concern. As a precautionary measure, workers were required to wear Love C protective clothing which includes a full-face respirator, during all excavation activities. The soil that was removed will remain at the Love Canal landfill site.

Work that still remains includes:

-- installation of aluminum panels above doors and windows
-- pouring of concrete driveway and sidewalks
-- installation of exterior doors
-- internal painting, tile work, and equipment installation
-- gas meter and electrical hook-ups
-- landscaping

Fig. 4 Work on the Love Canal Administration Building is expected to be complete in November 1986. This building will serve as a support building for the Leachate Treatment Plant DEC Staff.

II. Cap Fertilization

A $5,450.00 contract for fertilization of the Love Canal cap was awarded to Niagara Grass Cutting of Niagara Falls, New York. The fertilizer is expected to promote good root development so the cap is covered consistently with a thick grass growth. This will in turn provide for erosion control and improve the site aesthetics.

The fertilizer is a 16-8-8 mix of nitrogen, phosphorous and potassium. No herbicides or pesticides are being used during the fertilization process. The DEC expects to extend this contract next year.

III. Spent Carbon Removal

On October 15, 1986, the DEC and its contractor, Envirosure Management Corporation of Buffalo, New York removed a "spent" carbon bed from the leachate treatment plant and placed the spent carbon in 55-gallon drums. About 120 55-gallon drums are filled with the spent carbon during each carbon transfer. These transfers take place twice a year at approximately six month intervals. The 55-gallon drums are then labeled and stored at the on-site drum storage area.

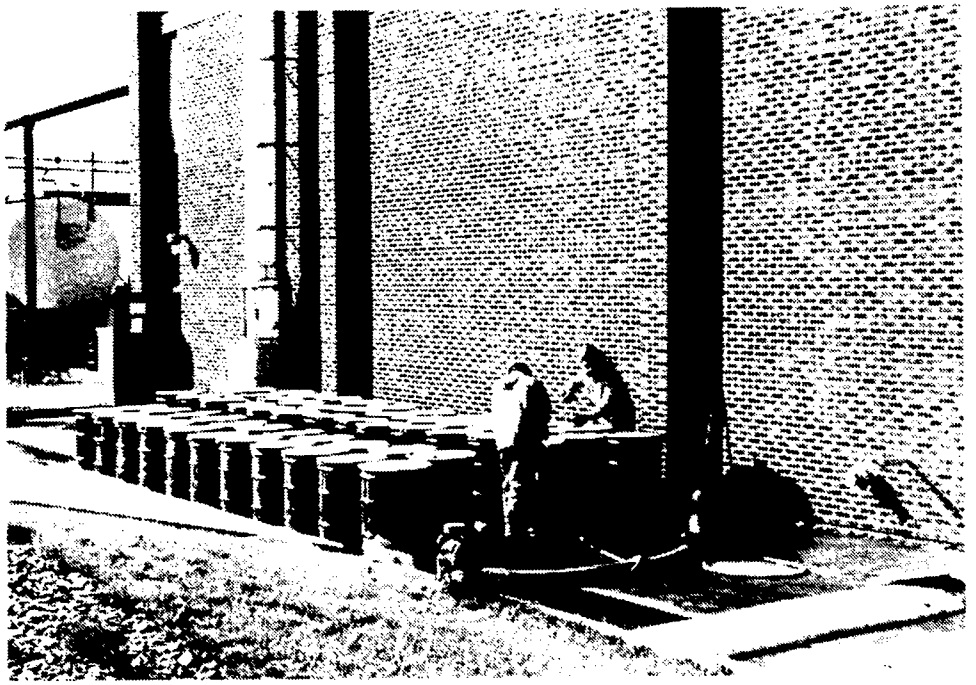


Fig. 5 Spent carbon from the Love Canal Leachate Treatment Plant is transferred into 55-gallon drums for on-site storage.

IV. Drum Storage Facility

Over 1,800-55 gallon drums containing wastes potentially contaminated with dioxin are currently being stored at the Love Canal site. These wastes include spent carbon from the Love Canal Leachate Treatment Plant, protective clothing worn by workers during remedial activities, sewer sediments removed from the Ring I and II storm and sanitary sewers, and soil removed during the installation of monitoring wells.

These drums are currently stored on wooden pallets inside the fenced area of the Love Canal. DEC staff inspect the drums monthly to look for signs of deterioration. Drums that show signs of extensive rust and wear are then placed into larger "overpack" steel drums to protect them from additional weathering.

The DEC had planned to construct a drum storage facility under the Love Canal storm and sanitary sewer cleaning contract. This drum storage facility would have consisted of a concrete pad with a berm to contain spills and a drain connected to the leachate collection system. In addition, a protective structure was to have been constructed over the drums to protect them from the weather. Since the manufacturer of this structure is no longer in business, the DEC has been evaluating a number of the options for storage of the drums.

While the DEC develops an alternative for drum disposal, monthly inspections of the drums will continue. Current plans for the cleanup of the Black and Bergholtz Creeks include the construction of an Interim Storage Facility for the creek sediments inside the fenced area of the Love Canal site. The DEC plans to expand the capacity of the Interim Storage Facility to hold the drums currently stored on-site. Drums containing 'spent' carbon from the Love Canal Leachate Treatment Plant generated in the future will be stored above ground until the drum storage facility is constructed.

The DEC now plans to construct this drum storage facility for temporary storage of spent carbon drums during the summer of 1987.

V. Additional Creek and Sewer Sampling Results

In May and June of 1986 the New York State Department of Environmental Conservation, through its consultant, Malcolm Pirnie, Inc. of Niagara Falls, New York, collected approximately 354 additional samples from Black, Bergholtz and Cayuga Creeks and from portions of the Sanitary Sewers west of the Lift Station No. 6 located at 81st Street and Frontier Avenue.

These samples were analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin) by the New York State Department of Health. The DEC received these results from DOH in mid-October 1986. A review of these results will assist the DEC in determining (1) the volume of creek sediments that must be removed from Black and Bergholtz Creeks; (2) the extent of contamination

within Cayuga Creek; (3) whether the Cayuga Creek required further remedial investigation; and (4) how many additional sections of sanitary sewer must be cleaned downstream of the 81st Street Lift Station due to contamination by the Love Canal.

The analytical results are now being reviewed by the DEC and will be included in the final engineering report being prepared by Malcolm Pirnie, Inc. This report will be available for public review by late December 1986 at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

The highest concentrations of dioxin were found in the sediments taken from manholes nearest Lift Station Number 6 on 81st Street. The results of the analysis of these samples indicate the following concentrations of dioxin: 60.72 ppb; 402.30 ppb; 622.32 ppb; and 67.13 ppb.

The highest concentrations of dioxin in Cayuga Creek were found in the area of the stream spanning the section 200 feet upstream of the Lindberg Avenue storm sewer outfall to about 200 feet south of the Pershing Avenue storm sewer outfall. The highest concentrations of dioxin found in these composited samples in this section of the creek include: 0.78 ppb approximately 200 feet upstream of the Lindberg Avenue outfall; 1.09 ppb at the Lindberg Avenue outfall; 1.28 ppb at the Pershing Avenue outfall; and 0.99 ppb approximately 200 feet south of the Pershing Avenue outfall.

The results of the analysis of soil taken approximately one foot above the water line along the banks of Bergholtz Creek will be used to determine the extent of cleanup required on the creek. The highest concentrations of dioxin found in the composited samples include: 0.65 ppb; 0.61 ppb; and 0.73 ppb. The DEC is evaluating this information to determine if additional samples collected at the high points along the creek bank should be analyzed prior to the final design of the creek remediation.

Finally, those samples collected one foot above the water line on Black Creek were also analyzed for dioxin. No dioxin was found in these composited samples.

These results are being sent to the New York State Department of Health for their review and interpretation as to the health impacts and recommendations for necessary remedial activities.

Your concerns and comments are important to us. We want to hear from you.

VI. Plasma Arc Update

The Plasma Arc Unit is a high temperature destruction process capable of destroying liquid hazardous wastes. This mobile unit, constructed by Pyrolysis Systems, Inc. (PSI) of Ontario, Canada, is currently housed at the Love Canal inactive hazardous waste disposal site. An Open House was held on May 3 and 4, 1986 to display the Plasma Arc Unit.

The DEC plans to use the Plasma Arc Unit to destroy liquid wastes generated during the treatment of Love Canal wastes at the on-site Leachate Treatment Plant. Before any burning of Love Canal wastes takes place, the following matters must be completed:

1) meeting the technical and substantive requirements of the Resource Conservation and Recovery Act (RCRA) permit; which is required by the US EPA and the NYS DEC when transporting, storing and disposing of hazardous wastes
2) amending the contract with PSI
3) completion of the Draft Environmental Impact Statement for the required testing activities at the site

It appears then that the burning of any wastes would not commence until the Spring of 1987.

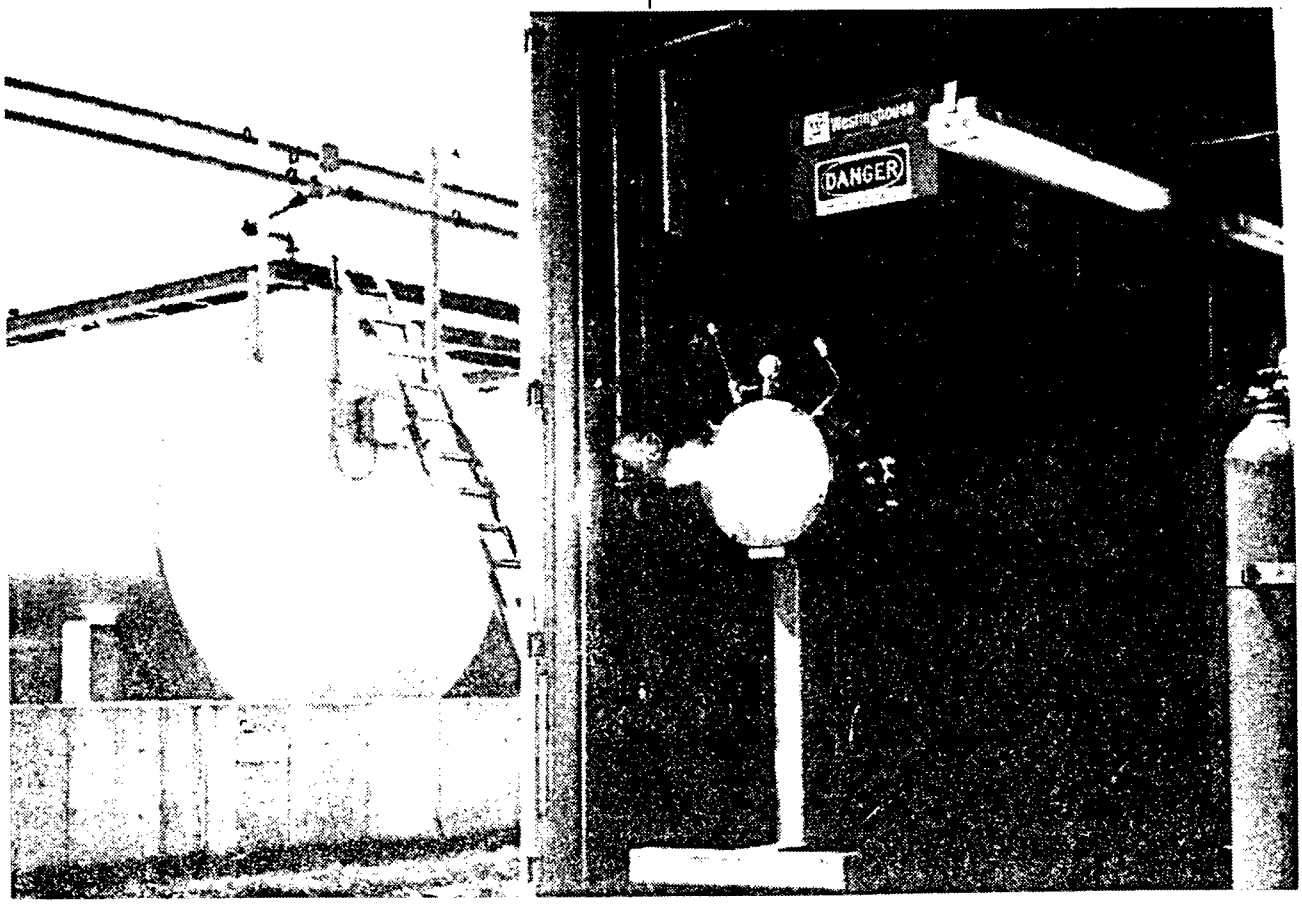


Fig. 6 On May 7, 1986, DEC staff conducted a "dry firing" of the Plasma Arc Unit. This was an electrical test to see if the power supply is compatible to the operation of the torch.

We Want You To Be Involved

You, the citizens, workers, and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the future.
- The NYS DEC Public Information Office has been established at 9820 Colvin Boulevard. We encourage you to visit so that we can answer your questions and hear your concerns. Information regarding NYSDEC activities and public meetings may be obtained by calling Anita Gabalski, a NYSDEC Citizen Participation Specialist, at 716/297-9637.
- In addition a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the NYSDEC public information office in Niagara Falls.
- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ Please correct my name or address as listed below

_____ Please add the following name to your mailing list

_____ I do not want to be included on your mailing list

NAME _____

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Send to: N.Y.S. Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste
HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 13 *MARCH 1987*

Public Availability Session to Be Held

The DEC will hold three Public Availability Sessions as noted below to discuss the following topics and to answer questions regarding these issues:

- the DEC's final decision on the extent of Black and Bergholtz Creek remediation

- the DEC's plans for construction of an Interim Containment Facility (ICF) at the southwest corner of the Love Canal site (95th Street & Frontier Avenue).

Much of the pertinent information on the Black & Bergholtz Creek Remediation Project is included in this newsletter. The Public Availability Sessions will provide interested citizens with an opportunity for one-to-one discussions with DEC Project Staff to ask more detailed questions, to receive clarification about any uncertainties you may have, and to provide comments to DEC Project Staff. These Public Availability sessions are limited to discussion of the Black and Bergholtz Creek Remediation although the newsletter provides information on other Love Canal Projects.

The Public Availability Sessions will be held:

DATE: Tuesday, April 7, 1987
TIME: 2 p.m. to 5 p.m. and 6:30 p.m. to 9 p.m.
PLACE: DEC Public Information Office
9820 Colvin Boulevard
Niagara Falls, New York

* * * * * * * * * * * * * *

DATE: Wednesday, April 8, 1987
TIME: 9 a.m. to 12 p.m.
PLACE: DEC Public Information Office
9820 Colvin Boulevard
Niagara Falls, New York

These meetings are open to the public and anyone interested in this project is encouraged to attend. If you have any questions, please give us a call at the Public Information Office at (716) 297-9637. We hope to see you at the meetings!

Creeks to be Excavated

Since 1978, the DEC has been involved in ongoing remedial efforts at the Love Canal inactive hazardous waste site.

The Black and Bergholtz Creeks located at the northern boundary of the Love Canal Emergency Declaration Area (EDA) are tributaries to the Cayuga Creek which flows into the Little Niagara River. These creeks received drainage through storm sewer outfalls from the Love Canal area. A study performed for the DEC by Malcolm Pirnie, Inc. in 1983 identified Love Canal type contaminants, including 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin) in the sediments of both the Black and Bergholtz Creeks.

In May 1985, the USEPA issued a Record of Decision (ROD) which called for the remediation of Black and Bergholtz Creeks. This ROD stated that the method of creek excavation to be used, and the location and type of containment facility to store the excavated creek sediments would be decided during the design phase of the project. The ROD also stated that the remedial limits for the creek banks would be determined by sampling.

Plans for cleanup of the contaminated Black and Bergholtz Creeks have been underway since July 1986. On July 10, 1986, the DEC awarded a contract to TAMS Consultants, Inc. of New York, New York for the design and construction oversight of the cleanup of the creeks. In December 1986, the DEC received a Preliminary Design Report from TAMS for the creek remediation program. At that time, a Special Edition of the Love Canal Update was issued summarizing the recommendations of the report. A DEC Public Information Meeting was also held to discuss these recommendations and to obtain comments from concerned individuals. In addition, Public Availability Sessions were held on December 19 and 29, 1986.

In January 1987, the DEC and its consultant began to refine the details of the Preliminary Design Report. Two major issues were then identified as critical to the completion of the Final Design for the project: (1) a determination as to the extent of excavation along the creek banks and (2) a determination as to the quantities and nature of the material to be stored in the interim containment facility (ICF).

In order to determine the extent of creek excavation, the DEC had its consultant, Malcolm Pirnie, Inc. (MPI), collect creek bank samples in May and June of 1986. The DEC received the results of the analysis of these bank samples in November 1986 and requested the assistance of the NYSDOH and the USEPA in determining the impact of these data. The DEC met with the NYSDOH and the USEPA in January 1987 in order to facilitate their review of the data.

The DEC surveyed along the Bergholtz Creek to determine the bank sample locations and the DEC directed TAMS to prepare a draft of the creek excavation plan. The DEC used the average concentration of 1 ppb dioxin as the level of concern.

After a careful review of all of this information by the DEC project staff, a final recommendation as to the extent of creek bank excavation was made. The remediation limits of Bergholtz Creek will include the excavation of the creek bed to a depth of 18" below elevation 562 and excavation of the bank above this elevation to a minimum depth of 6" on a two-to-one slope until either the creek bank is intercepted or the elevation 566 is reached. The 566 elevation represents the location of the mid-bank samples collected by Malcolm Pirnie, Inc. in 1986.

The remediation limits of Black Creek will include the excavation of the creek bed to a depth of 18" below the elevation 563 and excavation of the bank above this elevation to a minimum depth of 6" on a two-to-one slope until either the creek bank is intercepted or the elevation 566 is reached.

On March 17, 1987, the DEC met with representatives of the USEPA, ATSDR, and NYSDOH to discuss this recommendation. As a result of this meeting, it was decided that the remediation plan detailed above for creek bed and bank excavation will achieve a cleanup of contaminated sediments with an average of 1 ppb of dioxin.

Storage Requirements

In December of 1986, TAMS Consultants, Inc. submitted the Black and Bergholtz Creek Preliminary Design Report. This report called for the construction of an Interim Containment Facility (ICF), to be located in the southwest corner of the Love Canal site. According to this preliminary report, it was estimated that 37,000 cubic yards of contaminated material would be stored in the interim containment facility. It was determined that due to site limitations, the holding capacity of the ICF at this site would be approximately 40,000 cubic yards.

Since December 1986, TAMS has performed a more detailed analysis of the quantities of materials that could be stored in this facility. As a result of this analysis, it was determined that the amount of material to be stored at the interim containment facility could range from about 30,100 to about 53,150 cubic yards. For a list of the estimated quantities to be stored in the interim containment facility, see Table 1.

This analysis for the interim containment facility indicates that this volume of 53,150 cubic yards, could not be stored at the selected location. To resolve this problem, a number of options were reviewed. These options included dynamic compaction of the materials beneath the ICF to stabilize the foundation without excavation of former Ring II home basements; injection of materials to solidify the Ring II basements; and excavation of the 20 Ring II basements prior to construction of the ICF. A technical review of the dynamic compaction and injection options resulted in the rejection of these options since neither option would provide the required foundation stability. As a result, the DEC began an evaluation of the materials identified for storage in the interim containment facility. The DEC concluded that the creek material, the drums, the sediments from the sewer dewatering facility and the temporary haul road material, needed to be stored in the containment facility due to the presence of significant contamination. DEC then concentrated its efforts on determining the need to store the Ring II basement debris, stripped soil and temporary staging area material in the containment facility. As noted above, the basement debris must be excavated from this site prior to construction of the interim containment facility and the drum storage facility to provide a proper foundation for these structures.

This effort included an evaluation of the project records from the Love Canal Ring I and Ring II House Demolition contract. DEC staff reviewed the records of both the New York State Department of Transportation and the New York State Department of Health on-site representatives during the demolition of these homes. The DEC reviewed the progress of

Table 1

Estimated Containment Facility Storage Requirements

Material Source	Estimated Volume (cubic yards)
Creek Beds and Banks	16,000 (in situ)
Over excavation of Creek Bed and Bank Material	3,500
Bulking of Creek Bed and Bank Material	5,000
1200 Drums Stored at Love Canal	600
Sediments in Sewer Dewatering Facility	500
Haul Roads (on creeks and along creeks exposed to contaminants)	4,500
Sub Total	30,100
Ring II Basements (approx. 20 basements) Debris at ICF Location	6,250
Stripped Soil at ICF Location (9" Depth)	10,000
Ring II Basement Debris (approx. 5 basements) at Drum Storage/ Decontamination Facility	1,500
Stripped Soil at Drum Storage/Decontamination Facility (9" Depth)	800
Temporary Staging Area for Basement Debris and Drums	4,500
Total	53,150

demolition, the types of debris that may be in the basement in both Ring I and Ring II locations, whether visible contamination was evidenced during demolition, and whether Ring I debris was transferred to Ring II locations. The records provided no evidence that the Ring II basements were significantly contaminated with Love Canal type chemicals or that any Ring I debris was disposed of in Ring II basements at either site.

In addition, the DEC also compiled and evaluated analytical data associated with these sites to determine if any significant contamination existed in the top layers of the soil or in the groundwater. This data was provided in reports written as a result of studies conducted by the USEPA, NYSDEC and NYSDOH.

The reports that were reviewed include: the E.C. Jordan, March 1986, "Interim Status Report, Task VC"; the E.C. Jordan, October 1983, "Borehold Investigation Final Report"; the DOH, March 1983, Map of Chemical Distribution by soil level; the DOH, October 1980, Maps and Tables of chemical distribution by location and depth in soils; the DOH, August 1978, Basement sump sampling analytical data; the DOH, January 1979, Basement sump sampling analytical data; the DOH, January 1980, Basement sump sampling analytical data; the JRB and Associates for USEPA, September 1981, groundwater monitoring program, boring logs; and the USEPA, May 1982, Environmental Monitoring, distribution of chemical contamination by location and depth.

The DEC also reviewed data collected during the sampling program conducted prior to the construction of the administration building. This sampling was conducted along trenches to a depth of about 2'. No elevated concentrations of contamination were encountered at this location. These soils were considered clean.

From the evaluation of this information, the DEC determined that if excavation takes place at the interim containment facility and drum storage/decontamination facility sites, the soils that will be encountered have not shown significant amounts of contamination, either in the soils or the groundwater. Areas exhibiting higher levels of chemical contamination are under the expanded cap and will not be excavated.

Based upon the evaluation of the house demolition contract and the analytical data, the Ring II basement debris and the soils on the west side of former 97th Street do not need to be stored in the interim containment facility. DEC plans to excavate the former Ring II basements in the areas of the interim containment facility and the drum storage facility and transport it on-site to the northwest corner within the existing Love Canal Site. A construction and demolition debris landfill would be constructed and oeprated in this area in accordance with Part 360.

Drum Storage Facility to be Built

The DEC currently has about 1,800 drums of waste stored within the fenced areas of the Love Canal site and some of this waste is potentially contaminated with dioxin. These drums contain spent carbon from the Love Canal Leachate Treatment Plant; soiled protective clothing accumulated during various aspects of the remedial work at Love Canal; soil cuttings produced during the installation of groundwater monitoring wells; and contaminated sediments collected during the cleaning of Rings I and II sewers.

These drums are currently stored on wooden pallets in the northwest sector of the Love Canal site. DEC Leachate Treatment Plant Staff have developed a marking system to identify the specific wastes contained in each drum. If a problem is identified, the drum is then placed into a larger "overpack" drum which is then sealed and labelled.

Because of the potential for dioxin contamination in these wastes, the drums must remain at the Love Canal site since there are no existing commercially available disposal facilities in the United States currently permitted by the USEPA to accept dioxin-contaminated wastes. Until this issue is resolved, or a permanent disposal technology developed, the DEC must take measures to protect the drums from additional deterioration due to weathering and exposure, as well as provide safeguards to contain the wastes.

To accomplish this, the DEC plans to construct a Decontamination/Drum Storage Facility (DDSF) in the same location in which the drums are currently stored. In addition to the drum storage facility, it is also planned to construct adjoining this facility a concrete wash pad for decontamination of equipment. This decontamination pad will have a central drain which will be connected to the existing leachate collection system. All wash water and contaminated water will therefore be treated at the Leachate Treatment Plant before being discharged into the City sanitary sewer system.

Construction of this Decontamination/Drum Storage Facility was originally to have taken place under the storm and sanitary sewer cleaning contract carried out and completed in 1986. Suppliers of the proposed superstructure, however, went out of business and the facility's construction was rescheduled.

93rd Street School

The initial field work on the 93rd Street School Remedial Investigation and Feasibility Study (RI/FS) was completed in November 1986. In all, 15 soil borings were drilled, 62 soil samples were collected and 9 monitoring wells were installed. Additional groundwater and surface water samples were collected in December of 1986. The results of the analysis of the water and of the 15 subsurface soil samples for 2,3,7,8-TCDD dioxin were received by the DEC in January 1987. These analyses were performed by ERCO of Cambridge, Massachusetts and were reviewed by the DEC for Quality Assurance and Quality Control (QA/QC) and found to be acceptable. Table 2 provides the results of these dioxin analyses. As these results indicate, dioxin was not found at or above the detection limit in any of these samples.

The DEC is currently awaiting the final results of the analyses of these environmental samples for Priority Pollutants. Once the results are received, Loureiro Engineering Associates, consultants to the DEC for the 93rd Street School Remedial Investigation and Feasibility Study, will review them to determine if additional soil borings and analyses will be required. A report on this evaluation and the subsequent recommendations for additional investigation is due in April 1987.

A schedule of the major milestones for the completion of the RI/FS for the 93rd Street School is as follows:

First Round Sampling Report -Spring 1987
Second Round Sampling Report -Summer 1987
Remedial Investigation Report-Fall 1987
Feasibility Study -Winter 1987

New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste

TABLE 2

Results of Dioxin Analysis
93rd Street School

ERCO/A DIVISION OF ENSECO INCORPORATED

ERCO ID	Client ID	2,3,7,8-TCDD	Detection Limit
41948	Method Blank	ND	0.23
41949	2369	ND	0.24
41950	2370	ND	0.34
41951	2388	ND	0.24
41952	2390	ND	0.27
41953	2392	ND	0.29
41954	2396	ND	0.21
41955	2398	ND	0.32
41956	2371	ND	0.22
41957	2389	ND	0.20
41958	2391	ND	0.15
41959	2393	ND	0.11
41960	2394	ND	0.21
41961	2395	ND	0.17
41962	2397	ND	0.17
41963	2399	ND	0.14
41964	2400	ND	0.19
40964	1P-11	ND	0.067
40965	1P-1	ND	0.91*
40966	Method Blank	ND	0.024
40966RX	Method Blank Reextraction	ND	0.25

If customer has any questions regarding analysis, refer to sample in question by its ERCO ID#.

ND = Not detected at the limit shown.

*Sample reextracted.

TABLE 2
(continued)

Results of Dioxin Analysis
93rd Street School

ERCO/ A DIVISION OF ENSECO INCORPORATED

DIOXIN ANALYSIS

ERCO ID	Client ID	2,3,7,8 TCDD	Detection Limit
41058	Trip Blank #3833	ND	0.21
41059	Field Blank #3834	ND	0.21
	Method Blank	ND	0.33
Method Blank	--	ND	0.040
40605	1-P-2	ND	0.016
40606	1-P-3	ND	0.16
40603	1-P-4	ND	0.085
40604	1-P-5	ND	0.043
40613	1-P-6	ND	0.026
40608	1-P-8	ND	0.044
40607	1-P-9	ND	0.28
40614	1-P-10	ND	0.010
40610	1-P-12	ND	0.015
40615	1-P-13	ND	0.016
40611	1-P-15	ND	0.019
40609	1-P-16	ND	0.014
40612	1-P-17	ND	0.0097

If customer has any questions regarding analysis, refer to sample in question by its ERCO ID#.

ND = Not Detected.

Cayuga Creek Results Available

A study conducted for the DEC by Malcolm Pirnie, Inc. in 1983 on the extent of Love Canal related contamination in area sewers and creeks, indicated that contaminants may have moved through storm sewers to the Cayuga Creek. Cayuga Creek runs north to south and empties into the Little Niagara River. In March of 1985 CH_2M Hill, consultants to the USEPA recommended that further investigation of Cayuga Creek take place. CH_2M Hill based these recommendations on the Malcolm Pirnie study results and on subsequent sampling conducted by the DEC.

In its May 1985 Record of Decision, the USEPA accepted CH_2M Hill's recommendations and a sampling program for 2,3,7,8-TCDD was initiated by the DEC and its consultant. Malcolm Pirnie, Inc. collected 177 Cayuga Creek sediment samples for the DEC in May and June of 1986. These samples were analyzed by the New York State Department of Health and an analytical report was released in October of 1986.

The highest levels of dioxin found in creek bed samples which had been composited are 1.09, 1.28 and 0.99 ppb. These concentrations were found in the Cayuga Creek sediments nearest a storm sewer outfall and sanitary sewer overflow which had been subject to drainage from the Love Canal area. The results of this study are available in a report entitled, "Love Canal Additional Creek Sampling and Sanitary Sewer Inspection" prepared by Malcolm Pirnie, Inc. for the DEC. A copy of this report is available for review at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York. Based on the evaluation of these results by the USEPA, NYSDOH and NYSDEC, a program to continue to monitor Cayuga Creek is being developed.

The proposed monitoring program will include a fish sampling program and additional sediment sampling near the storm sewer outfalls to further define the extent of contamination in Cayuga Creek. The proposed fish sampling program, which includes fish sampling prior to the cleanup of Black and Bergholtz Creek as well as after the creek cleanup, is complete. It will also provide an assessment on the impact of the Black and Bergholtz Creek cleanup on TCDD levels in the fish.

These monitoring plans are in their preliminary stages. Prior to finalization of the monitoring program, the DEC will discuss its plans with the public to provide an opportunity for comments, questions, and suggestions.

If you have any questions on these results, please call the DEC Public Information Office at (716) 296-9637.

Frontier Avenue Storm Sewer

Work activities on the Frontier Avenue storm sewer and sewer repair work on 100th Street previously discussed on pages 3 and 4 of Issue 11 of the Update, are scheduled to begin in late April 1987. Bids were accepted by the DEC on September 3, 1986 and a contract for $207,000 was awarded to Firstrhyme Construction Corporation of Buffalo, New York. The work is expected to begin in April 1987 and take about eight weeks to complete. The work will require closing Frontier Avenue between 95th and 100th Streets. Additional notification of the temporary closure of this section of Frontier Avenue during the work activities will be provided just prior to the start of construction.

Home Maintenance Program

Meetings are ongoing with LCARA to develop an MOU between our two agencies. Several questions remain to be resolved regarding the scope of work and what contract requirements LCARA will be required to meet.

The Department is negotiating a contract agreement with a consulting firm to prepare plans, contract documents for bid and on-site construction supervision for this project.

Administration Building Complete

Construction of the Love Canal Administration building which began in July of 1986 was completed in December of 1986. The Administration Building provides additional space needed for office work, storage, repair and maintenance activities, and improved hygiene facilities.

Office equipment and supplies arrived at the site in January 1987 and telephone service was installed in early February 1987. The DEC Leachate Treatment Plant staff began occupying the Administration Building shortly thereafter. Two full-time operators and one janitor are currently employed by the DEC at the Leachate Treatment Plant.

Some final site work and landscaping must be completed prior to close out of the construction contract. This work is expected to be complete as soon as the weather permits.

Plasma Arc Unit

DEC staff is continuing to work with the contractor, USEPA site program staff and the DEC/USEPA regulatory staffs to finalize project development and to implement the project to the satisfaction of all concerned.

Itemized below is a tentative schedule indicating the major Plasma Arc project milestones as it currently exists.

- Execute change orders for modification of the Plasma Arc Unit (PAU) and construction of support facilities - Spring 1987
- Approval of budget for overall project - Spring 1987
- Complete air portion of the RCRA application - Summer 1987
- RCRA and Air application approval - Summer 1987 to Regulatory Affairs
- Submit Draft Environmental Impact Statement (DEIS) - Summer 1987
- Shakedown Burn - Fall 1987
- Trial Burn Run II - Winter 1987
- Trial Burn Run III - Winter 1988
- Trial Burn Run IV - Spring 1988
- Demonstration Burn - Fall 1988
- Final Sludge Destruction - Fall 1988

DEC will continue to keep the public informed as the project develops.

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- In addition, a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the NYS DEC Public Information Office at the Love Canal.
- Periodically, public meetings and availability sessions are held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ **Please correct my name or address as listed below**

_____ **Please add the following name to your mailing list**

_____ **I do not want to be included on your mailing list**

NAME _____

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LOVE CANAL LANDFILL

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Published By
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
THOMAS C. JORLING, *Commissioner* MICHAEL J. O'TOOLE, JR.,P.E., *Director*

ISSUE 15 OCT. 1990

ABOUT THIS ISSUE

Since the last issue of "Update" substantial progress has been made, on a number of fronts, in the continuing efforts to remediate the Love Canal area. This issue contains a map of the Emergency Declaration Area (EDA) using the new simplified numbering scheme which will be referred to throughout this edition of "Update" in addition to highlights and progress reports on:

- New York State Commissioner of Health David Axelrod's "Decision of Habitability".
- Sampling completed in EDA 2 & 3, and exploration of higher levels of BHC contamination in Area 4.
- Black and Bergholtz Creeks remediation complete, including property restoration.
- Remediation efforts in the Love Canal Area.

  Lot C, 100th St. EDA Area 1.
- Clean-up plans for the 93rd Street School.
- On-going investigation of the Frontier Avenue Storm Sewer.
- Phase II Investigation of the 97th Street Methodist Church.
- Interim report on the Long Term Monitoring Program.
- Maintenance and Operations Highlights.

In addition this issue will contain short notes on personnel changes and new directions at the Public Information Office.

The Habitability Decision

A major milestone in the remediation efforts for Love Canal was passed on September 27, 1988 when Dr. David Axelrod, Commissioner of the New York State Department of Health, issued his "Decision of Habitability" for the Emergency Declaration Area (EDA). This report marked a turning point in the effort to remediate the area and is a step toward resettling neighborhoods around the Love Canal.

In making his decision, Dr. Axelrod followed criteria which were first developed in conjunction with a panel of independent scientists and the public. These criteria were pilot tested in the winter of 1986-87 and further modified on the basis of public and peer review, and a critique by the Technical Review Committee (TRC).

This process resulted in the TRC developing a definition of HABITABLE as: "Suitable for normal residential use without any restrictions." This meant that individuals could live in the EDA and feel comfortable about raising their families there, with children living and playing in the area.

The ruler that was used to measure whether an area met this definition focused on applicable known guidelines and on a comparison of environmental data from the EDA with data from three similar neighborhoods within Western New York. All comparison areas were required to be at least one half mile from any known landfill and were chosen by the TRC, with the assistance of the public.

This comparative approach was necessary because there were no standards for exposure to many of the chemicals found in the canal and most of the experts felt that a qualitative risk assessment for all these chemicals was not feasible.

To compare the different neighborhoods, all were tested for evidence of particular Love Canal Indicator Chemicals (LCIC). These chemicals were selected because they are known to be present in the Love Canal, they are long-lasting, and they move easily through the soil or water and would indicate chemical migration from the Love Canal.

The testing process itself involved collecting over 2,500 soil and air samples from the EDA and the comparison areas. These samples were tested for three air LCICs and eight soil LCICs. In addition, because a federal guideline exists for dioxin, this compound was specifically tested for within the EDA.

Results based on these tests which were conducted as part of the Habitability Study indicate:

- No enduring levels of air contamination were detected.
- Statistically, the soil from EDA 1 had significantly higher levels of all LCICs than soil from all the other parts of the EDA and from the comparison neighborhoods.
- Soil from EDA 2 and 3 had higher LCIC levels than soil from the comparison areas and EDA 4 - 7.
- Soil from EDA 4 - 7 did not have consistently elevated levels compared to soil from the comparison areas in Niagara Falls. However, soils from EDA 4 - 7 and Niagara Falls comparison neighborhoods were significantly more contaminated with LCICs than soil from the Erie County comparison area.

Applying the results of this study against the agreed upon habitability criteria, Dr. Axelrod determined that:

- EDA areas 4 - 7 met all of the habitability criteria and were suitable for unrestricted residential use or other purposes.
- EDA areas 1 - 3 do not meet the criteria for habitability. Thus, these areas are not suitable for normal residential use without remediation.
- EDA areas 2 and 3 do not meet the criteria for habitability, although to a lesser extent than EDA 1. Remediation may make these areas as habitable as other neighborhoods in Niagara Falls, but they cannot, at the present time, be considered appropriate for unrestricted residential use.
- EDA 1 - 3 are deemed suitable for other purposes such as commercial or industrial use without remediation.

For a more complete discussion of how the habitability criteria were developed, the test results for each area and Dr. Axelrod's decision are contained in "Love Canal

Emergency Declaration Area Decision on Habitability, September 1988". Copies of this informative document are available at the DEC's Public Information Office.

This decision enabled the Love Canal Area Revitalization Agency (LCARA) to develop a Master Plan, with input from a Land Use Advisory Committee, and prepare a Generic Environmental Impact Statement for the Plan. These documents, along with their Finding Statement, have been completed and submitted for review to the New York State Disaster Preparedness Commission (DPC).

The DPC held a special meeting on August 7, 1990. At this meeting they issued their own Findings Statement for the Love Canal Area Master Plan. It agreed with the Master Plan with respect to Areas 1 and 4 through 7 of the EDA but issues no such finding for Areas 2 and 3 because future remediation alternatives are still under study. In addition, the DPC designated the N.Y.S. Division of Housing and Community Renewal to oversee the activities of LCARA.

Sampling in EDA Areas 2, 3 and 4

One of the results of the Habitability Decision was a renewal of the commitment by the Department of Environmental Conservation (DEC) to remediate Areas 2 and 3, even though the U.S. Environmental Protection Agency has declined to participate in funding the remediation. However, the DEC needed more information about the depth of the contamination in order to design an appropriate remedial program.

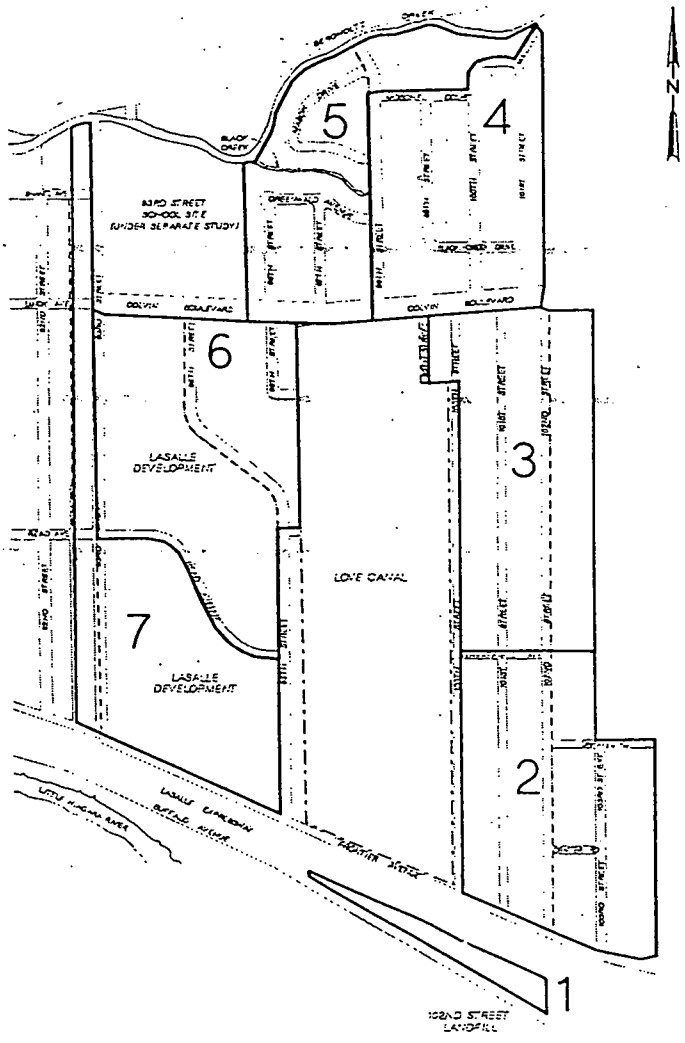
To this end, meetings were held between the DEC and the Department of Health (DOH) during October and November 1989. A sampling plan was developed which called for taking 12 inch cores. These were then divided into three separate samples covering the surface to a depth of 3", from 3" to 6" and from 6" to 12". Each individual section of the core was then analyzed.

NYSDEC and NYSDOH staff sampled 82 locations in Areas 2 and 3 during the week of December 4, 1989. The samples were shipped to NYSDOH labs in Albany for analysis. The results are currently being tabulated by the DOH. The NYSDEC consultant, E. C. Jordan, has conducted as aerial survey of the area for future mapping to be used in remedial planning and other site activities.

Also, as a result of the testing done to develop the Habitability Decision, two areas of higher levels of BHC contamination were discovered in EDA Area 4. The NYSDOH, NYSDEC and the Environmental Protection Agency agreed to further investigate these to determine their extent.

Continued next page

Figure - 1



Map of EDA Sampling Areas

Source: Adapted from Love Canal Emergency Declaration Area Proposed Habitability Criteria.

Sampling Continued

The NYSDEC Consultant, Ecology & Environment, Inc. completed sampling of these areas during April. Soil cores from 31 locations, to a maximum depth of 6 feet, or to native soil, were collected in the vicinity of 100th Street and Black Creek Drive. Samples collected from the top 2 feet in each bore hole will initially be analyzed. Based on those results additional samples may be analyzed. The preliminary analytical data was received on June 22, 1990.

A meeting was convened among NYSDOH, USEPA and NYSDEC on July 25, 1990 to discuss future needs. The preliminary data indicates that there will be some need for additional sampling and hot spot removal in this area. Two lots (9909 Black Creek Drive and 1044 100th Street) were found to have high levels of B-BHC in the soil. However, further refinement of the aerial limits of contamination is required. Also the north boundary of contamination on lot 1044 100th Street has not been established yet. As a result it was further agreed that additional sampling in lots 9909 Black Creek Drive, 1044 100th Street and the two lots adjacent, to the north of 1044 100th Street, should be conducted to better define and limit the quantity of soils to be remediated. The additional sampling is expected to be done in late 1990.

LOVE CANAL AREA REMEDIATION EFFORTS

School Clean-up Plans

The New York State Department of Environmental Conservation (DEC) released the Remedial Investigation and Feasibility Study (RI/FS) in April of 1988. A public meeting and availability session was also held during April and a Responsiveness Summary to address the issues raised was prepared and released. The United States Environmental Protection Agency (EPA) presented the Record of Decision (ROD) which selected a remedy for the site.

The ROD provides for the excavation of up to 7,500 cubic yards of soils, treatment of these soils by a solidification and stabilization technology, on site placement of the treated soils and construction of a low permeability cover over both the treated soils and adjacent area.

In August of 1989, soil samples were collected from the site and given to five vendors to conduct a treatability study. The treatability study is to assess and compare their treatment systems effectiveness. The study has been completed and the report is expected this month. In addition, the DEC consultant has completed and submitted the preliminary design documents for the Department's review.

Originally the Niagara Falls Board of Education had planned to use the building for storage. However, in light of the Habitability

Continued next page

Black and Bergholts Creeks Remediation Completed

The Remediation Program for Black and Bergholtz Creeks has been completed since the last issue of "Update". This project was a major undertaking which called for the excavation of over 3,300 feet of creek bank, cleaning of storm sewers with outfalls leading into the creeks within the area to be remediated, rehabilitation of the 93rd Street Sanitary Sewer and the replacement of the existing footbridge at 93rd Street.

Included in the work was: the temporary diversion of Bergholtz Creek, the construction of a dewatering containment facility for storage of contaminated creek sediments and other debris; the building of a drum storage and decontamination facility; the erection and removal of security fencing, haul roads, a silt screen and cofferdams.

Construction of the facilities to process the sediments commenced in the first quarter of 1989 and preliminary work for the creek excavation effort started in April 1990.

A significant change in the scope of work for this project was realized on June 1, 1989 when the Partial Consent Decree was recorded in federal court requiring Occidental Chemical Corporation (OCC) to transport remedial wastes from the Love Canal site to their Niagara Falls Plant.

Continued next page

Frontier Avenue Storm Sewer Investigation

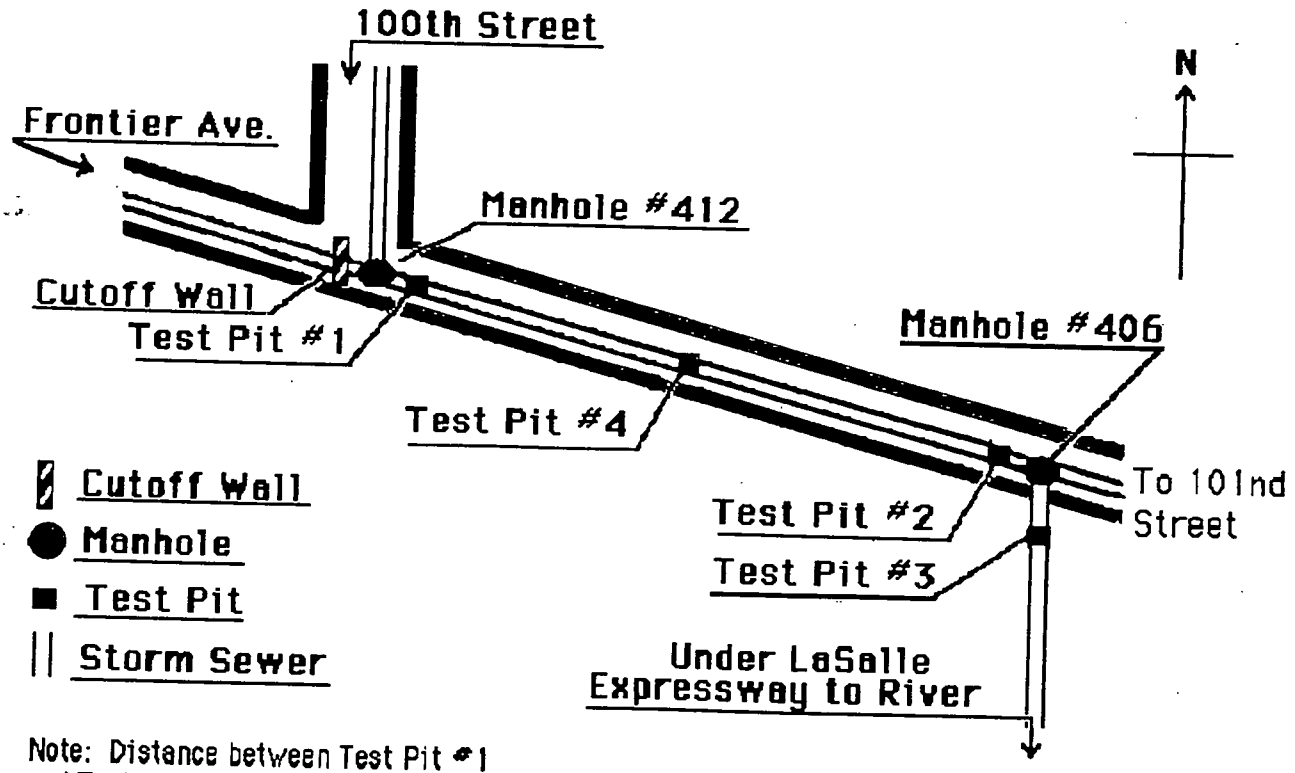
Frontier Avenue is located at the southern boundary of the Love Canal Site. The storm sewer located in Frontier Avenue has been the subject of several investigations and actions since contaminants were detected migrating from the Love Canal in the late 1970's. Historically, Love Canal contaminants were found in the bedding stone under this sewer at different times and different locations during various remedial contracts. Cutoff walls have been installed to eliminate the potential for contaminant migration along the Frontier Avenue storm sewer from the Love Canal. In the spring of 1988 chemicals were identified in samples of water from the storm sewer and reported at the June 21, 1988 Technical Review Committee (T.R.C) meeting. This led to a decision to install an additional cut off wall and abandon the storm sewer in order to isolate the chemicals known to exist in the sewer bedding in this area. The scope of this work was first reported at the May 17, 1989 T.R.C. meeting.

On August 6, 1990, as part of a recent contract, the cutoff wall was installed adjacent to the west side of storm sewer manhole no. 412 (see Figure 3) to further isolate any potential contaminant migration along the pipe bedding. During the excavation for the cutoff wall, contamination was discovered in the bedding stone of the storm sewer. As a result of this discovery, additional test pit excavations along the pipe east of manhole 412 and south of manhole 406 were initiated on August 21 and 22, 1990. Four test pits were dug into the pipe bedding of the storm sewer with three out of four pits identifying the presence of contamination in the bedding stone. Samples were collected of the contaminated bedding material, the groundwater in the bedding, as well as the water inside manhole 406. These samples will be analyzed for the full range of volatile and semi-volatile compounds.

The N.Y.S.D.E.C. is planning further investigations to determine the extent of the contaminated bedding and will implement an appropriate remedial action.

Figure - 2 Not To Scale

Frontier Avenue Investigation



Note: Distance between Test Pit #1 and Test Pit #4; and between Test Pit #4 and Test Pit #2 is about 85 feet.

School Plans Continued

Decision and the possibility of many more families living in the area. the school board has notified the Love Canal Revitalization Agency and the DEC of their desire to again reopen the school to students. They also requested that the contaminated soils be physically removed from the site rather than proceed with the planned solidification and capping.

On March 14, 1990 a meeting was held to discuss further action in view of the School District's desire to use the building for the 1993 school year. Currently the DEC is developing a Proposed Remedial Action Plan and will probably call for the removal of the contaminated soil, which will then require the EPA to issue an amendment to the September 1988 ROD.

The site is not included in the Superfund project list to be funded for this year. However, it is expected that funds will be available for next year.

Creeks Cleaned Continued

OCC committed to construct a staging facility and pug mill to process creek sediments and then transport these sediments to their Niagara Falls plant. As part of OCC's obligation under the Decree, 3,164 drums of material from the Love Canal Site was also processed at the mill and transported for final disposition to their Niagara Falls plant.

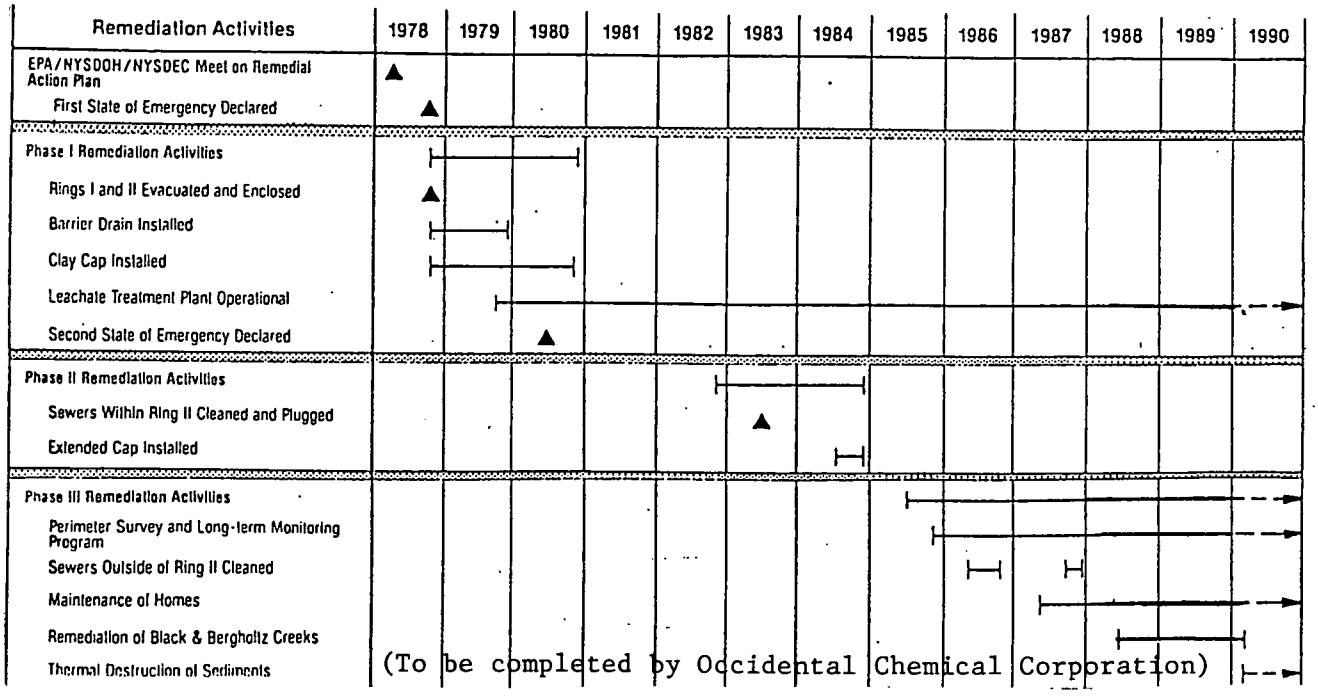
This change resulted in excavation of creek sediments beginning on August 3, 1989. By mid-September creek excavation was substantially complete and the installation of a crib wall upstream of 91st Street was completed in late October.

On October 26, 1989 water was again allowed to flow through the creek's natural channels. The Black and Bergholtz Creeks Remediation contract was declared substantially complete as of December 16, 1989.

Final restoration work including: reseeding, asphalt repair, re-vegetation, final grading and final punch list items are to be completed in the summer of 1990. This summer should also see the above mentioned pug mill dismantled. Non-contaminated debris will be placed in the remaining unfilled cell of the DCF and any contaminated material will be transported to OCC for final disposition.

Figure - 2

Timeline of Love Canal Remediation Activities



Source: Love Canal Emergency Declaration Area Havitability Study, Volume I (Updated December 1989)

97th Street Methodist Church Investigation Nears Completion

The New York State Department of Environmental Conservation, after an extended Phase I investigation of the site, began to plan a Phase II investigation in September of 1988. The work plan called for investigating the site using surface and subsurface soil sampling, seismic soundings, ground-penetrating radar, soil borings, the installation of more groundwater monitoring wells and ground water sampling.

This work started on October 11, 1989 and was completed just before Christmas. These tests will determine the nature and extent of any fill that was used at the site and if any dangerous contamination is present.

The Phase II draft investigation report for the site was received on May 21, 1990 and is being review by the DEC. This report will determine the potential need for any remedial action at this site. Preliminary findings indicate no significant impact to health and the environment and no remedial activities are necessary.

Short Notes

♦ The 250 unit LaSalle Development Housing Project was razed in the spring of 1989. Federal funding for the demolition was approved by the U.S. Department of Housing and Urban Development in October of 1987 and the last tenants moved out in July of 1988.

♦ The Citizen Participation Specialist duties at the Public Information Office for Love Canal have been assumed by Mr. Michael Podd, who joined the Department in March 1990. Michael will not only continue these duties for the Love Canal site but will also be given some responsibilities for the 102nd Street, Hyde Park, S-Area and other OCC Landfills.

These new responsibilities will provide the public with another source, in addition to the EPA, for convenient access to documents and information regarding these areas. The Department believes this is necessary as remediation plans are developed and remains committed to ensuring that the public be kept informed.

Other Remediation Efforts

♦ Remediation has been completed in the vicinity of Lot C, 100th Street, where testing discovered dioxin (2,3,7,8-TCDD) in concentrations above 17 ppb. In April of 1988, as a first step the NYSDEC erected a chain link fence around the site and an extensive testing program was undertaken.

Based upon the results of this investigation, a 10 by 17 foot area was excavated to a maximum depth of 18 inches to remove the contaminated soils. The soils were placed in drums and eventually removed to Occidental Chemical Corporation's Buffalo Avenue Plant. No contamination detected after retesting, the fence was removed and the site was backfilled with clean soil, graded and landscaped.

♦ Dr. Axelrod, in his Habitability Decision, found Area 1 did not meet the criteria for habitability although it was deemed suitable for commercial or industrial use. On February 8, 1990, Occidental Chemical Corporation released the Draft Final Report of their Remedial Investigation of the 102nd Street Landfill Site. This investigation discovered that some soils north of Buffalo Avenue, within sections of Area 1, contain contaminants associated with the 102nd Street Site.

The Proposed Preferred Remedial Plan calls for these soils to be removed and returned to the 102nd Street Site. A public hearing was held on August 15, 1990 and a final decision is expected soon. If the preferred plan is approved, remedial work at the 102nd Street Site could begin by next year.

Long Term Monitoring Program

The long term monitoring program provides first-hand evidence that the containment system is working. It is also designed to provide early warning in the event problems develop with the containment system, and do so before contamination could move off site.

The various monitoring wells indicate that the direction of the hydraulic gradient at the site continues to be directed toward the barrier drain. This means that the collection system is exerting an influence over groundwater flow at distances of 200 feet and possibly more. This ground water flow has been confirmed on all sides of the site, with the majority of this flow taking place horizontally in the upper layers of the overburden.

It was reported in the 1989 Love Canal Annual Report, dated February 1990, as part of this monitoring program, that 42 of 43 long-term monitoring wells showed no contamination. One well, No. 10225-C, (See figure 3, item #1) showed 12.5 parts per billion (ppb) of the compound trichloroethene. This well was installed as a replacement for one eliminated by construction activities. Its location was suitable for immediate incorporation into the Long-Term Monitoring Program.

The 1989 Annual Report also included results from new wells installed to monitor the new Dewatering Containment Facility (DCF). The results indicated that some of these wells contained low levels of contamination. These wells are being evaluated for inclusion into the Long-Term Monitoring Program for the overall site (See figure 3, Key).

As a result of the finding at well No. 10225-C, the New York State Department of Environmental Conservation (N.Y.S.D.E.C.) has performed follow-up activities at this well. In response to requests, the N.Y.S.D.E.C. is reporting on its follow-up activities and laboratory findings at well No. 10225 -C. The well was redeveloped with extensive pumping and sampling twice in 1990. Redevelopment and sampling were conducted on January 17-19, 1990 and again on May 9-11, 1990. Analytical work was performed by two separate laboratories. The only data from this well which has not previously been released was collected during these activities. Similar low levels of contaminants were found during these activities. All data is available for review at the Public Information Office.

The N.Y.S.D.E.C. requested that a consulting firm which is familiar with the Love Canal site and monitoring well program review the data and provide independent

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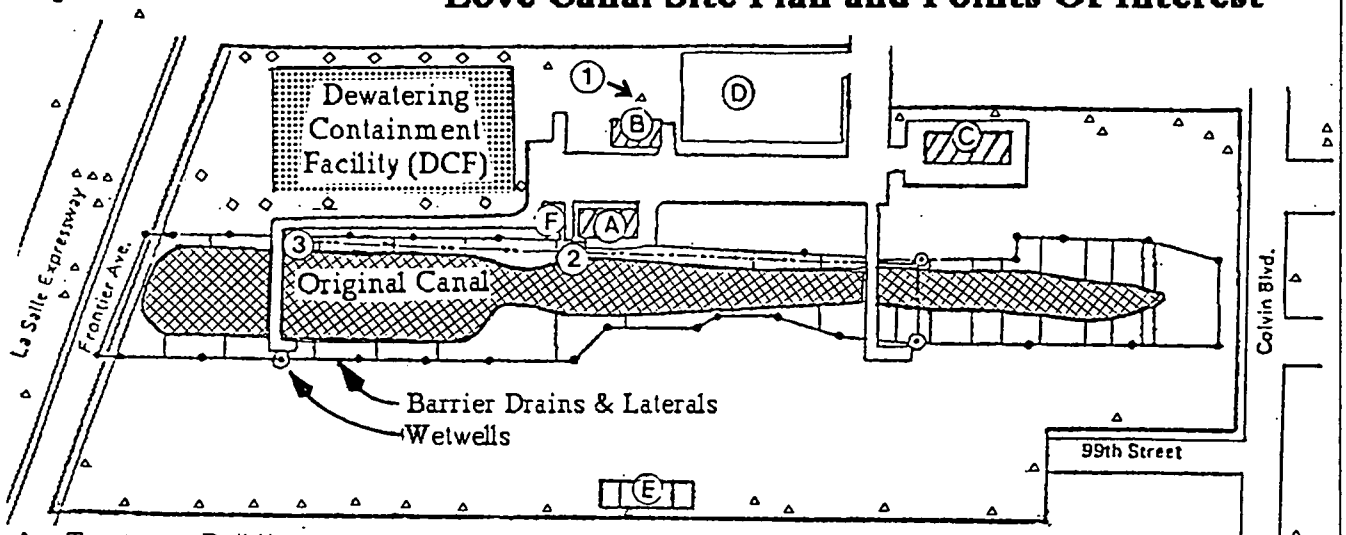
Figure - 3 Not To Scale

Love Canal Site Plan and Points Of Interest



A - Treatment Building
B - Administration Building
C - Decontamination/Drum Storage Building
D - Permanent Staging Area
E - Sewer Dewatering Facility
F - Sludge Storage Tanks

1 - Well 10225 C
2 - Leachate Holding Tanks
3 - Modified Pump Station
Δ - Long Term Monitoring Wells
◇ - DCF Monitoring Wells

comments. The Department was particularly interested in the question of whether the data suggested an increasing trend in levels of contamination. The firm has responded with a letter dated July 30, 1990, which is available for inspection in the Public Information Office. The letter states that:

1. It is early to draw final conclusions concerning the presence of a trend.

2. The data should be used as a basis for comparing future data from this well to determine whether there is a trend.

N.Y.S.D.E.C.'s engineers and geologists agree with the consultant's comments and feel that the low levels of contamination in this well do not indicate a need for remedial action. However, the Department will continue to monitor this well and to evaluate it in the context of the overall Long-Term Monitoring Program.

The 1990 Love Canal Annual Report will contain a summary of long-term monitoring activities and findings. Any further developments in connection with well No. 10225-C and the DCF wells chosen, up to the time of publication, will be reported there. We hope to have the report available early in 1991.

Operations and Maintenance

The New York State Department of Environmental Conservation is pleased to say that there has been continued progress in its efforts to operate and maintain the Love Canal Inactive Hazardous Waste Site as an example of the State's commitment to a clean environment.

The Leachate Treatment Facility had no violations of the Sewer Use Ordinance in 1989 and the treatment facility continues to meet its discharge standards. The Department's daily operating practices remain conservative, with moderate flow rates and careful monitoring of the leachate. (Figure 4). In addition, the Department is continuing to manage this facility as efficiently and safely as possible. This means continuing changes to the facilities and updating of the equipment. As part of this program a pump station is being modified to increase the safety and ease of maintenance procedures (Figure 3, item #3) and new wiring has been installed throughout the site. In addition, all the inground leachate holding tanks have been cleaned and equipped with access chambers (Figure 3, item #2).

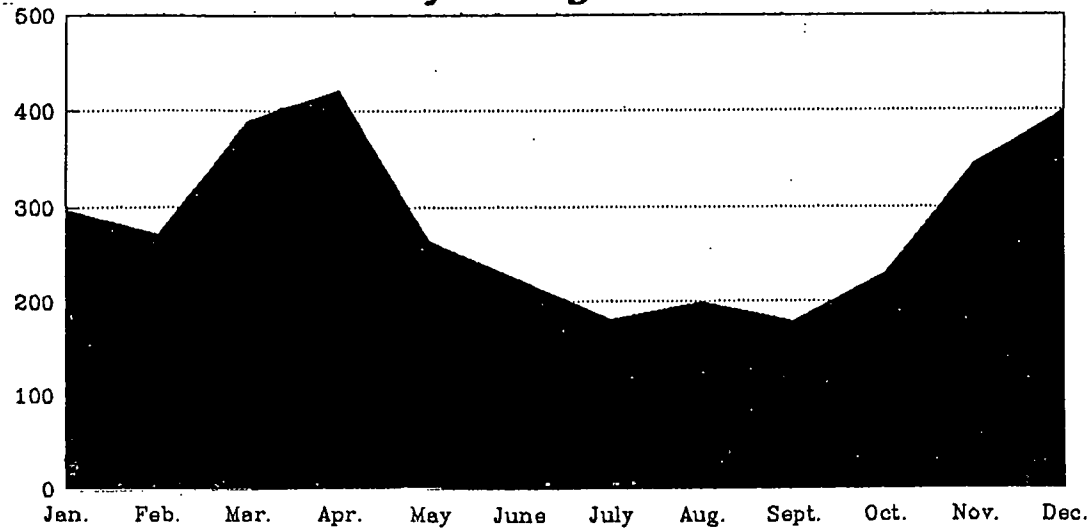
All buildings are now tied into the fire pull box system, with only the Decontamination/Drum Storage building (Figure 3, item C) remaining to be equipped with security and smoke detectors. In addition, the Emergency Coordinators for Region 9 have all been given the latest Contingency Plan for the facility and each individual will be scheduled for yearly site training which includes use of this Contingency Plan.

Figure - 4

Facilities Monthly Average of Leachate Processed

Gallons Treated Per Month

In Thousands From 1980 through 1989



New York State Department of Environmental Conservation
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Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid Waste
THOMAS C. JORLING, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 14 *JANUARY 1988*

About This Issue

On June 24, 1987, Thomas C. Jorling was confirmed as the seventh Commissioner of the New York State Department of Environmental Conservation (NYSDEC).

Prior to this appointment, Mr. Jorling served in the environmental sector as lawyer, administrator and educator. In 1966, he was general attorney in the federal Division of Fish, Wildlife and Parks. He was minority counsel to the United States Senate Committee on Public Works from 1969 to 1972. During this time, major environmental protection statutes for clean air, clean water and solid waste were enacted. For two years, Jorling served as Assistant EPA Administrator for Water and Hazardous Materials and was responsible for the implementation of the Clean Water Act, the Ocean Dumping Act, the Safe Drinking Water Act and the Resource Conservation and Recovery Act (RCRA).

As professor of environmental studies and director of the Center for Environmental Studies at Williams College, Jorling established the curriculum of the Environmental Studies Program and managed the resources and facilities for the center.

Since he assumed his responsibilities with the NYSDEC, Commissioner Jorling has emphasized the need to move forward aggressively to clean up inactive hazardous waste sites and to address the New York solid waste crisis. A number of modifications were made within the organizatin of the NYSDEC to accomplish these goals. A NYSDEC Organizational Chart is available on page 3 of this newsletter.

Additional information on the restructuring of the Division of Solid and Hazardous Waste is available on page 2.

In addition to information on the changes within the NYSDEC, updates on the major remedial accomplishments achieved by the NYSDEC at the Love Canal follows:

DEC Division Reorganized

Commissioner Thomas C. Jorling announced the reorganization of the Division of Solid and Hazardous Waste into three separate divisions on September 17, 1987. The three newly created divisions are: the Division of Solid Waste, the Division of Hazardous Waste Remediation and the Division of Hazardous Substances Regulation. All three functions were previously combined under the Division of Solid and Hazardous Waste.

"The establishment of these three new divisions within DEC will focus our efforts and resources and raise the level of performance on three of the most pressing crises we as a State face", said Jorling.

"It will allow us to move aggressively forward to clean up hazardous waste sites and, by raising the status of solid waste management in the department, we can provide the leadership necessary to address what is accurately characterized as the New York solid waste crisis."

Deputy Commissioner Edward O. (Ned) Sullivan currenty supervises the Division of Hazardous Waste Remediation. Deputy Commissioner R. Daryl Banks supervises the Division of Solid Waste and the Division of Hazardous Substances Regulations.

The Division of Solid Waste will focus on the issues of waste reduction, recycling, waste-to-energy plants and landfilling.

The Division of Hazardous Substances Regulation will continue to administer programs for the regulation of hazardous wastes. In addition, regulatory programs for low-level radioactive waste and pesticide management have been assigned to this Division.

The Division of Hazardous Waste Remediation will oversee the cleanup of inactive hazardous waste sites under the State Superfund program.

Commissioner Jorling appointed three career NYSDEC managers to head the new divisions: Norman H. Nosenchuck, P.E. is the Director of the Division of Solid Waste; Michael J. O'Toole, Jr., P.E. is the Acting Director of the Division of Hazardous Waste Remediation; and N.G. Kaul, P.E. is the Acting Director of the Division of Hazardous Substances Regulation.

Good Luck Norm!

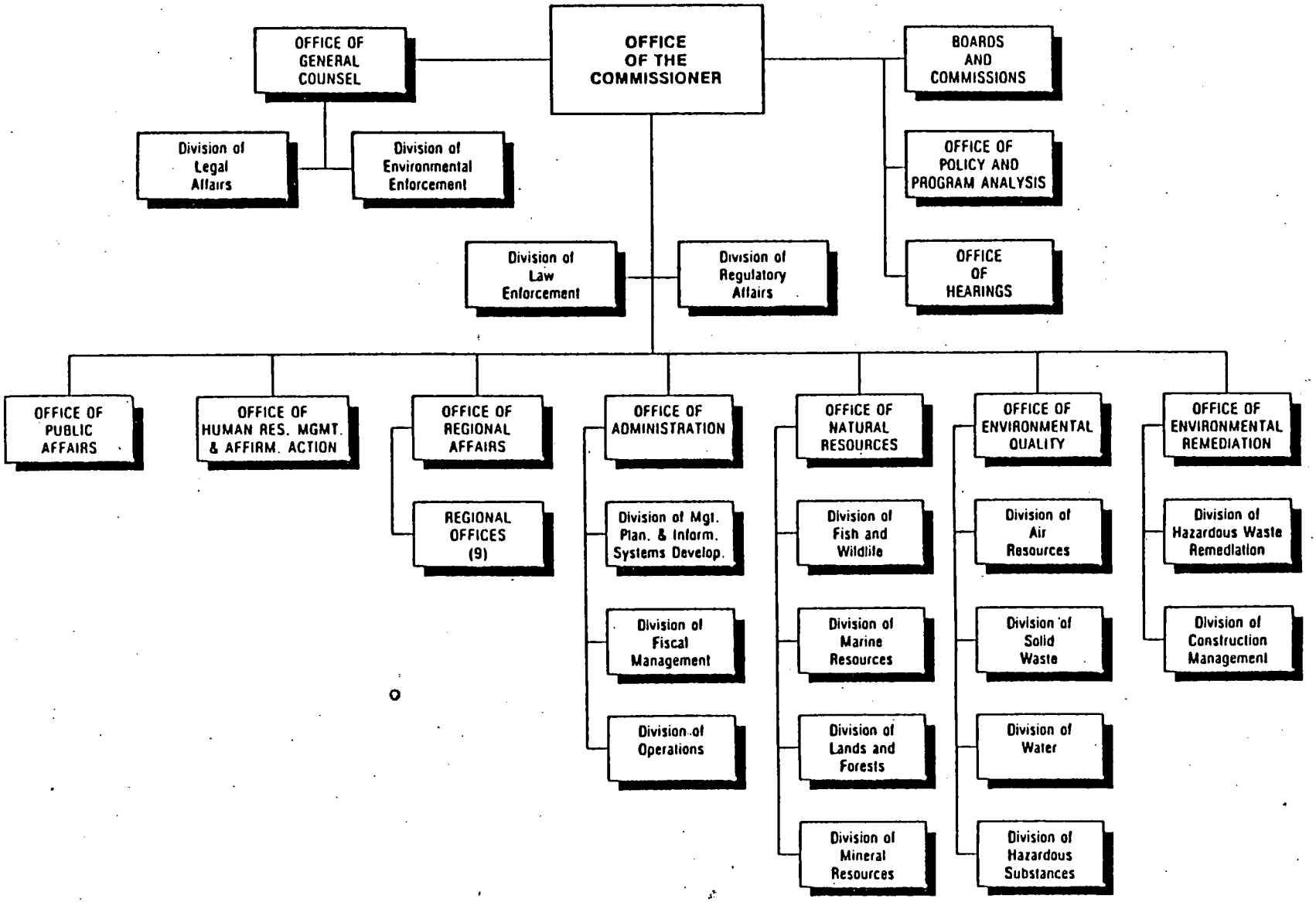
Strong, decisive leadership, and dedication and commitment to his job are the key qualities that Norman H. Nosenchuck, P.E. brings with him to his new assignment as the Director of the Division of Solid Waste. As he grapples with the expanding New York State solid waste problem, Mr. Nosenchuck will rely heavily on these traits to help guide and develop new solid waste strategies.

A brief review of Mr. Nosenchuck's previous background indicates that he is well-qualified for the new position. He received his Bachelor of Civil Engineering Degree from Syracuse University in 1950 and became a licensed Professional Engineer in New York State in 1956. Prior to entering State service, Mr. Nosenchuck was self-employed as a consulting Civil and sanitary engineer. For nearly five years, he was president of a

FIGURE I

New York State Department of Environmental Conservation

ORGANIZATION CHART



small general construction company in New York State working on commercial and public works construction projects. For ten years, he served as the Chairman of the Town of Fallsburg Planning Board in Sullivan County, New York. Mr. Nosenchuck's State service began in 1966 with the Pure Waters Program where he helped organize and implement the State's multi-billion dollar construction grants program for municipal wastewater treatment works. During 1975 and 1976, he was on an intergovernmental assignment with the U.S. Environmental Protection Agency in Washington, D.C. as Advisor to the Director of the Municipal Construction Division. In September 1976, he was named Director of Engineering for the New York State Environmental Facilities Corporation. In January 1979, he was named the Director of the Division of Solid Waste, subsequently renamed the Division of Solid and Hazardous Waste in October 1983.

Mr. Nosenchuck became responsible for the hazardous and non-hazardous solid waste regulatory program in New York State and the superfund program at inactive hazardous waste sites. As such, Mr. Nosenchuck was responsible for managing and implementing the remedial activities at the Love Canal site. He also served as the designated NYSDEC representative to the Love Canal Technical Review Committee (TRC) since it was formed in November of 1983. The TRC was formed by the USEPA as intergovernmental management body to oversee the study of the habitability of the Love Canal Emergency Declaration Area. During the meetings of the TRC, which are held in the City of Niagara Falls, New York and are open to the public, Mr. Nosenchuck provided detailed and timely information on the progress of the remedial work at the Love Canal site. He also viewed his trips to Niagara Falls as opportunities to meet with the public on a one-to-one basis to discuss individual concerns regarding the Love Canal.

Under Mr. Nosenchuck's leadership, the NYDEC is credited with rapidly responding to the Love Canal crisis in 1979. With the installation of a leachate collection system and the construction of an on-site Leachate Treatment Facility, the NYSDEC was able to halt the lateral migration of contaminants into the surrounding community in a very short period of time.

During his nine years of direct supervision over the Love Canal remediation, Mr. Nosenchuck is credited with preventing futher discharge of chemical contaminants into the shallow groundwater system and to reduce the potential for discharge into the bedrock groundwater system. The work was also intended to prevent chemical contaminants from migrating offsite via atmospheric emissions of volatiles and dust, direct contact, and surface runoff. This initial work in 1979 consisted of constructing a barrier drain system (14 to 21 feet deep) outside of and completely surrounding the Canal; covering 22 acres including the entire surface of the landfill with a compacted clay cap; and building an on-site treatment plant to treat the collected leachate.

The objectives of the more recent remedial work were to enhance the effectiveness of the initial work and further reduce the amount of infiltration; to reduce long-term operation and maintenance costs; to eliminate manmade pathways (utilities) that allowed the migration of chemicals offsite; to clean contaminated sediments from the storm and sanitary sewers in the areas surrounding the Love Canal; and to establish a long-term monitoring program that will provide additional information regarding the extent of groundwater contamination from the site.

The 22 acre initial clay cap was subsequently expanded to a 40 acre cap. A high density polyethylene liner (HDPE) was included in the expanded 40 acre cap. According to Mr. Nosenchuck the enhancement of the

cap saves money because it decreases the inflow of leachate to the Love Canal Leachate Treatment Facility hereby reducing the long-term cost to the taxpayers.

Mr. Nosenchuck is also credited with obtaining the funds necessary to construct an on-site Administration Building at the Love Canal. This building houses office space, a laboratory room, a lunch room, shower facilities and changing rooms for NYSDEC Leachate Treatment Facility operators and staff. Construction of this building allows the NYSDEC to meet strict health and safety requirements for all staff working at the site. It also provides a permanent structure which allows New York State to fulfill its commitment to perform operation and maintenance procedures for as long as necessary.

Finally through his efforts, Mr. Nosenchuck made great progress in establishing public trust and confidence in the NYSDEC. "Involving the public in meaningful ways is a critical element of my decision-making process", said Mr. Nosenchuck. Through the establishment of an extensive citizen participation program including the scheduling of numerous public information meetings, availability sessions and workshops, the location of a full-time NYSDEC Public Information Office at the site, and the production of newsletters, fact sheets, remedial status reports, and responsiveness summaries, Mr. Nosenchuck proved his commitment to providing opportunities for citizens to take an active role in the decision-making process for actions taken at the Love Canal site. "These efforts allow citizens to make intelligent decisions about the impact of Love Canal activities on their lives", said Mr. Nosenchuck.

Since Mr. Nosenchuck received his new assignment within the NYSDEC, numerous citizens have expressed thanks to Norm for his past efforts at the Love Canal site.

On behalf of these citizens and the NYSDEC staff assigned to the Love Canal project, the editors of this newsletter would like to take this opportunity to acknowledge Mr. Nosenchuck's leadership role at the Love Canal and among his staff and to wish him every success in his new position as the NYSDEC Director of the Division of Solid Waste.

TRC CHAIRMAN RESIGNS

Kenneth S. Stoller, P.E. resigned from the USEPA in December 1987 to accept a position with Ethan Eldon Associates, a private consulting firm in Great Neck, New York. Mr. Stoller held the position of USEPA Niagara Frontier Program Manager and also as the USEPA Chairman of the Love Canal Technical Review Committee.

Steven D. Luftig has been named as the USEPA Interim Chairman to the Love Canal Technical Review Committee. Mr. Luftig currently holds the position of Director of Emergency and Remedial Response Division of Region II, USEPA.

Creek Cleanup Project—Out for Bid

The New York State Department of Environmental Conservation went out to bid on the Black and Bergholtz Creeks Remediation Project on December 17, 1987. This project involves the construction of a dewatering containment facility (DCF) for storage of dioxin-contaminated creek sediments and construction debris; construction of a decontamination/drum storage facility (DDSF); and excavation of the creek sediments. The sediments and other waste materials to be stored in the Dewatering Containment Facility (DCF) will be destroyed at a future time using a transportable thermal destruction unit (See: Thermal Unit to be used at Love Canal, p. 6)

The sections of creeks to be cleaned have been described previously but include: approximately 3,150 feet of Bergholtz Creek from about 150 feet above its confluence with Black Creek to its confluence with Cayuga Creek; and the above-ground portion of the Black Creek from the twin-culverts at 98th Street to its confluence with the Bergholtz Creek.

Under this contract, there are five primary tasks to be completed as follows:

TASK A: Construction, filling and closure of the Dewatering Containment Facility (DCF)

TASK B: Construction of the Decontamination/Drum Storage Facility (DDSF)

TASK C: Removal and disposal of Black and Bergholtz Creek sediments

TASK D: Cleaning of the storm sewers with outfalls leading into the creeks within the area to be remediated and rehabilitation of the 93rd Street Sanitary Sewer beneath the Bergholtz Creekbed.

TASK E: Rehabilitation and use of the existing Dewatering Facility located near 100th Street within the fenced area of the Love Canal site.

Among other details, this project requires: the placement of a security fence along the creek banks; the construction of haul roads to the edges of the creeks in designated areas; the construction of temporary cofferdams within the creek at designated locations; the installation of a silt screen in Cayuga Creek at its confluence with Bergholtz Creek; removal and replacement of the existing footbridge at 93rd Street across Bergholtz Creek with a new pedestrian bridge; and restoration of the landscape.

Additional information and sketches were provided in the Special Edition, Issue 12 of this newsletter. Copies of that newsletter and the Contract Documents and Drawings are available for public review at the NYSDEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York; telephone 716/297-9637.

The NYSDEC is currently negotiating Temporary Use and Occupancy Agreements with property owners along the Black and Bergholtz Creeks.

Bids for this project must be submitted to the NYSDEC by Wednesday, February 10, 1988. The NYSDEC expects to award a contract by early April 1988. The contractor receiving the award will be responsible for establishing the schedule for completion of this project. Copies of this schedule will be made available to the public when it is submitted to the NYSDEC.

Additional questions regarding this project may be submitted in writing to: NYSDEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York 10304 or in person by visiting us during office hours Monday through Friday from 8:30 a.m. to 6:00 p.m.

Thermal Unit to Be Used at Love Canal

In late July 1987, the NYSDEC stopped work on the finalization of its plan for the remediation of Black and Bergholtz Creeks at the request of Dr. J. Winston Porter of the USEPA.

On Wednesday August 5, 1987, the USEPA released its "Proposed Plan for the Destruction/Disposal of Love Canal Creek and Sewer Sediments". This plan identified three alternatives for the destruction and disposal of dioxin-contaminated materials:

Alternative 1 - On-Site Land Disposal

Alternative 2 - On-Site Thermal/ Destruction/On-Site Disposal

Alternative 3 - On-Site Thermal Destruction/Off-Site Disposal of Residues

A Public Workshop to discuss alternative technologies for destruction of dioxin contaminated materials was held by the USEPA on August 12, 1987. On Tuesday August 25, 1987 a Public Information Meeting was held by the USEPA to discuss this Proposed Plan and to accept public comments on the plan. Dr. Porter of the USEPA was present at this meeting to discuss the plan with the public and to listen to their concerns. A public comment period on the plan was set until September 11, 1987 and was extended to October 9, 1987 to provide adequate time for the public to review the plan and submit comments.

The NYSDEC in conjunction with the NYSDOH, also submitted comments on the Proposed Plan to the USEPA. In its October 9, 1987 letter submitted to the USEPA by the NYSDEC Commissioner Jorling, the State agencies called for the thermal destruction of "all the dioxin-contaminated sediments dredged from the creeks, all dioxin-contaminated sediments taken from the storm and sanitary sewers and all dioxin-contaminated waste materials stored on site at the Love Canal". The letter also states that, "The treatment process selected must not impose unacceptable health and safety risks to the residents of the Love Canal Emergency Declaration Area (EDA) and surrounding communities". Additionally, the letter requested that, "The thermal destruction process should result in residues which are delisted and can be disposed of as a clean fill material under the Resource Conservation and Recovery Act."

The original Record of Decision for the Black and Bergholtz Creek Remediation Project was signed on May 6, 1985. Since no permanent disposal solutions were available at that time, the temporary storage of dioxin-contaminated materials option was selected by the USEPA. This solution, however, required the USEPA and the NYSDEC to explore feasible, reliable alternatives as they became commercially available. In the time that followed, the NYSDEC continued to work with the USEPA, looking for a permanent solution for these dioxin-contaminated wastes. The agencies finally agreed that the best permanent solution would be on-site high temperature thermal destruction.

A final Record of Decision (ROD) for the destruction/disposal of the Love Canal creek and sewer sediments and other residual materials was signed by Dr. J. Winston Porter, Assistant Administrator for the USEPA Office of Solid Waste and Emergency Response on October 26, 1987.

This ROD requires the on-site destruction of the dioxin-contaminated creek and sewer sediments by the use of a transportable thermal destruction unit. The non-hazardous residues that result from the use of a selected thermal destruction unit will be tested and then disposed of on the Love Canal site in the areas adjacent to the existing cap.

The NYSDEC is currently negotiating a contract amendment with TAMS Consultants, Inc. of New York, New York, its consultant for the Black and Bergholtz Creeks Remediation Project. This contract amendment will require TAMS to work on establishing performance specifications for the thermal destruction of the sediments and evaluation criteria for the selection of the mobile thermal destruction unit contractor (TTDU) to be used at the Love Canal site. Once the criteria for the thermal destruction unit are prepared, the NYSDEC will go out with a Request for Proposals (RFP) to be submitted by potential contractors with access to thermal destruction units. The RFP is expected to be prepared and proposals requested in 1989.

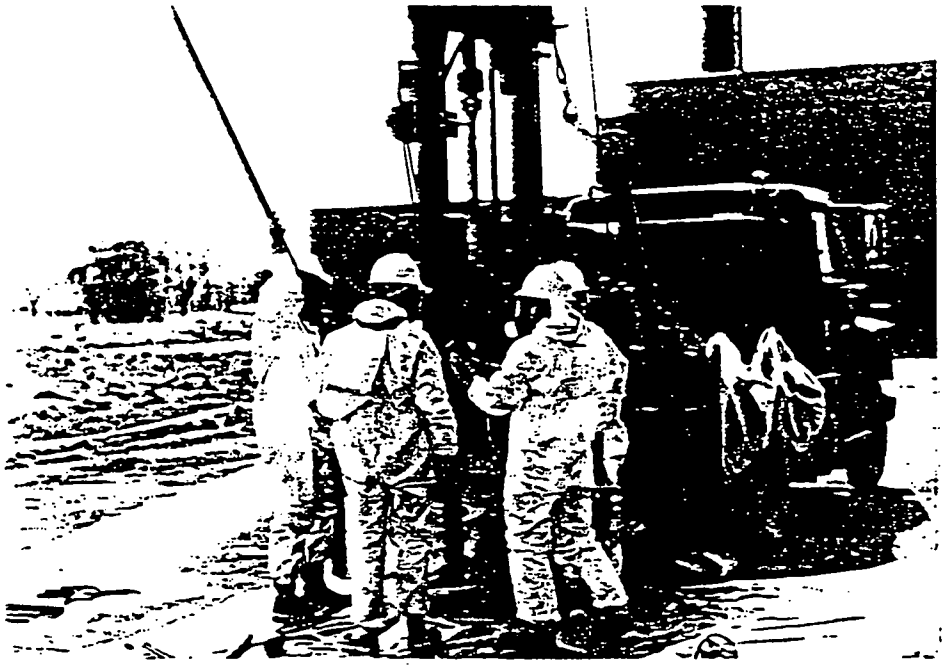
93rd Street School Under Investigation

The NYSDEC is currently conducting a Remedial Investigation and Feasibility Study (RI/FI) for the 93rd Street School site located with the Love Canal Emergency Declaration Area (EDA). The purpose of this study is to evaluate the nature and extent of the problems at the site and to identify and evaluate possible actions which could be taken to correct these problems.

Based on the results obtained from the analysis of samples collected during field work conducted in November 1986 and June 1987 it was concluded that the groundwater and surface water at the site are not contaminated with any of the chemicals on the EPA Hazardous Substance List at levels of concern to human health. The analysis of soil samples, however, indicated contamination at levels of concern with metals, volatile organics, base/neutral/extractable organics and alpha and beta BHC.

These soils include fill brought to the site in 1953 from the 99th Street School. This material was used to fill a swale located in the 93rd Street School yard. Although dioxin was not detected during this investigation, it was detected previously in three isolated surface soil samples and in one soil sample at a depth of 4 to 6 feet at concentrations ranging from 0.11 to 2.3 ppb.

A draft RI/FS Report for this site was submitted to the NYSDEC on December 4, 1987 and is currently under review. Once this report has been reviewed, copies will be will be available for public review at the NYSDEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York. A public meeting will be held in the next couple of months to review the findings and recommendations and to secure public input on the study.



Field Work at the 93rd Street School site was conducted in November 1986 and June 1987.

Cayuga Creek Fish Sampling Project

A study conducted for the NYSDEC by Malcolm Pirnie, Inc. of Niagara Falls, New York indicated the presence of low levels of dioxin in Cayuga Creek. Cayuga Creek runs north to south receiving water from the Black and Bergholtz Creeks and emptying into the Little Niagara River. The highest concentrations of dioxin found in the 37 composited creek bed samples were 1.28 and 1.09 ppb. The remaining 35 samples were below 1 ppb for dioxin.

A fish monitoring program was developed for Cayuga Creek by the NYSDEC based on the evaluation of these sediment sampling results. On November 24, 1987 a Memorandum of Understanding between the NYSDEC Division of Hazardous Waste Remediation and Division of Fish and Wildlife was signed to implement this monitoring program. Copies of the Memorandum of Understanding and the Project Outline are available for public review at the NYSDEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

The goal of this monitoring project is to determine concentrations of dioxins and dibenzofurans in Cayuga Creek fish and to look at the differences in these concentraitons over a number of years and in various locations along the creek.

This informatin will be used to determine the effectiveness of the Black and Bergholtz Creek remediation project. Fish sampling prior to the Black and Bergholtz Creek cleaning project will also provide information on the extent to which these creeks added to the contamination of fish in Cayuga Creek.

Seven fish sampling locations were identified for this project:

1. Little River upstream of mouth of Cayuga Creek opposite southern tip of Cayuga Island.
2. Little River immediately downstream of of Cayuga Creek.
3. Cayuga Creek at Lindberg Avenue Bridge.
4. Cayuga Creek at Cayuga Drive Bridge.
5. Bergholtz Creek 100 meters west of Williams Road.
6. Cayuga Creek immediately downstream from Niagara Falls International Airport.
7. Cayuga Creek immediately upstream of Lockport Road.

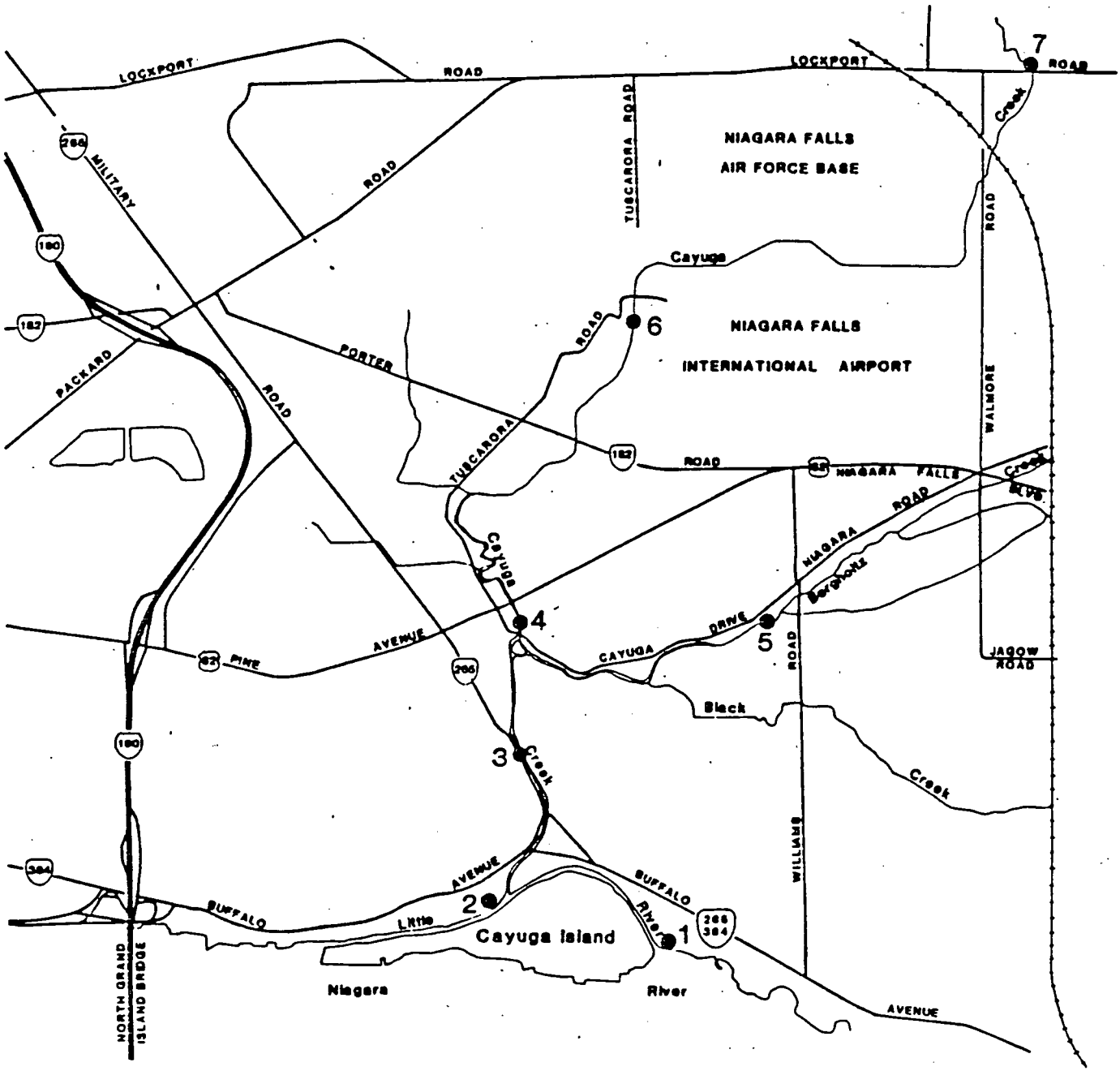
These sampling locations are also shown on Figure 2 .

At each sampling locations a minimum of three samples of young spottail shiners will be collected. If spottail shiners are not available Creek chub, Bluenose minnow, Common shiner, Rock bass and Golden shiner may be substituted.

The fish will be collected during the month of October in the years 1987, 1990 and 1992. These fish will be collected using boat electrofishing and/or bag seining techniques. A selected analytical laboratory will then analyze the whole fish for: 2,3,7,8-TCDD; total tetra-, penta-, hexa-, hepta-, and octachlorodibenzofurans, and percent lipid. The analytical detection limits for doxins and dibenzofurans are to be 10 parts per trillion (ppt.), or lower.

In accordance with the terms of this Memorandum of Understanding, fish sampling took place on October 18, 1987 at the following sampling locations: Little River upstream of Cayuga Creek; Little River downstream of Cayuga Creek; and Cayuga Creek at Lindberg Avenue.

Figure 2: SAMPLING LOCATIONS FOR PROJECT ENTITLED "DIOXINS AND DIBENZOFURANS IN CAYUGA CREEK FISH".



LEGEND

● Station Site

9 Station Number

A second sampling event took place on October 24, 1987 using a 16 foot bag seine to collect fish. During this sampling event fish were collected from Cayuga Creek upstream of the Cayuga Drive bridge; Bergholtz Creek downstream from Williams Road; and Cayuga Creek downstream of the Niagara Falls Airport.

The collected fish were placed alive in a pail of water until they could be identified and weighed. All fish samples were sent to the NYSDEC Hale Creek Field Station in Gloversville, New York where they were placed in a freezer until the analytical lab is selected.

Frontier Avenue Storm Sewer

Work on the modification of the Frontier Avenue Storm sewer between 97th and 99th Streets and storm sewer repairs on 100th Street began on April 21, 1987 and was completed on June 3, 1987. A contract for $207,000 was awarded to Firstrhyme Construction Corporation of Buffalo, New York for completion of the required work. This work involved laying a new storm sewer pipe across Frontier Avenue connecting to the LaSalle Expressway storm sewer drainage system and the abandoning of the existing storm sewer. A hose which became stuck in a sanitary sewer on 100th Street was also repaired.

The Frontier Avenue Sewer Cleaning project began on October 5, 1987 and was completed on November 5, 1987. This contract for sewer cleaning was awarded to Sevenson Containment Corporation of Niagara Falls, New York for $330,737.50. Work under this contract included cleaning of the sanitary sewer along Frontier Avenue between 75th Street and 81st Street. It also included cleaning of the storm sewer on Frontier Avenue downstream of 100th Street to the north boundary of the 102nd Street Inactive Hazardous Waste Site.

Both of these projects were completed on schedule, under budget, and without incident.

Storm Sewer Work on Frontier Avenue.

Home Maintenance Program Underway

The "Superfund Amendments and Reauthorization Act of 1986 (SARA) was signed into law by President Ronald Reagan on October 17, 1986.

Section 312d of SARA, also referred to as the LaFalce Amendment, requires the USEPA to "maintain or arrange for the maintenance of all properties within the Emergency Declaration Area that have been acquired by any public agency of authority of the State".

To fulfill the requirements of this section of the law, the USEPA entered into a cooperative agreement with the NYSDEC on March 12, 1987. Under the terms of this cooperative agreement, the USEPA provided $863,115 to the NYSDEC for maintenance of homes in the Love Canal Emergency Declaration Area (EDA). The agreement requires the NYSDEC to provide 10% matching funds ($95,902) for a total maintenance program of $959,017.

The NYSDEC negotiated a contract with Stuart Alexander and Associates of Buffalo, New York for the inspection of LCARA-owned homes; preparation of plans and contract documents; and the on-site contract supervision of the home maintenance project. This $92,031 contract was awarded on August 5, 1987 and the firm was instructed to begin work on August 10, 1987.

An Agreement between the NYSDEC and the Love Canal Area Revitalization AGency (LCARA) was also approved by the New York State Office of the State Comptroller on October 23, 1987. Under this Agreement, LCARA will provide services such as lawn and yard maintenance; and 24 hour security services; and utility payments. This agreement expires on May 1, 1988 and authorizes the NYSDEC to make a sum, not to exceed $335,300 available to LCARA for these maintenance services.

These agreements commit all parties involved to stabilize the condition of LCARA owned properties. To accomplish these goals, the following activities will take place among other: wall and roof openings will be boarded; dry interior conditions will be maintained by providing air circulation or by replacing or repairing heating units and sump pumps and by caulking and sealing; gutters and downspouts will be cleaned or removed; water soaked interior walls will be stripped as necessary to prevent further decay.

The NYSDEC advertised for bids on Friday, January 8, 1988. All bids must be received by the NYSDEC by February 8, 1988. The contract will be awarded to the lowest responsive, responsible bidder. Work on the home maintenance program is expected to begin in early April 1988.

Looking Through the Fence

Since the last newsletter was prepared, a number of activities have taken place within the fenced Ring I and Ring II area of the Love Canal site. A brief update on several of these activities follows:

Snow Fence in Place

During meetings with NYSDEC officials, residents of the Emergency Declaration Area (EDA) had expressed concern over their inability to drive along the area streets during the winter months, especially due to snow drifting on to Colvin Boulevard from the Love Canal site. According to the residents, this blockage limits access to their homes and to other local roads and services.

In response to this concern, NYSDEC staff at the Love Canal Leachate Treatment Facility placed sections of snow fence across the north end of the Love Canal site near Colvin Boulevard. The sections are set back from the road approximately 75 feet and are staggared to provide a more effective barrier to snow drifting across the Love Canal cap. To prevent damage to the plastic membrane located approximately 18 inches below the surface, specially modified posts were used and wire guy lines were added additional support.

Although little snow has fallen since the placement of this snow fence, NYSDEC believes that its actions will assist City of Niagara Falls officials in keeping Colvin Boulevard open to local traffic.

Deputy Commissioner Edward Sullivan also sent a letter on December 2, 1987 to Mayor O'Laughlin requesting the City of Niagara Falls continue to provide the necessary services to the EDA.

Well Risers Painted

The NYSDEC currently has over 200 monitoring wells within the fenced area of the Love Canal site. Information from these wells is collected by NYSDEC geologists and engineers and is used to provide data on groundwater elevations and the effectiveness of the remedial work that has taken place at the Love Canal site.

The monitoring wells located on site are fitted with risers that protrude about 3 feet from the surface of the ground. These risers make the well locations visible to the sampling team and prevent wells from becoming overgrown and inaccessible.

The NYSDEC staff at the Love Canal Leachate Treatment Facility painted the well risers bright orange to make their locations even more prominent. This was done to warn contractors, hired each year to mow and fertilize the grass on the cap of the well locations. This is expected to prevent damage to the wells during the cap maintenance activities.

New Equipment Purchased

On August 5, 1987 a new one-ton Chevrolet flat bed truck was delivered to the Love Canal Leachate Treatment Facility. This truck was purchased under State contract to haul heavy equipment such as 55-gallon drums and to plow snow.

A second piece of equipment arrived at the site on August 11, 1987. The NYSDEC purchased a Ford Tractor Loader with a mower and fork lift for the treatment plant operators to manage the 55 gallon drums currently stored on-site, for snow clearance from work areas and as needed to mow sections of the cap.

Trees and Brush Cleared

During the Spring of 1987 Niagara Grass of Niagara Falls, New York, conducted a tree and brush removal program within the fenced area of the Love Canal site. Low-hanging tree limbs and shrubs and brush near the fence surrounding the site were cut and cleared under this program. These materials were then chipped and used as fill in low-lying areas of the site.

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste
HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 12 *SPECIAL EDITION* *DECEMBER 1986*

About This Issue

As part of the New York State Department of Environmental Conservation's (DEC) ongoing remedial efforts at the Love Canal inactive hazardous waste site, cleanup plans for the Black and Bergholtz Creeks are underway. Portions of the Bergholtz Creek form the northern boundary of the Love Canal Emergency Declaration Area (EDA); the Black Creek lies within the EDA (See Figure 1).

During field investigations conducted by the DEC and its contractor, Malcolm Pirnie, Inc. in January 1983, 2,3,7,8-TCDD (Dioxin) and other Love Canal contaminants were found in the beds of Black and Bergholtz Creeks. Additional sampling conducted by the DEC found dioxin present in the Bergholtz Creek sediments downstream to its confluence with Cayuga Creek.

On July 10, 1986 the DEC awarded a contract to TAMS Consultants, Inc. of New York, New York for the design and oversight of the cleanup of the Black and Bergholtz Creeks. During the Fall of 1986 TAMS and its subcontractor, Goldberg-Zoino Associates of Buffalo, New York conducted a number of investigations for this project. The results of these investigations were considered during preparations of the report, "Love Canal Remedial Design: Black and Bergholtz Creeks Remediation - Preliminary Design Report".

This Special Edition of the Love Canal Update provides you with a summary of the recommendations provided in the report. Please take some time to review this material. If you would like additional information, stop in at the DEC Public Information Office to review the document and/or attend the Neighborhood Meeting scheduled for December 18, 1986. If you have any questions call the Public Information Office at 716/297-9637.

Neighborhood Meeting to Be Held

The DEC will hold a Neighborhood Meeting to discuss its preliminary plans for the cleanup of the Black and Bergholtz Creeks and to receive public comment on these plans. These plans are discussed in the document entitled,"Love Canal Remedial Design: Black and Bergholtz Creeks Remediation-Preliminary Design Report". This document is available for your review at the DEC Public Information Office. The Neighborhood Meeting will be held:

DATE: THURSDAY DECEMBER 18, 1986

TIME: 7:30 p.m.

PLACE: LaSalle Community Center, at the corner of Colvin Boulevard and 95th Street, Niagara Falls, New York.

In addition, Mr. Guy Bobersky, P.E., the DEC's Project Engineer for the Creek Remediation , will be available to discuss the project on a one-on-one basis with anyone wishing to discuss specific concerns with the DEC. If you plan on attending this Public Availability Session please call for an appointment at 297-9637. The Availability Session will be held:

DATE: FRIDAY DECEMBER 19, 1986

TIME: 9:00a.m. to 1:00p.m.

PLACE: Public Information Office, 9820 Colvin Blvd., Niagara Falls, New York

These meetings are open to the public. Anyone interested in this project is encouraged to attend. Comments and comcerns received by the DEC will be reviewed and taken into consideration during the preparation of the final Contract Document. This Contract Document is expected to be available in mid-January 1987.

If you are unable to attend these meetings, written comments on the report may be sent to:

DEC Public Information Office
9820 Colvin Blvd.
Niagara Falls, New York
14304

or call us at 716/297-9637. Your involvement in this project is important to us. We hope to see you at the meetings!

Document Availability

On December 9, 1986 the DEC received a report from its consultants TAMS Consultants, Inc. and Goldberg-Zoino Associates entitled, "Love Canal Remedial Design: Black and Bergholtz Remediation - Preliminary Design Report".

Included in this report are recommendations for the remediation of the creeks and for the location and type of Interim Containment Facility to be used for storage of the sediments excavated from the Black and Bergholtz Creeks.

Copies of this report are available for public review at the DEC Public Information Office located at 9820 Colvin Boulevard, Niagara Falls, New York. The Office is open Monday through Friday from 8:30 a.m. to 6:00 p.m.

If you have any questions or comments, please call us at 716/297-9637.

Creeks to Be Excavated

As a result of the studies performed by TAMS Consultants and Golberg-Zoino Associates for the DEC, a number of recommendations are presented in the Preliminary Design Report. The recommendations for the remediation of the creeks include:

-- The beds of Black and Bergholtz Creeks should be remediated (cleaned) by excavating the top 18 inches of sediments from the bottom of the creeks. Bergholtz Creek should be excavated from 150 feet upstream of its confluence with Black Creek downstream to its confluence with Cayuga Creek. Black Creek should be excavated from the 98th Street culverts to its confluence with Bergholtz Creek.

-- To excavate the creeks, sections of the creek beds will be isolated and dewatered by placing cofferdams across the creek and then pumping the creek water through pipelines to a downstream section of the creek (See Figure 2).

-- The Bergholtz Creek will be divided into three sections allowing the excavation to take place in three stages. The work is expected to begin in the upstream sections of the creek working downstream to its confluence with Cayuga Creek (See Figure 2). The three sections of the creek will be remediated in sequence.
-- To excavate the creeks, equipment will be confined to the creek beds where possible. If the creek beds will not support excavating and hauling equipment, temporary roads may be needed alongside portions of the creeks. Figure 2 provides the proposed locations of these temporary access roads.
-- The creek bed will be excavated using backhoes, Gradalls, or other similar excavation equipment. The excavated sediments will be placed into containers or trucks and will then be transported to the Love Canal site for storage at the Interim Containment Facility (ICF).
-- Once a section of the creek has been completely excavated the upstream cofferdam will be removed and the creek water will be allowed to flow through that remediated section.
-- Access to the creeks will be limited in order to control disturbance to creek bank vegetation and to reduce the disturbance to the community during construction. Three access ramps to the creek bed are therefore proposed in Figure 2 to allow equipment and hauling trucks to proceed with work activities. An access ramp will be constructed for each stage of the creek remediation.
-- Temporary fences will be placed along the creek banks during the work activities to isolate the work zone.
-- The work plans will require the contractor to preserve trees, shrubs and other vegetation in their present condition or to restore these resources to a condition that appears to be natural after the work is complete.

Additional information regarding these recommendations and other factors such as air monitoring, noise control, dust control and spill control will be provided at the Neighborhood Meeting.

Temporary Storage Facility

Previous studies have determined that the sediments of Black and Bergholtz Creeks are contaminated with dioxin and other hazardous chemicals. Remedial measures for the project will include the excavation of the creek bottom and the collection and disposal of the bottom sediments.

It is estimated that as much as 15,000 cubic yards of creek sediments may be excavated. The ultimate fate of the excavated material to be collected is not yet determined. To allow the removal of contaminated sediments from the creeks and stop their continued impact on the environment, a temporary holding structure called the Interim Containment Facility (ICF) will be constructed to hold the sediments collected until the method for their ultimate disposal is determined. Studies performed by the consultants for the DEC concluded that this Interim Containment Facility (ICF) should be located within the fenced

area of the Love Canal.

The design of this facility and its location must include the consideration of a number of factors including:

-- Size constraints
-- Accessibility to the Love Canal Leachate Treatment Plant
-- Location of the clay and plastic cap over the Love Canal site
-- Access for trucks hauling dredge materials
-- An evaluation of soil conditions and properties to determine the amount of weight it can hold and the amount of settling that will occur
-- A review of subsurface conditions to locate buried obstructions such as building foundations and abandoned utilities
-- A review of available data pertaining to the nature and extent of chemical contamination within the soil and groundwater at the facility site to develop appropriate health and safety protocols for construction
-- Appropriate regulations of the USEPA and NYSDEC.

The Interim Containment Facility (ICF) for the Black and Bergholtz Creek sediments will be designed as a secure landfill with a double liner, leachate collection system and leak detection system. Two alternatives were considered: a concrete vault storage facility and an earthen berm containment cell located next to the Love Canal but within the fenced area.

The earthen berm cell is recommended in the Preliminary Design Report because it is more compatible with the subsurface conditions present at the Love Canal site. Both the concrete vault and the earthen berm cell will settle because the underlying soft clay will compress when loaded. Settlements in the concrete vault however, are expected to cause cracks in the floor even if it is heavily reinforced. A crack would result in undesirable leaks.

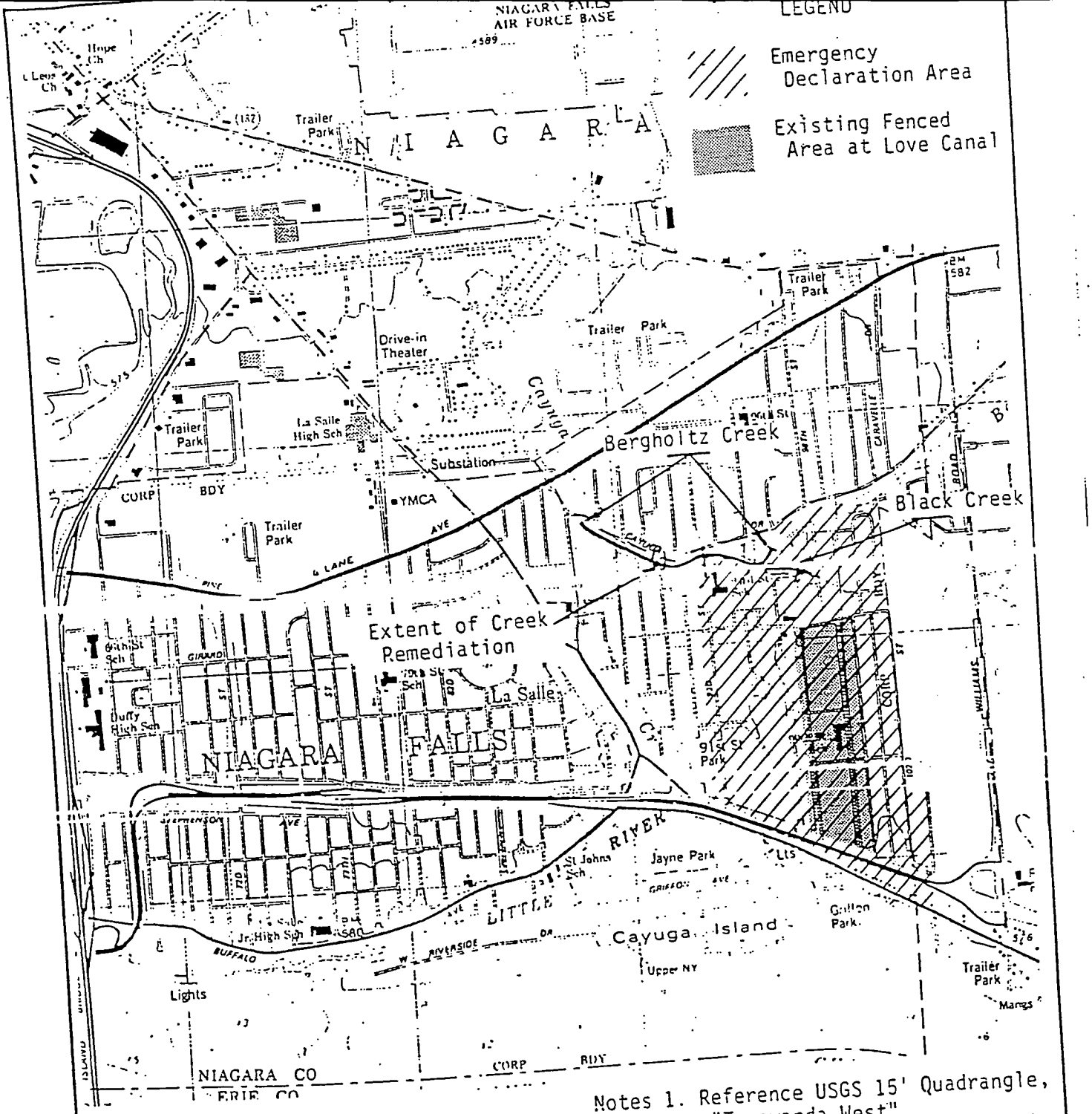
Although the earthen berm cell will also settle as the underlying clay compresses, this type of facility will tolerate settlements much better and these settlements are not expected to result in leaks. The recommended location of the earthen berm Interim Containment Facility (ICF) is designated as Area I in Figure 3.

Additional information on the selection of the earthen berm Interim Containment Facility (ICF) and the location of this facility will be provided at the Neighborhood Meeting.

Truck Routes to Be Followed

Concerns expressed by members of the public during Public Availability Sessions held in early 1985 by the USEPA and the DEC , indicated that the routes followed by the trucks hauling sediments from the creeks to the Interim Containment Facility (ICF) should avoid heavily populated areas.

In response to this concern, the routes that are being chosen will pass through less populated areas to the extent possible. Alternate return routes for trucks leaving the Interim Containment Facility and returning to the creek are also recommended. The recommended transportation routes are presented in Figure 4.



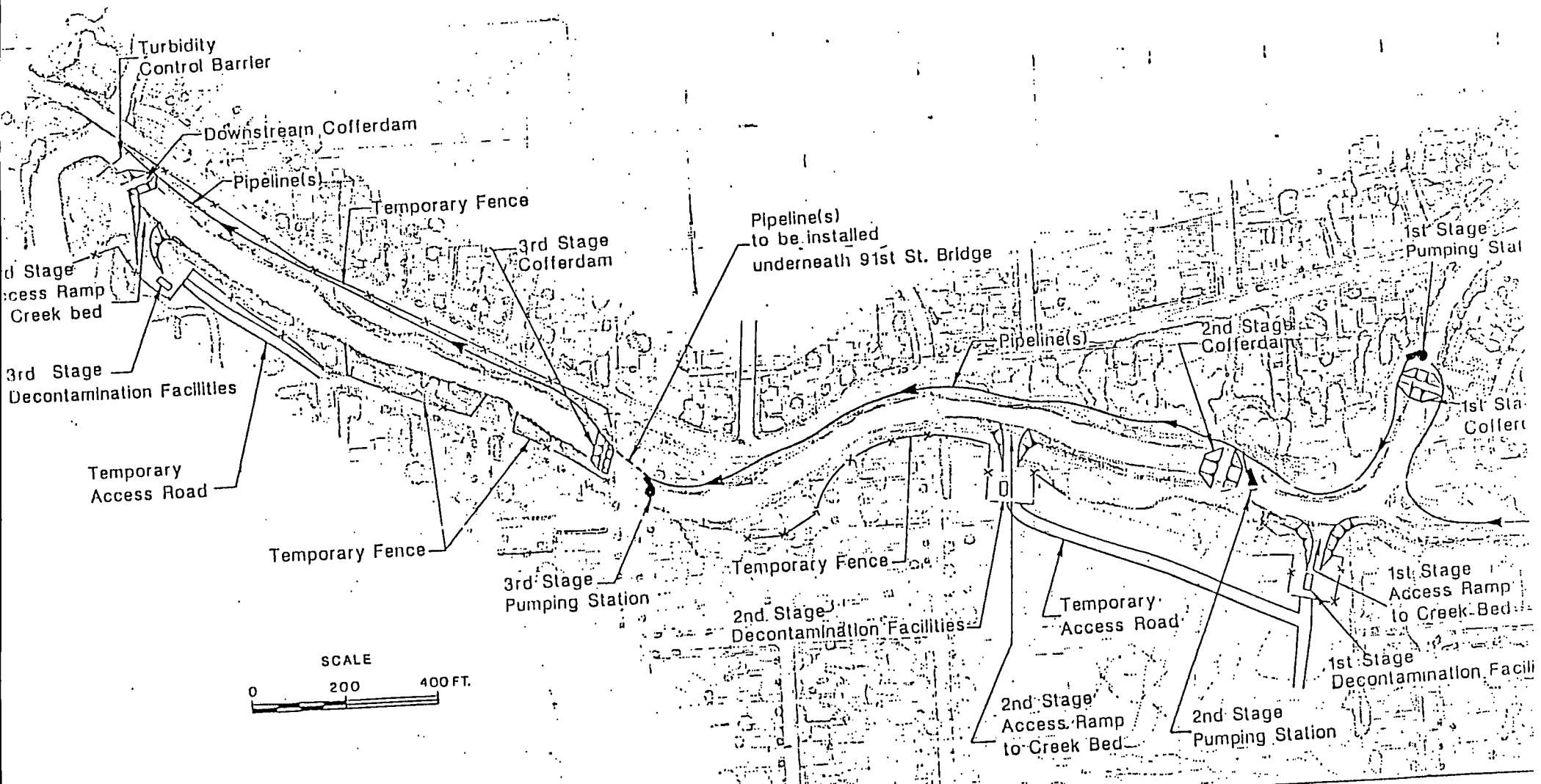
Notes 1. Reference USGS 15' Quadrangle, "Tonawanda West"

2. Emergency Declaration Area (EDA), as shown in ROD, May 1985

SCALE 1:25 000

-1000 0 1000 2000 3000 4000 5000

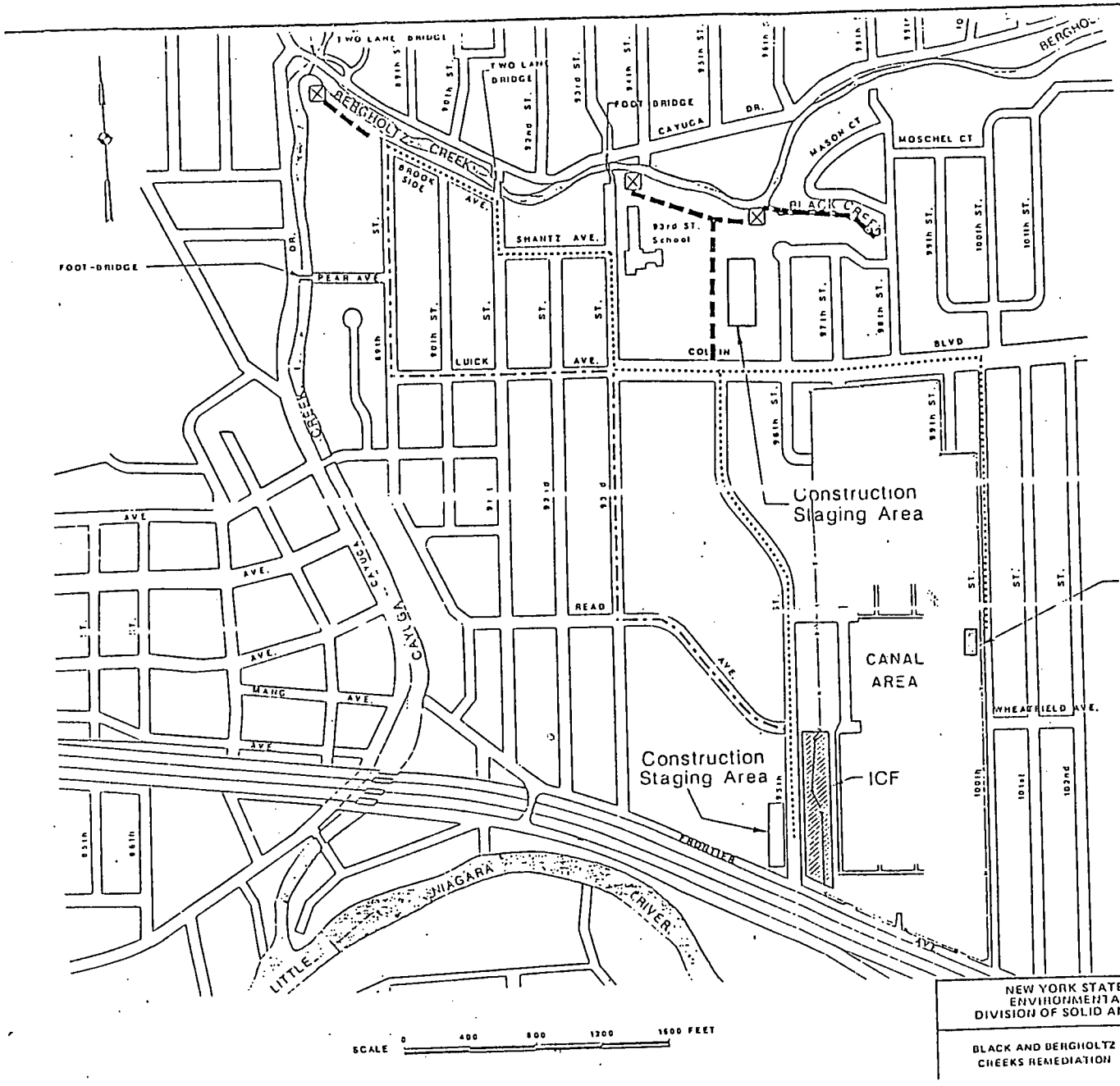
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF SOLID AND HAZARDOUS WASTE	TAMS CONSULTANTS Inc.		
BLACK AND BERGHOLTZ CREEKS REMEDIATION	PRELIMINARY DESIGN REPORT PROJECT LOCATION	BY:	DATE: Dec 1986
		FIGURE:	1



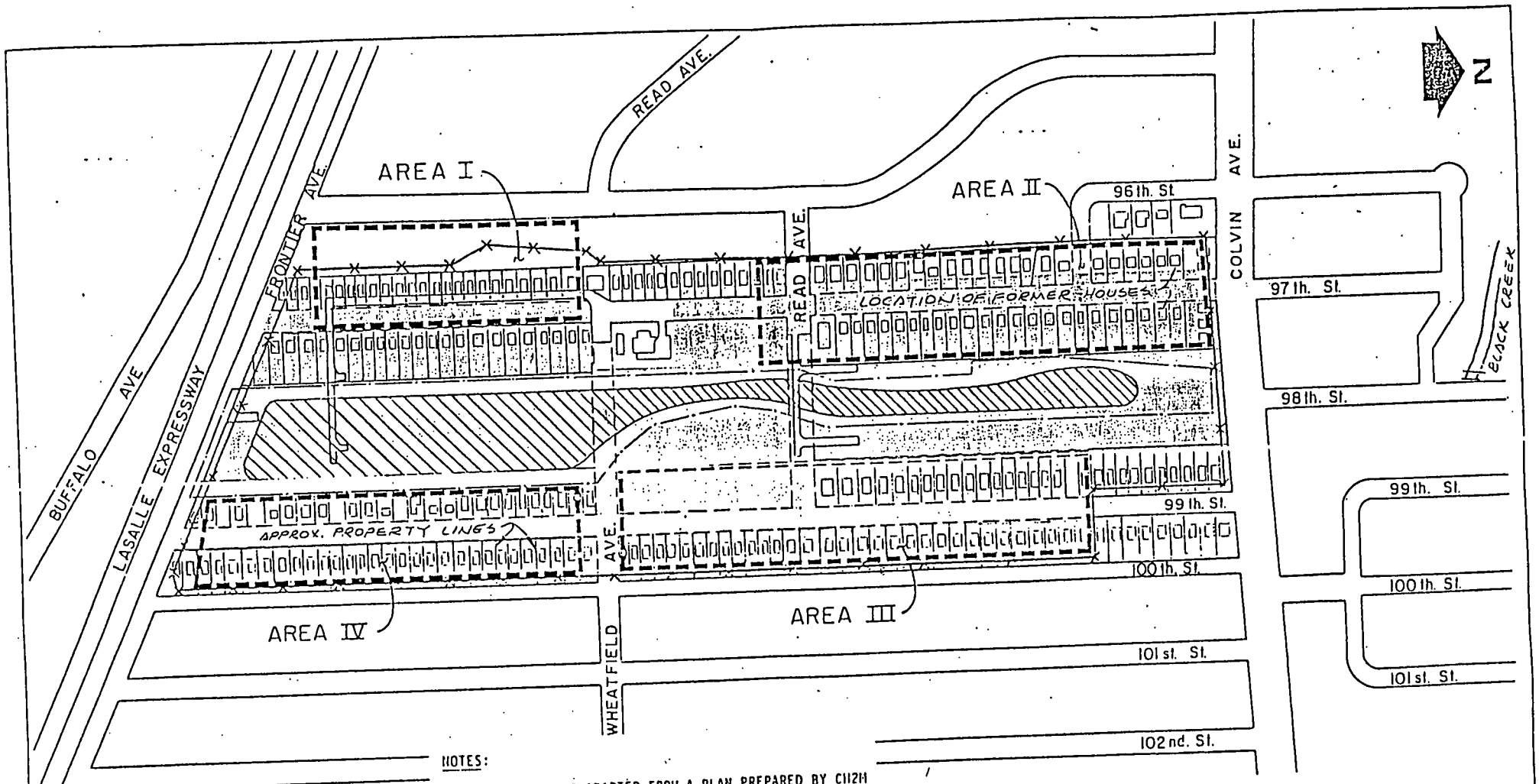
NOTES:

1. TOPOGRAPHY BASED ON AERIAL PHOTOGRAPHY TAKEN IN APRIL 1986
2. THE CONSTRUCTION SCHEME PRESENTED ON THIS FIGURE IS BASED ON HAULING EXCAVATED SEDIMENTS ON CREEK BEDS TO ACCESS POINTS.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF SOLID AND HAZARDOUS WASTE		TAMS CONSULTANTS Inc.
BLACK AND RENDHOLTZ CREEKS REMEDIATION	PRELIMINARY DESIGN REPORT PROPOSED CREEKS REMEDIATION CONCEPT	BY: DATE: DEC. 1 FIGURE: 2



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF SOLID AND HAZARDOUS WASTE	TAMS CONSULTANTS Inc.		
BLACK AND BERGHOLTZ CREEKS REMEDIATION	PRELIMINARY DESIGN REPORT CONSTRUCTION STAGING, ACCESS AND TRANSPORTATION ROUTING.	BY:	DATE: DEC. 19
		FIGURE: 4	



NOTES:

1. THIS PLAN WAS ADAPTED FROM A PLAN PREPARED BY CH2M HILL AND PRESENTED IN THEIR MARCH 28, 1985 REPORT, "LOVE CANAL SEWERS AND CREEKS REMEDIAL ALTERNATIVE EVALUATION AND RISK ASSESSMENT", EPA 138.2L05.0 VOLUME I.
2. THE LOCATIONS OF FEATURES SHOWN ON THIS PLAN WERE SCALED FROM PLANS PRESENTED IN THE ABOVE REFERENCED REPORT. THE LOCATIONS ARE APPROXIMATE AND SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
3. THE POTENTIAL ICF SITES (AREA I, II, III AND IV) SHOWN ARE THE LOCATIONS EVALUATED BY GZA AND ARE SIMILAR TO AREAS PRESENTED BY CH2M HILL IN THE ABOVE REFERENCED REPORT.

NOT TO SCALE

LEGEND

- APPROX. CANAL LOCATION
- APPROX. LOCATION BARRIER DRAIN
- APPROXIMATE AREA COVERED BY EXTENDED CAP

GZA

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF SOLID AND HAZARDOUS WASTE	TAMS CONSULTANTS Inc. GOLDBERG-ZOINO ASSOCIATES OF N.Y., P.C.	
BLACK AND BERGHOLTZ CREEKS REMEDIATION	PRELIMINARY DESIGN REPORT LOCATIONS OF POTENTIAL ICF SITES	BY: DRM DATE: 12/26 FIGURE: 3

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste
HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 10 *JULY 1986*

About This Issue

Although several months have gone by since the last issue of this newsletter, numerous activities have taken place related to the remedial programs at the Love Canal landfill. This issue of the Love Canal Update provides information on a number of these activities. Projects discussed in this newsletter are:

Additional activities have taken place regarding the Plasma Arc Unit, the 93rd Street School, the Frontier Avenue Sewer, and the habitability study being conducted by the governmental Technical Review Committee (TRC).

Because of the length of this issue of the newsletter, a second issue will be published in the near future to bring you up-to-date on these additional projects.

If you have any questions on any of these projects or if you would like to review any of the documents pertaining to these projects, stop in at the DEC Public Information Office located at 9820 Colvin Boulevard, Niagara Falls, New York or call us at 716/297-9637. We hope to hear from you!.

Upcoming Meeting

The Technical Review Committee (TRC) will hold its next meeting on Thursday, August 21, 1986 to discuss the ongoing Love Canal Emergency Declaration Area Habitability Study.

Place: Red Jacket Inn, 7001 Buffalo Avenue, Niagara Falls, New York

Time: 6:30 P.M.

Anyone interested is welcome to attend.

Perimeter Survey and Long-Term Monitoring Program Delayed

In the fall of 1985, the E.C. Jordan Co. of Portland, Maine, consulting engineers to the DEC, installed nearly 100 wells at the Love Canal site. This first phase of work included the installation of 52 nested piezometers, 11 bedrock wells, and 32 perimeter wells. Four of the perimeter wells were installed at the 93rd Street School site.

Two sets of groundwater samples have been taken and have been analyzed for Love Canal contaminants. The first set of sampling results have been released for public review. The second set of sampling results is now under review and are expected to be validated and be publicly available at the end of this month.

E.C. Jordan Co. and its drilling subcontractor, John Mathes, Inc. returned to the Love Canal site in early May of 1986 to complete the second phase of their investigations. Phase II also includes the installation of 15 wells directly into the Love Canal landfill.

Work on this phase of the Love Canal long-term monitoring program was suspended in May of this year and remains incomplete. Due to acts of vandalism, harrassment and threats of violence, the E.C. Jordan Co. decided to leave the site due to a serious concern for the personal safety of its workers and the subcontractor. E.C. Jordan hopes to be able to resolve this problem and to return to the Love Canal site to complete its work this Fall. The earliest this work is expected to resume is October, 1986.

Creek Posted

Results of the chemical analyses of samples collected by Malcolm Pirnie, Inc. for the DEC in 1983 found dioxin in the Black and Bergholtz Creek sediments. These results were reported in the "Site Investigations and Remedial Action Alternatives at Love Canal, 1983" report and are available for review at the DEC Public Information Office 9820 Colvin Boulevard, Niagara Falls New York. Under this contract, creek sediment samples were collected downstream on Bergholtz Creek to the 93rd Street footbridge.

Based on these findings, the DEC took additional sediment samples from Bergholtz Creek downstream to the confluence with Cayuga Creek. Dioxin was found in these sediments as a result of the DEC's sampling effort; the highest concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin found was 11 ppb.

Since much of the property along Bergholtz Creek is privately owned, informal discussions between DEC, The Department of Health, and concerned citizens were held to determine the best method for restricting access to the Bergholtz Creek. These discussions resulted in the development of special signs which will be posted as a temporary method for restricting access prior to the creek cleaning activities.

Letters requesting permission to post these signs on private property are being sent out to the property owners along Bergholtz Creek. Replies are expected by July 25, 1986. Once permission has been received, the DEC will post the signs at approximately 100 foot intervals along both the north and south banks of Bergholtz Creeks. The signs read:

POSTED

FOR YOUR SAFETY

KEEP OUT

Sediment in these Waters is

CONTAMINATED

DO NOT SWIM

DO NOT WADE

DO NOT EAT FISH

Sewer Cleaning Project Underway

On November 29, 1985, the New York State Department of Environmental Conservation (DEC) awarded a $3.4 million contract to Sevenson Containment Corporation of Niagara Falls, New York. Robinson Pipe Cleaning Company of Eighty-four, Pennsylvania is subcontracting with Sevenson on this project. This contract includes the cleaning of the storm and sanitary sewers, the construction of a facility to dewater and store the sediment and debris removed from the sewers, and the construction of drum storage facilities.

Cleaning of the storm and sanitary sewers in the LaSalle Area of Niagara Falls began in mid-April, 1986. These sections of the sewers were originally connected to sewers which served the area immediately surrounding the Love Canal inactive hazardous waste landfill site and were contaminated by chemical wastes migrating from the landfill. With the exception of one storm sewer along Frontier Avenue, all the sewers which served the area immediately surrounding the Love Canal Area have been cut off and have been plugged with concrete so that no additional contaminated

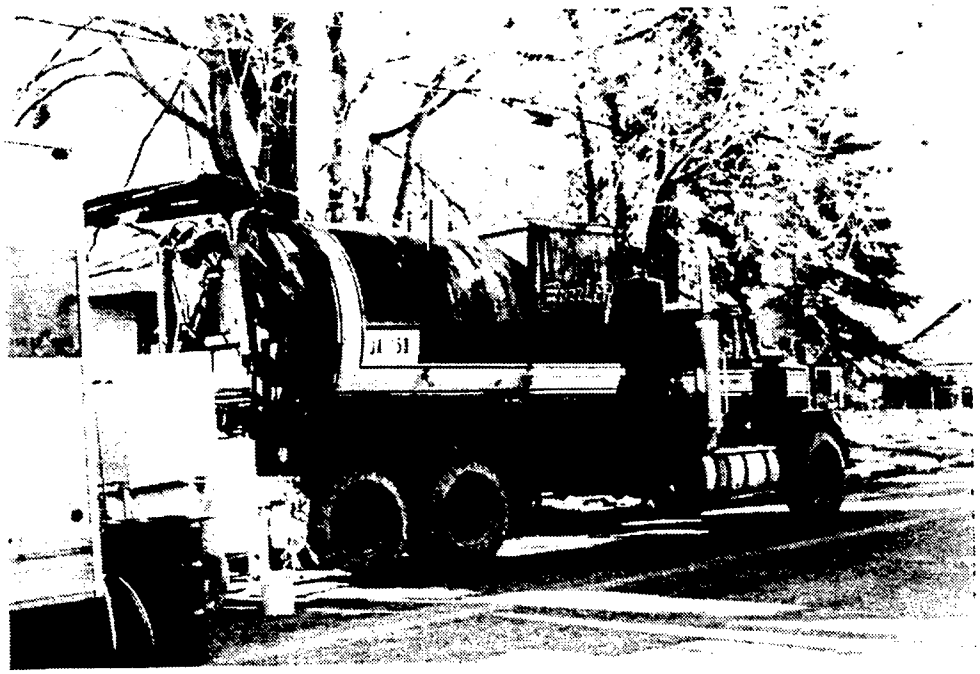


Figure I. Large vacuum trucks are used to collect wash water and contaminated sediments from the sewers near the Love Canal. These materials are then taken to the dewatering facility located at the site for storage and treatment.

material is entering the sewer from the landfill. The DEC is about to advertise for bids for a contract to eliminate the Frontier Avenue storm sewer between 95th and 100th Street.

The decision to clean the sewers is based on the samples taken for the DEC in 1983 by Malcolm Pirnie, Incorporated of Niagara Falls, New York. The Malcolm Pirnie, Inc. investigation included the collection of liquid and sediment samples taken from various manholes throughout the area. These samples were collected during both dry weather and storm event conditions. The results of this sampling effort are described in the report, "Site Investigations and Remedial Action Alternatives at Love Canal, 1983", prepared for the DEC by Malcolm Pirnie, Inc.

Figure 2. Special protective clothing and equipment is worn by workers nearest the open manholes to protect them from possible exposure to contaminated washwater and sediments.

As a result, storm and sanitary sewers in the Love Canal Emergency Declaration Area (EDA), which showed the presence of Love Canal contaminants, are being cleaned. In addition, the main sewer lines west of the Love Canal landfill extending to 81st Street are being cleaned due to the presence of low levels of Love Canal chemicals. The total amount of storm and sanitary sewer line being cleaned is about 65,000 feet.

Two methods are being used to clean the sewers: hydraulic flushing and mechanical cleaning.

Hydraulic flushing is a technique in which a high-pressure stream of water is forced through a specially designed nozzle which is run through the sewer lines. As the nozzle passes through the sewer line, sediment and debris are flushed downstream toward a manhole where a vacuum truck (Guzzler) is located. The Guzzler vacuums up the water, sediment and debris as it enters the manhole.

Mechanical cleaning of the sewer lines is a second cleaning technique in which a cylindrical bucket is pulled through a sewer to scoop sediment from the sewer line. When the bucket is loaded with debris, the bucket is pulled back to a manhole where a Guzzler removes the sediment and debris.

All dirty wash water and sediment and debris resulting from the sewer cleaning operation is trucked to the Love Canal site where these materials are placed in the dewatering facility.

The dewatering facility consists of four holding tanks located on the east side of the Love Canal site inside the fence which surrounds the Love Canal site. The tanks are lined with two sheets of reinforced plastic (Hypalon). These hypalon liners are 45 mil thick and 36 mil thick respectively. (1 mil = .001 inch) The tanks are

located within an above-ground compacted earthen berm. The bermed area is also lined with a sheet of plastic (80 mil high density polyethylene). This provides a secondary means of containing the liquids and debris placed in the dewatering in the event any of the four tanks were to leak. In fact, in late April DEC inspectors did notice leaks in the tanks.

The tanks were found to be leaking at the corner seams in the plastic liners. Although the liners were seamed indoors at the factory, it appears the cold temperature at the Love Canal site during the liner installation resulted in some contraction of the plastic. The plastic was then stretched to fit the tanks and this stretching weakened the seams causing leaks to result.

After several unsuccessful attempts were made to repair these leaks, DEC directed Sevenson Containment Corporation to replace all the holding tank liners and to test them for leaks. The sewer cleaning activities were resumed in mid-May after Sevenson replaced and tested the tank liners.

Once the wash-water and debris brought to the dewatering facility is emptied into the tanks, the heavier materials settle to the bottom and the liquids are drawn off. These liquids are then passed through a system of sand filters to remove additional solid materials. After they have passed through this system, the liquids are discharged into the Love Canal leachate collection system for further treatment.

To make sure the storm and sanitary sewers are clean, each sewer line is inspected using a television camera. As the television camera passes through the sewer line, a picture of the inside of the sewer is projected on a TV monitor located in a truck above the manhole. As the camera is pulled through the sewer line, the picture is recorded on video

Figure 3. Clean water from City hydrants is used to flush the contaminated sediments from the sewer lines; the air is monitored continuously during the sewer cleaning activities using hand-held instruments.

Open House Held

On Saturday and Sunday, May 3 and 4, 1986, the DEC held an "Open House" to display the Plasma Arc Unit. This unit is a high-temperature destruction system capable of destroying hazardous liquid wastes. The Plasma Arc Unit, which is housed in a mobile trailer, was parked on 95th Street near the Love Canal site during the Open House.

Nearly 200 people took this opportunity to view the Plasma Arc Unit and to discuss its features and operation with DEC and contractor personnel. Small groups were taken through the trailer which houses the process equipment, the computer and operator control room, and a power room.

A second trailer housing the portable generator is parked on-site near the fence on the west side of the Love Canal. This generator will supply power to the Plasma Arc Unit when it is operating.

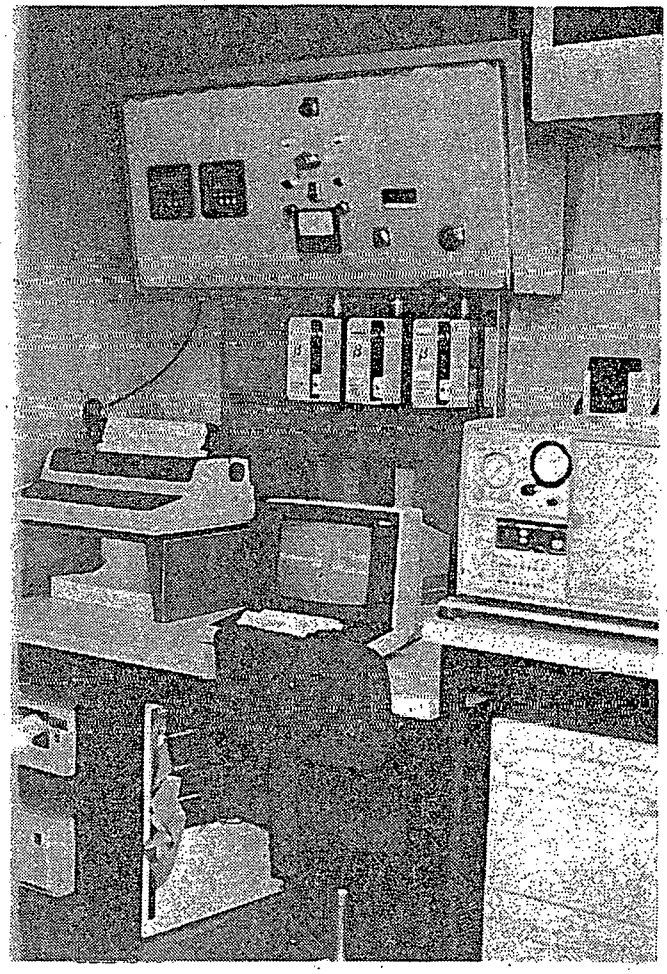


Figure 5. A computer control room occupies the central area of the Plasma Arc Unit trailor.

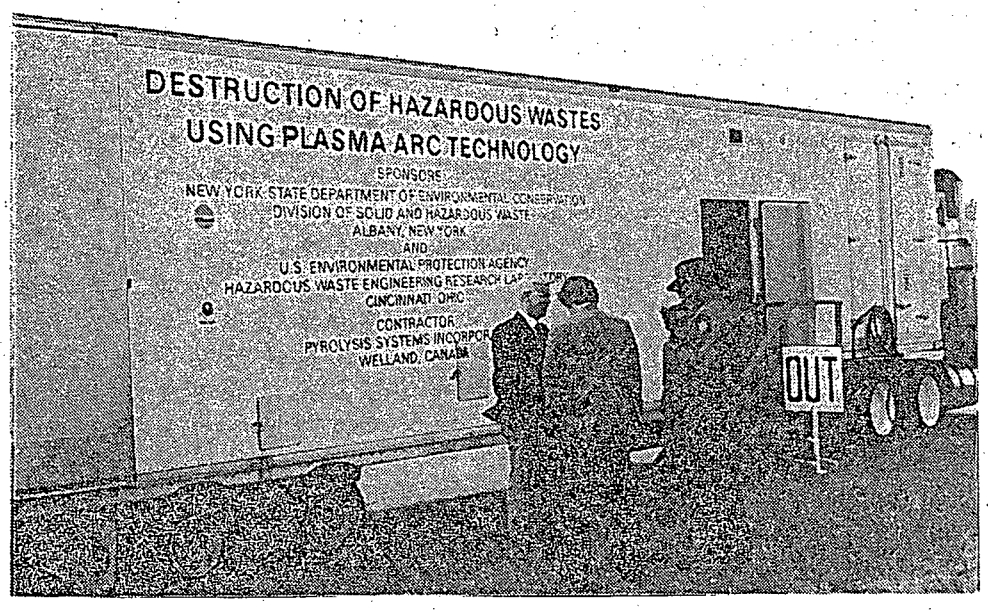


Figure 6. The Plasma Arc Unit is a mobile unit housed in a 45 foot trailor.

tape to verify the sewer has been cleaned and for future use in the repair of structural deficiencies such as cracks, joint failures and collapsed pipes.

Residents along the sewer cleaning routes received written notifications a week in advance and second notices the day before sewer cleaning activities take place in front of their homes. Although the DEC has taken a number of precautions to prevent water from backing up into basements and home during sewer cleaning operations, residents along the sewer cleaning routes may request plugs to be installed in their home laterals as an additional precaution. The plugs are removed after the sewer has been cleaned.

Finally, over 1,600 drums of materials and clothing potentially contaminated with dioxin have accumulated at the Love Canal site. Currently there is no hazardous waste management facility permitted to dispose of wastes containing dioxin. Because these drums include materials contaminated with dioxin, the drums may not be removed from the site and are currently stored on wooden pallets inside the fence surrounding the site.

To protect the drums from the weather, further rusting, and potential leaking, a drum storage facility is scheduled to be constructed as part of this contract.

The DEC hopes to have the drum storage facility constructed this summer and have all drums transfered to this facility before winter. Any drums that show signs of corrosion will be placed into a larger drum for additional protection. (This process is called overpacking). The completion of this portion of the work has been made difficult due to the facts that the building manufacturer specified in the contract is no longer in business and an acceptable alternative has not been agreed upon with the contractor.

It is anticipated that the sewer cleaning activities will be completed in mid-August, 1986.

Figure 4. Drums holding wastes potentially contaminated with dioxin are being stored on-site; a drum storage facility is expected to be built to protect the drums from weathering and rusting.

Love Canal Creeks Sampled

In May and June of 1986 the NYS DEC and its consultant, Malcolm Pirnie, Inc. of Niagara Falls, New York, collected additional samples from Black, Bergholtz and Cayuga Creeks and inspected additional portions of the sanitary sewer. This work includes:

-- Bank sampling along Black & Bergholtz Creeks
-- Collection of sediment samples from the Cayuga Creek bed
-- Collection of soil samples from the former Oak Island (located at the confluence of Bergholtz and Cayuga Creeks. This island was filled in during the construction of the Cayuga Drive bridge.)
-- Collection of storm water runoff samples from the 93rd Street School swale where it empties into Bergholtz Creek
-- Inspection and sampling (if appropriate) of sanitary sewers from 81st Street west to 56th and John Street

Approximately 354 samples were collected including 4 sediment samples from the sewers that were inspected. A number of these samples will be analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin(dioxin). The results of this analysis will assist in determining the amount of sediment that must be removed from Black and Bergholtz Creeks. The analyses of the Cayuga Creek bed and Oak Island samples will be used to better define the extent of contamination in these locations.

Sewer sediments were collected from manholes in which sediments were available. Sediment samples were collected from four manholes on Frontier Avenue nearest Lift Station (pump house) on 81st Street

Analyses of the samples for dioxin is being performed by the New York State Department of Health. Results of these analyses are expected at the end of August, 1986.

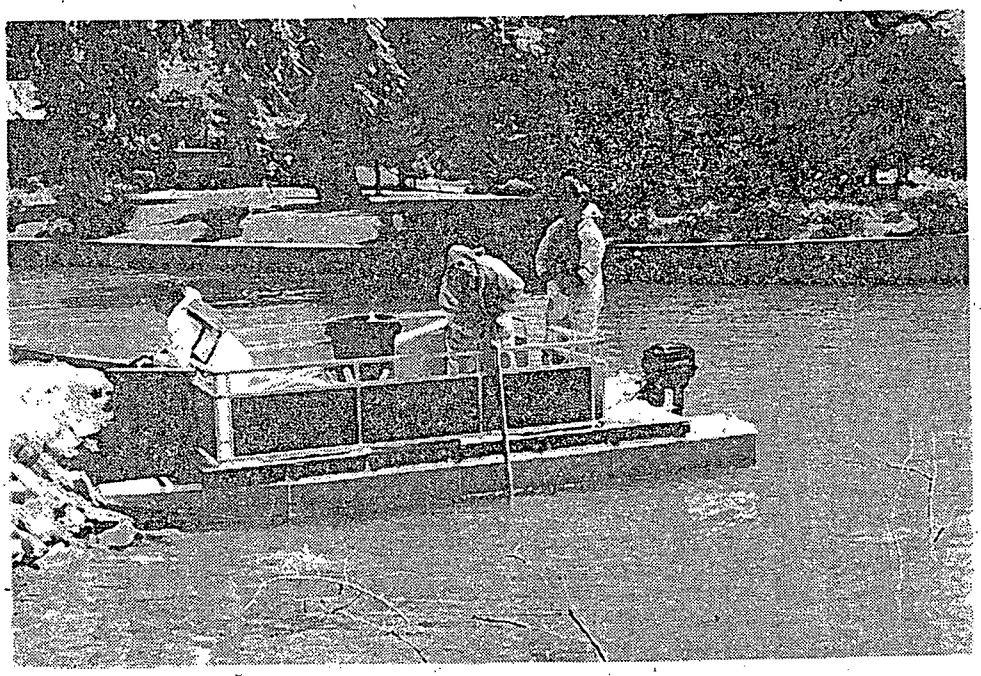


Figure 7. A pontoon boat was used to collect sediment samples from Cayuga Creek. These samples will be analyzed for dioxin to help determine the extent of contamination in the creek.

Administration Building to be Built

Plans to build an Administration Building at the Love Canal site have been finalized by the DEC and work began during the week of July 7, 1986. This Administration Building will be a support facility for the Love Canal Leachate Treatment Plant. It will provide for badly needed space including office space for the Leachate Treatment Plant Operators, a laboratory, a 2-bay garage for support vehicles, dirty and clean locker rooms and showers, a mechanical room and a lunch room.

This building, which will be a single story building approximately 45' x 70', will be located directly opposite the Leachate Treatment Plant between the existing access road and the fence on the west side of the site. The contract also includes a driveway, landscaping, and a new automatic entrance gate on Read Avenue which includes an intercom with the Leachate Treatment Plant and remote control.

Contracts were awarded on April 4, 1986 to the following contractors:

1. General Construction -
   Sevenson Construction Corp.
   Niagara Falls, N.Y.
   $352,000

2. Mechanical Contract -
   Joseph Mariglio Plumbing and Heating Co., Niagara Falls, New York
   $125,000

3. Electrical Contract -
   C.I.R. Electrical Construction Corp., Buffalo, N.Y.
   $110,525

The foundation of the Administration Building is a concrete slab designed to "bridge" over the remains of the house foundation lying beneath the area where the building will be constructed. Excavation for this foundation will be less than 2 feet deep and some additional excavation will be required for installation of utilities.

In 1985, the DEC collected and analyzed five soil samples where the foundation will be placed. Results of the analysis indicate that no contaminants are present at this location.

As an additional precaution, more soil samples will be collected during trenching for utilities and landscaping excavations. If the results of the analyses of these samples indicate that the soil is contaminated, it will be drummed and stored at the Love Canal drum storage facility. If the soil is clean, it will be spread on the surface of the site. All backfill material for the utility trenches will be brought in from off-site.

During the trenching and excavation, workers will wear protective clothing, including coveralls, inner and outer chemical resistant gloves, boots, protective hard-hat, and a full-faced respirator. Air monitoring for fugitive dust and volatiles will be conducted. These safety precautions were reviewed by the New York State Department of Health (DOH). Action levels for the monitoring equipment were determined in cooperation with DOH. A copy of the Health and Safety Plan for this project is available for review at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York.

Construction activities on the Administration Building are expected to be completed in mid-November, 1986.

We Want You To Be Involved

You, the citizens, workers, and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the future.
- The NYS DEC Public Information Office has been established at 9820 Colvin Boulevard. We encourage you to visit so that we can answer your questions and hear your concerns. Information regarding NYSDEC activities and public meetings may be obtained by calling Anita Gabalski, a NYSDEC Citizen Participation Specialist, at 716/297-9637.
- In addition a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the NYSDEC public information office in Niagara Falls.
- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ Please correct my name or address as listed below

_____ Please add the following name to your mailing list

_____ I do not want to be included on your mailing list

NAME _____

ADDRESS _____

_____

_____

Send to: N.Y.S. Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste
HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 9 **JANUARY 1985**

About This Issue

This is a special issue of the Love Canal Update produced specifically to aid us in determining how best to handle the contaminated sediments to be removed from the sewers and creeks within the Love Canal Emergency Declaration Area (EDA). It provides a description of the alternatives being looked at for the disposal of dioxin-contaminated sediments in the storm and sanitary sewers and in the creeks of the EDA of the Love Canal. It also provides a description of new and experimental technologies that may be available in the future for the destruction of dioxin-contaminated wastes. This issue also includes a schedule of the Citizen Participation Program designed to gather your input and keep you informed about the sewer and creek sediment disposal issue.

The DEC recognizes the importance of this decision within the community. For this reason, two workshops will be held this month to discuss the issue with all concerned citizens. (See: Upcoming Meetings pg. 1) Please read this newsletter carefully. If you have any comments, questions, concerns, or recommendations, it is important that we hear from you during the workshop sessions. Unless you take this opportunity to become involved in this decision-making process, we will make our decision based on our own current knowledge and expertise. We want you to be involved. For further information, call or visit the Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York at 716/297-9637. We hope to hear from you!

Upcoming Meetings

On January 10 & 11, 1985 representatives of the United States Environmental Protection Agency, the New York State Department of Environmental Conservation, and consultants from CH_2M Hill and Malcolm Pirnie, Incorporated will be present at the DEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York to meet with individual members of the community for discussions on the issue of the disposal of sewer and creek sediments. They will be available to discuss any additional alternatives or suggestions you may have. If you have any comments, questions or concerns about any of the alternatives presented in this newsletter, the representatives will discuss these concerns with you at this time. It is important that we hear from you. No appointment is necessary. If the hours are not convenient for you, call us at the Public Information Office at 297-9637. It is important that we hear from you before a disposal alternative is selected so that the most appropriate option is chosen. These representatives will be available during the following hours:

THURSDAY, January 10

1:00 p.m. - 5:00 p.m.
and
7:00 p.m. - 9:00 p.m.

FRIDAY, January 11

9:00 a.m. - 12:00 p.m.
and
1:00 p.m. - 5:00 p.m.

After these discussions, a draft report presenting the recommended disposal alternatives will be prepared. We will notify you when the draft report is available at the Public Information Office for your review and at that time announce a Public Information meeting to present the report.

Approximately one week later we will hold a second workshop to meet with individuals to answer questions and to receive comment on the draft report.

We want you to help us review the alternatives. Determining how best to handle the contaminated sediments is a difficult and complicated problem. Please take the time to review the issue, learn what the difficulties are, discuss them with your friends and neighbors, and get involved in helping to solve the problem.

The 1983 Malcolm Pirnie report about the sewer and creeks, a description of the work the consultants are doing to solve the sediment problem, and a great deal of additional background information is available for your review at the Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York. DEC staff members are also there to help you find the information you are looking for and to assist you in interpreting and understanding it.

Disposal of Contaminated Sediments: An Unresolved Dilemma

A study of the sewers and creeks in the Love Canal EDA was performed in 1983 for the New York State Department of Environmental Conservation (DEC) by its contractor, Malcolm Pirnie, Incorporated. The study confirmed that the sewers and creeks had been contaminated by past discharges from the Love Canal.

In May of 1984, DEC submitted an application to US EPA for funding to remove the contaminated sediments and debris from the sewer and creeks within the EDA. In considering DEC's application, the US EPA evaluated the information provided in the Malcolm Pirnie study. The US EPA also reviewed the process used by the consultant in its development and selection of recommended alternatives. US EPA's evaluation and review is a part of the process used to determine if proposals for remedial work are consistent with the intent and requirements of CERCLA of 1980 (better known as Superfund). US EPA documents its evaluation of remedial proposals in a "Record of Decision (ROD).

As a result of this review, EPA found that additional information regarding the disposal of the contaminated sediment and debris was needed to complete the ROD. Malcolm Pirnie, Incorporated and CH_2M Hill, have been hired as consultants to the EPA and they are working on providing this needed information. This includes:

1.) an evaluation of the 'No-Action' alternative .
2.) an estimate of the cost of each of the feasible disposal alternatives
3.) further investigation of any additional alternatives not previously examined

Many people have expressed concern over a possible delay in the cleanup efforts as a result of the problem with disposal. The DEC would like to begin its cleanup efforts on the sewers in 1985. Before the design of any cleanup efforts can begin, however, disposal plans for the contaminated sediments must befinalized and approved by the Dioxin Disposal Advisory Group (DDAG) even if the decision is to temporarily store the materials until a more permanent solution is found.

As you read the descriptions of the various alternatives, you will notice a large range in the estimated amounts of material to be disposed of and in the estimated costs of disposing of the various amounts of material. We have not completed the investigation of the extent of contamination in the Bergholtz Creek. The DEC is currently awaiting the results of an analysis of samples taken from the creek in late August. The amount of material to be disposed of and the accompanying cost is largely determined by how much material is removed from the creeks. Final boundaries of the area to be remediated on the creeks have not yet been determined. The quantities and cost of disposal, therefore, have been estimated.

DISPOSAL ALTERNATIVES

The following description and discussion of the various technologies which might be used for the disposal of dioxin-contaminated sediment and debris is preliminary. This Department, the US EPA and US EPA's consultants will continue in the evaluation of these and possibly other technologies. We would, however, like to share our thinking with you at this point. At this stage, you may have discovered, as we have, that the currently available disposal alternatives are few.

It appears that there are storage/encapsulation technologies presently available which might be used to isolate the contaminated sediments and debris from the environment. This might be accomplished at either the Love Canal Site or at a permitted commercial secure land burial facility. It appears that temporary encapsulation of these wastes is an environmentally acceptable means of storing these wastes which would result in little chance of human exposure. This statement is based upon the following:

-- The material to be encapsulated will be dewatered before it is disposed. The wastes are solids and therefore, cannot readily escape the encapsulation.

-- The dioxin in the sediments and debris is generally considered to be tightly bound to the sediment and debris. This means the dioxin would not readily be leached or washed off the sediment and debris.

-- The sediment and debris were stored below ground, it would be placed where it be subjected to little, if any, leaching. The buried material would be placed beneath a sophisticated cap such as that at the Love Canal Site which minimizes the amount of water that infiltrates the wastes and leach the dioxin out of the wastes.

-- The wastes would be stored above the water table and therefore, there is little potential for groundwater to enter the wastes and leach dioxin out of the wastes.

-- A leachate collection and leak detection system would be required for the stored wastes.

At present there are no permitted commercial destruction technologies that could physically handle solids contaminated with dioxin. There is no commercial facility that has successfully completed a test burn of wastes containing dioxin. The wastes generated as a result of the remedial work in the sewers and creeks could be temporarily stored in the hope and expectation that one or more of these destruction technologies will be proven to be a safe way to dispose of the Love Canal wastes.

Temporary storage would involve encapsulation of wastes in such a way that the wastes could be relatively easily recovered for future destruction. Temporary storage might be provided either at the Love Canal Site or at some other site in a specially prepared storage "vault" either above ground or below ground.

In considering temporary storage followed by destruction, one must keep in mind the following disadvantages:

-- The wastes will be placed into storage, removed and then destroyed. This requires more handling of the wastes than encapsulation alone. More handling involves more risks.

-- Ultimate disposal of the wastes would depend upon the demonstration that such wastes can be properly destroyed using incineration or some other technology. Although there are several technologies which appear promising, none have been approved for the disposal of solid wastes contaminated by dioxin.

-- Thermal destruction of these types of wastes does result in some emissions. The emissions may be extremely low, but must still be a consideration.

Although no decision has been made, we have been thinking about this problem and we would like to share our thoughts with you. We are still considering all the options especially temporarily storing the dioxin containing wastes with the expectation that some destruction technology will be approved in the future. This appears to be the most promising option.

You know what our thinking at this stage is. Your comments and advice are appreciated. We look forward to hearing from you.

* * * * * * * * * * * *

Offsite Landfill Disposal

Offsite landfilling is the removal and transportation of the contaminated wastes to a landfill or similar facility licensed to dispose of these materials. Both local and national disposal facilities are being considered for disposal of the sewer and creek sediments.

Dioxin-contaminated waste is not currently listed as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), but it has been proposed as an addition to this list of regulated wastes. During the review of the offsite landfills, only secure landfills which have RCRA permits to handle hazardous wastes will be given consideration.

Two facilities in the Love Canal area were considered for the possible disposal of the dioxin-contaminated materials:

CECOS (Chemical, Environmental, Conservation Systems, International)

SCA (Recently changed to Chemical Waste Management)

Due to the total lack of response from CECOS, this facility is not considered a possible disposal option. SCA (Chemical Waste Management) has refused to accept the dioxin-contaminated sewer and creek wastes.

On May 30, 1984, a nationwide advertisement for disposal facilities appeared in the Commerce Business Daily. This was submitted by the EPA, Region VII to evaluate the market for disposal of dioxin-contaminated materials from Times Beach, Missouri. This advertisement brought numerous phone calls, but only five formal written responses. Of these five, three were judged as possibly suitable for further consideration. These three sites are:

1.) U.S. Pollution Control Incorporated (USPCI)
2.) The Great Midwest Corporation
3.) The Environmental Conservation and Management Company

USPCI operates two secure landfills, one in Oklahoma and one in Utah. USPCI has always refused to accept dioxin wastes in the past, but has indicated a willingness to evaluate accepting some particular low concentrations of dioxin materials. They are still considering accepting the sewer and creek sediments.

The Great Midwest Corporation has proposed a new venture wherein dioxin-contaminated material would be solidified with flyash and disposed of in underground mines. This is just a proposal. A two to four year delay is anticipated while a location is identified, purchased, designed, constructed, and permits are obtained.

The Environmental Conservation and Management Company proposed building a permitted secure landfill in Missouri. Since responding to the advertisement, the company has decided not to pursue the development of this facility and it is no longer under consideration as a possible disposal alternative.

Onsite Storage

The 1983 Malcolm Pirnie report eliminated on-site encapsulation/storage from the detailed evaluation of alternatives due to the construction schedule for the synthetic membrane cap. The decision to perform a detailed investigation of onsite sediment encapsulation/storage was predicated on the general reluctance of local licensed hazardous waste disposal facilities to handle and/or store dioxin-contaminated Love Canal related wastes.

Sufficient land area exists at Love Canal to construct a facility to encapsulate/store the sediments resulting from remedial actions in the nearby sewers and creeks. Onsite encapsulation/storage is considered a technically feasible alternative to the offsite disposal methods.

The four onsite storage methods being evaluated are:

1.) Above cap storage in a totally segregated landfill cell, with its own leachate collection and leak detection systems situated on top of the recently installed synthetic membrane liner.

2.) In-cap storage in a totally segregated landfill cell, with its own leachate collection and leak detection systems, situated partially beneath the recently installed synthetic membrane liner on the original clay cap.

3.) Burial of the sediments beneath the existing clay cap and liner.

4.) Storage of the sediments in containers inside a concrete vault. This vault could be placed between the existing liner and the fence around the Love Canal site. In addition, the concrete vault would be designed such that the sediments would be removed when destruction or disposal technologies are more readily available.

Costs to construct either an above-cap or in-cap facility to store the minimum sediment volume were estimated to be approximately $489,000 and $467,000 respectively. While an in-cap facility to store the maximum sediment volume does not appear to be feasible because of space restrictions, an above cap facility for the maximum sediment volume was estimated to cost $3,963,000.

Costs for burial or storing the sediments in a vault have not yet been estimated.

Experimental Technologies

A number of new technologies are also under review as alternative methods of disposal. These technologies are still experimental in nature, but they have the potential to become recognized as effective

means of disposal of dioxin-contaminated wastes. At this time no technology has EPA approval for destroying dioxin-contaminated wastes. Prior to use at the Love Canal, any destruction method must receive the approval of the EPA's Dioxin Disposal Advisory Group (DDAG).

I. Huber Advanced Electric Reactor

The Huber Advanced Electric Reactor (AER) is a mobile incineration unit which rapidly heats materials to temperatures between 4,000°F - 5,000°F. The Huber Corporation has 2 AER's located in Borger, Texas. The smaller reactor which has a core diameter of 3", can handle wastes up to ½ pound / minute and is transportable to other locations. This reactor was field tested in November 1984 at Times Beach, Missouri. It is reported that dioxin-contaminated sediments with concentrations of 76 ppb were passed through the reactor during these tests reducing the concentration to less than 1 ppb. The detailed results of these test burns, however, are yet to be published.

The larger reactor, which has a 12" core diameter can handle 50 pounds of waste/minute. This reactor, however, is being used solely for research purposes. Huber anticipates having a reactor with a 24" core diameter and a waste handling capacity of 20,000 to 30,000 tons per year available for a full scale demonstration on dioxin-contaminated soil by the end of 1985.

II. Pyrotech, Incorporated

Pyrotech, Incorporated, located in El Dorado, Arkansas, operates a mobile liquid feed incinerator that is permitted for PCB incineration. This unit has a PCB destruction and removal efficiency of 99.9999%. The incinerator is not permitted for incineration of solids. Pyrotech is applying for a permit to do a test burn in Florida which they hope to receive in late 1985.

This incinerator has a waste-handling capacity of 60 tons/day. Given the wide range of dioxin-contaminated material that we anticipate as a result of the sewer and creek remediation efforts, it would take from 1 year to 15 years to incinerate these materials. The cost of this process ranges from $1.6 million to $40 million.

III. Rotech Cascading Incineration System

Rotech, Incorporated operates a Cascading Bed Rotary Incinerator which consists of a horizontal, multi-compartment, cylindrical vessel that is 8 feet in diameter and is 40 feet long. This incinerator can operate at a temperature of 1,600°F.

Although still in the developmental testing stage, it is anticipated that this incinerator will have a destruction and removal efficiency of better than 99.99% based on pilot-plant data. Rotech currently has several systems under design which if built will have waste-handling capacities of over 100 tons per day.

IV. Plasma Arc

The Plasma Arc incinerator is currently being developed by Pyrolysis, Incorporated of Welland, Ontario in Canada, in cooperation with the DEC and US EPA.

This incinerator is undergoing a series of trial burns in Canada in preparation for the destruction of non-aqueous phase liquids (NAPL) that is stored at Love Canal. Since the Plasma Arc incinerator is incapable of incinerating solids, it is not considered a viable option for the destruction of the dioxin-contaminated solid wastes at Love Canal.

V. K-20 Control Systems

Lopat Industries has developed an encapsulation technology called the K-20 Control Systems. Lopat claims that the K-20 Control Systems is a non-toxic chemical system that immobilizes, captures, and permanently bonds PCB's, chlordane, and other toxins through interpenetration, and encapsulation.

Additional information on this system would be required if it is to be given serious consideration as an alternative method of disposing of the dioxin-contaminated materials at Love Canal.

Offsite Incineration

There are currently five commercial hazardous waste incineration facilities that are permitted to incinerate PCB's. Since we do not have regulations yet to control the incineration of dioxin-contaminated materials, there are no facilities specifically permitted to incinerate such materials. However, it is anticipated that the regulations will require a destruction and removal efficiency of 99.9999%, which means that when the material is incinerated, 99.9999T of the substance must be completely destroyed. It is also anticipated that incinerators capable of incinerating PCB's may be capable of achieving the necessary destruction and removal efficiency for dioxin wastes.

Of the five nationally available commercial hazardous waste incineration facilities, two burn only liquids and one will not accept any dioxin wastes. The two remaining facilities are owned by the Rollins Corporation and Chemical Waste Management.

I. Rollins Corporation

The Rollins Corporation has a facility in Deer Park, Texas that is permitted to incinerate PCB's. Rollins has indicated that the facility is committed to burn a backlog of wastes from varicus other sites until July 1985 which time it would be potentially available to burn the dioxin sediments from Love Canal. A trial burn would be required, however. In order to do a trial burn, Rollins would have to apply for a federal permit. The permit process could take six months or more to complete. Once the trial burn is completed, another permit is required to allow the Love Canal materials to be incinerated. This second permit process could take three years to complete.

The cost of incineration using the Rollins incinerator ranges from $1,200 to $1,500 per cubic yard. The total cost of incineration would range from $2.5 million to $189 million. In addition, the cost of transporting the materials from Love Canal to Deer Park, Texas ranges from $0.6 million to $39 million.

II. Chemical Waste Management

Chemical Waste Management operates a commercial incineration facility in Chicago, Illinois. Before any dioxin-contaminated sediments could be accepted for incineration, the facility is required by EPA to give public notice. A detailed report characterizing the wastes and a successful trial burn are also required before the wastes could be incinerated. Once again, the permitting process for this facility is extensive and is estimated to take up to 3 years to complete. Before incineration of sediments could begin, the necessary permits must be obtained. Once again, the permit process is extensive and is expected to take up to 3 years.

Onsite Incineration

Onsite incineration can be accomplished by the use of a mobile incinerator or the construction of a fixed but temporary facility. US EPA has a mobile incinerator that will be used in trial burns of dioxin-contaminated material in Missouri. The trial burns will take 4 to 6 months to complete once the incinerator is onsite. If the trial burns are successful, the incinerator could be used at Love Canal. New York State permits would be required for use of the incinerator at Love Canal. It would take from 3 to 24 months to obtain the required State permits. If the US EPA mobile incinerator were to be used at Love Canal, the solid s handling capacity would have to be refined. In addition, EPA must schedule the incinerator for use at Love Canal. If all of these requirements are met, the onsite incineration of dioxin-contaminated sediments could begin as early as 1986. This incinerator, however, has an estimated capacity of only 22 cubic yards a day. Depending on the total amount of material to be incinerated, the EPA incinerator could take from one year to 29 years to incinerate the sediments.

REVISED

PUBLIC PARTICIPATION PLAN *

Evaluation of Alternative Methods of Disposal
Contaminated Sediment & Debris
Love Canal Superfund Remedial Program

TASK	SCHEDULED DATE								
	December			January			February		
	10	20	30	10	20	30	10	20	30
Newsletter presenting overview and discussion of disposal alternatives under consideration			*						
First workshop to answer questions and to receive comment on disposal alternatives				**					
Public Information Meeting to present draft report						*			
Draft report presenting recommendations for disposal publicly available - public comment period						——	——	——	
Second workshop to answer questions and to receive comment on draft report								*	
Final report with Responsiveness Summary									*

* These dates are approximations to give you a general guideline. They are subject to change based on the input we receive.

We Want You To Be Involved

You, the citizens, workers, and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the future.
- The NYS DEC Public Information Office has been established at 9820 Colvin Boulevard. We encourage you to visit so that we can answer your questions and hear your concerns. Information regarding NYSDEC activities and public meetings may be obtained by calling Anita Gabalski, a NYSDEC Citizen Participation Specialist, at 716/297-9637.
- In addition a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the NYSDEC public information office in Niagara Falls.
- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ Please correct my name or address as listed below

_____ Please add the following name to your mailing list

I do not want to be included on your mailing list

NAME _____

ADDRESS _____

_____

_____

Send to: N.Y.S. Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste
HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 8 *NOVEMBER 1984*

About This Issue

Since the last issue of the Love Canal Update, many activities have taken place at the Love Canal. This issue includes:

* The Phase II remedial activities were completed in November, 1984. These activities include the placement of a plastic liner, the importation of fill and topsoil and the planting of seed. A final check on the project for problems with erosion will take place next spring. p. 4
* Segments of Bergholtz Creek are now fenced to prevent contact with the dioxin-laden sediments found in the creekbed. Additional sampling was done downstream of the 93rd Street Outfall on the creek and the New York State Department of Environmental Conservation (NYS DEC) is awaiting the results of the analysis.
* The leachate treatment plant at Love Canal was opened to the public for the first time. Three groups toured the plant to examine its design and to ask questions on its operation and maintenance. Additional tours may be scheculed for sometime in the near future. p. 6
* Over 500 fifty-five gallon drums containing soiled clothing and dioxin-contaminated sediments became the object of much public controversy. The DEC had planned to bury these drums on site consistent with past disposal policy. As a result of public concern, the on-site disposal plans were abandoned until alternative disposal options have been considered.

See Green Pages

* Discussions began regarding the cleanup of the dioxin contaminated sewers and creeks in the Love Canal Emergency Declaration Area. The DEC would like to begin its cleanup efforts on the sewers and creeks as soon as possible. Before the design for the cleanup can begin, disposal plans for the contaminated sediments must be finalized. We believe that we will be able to work with citizens in the development of a feasible disposal solution for the contaminated sediments and at the same time complete the work as expeditiously as possible. pp. 11 - 12

To be successful, government officials and citizens must work 'cooperatively' and with open minds to various alternatives so that the best possible disposal option is selected. It also means that citizens must accept the responsibility of reading, reviewing, and commenting on the government documents that will be available in regards to this issue.

Unless we hear from you, our decisions will be made based on our own expertise, the information that is available to us and the concerns expressed by those who attend meetings and participate in the review of documents.

We hope to develop a disposal solution that is acceptable to all concerned.

Let us hear from you. What you have to say does make a difference.

Upcoming Meetings

* The New York State Department of Environmental Conservation (NYS DEC) will hold a PUBLIC INFORMATION MEETING ON DECEMBER 6, 1984 at the Frontier Volunteer Fire Hall, 1999 Frontier Avenue, Niagara Falls, New York at 7:30 p.m.

  The agenda for this meeting includes:

  - A discussion of the overall problems for the disposal of dioxin.
  - A discussion of some conventional and innovative technologies used for the remediation of inactive hazardous waste sites.
  - A discussion of the recommended Public Participation Plan for the evaluation of alternative methods of disposal of contaminated sediment.

* In addition, representatives of the EPA, DEC, and DOH will be available at the Public Information Office at 9820 Colvin Boulevard on December 6, 1984 between 2:00 p.m. and 5:00 p.m. to meet with you on an individual basis to discuss any of your concerns regarding Love Canal. For an appointment, please call Anita Gabalski at 716/297-9637. It is important that we hear from you so that we have a better understanding of the issues of concern to ALL individuals impacted by the Love Canal.

Information Needed on Former Love Canal Renters

The New York State Division of Housing and Community Renewal (DHCR), Housing Opportunities Made Equal (HOME), and the Love Canal Renters' Association are looking for names and addresses of families and individuals who lived in the LaSalle Development or were low-income families renting in the Love Canal Emergency Declaration Area (EDA) in late 1980 and part of 1981. These families and individuals who left the LaSalle Development or EDA without receiving all appropriate financial assistance may still be eligible to receive federal housing assistance under the Section 8 certificate program provided that these additional certificates are made available by the Federal Department of Housing and Urban Development.

What is the Section 8 Certificate Program?

The Section 8 certificate program is a federal housing assistance program for low-income individuals administered by the United States Department of Housing and Urban Development (HUD). Eligibility for this program is based on the income of the individual or family. Under this program, the government provides a housing subsidy by paying the balance of the cost of renting a home or an apartment while the renter pays up to 30% of his or her income toward the rent. The subsidy travels with the tenant if the tenant chooses to move. Individuals who qualify may move anywhere within the county under certain conditions:

1. the cost of renting the house or apartment is within the HUD maximum standards.
2. the house or apartment must meet all housing standards.
3. the landlord must be willing to accept a Section 8 program.

This program is available to anyone who qualifies including those who rent from private landlords.

What is the History of the Section 8 Program at Love Canal?

After the home purchase program for those homeowners who owned and lived in houses within the EDA began in 1980, another program was established to provide financial assistance to LaSalle Development renters and other qualifying individuals allowing them to leave the Love Canal area on a voluntary basis. This program consisted of a special allocation of Section 8 Certificates by HUD to the DHCR to be distributed to low-income families and individuals who rented in the EDA, including people who lived at the LaSalle Development.

Shortly after the program began, the Division of Housing and Community Renewal notified all residents of the LaSalle area by mail (on at least three separate occasions followed by telephone calls) of the availability of the Section 8 certificates. Interviews were conducted to determine eligibility for the program, people were declared eligible and certificates were then issued. The certificates allowed individuals and families to look for other rental properties outside the Love Canal area. These certificates were good for 60 days and a 30 day extension period was granted to allow additional time to find alternate housing. After that time, the certificates expired.

For a variety of reasons, many of the certificates that were made available were not used at the time. At the request of Housing Opportunities Made Equal and the Renters' Association, the DHCR agreed in February 1983 to seek from HUD additional Section 8 Certificates to be distributed to those who qualified but had not accepted the program during the first allocation. The Division of Housing and Community Renewal, Housing Opportunities Made Equal, and the Love Canal Renters' Association are now working together to determine how many people remain eligible for these certificates and are interested in relocation.

The Love Canal Renters' Association is currently gathering information about people who lived in the LaSalle Development and were eligible to receive Section 8 Certificates under the first program but left the area without receiving the certificate. This information will then be given to DHCR so that these people can be contacted to determine if they are interested in and still qualify for Section 8 subsidy.

If you have information on the location, current address, or telephone number of any of the following people, please contact:

- Mrs. Sarah Herbert
  2429 MacKenna Avenue
  284-0403

- Mrs. Sarah Rich
  9310 Frontier Avenue, Crt. 12
  283-0197

To protect the privacy of the following individuals, only the last initial has been included along with their former residence.

- Mary P.	Crt. 1
- Jacqueline J.	Crt. 2
- Louise M.	Crt. 4
- Jacke K.	Crt. 4
- Joe V.	Crt. 5
- Susan R.	Crt. 8
- Delores G.	Crt. 9
- Harry M.	Crt. 11
- Ann H.	Crt. 11
- Leaster R.	Crt. 2
- Clara M.	Crt. 4
- Joann B.	Crt. 5
- Patricia G.	Crt. 1
- Maria V.	Crt. 3
- Frances R.	Crt. 4
- Dorothy H.	Crt. 5
- John V.	Crt. 8
- Eva A.	Crt. 9
- Clarence B.	Crt. 10
- Ralph C.	Crt. 11
- Catherine B.	Crt. 12
- George & Betty G	Crt. 1
- Edward L.	Crt. 3
- Bernice D.	Crt. 3
- Annie C.	Crt. 4
- Zola B.	Crt. 6

Remedial Activities: 1984

Remedial activities at Love Canal were completed this year by the DEC, its consultant, CH$_2$M Hill, and its contractor, Sevenson Construction Corporation. During the summer, crews went to extended shifts and double shifts so the work could be completed during this construction season. The original deadline for work activities was October 18, 1984. This deadline was extended to November 9, 1984. Except for a few minor cleanup activities the remedial work under Phase II was completed on November 9, 1984.

Some of the major activities that took place this summer include:

- 6 inches of imported earthfill, referred to as sandy silt or silty sand, was placed on top of the existing canal in early Spring. This material is free from roots, stones and other debris that is larger than 1 inch in diameter to prevent puncturing of the plastic liner. The fill was then compacted. The plastic liner lies directly above this fill material.

- A 40 mil thick plastic liner made of high-density polyethylene was laid down above the sandy silt. About 1.2 million square feet of plastic liner were laid down to cover an area of approximately 40 acres. The boundaries of the liner are Colvin Boulevard, the west side of the former 97th Street, Frontier Avenue and the east side of the former 99th Street. Its purpose is to prevent infiltration of precipitation into the Love Canal landfill where it would combine with the chemicals to form leachate.

- Sheets of the plastic liner, which came in 10 foot and 22 foot widths, were laid down so that they overlapped at least 3 inches.

- The overlapped areas were then welded using heat welding equipment to bond the layers together. All seams were were tested in the field to ensure proper installation and to ensure the strength of the weld.

Public access to Bergholtz Creek is restricted by a recently erected chain-link fence.

- The plastic liner was inspected for holes and damages which when found were repaired with an additional piece of plastic liner material.

- Swales were dug and the liner was installed at the boundaries along 97th Street, Frontier Avenue and 99th Street.

- A 4 inch diameter slotted plastic drain pipe was installed above the liner in these swales. These drain pipes carry to the city storm sewer system rainwater that collects on top of the plastic liner.

- Along Colvin Boulevard the liner slopes to the street allowing rainwater to enter directly into the city storm sewer system.

- Once the liner was installed and inspected, an additional 12 inches of sandy silt fill material was imported and laid down on top of the plastic liner. This sandy silt was also free of any roots, stones, and debris over 1 inch in diameter. This fill was then compacted.

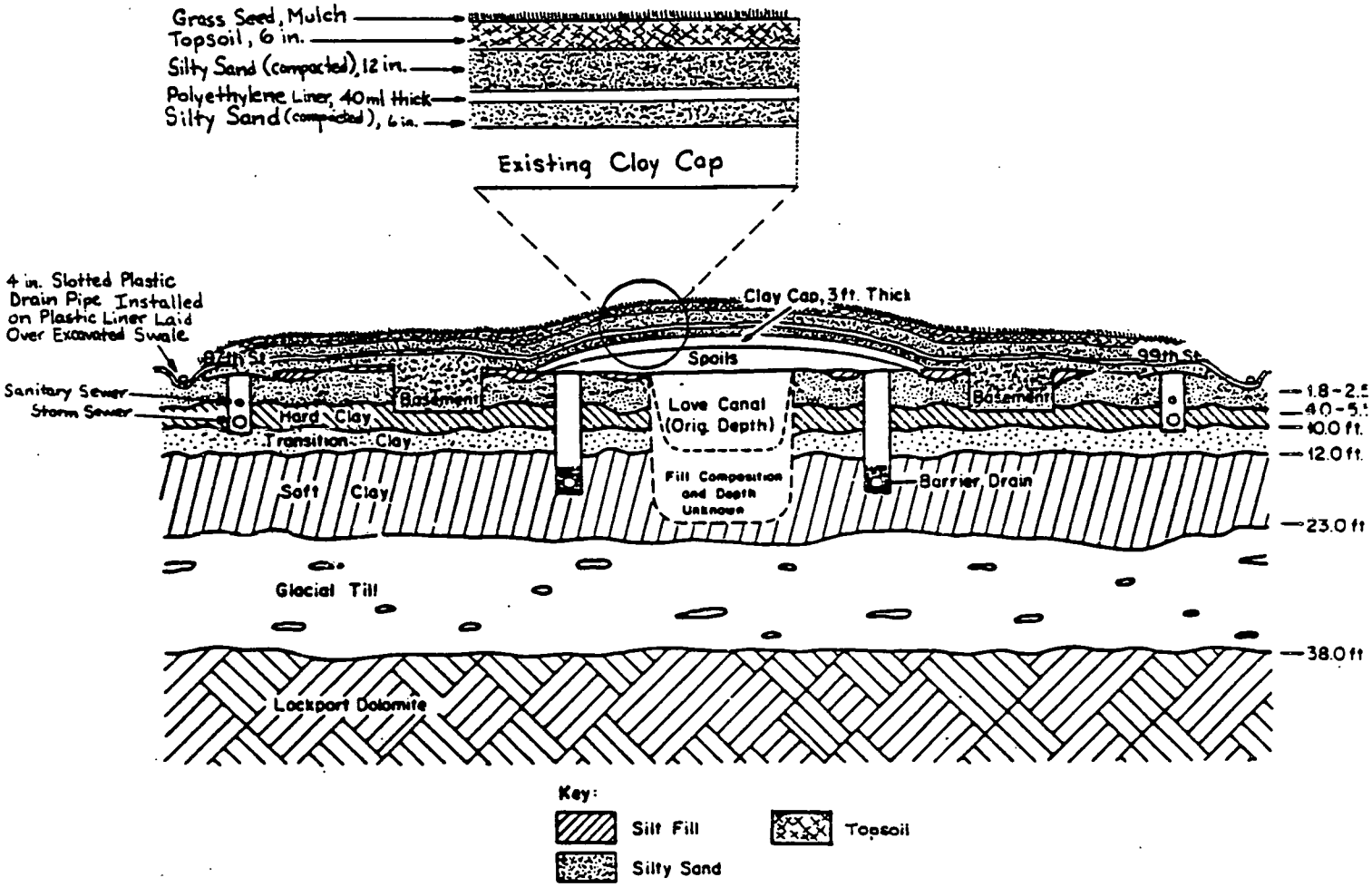


Figure I. Cross-section of the Love Canal and Rings I and II showing the completed remedial wor

- Above the 12 inch sandy silt layer, 6 inches of topsoil were brought in to provide a frost layer and graded to provide the site with a general downward slope toward the boundaries of the liner.

- The topsoil was then raked and seeded with the following seed mix:

  30% Red Fescue
  40% Perennial Ryegrass
  30% Kentucky Bluegrass

- A nitrogen fertilizer was added, and a straw mulch was spread over the surface of the area. As a result of extended good weather, the seed has germinated and some growth has occured.

- Finally a large tank, which held sediments that had been removed from the sewers inside Rings I and II during sewer cleaning activities in the winter of 1982-83, was opened for an inspection of its contents.

  The material inside the tank was found to be in a semi-solid state. A large hole was cut in the side of the tank and its contents were emptied into 55 gallon drums. The tank was washed, rinsed, and decontaminated and is currently stored on-site along with the 55 gallon drums. Attempts are being made to have the tank sampled to determine if it has been adequately decontaminated. If so, the tank which belongs to Sevenson Construction Corporation will be taken from the site and will be disposed of at a sanitary landfill.

- In addition a chain link fence was installed around the perimeter of Bergholtz Creek where dioxin was found in the creekbed. The purpose of this fence is to limit access to the contaminated area. Signs have been posted on the fence to alert the public to the danger of the area.

Future work plans for the Love Canal and the Emergency Declaration Area will be discussed in upcoming issues of the Update.

Leachate Treatment Plant Toured

On Tuesday, October 23, 1984, the Leachate Treatment Plant at the Love Canal was opened to the public for the first time since it began operating on December 7, 1979. Three groups composed of citizens, members of the press, and government officials toured the plant with DEC staff members, Dr. Nick Kolak, Research Scientist and Brian Sadowski, Senior Love Canal Treatment Plant Operator.

The tour consisted of an explanation of the operation of the in-place barrier drain system which surrounds the Love Canal, and the carbon filtration system within the leachate treatment plant. (For further details on the barrier drain system and the operation of the leachate treatment plant, see Issue 7 of the Love Canal Update.)

In addition to the explanation of the leachate treatment plant and the barrier drain system, several important facts were made public as a result of citizen questioning. These include:

- The leachate treatment plant has the capacity to treat an average of 160 gallons of leachate per minute.

- Necessary operating time is dependent on the amount of water entering the Love Canal as a result of the weather. During the summer, which is the driest season, the plant operates on an average of one-half day per week. During the spring rainy period, the plant operates daily.

- This collection and treatment process is viewed as a "dewatering" process which removes about 4,000,000 gallons of contaminated groundwater (leachate) per year.

- Sludge which is removed from the leachate as a result of natural settling in the clarifier (See Issue 7 Love Canal Update) during the treatment process, is stored in the four tanks located south of the leachate treatment plant.

- Each of the four tanks has a capacity of 10,000 gallons. About 17,000 gallons of sludge currently are stored in the tanks. The tanks are estimated to be filled to capacity within four or five years at the current rate of sludge generation.

- The sludge contains dioxin at a concentration of three parts per million. Since dioxin and the sludge are not corrosive and since the tanks in which these materials are stored are steel, there is no threat that the materials will "eat through" the tanks resulting in a leak.

- The tanks in which the sludge is stored are double-walled (a tank within a tank). They are monitored by an alarm which alerts operators to a loss of vacuum between the two walls. This loss of vacuum could mean a leak exists between the walls of the tank.

- Under the four storage tanks there is a surrounding spill containment area. This area would contain the sludge in case of a leak until cleanup activities could start.

- The spent carbon beds which adsorb chemical contaminants from the leachate during the treatment process are disposed of at CECOS.

- Since an actual chemical reaction occurs between the carbon in the carbon beds and the dioxin in the leachate, there is no danger that that the dioxin will be stripped off the carbon beds once they have been disposed of.

- The cost of disposal for each carbon bed is $3,500.

- If the Plasma Arc Unit passes through multiple tests, it will have the ability to destroy the sludge which is now stored in the four tanks as a result of the treatment process.

- A new building for storage and administration will be constructed in Ring 2 across 97th Street from the leachate treatment plant. It is anticipated that construction of this building will begin in late spring 1985.

Although the plant was not operating on the day of the tour, safety equipment was made available for any members of the public who desired it. Since several people were unable to attend on the day the tours were offered, an alternate date for an additional tour is being considered. For further information, call the Public Information Office at Love Canal at 297-9637.

DEC Information Office

The DEC maintains a Love Canal Public Information Office located at 9820 Colvin Boulevard, Niagara Falls, New York. Documents related to Love Canal are available in this office for your review and most of these documents are available on a loan basis. Our winter hours are:

	Monday	8:30 a.m. - 5:00 p.m.
	Tuesday	8:30 a.m. - 5:00 p.m.
*	Wednesday	10:00 a.m. - 6:00 p.m.
	Thursday	8:30 a.m. - 5:00 p.m.
	Friday	8:30 a.m. - 5:00 p.m.

We also have information about upcoming meetings and ongoing issues. For any additional information, please call us at 297-9637.

New Documents Available

New documents have been obtained by the NYS DEC Public Information Office located at 9820 Colvin Boulevard in Niagara Falls, New York since the last issue of the Love Canal Update.

These documents are available for review at the office and most may be taken out on a loan basis.

Available documents include:

- Superfund Bills presented before the 98th Congress: H.R. 4813; H.R. 4915; H.R. 5640
- Love Canal Air Study #181 Final Report 6/83 - 11/83
- LaFalce June 1984 Report Funds for L.C. Property Owners
- Letter N. Nosenchuck to Dr. R. Huffaker re: Ring II Fencing
- Letter N. Nosenchuck to C. Flynn NYS UDC re: 99th St. Fencing
- Letter Dr. R. Huffaker, DOH to B. Paigen re: Join Expert Consultants
- CH2M Hill 4th Packet, Document Citation
- Dr. R. Huffaker, DOH, TRC Report of Consultants
- Map of Geological Survey Route of Tuscarora Creek and 60th St. Storm Sewer to Niagara River
- N. Nosenchuck to R. Ogg re: Responsiveness Summary to Public Comments, Environmental Information Document, Study of L.C. Sewers and Creeks
- Letter Dr. Huffacker to N. Nosenchuck re: Ring II Fencing
- Minutes of TRC 6/29/84 Meeting; 7/18/84 Meeting; 7/26/84 Meeting
- Letter from Dr. Huffaker to absent scientists Upton, Highland and Silbergeld & copy of Responsiveness Summary
- Letter from N.Nosenchuck to S. Lubick, LaFalce Office re: On-Site Disposal of L.C. Wastes
- CH2M Hill, Monserrate Stoline Memo at TRC meeting of 6/26/84
- Letter N. Nosenchuck to R. Ogg re: On-site Disposal
- Draft: Evaluating Cost-Effectiveness of Remedial Actions at Uncontrolled Hazardous Waste
- R. Ogg and D. VanderMeer letters to scientists re: L.C. Coalition Ad Hoc Committee
- Letter D. VanderMeer to M. Stoline re: Documents
- Draft Public Participation 12-Point Review
- News Release re: Buy-out at Love Canal
- W. Romer letter to Com. Williams re: Public Information on Love Canal, LaFalce office
- Dr. Huffaker to L.C. Panel Members - Second Draft of Habitability Criteria 8/9/84
- CH2M Hill L.C. Environmental Data Quality Assurance Review and Assessment Methodology Task 7 8/14/84
- CH2M Hill Public Review Draft Phase I Work Plan 9/17/84
- CH2M Hill L.C. Environmental Data Quality Assurance Review and Assessment Task 7 9/20/84
- CH2M Hill, D.Lincoln letter to T. Welty, CDC re: Zirchky & Gilbert article on Hot Spot Sampling Approach
- DOH Information: EPA Project Summary, Preparation of Soil Sampling Protocal; Revised Summary Report by Stoline (7/27/84); Dr. Welty letter to N. Nosenchuck re: tour of outfall areas at L.C.; Dr. E. Silbergelt "Comments on Habitability Criteria 7/23/84"
- Letter Lee Thomas to N. Nosenchuck 7/31/84 re: Disposal of Drums

- Letter R. Ogg to Stoline 8/ 1/84 re: Draft copy of Public Participation Recommendations by L.C. Ad Hoc Committee
- Letter N. Nosenchuck to Mr. Pohland (8/14/84) re: Information Request from L.C. Technical Review Committee and Technical Consultant Group
- Operation and Maintenance Volume 1 Leachate Collection and Treatment Facility
- Contract Documents "Destruction of Hazardous Wastes Using Plasma Arc Technology
- Letter N. Nosenchuck to W. LiBrizzi re: E.C. Jordan Permanent Groundwater Monitoring Program at L.C.
- Letter N. Nosenchuck to Sr. Margeen Hoffmann re: Inquiries on Burial of Drums at Love Canal
- Dr. Huffaker to TRC members documents: L.C. Data on Ring I and II 8/22/84; Computer Data CH2M Hill-Horizons L.C. Lung Cancer Study Dr. Janerich, Dr. Kaminski; Pregnant Rat Study, Dr. Vianna; L.C. Health Studies K. Kalaijian (Dr. Christian); L.C. Animal Studies, Dr. Kaminski; L.C. EDA Habitability Criteria
- Letter N. Nosenchuck to Dr. Huffaker re: Contact persons for L.C. Projects
- Dr. Huffaker to L.C. Panel Members re: Dr. Stolwick and Dr. Upton's Comments and Editing of L.C. Habitability Criteria
- From EPA: TRC Draft of 8/20/84 meeting; Final minutes of 7/18 meeting; handout from Horizons; Draft TRC Response to L.C. Ad Hoc Committee; Interim Groundwater Monitoring; DEC correspondence of proposed on-site burial of contaminated materials at site
- Dr. Huffaker to L.C. Panel Members re: Dr. Pohland comments on 2nd Draft; Dr. Chalmer comments
- Dr. Huffaker to Scientists re: Third Draft of L.C. Habitability Criteria 9/26/84 meeting
- Inactive Hazardous Waste Disposal Sites, Annual Report 1983
- Inactive Hazardous Waste Disposal Sites by Counties
- Article from Public Health: "Health Department, Enemy or Champion of People"
- Dr. Huffaker to Scientists re: Schedule for finishing Habitability Criteria 10/ 4/84; Draft IV and Draft V
- Love Canal Hydrogeological Evaluation by Geologic Testing Consultants, Ottawa, Ontario, Canada,Compliments from Jaak Viirland, Chief Water Resource Assessment, Ministry of the Environment, Canada Final Report 1/14/83
- 102nd Street Hydrogeological Evaluation by Geologic Testing Consultants, Ottawa, Ontario, Canada Compliments from Jaak Viirland, Chief Water Resource Assessment, Ministry of the Environment, Canada
- How Our Laws Are Made, Edward F. Willet, Jr. Esq. U.S. House of Representatives 6/ 5/80
- Letter Dr. Huffaker to N. Nosenchuck re: Air sampling at 9820 Colvin Boulevard
- R. Ogg EPA Estimated Costs of work at Love Canal
- CH2M Hill Documents 10/15/84: L.C. Q.A. Review; Status of L.C. Environmental Data Collection for Q.A. Review, Appendix C; Summary of L.C. Environmental Monitoring; Appendix A Phase A Data Base Dictionary; Phase A Results

We Want You To Be Involved

You, the citizens, workers and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the near future.
- The toll-free line (800) 342-9296 puts you in direct communication with our professional staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- All documents specific to the Love Canal Remedial clean-up and containment program are available for your review at the DEC office in Buffalo and the EPA office in Niagara Falls.
- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

Disposal of Contaminated Sediments: An Unresolved Dilemma

The problem of where to dispose of dioxin-contaminated sediments plagues the Love Canal and its adjacent areas. As a result of public comment this summer, over 500 drums of dioxin-laden materials were not buried at the Love Canal as was originally planned. These drums are currently being stored on-site on a temporary basis until a location for more permanent disposal is agreed upon.

For the same reason, soil samples that were taken at the 93rd Street School, which were found to contain 0.96 ppb and 2.3 ppb of dioxin were drummed in twelve 55 gallon drums and are now locked in a large tractor trailer behind the 93rd Street School. These drums will remain in this trailer until a location for disposal is found.

Soil sampling which was to take place late this summer at the 102nd Street landfill has also been delayed. When the samples are taken, the debris will have to be disposed of. Although there are no existing data, it is presumed that the soil contains dioxin. Once a sampling program for dioxin is completed, an analysis will be done and the debris will be handled accordingly. Until these results are available, the debris must be handled and stored 'as if' it contains dioxin. Once again a location for disposal has not yet been agreed upon. As a result, the sampling program which will provide important information regarding the extent of contamination at the 102nd Street landfill has now been put off until the disposal issue is resolved.

The DEC faces the same dilemma with the contaminated sediments in the sewers in the Emergency Declaration Area (EDA) and in the creekbeds of Black and Bergholtz Creek. Before the DEC can proceed with its cleanup efforts for the sewers and creeks, the unanswered question must be resolved: WHERE WILL THE CONTAMINATED SEDIMENTS BE DISPOSED OF?

In 1983 Malcolm Pirnie Incorporated, a consultant for the DEC, completed a study to determine the extent of contamination in the sewers and creeks within the EDA. They also proposed and evaluated a number of alternatives for the cleanup and/or containment of these materials. Recommended alternatives for these activities were then presented. (See: Site Investigations and Remedial Action Alternatives Love Canal)

The report presented several alternativ including:

- the hydraulic cleaning of the sewers
- the dredging of contaminated sedimen within Black and Bergholtz Creeks
- no action alternative which involves no remedial actions except for the continued monitoring of the creek
- restrict access to the creeks by the indefinite placement of a 6 foot chain-link fence
- stabilize the sediments in the creek by clearing and grubbing the channel and then placing filter fabric and small stones over the creekbed

The US EPA evaluated the information provided in the Malcolm Pirnie study. It also reviewed the process used by the consultant in its development of recommended alternatives. This EPA evaluation and review provides a sequence of events which is necessary for the completion of its Record of Decision (ROD).

As a result of this review, the EPA found that additional information is needed to complete the ROD. Malcolm Pirnie Incorporated and CH_2M Hill, consultants to the US EPA, are working on providing this needed information. This includes:

1.) an evaluation of the 'No-Action' alternative
2.) an estimate of the cost of each of the feasible alternatives
3.) further investigation of any additional alternatives not previously examined

The DEC recognizes that the disposal of the dioxin-contaminated sediments is a sensitive issue. This recognition of the controversial nature of the disposal problem has led the DEC to actively seek public input into discussions of all feasible alternatives and the final decision-making process. In order to involve the public more fully, the following Public Involvement Program is being proposed:

- Consultant presents the initial alternatives that have been investigated. (This took place at a Public Information Meeting held by the DEC at the Geraldine Mann School on October 16, 1984.)

- A draft copy of the consultant's Scope of Work has been made available for public review and comment. Copies of this document are available at the Love Canal Public Information Office at 9820 Colvin Boulevard, Niagara Falls, New York. The comment period for this document ended on November 30, 1984.

- This newsletter has been mailed to all those on the Love Canal mailing list. It gives a broad overview of the problem providing a proposed Community Involvement Plan, and requesting comment on the plan.

- A second newsletter which will be a special issue of the Love Canal Update, will describe the various disposal alternatives currently being considered along with the pros and cons of each of these alternatives. It is important to emphasize that the DEC is not limited to these options. All options that are proposed will be examined for their feasibility. If they are found to be feasible, they will be given equal consideration with all of the alternatives. Through these efforts the DEC hopes to find the best possible solution of the disposal problem. This special newsletter will be sent out by the end of November

- A Workshop will be held at the DEC Public Information Office at 9820 Colvin Boulevard. Representatives of the US EPA, NYS DEC, and consultants to EPA will be available to discuss any of the alternatives presented in the newsletter as well as any additional alternatives that may be suggested. This workshop provides an opportunity for government officials and its consultants to discuss the issue of disposal with those who are most directly effected by the decision or who find the disposal issue of considerable concern.

- A Draft report presenting the recommended disposal alternatives will be prepared. Copies of this draft document will be available at the Public Information Office for your review and comment.

- A second workshop will be held after the release of this document.

This outline for public involvement is the recommended program. Any comments, questions, or suggestions that you have will be considred before this recommended program is finalized.

Any letters or comments should be sent to: DEC Public Information Office at Love Canal, 9820 Colvin Boulevard, Niagara Falls, New York 14304. You may also call 297-9637.

The Public Information Meeting which will be held on December 6, 1984 (see p.2) will also provide an opportunity for discussion and comment on this recommended public participation plan.

We encourage you to participate in this important decision-making process.

Figure II.

RECOMMENDED

PUBLIC PARTICIPATION PLAN

Evaluation of Alternative Methods of Disposal
Contaminated Sediment & Debris
Love Canal Superfund Remedial Program

TASK	SCHEDULED DATE								
	November			December			January		
	10	20	30	10	20	30	10	20	30
Draft of consultant's scope of work available for public review and comment	———								
First newsletter presenting problem & recommended public participation program (This issue)	*								
Second newsletter presenting overview and discussion of disposal alternatives under consideration				*					
First workshop to answer questions and to receive comment on disposal alternatives					**				
Draft report presenting recommendations for disposal publicly available - public comment period						———	———	———	
Second workshop to answer questions and to receive comment of draft report							*		
Final report with Responsiveness Summary									*

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, N.Y. 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste

HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 7 MAY 1984

About This Issue

Since the last issue of the 'Update', many activities have taken place regarding Love Canal:

- the New York State Department of Environmental Conservation (DEC) continued to work out details of the remedial activities that will take place during the 1984 construction season
- a draft copy of Responsiveness Summary to the Malcolm Pirnie, "Site Investigations and Remedial Action Alternatives: Love Canal" environmental information document has been prepared by the DEC and is expected to be available in June
- agreements were made with landowners around contaminated sections of Black and Bergholtz Creeks which will allow the DEC to fence the area
- the Love Canal Technical Review Committee and the New York State Department of Health/United States Department of Health and Human Services, non-governmental scientist advisors met on several occasions to discuss the issue of the habitability of the Love Canal Emergency Declaration Area
- a number of citizens concerned about the Love Canal area have held several meetings to discuss citizen participation in the decision making process of the Love Canal Technical Review Committee.

This issue of the 'Update' contains a special green pages section prepared by the United States Environmental Protection Agency describing the purpose and function of the Love Canal Technical Review Committee (TRC). Hopefully, the information provided will answer many of the questions about the TRC, its organization, responsibilities and work schedule. Opportunities to ask questions are provided at the TRC public meetings.

In addition, the following articles are also present in this issue:

Comments, questions, or suggestions about the information provided in this newsletter are welcome and should be sent to the DEC Public Information Office at Love Canal, 9820 Colvin Boulevard, Niagara Falls, New York 14304. Documents listed are available on a loan basis from the Public Information Office.

Public Meetings

A. TECHNICAL REVIEW COMMITTEE

The Technical Review Committee (TRC) will hold a public meeting on June 5, 1984 at 7:30 P.M. at the Frontier Volunteer Fire Hall to review the status of work. The agenda includes:

* Update -
  * data collection activities
  * data management system
  * QA methodologies
  * habitability strategies criteria
* Schedule -
  * status
* Peer Review -
  * QA/QC Peer Review
  * habitability criteria
  * Commerce Business Daily Notice
* Community Involvement
* Briefing by DEC on Remedial Work Schedule

B. SCIENTIFIC ADVISORS TO DOH/ DHHS TO MEET

The eleven independent, non-governmental scientists, asked to advise the New York State Department of Health and United States Department of Health and Human Services on habitability criteria for the Love Canal Emergency Declaration Area, will hold their third meeting on Friday, June 29, 1984. This meeting, which is open to the public, will be held at the Red Jacket Inn, 7001 Buffalo Avenue from 9:00 A.M. to 4:00 P.M. The agenda for this meeting has not yet been finalized but will be available at the DEC Public Information Office at 9820 Colvin Boulevard, Niagara Falls before the meeting.

Work on Creeks Continues

In October 1983, the DEC released the Malcolm Pirnie, "Site Investigations & Remedial Action Alternatives: Love Canal" report. Malcolm Pirnie is a contractor for the DEC. Findings in the report indicate the presence of 'dioxin hot spots' in sections of Black and Bergholtz Creeks. Recommended actions by Malcolm Pirnie, Incorporated included fencing of these sections of the creeks to limit access to the contaminated area.

The DEC has been working to obtain permission from land owners adjacent to the creek in these areas to place the fence on their property.

Contract documents are now being prepared and the DEC expects to have the fence in place this June.

It is anticipated that cleanup activities on the creeks will take place during the 1985 construction season. Possible remediation alternatives include:

- no action
- restrict access by fencing
- in place stabilization of the sediments
- removal and disposal including hydraulic dredging or mechanical excavation
- sediment treatment/ destruction
- neutralization/detoxification
- microbial degradation
- sediment incineration

The Malcolm Pirnie recommendation is for mechanical excavation of the contaminated sediments with off-site disposal of the contaminated materials. Copies of the Malcolm Pirnie report are available for review at the DEC Public Information Office at Love Canal.

Additional sampling of the sediments at the 93rd Street Outfall took place in April, 1984 to determine the extent of downstream contamination. Results from this sampling are being analyzed by the New York State Department of Health and will be available next month.

On-Site Remedial Work

The New York State Department of Environmental Conservation (DEC) will resume remedial construction activities this June. The DEC anticipates completion of these activities this season:

- raising of pump chambers to the proposed ground level
- removal of bales of straw used to prevent off-site soil movement from the perimeter of the fence line
- cutting of a thirty inch deep trench on the outside of 97th Street, and 99th Street, and on the canal side of Frontier Avenue, and Colvin Boulevard into which the ends of the plastic membrane will be place and secured
- placement of additional fill to provide the slope needed for proper drainage
- placement of the plastic membrane over the additional fill
- placement of 1.5 feet of additional fill over the newly installed plastic membrane
- reseeding of the cap
- construction of two concrete pads outside of the clay cap area. One pad will be used for storage of hazardous waste collected in 55 gallon drums prior to their transport and disposal. The second pad will be used as a parking location for large trucks that come on site for making deliveries of equipment and supplies and as a decontamination pad for cleaning equipment after working on site. Any run off on the decontamination pad will drain back into the leachate collection system for processing through the plant.

  The pads could also be used in the future as a parking space for the trailer that would hold the plasma arc unit if it is determined that this system should be utilized. Any use other than the storage and parking uses listed above will be subject to a full SEQR review.

In addition, the DEC will also coplete these off-site activities:

- installation of a six foot high chain-link fence around the dioxin contaminated sections of Black and Bergholtz Creeks
- installation of a chainling fence around Ring II vacant lot on Colvin Boulevard between 99th Street and 100th Street

More detail on these activities will be included in future 'Updates'.

Leachate Collection System

The following is a glossary of terms as used in the article on the leachate collection system and in other reports and documents made available by the DEC. You may wish to keep them for future reference. There may be other words that you have seen in documents that you would like defined. If so, please let us know and we will include them in future issues of the 'Update'.

GLOSSARY:

1. remedial activities -

   work associated with the cleanup or containment of contaminants at landfills

2. groundwater -

   water found in the earth

3. leachate -

   contaminated groundwater

4. overburden -

   a geological term used to describe the upper soil and/or fill layers of the earth

5. sludge -

   any solid or semi-solid waste remaining after the removal of liquids as a result of settling or a treatment process

6. Leachate Treatment Plant (LTP)

   a facility designed to remove toxic materials from the collected leachate before it is discharged into the city sewer system

7. perforated drain pipe -

   6" or 8" diameter clay pipes with openings through which leachate enters the collection system; carries the collected leachate to wet wells

8. wet wells -

   underground tanks that collect leachate from the gravity drain system; 1500 gallon storage capacity

9. dry wells -

   underground concrete chambers that hold the pumps which move leachate into underground holding tanks

10. holding tanks -

    underground storage tanks which hold leachate until it is pumped on demand into the leachate treatment plant

11. clarifier

    tank in which solids and sludge settle out of the collected leachate

12. carbon adsorber -

    a tank containing a carbon bed through which leachate passes. Contaminants within the leachate cling to the surface of the carbon as they pass through the system

13. influent -

    the liquid entering into the system

14. effluent -

    the liquid leaving the system

In 1979 the New York State Department of Environmental Conservation (DEC) began its operation of a leachate collection system at Love Canal. The collection system consists of:

I. a perforated drain pipe around the perimeter of the Love Canal

II. an on-site leachate pumping, storage and treatment system

Work on the southern section of the leachate collection system began in October 1978 and was completed in October 1979. Work on the central and northern sections of the leachate collection system began in May 1979 and was completed in December 1979 when the Leachate Treatment Plant began operating. The leachate collection system and treatment plant were designed by Conestoga-Rovers and Associates(Waterloo, Ontario). The leachate collection system was designed to stop the outward flow of the chemicals in the shallow groundwater system.

I. PERFORATED DRAIN PIPE

A perforated drain pipe (See Diagram I, p.8) was installed around the Love Canal between Colvin Boulevard and Frontier Avenue. This pipe system is twelve feet to twenty feet below the surface and is surrounded by crushed stone and coarse sand. The stone and sand allow liquids to flow through them more readily than the surrounding soil. Leachate moving through the ground is caught and carried to the drain pipe. The perforated pipes carry the liquids into the collection and treatment system. The leachate moves by gravity through the pipes to "wet wells". This collection system lowers the level of the water inside the landfill and causes water in the overburden that is outside the canal to flow inward toward the pipes. Thus, the collection system acts as a barrier and prevents leachate from migrating beyond it in the near surface groundwater.

II. PUMPING AND STORAGE SYSTEMS

Wet wells, located at the low points in the gravity-fed system, collect the leachate that comes through the perforated drain pipes, The leachate is then pumped into large underground holding tanks. The two underground holding tanks, one located in the north and one in the south section of the canal area, are capable of storing 30,000 gallons and 25,000 gallons of wastewater respectively. The leachate is then pumped upon demand into the leachate treatment plant for removal of contaminants.

III. LEACHATE TREATMENT PLANT

Once the leachate is pumped from the underground storage tanks into the leachate treatment plant (See: Diagram II, p. 8)

1.) It is stored in a raw water tank. Some materials settle to the bottom.

2.) From the raw water tank, it moves to a clarifier where materials more dense than water settle out to the bottom of the clarifier.

2a. The settled material (sludge) from the raw water tank and the clarifier are pumped into a sludge holding tank inside the leachate treatment plant. Later they are pumped into the four large tanks located outside the plant (See: Love Canal Update, Issue 2 June 1983, Looking Through the Fence, I

Installation of Storage Tanks) where they will be held until they can be disposed of permanently.

2b. Liquids that remain in the clarifier after removal of the settled materials flow by gravity into a filter feed tank.

3.) These liquids, still containing suspended solid particles, are pumped into a filtration unit where the suspended particles are removed.

4.) The filtered water moves into the top of a lead carbon adsorber which contains approximately 20,000 pounds of activated carbon. As the leachate seeps down through the carbon bed, most of the organic chemicals still present in the leachate are adsorbed on to the carbon.

5.) These liquids then move through a second identical adsorber (polish carbon adsorber) which further removes chemical contaminents and completes the treatment process.

6.) On leaving the polish adsorber, the treated liquids are released into the City of Niagara Falls sanitary sewer system. The effluent that enters the sanitary sewers must meet the City of Niagara Falls discharge limitations before they are released from the leachate treatment plant.

Samples are collected within the leachate treatment plant process at three locations (See: Diagram II, P.**8**): the influent, the midpoint, and the effluent. These samples are analyzed for pH, total organic carbon, phenols, organic phosphorus, and total chlorinated hydrocarbons.

With time, the activated carbon reaches its capacity for adsorbtion and becomes ineffective in removing the chemical contaminants. When the carbon is 'spent', it is removed from the plant and transported to a permitted hazardous waste landfill for burial.

IV. CLAY CAP

In addition to the collection system described above, remedial activities at Love Canal included the placement of a three-foot thick clay cap over the waste disposal area (See Figure 2, p. 7) Since water moves extremely slowly through clay, this cap serves to:

1. decrease the amount of water entering the landfill
2. prevent the runoff of contaminated rainfall
3. prevent direct human contact with the wastes
4. stop atmospheric emissions

During the upcoming construction season, the DEC will further extend the clay cap and will place a plastic membrane over the area. The purpose of these additional measures is to further reduce the amount of water entering into the leachate collection system which reduces the amount of leachate that will need to be treated.

FIGURE 1 : LOVE CANAL OVERVIEW

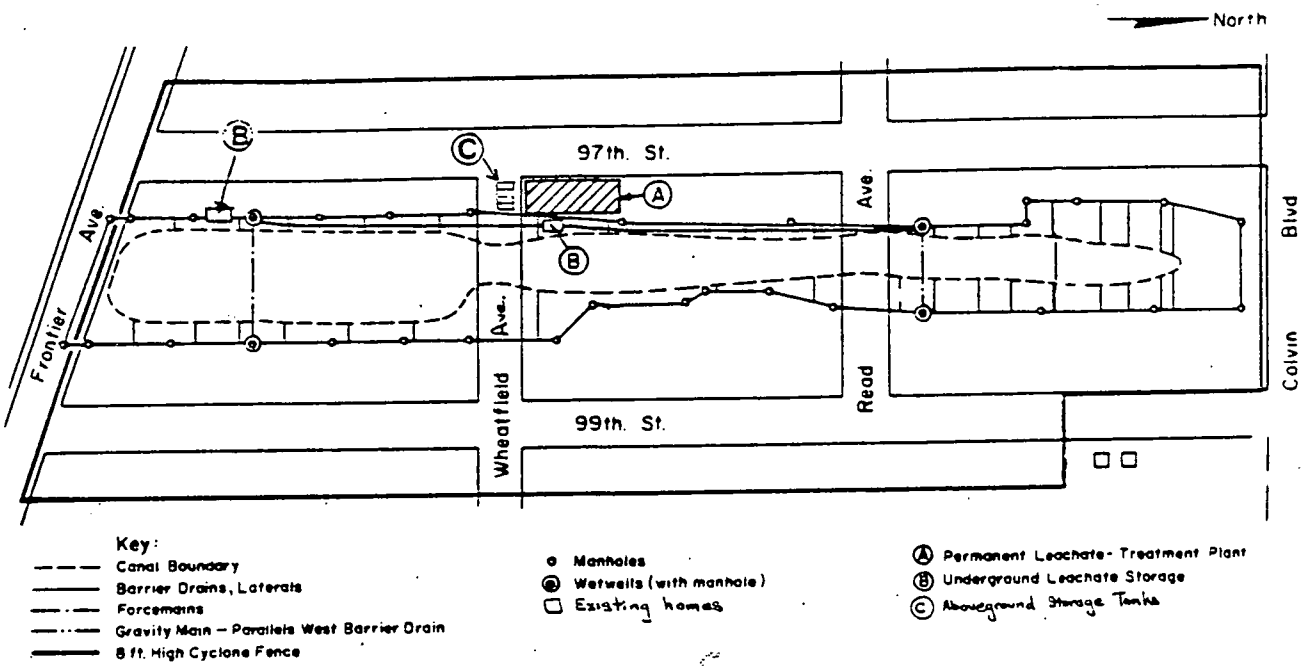


FIGURE 2 : LOVE CANAL CROSS-SECTION

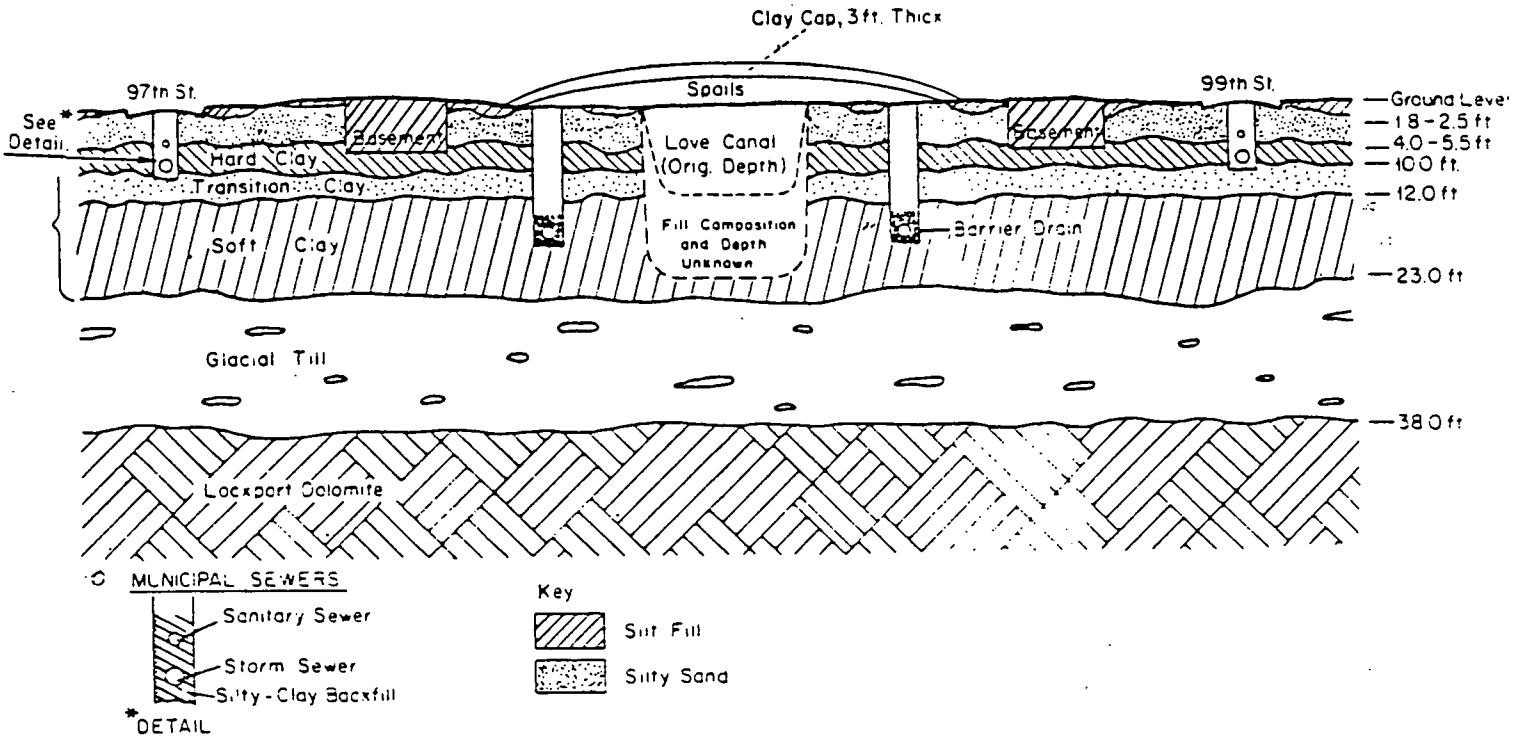


DIAGRAM I: LEACHATE COLLECTION SYSTEM

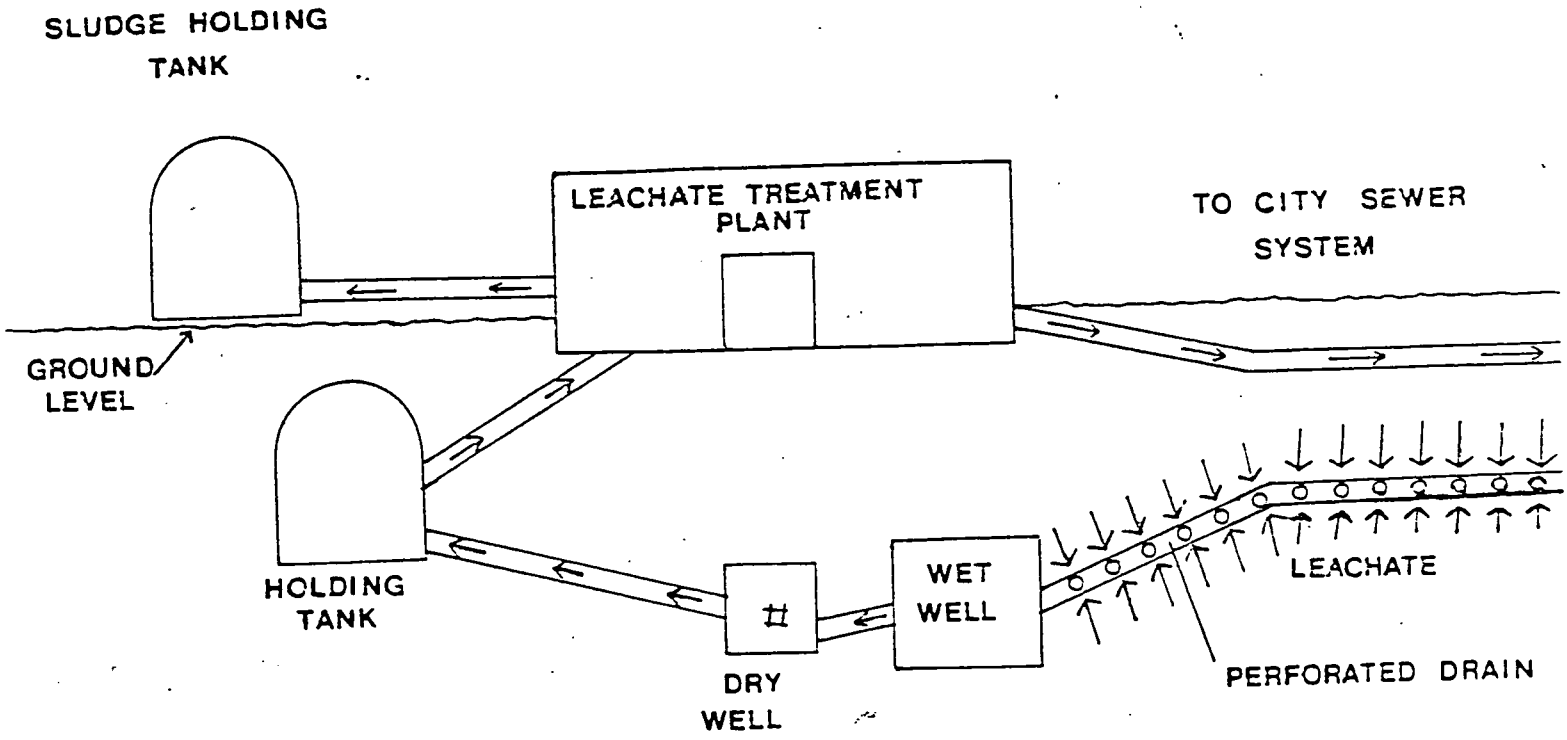
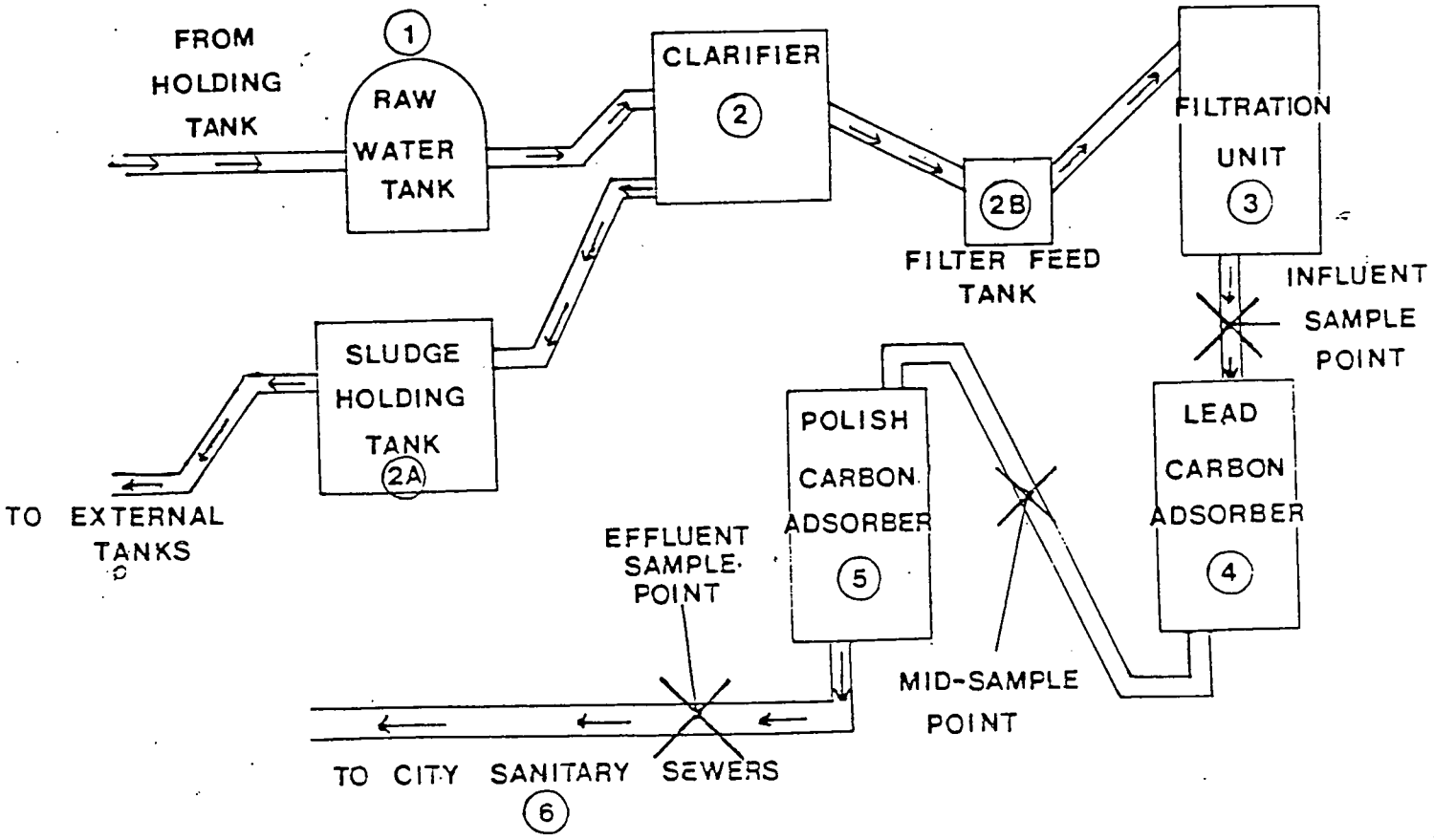


DIAGRAM II: LEACHATE TREATMENT PLANT



New Documents Available

Documents Received From Malcolm Pirnie (DEC Consultant)

- Leachate Contamination Study Cornell University 8/4/78 #29
- Draft Report: Analysis of Ground Water Contamination Incident in Niagara Falls, N.Y. Fred C. Hart Associates prepared for EPA 7/28/78
- Addendum to Above Report 8/22/78
- Memo Charles Goddard From Nicholas Kolak Re: Review of O.H. Material Report "Survey of Chemical Contamination in Love Canal Storm Sewers" dated 6/ 3/80
- Letter Kenneth Stoller, US EPA from Norman Nosenchuck, NYS DEC Re: Section 311, Clean Water Act, Activities Love Canal Area Storm Sewer Decontamination Program 5/ 2/80
- US EPA Study of Storm Sewers Draining the Love Canal Area 8/14 8/18/78 # 49
- Tables representing Health Risks to Individuals Living in homes where quantitative Air Sampling Data were Available 5/11/78 #10
- Memo Norman Nosenchuck from Joseph Slack, NYS DEC re: Meeting with Love Canal Homeowners Association 3/ 6/80
- Hydrogeology of the Love Canal Area, Draft Final Report 11/7/80
- Addendum Sanitary Lift Station Data May 1980
- Survey of Chemical Contamination in Love Canal Storm Sewers 6/ 3/80 US EPA
- Love Canal Area Storm Sewer Decontamination Program, Environmental Regulation Agency April 1980
- Implications for Human Health, Further Considerations Concerning Habitability 7/ 13/82, CED and NIEHS
- Remedial Response Activities Zone 1, Uncontrolled Hazardous Waste Disposal Sites, Love Canal Remedial Action Program, Environmental Information Document April 1982
- Report to City of Niagara Falls, N.Y. on LaSalle Infiltration/ Inflow Analysis C-36-747 1975 Camp Dresser & McKee
- Draft: Framework for Mitigation Efforts for the Love Canal Area Prepared by: Emergency Response & Hazardous Material Inspection Branch, US EPA 10/ 8/80
- Memo Goddard to Joe Slack Re: Bedrock Monitoring Wells, Love Canal 9/19/78
- Soils Report, Central & Northern Sectors at Love Canal 2/11/79 Earth Dimension

Documents Received From NYS Department of Health

- Air Samples of Basements at Love Canal Document #16
- Air Values of Basements Document #7
- Quantification of Toxic Materials in Ambient Air at Old Love Canal (Research Triangle Institute)
- Botanical & Rodent Study Document #63
- Cancer Risk Estimation - Environmental Protection Agency
- Preliminary Report - Love Canal Chemicals Document #18
- Panel Review of Biogenics Corporation Study of Chromosome Abnormalities in Love Canal Residents
- Study of Cytogenetic Patterns in Persons Living Near the Love Canal
- Preliminary Report - Epidemiology Document #24
- Evaluation of Site Investigations and Remedial Action Alternatives for Love Canal - Task Areas II, III, IV, VI, VII
- Preliminary Data-Halogenated Compounds Document #59
- Health Implications of Materials Found in Love Canal, Document #10
- Health Risks Assessments at Love Canal
- Cornell University Report - Hydrogeology Document # 29
- Liver Function Tests - Love Canal Families Document # 57
- Medical Records Review - Love Canal Families Document # 58
- Preliminary Results, Medical Surveillance of Love Canal Families Document #56
- Mutagenicity, New Horizons in Genetic Toxicology
- Adverse Pregnancy Outcomes in the Love Canal Area
- Radiological Surveys at Love Canal Document # 48
- Soils Report Document #53
- Lewis Steele Letter to Norman Nosenchuck Re: Malcolm Pirnie Report
- Thomas Report
- Use of Small Mammals (Voles) to Assess Hazardous Waste Site at Love Canal
- Water Samples Document #22

Technical Review Committee: Purpose & Functions

Prepared by USEPA

TRC

- The TRC is a group formed by Federal and State agencies involved in addressing the issues of habitation of the Love Canal EDA and remediation of the site.

- Its purpose is to act as a Management Group, coordinating the many interrelated governmental activities necessary to resolve these very complex issues.

- The TRC members are:

  William Librizzi - Director, Office of Emergency and Remedial Response, EPA Region II, New York, NY. (Chairman)

  Robert Ogg - Chief Hazardous Waste Site Branch, EPA Region II, New York, NY. (Alternate Chairman)

  Vincent Pitruzzello - Environmental Engineer, Hazardous Waste Site Branch, EPA Region II, New York, NY.

  Daniel Van der Meer - Associate Director, Center for Environmental Health, Centers for Disease Control, U.S. Department of Health and Human Services (DHHS), Atlanta, GA.

  Thomas Welty M.D. - Medical Epidemiologist, Cancer Branch Chronic Diseases Division, Center for Environmental Health Center for Disease Control, Department of Health and Human Services, Atlanta, GA.

  Robert Huffaker - Associate Director, Office of Public Health, New York State Department of Health (DOH), Albany, NY.

  Norman Nosenchuck - Director, Division of Solid and Hazardous Waste, New York State Department of Environmental Conservation (DEC), Albany, NY.

USE OF CONSULTANTS

To assist the TRC in performing many of its activities, EPA has contracted the consulting firm of CH_2M-Hill. This consultant will assist in the data collection, quality assurance, data computerization activities and provide other support as required by the TRC.

CH_2M-Hill will work with EPA HQ's Office of Research and Development, located in Washington D.C., to formulate Quality Assurance Methodologies for proper evaluation of the quality of the data available for addressing the habitation issues.

In addition, CH_2M-Hill will be the mechanism for procurement of the expert scientists selected by DHHS/DOH for assistance in the development of habitability criteria. This was done to expedite the procurement of services. The scientists will not be reporting to or under the direction of CH_2M-Hill, but will be working directly with DHHS/DOH. CH_2M-Hill's function in this activity is solely to procure their services and provide support to DHHS/DOH and the scientists as needed.

SCIENTIFIC PEER REVIEW

A peer review of activities coordinated by the TRC will be conducted in order to obtain an unbiased, independent, scientific evaluation of the work which is done. As presently scheduled peer review of TRC activities will be conducted in two areas:

- Data QA methodology formulation and its application.
- Habitability methodology and criteria formulation.

Peer review will be accomplished by having work products examined and critiqued by an external board of scientists. The peer review process, as noted, will result in a completely independent scientific double-check on the work which is done in the areas noted above.

A peer review organization will be selected after proposals are solicited by placing a notice in the Commerce Business Daily. The TRC plans to have the peer review function established as quickly as possible (targeted for June 84) in order to obtain early evaluation and feedback on its work.

TRC ACTIVITIES

The activities performed by the TRC are listed below. The lead agency for each activity is noted in parentheses:

- Data Collection - All pertinent site data, including that available from non-governmental sources, is being collected for review and evaluation. (EPA)

- Formulating Data Quality Assurance (QA) Methodologies - The data will be quality assured according to QA methodologies established for this purpose. EPA's Office of Research and Development (Washington, D.C.) will be working with the EPA Region II office and CH_2M-Hill to establish these methodologies. This activity will set levels of confidence for the data and ensure that the data are valid and representative of site conditions as they existed when the data was gathered. (EPA)

- Performing Data Quality Assurance- CH_2M-Hill will perform quality assurance of the data according to the methodologies established as described above. This will be done when firmer direction on the types of data needs are provided by DOH/DHHS. Also, DOH/DHHS will specify the manner of data presentation; for example, temporal/ spatial data arrays, may be required. (EPA)

- Formulating Habitability Criteria - In order to make habitability recommendations for the EDA, habitability methodologies need to be formulated and criteria need to be established. These will provide the scientific base on which "habitability" will be defined. For example, criteria may be developed which include assessment of the potential exposure pathways of contaminants and their impacts on human health. (DHHS/DOH)

  Assistance is being provided to DHHS/DOH in this difficult task by a group of expert scientists. These experts, selected by DHHS/DOH, are working on a consultant basis. They reflect a variety of pertinent technical backgrounds and provide a broad mix of expertise to DHHS/DOH. (DHHS/DOH)

- Recommending Habitability Status - These actions will be based on the criteria established for the EDA, as described above. If the existing data is found to be inadequate for making habitability recommendations, the required additional data will be collected. The TRC recommendations will then be used by the Commissioner, NYSDOH, in his decisions concerning the habitability status of the EDA. (While the TRC member agencies will provide the data base and recommendations for habitability, the final decisions will be made by the Commissioner of the NYS Department of Health.) (DHHS/DOH)

- The NYS Department of Environmental Conservation is providing the necessary coordination between the activities to determine habitability and the ongoing remedial construction activities in the Love Canal area. (NYSDEC)

SCHEDULE

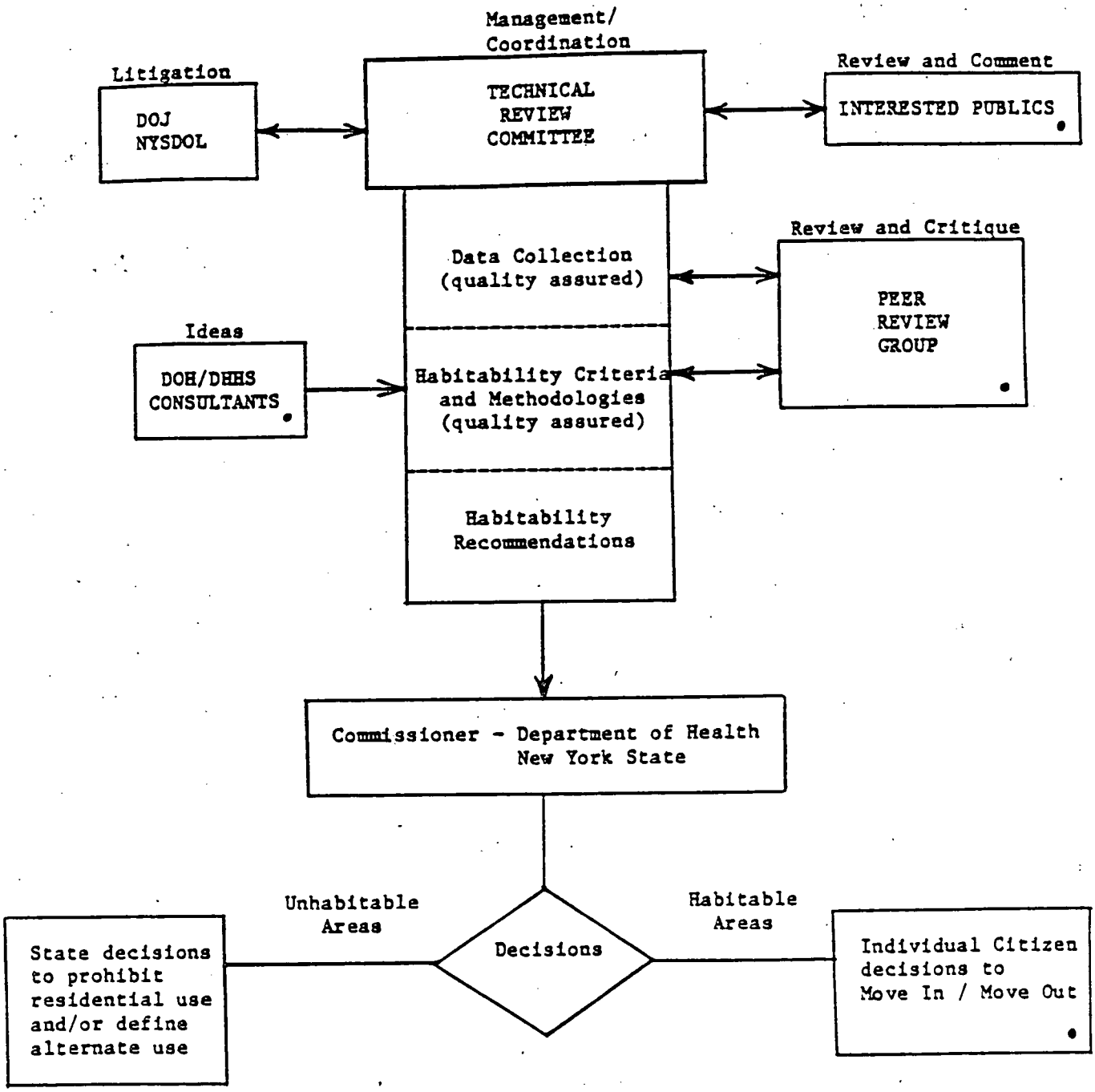
The proposed schedule (as of April 1984) for the TRC activities is as follows:

• Data Collection	February-May 1984
• Formulate Habitability Criteria and Methodology of Application	March-July 1984
• Peer Review of Habitability Criteria and Methodology of Application	August-November 1984
• Formulate Data QA Methodology	April-August 1984
• Peer Review of Data QA Methodology	August-September 1984
• Establish Data Management System	April-August 1984
• Perform Data QA	September-November 1984
• Peer Review of Data QA	September-December 1984
• Computerize Data	September-December 1984
• Start providing habitability recommendations	November 1984-January 1985
• Projected finish for making habitability recommendations	December 1985

As noted previously, the recommendations will then be forwarded to the Commissioner of the NYSDOH, who will make the final decisions.

COMMUNITY INVOLVEMENT

Community participation in the TRC activities has already begun. Numerous public meetings have been held, and will continue to be scheduled to provide a mechanism for interaction between the TRC and interested publics. As many TRC associated meetings will be held in Niagara Falls as possible, including meetings with the DHHS/DOH scientific experts. Two additional scientists, selected by the community, will also be invited to participate in this activity. Additional opportunities for community participation and interaction are still being explored.



• Opportunity for citizen influence

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, N.Y. 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

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Division of Solid and Hazardous Waste

HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 6 JANUARY 1984

ABOUT THIS ISSUE

Welcome to the new year! Since the last publication of the Update, several events took place at Love Canal including two public information meetings. The following items appear in this newsletter:

-- Technical Review Committee formed
-- Announcement of two public information meetings:

1. Wednesday, January 18, 1984 at 7:00 p.m. to discuss the Love Canal Technical Review Committee

2. Tuesday, January 31, 1984 at 7:00 p.m. to discuss the health and safety plan used during remedial work at Love Canal

-- Creeks to be fenced
-- Tour of Leachate Treatment Plant given
-- Malcolm Pirnie Report discussed
-- New documents available

Please note that the public meetings will begin at 7:00 p.m. rather than 7:30 p.m. in order to allow additional discussion time on the topics to be covered.

Public Information Meeting To Be Held

A. Technical Review Committee

On Wednesday, January 18, 1984, the United States Environmental Protection Agency (US EPA) and the New York State Department of Environmental Conservation (DEC) will hold a Love Canal public information meeting at 7:00 P.M. at the Frontier Volunteer Fire Hall, located on Frontier Avenue and 102nd Street.

The purpose of this meeting is to discuss the recently formed Love Canal Technical Review Committee (TRC), established to compile and evaluate data on the Emergency Declaration Area at Love Canal. Robert Ogg, P.E., Chief of the Hazardous Waste Site Branch, US EPA, Region II, discussed the Technical Review Committee briefly at the September 27, 1983 and November 29, 1983 Public Information Meetings. (Also See: Technical Review Committee Formed, page 4)

Three meetings of the Technical Review Committee have been held since it was formed in September 1983. These have been basic organizational meetings which have included discussions on work schedules, methods for collection of data, public involvement, and a scientific peer review process.

The Federal and State governments recognize that the question of habitability of the Love Canal area is controversial and requires careful consideration by all interested and affected groups and individuals. Upon the request of several actively involved groups at Love Canal, the EPA has agreed to the following format for the meeting:

7 - 8 P.M. Status Report on the Technical Review Committee Activities

8 - 9 P.M. Discussion of Community Involvement and Peer Review Process

9 -10 P.M. General Questions and Answers

The discussion period scheduled for 8:00 to 9:00 P.M. has been set aside to discuss community recommendations for the Technical Review Committee. Some of the concerns that might be addressed in the discussions include:

-- What actions could be taken by members of the Technical Review Committee to assist community understanding of the final recommendations of the committee?

-- Discussion of the role of the scientific peer review group.
   a. How should a scientific peer review group be selected?
   b. Who should be included on the group?

-- What mechanism should be established to allow all pertinent information to be made available to the TRC for consideration in its recommendations?

-- What role should the community have in the review of the technical information?

-- What is the most effective method of informing the public of the work accomplished by the Technical Review Committee:

   a. Availability of the minutes of each meeting of the TRC;

   b. Availability to the public of all documents reviewed by TRC.

   c. Community meetings with members of the TRC to discuss the progress of the committee and to allow the public to comment an to provide essential information. Should these meetings be held prior to the work sessions of the TRC so that the public can comment prior to decisions, or should meetings be held immediately after TRC work sessions so that the public can comment on decisions made?

   d. Others

Members of the TRC will be available to answer general questions from 9:30 to 10:00 P.M.

B. Health and Safety Plan

A public information meeting will be held on January 31, 1984 at the Frontier Volunteer Fire Hall at 7:00 P.M. to discuss the health and safety plan to be used when remedial work resumes in Spring 1984.

Leachate Treatment Plant Toured

On Wednesday, December 21, 1983 Charles and Ernest Dishaw, writers for the Niagara Gazette in Niagara Falls, New York, toured the leachate treatment plant at Love Canal. The tour, led by Dr. Nicholas Kolak of the DEC, included an inspection of the on-site facility and an explanation of the process used to decontaminate collected leachate.

This tour was the first opportunity given to reporters to examine the leachate treatment plant and to discuss

the mechanism for collection and decontamination of the wastes at Love Canal. An article explaining the function of the plant appeared in the January 5, 1984 edition of the Niagara Gazette.

The DEC is considering the possibility of arranging additional tours of the leachate treatment plant in response to public interest. These tours would be given from time to time and require previous arrangement with the Director's office, Division of Solid and Hazardous Waste. Written requests for these tours may be submitted to Anita Gabalski, DEC Public Information Office at Love Canal, 9820 Colvin Boulevard, Niagara Falls, NY 14304.

A more detailed article describing the barrier drain collection system and the leachate treatment plant along with schematic diagrams, will be included in the next publication of the Love Canal Update.

Creeks To Be Fenced

Findings of Malcolm Pirnie, Incorporated, a consultant for DEC, show that five "dioxin hotspots" were identified in the sediments near the outfall at the confluence of Black and Bergholtz Creeks. The potential for direct or indirect human exposure to the contaminated sediments as a result of skin contact or consumption of fish led Malcolm Pirnie, Inc. to recommend fencing of the creek area.

Concerns raised by the public at the November 29, 1983 public information meeting regarding contaminants found in the Black and Bergholtz Creeks, reinforced the Malcolm Pirnie recommendation for prompt fencing of the creeks. The DEC is currently working to limit access to the creeks.

Several property owners adjacent to the creeks would be affected by the placement of the fence on their property. These families are located north of Black and Bergholtz Creeks outside the Love Canal Emergency Declaration Area (EDA), as well as at the confluence of the creeks within the EDA. The remaining properties are owned by the City of Niagara Falls Board of Education and the Love Canal Area Revitalization Agency. The placement of the fence along the creek would require that the affected property owners allow the NYS DEC to install a fence on their land directly adjacent to the creeks. This fence would be placed an average distance of 20 feet from the creek shoreline.

On December 22, 1983, DEC employees visited several of the property owners to discuss the need for rapid placement of the fence and the location of the fence on their property. They were then given a sample "Right of Entry" form to review. If the property owners agree to sign this form, the DEC would be given the right to fence off the area immediately. The area would remain fenced until the creeks have been cleaned of the chemical contamination, including dioxin. The anticipated completion date for this work is December 1984.

During the visits with homeowners, many concerns were expressed and questions raised. Further discussions with property owners will take place within the next week to attempt to answer the questions and to communicate the concerns of both the DEC and individual property owners.

For additional information, call the DEC Public Information Office at Love Canal, 297-9637.

Technical Review Committee Formed

Federal and State Agencies involved with Love Canal have formed a special group to resolve uncertainties and address the continued apprehension concerning habitability of the Love Canal Emergency Declaration Area (EDA).

The principal scientific agencies participating in the group, known as the Love Canal Technical Review Committee, are the U.S. Environmental Protection Agency (EPA), the New York State Department of Environmental Conservation (DEC), U.S. Department of Health and Human Services (HRS), and the New York State Department of Health (NYSDOH). Operating under the framework of the "Love Canal Remedial Action Plan" (RAP), the Technical Review Committee (TRC) has been charged with compiling, reviewing, and evaluating all data collected on the area, to ensure that a comprehensive, scientifically valid data base is available for the New York State Department of Health to use in making final habitability decisions.

To address concerns about past government activities, all the data and procedures on which the habitation recommendations will be based will undergo an independent scientific peer review. This will be accomplished by setting up an independent board of scientific experts who will perform unbiased evaluations of the activities on habitability. Discussions are underway with the National Academy of Sciences to have them establish that independent board.

Based on the data review to be done through the Technical Review Committee, those portions of the EDA suitable or unsuitable for habitation will be identified. In addition, the review process will identify areas where additional data may be needed before a recommendation can be made. Habitability recommendations for selected portions of the EDA may be ready by the end of 1984.

In addition to the peer review process, special public meetings will be scheduled, not only to inform you of current activities, but, more importantly, to enable you to influence the agenda and consultations of the Technical Review Committee.

Malcolm Pirnie Sewer/Cree Investigation Discussed

Since publication of Issue 5 of the Love Canal Update, the New York State Department of Environmental Conservation held two public meetings at the Frontier Volunteer Fire Hall.

The first meeting was held on November 29, 1983 to discuss two documents released by the DEC. These documents are:

1. Site Investigation and Remedial Action Alternatives at Love Canal, prepared by Malcolm Pirnie, Incorporated.

2. Love Canal Remedial Project, Borehole Investigations, Volume I Text, and Volume II - Appendices prepared by the E.C. Jordan Company.

During the lengthy session, several comments were made and questions were raised in regard to the Malcolm Pirnie report. This report provides the results of detailed investigation of the storm and sanitary sewers; Black, Bergholtz and Cayuga Creeks; an the Niagara River in the vicinity of the 102nd Street Outfall. It also provides recommendations for remedial action alternatives.

A second meeting was held on December 13, 1983 to allow additional questions concerning the Malcolm Pirnie report to be addressed. Joseph Slack, P.E. Supervisor, Western Remedial Projects Section, Division of Solid and Hazardous Waste for the New York Stat Department of Environmental Conservation; Michael Mann, P.E.

Manager, Hazardous Waste, Malcolm Pirnie, Inc. and Paul Werthman, P.E. Project Manager, Malcolm Pirnie, Inc. were available to answer questions and to discuss the report.

Copies of the comments submitted to the DEC by the following organizations and individuals are available for review at the DEC Public Information Office at 9820 Colvin Boulevard, Niagara Falls, New York:

- Lewis Steele, Esq.; Attorney for the Love Canal Renters Association
- Wald, Harkrader & Ross on behalf of Occidental Chemical Corporation; January 5, 1984

The DEC will prepare a Responsiveness Summary in order to address the concerns expressed and the questions raised regarding the Malcolm Pirnie Report. Copies of the Responsiveness Summary will be available at the DEC Public Information Office next month.

New Documents Available

Several new documents have been obtained by the NYS DEC Public Information Office located at 9820 Colvin Boulevard in Niagara Falls, New York since the last issue of the Love Canal Update.

These documents are available for review at the office and most may be taken out on a loan basis.

Available documents include:

- Use, Reporting & Record Keeping Requirements Associated with Hazardous Waste Manifest System & Related Standards for Generators, Transporters and Facilities Dealing with Hazardous Waste DEC 6 NYCRR Part 365 Revised March 16, 1983
- Identification & Listing of Hazardous Wastes DEC 6 NYCRR Part 366 January 8, 1982
- Letter from Joseph L. Slack, P.E. to Michael J. Mann, P.E. of Malcolm Pirnie, Inc. re: Revised Format, Reports on Engineering Investigations Five Task Areas - Love Canal Superfund Remedial Program
- Agreement: Love Canal Area Revitalization Agency and NYS Disaster Preparedness Commission November 14, 1980
- Love Canal Geological Information January 7, 1983
- Site Investigations & Remedial Action Alternatives October 1983 Malcolm Pirnie, Inc. Report
- Love Canal Remedial Project Borehole Investigation, Volume I: Test Results; Volume II: Appendices, Final Report E.C. Jordan October 1983
- Landfilling of Special and Hazardous Waste, Illinois Legislative Commission 8/81
- Toxic Substances & Hazardous Wastes, Environmental Law Institute 11/6/80
- Using Compensation and Incentives when Siting Hazardous Waste Management Facilities - Handbook, Office of Solid Waste, US EPA 2/5/82
- Vole Studies at Love Canal, 1983
- Superfund's Remedial Response Program, EPA Revised Edition 1983
- Problem Sludge Accumulation at the Love Canal Treatment Plant NYS DEC 12/13/83
- Contract Documents, Destruction of Hazardous Wastes Using Plasma Arc Technology, Niagara Falls, NY NYS DEC 3/7/83

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, N.Y. 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

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Published By
New York State Department of Environmental Conservation
Division of Solid Waste

HENRY G. WILLIAMS, *Commissioner*

NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 5

NOVEMBER 1983

Public Information Meeting To Be Held

The New York State Department of Environmental Conservation (DEC) will hold a Public Information Meeting on Tuesday, November 29, 1983, at 7:30 P.M. at the Frontier Volunteer Fire Hall. The Frontier Volunteer Fire Hall is located at 102nd Street and Frontier Avenue in Niagara Falls, New York.

The purpose of this meeting is to discuss two documents released by DEC in October 1983. The documents to be discussed are:

1. Site Investigations and Remedial Action Alternatives, Love Canal prepared by Malcolm Pirnie, Inc.

2. Love Canal Remedial Project, Borehole Investigation, Volume I: Text, Volume II: Appendices, prepared by E.C. Jordan Co.

Both Malcolm Pirnie, Inc. and E.C. Jordan Co. are consultants for the DEC Division of Solid and Hazardous Waste.

The Malcolm Pirnie, Inc. report provides the results of detailed investigation of the storm and sanitary sewers; Black, Bergholtz and Cayuga Creeks; and the 102nd Street Outfall. The results include the extent of contamination found in these areas as a result of the investigations, as well as recommended remedial action alternatives.

The E.C. Jordan Co. report provides information on the geology and the extent of contamination along the alignment of the proposed concrete cutoff wall. The purpose of the cutoff wall was to reduce the amount of ground water and surface water entering the Love Canal leachate collection system.

Based on chemical data generated by E.C. Jordan for this report, along with ground water computer model information provided by Geotrans, a consultant for the United States Environmental Protection Agency (EPA), the concrete cutoff wall was eliminated from the remedial action plan. Deletion of the concrete cutoff wall was the topic discussed at the public meeting held by DEC and EPA on September 27, 1983

State and federal officials and representatives for the consultants will be present at the public meeting to explain and discuss the investigation procedures, analytical methods, and suggested remedial alternatives for cleanup of the sewers, creeks and 102nd Street Outfall. DEC will also provide an update on remedial activities at Love Canal.

Copies of the reports are available for review at the DEC Public Information Office at Love Canal and at the DEC Region 9 Office at 600 Delaware Avenue in Buffalo, New York.

We encourage the public to review the documents and to attend the meeting in order to ask informed questions, express concerns, and make recommendations regarding the reports. Your presence at the public meeting allows government officials to listen to your concerns and to take them into consideration in making their decisions.

The DEC will also accept comments and review of the documents until December 15, 1983. Letters should be directed to Norman H. Nosenchuck, Director of the Division of Solid and Hazardous Waste, NYS Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12233. A toll-free 800 telephone line has also been established so that calls can be accepted and comments recorded. The telephone number is 1-(800)-342-9296 and is open from 9 A.M. to 5 P.M. Monday through Friday. This telephone is answered by members of DEC's Citizen Participation unit. They will record your concerns, listen to your questions and either provide an answer immediately or get back to you with information. Letters and comments will also be accepted at the DEC Public Information Office located at 9820 Colvin Boulevard, Niagara Falls, New York.

The Public Information Meeting and Document review period are important mechanisms for communication between government officials and the citizens they serve.

We hope to hear from you!

Mini-Seminars Receives Minimal Response

In the last issue of the Love Canal Update, a mini-series was proposed as a possible means of responding to the public need for adequate information on issues concerning hazardous waste sites. Each seminar would provide an in-depth review of one particular aspect of the problem giving citizens the opportunity to ask questions of technical people.

The response to the mini-seminars was minimal. Only seven slips were returned to the DEC Public Information Office at Love Canal asking that the mini-seminars take place. Based on this response, the DEC has decided NOT to schedule seminars at this time. If additional interest is expressed, workshops may be scheduled in the future.

Comments may be sent to:

DEC Public Information Office
c/o Anita Gabalski
9820 Colvin Boulevard
Niagara Falls, New York 14304

Workshop to be Held

On December 13, 1983 the New York State Department of Environmental Conservation (DEC) will hold a public workshop at the Frontier Volunteer Fire Hall at 7:30 p.m. The Frontier Volunteer Fire Hall is located at 102nd Street and Frontier Avenue.

The purpose for this workshop is to discuss the alternatives for management of the wastes generated by the leachate collection system at Love Canal. A barrier drain which extends 12-18 feet below the surface of the ground currently collects leachate at the landfill. The collected leachate is then pumped into groundwater storage tanks. From these tanks it is channeled into the leachate treatment plant where it passes through activated carbon beds. The concentrated wastes (or sludge) that are generated are stored in the four tanks that can be seen just south of the leachate treatment plant. As these waste materials accumulate, the problem of storage increases.

The DEC is examining its options for addressing the problem of what to do with the sludge that has been accumulating.

Four options are available. These options are:

1. the sludge can be contained and stored permanently at the Love Canal;

2. the sludge can be taken off-site to a secure landfill for permanent storage;

3. the sludge can be destroyed on-site using new disposal technologies, such as the plasma arc technology;

4. the sludge can be transported off-site for destruction using existing new technology disposal facilities.

In its examination of the available options, the DEC has found that on-site destruction of the sludge using new disposal technologies (option No. 3) is the most practical method for waste disposal.

During the workshop, technical people will be present to discuss the four options that have been listed above, the new disposal technologies that are available and the option that is being considered. In this way we hope to encourage public discussion so that your concerns and suggestions are taken into consideration. Through the workshop, we hope to provide useful information so that the dialogue will continue between decision-makers and those that are most directly effected by their decisions.

If you have any further questions regarding the workshop, please call the DEC Public Information Office at (716) 297-9637 or stop in and visit us at 9820 Colvin Boulevard.

Documents Available At Public Information Office

Several new documents have been obtained by the DEC Public Information Office located at 9820 Colvin Boulevard in Niagara Falls, New York since the last issue of the Love Canal Update.

These documents are available for review at the office and most may be taken out on a loan basis.

Available documents include:

- EPA News Release., Sept. 27, 1983: EPA & N.Y.S. Propose Plan for Future Love Canal Action
- Love Canal - Proposed Remedial Activities
- Transcript of discussions at Hyde Park Landfill Meeting; Speakers: Sister Margeen Hoffman, O.S.F.: Dr. Irwin Bross
- Environmental Monitoring at Love Canal EPA May 1982
- Interagency Task Force on Hazardous Waste, Hearing Officer Wm. R. Ginsberg Report October 1979
- Hazardous Waste Disposal Sites in New York State, DEC Volume 3 June 1980
- Industrial Hazardous Waste Generation in New York State, An Inventory DEC June 1979
- Dioxins, EPA November 1980
- Ecumenical Task Force Progress Report I 3/20/79 - 8/1/80 - Progress Report II 8/1/80 - 9/15/81
- Solid Waste Management Facilities Guidelines DEC May 1981
- RCRA, The Resource Conservation & Recovery Act, Public Law 94-580 94th Congress October 21, 1976
- Identification & Listing of Hazardous Waste Federal Regulations Inc. by Reference in 6 NYCRR Part 366 January 1, 1983 DEC
- NYS Hazardous Waste Manifest Guidance Manual DEC March 1982
- National Oil & Hazardous Substances Contingency Plan Federal Register Part V July 16, 1982
- Threshold Limit Values for Chemical Substances & Physical Agents in the Work Environment With Intended Changes for 1982 American Conference of Governmental Industrial Hygienists

We Want You To Be Involved

You, the citizens, workers, and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the future.

- A DEC Public Information Office has been established at 9820 Colvin Boulevard. We encourage you to visit so that we can answer your questions and hear your concerns. Information regarding DEC activities and public meetings may be obtained by calling Anita Gabalski, a DEC Citizen Participation Specialist, at 716/297-9637.

- In addition a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.

- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the DEC public information office in Niagara Falls.

- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ Please correct my name or address as listed below

_____ Please add the following name to your mailing list

NAME _____

ADDRESS _____

_____

Send to: NYS Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

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Published By
New York State Department of Environmental Conservation
Division of Solid and Hazardous Waste

HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 4 AUGUST 1983

About This Issue

The difficulties encountered at Love Canal are numerous and effect the lives of many people: remaining residents, former residents, City, State, and Federal officials, concerned citizens groups, environmental organizations, and members of the media -- to name a few. It is the purpose of this Update to provide whatever information may be available to a public that seeks to remain well-informed.

The New York State Department of Environmental Conservation believes that a well-informed citizen will provide productive comments and suggestions to those who have been given the responsibility of making the difficult decisions that must be made to ensure the health and safety of the public and to protect the environment from potential treat. As a result, this issue of the Love Canal Update calls for your response to an attempt to bring the principles of citizen participation into action.

A series of mini-seminars on topics related to hazardous waste sites has been proposed. These seminars would give the various interest groups an opportunity to review one particular aspect of the problem in-depth. As a result of this series, there should be an increase in the dialogue among engineers, citizens, government officials, and other interested groups. The problems at Love Canal are not merely technical; they are also social, political, economic, and emotional. Through these mini-seminars, the various aspects of the Love Canal problem could be taken into consideration. Please take a few moments to respond to our attempt to solve this intricate problem together by completing and returning the attached sheet in this newsletter.

In addition, this issue includes:

- A Public Information Meeting Review
- Explanation of Leachate Collection System Repairs
- Looking Through the Fence
- New Documents at Public Information Office
- Public Information Meeting to be Held
- Coming Activities

Public Information Meeting Held

On July 28, 1983 the New York State Department of Environmental Conservation (NYSDEC) held a Public Information Meeting at the Frontier Volunteer Fire Hall in Niagara Falls, New York. Over one hundred people attended the information-filled meeting which was nearly four hours long.

The meeting served a dual purpose: first, to announce the deletion of the groundwater cutoff wall from the remedial action plans and second, to provide new data on the borehole investigation along the alignment of the concrete cutoff wall and data on the sewer and creek sampling program in the emergency declaration area.

Norman H. Nosenchuck, Director of the Division of Solid and Hazardous Wastes for NYSDEC began the meeting by recapping the work that had been completed at Love Canal to date. He then read a letter from Robert Ogg of the United States Environmental Protection Agency (USEPA) to NYSDEC. The letter informed Mr. Nosenchuck that the USEPA had found that the placement of the groundwater cutoff wall would not be appropriate at the time and instructed the NYSDEC to delete the wall from its contract with its subcontractor, Sevenson Construction Corporation.

Mr. James Mercer, with the firm Geotrans, a consultant to USEPA, then described the results of the groundwater computer model that he had developed to simulate groundwater conditions at the Love Canal. The information provided by Mr. Mercer indicated that the groundwater cutoff wall would only decrease the inflow of water to the on-site drain system by 10%. The purpose of the wall was to reduce the amount of groundwater coming into the Love Canal site and thereby reduce the long-term operating cost of the leachate treatment plant. Since placement of the wall would have resulted in such a minor reduction in the leachate flow, the wall would therefore have had a minimal effect. This information reinforced the joint NYSDEC/USEPA decision to terminate construction of the wall.

Mr. Dirk Brunner, a representative of the E.C. Jordan Company, followed with a presentation of data obtained from the Borehole Investigation along the alignment of the proposed concrete cutoff wall. The purpose of this investigation was to 'fine-tune' the location of the wall so that it would be outside the area of contamination. Data obtained from this investigation, however, revealed that contaminants had been found where the wall was to have been placed. Mr. Brunner emphasized that the chemical contaminants were found in low concentration. It is expected that the E.C. Jordan Company will submit a final report to the NYSDEC shortly and this report will be available for public review.

Two representatives for Malcolm Pirnie, Incorporated then presented the raw data from the sewer and creek sampling program. Mr. Michael Mann and Mr. Paul Werthman explained that the sewers are generally in good repair. Samples were collected and the results indicate that Love Canal contaminants are found in various locations in sediment taken from both the storm and sanitary sewers. Sampling activities also indicated the Love Canal contaminants in the Black, Bergholtz, Cayuga Creeks and the Niagara River were found in relatively low concentrations. Several suggested methods for dealing with the contaminated sewer lines and creeks were then presented for public comment.

The raw data presented by Malcolm Pirnie, Inc. are available in the Public Information Office at 9820 Colvin Boulevard for distribution. A draft report is currently under review. It is anticipated that this draft report will be available for public comment by the end of September.

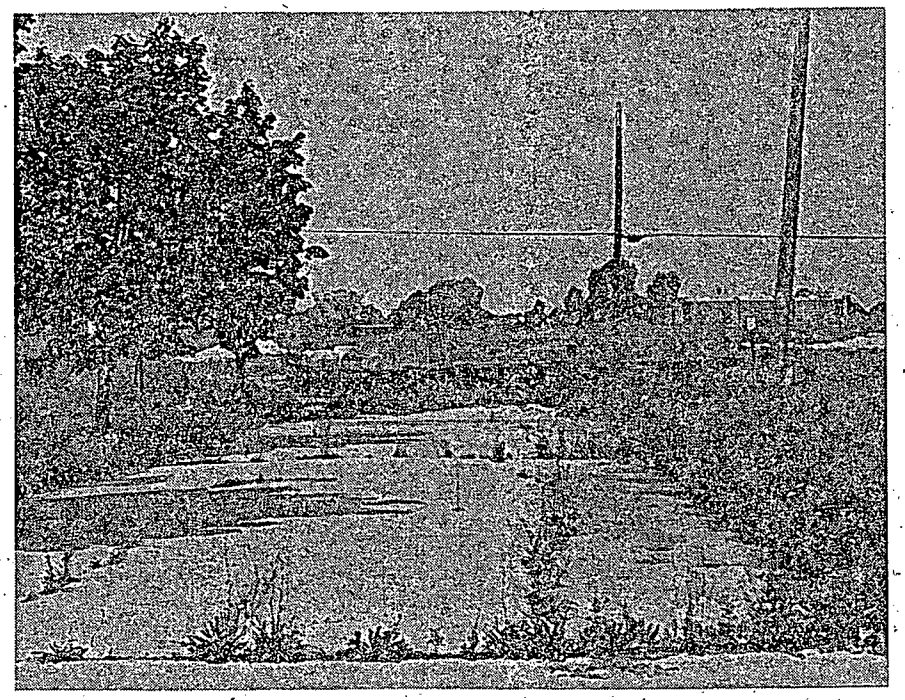
Comments, questions, and suggestions regarding the Public Information Meeting should be directed to the NYSDEC Public Information Office at 9820 Colvin Boulevard.

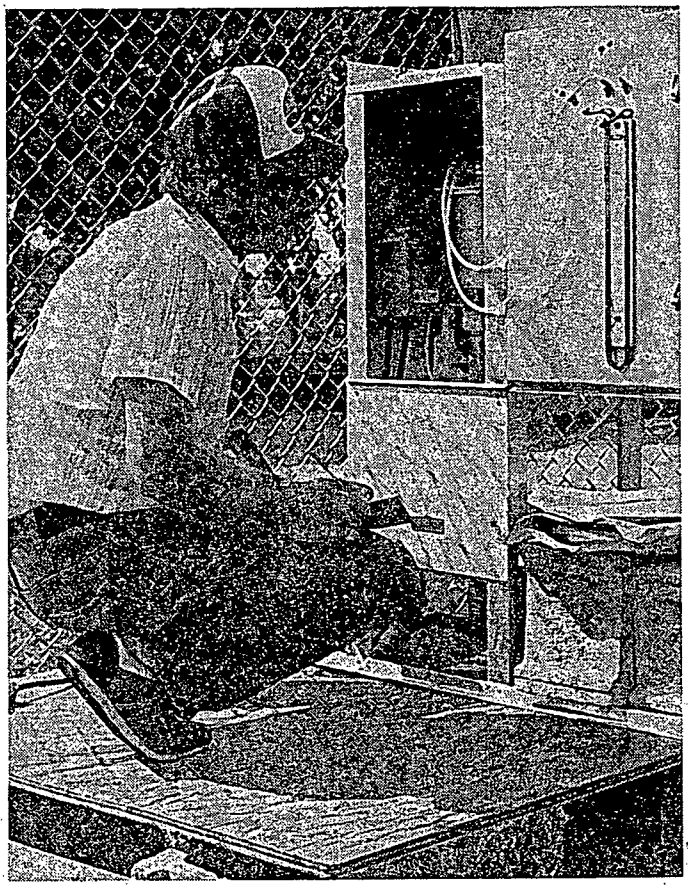
Leachate Collection System Under Repair

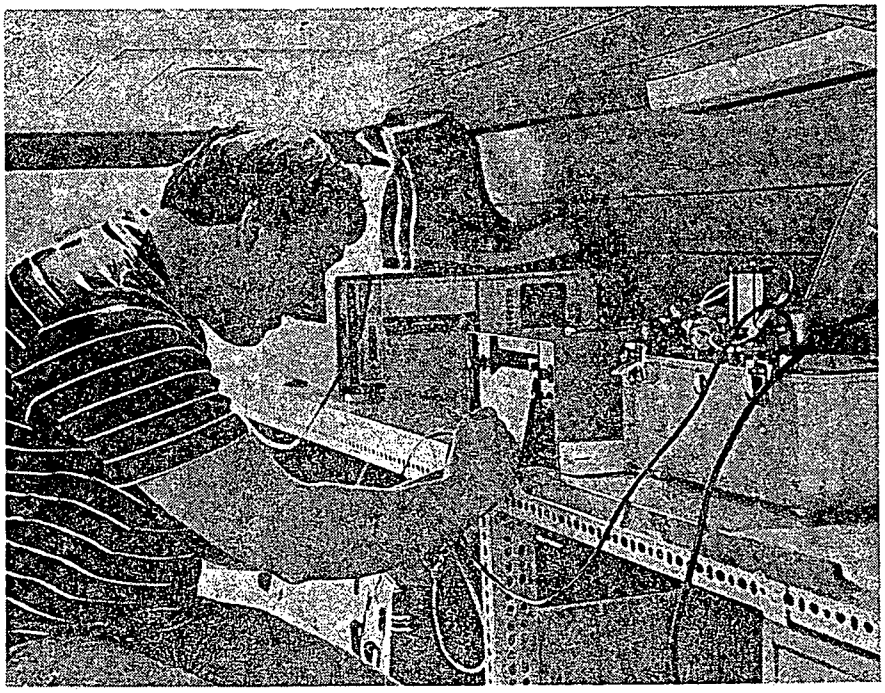
Repair work on the Leachate Collection System at Love Canal began on August 15, 1983 along Frontier Avenue. Information received from routine maintenance performed on the drain system in February, 1983 indicated that work was necessary on the southern section of collection system. This work includes looking for and repairing breaks and obstructions in the Leachate Collection System before the final cover, the plastic membrane and additional fill are put into place. As a result, a segment of Frontier Avenue was closed to traffic and crews were mobilized in this area to perform the excavations needed to make the repairs.

Full safety precautions are required during all excavation activities. Crew members wear protective coveralls, respirators, work gloves, boots and hard hats to prevent possible exposure to any contaminants. Air monitoring equipment is present at the site and is in operation during all work activities. To protect the public from possible air-borne contaminants, several monitoring units have been established in the Emergency Declaration Area (EDA). During the recent repair work, a special van housing gas chromatography equipment, capable of measuring air-borne contaminants in the parts per billion (ppb) range, has also been in operation around the perimeter of the site.

Before the placement of the plastic membrane begins, all repair work on the Leachate Collection System must be completed. In order to detect the location of additional breaks or clogs in the system, special television monitoring equipment is being used. On August 16, 1983, a TV camera was placed into the drain system. TV inspections should continue through mid-September. Based on information received from this inspection, additional cleaning and/or repair work on the remainder of the collection system may be necessary. This work, which may require additional excavation, will take place in the next few weeks.







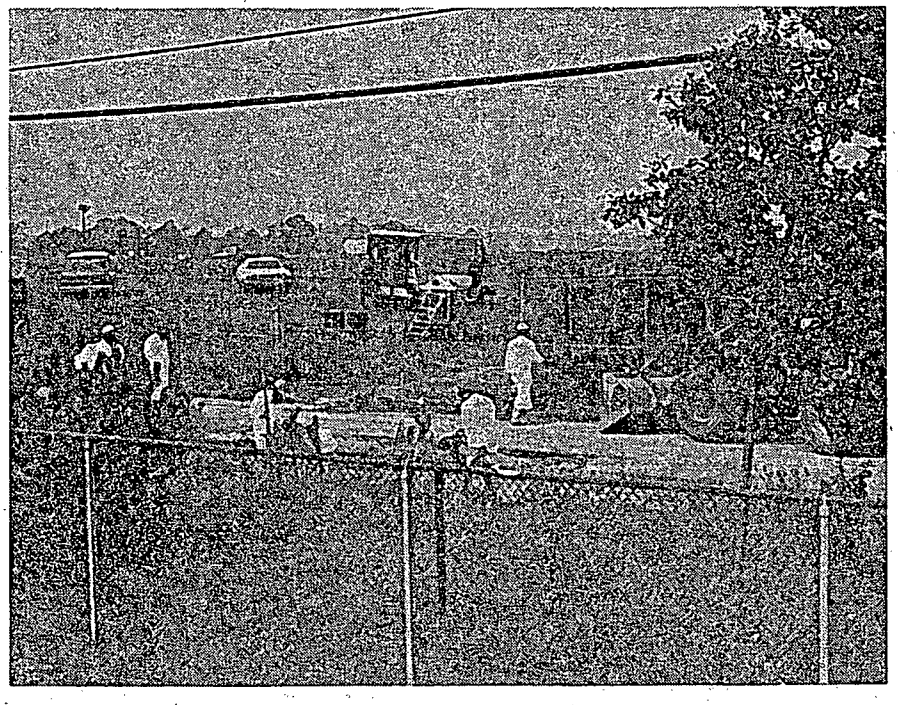
Looking Through the Fence

I Drums Prepared for Disposal

Over four hundred 55-gallon drums located on-site at Love Canal were prepared for disposal in early August, 1983. The barrels, which contained disposable clothing fluids and sludge, were opened and the liquids were drawn off. These decanted liquids were disposed of into the on-site drain system for treatment at the existing leachate treatment plant. The sludge remaining in the barrels was treated with a moisture absorbing material, and the barrels were then resealed. About 25 barrels still await the decanting process. Disposal plans for the barrels have not been finalized to date.

II Presence of Tanks Questioned

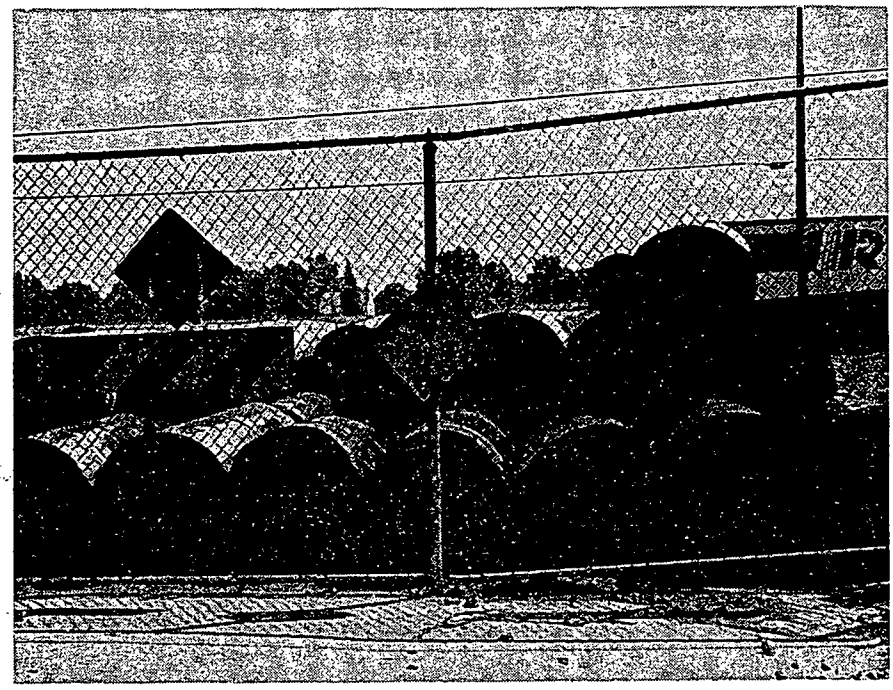
Observers at Love Canal have recently questioned the presence of three large rusty tanks located in the central section of the site. These large cast-iron tanks were removed from the 99th Street School before its demolition. The basement in the school's boiler room was not deep enough to contain them. The tanks are currently awaiting on-site disposal.



III Plastic Membrane Awaits Placement

Several large rolls of 40 mil thick polyethylene plastic are stacked inside the fence near 96th Street. These rolls of plastic await placement over the surface of the Love Canal site as part of the ongoing remedial action activities. The plastic will be spread out, the seams will be sealed with a heat treatment and additional fill will then be brought in to cover the plastic.

Before this work begins, however, repairs currently being done on the leachate collection system must be completed. Work on placement of the plastic membrane and additional fill is anticipated to begin by mid-September.



Public Information Meeting To Be Held

The NYSDEC in cooperation with the United States Environmental Protection Agency (USEPA), with hold a public information meeting on September 27, 1983. The meeting will be hold at the Frontier Volunteer Fire Hall on 102nd Street and Frontier Avenue at 7:30 pm.

The NYSDEC and USEPA will discuss current and future remedial activities. Additional work at the Love Canal is now being planned in order to address concerns expressed by the U.S. Congressional Office of Technology Assessment in their report, "Habitability of the Love Canal Area."

Documents at Public Information Office

Several new documents were obtained by the New York State Department of Environmental Conservation Public Information Office at 9820 Colvin Boulevard this month. These documents are available for public review and comment during office hours and several may be taken out on a loan basis. If the document you need does not appear on our lists, please notify us and we will try to obtain copies. Your suggestions and recommendations are appreciated.

- Selected Air Sampling in Love Canal: Summary, EPA 1/17/80
- Quantification of Toxic Materials in Ambient Air at Love Canal - EPA
- Analysis of Human Blood Samples for Selected Toxic Substances, Draft of Task 9, Final Report EPA 3/80
- Dept. of Health, Dr. Carpenter letter on Blood Testing 3/16/81
- Location overlays E.C. Jordan Co. Borehole Locations at Love Canal 7/28/83
- CH2M HILL Site Containment
- "Love Canal and the Poisoning of America" by Michael Brown Condensed version in Atlantic Monthly
- Love Canal: Science, Politics and People, by Dr. Adeline Gordon Levine
- Results of Toxicity Testing (Chemicals at L.C. pump)
- Dr. Beverly Paigen reports:
  - Health Hazards at Love Canal, Roswell Park Institute 3/21/79
  - Growth and Health in Children Living Near Love Canal, Children's Hospital, Oakland, California 4/29/93
  - Report of Meetings between Scientists from H.E.W., E.P.A., Dr. Beverly Paigen and NYS Dept. of Health concerning Love Canal
- Love Canal Special Report to the Governor and Legislature 4/81
- "Technologies and Management Strategies for Hazardous Waste Control, Office of Technology Assessment 3/83
- "Everyone's Backyard - Citizens Clearing House for Hazardous Wastes, Inc. Lois Gibbs periodicals, Arlington, Virginia
- U.S. & N.Y.S. -vs- Hooker Chemicals, etal (Hyde Park Landfill) Civil Action No. 79-989 1/19/82
- Five Site Investigations & Remedial Alternative Evaluations, Malcolm Pirnie 1/3/83
- NYS DEC Groundwater Monitoring Data A & B
- Long Term Monitoring Program at Love Canal
- New York's Local Government Structure, The Division of Responsibilities - N.Y.S. Legislative Commission on State-Local Relations 4/83
- N.Y. Times, "Stop the Poisoning of America - No More Love Canals"
- Siting Manual for Storing Hazardous Substances: A Practical Guide for Local Officials, NYS DEC 10/82

- Site Investigations & Remedial Action Alternatives: Raw Analytical Data, Malcolm Pirnie 7/28/83

- Superfund Priority List, Proposed N.Y.S. Sites, NYS DEC 2/15/83

- Taxable Status of Property at Love Canal: 3/19/79

- Aerial photographs of Love Canal: 1938, 1951, 1966

- Love Canal - Project 1: Site Containment System Progress Report July 1983

- A Challenge for the 80's, NYS DEC

- Love Canal Superfund: Emergency Response Plan

- Environmental quality, 13th Annual Report, 1982, Council on Environmental Quality, Washington, D.C.

- NYS Department of Health Love Canal Soil Data

- Environmental Notice Bulletin: August 3, 1983, August 10, 1983

Coming Activities

Activities at the Love Canal Landfill will be continuous during the next month while the warm weather is still present.

Repair work on the leachate collection system may continue for several weeks. Television inspections are currently providing information on the drain system so that the needed maintenance work can be completed.

Because of the recent decision to delete the groundwater cutoff wall and the lateness in the season, it may be necessary to direct the contractor to work longer hours and possibly weekends to complete the remaining remedial work. Your cooperation and patience during the next few weeks while the extended hours are in effect will be appreciated.

Prior to placement of the 40 mil thick plastic membrane, all organic sludge which is currently stored on-site in a temporary holding tank will be transferred to the four new holding tanks. These tanks, located south of the leachate treatment plant, will provide permanent storage for the sludge.

Once these activities are complete, the plastic membrane will be placed and clean fill will be brought in to cover the surface of the site.

Hours Changed

at Public Information Office

As of September 1, 1983, new office hours will go into effect at the Love Canal Public Information Office located at 9820 Colvin Boulevard in Niagara Falls, New York. During the summer months, the office was open until 9:00 P.M. on Wednesday evenings for those who were unable to visit the office during normal working hours. The office will now be open during the following hours.

	Monday	8:30 a.m. - 4:30 p.m.
	Tuesday	8:30 a.m. - 4:30 p.m.
*	Wednesday	11:00 a.m. - 7:00 p.m.
	Thursday	8:30 a.m. - 4:30 p.m.
	Friday	8:30 a.m. - 4:30 p.m.

We will also be available for special appointments if these hours are inconvenient or inadequate. Also, if we receive enough requests for the reinstatement of later evening hours, we will gladly make the recommended change to accommodate your requests. To offer suggestions or obtain further information, please call 716/297-9637.

* Evening hours

Mini Seminars Proposed

As a result of the last Public Information Meeting, during which a large quantity of technical and scientific information was presented, a suggestion was made that the NYSDEC periodically conduct a series of mini-seminars. Each of these mini-seminars would address one particular topic related to hazardous waste sites. The purpose of these seminars is to allow a more in-depth view into one aspect of the hazardous waste problem. This will also allow the public to become better informed so that constructive comments, suggestions and alternatives can be presented to State and Federal officials.

Several topics have been proposed for these seminars. These topics are 1.) Groundwater Monitoring; 2.) Groundwater Control; 3.) Alternative Caps (Covers) for Landfills; and 4.) Operation of the Leachate Treatment Plant.

Your comment regarding the mini-seminar series is extremely important. If enough interest is expressed, the first seminar will be scheduled for the near future. Your suggestions for possible seminar topics will also be very helpful. It is important for us to know what is of concern to you and what further information you need.

Please fill in the following slip. Your response to this suggestion may determine whether or not the mini-seminar series will be held.

Name _____

Address _____

_____

_____ I would like to see a mini-seminar series set up to better inform the public on various aspects of hazardous waste site management.

_____ The proposed mini-seminar series would be of little value to me.

Other: _____

_____

Suggested Topics: _____

_____

Send to: N.Y.S. Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, N.Y. 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid Waste

HENRY G. WILLIAMS, *Commissioner*

NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 3

JULY 1983

About This Issue

Since the last publication of the Love Canal UPDATE, many activities have taken place at the site. These activities have once again drawn public attention to the Love Canal area and have raised several questions and concerns. The purpose of the UPDATE is to keep citizens, interested groups, government officials, and members of the media informed about the progress of New York State Department of Environmental Conservation (NYS DEC) remedial actions and the monitoring program taking place at the Love Canal landfill. We will cover information concerning current activities at the site, new documents available for review, and ongoing public participation activities. We will also report on the citizen input we may receive.

This issue includes:

- Coming Activities
- Public Meeting Announced
- Documents Available at the Public Information Office
- Looking Through the Fence
- Truck Rerouting Requested
- Safety Precautions at the Work Site
- Air Monitoring Units in Operation

We will be publishing this UPDATE periodically and hope that you will find it informative. If you have any suggestions or questions about the UPDATE, please contact:

Anita M. Gabalski, Citizen Participation Specialist
NYS DEC Public Information Office
9820 Colvin Boulevard
Niagara Falls, New York 14304
716/297-9637
Your comments are welcome.

Truck Rerouting Requested

After the demolition of the 99th Street School, large quantities of fill were needed to cover the debris that resulted from the demolition. Project specifications required that a minimum of 1 foot of compacted fill be placed over the debris. This was to be clean fill imported from an area outside the Love Canal.

To accomplish this, the NYS DEC contractor, Sevenson Construction Company, Niagara Falls, New York, subcontracted with the Ray Weber Trucking Company to haul fill to the site. This fill was imported from Buffalo General Hospital where the Sevenson Construction Company is currently involved in another work project.

As the trucks carrying fill approached the Love Canal site they took the following route:

Buffalo Avenue to River Road, River Road to South Military, South Military to Frontier Avenue, Frontier Avenue to the Love Canal site entrance. This route took the heavily laden trucks past many private residences.

During the course of this work, several complaints were lodged that the trucks constantly driving past the private homes were causing vibrations that shook the homes. Sevenson Construction Company was contacted at the Love Canal site and was informed of these complaints.

A spokesman for Sevenson said that once they were made aware of the problem, they spoke with the Ray Weber Trucking Company to establish an alternate route. To distribute the traffic, the Ray Weber Trucking Company agreed to alter the route as follows:

Trucks carrying fill being taken to the site drove down River Road to 101st Street, from 101st Street to Frontier Avenue. Then down 95th Street to the western site entrance. The empty trucks, however, followed the original route since the decrease in weight resulted in minimal vibrations to the private homes.

Coming Activities

During the upcoming month, activities at the Love Canal site include: raising of manhole covers to the projected height of the final cap; clearing and grubbing of remaining tree stumps; installation of the synthetic membrane cover; placement of additional soil to protect the synthetic membrane; final grading of the cap and planting of grass. Construction activities should be complete by late September, 1983.

The sewer and creek samples taken by Malcolm Pirnie Inc. for NYS DEC are currently being analyzed. Preliminary results are expected to be made available during the public meeting scheduled for July 28, 1983. Malcolm Pirnie's report on their investigations will include recommendations for remedial actions that may be necessary in the sewers and creeks. A final report resulting from the Malcolm Pirnie investigations, will be available for public review and discussion in September 1983

Public Information Meeting

To Be Held

The New York State Department of Environmental Conservation (NYS DEC) will hold a public meeting on Thursday, July 28, 1983 at 7:30 p.m. at the Frontier Volunteer Fire Hall. The Frontier Fire Hall is located at 102nd Street and Frontier Avenue in Niagara Falls, New York.

The purpose of this meeting is to provide an update on the work being done at the Love Canal by the NYS DEC and its contractors. Several topics will be discussed. These topics include:

- a discussion of the soil sampling results obtained by the NYS DEC contractor, E.C. Jordan, Portland, Maine, taken to determine the final placement of the concrete cutoff.

- an overview of the remaining site containment work and a description of work completed to date.

- a description of the sewer and creek sampling program performed by NYS DEC contractor, Malcolm Pirnie, White Plains, New York.

- a discussion of the preliminary results of the Malcolm Pirnie sampling program.

- recommendations by Malcolm Pirnie for remedial actions to be taken in the Emergency Declaration Area.

Your attendance at this meeting affords you the opportunity to receive the most current information available regarding the New York State Department of Environmental Conservation activities at Love Canal. It also provides an opportunity to ask informed questions, offer comments and voice your concerns. If you have any suggestions or would like further information regarding the meeting, please call the NYS DEC Public Information Office at 716/297-9637 or stop in and visit us at 9820 Colvin Boulevard in Niagara Falls, New York.

We hope to see you there. Your participation is important to the successful completion of the remedial action program.

Looking Through the Fence

With the coming of the summer, construction activities at Love Canal have increased. Many of these activities have been highly visible and consequently have drawn much public attention. This column provides an update on these activities and an explanation for their occurrence.

I. Demolition of the 99th Street School

On June 8, 1983, the 99th Street School was demolished by Sevenson Construction Company contractors for NYS DEC. This event was witnessed by members of the news media and a number of interested citizens. Work began at 9:00 a.m. and was completed by 5:00 p.m. the same day. Two bulldozers accomplished this task with little difficulty. Throughout the demolition, fire hoses were in constant use wetting down the area to control the dust produced by the demolition. These fire hoses received their water supply from facilities serving the leachate treatment plant.

Once the school was demolished, large slabs of concrete and debris remained on-site. The demolition debris was crushed to sizes no larger than 2 feet by 2 feet using heavy construction equipment. This equipment rode over the debris repeatedly until it was crushed to the specific size.

All demolition debris was kept on-site. None of it was removed from the Love Canal area. These materials were covered with clean soil to maintain a uniform grade in the land and were then covered immediately with a non-woven polypropylene filter fabric. This fabric was then covered with additional clean soil to a minimum depth of 1 foot. The purpose of the filter fabric is to provide a barrier between the demolition debris and the imported earthfill so that the fill does not migrate down into any gaps between the chunks of debris.

All work involving the demolition of the 99th Street School was completed on June 23, 1983.

II. Manhole Covers Raised

During the past three weeks several pieces of heavy construction equipment have been visible on-site. This equipment is being used in work necessary to raise existing manholes to the projected level of the final cap.

To accomplish this, workers must excavate around the existing manholes. An extension is then placed on the existing manhole, raising the level a maximum of 2 feet. Eccentric cone sections are placed on top of the manhole extension and the earth is backfilled into the excavated area. The raised manhole covers, now protruding above ground level, will be flush with the top surface of the final cap once it is completed.

Safety Precautions at the Work Site

The construction activities which have occurred during the past month have required ground disturbance on-site. This ground disturbance took place during the demolition of the school and during the raising of existing manhole covers. In order to protect the workers who come into immediate contact with potentially contaminated soil which is disturbed during construction, the following safety precautions have been taken:

-- All personnel working on-site are provided with disposable protective coveralls. These are the white 'uniforms' that the workers are seen wearing whenever construction activity is taking place.

-- All on-site personnel are provided with hardhats. These hardhats are color-coded for easy recognition as follows:

White	--	Contractor supervisors
Yellow	--	Other contractor personnel
Red	--	NYSDEC Engineering consultants and State Officials

-- Respirators are worn by personnel working in hazardous zones to protect them from dust particles and vapors. These respirators filter the air so that hazardous materials are not inhaled.

-- Work gloves, safety boots and overshoes are also worn by on-site personnel to prevent direct contact with contaminants.

Whenever excavation takes place on-site, special work zones are established. These zones are roped off and marked in order to alert all personnel to open trenches. Only those workers properly equipped with safety gear are permitted to enter these zones.

Special monitoring devices are set-up and operated at the work zones in order to provide information regarding the levels of gases, vapors, and particulates which are being generated during the remedial actions. This program monitors the exposure of on-site workers to toxic substances as well as the potential for off-site migration of air-borne contaminants.

When leaving the special work zones, workers clean their overshoes at decontamination sites and remove their gloves, hardhats and disposable coveralls. Special facilities are provided for all workers to shower and change into clean street clothes before leaving the site each day.

Air Monitoring Units in Operation

Throughout the construction activities, the NYS DEC has operated air and vapor monitoring units at six sites outside of the fence surrounding the Love Canal. Stafford White, a NYS DEC engineering technician, has been maintaining these units and collecting the data that are recorded. Information on dust particulates and air-borne gases obtained from these units is important in monitoring the migration of air-borne contaminants into the Emergency Declaration Area. The data alert the NYS DEC to these movements and allow modifications in the work procedures as necessary.

Public Information Office Obtains Documents

Several new documents are available at the New York State Department of Environmental Conservation Public Information Office located at 9820 Colvin Boulevard in Niagara Falls, New York. These documents are available for review at the office and several may be taken out on a loan basis. Available documents include:

- Contract Documents for the construction of Love Canal Project 1, Site Containment System, Volume 1 of 2, Specifications.
- Contract Documents for the construction of Love Canal Project 1, Site Containment System, Volume 2 of 2, Drawings.
- Task V: Three-Year Groundwater and Surface Water Monitoring Program, Love Canal Area and Vicinity.
- Love Canal: Public Health Time Bomb, A Special Report to the Governor and Legislature, September 1978.
- Love Canal: The Social Construction of Disaster; Final Report for the Federal Emergency Management Agency.
- Interagency Task Force on Hazardous Wastes; Draft Report on Hazardous Waste Disposal in Erie and Niagara Counties, New York.
- The Niagara River Toxics Project: Status Report, February, 1983.
- Habitability of the Love Canal Area; An Analysis of the Technical Basis for the Decision on the Habitability of the Emergency Declaration Area, A Technical Memorandum, June, 1983.
- New York State Assembly Committee on Environmental Conservation on Future Uses of the Love Canal Hazardous Waste Site and Adjacent Property.

In addition to these documents, several informational bulletins and magazines are also available for public review.

This information includes:

- Bi-monthly issues of The Conservationist, the NYS DEC magazine.
- Issues of The Environment.
- Issues of the Environmental Notice Bulletin.
- October 1, 1982 - September 30, 1983 New York State Fishing, Small Game Hunting & Trapping Regulations Guide.
- A NYS DEC brochure entitled, "Fish Contaminants: Minimize Your Intake".
- DEC Guide to Public Hearings.
- September 1982 Occidential Chemical Factline - "Love Canal: The Facts (1892-1982)".
- February 1981 Reason - "Love Canal: The Truth Seeps Out".
- A series of Carcinogen Information Program. Bulletins produced by the Center for the Biology of Natural Systems at Washington University, St. Louis, Missouri.

We Want You To Be Involved

You, the citizens, workers, and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the future.
- A new NYSDEC Public Information Office has been established at 9820 Colvin Boulevard. We encourage you to visit so that we can answer your questions and hear your concerns. Information regarding NYSDEC activities and public meetings may be obtained by calling Anita Gabalski, a NYSDEC Citizen Participation Specialist, at 716/297-9637.
- In addition a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the NYSDEC public information office in Niagara Falls.
- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ Please correct my name or address as listed below

_____ Please add the following name to your mailing list

I do not want to be included on your mailing list

NAME _____

ADDRESS _____

_____

_____

Send to: N.Y.S. Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

New York State Department of Environmental Conservation
9820 Colvin Blvd.
Niagara Falls, NY 14304

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid Waste

HENRY G. WILLIAMS, *Commissioner*

NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 2

JUNE 1983

About This Issue

The purpose of the UPDATE is to keep concerned citizens, interested groups, government officials and members of the media informed about the progress of New York State Department of Environmental Conservation (NYSDEC) remedial actions and monitoring program taking place at the Love Canal landfill. We will be covering information concerning current activities at the site, new documents available for review, and ongoing citizen participation activities. We will also report on the citizen input we may receive.

This issue includes:

- coming activities
- groundwater model preparation
- opening of NYSDEC Public Information Office
- ongoing activities
- looking through the fence
- summary of the February 17 Public Hearing

We will be publishing this UPDATE periodically and hope that you will find it valuable and informative. If you have any suggestions or questions about the UPDATE, please contact: Anita Gabalski, Citizen Participation Specialist, NYSDEC Public Information Office, 9820 Colvin Boulevard, Niagara Falls, New York 14304, 716-297-9637.

Coming Activities

Within the next two weeks there will be an increase in activities at the Love Canal site. Construction activities, which were delayed due to a contract dispute between the NYSDEC and the Sevenson Construction Company, will resume during the week of June 6, 1983. These activities include mobilization of the construction crew to the site, demolition of the 99th Street School, and inspection and repairs of the existing leachate collection system. Construction of the groundwater cutoff wall is expected to begin by July 15, 1983.

Groundwater Model

The E. C. Jordan Company has been contracted to design a long-term monitoring program of the Love Canal site. As one aspect of this monitoring program a series of groundwater computer models will be made. These models will simulate movement of groundwater from the Love Canal Site. From this information predictions of the long-term movement of contaminants throughout the site will be made. Monitoring wells already in place will be complemented with any necessary additional wells to provide an effective monitoring system at the Love Canal Site.

NYS DEC Information Office

Opens

The New York State Department of Environmental Conservation recently opened a public information office at 9820 Colvin Boulevard in Niagara Falls, New York. It is staffed by NYSDEC personnel who will be available to help those searching for answers to questions, seeking information available in Love Canal documents, and requiring a means of expressing their concerns and becoming a part of the decision-making process. The office houses existing Love Canal documents which are available for public review. Updated reports and the most current information and data will also be sent to this office and will be available upon request.

The impact of the Love Canal Site extends beyond the environmental effects into the social, psychological, emotional, and economic aspects of peoples' lives. This office has been established to provide the information and opportunity necessary for the public to understand and participate in the Love Canal remedial action program. It is the belief of the NYSDEC that an informed and educated citizen can participate more effectively in the decision-making process and is capable of providing logical, informed decisions that result in effective change. Please visit us often. Your involvement and participation will assist the NYSDEC in completing a successful remedial action program.

The office will be open during the following hours:

Monday	8:30 a.m. - 4:30 p.m.
Tuesday	8:30 a.m. - 4:30 p.m.
*Wednesday	1:00 p.m. - 9:00 p.m.
Thursday	8:30 a.m. - 4:30 p.m.
Friday	8:30 a.m. - 4:30 p.m.

To offer suggestions or obtain further information, please call 716/297-9637.

Ongoing Activities

Under the terms of the assistance agreement between the NYS Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA), the NYSDEC is currently carrying out and evaluating measures to improve the control of the movement of chemical wastes from Love Canal. The NYSDEC has entered into an engineering agreement with CH_2M Hill, Pittsford, New York, to design a system to prevent off-site contaminant movement through existing utilities. In order to execute the remedial work designed by CH_2M Hill, the NYSDEC entered into a contract with Sevenson Construction, Niagara Falls, New York.

The following on-site activities have recently taken place:

I. Plugging of on-site water, gas, storm, and storm and sanitary sewer lines no longer in use.

The remedial work includes plugging of water, gas, storm and sanitary sewer lines within Ring 1 and Ring 2. The interior surfaces of the pipes were cleaned and concrete plugs were installed. These plugs were then sealed at the exposed end and were tested for their watertightness and ability to withstand internal and external pressure. The existing pipelines and utilities will also be severed and plugged where they will cross the proposed cutoff wall.

II. Tree Clearing

Trees, shrubs and brush from the area within the proposed concrete cutoff wall were cut and removed from the site.

III. Borehole Investigation

E. C. Jordan, Portland, Maine, a second engineering consultant under contract the NYSDEC, completed its collection of soil samples along the proposed alignment of the concrete groundwater cutoff wall in April, 1983. These samples were taken to

II. Waste Containment Barrels

Over three hundred, 55 gallon barrels are currently stored within the Ring 1 and Ring 2 area. These barrels contain the residue taken from the cleaning of storm and sanitary sewers as well as contaminated clothing used by the Leachate Treatment Plant operators and technicians. The NYSDEC is presently waiting for written disposal instructions from the USEPA before disposing of these drums of residue.

III. Tree Stumps and Brush Piles

The trees cut by Sevenson Construction Corp. this past March, were cut to within three feet of ground level. As another aspect of the superfund remedial actions, the remaining stumps will be cut as close to ground level as possible. The remains of these trees as well as the several brush piles located on site will be disposed of at a sanitary landfill.

IV. Field Offices Established

In anticipation of construction of the concrete wall, the Sevenson Construction Company has mobilized several trailers at the Love Canal site. These trailers will be used as field offices for NYSDEC's contractors, NYSDEC personnel, and construction crews during the construction phase. These units contain offices, "dirty rooms' where crew members dispose of contaminated work clothes, and shower rooms.

determine the extent of soil contamination resulting from groundwater migration from Love Canal. The final alignment of the cutoff wall will be determined based upon the results of this study. This information will also be used to determine any safety measures needed to protect the health of the construction workers and general public during construction of the cutoff wall. The analysis of these soil samples is currently under way and the final results should be available by July 15, 1983.

IV. Storm and Sanitary Sewer and Creek Sampling

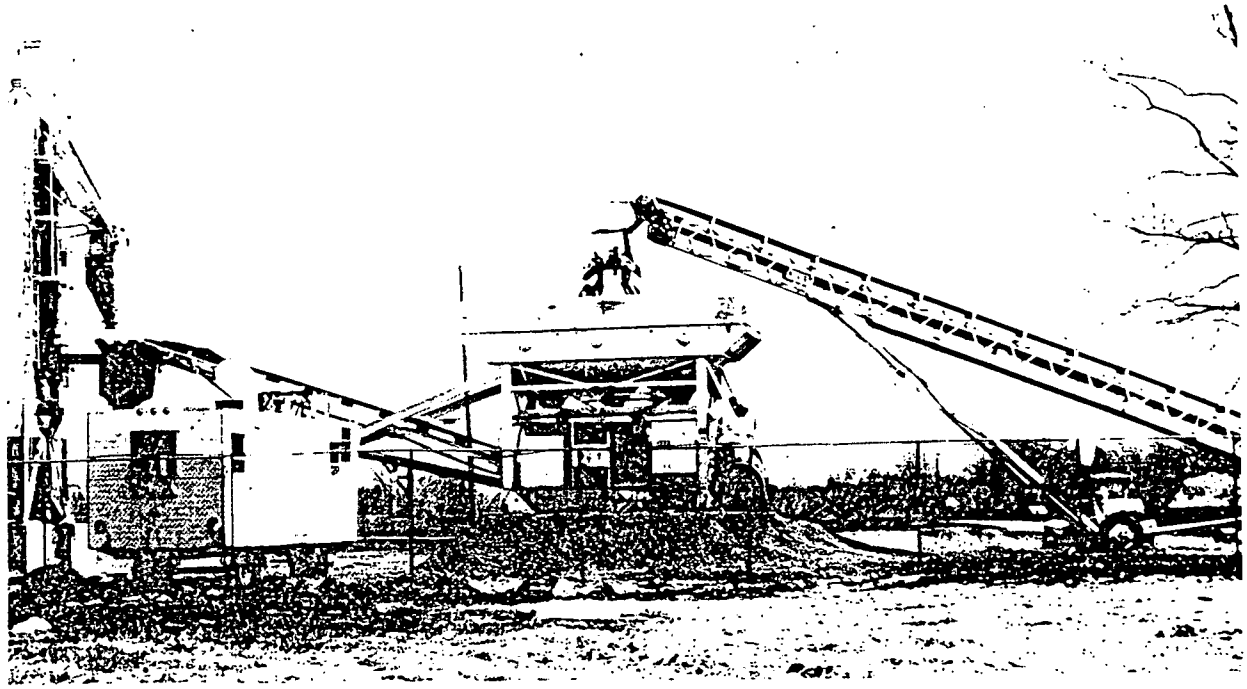
Another aspect of the superfund remedial work involved the collection of over 1,000 environmental samples from the surrounding storm and sanitary sewers and creeks within the declaration area. This work was completed under a contract between the NYSDEC and Malcolm Pirnie, Inc., White Plains, New York, in January, 1983. These water and soil sediment samples are currently being analyzed in order to determine the extent of contamination in the storm and sanitary sewers and the creeks and the Niagara River which received drainage from the Love Canal. The samples were collected from Black, Bergholtz and Cayuga Creeks as well as from Niagara River in the vicinity of the 102nd Street storm sewer outfall. Once the analyses chemical of the samples are complete, Malcolm Pirnie, Inc. will evaluate, develop, and recommend alternatives for any necessary cleanup of the sewer and creeks.

Looking Through The Fence

Over the next several months many activities will take place within the fenced Ring 1 and Ring 2 area. As a regular feature of our newsletter we will publish this column to explain the purpose of these activities and respond to public inquiries and interests. Since our first publication, the following activities have occurred.

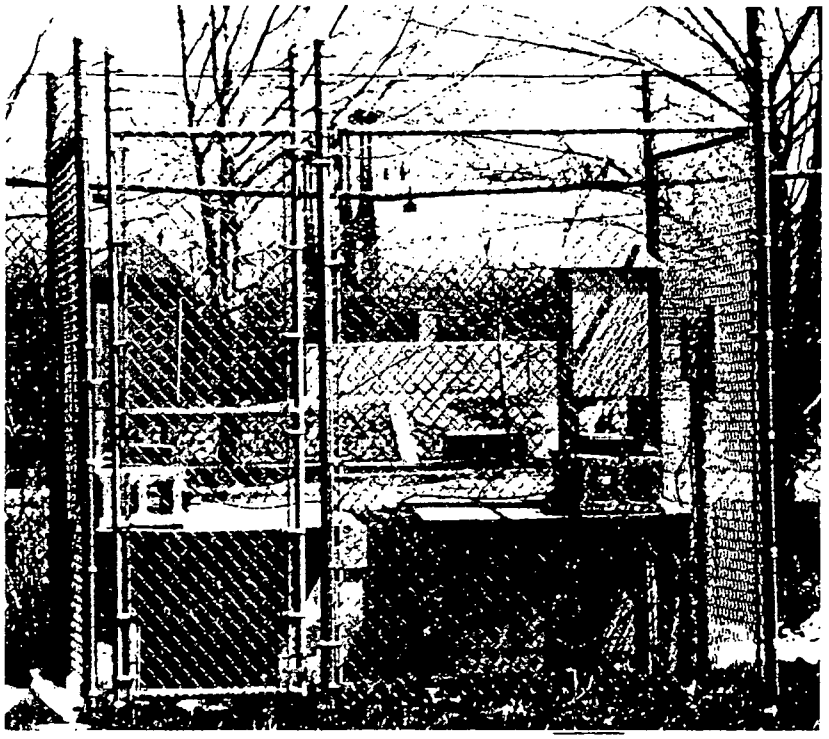
I. Installation of Storage Tanks

Four new storage tanks of 10,000 gallon capacity each have been installed adjacent to the Leachate Treatment Facility. These tanks will be used to store the "chemical sludge' contaminants which arise from the leachate decontamination operations within the treatment plant. The plumbing of these tanks is currently underway and is expected to be completed shortly. The new storage system is expected to provide greater public safety and simultaneously permit easier inspections during operation and maintenance procedures.



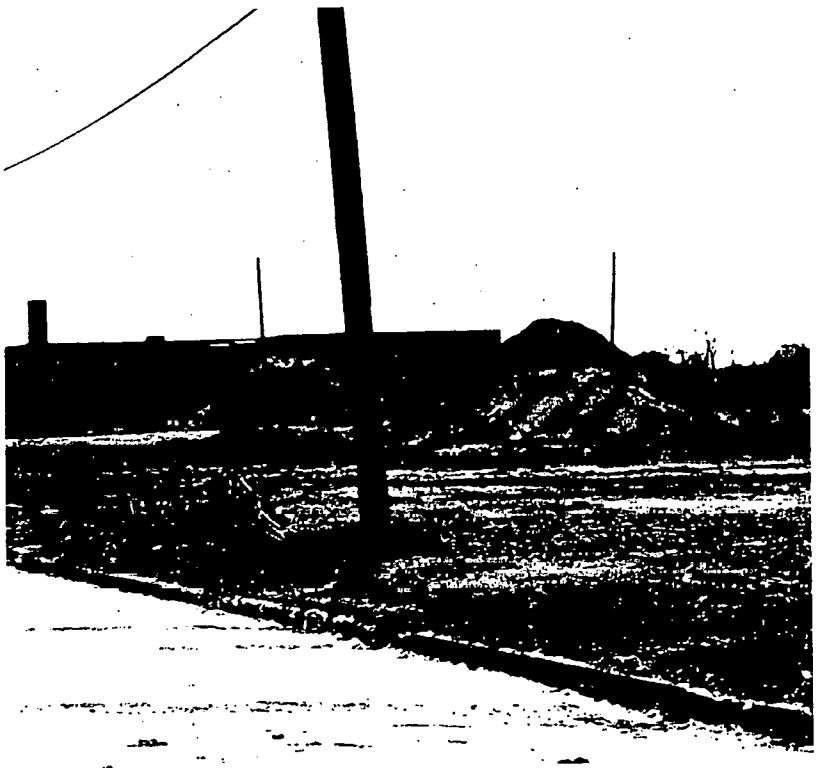
V. Air Monitoring and Vapor Monitoring Units Prepared

During the construction activities, the NYSDEC has operated air monitoring units around the perimeter of the site. These units monitor air-borne contaminants that may be generated as a result of ground disturbance during construction. Modifications in work and safety procedures will be made if necessary, based upon this monitoring information. NYSDEC technicians recently rechecked these units in preparation for the resumption of remedial construction. As an additional precaution during the current phase of the work, organic vapor monitoring units were installed on the already existing air monitoring stations. These units, which are sensitive to air-borne organic vapors, provide additional monitoring information regarding the movement of air-borne contaminants off-site.



VI. Batching Plant

A large white unit has been assembled on the west side of the Love Canal near 95th Street and Read Avenue. This unit is a "batching plant' where the concrete for construction of the groundwater cutoff wall will be prepared. The concrete will then be poured into trucks which will transport it to the location of the cutoff wall. The batching plant should be in operation later this summer once soil sample results have been analyzed and the exact wall location has been determined.



VII. Soil Mounds

Large mounds of soil are visible on site near the 99th Street School. This soil was transported to the site in preparation for construction. It will be used as fill and cover for the debris resulting from the demolition of the 99th Street School, and as fill for general site grading.

Public Hearing Review

The February 17th Public Hearing concerning the habitability of the Love Canal Area sponsored by the Assembly's Standing Committee on Environmental Conservation and Subcommittee on Toxic and Hazardous Substances was chaired by Assemblyman Maurice D. Hinchey.

The hearing was attended by scientists, former residents, state and federal officials, television, radio and newspaper reporters people still living in the area and interested spectators. Testimony was taken from more than 20 people and the hearing lasted nearly 10 hours.

Highlighting the hearing was testimony by Robert Abrams, New York State Attorney General, Dr. Richard Dewling of the EPA, Norman Nosenchuck of the DEC, Dr. Irwin Bross, Mayor O'Laughlin of Niagara Falls, Dr. Richard Cook of Kalamazoo University, and Dr. Robert Huffaker of the New York State Health Department.

Many people that spoke at the hearing felt that more study needed to be done before a decision could be made regarding rehabitation of the Love Canal Declaration Area, others felt the area was presently too contaminated to allow rehabitation and others felt that any decision rested on the completion of the planned remedial action program.

No final conclusions were drawn at the completion of the hearing. A great deal of information was presented and the hearing offered an excellent opportunity for everyone to express their opinions and have some of their questions answered.

We will try to keep you informed of any final conclusions that are drawn from this hearing.

We Want You To Be Involved

You, the citizens, workers, and residents of the Love Canal area are an important factor in our program to study, monitor, clean up and contain the Love Canal landfill. In order to keep you informed and involved, we have established the following methods to help us communicate with each other.

- This newsletter, which will be published periodically, will help keep you up to date on what's happening and what will happen in the future.
- A new NYSDEC Public Information Office has been established at 9820 Colvin Boulevard. We encourage you to visit so that we can answer your questions and hear your concerns. Information regarding NYSDEC activities and public meetings may be obtained by calling Anita Gabalski, a NYSDEC Citizen Participation Specialist, at 716/297-9637.
- In addition a toll-free line (800) 342-9296 puts you in direct communication with our Albany staff so that we can hear your concerns or comments and take them into consideration in our planning and review process. We will try to answer your questions to the best of our ability.
- Documents related to the Love Canal Superfund Remedial clean-up and containment program are available for your review at the NYSDEC public information office in Niagara Falls.
- Periodically, public meetings will be held to exchange information and concerns about various aspects of the clean-up and containment program.

Your concerns and comments are important to us. We want to hear from you.

_____ Please correct my name or address as listed below

_____ Please add the following name to your mailing list

I do not want to be included on your mailing list

NAME _____

ADDRESS _____

_____

_____

Send to: N.Y.S. Dept. of Environmental Conservation
9820 Colvin Boulevard c/o Anita Gabalski
Niagara Falls, New York 14304

New York State Department of Environmental Conservation
9820 Colvin Blvd.
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UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Study and Clean Up Program

LOVE CANAL LANDFILL

UPDATE UPDATE UPDATE UPDATE UPDATE UPDATE

Published By
New York State Department of Environmental Conservation
Division of Solid Waste

HENRY G. WILLIAMS, *Commissioner* NORMAN H. NOSENCHUCK, P.E., *Director*

ISSUE 1 FEBRUARY 1983

First Issue

This is the first issue of the Love Canal UPDATE. The purpose of the UPDATE is to keep concerned citizens, interested groups, government officials and members of the media informed about the progress of remedial actions and the monitoring program taking place at the Love Canal landfill. We will be covering information concerning current activities at the site, what new documents are available for review, advising you on citizen participation activities and reporting on the citizen input we've received.

This first issue includes;

- an announcement of a public hearing concerning Love Canal habitability
- a brief history of the remedial actions that have taken place at Love Canal
- a summary of the public meeting held on January 3rd in Niagara Falls
- a brief description of the opportunities that you have to become involved

We will be publishing this UPDATE periodically and hope that you will find it valuable and informative. If you have any suggestions or questions about the "UPDATE," please write: Bruce Bentley, DEC, Room 505, 50 Wolf Road, Albany, New York 12233.

Public Hearing– February 17, 1983

A public hearing sponsored by the Assembly's Standing Committee on Environmental Conservation and Subcommittee on Toxic and Hazardous Substances will take place on February 17, 1983 at 10:00 a.m. in the General William Donavan Building, Hearing Room 1, First Floor, 125 Main Street, Buffalo. Representatives of federal and state agencies, the Love Canal Revitalization Agency, the Attorney General's Office and other interested parties will testify on proposed future uses of the Love Canal Area.

Witnesses testimony will include: State Environmental Quality Review Act (SEQR) applicability; the validity of EPA'S conclusions concerning the Love Canal Area, U.S. Health and Human Services Agency's (HHS) findings on the habitability of the region, the status of additional cleanup and containment efforts, whether further health studies should be performed, and the question of future liability should people relocate near Love Canal.

We will review and summarize the hearing proceedings for the next Love Canal UPDATE.

Love Canal—Remedial Action

New York State Department of Environmental Conservation (DEC) responsibilities for remedial construction work at the Love Canal landfill began in 1978. The department's responsibilities included reviewing and approving of plans for remedial construction undertaken by the city of Niagara Falls, providing on-site environmental monitors for the construction activity at the Love Canal site, and consulting with federal, state and local agencies on the development of long range engineering needs and concerns.

In 1979 DEC entered into a cooperative agreement with U.S. Environmental Protection Agency (EPA) to carry out and evaluate measures to control the escape of hazardous waste from Love Canal. More than 170 monitoring wells were installed throughout the community to monitor any shallow or bedrock contamination. Air and soil samples were collected for chemical analysis.

Additional remedial construction was undertaken in 1979-80 to complete the work started by the city of Niagara Falls. A tile drain system completely surrounding the Canal was installed 12 to 20 feet below the surface. This drainage and collection system serves as a barrier to prevent further escape of chemical waste and as a means of collecting the leachate from the canal. An on site treatment plant was built to treat the leachate collected by the tile drain system. The entire landfill was covered with a minimum of three feet of compacted clay. The clay cap prevents human contact with the wastes and greatly reduces the amount of water entering the canal site.

Sampling, monitoring, study, and evaluation have continued and additional remedial tasks have been identified.

SITE CONTAINMENT - Close and plug sanitary and storm sewers serving the area immediately surrounding the site, build an underground containment wall completely surrounding Love Canal, enlarge and improve the cap covering the site.

ASSESSMENT PROJECTS These will be followed by design and construction.

- o Storm and sanitary sewers will be sampled and evaluated.
- o Black and Berkholtz Creeks will be sampled and evaluated.
- o The 102 Street outfall will be sampled and evaluated.

MONITORING PROJECT - A three-year groundwater monitoring program will evaluate the effects of the clean-up actions; determine the effectiveness of the clean-up actions; and develop a computer model of the site and vicinity.

These additional remedial actions were the subject of a January public meeting. More detail concerning these actions is contained in the following article.

Public Meeting Held

A public information meeting was held at the County Office Building in Niagara Falls on January 3. Approximately 40 people attended including local residents, representatives from DEC and EPA, state, local and federal elected officials; members of the Love Canal Area Revitalization Agency; the Niagara Falls Board of Education, the Love Canal Area Homeowners Association, and the Concerned Area Residents of the Love Canal Area. The meeting was thoroughly covered by the area's newspapers and television stations.

The meeting began at 7:30 P.M. with Norman Nosenchuck, P.E., director of the Department of Environmental Conservation's Division of Solid Waste, giving a short overview of the Love Canal situation and the remedial actions and monitoring program that will be taking place. He explained that the department will use federal funds provided by the

Comprehensive Environmental Response and Compensation Liability Act of 1980 SUPERFUND-to enhance the existing containment system and to evaluate off-site impacts attributable to Love Canal. He briefly outlined the program involving construction of a concrete containment wall two-feet thick and 14-feet deep that will surround the site, cutoff of all underground utilities, extension and enlargement of the clay cap and the addition of a synthetic membrane covering the site. He also outlined additional sampling and monitoring that will take place at Love Canal, the surrounding creeks and the Niagara River. Each of the consultants that will be involved in the remedial action and monitoring program made a presentation further explaining the actions that Mr. Nosenchuck briefly described.

Following is a summary of each of the presentations:

o CH_2M HILL

Mr. Green explained that CH_2M HILL would be administering a number of construction projects designed to accomplish three major objectives:

1. Prevent off-site contaminant movement through the utilities.

   On-site water, gas and sewer lines no longer in use will be plugged and abandoned. Existing storm and sanitary sewers will be cleaned and plugged. New sewers to the existing leachate treatment plant and new off-site drainage facilities will be constructed.

2. Isolate and increase the transport of surface runoff.

   The site will be cleared of trees. The 99 Street school will be razed. Additional earthfill will be brought in and installed. The existing clay cap will be enlarged. A synthetic membrane will be installed over the entire clay cap. Additional soil will be placed over the membrane to protect it and the entire area will be covered with topsoil and grass will be planted.

3. Reduce flow of groundwater into the site.

   A two-foot thick 14-foot deep concrete cut-off wall will be installed completely surrounding the site. It will extend downward into the underlying clay, only the very top will be at the surface.

Mr. Green explained that the tree clearing and plugging of the sewers would begin in January and that the concrete wall and clay cap would be completed in the fall of 1983.

MALCOLM PIRNIE, INC.

Mr. Mann began by explaining that Malcolm Pirnie, Inc. would be assessing the extent of contamination and evaluating alternative clean up methods.

Samples from test borings, sewers, creeks and the Niagara River will be analyzed. From these the extent of contamination will be determined, migration pathways identified and the contaminant effects assessed. Following a thorough analysis, cleanup alternatives will be developed and evaluated after which a recommended action will be selected.

The sampling program should be completed in January and the laboratory analysis by the end of February. A draft report should be available in May and a final report including the recommended actions should be completed by September.

E. C. JORDAN COMPANY

Mr. Walker described the monitoring program. The objective of the monitoring program is to measure and evaluate the effects and effectiveness of the site containment program (concrete wall, clay cap, etc.) and clean-up work at Love Canal. The program will be conducted in two phases. Phase one will involve a review of existing information, a study of Love Canal area, collection of additional soil samples and the design of both a short and long-term monitoring program. Phase two will be the actual tasks involved in monitoring both the surface and groundwater in the Love Canal area.

The study will develop a clear understanding of the movement of surface and groundwater to and from the site. In addition to a detailed review of existing site information and discussions with previous investigators new test borings will be made along the alignment of the new concrete cut off wall. Analysis of samples from these wells coupled with other site information will be used to develop a series of computer models that will represent actual site conditions. These models will be used to predict long-term movement of groundwater and contaminants to and from the site. The model will then be used to design the monitoring program. Groundwater movement patterns and movement rates will be identified and used to select appropriate locations and depths for monitoring wells and sampling schedules. Presently there are approximately 200 existing monitoring wells which will also be checked for their adequacy and appropriateness for use in the long term monitoring program. Results of the stream and sewer studies being conducted by Malcolm Pirnie, Inc. will be used to determine the need for additional monitoring in those areas.

Past studies carried out by numerous investigators indicated that groundwater movement in the Love Canal area is controlled by a complex combination of man made and natural geologic conditions. In view of these conditions the groundwater models that are developed will have to take into account a large number of factors. Over the next few months, the E.C. Jordan Company will be developing an effective means of predicting and measuring the effects and effectiveness of the remedial work at Love Canal.

DEC Information Office

DEC is setting up a Love Canal information office at 9820 Colvin Boulevard, Niagara Falls, New York, 14304. The office will be staffed by a citizen participation specialist who will be able to answer your questions, record your concerns, and help you find information your interested in.

Until this information office is established, Love Canal information and documents are available at DEC, Region 9, 600 Delaware Avenue, Buffalo, New York 14212, contact: Peter Buechi, (716) 847-4590; and at Environmental Protection Agency, 706 9th Street, Niagara Falls, New York 14301, contact: Sharon Thompson, (716) 285-8842.

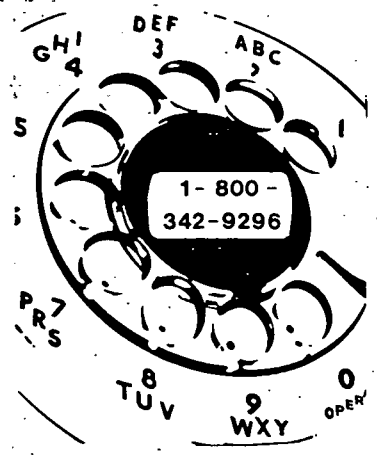
Toll Free Line Available

In order to make it easier for people concerned about the Love Canal landfill to ask questions or have their comments recorded, DEC has opened a toll-free "800" telephone line. This telephone will be answered by members of DEC's citizen participation unit who will listen to your questions and either provide an answer immediately or get back to you with accurate information.

The telephone line is open from 9 a.m. to 5 p.m. Monday thru Friday. If our staff is busy and cannot immediately answer the phone, you may hear a recorded message inviting you to leave your name and telephone number. We will get back to you as soon as possible.

If you want to talk to us, please call 1-(800)-342-9296.

We look forward to hearing from you!



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ROOM 505
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Albany, New York 12233-0001

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Sincerely,

Michael R Podd

Michael R. Podd
Citizen Participation Specialist

Attachments

New York State Department of Environmental Conservation
9820 Colvin Boulevard, Niagara Falls, N.Y. 14304

March 6, 1992

Thomas C. Jorling
Commissioner

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In making this decision the DPC cited the inconsistency between the Love Canal Area Revitalization Agency (LCARA) Master Plan's recommendation for industrial or commercial development of these areas and the Land Use Advisory Committee's (LUAC) recommendation that these areas remain residential. The Commission believed there was not sufficient rationale for this recommendation for the reasons set forth below:

1. LUAC's recommendations for residential use of EDA Areas 2 and 3 were unconditional, although they recognized economic limitations as a concern in assessing whether total remediation of these areas was feasible.

2. Certain statements regarding the condition of homes, their value and marketability were not sufficiently documented. In addition, LCARA's assessment of properties in EDA Areas 2 and 3 was incomplete because it did not include privately owned nor vacant LCARA owned properties.

3. Because the cost of remediation of EDA Areas 2 and 3 was not known, it was impossible to evaluate any economic limitations which included the relationship between the cost of remediation and the value of properties in these areas.

4. LCARA's assessment of the demand for commercial or light industrial land did not adequately consider the overall availability of such land in the region, nor demonstrate that the demand for such land would remain strong several years from now.

In December 1989, the NYSDEC and NYSDOH initiated a sampling program in EDA Areas 2 and 3 to better define the degree of remediation necessary to comply with the criteria of the Habitability Decision. The results of this study were released in November 1990 in a report entitled "Love Canal Emergency Declaration Area Remediation of EDA 2 and 3 - Final Study Report". This report concluded that in order to meet the criteria for a habitable area, six inches of soil would have to be removed from the entire

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Citizen Participation Specialist

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NEWS BULLETIN

New York State Disaster Preparedness Commission

Thomas C. Jorling
Acting Chairman
State Coordinating Officer
New York State Commissioner
of Environmental Conservation

Contact: Benjamin A. Marvin
(518) 457-5400

FOR RELEASE: IMMEDIATE, WEDNESDAY, MAY 15, 1991

New York State Disaster Preparedness Commission Acting Chairman Thomas C. Jorling announced today a new initiative to determine the future use of Love Canal Areas 2 and 3, two of the areas which failed to meet the criteria for habitability in the 1988 Love Canal Habitability Study.

The Commission has directed the Love Canal Area Revitalization Agency (LCARA) to review new reports which analyze the cost of remediating Areas 2 and 3 to levels that would be acceptable for residential development under the habitability criteria. LCARA will revise its Master Plan and Generic Environmental Impact Statement and resubmit them to the Commission. A public hearing on LCARA's revised plan and impact statement will then be held by the Commission, with a final decision on LCARA's proposed land use to be made by the Commission shortly thereafter.

Mr. Jorling said: "Nearly 13 years ago, New York State and the federal government responded to the emergency at Love Canal by containing the source of contamination in the canal itself and relocating area residents. Since then, we have spent many millions of dollars to design and implement remedial activities to address the canal and the off-site impacts. As the restoration of a viable Love Canal community progresses, these are the steps we need to take to conclude the debate on the course that the revitalization should follow."

The 1988 habitability study concluded that the Love Canal Emergency Declaration Areas 2 and 3, while failing to meet the established criteria, could be habitable if contaminated soils were remediated to levels consistent with other areas. In July 1989, the Love Canal Land Use Advisory Committee recommended that the best use of Areas 2 and 3, if economically feasible, was residential. One year later, LCARA prepared a Land Use Master Plan which identified commercial development as its selected land use. Citing the apparent inconsistency, the Commission was unable to approve the portions of LCARA's master plan relating to Areas 2 and 3.

(Over)

To help resolve the economic feasibility question, the state Departments of Environmental Conservation and Health undertook two studies of the remediation requirements and their costs. The first study, by the Health Department, determined that the removal and replacement of six inches of soil would be sufficient to allow residential use. The second study, by DEC, evaluated the construction costs of remedial alternatives and found they would range from $7 million to $17 million. These reports have been provided to LCARA to assist the agency in its response to the Commission's previous findings.

LCARA has been requested to resubmit its Master Plan and Generic Environmental Impact Statement by July 1, 1991. The documents will be available for public review, and a public hearing will be held at a later date to receive comment on the revitalization proposal. After consideration of public comments and review of the chosen land use, the Disaster Preparedness Commission will issue its decision on the alternative selected by LCARA.

-30-

LOVE CANAL AREA REVITALIZATION AGENCY
9501 COLVIN BOULEVARD
NIAGARA FALLS, NEW YORK 14304-2809
TELEPHONE (716) 283-9501
FAX (716) 283-9505
SALES OFFICE (716) 297-6780

November 18, 1991

Thomas C. Jorling, Acting Chairman
N.Y.S. Disaster Preparedness Commission
C/O
N.Y.S. Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-4011

Dear Commissioner Jorling,

This letter is in response to the request that the Love Canal Area Revitalization Agency (LCARA), review the *Love Canal Area Master Plan* and the *Final Generic Environmental Impact Statement* and revise them as necessary in order to respond to the issues and concerns identified by the Disaster Preparedness Commission's Findings Statement. Specifically, the Disaster Preparedness Commission was concerned with the rationale underlying LCARA's decision to develop areas 2 & 3 as a commercial/ industrial zone rather than continue the area's current residential use.

LCARA's master plan, which detailed this decision, was based on a year long planning effort. This effort included full public participation, public meetings, coordination with numerous public and private agencies and the completion of an environmental impact statement following the New York State Environmental Quality Review Act procedures.

A major component of the planning process was the incorporation of the recommendations of the Love Canal Land Use Advisory Committee. These recommendations were given consideration by LCARA and were incorporated in the final plan.

The Disaster Preparedness Commission, however, is concerned that LCARA did not adequately reflect the Land Use Advisory Committee's desire to remediate areas 2 & 3 for residential uses, unless remediation costs and economic limitations precluded this. At the time the plans were being developed, the agency did not have the benefit of the

two state funded studies, the *Remediation of EDA 2 and 3 - Final Study Report* and the *Love Canal EDA 2 and 3 - Cost Analysis Report*, that examined the alternatives and costs of remediation to allow residential uses in these two areas. The agency has now carefully considered the findings of these two studies.

The agency staff has also conducted a reexamination of the elements which were considered in the development of the master plan, as well as the information now available from the two state studies. We have met individually with most of the residents of areas 2 & 3 and gained a greater insight into their plans and concerns. In addition, the agency has had the benefit of a full year of home sales and has gained considerable insight and experience in dealing with the problem of securing mortgages, rehabilitating homes, dealing with home purchasers and public perceptions.

After full consideration of all the relevant information now available, the agency feels that revisions to the master plan and environmental impact statement are not necessary. The relevant information indicates that the original decision was, and is, appropriate and that changes in the proposed land use for areas 2 & 3 should not be made.

An important element here is the fact that, since the completion of the master plan, nearly one third of the families previously living in areas 2 & 3 have either moved or are in the process of moving, which will leave only 22 families there. A number of factors have influenced those who remain.

Five of the remaining families are renters of LCARA owned homes purchased under the EPA buyout program. LCARA has never raised rents so that, due to the passage of time, rentals are significantly below market. These persons are captive to the lure of cheap rentals.

Among the homeowners, a significant portion remain because they feel, with some justification, that the 1980 appraisal prices LCARA offers will not permit them to find comparable housing at today's prices. Another group feels that any move would entail higher living costs, particularly taxes. Still, another group simply likes the area and sees no reason to move.

LCARA believes that more than half of the remaining homeowners may relocate in the foreseeable future. Two families have already expressed their intent to relocate, while an additional seven families have indicated a willingness to do so if certain concerns were addressed. Only eight of the seventeen remaining homeowners seem committed to remaining in areas 2 & 3.

We recognize that the past eleven years have been difficult ones for these few remaining families. The agency remains committed to finding an equitable solution to the many hardships that they face. We are exploring additional incentives for those who are willing to consider relocating to other areas, particularly Black Creek Village. We are equally committed to protecting the interests of those who chose to remain and

are exploring programs to assist them to improve their homes and otherwise resolve individual problems. We have, in the last six months, spent a substantial amount of money to improve the area. This has included a general cleanup of the area, cutting and trimming of brush and trees, and the demolition of several houses and garages.

The Land Use Advisory Committee's recommendations for areas 2 & 3 focused, as was pointed out in the Disaster Preparedness Commission's findings of August 9, 1990, on the costs and economic feasibility of remediating those areas for residential use. The Land Use Advisory Committee recognized that there are limitations on what could be spent for this purpose. LCARA is not in a position to know or evaluate the financial constraints the State of New York faces in making a decision to remediate. However, realizing the fiscal stress the state is presently undergoing and considering the limited social and economic benefits that would be realized by remediation and residential resettlement, we believe the costs of remediation are prohibitive. There are a number of factors that lead us in this direction, each of which are discussed below.

In addition to reviewing the original plan documentation, the agency undertook several additional studies. Two different land use schemes were examined for this area; (1) residential infill among existing homes in good condition, and (2) light industrial among remaining residents. Both included a review of existing building conditions and an assessment of the cost to rehabilitate existing structures.

Areas 2 & 3 comprise about 64 acres of useable land; 48 acres in Niagara Falls and 16 acres in the Town of Wheatfield. An additional 39 acres in the Town of Wheatfield have development problems in that a significant portion is part of a New York State designated wetland and cannot, under current regulations, be developed.

For the residential option, only homes in condition 7 through 10 were considered salvageable. This premise was based on the fact that additional residential uses could only occur after the area was remediated. Since a decision to remediate has not yet been made it seems reasonable, if not unduly optimistic, to assume that homes would not be marketed for an additional three to five years. The majority of the homes are already beyond economically feasible reuse and others will deteriorate beyond this point in the interim. Due to funding constraints, LCARA provides limited maintenance of homes in areas 2 & 3. LCARA currently has an inventory of 200 homes in the habitable area which will require three to five years to market. In view of the obvious contrasts between the two neighborhoods, it is doubtful that we could effectively market area 2 & 3 homes while habitable area homes are still being offered.

In addition, many of the older homes are functionally inadequate with little appeal to today's home buyer. Further, 24 of the remaining homes located along 99th and 100th Streets would be removed under all three of the scenarios considered by NYS DEC.

Under the residential use proposal, the area would be re-subdivided to accommodate 200 homes, including the 22 remaining residents and the ten vacant houses owned by LCARA that are able to be rehabilitated. This figure excludes 54 potential

homesites along 100th street that would be in the buffer zone as proposed in the master plan. It also excludes the wetland area in Wheatfield that lacks developed roads and utilities.

Of these 200 homes, 126 would be in the city and 74 would be in the town. Under this proposal 137 of the 169 remaining residential buildings would be demolished at a cost of $7,000 each for a total demolition cost of $952,000.

The decision to demolish is based on the rehabilitation cost for the remaining structures. Based on our experience, to date, with rehabilitation costs in Black Creek Village and our condition surveys in areas 2 & 3, the rehabilitation cost for the remaining 147 structures would total $6,260,000. The probable sales price for these homes would be $4,743,130. This would represent a net loss of $1,516,870 that would have to be funded.

Out of the 147 residences that the agency owns in areas 2 & 3, ten could, at this point in time, be rehabilitated at an (average) cost of $24,000. The average estimated selling price would be $35,550. Using these figures as a basis, the present worth of these remaining ten structures is $11,550 each.

New homes, if constructed, would be at the lower end of the market in price and similar to what LCARA is now selling in the habitable area. Although a detailed market study would be required, preliminary indications from reliable sources point out that the Niagara Falls area has a limited market for more upscale homes, particularly in a neighborhood with existing older homes and without amenities.

There are also less tangible factors to consider such as the stigma of the areas' present "nonhabitable" designation. The remediation of areas 2 & 3 will not, in the short term, remove this stigma. The extreme difficulty we have had in obtaining mortgages in the habitable area, where no remediation was required, clearly demonstrates this.

The use of the easterly portions of areas 2 & 3, east of 102nd St. and north of 103rd St., for commercial/industrial use is still subject to a degree of uncertainty in that a significant part of the site is designated as a wetland. Although LCARA had the NYS DEC delineate the wetland in 1989, new federal wetland regulations published in 1990 would greatly enlarge the area subject to wetland controls and development restrictions.

At this point in time, it appears that the federal regulations will be amended, but not to a degree that would significantly alter our plan proposals. Therefore, for the purpose of this assessment we have assumed that the area east of 102nd Street, between Colvin Boulevard and the north end of 103rd Street, will not be available for development. The area to the south, along 103rd Street, is expected to remain largely residential in deference to the remaining residents. This means that industrial development will, for the most part, be limited to about 48 acres in the City of Niagara Falls.

To further establish the feasibility of the commercial/industrial use of this 48 acre area, LCARA examined, with the assistance of GAR Associates, the cost and availability of industrial park land in Niagara County. As a result of this analysis we believe that $35,000 an acre is a reasonable cost for serviced industrial land in a good location. The 48 acres would thus yield $1,680,000 at full development. This is a land value only and does not include the benefits of job creation, taxes or other economic benefits. Although the last year has seen some local decline in demand for industrial land, this is thought to be a temporary condition that will be followed by a sharp rise as the U.S. economy picks up and the implementation of the Canadian Free Trade Agreement continues.

The presence of the existing homes complicates industrial development with its need for larger lot sizes and presumed need for street closures. Parts of both 100th and 101st Streets would most likely be abandoned and closed. Tempering this is the fact that more families are willing to relocate.

Any discussion of land use in areas 2 & 3 would be incomplete without some attempt to put such action in its proper local context. Things at Love Canal never take place as quickly as planned. One cannot help but reflect on the ten years it took to arrive at a habitability decision or the additional two years that preceded the first marketing of homes. As of this writing, LCARA has still not obtained conventional mortgages. It has not been able to receive state assistance to rehabilitate its own or remaining resident's homes, to obtain low cost mortgages, or receive similar benefits accorded other areas of New York State. It seems unduly optimistic to assume that remediation of areas 2 & 3 will be decided upon and will take place in any reasonable time frame. Nor is there any likelihood that the LCARA will be able to obtain funding or mortgages to rehabilitate existing structures or build new in an area now labeled "non-habitable".

On the other hand, the New York State Commissioner of Health has declared this area suitable for non-residential use without additional remediation. The agency has received inquiries concerning commercial and industrial sites even though it has not, to date, advertised or otherwise solicited such interest.

Lastly, as discussed above, the agency has considered the two studies recently completed by NYS DEC concerning remediation. The costs detailed in these studies to make areas 2 & 3 suitable for residential use far exceed any potential benefit for such use. At a minimum, $9,000,000 will be required for design, engineering and construction under the lowest cost option. The State of New York would be spending at least $9,000,000 to (1) preserve the neighborhood for 22 residents (17 homeowners and 5 tenants) many of whom may not be there by the time the project is finished several years down the road and (2) create a <u>new</u> subdivision on the fringes of the Love Canal containment area. So far as the interests of the remaining residents are concerned, with careful application of planning techniques, a residential enclave could be maintained in the southerly part of this neighborhood so long as the residents wished to remain, allowing development of an attractive industrial/commercial park to proceed in the more northerly areas, all without any additional costs to the State.

The new residential development will be, we believe, extremely difficult to market, regardless of how thorough and complete the clean-up. We agree with the minority opinion of the Land Use Advisory Committee that new residential development should not proceed in areas 2 and 3.

In conclusion, we are of the opinion that the decision by LCARA to designate areas 2 & 3 for industrial use was the appropriate decision at the time and that no information has been found that would cause us to change that decision.

I trust this letter and the accompanying materials can provide the basis for the State of New York to approve the balance of LCARA's master plan. Over a year has now passed since LCARA began selling homes. We have established a momentum in the residential area and now are prepared to move forward with industrial development as part of our legislative mandate to revitalize the Emergency Declaration Area. We look forward to your continued cooperation and assistance in support of this common goal.

Yours truly,

LOVE CANAL AREA REVITALIZATION AGENCY

Michael C. O'Laughlin
Chairman

Enclosure: Property reports

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JEC/sjl 11/18/91