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:

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1989 Love Canal Annual Report

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

DIVISION OF HAZARDOUS WASTE REMEDIATION
MICHAEL J. O'TOOLE, JR., DIRECTOR

FEBRUARY 1990

1989 LOVE CANAL ANNUAL REPORT

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1989 LOVE CANAL ANNUAL REPORT

SUMMARY

1989 was a year of progress for the Department of Environmental Conservation (DEC) in its effort and commitment to operate and maintain the Love Canal Inactive Hazardous Waste Site. It was also a dynamic year in the remediation of the Love Canal area. Numerous activities took place both within the Love Canal fence and in the neighboring Emergency Declaration Area. The following accomplishments took place in 1989:

Emergency Declaration Area

* Contaminated sediments in Black and Bergholtz Creeks were removed. The creek bed was replaced with clean material.

* Responsibility for maintenance of unoccupied houses in the Emergency Declaration Area was transferred from the DEC to the Love Canal Area Revitalization Agency (LCARA).

* Physical investigations began at the Methodist (97th Street) Church. An analysis of the samples, geophysical survey and test pits will determine the extent of any contaminants.

* The five most competent vendors were selected to perform a treatability study for contaminated soil at the 93rd Street School. From the results of the study a vendor will be selected to conduct the cleanup at the school site.

Love Canal Site

* Contaminated sediment from the Black and Bergholtz Creek originally destined for the Love Canal Site's Dewatering Containment Facility (DCF) was instead transported to Occidental Chemical Corporation in Niagara Falls. This reduced the size of the containment facility and thus reduced the amount of contaminated leachate generated from the facility.

* The Decontamination and Drum Storage Building, a building to be used to store containers of hazardous waste generated in the future and to wash off equipment, was substantially completed.

* All drums containing hazardous waste at Love Canal were removed from the site, processed at the Occidental Chemical Corporation's bagging facility at 93rd Street School and then transported to Occidental's plant in Niagara Falls.

* The leachate collection system functioned well and continued to draw groundwater from the landfill and surrounding area into the underground drain system. Field pumps were operated almost daily during the year, and well reservoirs (wet wells) were emptied prior to weekends and holidays.

* The Love Canal Leachate Treatment Facility had no violations of the sewer use ordinance during the year. High values for one chemical were found on one day during the year, but a follow-up analysis revealed the treatment facility was continuing to meet its discharge standards.

* The department continued its conservative operating practices in 1989 by using moderate flow rates and replacing the activated carbon in one carbon bed. Moderate flow rates increase retention time, allowing for more complete treatment, while new carbon permits safe discharge even if unanticipated high levels of contaminants enter the treatment plant.

REMEDIATION OF BLACK AND BERGHOLTZ CREEKS

The 1989 construction season has seen a significant turn around in the contractor's efforts to complete the Black and Bergholtz Creek Remediation Project on schedule.

During the first quarter of 1989 the contractor, Sevenson Environmental Services, Inc., remobilized and commenced placement of containers on the Permanent Staging Area and excavating the basements under the Dewatering Containment Facility (DCF) and the Decontamination/Drum Storage Facility. It was during this time that a realistic construction schedule was implemented, showing the DCF construction and creek excavation being completed by December 1989 and final restoration to be completed by June 1990.

Preliminary work for the creek excavation effort started in April 1989. This included surveying and preparing existing cross sections of the creeks and installation of fencing and creek water bypass facilities. Construction of the north cell of the DCF started in May 1989 after the completion of excavation and backfilling of the basements.

A significant change in the scope of work for this project was realized on June 1, 1989 when the partial consent decree was lodged in federal court requiring Occidental Chemical Corporation (Occidental) to transport remedial wastes from the Love Canal site to their Niagara Plant. On the same day Occidental mobilized to begin initial site work at the 93rd Street School site for construction of their staging facility/pug mill which eventually would process creek sediments prior to transport to their Niagara Plant. Once it was determined that OCC would be on schedule with their staging facility, authorization was granted to eliminate the south cell of the DCF due to the reduced volume of material anticipated to be placed in the DCF. With Occidental's commitment to take the creek sediments prior to placement in the DCF, Sevenson Environmental Services was able to concentrate their efforts on starting up creek excavation work. On August 3, 1989, with OCC's staging facility complete, excavation of creek sediments in Black Creek began.

The DCF was substantially completed on September 1, 1989, later filled with construction and demolition debris from excavated basements and then capped by October 6, 1989.

Creek excavation was substantially complete by mid-September, with only one significant creek remediation task remaining: the installation of the crib wall upstream of 91st Street. The crib wall was installed by the end of October 1989. On October 26, 1989 water was allowed to flow back through the creek channels.

As part of their obligation under the Partial Consent Decree, Occidental removed 3,164 drums of material from the Love Canal Site between October 18, and November 4, 1989 for processing at the 93rd Street School facility and then transported the material to the OCC storage facility.

Throughout November, Sevenson Environmental Services, Inc. concentrated on restoration of the creeks area and completing force main installation work for the Drum Storage Building. Both the General and Mechanical contracts with Sevenson for the Drum building were substantially completed. Also in November, Occidental accepted delivery of the latest change-out of Love Canal Leachate Facility spent carbon and processed the material at the 93rd street facility for final storage at their Niagara Falls plant.

Final restoration and demobilization for both Sevenson Environmental Services and Occidental is anticipated in the Spring of 1990.

METHODIST CHURCH

This site was included in the Department's fourth round of the Phase II Investigation Program to be performed by Ecology & Environment, Inc. In October 1989 the Phase II Investigation field work was started. A geophysical survey was conducted on October 24 & 25, 1989. The drilling and sampling activities were performed from November 28 to December 8, 1989. Three overburden and one bedrock wells were installed. Split spoon soil samples were collected. In addition, three test pits were excavated on December 19, 1989 at the church parking lot, in locations based upon the results of the geophysical survey. The physical inspection of the test pits and excavated material showed no visible signs of concrete reactor cells.

A draft investigation report is expected in February 1990. The finding of the Phase II Investigation will determine if any remedial action at this site is warranted.

HOME MAINTENANCE PROGRAM

Work on the General Construction contract awarded to Buffalo Asbestos Removal was completed in April 1989. This work was delayed by the slow progress of the contractor due to inclement weather conditions. The Love Canal Area Revitalization Agency (LCARA) entered into a cooperative agreement with the United States Environmental Protection Agency and as of May 22, 1989 the Home Maintenance activities were transferred to LCARA.

93rd STREET SCHOOL

At the end of 1988 the Department had begun negotiations with Loureiro Engineering Associates (Loureiro) to amend the remedial investigation and feasibility study contract to include design and construction oversight of the remedial construction work. These discussions continued into 1989, focusing on cost proposals and criteria for evaluating the treatability study. By July 1989, an agreement was reached between Loureiro and the DEC on the amendment.

In July, 30 firms responded to a pre-qualification submittal advertisement by the Department. The purpose of the pre-qualification submittal was to review and rank the experience of companies that are capable of performing soil stabilization for the 93rd Street School. By October 1989, the Department and Loureiro had recommended five vendors for this particular work.

The five vendors will be given samples of soil, which were removed from the site in August, in order to conduct the treatability study. The samples will be put through each of the vendor's treatment systems. After evaluation of the process and results of the treatment, a vendor will be selected to operate their process at the 93rd Street School. The Treatability Study is scheduled for March 1990; remedial design is anticipated to be complete by April 1990 with construction starting in 1990 or 1991.

OPERATIONS AND MAINTENANCE

The Black and Bergholtz Creek Remediation Project, combined with a rainy spring, resulted in more frequent treatment batches at the Love Canal Leachate Treatment Facility in early 1989. Contaminated runoff generated in the project was collected and treated. In addition, a large percentage of maintenance time was spent removing water from pump pits, the valve chamber and the sludge secondary containment berm.

Numerous inspections were conducted at the site during 1989. An independent audit was performed on the sludge handling process by an environmental consultant CH_2M Hill. Also, the treatment facility was inspected by the Niagara Falls Fire Department for potential fire danger areas. Furthermore, the site was examined by the USEPA and the DEC for hazardous waste compliance.

Treatment facility operators have been developing and updating written procedures for operations and maintenance activities. The written procedures will assist future operators performing a task for the first time. Also in 1989 the Department contracted with Environmental Oil, Inc. to furnish overpacking of selected drums to provide additional containment of drummed hazardous waste.

THERMAL DESTRUCTION OF LOVE CANAL WASTES

In January 1989 a Technical Assistance Committee was established to review and evaluate the technical specifications developed by TAMS, the design contractor. The committee is comprised of representatives from the USEPA,

Department of Health, DEC Divisions of Air and Water as well as the Division of Hazardous Waste Remediation.

Throughout 1989, the majority of effort was expended in developing design specifications including preliminary air quality modeling and execution of the waste characterization plan.

A preliminary Air Quality Report was developed in April, then reviewed by the committee through June. TAMS subsequently provided a revised copy of the report in September.

A waste characterization plan, which was developed by TAMS in 1988, was implemented in March 1989. In all, approximately 100 samples of waste materials at Love Canal were taken between March and May.

Under the terms of the Partial Consent Decree between the DEC and Occidental, (see REMEDIATION OF BLACK AND BERGHOLTZ CREEKS), the Department will no longer pursue the Thermal Destruction of Love Canal Wastes past the design phase. To complete the design, TAMS will complete to a 90% level the specifications, the Design Criteria Report, the Preliminary Air Monitoring Report, the Vendor Qualifications data base, and the waste characterization report. In addition, the entire package will be modified to address a generic incineration scenario rather than a site specific (Love Canal) application. TAMS will also prepare a brief "guidance document" to aid DEC in the procurement of future incineration projects.

By the end of 1989, TAMS Consultants had completed generic plans and specifications, as well as a Waste Characterization Report, Conceptual Air Quality Report, and a Design Criteria Report. The final components of the revised project yet to be completed by TAMS include the "guidance document" and a database of vendor capabilities. These components are expected to be submitted by TAMS in January, 1990.

LONG TERM MONITORING PROGRAM

The current monitoring program consists of reading groundwater elevations at a set of piezometers to obtain groundwater flow directions, and sampling a set of groundwater wells for chemical analysis. The demonstration by the piezometers that the hydraulic gradient in the overburden is directed inward toward the barrier drain is considered to be one of the most positive indications of containment. In order to continuously evaluate this condition, piezometers are scheduled to be read monthly.

Samples are collected for chemical analysis from perimeter wells and selected sewer manholes on an annual basis. Analyses are performed for constituents identified on the Superfund Target Compound List or specifically known to be present among the buried wastes at the Canal.

LONG TERM MONITORING RESULTS

Interpretation of groundwater elevation data demonstrates that the direction of the hydraulic gradient at the Love Canal site continues to be directed toward the barrier drain. Groundwater flow into the barrier drain has been confirmed on all sides of the site. (See Figures 1, 2, & 3). The majority of flow takes place horizontally in the upper layers of the overburden, which are more permeable. At most locations the collection system continues to exert an influence over groundwater flow at distances at 200 feet and possibly more beyond the drain.

In May 1988, 50 monitoring wells (36 overburden and 14 bedrock) and 5 sewer manholes were sampled, with analyses performed by RECRA Environmental Inc. (See Figure 1 for locations). In August and September 1989, 43 wells and 8 sewer manholes were sampled, with analyses performed by the DEC Mobile Laboratory. The reduction in number of wells was due to the elimination of some monitoring wells by the Black and Bergholtz Creeks project.

One conclusion from the sampling is that, of the constituents analyzed for, over 96% were not detectable in the samples. All results for the 1989 sampling of Long Term Monitoring wells, along with all other wells sampled, are reported in the appendix of this report.

The consistent non-detection of elevated concentrations of Love Canal related compounds in the perimeter monitoring wells is in agreement with the hydraulic data that indicates the containment system is functioning as designed and, as a result, chemical waste in the Canal is being prevented from migrating laterally. The geology and current hydrology of the site suggest that vertical migration is also severely hindered.

During installation of the monitoring wells, well MW 10135 was located in an area where contamination was visibly observed during demolition of some Ring I homes. In addition, contamination was encountered during installation. Historically, well MW10135 has exhibited an elevated level of Love Canal related compounds, as expected. Independent hydraulic evidence indicates that this well is within the hydraulic influence of the barrier drain system. This well was temporarily abandoned under the Black & Bergholtz Creeks project; therefore, it was not possible to sample this well in 1989.

In 1988 well MW7205 revealed the presence of alpha chlordane for the first time. In 1989 no compound, pesticide or otherwise, was detected in this well. At this time it is not known where the chlordane in the 1988 sample originated.

In the summer and fall of 1988, certain monitoring wells were abandoned to enable construction of the Dewatering Contaminant Facility (DCF). To monitor the DCF as it became active, new monitoring wells were installed around it. (See Figure 1 for location of well clusters A through O.) Some of these wells are closer to the barrier drain than well 10135 was, and therefore, are expected to show elevated levels of contamination. Others are located near the perimeter of the Love Canal site and are not expected to contain detectable levels of contaminants.

Of the 43 wells sampled under the Long Term Monitoring Program in 1989, only one contained a detectable level of any contaminant. It is one of the two new wells installed to replace wells eliminated by construction activities. This finding suggests further investigation to isolate the source of the contaminant. This well, 10225C, contained 12 parts per billion of one compound, TCE.

All 39 of the DCF wells were sampled for the first time in 1989. Ten of the 23 individual wells near the site perimeter contained trace levels of a few contaminants. (Results were in the low parts per billion, near or below detection limits. See appendix to this report for data.)

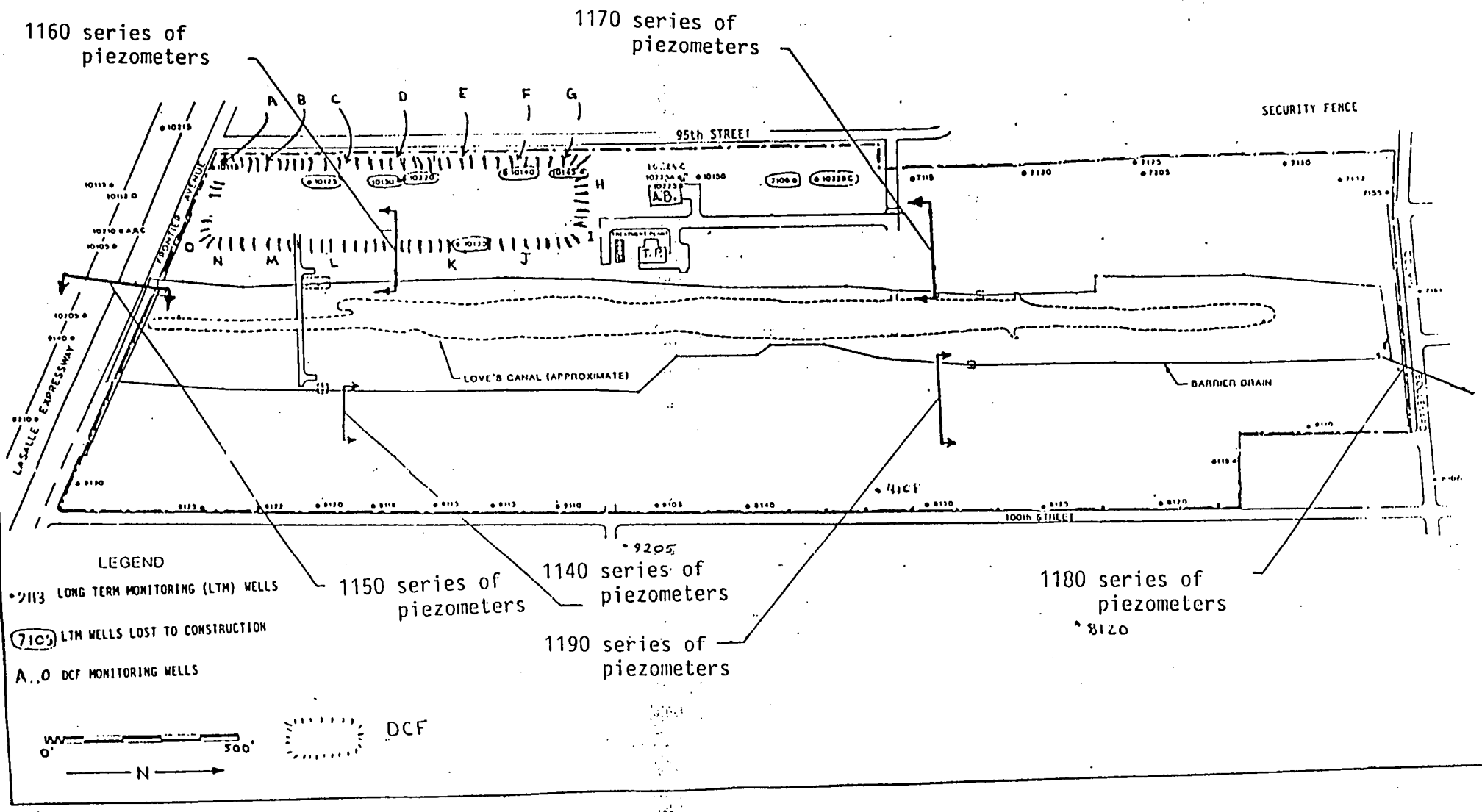
During installation and development of these wells certain practical challenges were encountered. For example, in some cases wells had to be drilled through zones of known contamination into zones believed to be clean. Modifications were made to the well construction process in an effort to prevent downward migration of contaminants during these activities. In light of the problems encountered, the NYSDEC is working to ascertain the meaning of the analytical findings. Following studies to establish the source of the contaminants, a certain number of these wells will be selected for incorporation into the Long Term Monitoring network.

From the information available at this time it is not possible to identify the source(s) of contamination. Possibilities range from the construction process to small amounts of migration from the Canal. As part of DEC's Operation and Maintenance Program the wells will be purged and monitored in an effort to determining the source(s) of contamination.

FUTURE DIRECTION

The long term monitoring program provides first-hand evidence that the contaminant system is working as designed and also provides an early-warning alarm should be a plume of contamination evolve. Toward this end the well network will be refined by addition or deletion of selected wells as appropriate, along with continued measurement, sampling and analysis of the piezometers and wells in the network and interpretation of the results.

LOVE CANAL SKETCH MAP
showing well & piezometer locations

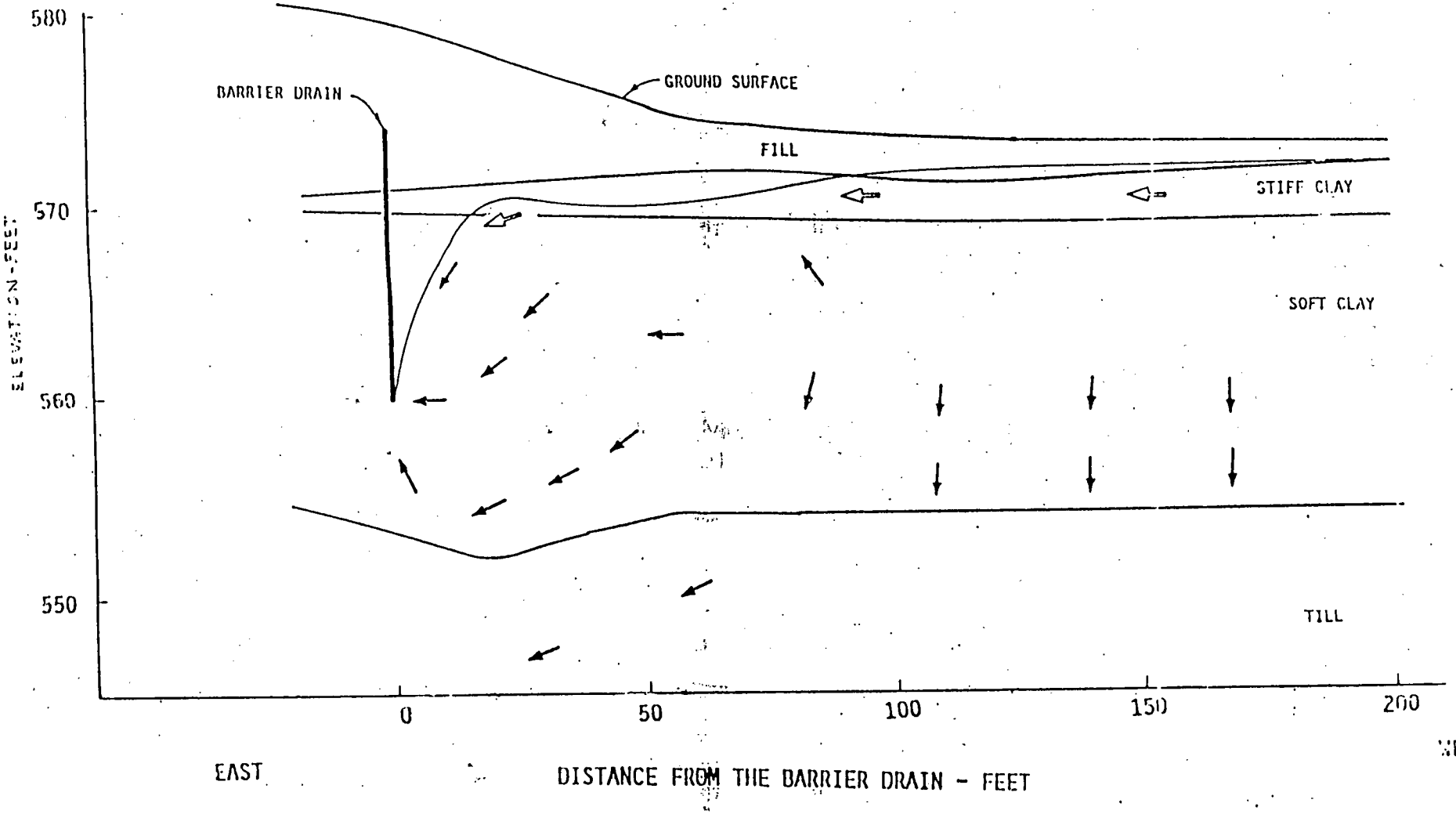


2/90

FIGURE 1

GROUNDWATER MOVEMENT IN THE VICINITY OF THE BARRIER DRAIN

SERIES 1160

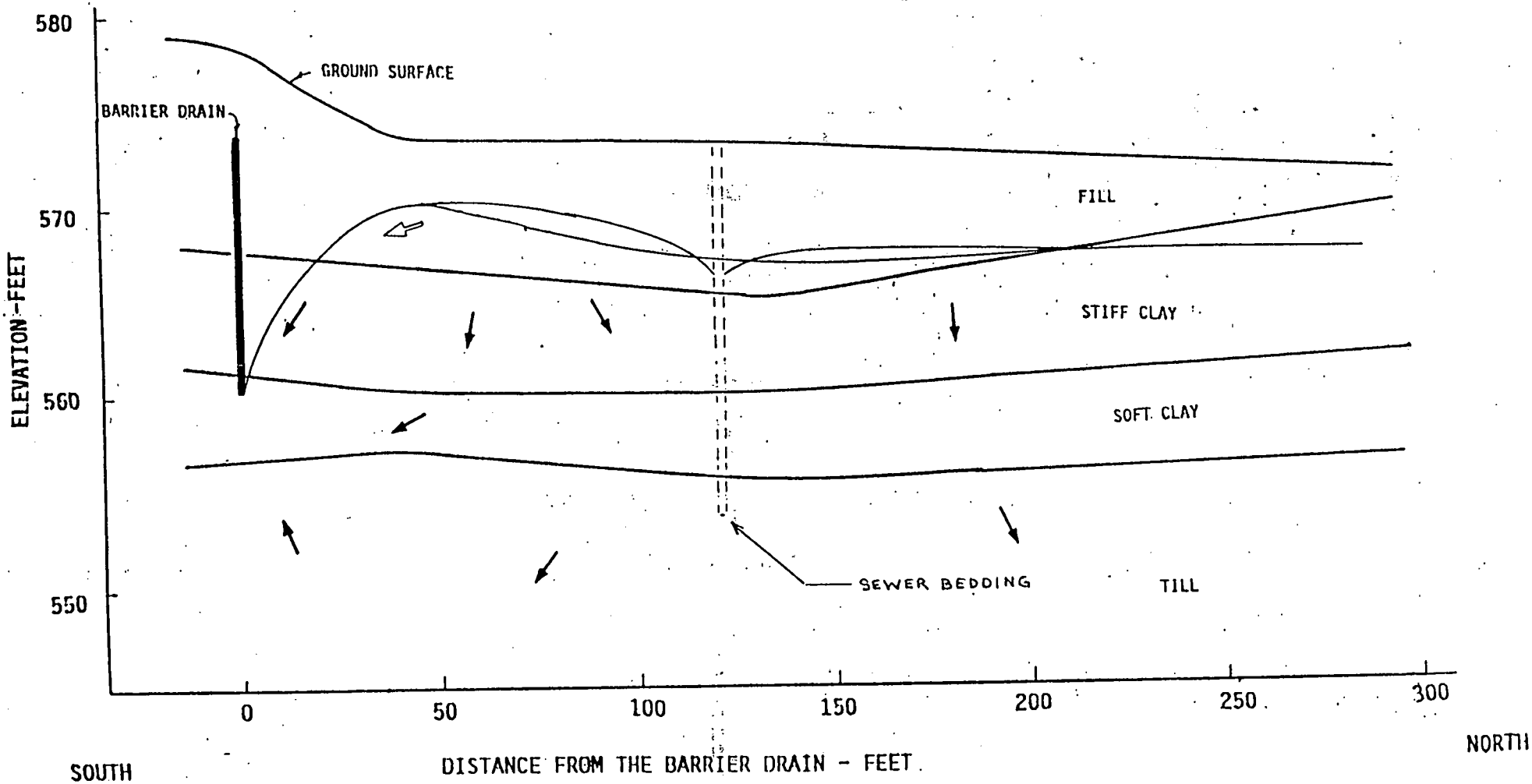


SEP 30, 1988

FIGURE 2

GROUNDWATER MOVEMENT IN THE VICINITY OF THE BARRIER DRAIN

SERIES 1180



SEP 28-30, 1988

FIGURE 3

ANALYTICAL RESULTS

- 1989 SAMPLING EVENT -

LOVE CANAL

LONG TERM MONITORING WELLS

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	3151	3251	4108	7115	7120	7125	7130	7132	7155
Analytes									
-Volatiles-									
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
M-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-									
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
A-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
G-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
D-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	7161	7205	8106	8110	8115	8120	8125	8130	8140
Analytes									
-Volatiles-									
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
M-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-									
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
A-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
G-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
D-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	8210	9105	9110	9113	9115	9118	9120	9122	9130
Analytes									
-Volatiles-									
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
M-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-									
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
A-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
G-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
D-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	9125	9140	9205	9210	10105	10113A	10115	10150	10205
Analytes									
-Volatiles-									
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
M-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-									
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
A-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND	ND
G-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
D-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	10210A	10210B	10210C	10215	10225A	10225B	10225C
Analytes							
-Volatiles-							
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	12.5
Benzene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND
Chlorotoluene	ND	ND	ND	ND	ND	ND	ND
M-Xylene	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-							
Phenol	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND
A-BHC	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND
B-BHC	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND
G-BHC	ND	ND	ND	ND	ND	ND	ND
D-BHC	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND

ANALYTICAL RESULTS

- 1989 SAMPLING EVENT -

DEWATERING CONTAINMENT FACILITY WELLS

CLUSTERS A THROUGH G

(Wells in area expected to be "clean")

All results are reported in Parts Per Billion (ppb)

* denotes well not sampled because of physical constraint

J denotes compound present below detection limit

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	A1	A2	A3	B1	B2	B3	C1	C2	C3
Analytes									
-Volatiles-									
1,1-Dichloroethene	*	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	*	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	*	ND	12	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	*	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	*	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	*	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	*	ND	ND	ND	ND	3 J	ND	13	1 J
Chlorobenzene	*	ND	0.7 J	ND	ND	ND	ND	ND	ND
Ethylbenzene	*	ND	ND	ND	ND	ND	ND	ND	ND
Chlorotoluene	*	ND	ND	ND	ND	ND	ND	ND	ND
M-Xylene	*	ND	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	*	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	*	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	*	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	*	ND	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	*	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	*	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	*	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-									
Phenol	*	ND	ND	ND	ND	6 J	ND	ND	ND
2-Chlorophenol	*	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	*	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	*	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	*	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	*	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	*	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	*	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	*	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	*	ND	ND	ND	ND	ND	ND	ND	ND
A-BHC	*	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	*	ND	ND	ND	ND	ND	ND	ND	ND
B-BHC	*	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	*	ND	ND	ND	ND	ND	ND	ND	ND
G-BHC	*	ND	ND	ND	ND	ND	ND	ND	0.037
D-BHC	*	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	*	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	*	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor	*	ND	ND	ND	ND	0.52	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	A1	A2	A3	B1	B2	B3	C1	C2	C3
Non-Target Compounds									
-Volatiles-									
Methane Thiol	*	ND	ND	ND	ND	ND	ND	ND	ND
Bis-Thiomethane	*	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Thioethane	*	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	*	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	*	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	*	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	*	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	*	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-									
Dimethyl Trisulfide	*	ND	ND	ND	ND	ND	ND	ND	ND
Alkyl Trisulfide	*	ND	ND	ND	ND	ND	ND	ND	ND
2-Ethyl-Heptanoic Acid	*	ND	ND	ND	ND	ND	ND	ND	ND
Hexamethylcyclotrisiloxane	*	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	*	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic Acid	*	ND	ND	ND	ND	ND	ND	ND	ND
Benzeneacetic Acid	*	ND	ND	ND	ND	ND	ND	ND	ND
1-H-Indole	*	ND	ND	ND	ND	ND	ND	ND	ND
N.N-Bis(2-Hydoxyrthyl) Dodecanamide	*	ND	ND	ND	ND	ND	ND	ND	ND
Hexadecanoic Acid	*	ND	ND	ND	ND	ND	ND	ND	ND
Pentanal	*	ND	ND	ND	ND	ND	ND	ND	ND
Diethylphthalate	*	ND	ND	ND	ND	ND	ND	ND	ND
Butylbenzylphthalate	*	ND	ND	ND	ND	ND	ND	ND	ND
Napthalene	*	ND	ND	ND	ND	ND	ND	ND	ND
Chloronapthalene	*	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	D1	D2	D3	D4	D5	E1	E2	E3
Analytes								
-Volatiles-								
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	0.8 J	ND	ND	0.9 J
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	1 J	ND	ND	ND	ND
Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND
M-Xylene	ND	ND	ND	ND	ND	ND	ND	ND
O+P-Xylene	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	58
Methylene chloride	ND	ND	ND	ND	2 J	ND	ND	ND
-Semivolatiles-								
Phenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
A-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
B-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	ND	ND	ND	ND	ND	ND	ND	ND
G-BHC	ND	ND	ND	ND	ND	ND	ND	ND
D-BHC	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	F1	F2	F3	G1	G2	G3
Analytes						
-Volatiles-						
1,1-Dichloroethene	ND	ND	*	ND	ND	ND
1,2-Dichloroethene	ND	ND	*	ND	ND	ND
Chloroform	ND	ND	*	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	*	ND	ND	ND
Trichloroethene	0.8 J	ND	*	ND	ND	ND
Benzene	ND	ND	*	ND	ND	ND
Toluene	ND	ND	*	ND	ND	1 J
Chlorobenzene	ND	ND	*	ND	ND	ND
Ethylbenzene	ND	ND	*	ND	ND	ND
Chlorotoluene	ND	ND	*	ND	ND	ND
M-Xylene	ND	ND	*	ND	ND	ND
O+P-Xylene	ND	ND	*	ND	ND	ND
2-Chlorotoluene	ND	ND	*	ND	ND	ND
4-Chlorotoluene	ND	ND	*	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	*	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	*	ND	ND	ND
Acetone	ND	ND	*	ND	ND	ND
Methylene chloride	ND	ND	*	ND	ND	ND
-Semivolatiles-						
Phenol	ND	ND	*	ND	ND	ND
2-Chlorophenol	ND	ND	*	ND	ND	ND
2-Methylphenol	ND	ND	*	ND	ND	ND
4-Methylphenol	ND	ND	*	ND	ND	ND
2,4-Dimethylphenol	ND	ND	*	ND	ND	ND
2,4-Dichlorophenol	ND	ND	*	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	*	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	*	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	*	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	*	ND	ND	ND
A-BHC	ND	ND	*	ND	ND	ND
Hexachlorobenzene	ND	ND	*	ND	ND	ND
B-BHC	ND	ND	*	ND	ND	ND
Pentachlorophenol	ND	ND	*	ND	ND	ND
G-BHC	ND	ND	*	ND	ND	ND
D-BHC	ND	ND	*	ND	ND	ND
Aldrin	ND	ND	*	ND	ND	ND
Dieldrin	ND	ND	*	ND	ND	ND
Aroclor	ND	ND	*	ND	ND	ND

ANALYTICAL RESULTS

- 1989 SAMPLING EVENT -

DEWATERING CONTAINMENT FACILITY WELLS

CLUSTERS H THROUGH O

(Wells in area of suspected contamination)

All results are reported in Parts Per Billion (ppb)

* denotes well not sampled because of physical constraint

J denotes compound present below detection limit

E denotes that value reported exceeded calibration curve for instrument

D denotes that sample was diluted in order to be run

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	H1	H2	H3	I1	I2	I3	J1	J2
Non-Target Compounds								
-Volatiles-								
Methane Thiol	ND	ND	ND	ND	ND	ND	ND	ND
Bis-Thiomethane	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Thioethane	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2 Tetrachloroethane	8	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-								
Dimethyl Trisulfide	ND	ND	ND	ND	ND	ND	ND	ND
Alkyl Trisulfide	ND	ND	ND	ND	ND	ND	ND	ND
2-Ethyl-Heptanoic Acid	ND	ND	ND	ND	ND	ND	ND	ND
Hexamethylcyclotrisiloxane	ND	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ND	ND	ND	ND	ND	ND	ND	ND
Benzoic Acid	ND	ND	ND	ND	ND	ND	ND	ND
Benzeneacetic Acid	ND	ND	ND	ND	ND	ND	ND	ND
1-H-Indole	ND	ND	ND	ND	ND	ND	ND	ND
N.N-Bis(2-Hydoxyrthyl) Dodecanamide	ND	ND	ND	ND	ND	ND	ND	ND
Hexadecanoic Acid	ND	ND	ND	ND	ND	ND	ND	ND
Pentanal	ND	ND	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	2 J	ND	ND	ND	ND	ND
Butylbenzylphthalate	ND	ND	5 J	ND	ND	ND	ND	ND
Napthalene	ND	ND	ND	ND	ND	ND	ND	ND
Chloronapthalene	ND	ND	ND	ND	ND	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	01	02	03
Analytes			
-Volatiles-			
1,1-Dichloroethene	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND
Chloroform	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
Trichloroethene	ND	ND	ND
Benzene	ND	ND	2 J
Toluene	ND	ND	ND
Chlorobenzene	ND	ND	ND
Ethylbenzene	ND	ND	ND
Chlorotoluene	ND	ND	ND
M-Xylene	ND	ND	ND
O+P-Xylene	ND	ND	3 J
2-Chlorotoluene	ND	ND	ND
4-Chlorotoluene	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND
1,2+1,4-Dichlorobenzene	ND	ND	ND
Acetone	ND	ND	ND
Methylene chloride	ND	ND	ND
-Semivolatiles-			
Phenol	ND	ND	ND
2-Chlorophenol	ND	ND	ND
2-Methylphenol	ND	ND	ND
4-Methylphenol	ND	ND	ND
2,4-Dimethylphenol	ND	ND	ND
2,4-Dichlorophenol	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND
4-Chloro-3-Methylphenol	ND	ND	ND
2,4,5-Trichlorophenol	ND	ND	ND
2,4,6-Trichlorophenol	ND	ND	ND
A-BHC	ND	ND	ND
Hexachlorobenzene	ND	ND	ND
B-BHC	ND	ND	ND
Pentachlorophenol	ND	ND	ND
G-BHC	ND	ND	ND
D-BHC	ND	ND	ND
Aldrin	0.0059 J	ND	ND
Dieldrin	ND	ND	ND
Aroclor	ND	ND	ND

LOVE CANAL: Dewatering Containment Facility Monitoring Wells

WELL NUMBER:	L1	L2	M1	M2	M3	N1	N2
Non-Target Compounds							
-Volatiles-							
Methane Thiol	ND	ND	ND	ND	ND	ND	ND
Bis-Thiomethane	ND	ND	ND	ND	ND	ND	ND
Methyl Thioethane	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	8	39	1 J	ND	40	ND
1,1,2,2 Tetrachloroethane	ND	ND	ND	ND	ND	5 J	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND
-Semivolatiles-							
Dimethyl Trisulfide	ND	ND	ND	ND	ND	ND	ND
Alkyl Trisulfide	ND	ND	ND	ND	ND	ND	ND
2-Ethyl-Heptanoic Acid	ND	ND	ND	ND	ND	ND	ND
Hexamethylcyclotrisiloxane	ND	ND	ND	ND	ND	ND	ND
Benzyl alcohol	ND	ND	ND	ND	ND	ND	ND
Benzoic Acid	ND	ND	ND	ND	ND	ND	ND
Benzeneacetic Acid	ND	ND	70	ND	ND	ND	ND
1-H-Indole	ND	ND	ND	ND	ND	ND	ND
N.N-Bis(2-Hydoxyrthyl) Dodecanamide	ND	ND	ND	ND	ND	ND	ND
Hexadecanoic Acid	ND	ND	ND	ND	ND	ND	ND
Pentanal	ND	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	ND	ND
Butylbenzylphthalate	5 J	ND	ND	ND	ND	ND	ND
Napthalene	ND	ND	59 ?	ND	ND	59	ND
Chloronapthalene	ND	ND	ND	ND	ND	ND	ND