SUPPLEMENT
to the
LOVE CANAL EMERGENCY DECLARATION AREA
PROPOSED HABITABILITY CRITERIA
APPENDIX 6

REMEDIAL ACTION AND MANAGEMENT
of the
LOVE CANAL SITE
December 1986

September 1988
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
THOMAS C. JORLING, COMMISSIONER

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EXECUTIVE SUMMARY

This supplemental report describes the phases of the Love Canal Remedial Action Program, how the projects completed to date have met their objectives in establishing an effective containment system and provide safeguards for the continued operation of the Love Canal Leachate Treatment system.

A three phase Remedial Action Program for the Love Canal site was initiated in October 1978 to significantly reduce the environmental and health hazard that resulted from the escape of toxic chemicals from the chemical waste dump. Recently a 4th phase has been initiated that relates to the thermal destruction of remedial wastes stored on-site.

In November 1984, phases I and II of the remedial program were completed. The projects completed under these phases have been effective in meeting their objectives, namely:

- Preventing further discharge of contaminates into the environment, and;
- Preventing direct contact with wastes which had been exposed at the surface of the canal, and;
- Substantially reducing precipitation infiltrating into the canal, and;
- Eliminating man-made pathways which allowed chemical migration offsite.

Phase III of the remedial program is on-going. To date three tasks have been completed and include offsite sanitary and storm sewer projects, the construction of the Administration Building and the establishment of a long term monitoring program. The work completed has met the objectives of:

- Eliminating offsite contamination within the sewers, and;
- Eliminating the last known pathway for contaminant migration from the containment area of the Love Canal, and;
- Providing proper hygiene facilities, storage room and office space for the plant operators and on-site personnel, and;
- Providing for a reliable and accurate means to measure the effectiveness of the containment system.

The remaining tasks, such as removal of contaminated sediments from the Black and Bergholtz Creeks should be completed by the end of 1989.

EXECUTIVE SUMMARY

The Long Term Monitoring Program, developed under phase III, and monitoring the effluent of the Leachate Treatment Facility are the measures used to provide for the effectiveness of the containment system at the Love Canal. Based on the data from these sources, it can be concluded that the containment system is effective in meeting the following objectives:

- Influencing the groundwater flow within the area of the barrier drain to effectively eliminate migration of contaminated groundwater, and;

- Consistently discharging an effluent to the city of Niagara Falls sewerage system that meets all the requirements of the Plant's Discharge Permit as regulated under the City of Niagara Falls Sewer Use Ordinance.

The New York State Department of Environmental Conservation will continue to properly monitor the leachate collection system as long as required, conduct all of the necessary remedial activities and provide for the proper and effective operation of the Love Canal site.

FORWARD

The remedial program at the Love Canal has been continuous since August 1978. The remedial efforts to date have involved emergency containment, improvements to containment, sewer and stream cleanup, long-term monitoring, and are now about to enter a new phase, the destruction or treatment of residuals. The remediation of environmental problems of this magnitude involves a great number of government or community expert scientific, and private consultant groups and can only be accomplished through understanding, and cooperation among these groups. Love Canal was one of the first inactive hazardous waste sites in the United States to implement a remedial program of any magnitude. The majority of the funding for the remedial efforts has been provided by The United States Environmental Protection Agency under Cooperative Agreements with the New York State Department of Environmental Conservation. Laws and regulations, governing the management of hazardous waste in 1978 were in their infancy, untested and essentially not adequate to guide the management of cleanup of inactive hazardous waste sites.

The containment system was designed with consideration of the Love Canal area groundwater flow and composition. Analysis of this information lends credibility to the functioning of the containment system. Soon after the initial containment system was in place, pathways for the migration of chemistry beyond the canal were identified other than through the natural material, namely via storm and sanitary sewers. Sewer lines adjacent to the site have been cleaned and plugged (abandoned) to eliminate the possibility of chemical transport and sewers found to be contaminated in and beyond the Emergency Declaration Area (EDA) have been cleaned.

The New York State Department of Environmental Conservation (NYSDEC) continues to execute the necessary remedial projects to complete the cleanup of the Love Canal; including the cleaning of Black and Bergholtz Creeks in 1989, the implementation of a plan to thermally destroy on-site wastes currently in storage by 1994, and maintenance of EDA homes as long as necessary (see Love Canal Work Plan, Appendix 2). The NYSDEC is dedicated to the timely completion of this remedial program and will continue with the participation and informed input of local citizens.

This report is a supplement to the Love Canal Emergency Declaration Area Proposed Habitability Criteria, Appendix 6, finalized in December 1986. For purposes of continuity, portions of the remedial history have been repeated in in chapter II which describes the work performed and the reasons why it was necessary.

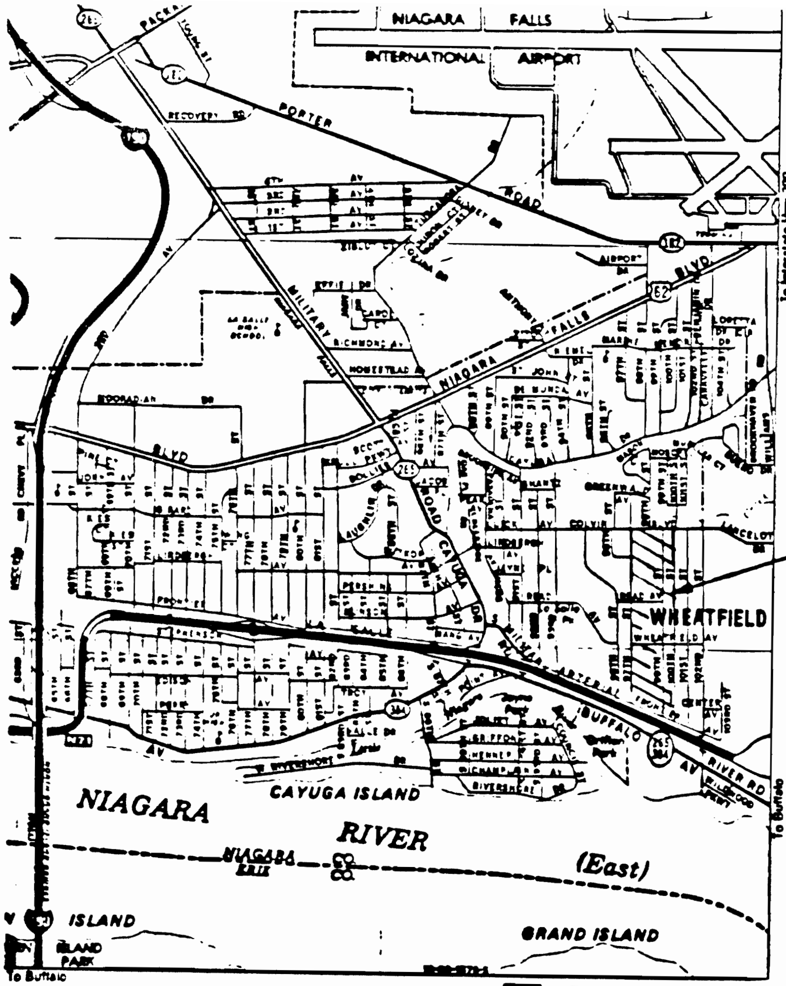
Chapter III deals with the effectiveness of the remedial work as measured by the groundwater monitoring program and in compliance with the conditions of the Love Canal Leachate Treatment Facility discharge permit. Results from the groundwater monitoring program have proven that the system is working as designed to collect and control chemical wastes from the Love Canal and is, (1) capturing any contamination which is migrating laterally outward from the Love Canal, (2) reducing hydraulic pressures (the driving force for migration) within the Canal, and (3) recapturing nearby aqueous phase contamination, on the outside of the drain, which escaped prior to its construction. There are, however, some chemicals that have been detected during the monitoring program. The confining clay layer provides a barrier to downward migration.

SITE MAP

LOVE CANAL AREA

NIAGARA FALLS, NEW YORK

FIGURE 1



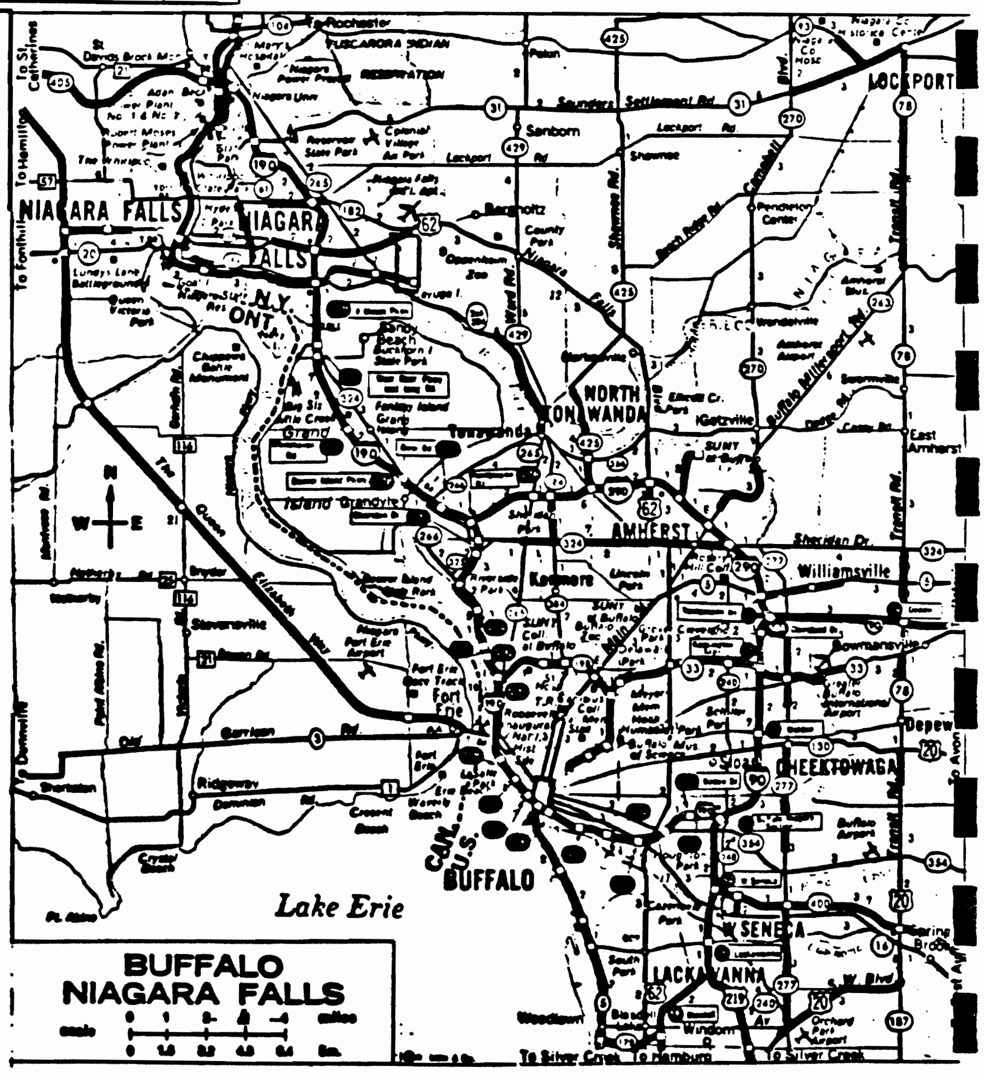
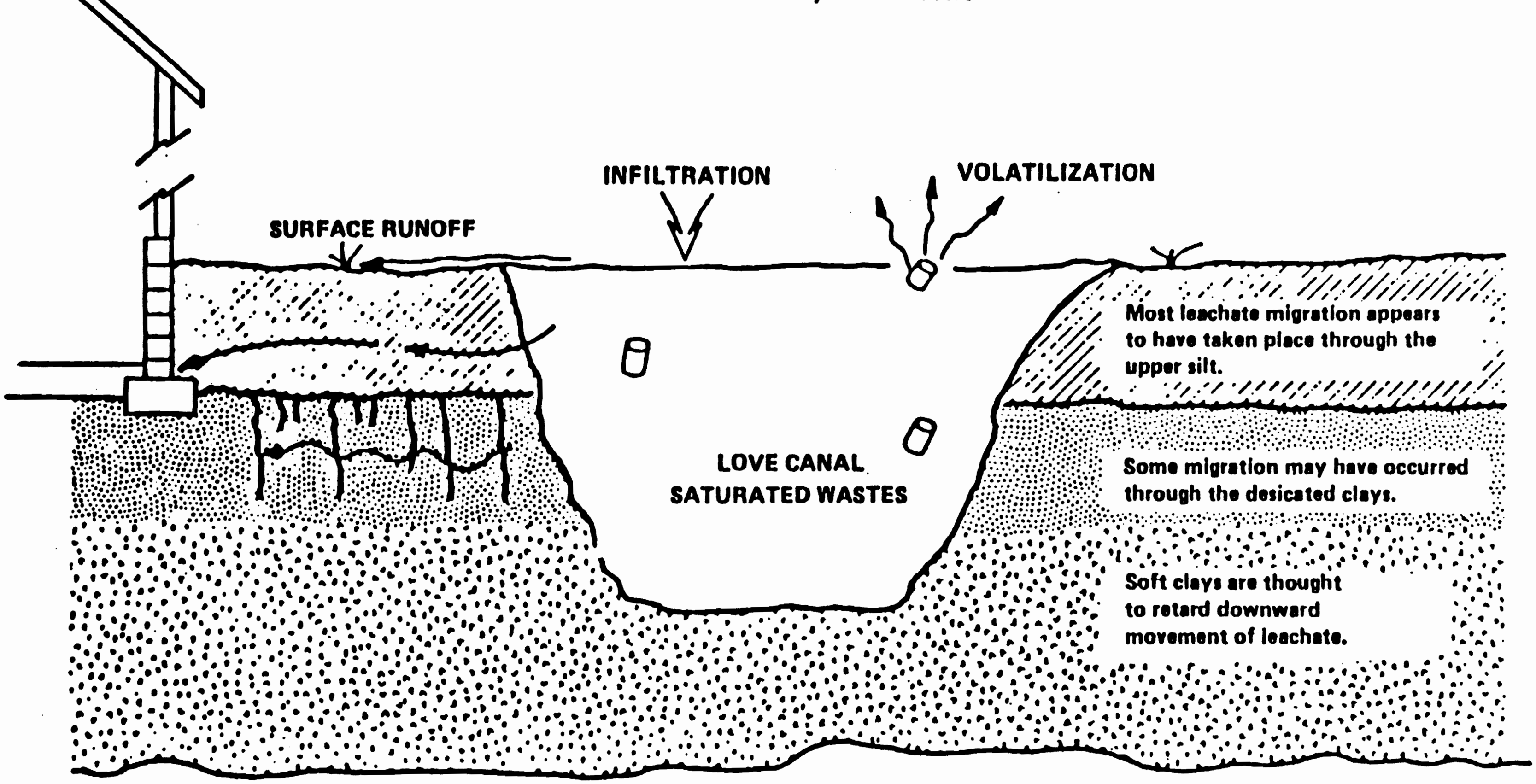


FIGURE 2

SCHEMATIC OF CHEMICAL ESCAPE
FROM THE LOVE CANAL
NIAGARA FALLS, NEW YORK



FORWARD

The effluent requirements of the treatment plant discharge permit have been met and these effluent requirements are always considered paramount when making improvements to the operation of the plant.

Chapter IV develops the continuous safeguards utilized for all site activities. These safeguards are designed to prevent and to react to any emergencies. Chapter IV also reveals the extensive accountability and reporting which is important to keep the public informed and to provide appropriate checks and balances. These efforts will insure public involvement and the review of site activities on a periodic basis. Also these efforts will provide for the assessment of additional actions that may be possible.

CHAPTER I
PRIOR TO REMEDIATION

BACKGROUND

What started as a dream for William T. Love in the late 1800's became a national nightmare of improper management of hazardous waste in 1978. Love's plan was to construct a canal connecting the upper Niagara River to the lower Niagara River to create a source of cheap hydroelectric power for what would become a model industrial city. He obtained the necessary funds and began excavating the channel in the southeast corner of the City of Niagara Falls, New York, just to the north of the upper Niagara River (see Site Map Figure 1). The model city project and the partially dug canal were abandoned before the turn of the century when the development of alternating current obviated the need for industry to be located near the source of power. Aerial photography from 1938 depicts the canal as being about 3,000 feet long and almost 100 feet wide, extending in a north-south axis, with the southern end approximately 1500 feet from the Niagara River. The canal was estimated to be between 10 to 15 feet below the original grade.

The excavation remained relatively untouched through the early 20th century. However in 1942, the Hooker Electrochemical Company began to dump chemical wastes from nearby plants, which produced pesticides and plasticizers, into the abandoned canal. Portions of the canal were also used by the City of Niagara Falls for disposal of municipal refuse. In 1953, dumping by the company ceased; however, it has been estimated that approximately 21,800 tons of chemical waste were placed in the canal. The Niagara Falls Board of Education purchased the property from the company and in 1954, the Board of Education built an elementary school on 99th Street adjacent to the canal. Subsequently, 97th and 99th Streets along with their utilities were construction parallel to the Canal and Read Avenue and Wheatfield Avenue were constructed across the canal (see Figures 3 and 4 for street locations). By the mid-1970's, approximately 100 homes stood on lots that were adjacent to the abandoned hazardous waste dump.

Over the years infiltrating precipitation mixed with the buried wastes. Contaminated water and liquid wastes pooled at the surface, and runoff carried contaminants into sewers and yards of homes built near the canal. Groundwater containing chemicals migrated through the more permeable upper layers of the ground, reaching the basements of adjacent homes (see Figure 2, Schematic of Chemical Escape). In response to complaints from residents of homes abutting the canal, the NYSDEC and the New York State Department of Health (NYSDOH), together with United States Environmental Protection Agency (USEPA), conducted studies on groundwater pollution, basement air and sump water contamination in 1977.

In April 1978, on the basis of this initial data, Commissioner Robert D. Whalen, M.D. of the NYSDOH, issued an order to the Niagara County Health Department to restrict access to the site and to remove surficial chemical contamination and cover exposed areas. Additional monitoring and studies by NYSDEC, NYSDOH and USEPA were conducted in the summer of 1978.

After reviewing the findings of these additional studies, Commissioner of Health, Commissioner Robert D. Whalen, M.D., declared on August 2, 1978 that a health emergency existed at Love Canal; and on August 7, 1978, President Carter issued a declaration of emergency making Federal disaster assistance available to begin remedial work. At the same time, the 99th Street School was closed and the area was fenced off. The state purchased homes located along 97th and 99th Streets at 1978 "pre-disaster" fair market value. Over 230 families were permanently relocated from the first two "rings" of houses around the Canal.

In May 1980, President Carter issued a second emergency declaration for Love Canal. New boundaries were drawn adding a horseshoe-shaped EDA around the previously identified area and this new area affected 800 additional families (see Figure 3, Emergency Declaration Area). Federal funding was provided to supplement the State's resources.

The following chronology depicts the major events for the Love Canal site. Appendix 2 includes a Ghant chart of remedial construction activities and Figure 4, Love Canal Site Plan identifies site features that will be discussed in this report.

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

LOVE CANAL CHRONOLOGY - JULY 1988

REMEDIAL HISTORY

August 22, 1978	- State installs eight-foot high chain link fence around the Love Canal and first two rings of houses.
August 1978	- NYSDEC works with City of Niagara Falls and its consultant, Conestoga-Rovers, to complete design of the drainage and containment system to halt outward chemical migration from landfill.
October 10, 1978	- City of Niagara Falls begins remedial construction work installing barrier drains around the southern section of the canal.
April 24, 1979	- USEPA enters into a Cooperative Agreement with the NYSDEC awarding a $4 million grant to the NYSDEC, matched by $4 million from New York State, to demonstrate new technologies for remedial actions at the Love Canal.
May 29, 1979	- NYSDEC begins remedial construction on the central and northern sections of the Love Canal Leachate Collection System placed from 12 to 20 feet below the surface.
September 10, 1979	- NYSDEC begins construction on the Love Canal Leachate Treatment Facility.
October 11, 1979	- Remedial construction in southern sector of Love Canal complete.
December 7, 1979	- The Leachate Treatment Facility at Love Canal begins operation to collect and treat leachate from the barrier drain collection system.
February 21, 1980	- USEPA announces that it will proceed with a federally funded cleanup of sewers and dioxin-contaminated creeks.
July 1980	- NYSDEC completes placement of a 22-acre, three-foot thick clay cap over the landfill to prevent human contact with the waste, to reduce the amount of water entering the site, and to reduce air emissions.
November 19, 1980	- New Federal Resource Conservation and Recovery Act (RCRA) regulations take effect with "Cradle-to-Grave" concept to control toxic waste disposal.
December 12, 1980	- President Carter signs Superfund legislation creating a $1.6 billion federal fund to aid in cleaning up chemical spills and toxic waste dumps the U.S.

June 1982	- Abandoned homes in Rings I and II demolished on site.
July 12, 1982	- NYSDEC enters into a Cooperative Agreement with the USEPA to carry out and evaluate measures to control migration of chemical wastes from the Love Canal. The initial award is for $6,995,000 funded by the federal government. Under the terms of the Agreement, the federal government will provide for 90% of the subsequent awards for construction activities, to be matched by a 10% award from New York State.
January 1983	- NYSDEC consultant, Malcolm Pirnie, Inc., collects over 1,000 environmental samples from the storm and sanitary sewers and from the Black and Bergholtz Creeks.
February 1983	- Cleaning and repairing of the barrier drain completed by O.H. Materials, contractor to the NYSDEC.
March 1983	- NYSDEC opens a Public Information Office at 9820 Colvin Boulevard adjacent to the fenced area, staffed by a citizen participation specialist and a stenographer.
April 1983	- E.C. Jordan, Inc. completes its collection of soil samples along the proposed alignment of the concrete groundwater cutoff wall. Final alignment of cutoff wall to be based on results of this study.
June 8, 1983	- 99th Street School demolished.
June 1983	- On-site water, gas, storm and sanitary sewer lines plugged and sections of concrete cutoff wall installed to prevent offsite movement of contaminants within utility lines and soil bedding. Sewers along 97th and 99th Street cleaned.
Summer 1983	- Trees, shrubs and topsoil cleared from the site and work begins to extend cap which includes placement of plastic liner. Other site preparations begin.
July 28, 1983	- NYSDEC announces plans to delete perimeter groundwater cutoff wall from its remedial plans. Computer model prepared for USEPA by Geotrans indicates that the groundwater cutoff wall would only decrease the inflow of water into the site by 10%, a minor reduction with only minimal effect.
August 15, 1983	- Repair work on the leachate collection system along Frontier Avenue begins.
October 1983	- NYSDEC consultant, Malcolm Pirnie, Inc., provides final report of detailed investigations of the storm and sanitary sewers, Black, Bergholtz and Cayuga Creeks, and the 102nd Street Outfall. Recommends cleaning over 60,000 linear feet of storm and sanitary sewers and sections of Black and Bergholtz Creeks.

CHAPTER 1 - PRIOR TO REMEDIATION
CHRONOLOGY - REMEDIAL HISTORY

June 1984	- Dioxin-contaminated sections of Bergholtz Creek from 150 feet upstream of its confluence with Black Creek to 93rd Street footbridge, fenced to limit public access to creek beds.
Fall 1984	- USEPA directs its consultant, CH2M Hill, to provide additional information on various alternatives for the Black and Bergholtz Creeks Remediation prior to signing a Record of Decision (ROD).
November 9, 1984	- Placement of a 40 mil thick high density polyethylene liner over 40 acres of the Love Canal site and placement of 18 inches of compacted fill over the plastic liner complete. The fill is then seeded and fertilized to provide a healthy vegetative cover.
January 1985	- NYSDEC releases Cayuga Creek fish and sediment dioxin sampling report.
March 1985	- Phase II Report on 93rd Street School site submitted to NYSDEC by RECRA Research, Inc., recommends conducting a Remedial Investigation and Feasibility Study.
May 6, 1985	- USEPA signs a ROD requiring the cleanup of the Black and Bergholtz Creeks and the storm and sanitary sewers. Collected sediments to be stored within the fenced area of the Love Canal. Also require in-situ stabilization of contaminated sediments at the 102nd Street outfall.
Fall 1985	- NYSDEC consultant, E.C. Jordan Co., installs approximately 100 monitoring wells around the Love Canal site.
April 1986	- Cleaning activities begin for over 60,000 linear feet of storm and sanitary sewers. Work continues throughout the spring and summer. Sediments are stored at the on-site Sediment Dewatering Facility.
	- Plasma Arc Unit arrives at the Love Canal site.
May 3 & 4, 1986	- NYSDEC holds an open house to display the Plasma Arc Unit, a high-temperature destruction system capable of destroying liquid hazardous wastes. Unit anticipated to be used to destroy accumulated Love Canal liquid wastes. Nearly 200 people attend.
May-June 1986	- Malcolm Pirnie, Inc., consultant to the NYSDEC, collects additional samples from Black, Bergholtz and Cayuga Creeks and inspects additional portions of sanitary sewers. Samples analyzed for dioxin.
July 8, 1986	- Construction of Love Canal Administration Building begins. Building to be used by NYSDEC staff who operate the Love Canal Leachate Treatment Facility.

July 1986	- Contract for the design of the Black and Bergholtz Creek Remediation Project awarded to TAMS Consultants,s Inc. of New York, N.Y.
August 1986	- Signs posted along contaminated section of Bergholtz Creek warning public against swimming, wading and fishing.
October 1986	- NYSDEC receives analytical results of the Black, Bergholtz and Cayuga Creeks additional bank and bed sampling. Sanitary sewer from 81st Street to 75th Street sediment sample analytical results indicate concentrations of dioxin in excess of 600 parts per billion (ppb).
October 17, 1986	- Superfund Amendments and Reauthorization Act (SARA) signed into legislation.
July 1986	- NYSDEC awards contract to Loureiro Engineering Associates for conducting the 93rd Street Remedial Investigation/Feasibility Study.
November 1986	- 93rd Street School Remedial Investigation/Feasibility Study field work begins.
	- E.C. Jordan Co., consultant to the NYSDEC, completes installation of all required wells for the Long-Term Monitoring and Perimeter Survey Program. This includes canal nested piezometers, perimeter wells and bedrock wells.
April 21, 1987	- Construction of the Frontier Avenue storm sewer south of the Love Canal begins. Work includes abandoning and plugging of the existing storm sewer to prevent migration of chemical wastes from the Love Canal site. New sewer line added to collect runoff from the area.
July 1987	- NYSDEC receives the Monitoring Well Reports from E.C. Jordan Co., Inc.
August 5, 1987	- Contract awarded to Stuart Alexander and Associates, consultants to NYSDEC to begin preparations of plans and specifications for the maintenance of homes in the Love Canal EDA.
	- USEPA releases its Proposed Plan for the Destruction/Disposal of Love Canal Creek and Sewer Sediments.
October 5, 1987	- Additional sanitary sewer cleaning begins along Frontier Avenue between 81st Street and 74th Street.
October 18, 1987	- Cayuga Creek fish sampled by NYSDEC's Division of Fish and Wildlife.

October 26, 1987	- USEPA signs ROD of Black and Bergholtz Creeks providing for the on-site thermal destruction of contaminated sediments using a transportable thermal destruction unit.
Dec. 17, 1987	- NYSDEC advertises for the Black and Bergholtz Creek Remediation Project.
January 22, 1988	- NYSDEC notifies Pyrolysis Systems, Inc., contractor for the Plasma Arc project, that the contract is terminated.
February 8, 1988	- Occidental Chemical Corporation submits an informational "Proposal for Solid Waste Storage and Destruction" outlining a plan to store and destroy dioxin-contaminated Black and Bergholtz Creeks' sediments at its plant site on Buffalo Avenue.
March 1, 1988	- OCC officials brief NYSDEC regarding the company's proposal for remediation of the Black and Bergholtz Creeks.
March 2, 1988	- OCC officials brief USEPA regarding the company's proposal for remediation of the Black and Bergholtz Creeks.
March 7, 1988	- USEPA and NYSDEC send letters to OCC officials rejecting the company's proposal for the remediation of the Black and Bergholtz Creeks but encouraging the company to continue to pursue the concept by submitting applications for necessary approvals.
March 16, 1988	- Final draft of the 93rd Street School Remedial Investigation/Feasibility Study Report received by NYSDEC.
April 1, 1988	- Contract with Sevenson Environmental Services, Inc., for the cleanup of the Black and Bergholtz Creeks awarded by NYSDEC.
April 13, 1988	- USEPA and NYSDEC issue the Proposed Remedial Action Plan which outlines the alternatives for remediation that were evaluated and selects one for the 93rd Street School.
May 2, 1988	- Black and Bergholtz Creeks cleanup project begins.
June 28, 1988	- NYSDEC issues notice to proceed to Buffalo Asbestos Removal Company for the maintenance of homes in the Love Canal EDA.
June 29, 1988	- Home Maintenance Project to stabilize homes in the Love Canal EDA begins.
August 24, 1988	- Amendment to TAMS Consultants, Inc. Contract for Design, Contractor Procurement Trial Burn Engineering.

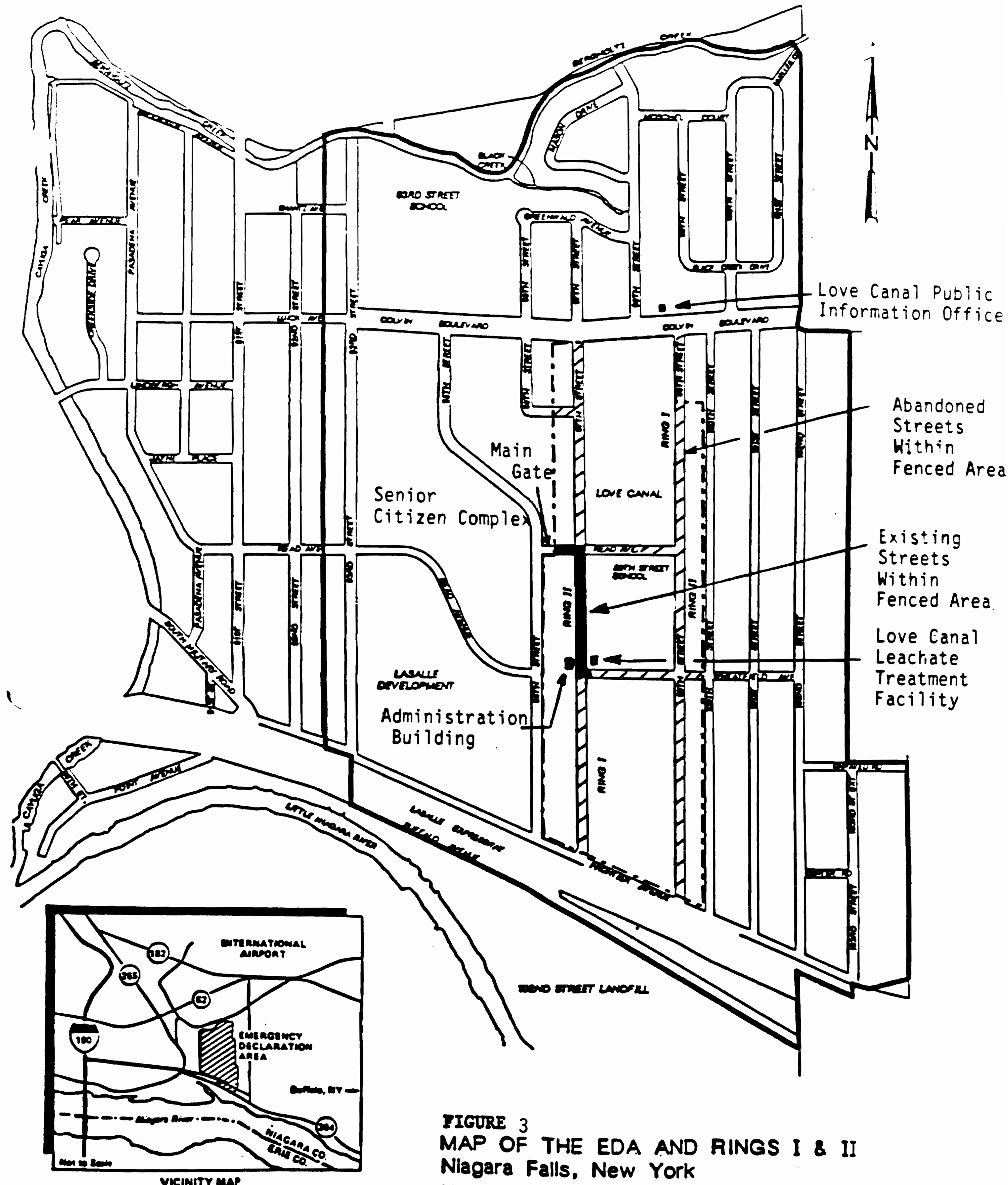
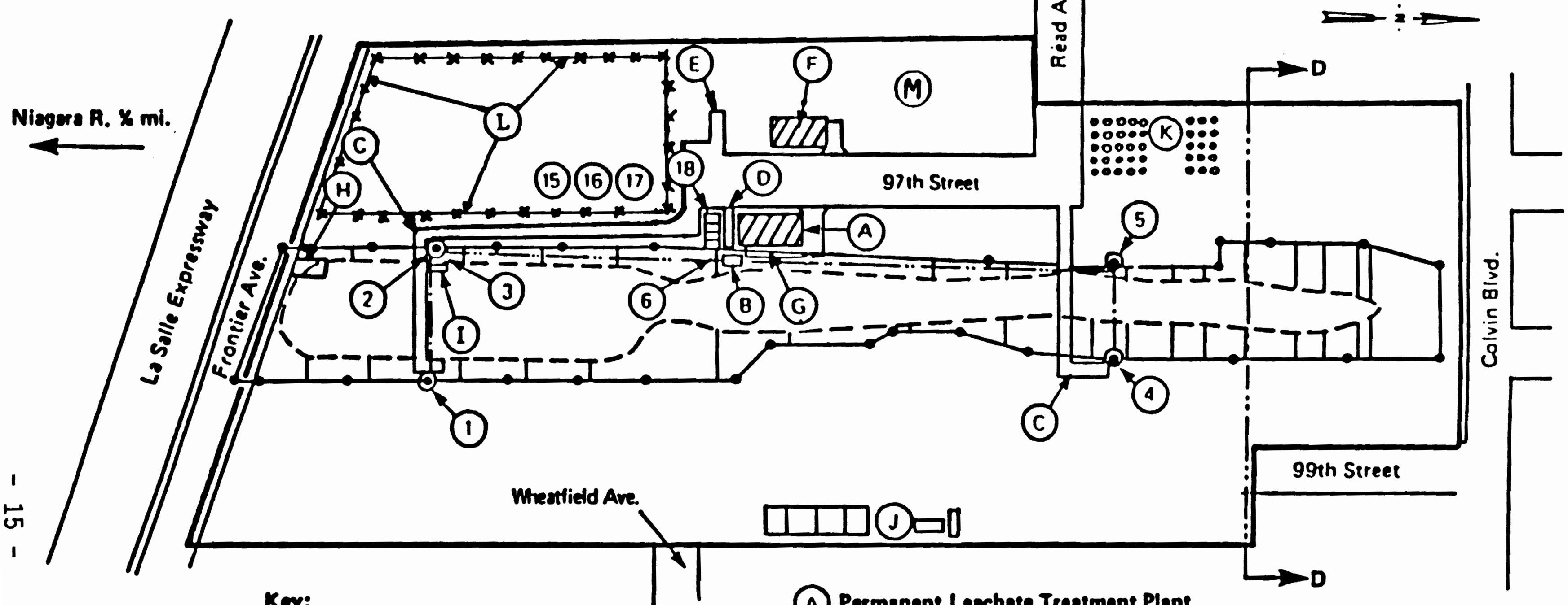


FIGURE 3
MAP OF THE EDA AND RINGS I & II
Niagara Falls, New York
SCALE: 1"=750'
LEGEND
EMERGENCY DECLARATION AREA (EDA) BOUNDARY
Fenced Area

FIGURE 4
LOVE CANAL SITE PLAN



Key:

- - - Canal Boundary
— Barrier Drains, Laterals
—·— Forcemains
—··— Gravity Main—Parallels West Barrier Drain
— 8ft High Cyclone Fence

o Manholes

◎ Wetwells (with manholes)

(1) Pump Chamber No. 1 South Sector

(2) Pump Chamber No. 3 South Sector

(3) Pump Chamber No. 2 South Sector

(4) Pump Chamber No. 1A North Sector

(5) Pump Chamber No. 2A North Sector

(6) Pump Chamber No. 3A North Sector

(15)–(18) Sludge Storage Tanks

(A) Permanent Leachate Treatment Plant

(B) Underground Leachate Storage for North and Central Sectors

(C) Pump Access Road

(D) Concrete Pad——Plasma Arc Trailer

(E) Concrete Pad——Generator Trailer

(F) Administration Building

(G) Concrete Decontamination Pad

(H) Frontier Avenue Concrete Decontamination Pad

(I) Underground Leachate Storage for South Sector

(J) Sewer Dewatering Facility

(K) North Container Storage Area (Future Decon. Drum Storage Facility)

—x—x—x— (L) Dewatering Containment Facility

(M) Proposed Location of Thermal Destruction Unit

8/05/88

CHAPTER II - REMEDIAL PROGRAM

OVERVIEW

The Love Canal Remedial Program was initiated to reduce the environmental and health hazard that resulted from the escape of toxic chemicals from the dump. The overall objective of the Love Canal Remedial Program (Phase I) was to contain the chemical waste at the site. More specifically, the initial objectives of the Phase I remedial program were to:

1. Prevent further discharge of chemical contaminants into the shallow groundwater system where the chemical contaminants could migrate off-site.

2. Reduce the potential for discharge of chemical contaminants into the bedrock groundwater system.

3. Prevent surface runoff from carrying chemical contaminants off-site.

4. Prevent atmospheric emissions of volatile contaminants and fugitive dust.

5. Prevent direct contact with wastes which had been exposed at the surface of the Canal.

More recently, additional remedial work (Phase II) has been performed to meet the following objectives:

1. Further reduce the amount of precipitation infiltrating the site.

2. Reduce the long-term costs of operation and maintenance of the leachate collection and treatment system at the site.

3. Eliminate man-made pathways which had in the past allowed chemical migration off-site.

The remedial work at Love Canal under Phase III have been to clean up areas beyond the site which have been identified as being impacted by chemical waste migration from the Love Canal, and to develop a long-term monitoring program. The objectives of this work include:

1. Identify the extent to which sewers and surface streams which drain the Love Canal area have been contaminated by the Love Canal.

2. Design and carry out remedial programs to remove chemical contaminants found in the sewers and the streams which drained the Love Canal area.

3. Design and install a permanent monitoring program to evaluate the effects and the effectiveness of the Love Canal remedial programs to determine the extent to which Love Canal chemicals have migrated with the groundwater.

The proposed remedial work at Love Canal under Phase IV provides for the treatment or destruction of contaminated soils, sediments, and other remedial wastes at the site. The objectives of this work include:

1. Design and carry out a remedial program at the 93rd Street School for stabilization/solidification of soils identified as part of a source control remedy and implement the remedy as outlined in the USEPA Record of Decision (ROD) for the 93rd Street School site which is expected to be signed by the end of September 1988.

2. Design and carry out the remedial program for on-site thermal destruction of contaminated sewer and creek sediments and other Love Canal remedial wastes as provided for in the October 27, 1987 USEPA ROD for the Thermal Destruction of Love Canal remedial wastes.

REMEDIAL WORK - PHASE I

This first phase of remedial construction at the Love Canal site consisted primarily of the following elements:

1. A perimeter "Barrier Drain" system was constructed outside of and completely surrounding the Love Canal. The drain served as a hydraulic barrier to prevent the further migration of chemical contaminants in the upper groundwater system. The drain also provided a means of removing leachate from the Canal in order to dewater it and, over a certain area, to recover contaminants that had migrated beyond the location of the drain.

2. The entire landfill was covered with a 22 acre cap which consisted of a minimum of 3 feet of well-compacted clay. The clay cap was intended to prevent human contact with the waste as well as to prevent further migration of volatiles and fugitive dust from the landfill's surface. The clay cap also greatly reduced infiltration of precipitation and therefore reduced the production of leachate.

3. A leachate treatment facility was built on-site, and leachate which is collected by the barrier drain system is pumped to the plant for on-site treatment.

The first phase of remedial construction at the Love Canal site was carried out in two separate stages. The City of Niagara Falls was responsible for stage one and they contracted with the engineering firm of Conestoga-Rovers and Associates, Inc., of Waterloo, Ontario, to prepare detailed plans and specifications for the work. Following review of the plans and specifications by local, State, and Federal agencies, the City of Niagara Falls entered into a contract with Newco Chemical Waste Systems, Inc. (now CECOS International, Inc.) to conduct the remedial construction on the southern portion of the Canal. The southern sector is the area bounded by 97th and and 99th Streets, Frontier Avenue and Wheatfield Ave. This work started in October of 1978 and was substantially complete by October 1979. The work performed by the City included installation of a portion of the barrier drain system along the east and west sides of the southern section of the Love Canal and the placement of a 3-foot-thick clay cap over the southern section (see Figure 5, Remedial Construction). Exhibiting the highest levels of contaminants in the Ring I area, the southern section of the Canal posed the greatest environmental health hazard, and the remedial work focused on containment of worst areas first.

The second stage of the remedial construction was carried out by the NYSDEC. Again, plans and specifications for the remedial work were prepared by Conestoga-Rovers and Associates, Inc. Following the receipt of competitive bids, the NYSDEC entered into a contract with SCA Chemical Waste Services to complete the installation of the barrier drain system along the central and northern sectors of the Canal as well as a connection between the east and west drains along Frontier Avenue and to complete the installation of the clay cap over the central and northern sectors. The Department also entered into a contract with the Albert Elia Building Company (AEBC) to provide detailed design and construction of a permanent leachate treatment plant at the site.

Installation of the drains and clay cap along the central and northern sectors of the Canal began in May of 1979 and was substantially complete by November of 1979. Construction of the treatment plant began in September of 1979 and was finished in December of the same year. While the treatment plant was being built, a temporary leachate treatment system was operated to keep water from accumulating in the construction area and to treat leachate collected from the southern sector. During the fall of 1980, the clay cap was regraded and recompacted, topsoil was placed over the clay, and grass was sown to protect the cap from erosion.

MAJOR ELEMENTS of the REMEDIAL WORK

Installation of the Leachate Collection System (Barrier Drain)

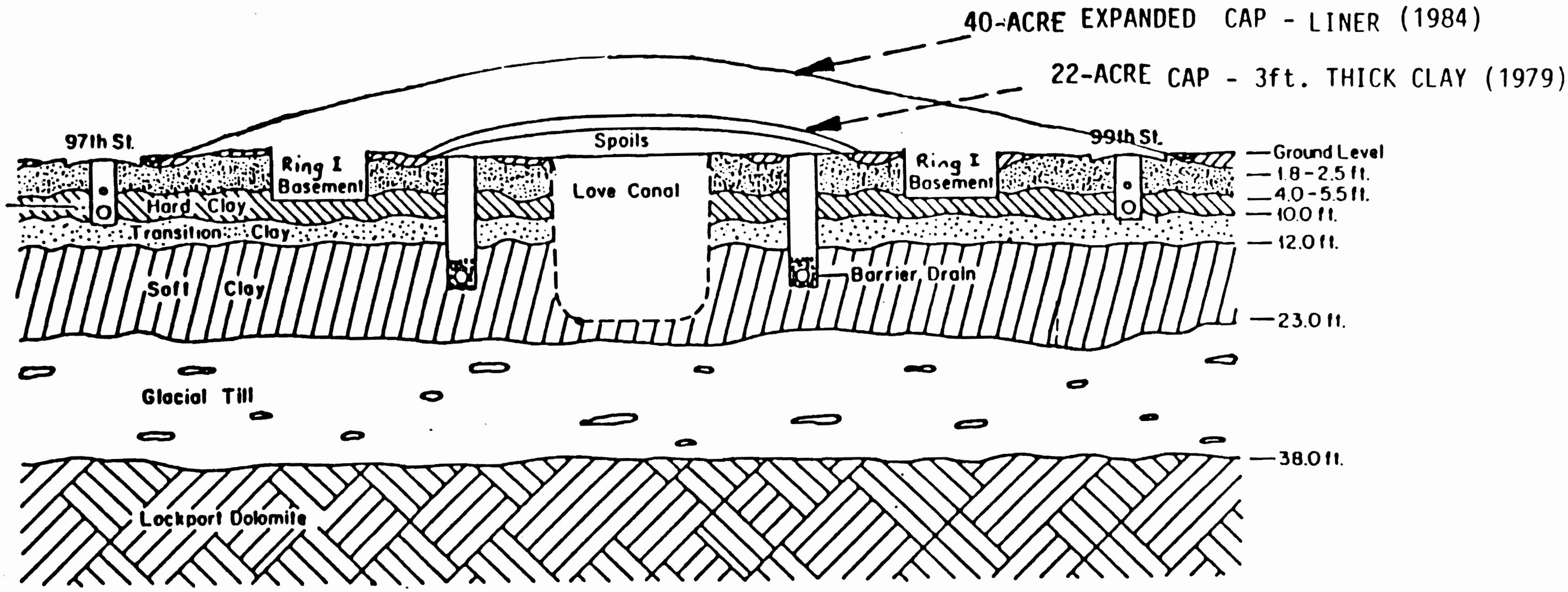
The barrier drain that now surrounds the Love Canal site consists of approximately 7,000 feet of extra strength perforated vitrified clay tile. The tiles were installed using conventional construction techniques in a trench approximately 3 feet wide, ranging in depth from 11-21 feet below original grade. The tiles are bedded in and covered with a minimum of one foot of crushed stone. The remainder of the trench is filled with concrete sand. Manholes have been placed in the drain at each change of alignment and at 280 to 300 foot intervals on straight runs.

In comparison to the adjacent soils, the materials used to backfill the barrier drain trench are very permeable. Leachate migrating away from the Canal enters the barrier drain and readily percolates down to the crushed stone bedding. The leachate fills up in the bedding to the point where it reaches the perforations in the pipe. The perforated pipe then conveys the leachate to wet wells where the liquids are collected and periodically pumped to holding tanks.

Although it was considered feasible to construct the barrier drain system without an underdrain pipe, it was decided that the 8-inch (south sector) and 6-inch (north sector) diameter perforated vitrified clay pipe provided a needed margin of safety for the long-term operation of the drain. The tile also provides greater flow capacity and would provide a path for leachate flow if a

FIGURE 5

REMEDIAL CONSTRUCTION



section of the sand and gravel filter materials were ever to become plugged due to movement of adjacent soil particles. In addition, the manholes provide a means to inspect the drain system and offer access for cleaning operations if necessary.

Clay Cap and Grass Cover

Upon completion of the installation of the barrier drains along both sides of the Canal, a 3-foot thickness of clay was placed over the Canal. The cap was installed in layers, with 6-inch of clay being laid then compacted to contract specifications. The final permeability of the cap material was to be less than 1×10^{-7} centimeters per second. This permeability is very low, meaning the infiltration of water into the landfill from the surface is greatly retarded and results in reduced volumes entering the landfill.

During the installation of the clay cap on the southern sector, it became obvious that the Canal was not being drained quickly enough. As the clay was placed on the Canal, leachate was forced to the surface, contaminating parts of the clay cap and making proper compaction impossible. To overcome this limitation and to hasten the draining of the Canal so that the clay cap could be properly installed, a series of lateral drains filled with crushed stone and sand were constructed, extending from the barrier drain towards and sometimes into the buried waste area. Daily flows of leachate increased substantially as the laterals were completed and the Canal was drained to the point where the clay cap could be placed and compacted properly. The lateral drains provide a hydraulic connection between the barrier drain system and the landfill itself.

Construction of the Leachate Treatment Facility

In the spring of 1979 the NYSDEC contracted with Conestoga-Rovers and Associates to prepared bidding documents and performance specifications for the construction of a permanent leachate treatment facility. In August 1979, the NYSDEC entered into a contract with the Albert Elia Building Company for the detailed design and construction of the treatment facility.

The treatment system consists of the following major process elements:

1. Leachate is pumped from the leachate collection system pump stations to two leachate holding tanks with a combined storage capacity of 52,000 gallons.

2. Raw leachate is pumped from the leachate holding tanks into a large tank within the plant which provides storage needed to accommodate the differences in the rates of leachate entering the plant and the rate of treatment.

3. Raw leachate is transferred to a clarifier where settleable solids, if any, and immiscible organic liquids are separated from the contaminated groundwater.

4. The clarified leachate flows into a surge tank (referred to as the filter feed tank) and is then passed through a bag filter which removes suspended solids.

5. The clarified and filtered leachate is passed through two beds of granular activated carbon. The two beds are linked in series and as the leachate passes through the first bed and then the second, organic pollutants dissolved in the groundwater are effectively removed by adhering to the carbon.

6. Hydrogen peroxide is injected into the effluent to oxidize the hydrogen sulfide generated by anaerobic bacteria which grow in the carbon beds.

7. Effluent is discharged to the City of Niagara Falls sewerage system in compliance with the sewer use ordinance.

REMEDIAL WORK - PHASE II

Monitoring of the groundwater elevation and the chemical quality of the groundwater near the perimeter of the clay cap revealed that (a) a considerable amount of recharge was occurring at the toe of the cap, and (b) chemical contaminants were present in the groundwater beyond the zone of influence of the barrier drain system prior to its installation.

Precipitation running off the clay cap was, by design, allowed to run overland to the streets where it entered the storm sewers and was conveyed off-site. Monitoring of groundwater elevations indicated that a significant amount of runoff from the cap percolated into the ground just beyond the toe of the clay cap created an area of unusually high recharge. The increased recharge at the toe of the cap resulted in large quantities of relatively clean groundwater entering the barrier drain from outside the landfill. The increased infiltration also created a mound in the shallow groundwater system which, during times of high recharge, tended to weakened the movement of contaminated groundwater back towards the drain.

At the request of the NYSDEC, in October 1981, USEPA entered into a contract with CH2M Hill, Inc., Reston, Virginia, to design an extended cap for the Love Canal site that would improve the efficiency of the leachate collection system. Also included in the design provided by CH2M Hill were elements of work which would further isolate the contaminants in and around the Love Canal from the surrounding area. The major elements of this work included:

1. Repairs to the leachate collection system

2. Expansion of the capped area and upgrading of the cap to include a synthetic membrane

3. Improved surface drainage in the vicinity of the Love Canal

4. Cleaning, abandonment, and plugging of storm and sanitary sewers that drained in the Love Canal site

5. New storm water drainage facilities for the Love Canal site

6. A below-grade concrete groundwater cutoff wall

In August 1982, detailed plans and specifications were completed for the supplemental remedies, and in September 1982, NYSDEC received bids for the remedial construction. NYSDEC also negotiated a contract with CH2M Hill to provide engineering services (construction management, contract management) during the remedial construction. In December 1982, NYSDEC awarded a contract to Sevenson Construction Corporation to perform the remedial construction.

PHASE II CONSTRUCTION

The following are summary descriptions of each of the major elements of the work included in Phase II.

Abandonment of Storm and Sanitary Sewers

The storm and sanitary sewers which served the Love Canal area of the City of Niagara Falls were known to be contaminated with chemicals that had migrated from the Love Canal. The sewers immediately adjacent to the Love Canal site (within rings I and II) were taken out of service, plugged to contain the spread of contaminated material, and cleaned. (The contaminated sediment and debris removed from the sewers is presently stored in drums on the site and are scheduled to be destroyed by the thermal destruction unit under design - see Phase IV discussion) The plugging of these sewers as well as utility trenches in the streets, eliminated their continued direct migration of chemical wastes from Love Canal, including in some cases, migration to Black and Bergholtz Creeks and the Niagara River.

The effluent from the Love Canal Leachate Treatment Plant was previously discharged into the 97th Street sanitary sewer. Since the 97th Street sanitary sewer was abandoned and plugged, a new effluent line from the plant was constructed and connected with the 95th Street sanitary sewer. After treatment to standards set by its wastewater discharge permit, effluent from the Love Canal Leachate Treatment Plant is conveyed to the City of Niagara Falls waste water treatment plant before it is discharged to the Niagara River.

Repairs to the Leachate Collection System

Before a new cap was constructed over the landfill, the barrier drain was cleaned and inspected, and necessary repairs were made. In the fall of 1982, NYSDEC hired O.H. Materials to clean and inspect the barrier drain on the southern portion of the Love Canal. As a result of this work, a number of sections of the drain were found to need repairs. Subsequent cleaning and inspection of the barrier drain along the central and northern portion of the Love Canal also revealed a number of areas that required repair.

All areas of the drain requiring repair were removed and replaced with new pipe, and the entire drain was cleaned. The drain was again inspected, and found to be acceptable. Contaminated sand, gravel, and debris resulting from the repair of the barrier drain were buried on-site inside the barrier drain and under the extended cap. As with any operating facility, the barrier drain, the pumps, the controls, etc., that comprise the leachate collection system will require periodic maintenance and repair. NYSDEC will continue to routinely inspect and repair, as necessary, the leachate collection system.

Improve Cap and Site Drainage

To reduce the amount of precipitation which infiltrated the ground near the barrier drain, an improved and expanded cap over the landfill was constructed. The clay cap, completed in 1980, was stripped of topsoil, regraded, and recompacted. Select soil was brought on-site, graded, and compacted to provide a suitable base for the new "cap".

The new cap was a synthetic membrane (liner) composed of high-density polyethylene, 40 mils thick. The cap was expanded to cover an area of approximately 40 acres and now extends at a minimum, 200 feet beyond the barrier drain to the east and to the west. Additional select fill was placed over the liner to protect it from weather and sunlight and to promote grass growth and minimize erosion.

The additional fill brought on-site and the spoiled materials from the repairs to the barrier drain created steeper slopes grading away from the landfill. The steeper slopes and the synthetic membrane result in significantly less infiltration of precipitation into the landfill. Precipitation now runs off the site and is collected by a new surface drainage system at the edge of the cap. This uncontaminated surface drainage is conveyed to area storm sewers by a system of new sewers which was built for this purpose. The new cap has resulted in less leachate generation and an expansion of the zone of influence of the barrier drain. Expansion of the zone of influence of the barrier drain should place under hydraulic control groundwater that, without the expanded cap, would be beyond the hydraulic influence of the barrier drain. Recent monitoring shows that the hydraulic influence of the drain extends nearly to the edge of the expanded cap.

Groundwater Cutoff Wall

A below-grade concrete wall was included in the original design of the Phase II remedial work. The concrete wall was designed to prevent groundwater from migrating beneath the expanded cap toward the barrier drain. It was anticipated that cutting off the influx of relatively clean groundwater would reduce the amount of water treated at the Love Canal Leachate Treatment Plant and would be a cost-effective means of reducing the long-term costs for operation and maintenance of the leachate collection and treatment system.

Subsequent analysis, however indicated that the cutoff wall would only slightly reduce the amount of leachate collected for treatment and, therefore was not cost effective. Furthermore, the cutoff wall would prevent groundwater contamination, if any, located outside the wall from ever being recovered by the barrier drain. For these reasons NYSDEC, with the approval of EPA, deleted the groundwater cutoff wall from the remedial work.

REMEDIAL WORK - PHASE III

The need for additional remedial work to address past migration of contaminants away from the Love Canal was identified in engineering studies performed for the USEPA and NYSDEC. This further remedial work is associated with the cleanup of the past migration of contaminants through the storm and sanitary sewers serving the Love Canal Area, as well as, the receiving waters of these storm sewer discharges where contaminated sediments have been found.

Remedies to address this migration, as well as the recognized need for an administration building at the site, were provided for in a ROD issued by USEPA on May 6, 1985. In addition to these ROD tasks, the design and installation of a perimeter monitoring system and the development of the Plasma Arc Technology, to address residuals resulting from the treatment of the Love Canal Leachate, were undertaken.

The following Phase III tasks associated with the Love Canal site have either been completed or are ongoing at this time and are described in more detail below:

- Perimeter survey/implementation of the long-term monitoring program. (Sampling on-going)
- Storm and sanitary sewer cleaning and Frontier Avenue storm sewer modifications. (Completed)
- Construction of Administration Building. (Completed)
- Use of Plasma Arc Technology. (Canadian testing completed, project terminated)
- Removal of contaminated sediments from Black and Bergholtz Creeks. (Underway)

Perimeter Survey / Implementation of the Long-Term Monitoring Program

The NYSDEC initiated a perimeter survey and began implementation of the permanent long-term monitoring system for the Love Canal site in the fall of 1985 under contract with the E.C. Jordan Co. of Portland, Maine. This program consisted of the following elements of work.

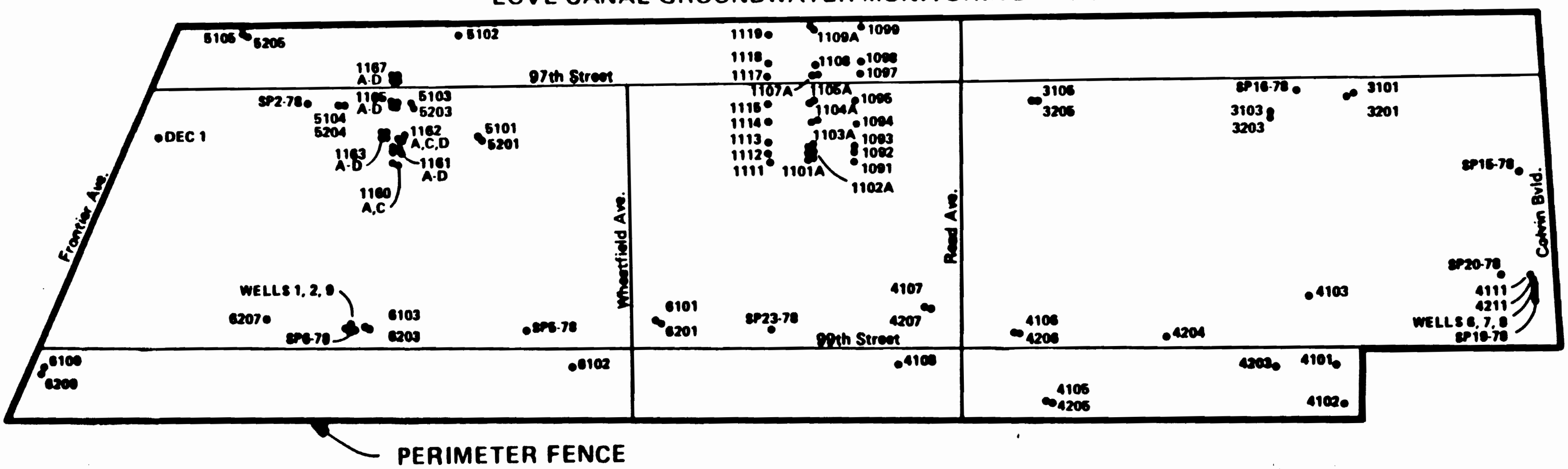
1. Thirty Eight (38) shallow groundwater monitoring wells have been installed at locations surrounding and near the perimeter of the Love Canal area. Soil samples were collected and analyzed during the boring prior to the installation of these wells, both at the surface and at the fill/lake clay interface to determine if the near-surface groundwater system had been significantly contaminated by past migration from the Love Canal site. If any significant contamination attributable to Love Canal was found in any of the borings, the boring was backfilled with grout and a new boring was then located at a greater distance from the Love Canal until an areal extent of significant contamination was established. It was the borings at the greatest distance from the Love Canal that had wells constructed in them for later groundwater sampling, creating a series of wells defining the perimeter of the site.

   It is the intent of the NYSDEC to use the information collected pursuant to the perimeter survey to determine the extent of significant contaminant migration away from the Love Canal site via the groundwater system and surface runoff. These wells will continue to be routinely sampled to confirm that contaminants are not migrating further from the site via the groundwater system. A complete description of the operation of the NYSDEC groundwater monitoring system is provided in Chapter III.

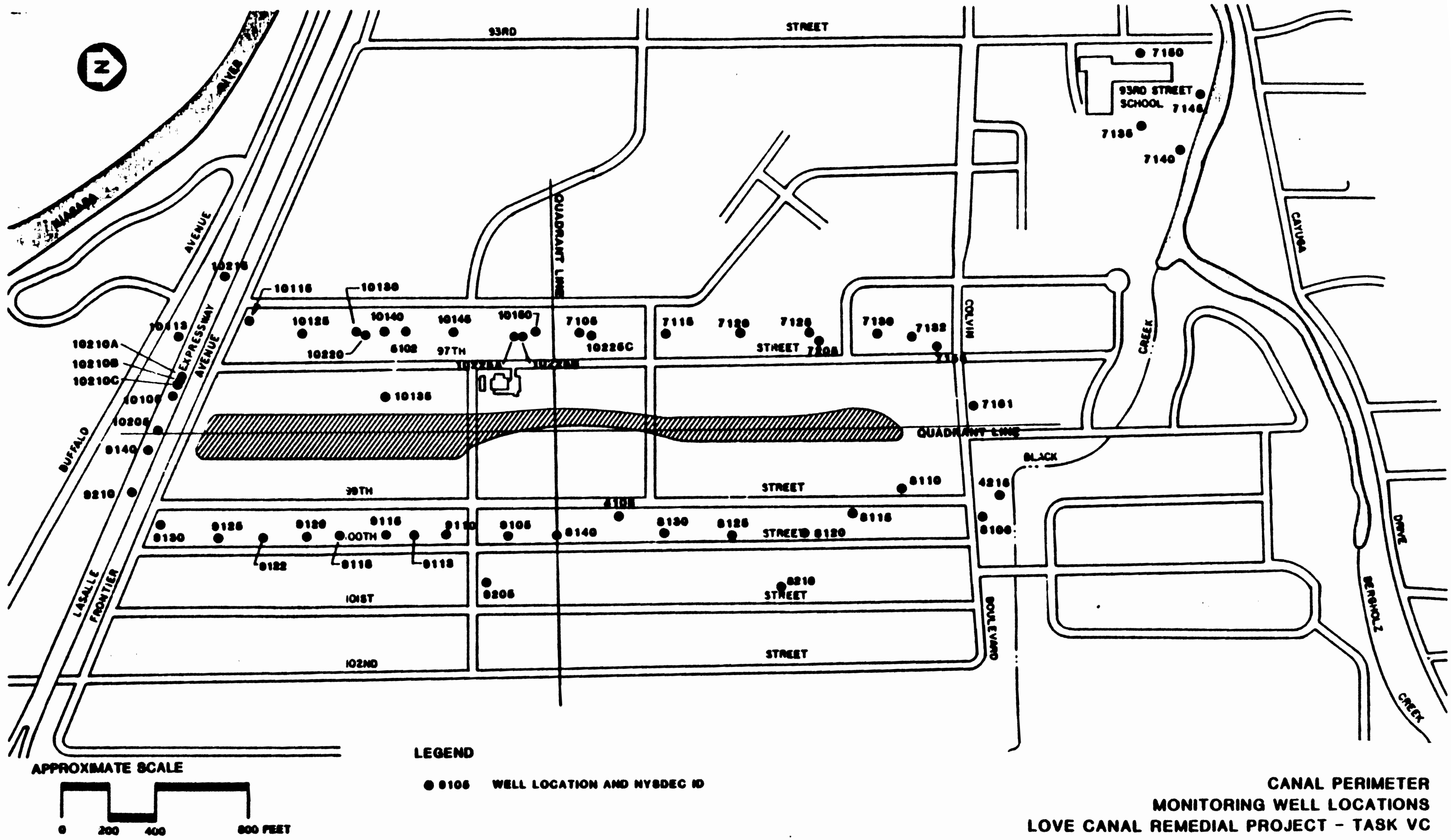
MONITORING WELL LOCATIONS - 1982

PLAN VIEW—MONITORING WELLS

LOVE CANAL GROUNDWATER MONITORING PROGRAM



MONITORING WELL LOCATIONS - 1987



CANAL PERIMETER
MONITORING WELL LOCATIONS
LOVE CANAL REMEDIAL PROJECT - TASK VC

E.C.JORDAN CO

2. A number of wells have been installed directly into the Love Canal in order to monitor liquid elevations within the waste. The purpose of these wells is to better monitor the effectiveness of the leachate collection system to remove mobile liquids from the interior of the landfill. Thirteen (13) wells were also installed near the Love Canal site and completed at depths within the bedrock underlying the site to better evaluate if or what potential exists for contamination of the bedrock groundwater system. The information obtained from these monitoring wells will also provide insight into the need for and the feasibility of additional efforts to dewater or remove liquid wastes from the actual landfill.

3. At five (5) locations, a series of closely spaced wells (nested piezometers) have been installed at several different depths within the overburden. These wells are relatively close to the barrier drain. Water elevations taken in these wells will better define the control the leachate collection system exerts on the shallow groundwater system.

   A final report, prepared by the E.C. Jordon Company and entitled "Love Canal Remedial Project Task V-C: Implementation of a Long-Term Monitoring Program", dated June 1987, details the design, construction and first year sampling results. It also presents the consultant's conclusions and recommendations for further work at the Love Canal site. (See Chapter III of this report: Effectiveness of Containment - "Perimeter Groundwater Monitoring System" for this discussion.)

Sewer Cleaning and Storm Sewer Modifications

The work associated with this task was completed under three separate contracts procured by the NYSDEC. The plans and specifications were developed by the NYSDEC Bureau of Engineering and construction administration was provided by the Division of Solid and Hazardous Waste A brief description of the work performed under these contracts is as follows:

1. Love Canal Area Storm and Sanitary Sewer Cleaning - December 1985 to August 1986. This contract consisted of the construction of a sewer sediment dewatering facility on the east side of the Love Canal site, the cleaning of approximately 60,000 l.f. of storm and sanitary sewer within the EDA utilizing both mechanical and hydraulic techniques, followed by the television inspection of these sewers to insure that contaminated sediments were removed. The sediment and debris removed (approximately 300 cubic yards for this project) remain in storage in the Sewer Sediment Dewatering Facility for eventual thermal destruction along with all other remedial wastes currently stored on site (see Phase IV discussion).

2. Frontier Avenue Storm Sewer Modification - April to June 1987. This contract provided for the reconstruction/realignment of the storm sewer located on Frontier Avenue between its former intersections with 97th and 99th Streets. This storm sewer was located inside the concrete utility cut-off walls constructed across Frontier Avenue and passed through the area contained by the barrier drain. The existing storm sewer was sealed with concrete and abandoned in place, with storm water drainage rerouted either through shallow piping to the LaSalle Expressway drainage system or to two new catch basins connected to the existing storm sewer which

remained in service outside the plugged sewer on the east side. This construction eliminated the last known pathway for potential contaminant migration from the containment area of the Love Canal.

3. Frontier Avenue Storm and Sanitary Sewer Cleaning - September to November 1987. Confirmatory sampling downstream of the areas cleaned in 1986 indicated some further areas of contaminated sanitary sewers between 76th and 81st Streets along Frontier Avenue. This area, and those storm sewers downstream of the storm sewer modification on Frontier Avenue, consisting of a total of approximately 3400 l.f., were cleaned and inspected utilizing the same techniques as the previous sewer cleaning contract. Approximately 15 cubic yards of material was removed from the sewers.

Love Canal Administration Building

The Love Canal Administration Building is a 2,900 square foot, single story wood framed building. The building is used by the Love Canal Leachate Treatment Facility Operators and by on-site NYSDEC personnel for administration purposes. The building provides proper hygiene facilities, storage room and office space. Included in the building is an administration office/conference room, washroom, locker rooms, shower room, equipment storage room, mechanical room, garage and laboratory. Work under the Administration Building project also included the installation of a remote controlled entrance gate and communications system as well as an entrance gate flood light. Construction of the Administration Building began in July 1986 and the NYSDEC on-site personnel occupied the building in February 1987.

Use of Plasma Arc Technology

The NYSDEC was involved in the development of the Plasma Arc Technology for destruction of the sludges generated by the LCLTF and currently stored on-site. The first phase of the project, testing in Canada, was completed. However, as a result of contractual difficulties work on this project was terminated by the NYSDEC on January 12, 1988. The sludges proposed for destruction by the Plasma Arc will now be handled as a waste stream under the thermal destruction unit planned to be employed at the site (see Phase IV).

Removal of Contaminated Sediments from Black and Bergholtz Creeks

The Black and Bergholtz Creeks located at the northern boundary of the 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. identified 2, 3, 7, 8 - tetrachlorodibenzo- p-dioxin (dioxin) in the sediments of both the Black and Bergholtz Creeks. NYSDEC entered into a contract with TAMS Consultants, Inc. in July 1986 to design the excavation and storage of the contaminated sediments.

The project was bid on December 17, 1987 and a construction contract with Sevenson Environmental Services, Inc., was awarded by the NYSDEC to perform this work on April 1, 1988. Work under this project has begun with the construction of the Dewatering Containment Facility (DCF) located in the southwest corner of the Love Canal site. The DCF is an earthen bermed structure with a double composite liner system which provides for both leak detection and leachate collection. The DCF is designed to dewater and provide storage for the contaminated creek sediments (estimated to be 15,000 cubic yards) and associated construction materials which became contaminated during the excavation of the Black and Bergholtz Creek (estimated to be 10,000 cubic yards), as well as, other remedial wastes currently stored on site (see Appendix 8 for a description of the quantity of wastes stored at the Love Canal site). This facility is projected to be completed to accept wastes from the creek excavation by Spring 1989.

The actual cleanup of the creeks, using mechanical excavation techniques, is scheduled to start in 1989 and be completed by Fall 1989 with closure of the DCF to follow. Preliminary work along the creeks, consisting of clearing and the preparation of access and staging areas, has begun.

Also being constructed under this contract is a Decontamination/Drum Storage Facility, which will provide for the storage of drums generated during site operations, as well as, a new permanent decontamination facility for vehicles at the site. As part of this contract the existing Sewer Sediment Dewatering Facility will also be cleaned of sediments (these will be deposited into the DCF) and rehabilitated for future use.

REMEDIAL WORK - PHASE IV

Residual wastes generated as a result of the remedial activities as well as processing the leachate have been stored at the Love Canal site. The need to develop a permanent solution for these wastes was recognized by the NYSDEC and USEPA and the work to be performed under the Phase IV program will implement the solution.

At this time, design is set to begin for two remedial actions at the Love Canal site which will involve the treatment or destruction of contaminated material. This section provides a brief description, schedule and discussion of the factors which may affect the timely initiation and completion of the work. Plans and specifications for this work will be publicly presented and available for public inspection. Consideration will be given to all comments received in the finalization of these plans.

Phase IV tasks are as follows:

1. 93rd Street School Soil Stabilization/Solidification

2. On-site Thermal Destruction of Sewer and Creek Sediments and other Love Canal Remedial Wastes.

93rd Street School Soil Stabilization/Solidification

The 93rd Street School is located on 93rd Street, near its intersection with Shantz Avenue in the northwest corner of the EDA. The site is bounded on the north by the Black and Bergholtz Creeks, the east by the backyards of the homes facing 96th Street, on the south by Colvin Boulevard. (Niagara Housing Authority property is also considered part of the site) and on the west by 93rd Street.

A Remedial Investigation/Feasibility Study was prepared by Loureiro Engineering Associates, Inc. under contract to the NYSDEC and the USEPA is expected to issue a ROD in September 1988 outlining the selected remedy as follows:

- Excavation of approximately 7,500 cubic yards of contaminated soil followed by on-site solidification/stabilization of this material;

- Placement of the solidified soil on-site within the same area of contamination from which it originated, with a low permeability cover installed over these areas and extended to other areas which exhibit lower levels of contaminated soil at the site;

- Additional sampling and analysis (with the lowest achievable levels of detection) of the groundwater to determine whether applicable or relevant and appropriate federal and state requirements (ARARs) and other criteria to be considered for groundwater are being met. This sampling was conducted in May 1988 and the analytical results are anticipated to be available in the fall of 1988;

- Monitoring of the groundwater in accordance with RCRA 40 CFR Section No. 264 Subpart F; and

- Treatability studies during the remedial design to determine the effectiveness of the solidification process for the particular soil and its ability to meet specified treatment levels. Should the treatability studies determine that solidification would not provide the desired degree of treatment (e.g., Land Disposal Restriction treatment standards), then treatability studies would be performed to determine the effectiveness of other treatment techniques (including thermal treatment for the on-site soils.

The project schedule for the 93rd Street School calls for the design of the remedy to begin in the Fall of 1988 with completion of design in the Fall of 1989. Construction is scheduled to begin and be completed during the 1990 construction season.

At this time, it appears only two significant factors could affect the timely initiation and completion of this work. The first is a delay in the completion of the Black and Bergholtz Creeks remediation project which uses the 93rd Street School site as its base of operation. The second factor which could delay implementation would be if after treatability studies it was determined that a stabilization/solidification technology was not able to meet requirements for use in the project. If this were to occur, a significant delay would be experienced to implement the ROD specified alternative remedy of on-site thermal destruction at the Love Canal site.

On-Site Thermal Destruction of Contaminated Sewer and Creek Sediments and other Love Canal Remedial Wastes

On October 26, 1987, the USEPA issued a ROD which provided for the permanent destruction of remedial wastes at the Love Canal site. This ROD for the Love Canal site provides for the following actions that address the destruction/disposal of dioxin-contaminated sewer and creek sediments.

- The sewer and creek sediments will be thermally treated at the Love Canal site. The wastes will be treated with a transportable thermal destruction unit (TTDU), so that mobilization and demobilization can be readily accomplished. Six nines (99.9999%) destruction and removal efficiency will be the performance standard.

- The TTDU will treat all creek and sewer sediments placed in the dewatering/containment facility (DCF) (to be constructed), as well as residuals stored on-site from the operation of the on-site leachate treatment facility, and other associated material generated as a result of remediation (e.g., haul roads.)

- Materials not requiring thermal treatment (e.g., uncontaminated debris from excavated Ring II homes) will be placed in a separate construction/demolition debris facility (CDDF), which will be a compartment within the DCF.

- After determination that the residuals from the thermal destruction process are non-hazardous, they will be disposed on site in selective areas, so as not to impinge on the integrity of the existing cap over Love Canal.

- Upon completion of thermal treatment, the dewatering/containment facility (DCF) will be scaled down to accommodate only the construction/demolition debris.

The NYSDEC is proceeding to implement this project in accordance with the schedule outlined in Figure 6. Other than the potential for delay arising from problems the thermal destruction contractors may have in complying with the technical and substantive requirement of the applicable regulations, the major impact on this schedule and project as a whole is posed by the Occidental Chemical Corporation's (OCC) Proposal. In February 1988 OCC made public a proposal to construct and permit a storage facility and solids incinerator at their Niagara Falls Main Plant site. These facilities would accept, among other wastes, those generated during the excavation of the creeks, as well as, all other Love Canal wastes for storage and eventual thermal destruction. This proposal could eliminate the need for NYSDEC to use the containment facility at the Love Canal site, and to site a thermal destruction unit at the site as well. Due to the lack of sufficient detail and lateness of this proposal the state and federal governments declined to stop the ongoing projects, however, OCC was informed that if they could catch up to the current project schedules their participation would be considered.

RELATED CONCERNS

In addition to the elements of the remedial program outlined above which are the subject of this chapter, several other peripheral issues have been identified.

102nd Street Storm Sewer Outfall

Previous studies of the Love Canal identified two other locations, both outside the EDA, which may have been impacted and which are not addressed by

FIGURE 6

SCHEDULE FOR LOVE CANAL ON-SITE THERMAL DESTRUCTION OF WASTES

Task	Schedule
Remedial Design	9/88 - 9/89
Procure Thermal Destruction Contractor	9/89 - 5/90
Prepare "Permit" Documentation	5/90 - 7/90
USEPA/NYSDEC Review Documentation	7/90 - 5/91
Trial Burns	4/91 - 10/91
Evaluate Trial Burns/ Provide Operational Approval	7/91 - 4/92
Characterize Residuals	11/91 - 11/92
Production Burn	10/92 - 10/93 +

the current remedial program. The first is the 102nd Street Storm Sewer Outfall area. While an interim remedy for this area was identified in the May 6, 1985 USEPA ROD for Love Canal, it is now NYSDEC's recommendation that this problem be addressed as part of the remedial program for the 102nd Street Landfill site, to be implemented by the responsible parties. The recommendation is based on the fact that the subsequent studies associated with the 102nd Street site program confirm contamination well beyond the limits of construction defined in the May 6, 1985 ROD.

Cayuga Creek

The second location identified, was the Cayuga Creek. A program of sampling and analysis was undertaken which resulted in only two possible areas of contaminated sediments with hits of 1.09, 1.28 and 0.99 ppb of dioxin. Since both are in the vicinity of sewer discharges which may have received flows from the Love Canal area, a program of more extensive sampling is being proposed for these two areas. While any remedial activities associated with this Cayuga Creek will be outside the EDA, it is possible that if a limited sediment excavation is required it may be transported to the Love Canal site for storage and destruction.

Methodist Churches

Another area requiring attention has been the presence of two sites within the defined EDA which are listed on the New York State Inactive Hazardous Waste Site Registry as the 97th Street (Site No. 9-32-84B) and 99th Street (Site No. 9-32-84A) Methodist Churches. Based upon the fact that the site of the 99th Street Methodist (Site No. 9-32-84A) Church is now under the Love Canal cap, a petition to delist the site was approved by the NYSDEC in February 1988. A modified Phase II investigation consisting of sampling of existing monitoring wells on or adjacent to the 97th Street Methodist Church (9-32-084B) site and a review of existing soil samples taken at this site is underway. Depending upon this review of available data, a final decision regarding the delistability of the site could be made by the Fall of 1988.

Home Maintenance Program

In 1986 the Superfund Amendments and Reauthorization Act (SARA) authorized federal funds for maintenance of EDA homes acquired by a public agency. In addition, SARA authorized $2.5 million to the Love Canal Area Revitalization Agency for acquisition of EDA properties that were not previously eligible for acquisition including commercial, religious and rental properties. The NYSDEC contracted with Stuart Alexander and Associates to furnish consulting services for inspection of homes, preparation of general construction and heating contracts, and construction oversight.

A General construction contract was recently awarded to Buffalo Asbestos Removal Company, Buffalo, New York for stabilizing maintenance such as repairing of roofs, boarding up of doors and windows, and stripping of interior deteriorated materials in 347 houses in the EDA. An additional 13 homes are being added to the contract. The construction work on this contract started in June 1988, and is expected to be completed by December 1988. A second contract for the repair of heating units may be let this year, once inspections to assess the extent of these repairs are completed.

Frontier Avenue Sewer Investigation

During the course of the May 1988 round of sampling of the long term monitoring system, a sample collected by the NYSDOH from a storm sewer manhole (MH412) located on the storm sewer in Frontier Avenue was found to contain a small amount of a Non-Aqueous-Phase-Liquid (NAPL) like material. In response to this event, the NYSDEC investigated past records of the sewer cleaning and storm sewer modification work and also performed an investigation of MH412 and the new catch basin installed on Frontier Avenue (CB190B). Both structures had a chemical smell at the time of the inspection. While this investigation revealed a small amount of NAPL-like material in MH412, historic records (i.e. logs video tapes and inspection reports) do not support a connection to a source of contamination other than the sewer bedding in the vicinity of CB196B. The NYSDEC is preparing a program to immobilize this material and seal the sewer joints and will continue to monitor this manhole.

Lot C

On a vacant lot on 100th Street, identified as Lot C, 2,3,7,8 - TCDD was found in the range of 17 to 21 parts per billion (ppb) in one soil sample taken for the soil assessment of the EDA for the Love Canal Habitability Study since the action level for dioxin in residential soil is one ppb upon notification of this result in February 1988, the NYSDEC installed a 100' by 140', six feet high chain-link fence to isolate the vacant lot area in March, 1988 and hazardous waste signs were posted on the fence to discourage unauthorized entry into the area.

In order to better define the extent of dioxin contamination, the USEPA contractor, Ecology and Environment, sampled the fenced area on April 11 and 12, 1988. The results confirm the dioxin contamination in the range of 5.9 to 35.1 ppb, down to 12 inches, in the same general location where the original sample was taken. All other sample results showed no contamination detected. See Appendix 6 for analytical results. A remedial program will be developed to excavate and drum these soils. All drummed soil will be taken to the Love Canal site and stored in the Dewatering Containment Facility (DCF).

CHAPTER III
EFFECTIVENESS OF CONTAINMENT

LONG TERM MONITORING SYSTEM

Overview

The geology and hydrogeology of the Love Canal govern the movement of chemicals in the ground. In the three decades that passed between the time the wastes were disposed and the problem was fully recognized, groundwater flow aided the spread of chemicals through the ground, increasing the threat to human health and also extending the damage to the environment. Remedial actions have been undertaken to contain, recover and treat escaping contaminates. At the same time other aspects of the geology have acted to limit some aspects of contaminant migration.

In order to evaluate the effectiveness of the remedial work performed at the Love Canal, a number of monitoring activities have been undertaken. Primary among these is a system of overburden and bedrock monitoring wells ringing the Canal. One subset of these wells is designed to evaluate the effectiveness of the collector drain system as a hydraulic barrier, while a second subset is designed to evaluate its effectiveness as a barrier to the movement of chemistry. Wells in the second subset have been installed at a distance which appears to be beyond significant migration of Love Canal related compounds. Spacing of these wells was chosen to maximize the likelihood of detecting a point failure in the barrier drain system.

This Section will present findings which relate to the containment of the original Love Canal chemical wastes. The studies which led to these findings centered on the flow of both contaminated and uncontaminated groundwater (contaminated groundwater is also known as "aqueous phase liquid", or "APL"), and concentrated liquid chemical wastes (also called "non-aqueous phase liquid", or "NAPL"). Before discussing these, general background material is provided to facilitate an understanding of the findings presented. Finally, as remedial work continues at the Canal, certain evaluation activities will also be continued and others will be instituted as required. This will insure an ongoing process to continuously evaluate and answer the question: "Is the containment system working?"

Throughout this Section reference will be made to the study titled "Love Canal Remedial Project Task V-C: Long Term Monitoring Report", with Appendices, prepared by E.C. Jordan Company, June 1987. (This report is available for review at the Love Canal Public Information Office). Task V-C was designed primarily to evaluate the effectiveness of the barrier drain system (described in Chapter II: Remedial Work - Phase I), the synthetic membrane and extended cap, and the utility cutoff walls. Under Task V-C 43 monitoring wells were installed in the overburden and bedrock, and 52 piezometers were constructed in nests in the overburden. Hydraulic readings have been taken in the nested piezometers monthly for the last three years, and groundwater samples have been collected for chemical analysis from the monitoring wells at approximately six month intervals for the last two and one half years. The monitoring well sampling results from this program are presented in Appendix 5 to this report. Some of this data is reported here for the first time. In addition to results from Task V-C, other evidence has been drawn upon as noted. Appendix 5 also provides data from piezometer measurements as well as chemical data from other wells at the site which were installed to establish the extent of contaminant migration.

The results of study point to the conclusion that the barrier drain is functioning as designed, and is (1) capturing any contamination which is migrating laterally outward from the Love Canal, (2) reducing hydraulic pressures (the driving force for migration) within the Canal, and (3) recapturing nearby aqueous phase contamination on the outside of the drain which escaped prior to its construction. In addition, the clay layer provides a barrier to vertical migration.

The evidence referred to is in the form of hydrogeological and chemical data. In order to understand these conclusions in context, a brief synopsis of site geology is presented, along with an exposition of the basic hydrogeological principles upon which the interpretations are based.

Site Geology

The discussion that follows is intended to give only a general explanation of the origin, composition, and sequence of deposits, in order to better explain what is known of contaminant migration. (A more detailed description of site geology is available in the E.C. Jordan Company report). The remediation program already undertaken has modified groundwater flow to inhibit the transport of toxic chemicals away from the buried wastes. For discussion of the effects of remedial works on underground migration, see Chapter II of this report: "Remedial Program History", especially the sections on Phases I, II, and III.

All natural deposits underlying the Love Canal area to a depth of several hundred feet below sea level are sedimentary in origin, which is to say they originated as particles deposited in place from a transporting medium such as water or glacial ice. Such deposits occur in layers, or "beds", and tend to be continuous over extended areas, as these deposits do throughout the Love Canal area. Geological reports usually describe the sequence of sedimentary units from oldest to youngest. That convention will be suspended here because it would result in describing the lowermost geological unit first. Instead, the units will be described from the topmost downward, since this is the general sequence in which migrating contaminants would encounter them. (See Figure 7 for diagram of overburden deposits).

The term **overburden** refers to those unconsolidated deposits which occur near the earth's surface, and which overlie the **bedrock**. At the Love Canal the total thickness of overburden varies between approximately 20 and 40 feet.

The uppermost stratum at the Love Canal and surrounding area is composed of both **fill** materials **and silty sands**. The fill has resulted from the reworking of soils and the placement of debris (such as old building materials and brush) during residential and commercial development, and subsequent demolition, at the site. Due to its highly variable nature, its hydraulic properties can vary from place to place.

The fine grained, silty sands of this unit sometimes underlie the fill and, where the fill is absent, are exposed at the surface. These are the uppermost natural deposits and were probably formed by glaciofluvial action, that is, from deposition by small streams at the close of the Ice Age. Such deposits are moderately uniform over an extended area, but variations in grain size often occur locally, especially in the vertical direction. This characteristic is important in evaluating groundwater flow. The thickness of the fill and silty sand unit typically ranges from 2 to 6 feet, while it has been found to be as thick as 8 feet in locations of former swales at the site.

The unit below the fills and silty sands is composed of **clays and clayey silts**, which are extremely fine grained deposits. These originated in a lake that was formed by glacial meltwater. When the lake emptied, the upper portion of this clay unit was exposed to the sun and dried out. As it lost its water content desiccation cracks formed. The desiccation cracks are vertical fractures that were subsequently filled by the relatively coarser silty sands. As the upper clay zone dewatered, it became very stiff. On the other hand, the lower part of this unit remains very soft and massive (that is, it does not separate into distinct layers, or beds). While the clays are described as one geological unit based on their origin, it is important to note the distinction between the stiff upper zone and the soft lower zone, for this difference is crucial to an understanding of the hydrogeology at the site. All information to date indicates that the unit is continuous across the site. It has a thickness ranging from 12 to 25 feet.

The next lower unit is the **glacial till**, which is generally recognized by the occurrence of sand and gravel within it. Its composition by grain size varies widely; it contains a large amount of clayey silt near its contact with the lacustrine deposits above, and contains larger amounts of sand and gravel near its contact with the bedrock that immediately underlies it. The glacial till varies in texture and composition from wet and loose to only slightly moist and stiff. The thickness of glacial till at the site varies from 2 to 20 feet. Thin areas of till generally correspond with greater thicknesses of lacustrine clays and clayey silts.

Below the glacial till lies the **bedrock**. At the Love Canal, the uppermost bedrock strata are part of the **Lockport dolomite**, a group of formations of Silurian age. Members of the Lockport group are thickly bedded, grey dolomite and limestone formations, with significant horizontal fractures along the bedding planes. Vertical fractures (technically called "joints") are also present in the upper 15 or 20 feet. (The Lockport dolomite group is about 180 feet thick). The bedding planes and vertical fractures, along with open pockets created by the dissolving of more soluble minerals from the rock, are referred to as "secondary openings". At Love Canal these secondary openings, (rather than the "primary" openings between the boundaries of individual mineral grains within the rock), provide the pathways for virtually all groundwater movement in the bedrock.

Below the dolomite lies **Rochester shale formation** of the Clinton Group, also of Silurian age and about 60 feet in thickness. The Rochester formation is a fine grained calcareous shale, which is generally considered to lack the secondary openings associated with the Lockport group. Stated another way, regionally the Rochester formation is considered to be a bedrock confining layer.

Site Hydrogeology

Strictly speaking, the term hydrogeology refers to the study of water flow within geological units. Unlike surface water, which flows strictly in response to gravity, groundwater can flow both "uphill" as well as "downhill" in response to pressure differences. These pressure differences are measured by "piezometers", or narrow diameter wells designed to measure groundwater elevation within a particular geologic horizon.

At the Love Canal, when non-aqueous phase liquid (NAPL) is present, two phase liquid flow conditions pertain. Strictly speaking, NAPL flow is not part of hydrogeology. However, the aspects which involve underground fluid flow will be discussed here for convenience. The physical properties of NAPL determine its flow characteristics. While there are many qualities of NAPL that are not well understood at this time, it is known that NAPL is concentrated chemical waste. Like many waste materials NAPL is often not uniform, either within a site or from site to site. However, Love Canal NAPL is generally characterized by being (1) composed of heavily chlorinated organics, (2) heavier than water, and (3) easily recognized in field by color and/or odor. NAPL seems to behave differently from water in these ways: (1) it flows in response to gravity rather than differential water pressure; (2) its wetting properties are different: it tends to stick to metals, bedrock crevices and coarse soil particles, and migrate along them, (3) its surface chemistry is different: it tends to be non-ionic, (4) its viscosity is high. As a result, NAPL often follows the same pathways as groundwater, but behaves differently in them.

In terms of natural deposits the hydrogeology in the Love Canal area is dominated by two "aquifers" separated by an "aquitard" (a layer resistant to groundwater flow). The upper aquifer is comprised of the fill and silty sands, and the hard, fractured clays. The unconfined groundwater table is contained within the upper aquifer. The second aquifer is a confined shallow bedrock aquifer. It is contained within the highly fractured zone of the Lockport group and the coarser materials at the base of the glacial till. The aquitard that separates these aquifers is comprised of (1) the massive soft clays which are the lower half of the lacustrine deposits, as mentioned above, and (2) the lower permeability zones found in the upper zones of the glacial till.

The upper aquifer is recharged by local precipitation in the forms of rainfall and melting snow, which infiltrates directly into the ground. Depth to the surface of the water table fluctuates seasonally, being nearest to the ground surface in the spring and deepest in the late summer. Generally speaking, hydraulic gradients in the area are small, except within the influence of the barrier drain. The low hydraulic gradients lead to low groundwater flow velocities throughout most of the upper aquifer.

The shallow bedrock aquifer is recharged indirectly, primarily from areas along the Niagara Escarpment to the north. Flow within the shallow bedrock aquifer is controlled by this recharge and the hydraulic head of the Niagara River. Flow directions in the area are predominantly south south-west, although it has been observed to reverse direction and flow to the north north-east. (This might be expected to happen, given the small hydraulic gradient present at the site). The water in this aquifer is contained within the secondary openings of the upper dolomite, with flow being primarily in the horizontal bedding planes, and to a lesser extent in the vertical fractures. The hydraulic potential (that is, the elevation to which water rises within a well) for this aquifer is relatively constant, exception for daily fluctuations in the Niagara River caused by the diversions for hydroelectric power plants downstream.

On one hand, local geology provided pathways for potential human exposure to Love Canal chemicals. On the other hand, the relative impermeability of the soils along the bottom and lower sides of the canal restricted groundwater flow in that zone. These factors have led to the following hypothetical assessment. Precipitation over the years entered the Canal from the surface, but could not drain away readily through the lower sides or bottom. As a result, this water began to fill up in the buried waste area, mixing with the chemicals. The contaminated water (leachate) reached the harder clay and silty sands. The leachate was then able to flow away from the inactive landfill via the cracks in the hard clay (stiff upper zone) and through the more permeable silty sand. In a hypothetical sense, the Canal filled up like a bath tub and overflowed. Thus the chemicals were transported near the surface, where they would later reach the foundations of homes and infiltrate sewer lines.

Results of Perimeter Groundwater Monitoring - Hydrology

This section presents an analysis based on field data, and presents a background discussion to aid in understanding its interpretation. Figures 7, 8, and 9 show a cross-section from the center of the waste zone eastward to 99th Street. These cross-sections are located along the alignment of Read Avenue. They are typical for any section across the barrier drain and will be used to illustrate the mechanisms which are operating to achieve and maintain containment. Each is designed to overlay the others, and they are drawn with a vertical exaggeration of 5 times horizontal to facilitate interpretation.

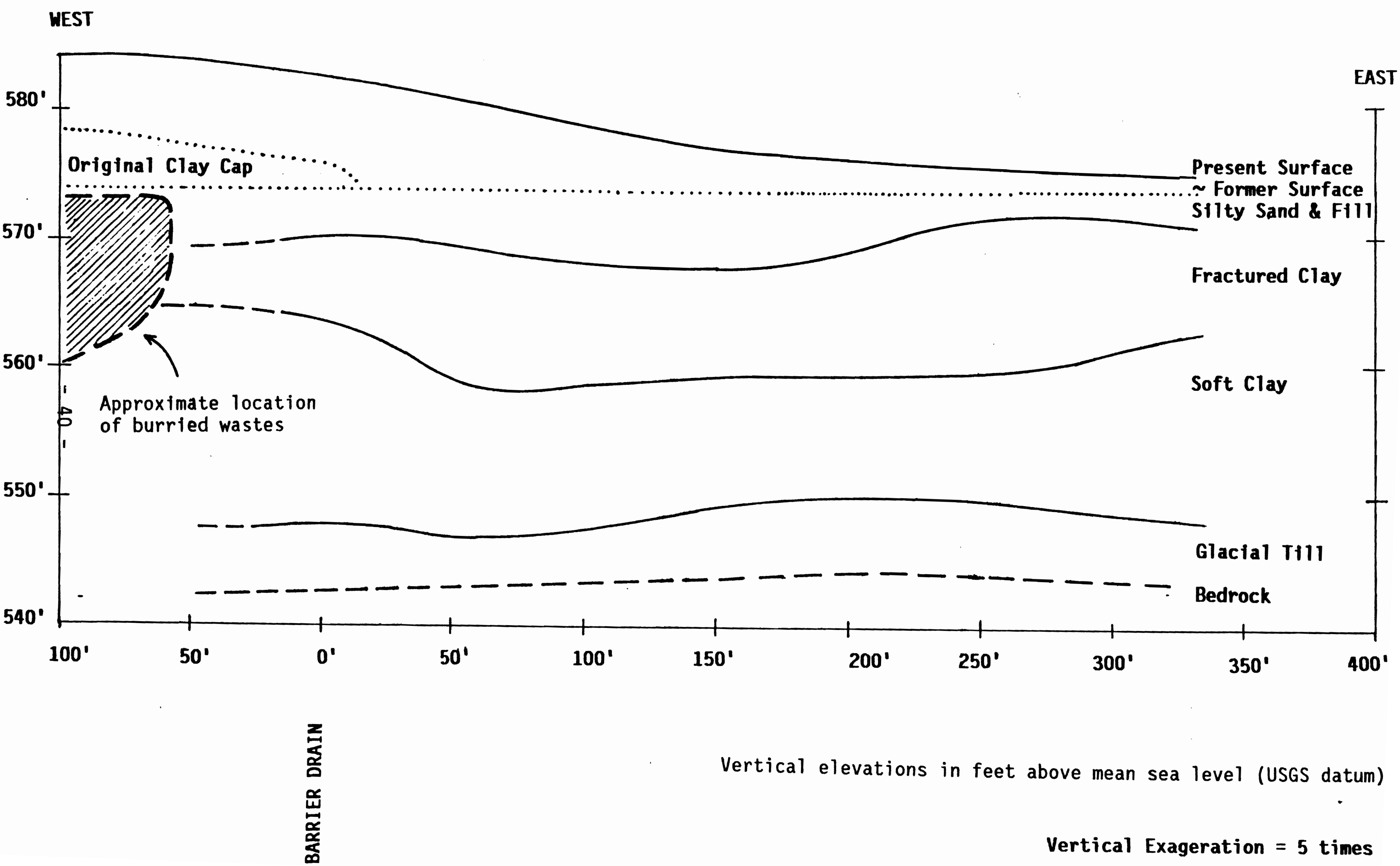
Before remedial activities were undertaken, groundwater flowed under low gradient as described previously. The water table was nearly level, except for depressions in the vicinity of storm and sanitary sewers. At these locations one can assume that bedding materials around the pipes and infiltration into the pipes provided a groundwater sink. Where these artificial influences crossed or passed near the Canal they were attractors for both leachate and NAPL. This assumption is confirmed by the finding of high levels of contamination in sewer line sediments, which were subsequently removed (see Chapter II: Remedial Work - Phase III).

Figure 7 shows the overburden deposits, as interpreted from drilling logs of the piezometers identified on Figure 9. Figure 8 shows groundwater flow directions based upon the equipotential lines from Figure 9. Figure 8 will be discussed first.

The GROUNDWATER FLOW DIRECTIONS shown on Figure 8 are based on data collected on February 24, 1987, as presented in Figure 9, EQUIPOTENTIAL DIAGRAM. (The data used to prepare Figure 9 can be found on Table 1 in Appendix 5). To a hydrogeologist, the equipotential diagram is the key to visualizing groundwater flow. It will be explained here to provide the reader with a basis for understanding the subsequent discussion. While the concept of "equipotential lines" is an abstract one, it may be understood by analogy to the "isobar lines" found on a weather map. Just as isobars connect points of

OVERBURDEN STRATIGRAPHY

Figure 1

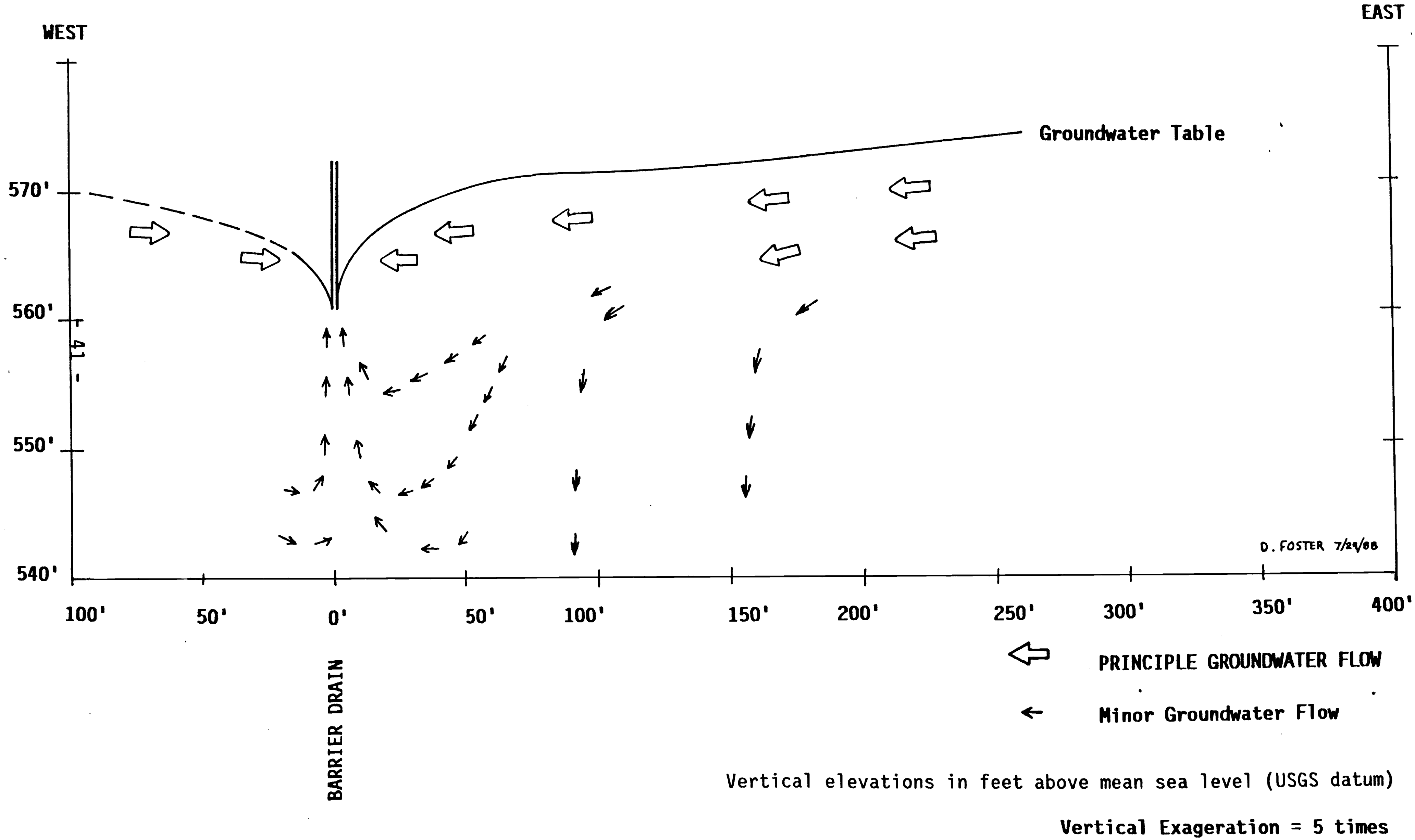


Vertical elevations in feet above mean sea level (USGS datum)

Vertical Exageration = 5 times

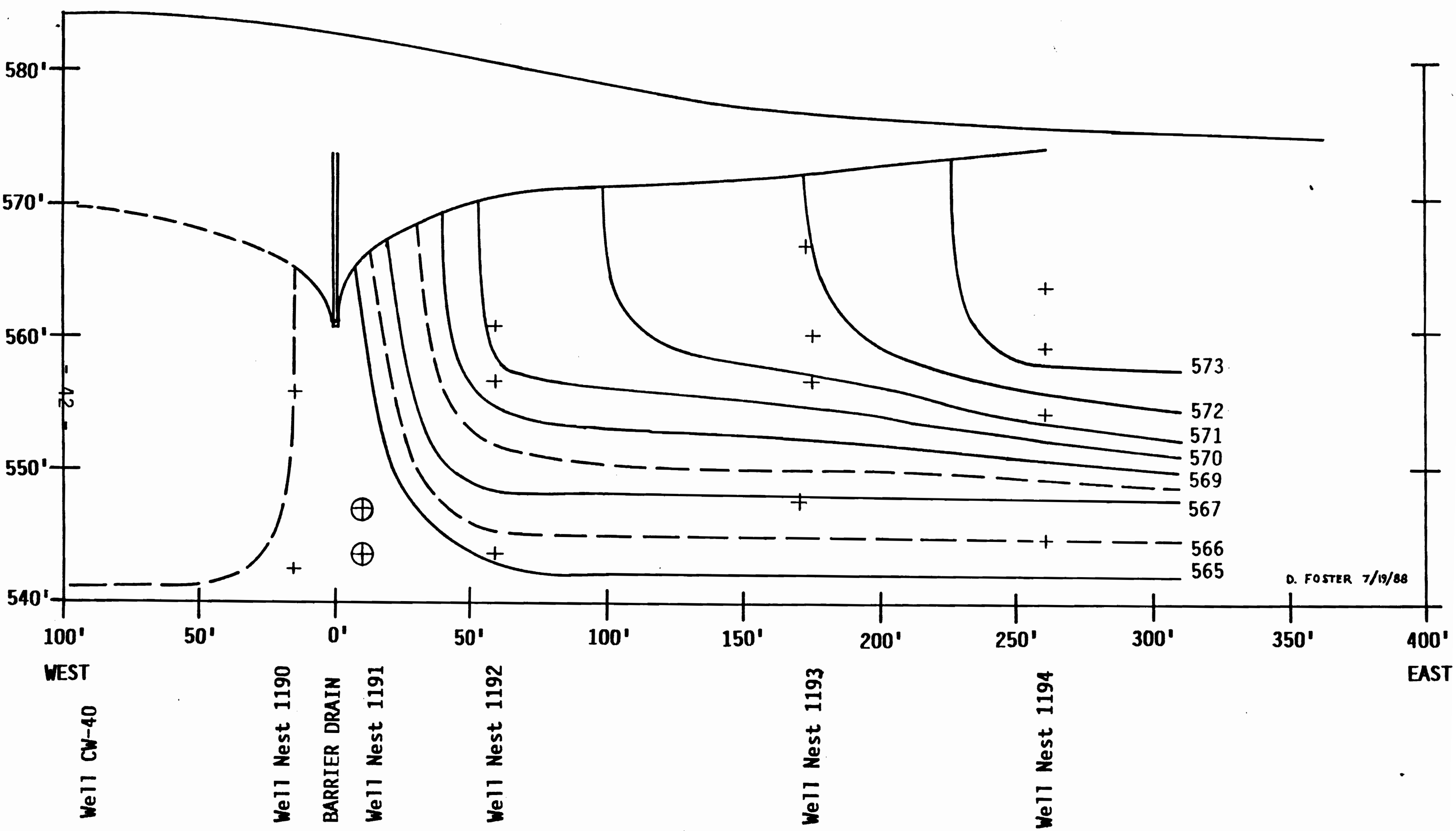
GROUNDWATER FLOW DIRECTIONS

Figure 8



GROUNDWATER EQUIPOTENTIAL LINES

Figure 9



NOTES:
Groundwater data from 2/24/87
Vertical Exageration = 5 times
Equipotential lines connect points of equal groundwater pressure. They are the key to

Equipotential line from measured data
Equipotential line inferred
+ Piezometer screen location (measuring point)
⊕ Anomalous data point

equal atmospheric pressure, equipotential lines connect points of equal groundwater pressure.

To produce an equipotential diagram (in either map or cross-section form), readings are taken of static water levels in piezometers. The piezometers are installed as nests in order to sample various horizons in the ground, and are distributed aerially to provide proper coverage for the investigation. To be valid, all readings must be taken at the same point in time. The data are then plotted and equipotential lines are constructed from them.

By definition there is no pressure difference along an equipotential line, and thus no flow can take place along such a line. It follows that maximum pressure differences must occur between equipotential lines (in fact, perpendicular to them). Therefore, arrows at right angles to equipotential lines define flow directions within the groundwater system. The arrows on Figure 8 were constructed in this way.

Figure 9 represents an area on the east side of the Love Canal near Read Avenue. (Data from other locations around the Love Canal barrier drain produces very similar results, as does data collected on other dates. In each case the results lead to essentially the same conclusions). The "+" symbols on Figure 9 identify the locations of the screened intervals in the various piezometer nests. The nests are identified by well number at the base of the diagram. The equipotential lines are identified by the elevation above sea level to which the groundwater would naturally rise at each point.

The equipotential lines terminate at the groundwater table, which is the static water level of the saturated zone. You will note that the groundwater table is at right angles to the equipotential lines. In fact, groundwater flows along the water table in response to gravity, and the surface of the water table constitutes a flow line.

When groundwater has a place to flow toward (a "sink" such as a surface stream or artificial drain), it will flow fastest in relatively permeable zones and slowest in relatively impermeable zones. Also, other things being equal, flow will tend to be horizontal in permeable zones and vertical in impermeable zones. (See Figure 8).

The barrier drain is a groundwater sink. As groundwater accumulates in the drain system it is removed, and the drain may be thought of as a point of low groundwater pressure. Flow takes place toward the drain both along the water table and also upward from beneath the drain. This is not a theoretical assumption; it is clearly demonstrated by the measured data. At increasing distances, the effect of the drain diminishes. The equipotential lines become nearly horizontal and parallel at a distance of about 250 to 300 feet outside the barrier drain, suggesting more nearly vertical flow in the soft clay as one moves outward away from the Canal. The quantity of groundwater which moves downward in this way is relatively small, compared to the horizontal flow.

It is important to note that the equipotential lines reveal the **potential** for groundwater flow, and are **not** related to the quantity of flow. (In order for flow to take place there must be both the potential for flow and sufficient permeability to permit flow. If sufficient permeability were present, the ability of the soil to drain would cause flow to tend toward the horizontal.

The exception to this is where groundwater gradients are very high, as near a pumping well or active drain). Thus, the measured phenomena underscores the effectiveness of the soft clay as a confining layer.

This analysis is consistent with the hydraulic data summarized in the E.C. Jordan Company's report on "Project Task V-C" which shows that, wherever measured, there is a strong hydraulic gradient in the overburden deposits toward the barrier drain collection system. This means that any leachate which escapes from the Love Canal itself into the overburden will be intercepted by the barrier drain. Another consequence is that groundwater from some areas outside the barrier drain will also be pulled back toward it, so that leachate which might have gotten beyond the location of the barrier drain prior to its installation will be recaptured due to the flow reversal. Also, the equipotential lines indicate that there is an upward gradient in the vicinity of the drain. This means that a large portion of any leachate which escapes downward will be drawn back upward to the drain.

As mentioned previously, the storm and sanitary sewers immediately adjacent to the Love Canal acted as local groundwater sinks in the past. As described in Chapter II, the sewers within the area influenced by the barrier drain were blocked by concrete cutoff walls. By preventing the discharge of water from these pipes, they gradually filled and reached equilibrium with the groundwater outside the pipes, ceasing to be groundwater sinks. Thus, their influence on groundwater flow has been eliminated.

The Love Canal waste deposits are now covered by two low permeability caps (see discussion under Chapter II). The lower cap was constructed of clay, and extends to the barrier drain. Its primary purpose was to seal the waste zone off from the surface environment and eliminate infiltration of precipitation directly into the Canal. Following installation of the barrier drain it was learned that the drain was collecting excessive amounts of groundwater and leachate for treatment. A second cap was constructed of polyethylene, and extends approximately 200 feet beyond the barrier drain. The primary purpose of this cap was to reduce infiltration to the drain from precipitation falling outside the drain. Following completion of this cap, the rate of leachate generation decreased dramatically. This change in hydrologic regime also affects the groundwater picture, since the principal source of recharge has been virtually eliminated from this area.

Since the source of infiltration has been virtually eliminated from the Canal itself, the water table under the Canal wastes has been lowered, reducing the rate of migration of leachate from the Canal to the barrier drain. This is reflected on Figures 8 and 9, by the fact that the level on the left-hand most edge of the diagram (center of the Canal, inside the drain) is lower than the water table at the corresponding point on the east side of the barrier drain (the outside of the drain).

Several other investigations were conducted into the physical and hydrological features of the overburden units. As noted in the section on Site Geology above, there is wide variability in the physical character of the glacial till. In response to this, four wells have been installed in areas where the till is thicker and/or more permeable. A series of piezometers were installed directly into the waste zone in order to evaluate the condition of the underlying clay and to measure liquid levels there. Where the underlying clay was fractured and NAPL was present, NAPL was found within the clay fractures. Based on the first round of piezometric measurements, liquid levels in the Canal vary along its length. Some liquid levels were measured above the estimated original ground surface. Variations in hydraulic levels of NAPL within the Canal also suggest that the NAPL contents of the Canal are contained within the confines of the barrier drain. With the exception of the sewers mentioned above, there is no evidence that NAPL has migrated beyond the influence of the barrier drain. Regarding vertical migration, to a limited extent NAPL has been observed in core samples of the fractured clay during well installation within the area of influence of the barrier drain, but NAPL has never been detected in any bedrock well. This suggests that chemistry in the form of NAPL is not migrating downward below the soft clay and glacial till confining layers.

Hydrologic data has been collected continuously on a monthly basis. (This data is included in Appendix 5). About 160 piezometers are now included in the monitoring network. It is the NYSDEC's intention to continue this program into the future. Several wells will be installed around the Dewatering Containment Facility (DCF) to replace those which were removed for that project, and an additional well nest will be installed in the Southeast portion of the site. As more data accumulates, it will be possible to refine the understanding of mechanisms which might permit movement of contaminants at some time in the future, and anticipate actions which may be needed to insure continued containment at such time.

Results of Perimeter Groundwater Monitoring - Chemistry

E.C. Jordan Company's report concludes "No significantly elevated concentrations of Love Canal related compounds were consistently detected in groundwater samples from perimeter monitoring wells." This fact is consistent with other evidence that indicates the containment system is functioning as designed and, as a result, contamination in the Love Canal is being prevented from migrating in a lateral direction. Other data already discussed suggest that migration is being prevented in the vertical direction as well.

The system of overburden and bedrock chemical monitoring wells is designed primarily as an early warning system. It has been installed at a distance which appears to be beyond significant migration of Love Canal related compounds. Spacing of these wells was chosen to maximize the likelihood of detecting a point failure in the barrier drain system. Analytical results from these wells and others have been characterized by a predominance of non-detect ("ND") values. From 1982 to the present, more than 93 % of the 55,000 analytical results reported from all wells sampled at the Love Canal have been "ND's". This statistic includes wells both inside and outside the barrier drain.

However, certain compounds have been reported from a number of the monitoring wells with some consistency, and other compounds have been detected upon occasion. The chemical contaminants found group into two categories: volatiles and pesticides. (The single exception to this generalization is Well No. 10135, which is discussed separately below). The volatiles include methylene chloride and the ketone group, especially acetone, methyl ethyl ketone, and methyl isobutyl ketone. Patterns among the results for volatiles and pesticides are discussed below.

Based on E.C. Jordan's recommendation five rounds of chemical sampling have been conducted, three of which were performed during the Task V-C studies and are reported in the final document. (Also, a partial round of sampling was conducted in December 1987 to ensure that all wells installed under this program were sampled a minimum of three times). For the December 1987 and May 1988 rounds, sampling procedures and analytical protocols were developed in consultation with the NYSDOH.

Discussion of the chemicals which were detected follows. " Acetone was frequently reported in groundwater samples from perimeter wells at levels as high as 9 ppm [9,000 ppb]. However, it is not established that the acetone is a Love Canal derived compound... ", (E.C. Jordan, op. cit.). Results from the May 1988 sampling show dramatic decreases in the number of wells where acetone was detected. In December 1985 there were 29 detects for the 29 overburden wells sampled; in May 1988 there were 26 "ND's" among the same wells. For bedrock wells, the number of detects declined from 10 out of 10 to 3 out of 10. The decline in the number of detects was accompanied by orders of magnitude decreases in acetone with time. This topic is discussed in more detail in Appendix 5 to this report.

Regarding both acetone and other volatiles, there is a general pattern of agreement among different laboratories analyzing splits of the same samples. However, there are a number of instances when volatiles positively identified as present by one laboratory could not be detected by another. Conversation between personnel directly involved in the sampling and those performing the analyses has led to the conclusion that the sequence in which the samples are taken may be influencing the results. This effect would result from the high levels of precision employed by the various laboratories and subtle differences between various stages in the sampling process. As an example, small amounts of sediment from the bottom of the bailer could be present in the sample portion sent to one laboratory but not in a split sent to another. This would be sufficient to account for the differences reported.

In addition to acetone, other ketones which are reported with some regularity include methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK). These three compounds may represent either an artifact of decontamination procedures undertaken during well installation or contamination by decontamination solutions during sampling. The following factors were considered in arriving at this conclusion. The ketones are characterized by high volatility, high miscibility in water, and high mobility in the ground, suggesting that they could be an early indicator of a contaminant plume. They have been detected in the influent to the Leachate Treatment Plant, as well as in groundwater samples. However, there is no record of their having been buried or deposited at the Love Canal. MIBK has been used in connection with decontamination of sampling equipment. Acetone has been used in connection with decontamination procedures for drilling equipment at the time of well installation. In general, acetone values in groundwater from these wells have been decreasing exponentially with time over the past three years. It has also been observed that acetone values tend to be higher in wells located nearer present or former decontamination pads, where decontamination procedures were carried out. Increases in acetone levels measured in treatment plant influent are associated with periods of increased activities at decontamination pads which drain into the treatment plant stream. A working hypothesis should be adopted which treats the source of the ketones as decontamination solutions, and this hypothesis should be tested as future data is collected.

With respect to methylene chloride, the following evidence suggests that the source is laboratory or field contamination. Methylene chloride is a common laboratory solvent. Certain laboratories consistently report it present in various blanks and in otherwise "clean" samples from the Love Canal. (Acceptable levels of laboratory contaminants can be found in Appendix E of the current NYSDEC Contract Laboratory Protocol).

At one well (No. 4108) low levels of benzene, toluene and trimethyl benzene (less than 10 ppb) were detected in the most recent round of sampling. These compounds have not been associated with this well previously during Task V-C sampling. Their presence is presumed to be contamination from the gasoline driven generator which powers the pump used to purge the well prior to sampling.

Well No. 10135 contains elevated concentrations of Love Canal related compounds, such as: the chlorobenzenes, benzyl alcohol, benzoic acid, and chlorophenols. A hexachlorocyclohexane (BHC) is also detected in samples from this well. (See data in Appendix 5). The contamination is considered to represent Love Canal chemistry which escaped into the environment prior to construction of the barrier drain system. As noted previously, this is the only well to show such findings. The location for this well was chosen because an exploratory boring showed high levels of chemicals typically known to have been disposed of at the site present in the soil here. It is approximately 85 feet outside the barrier drain, which is closer to the drain than other monitoring wells and within the perimeter fence. Independent hydraulic evidence indicates that this well is within the hydraulic influence of the barrier drain system. The results from this single well with known contamination are being used as a baseline for comparison with findings from the other monitoring wells.

Four isomers of BHC have also been identified at levels below forty parts per trillion in well number 7105, to the west of the Canal. This finding is associated with the most recent sampling event, and has not occurred previously. In order to evaluate whether this represents an isolated event or the edge of a plume, an additional well should be installed between the present well and the barrier drain and both wells should be sampled. (Note: as part of the DCF construction discussed elsewhere, Well No. 7105 has been sealed shut for protection until after completion of the DCF. This will preclude sampling No. 7105 for the next several years. However, installation of a new well should not be under this constraint, and should be undertaken as soon as practicable.)

The E.C. Jordan Company has recommended that, since a data base is now established, future samples be collected on an annual basis and analyzed for volatile compounds only. The NYSDEC intends to modify and implement the long-term monitoring system which will track selected indicator compounds on a semi-annual or annual basis, and a complete list of parameters on a less frequent basis. The analyte list for such detailed analysis should be developed in conjunction with the NYSDOH and the USEPA. The results of this monitoring program will be made public in the Annual Reports. Should a significant change in concentration occur for any of the parameter(s) monitored, the situation will be immediately evaluated and appropriate action taken.

LEACHATE COLLECTION AND PROCESSING

Plant Operations

The leachate collection system was designed to stop the outward flow of the buried chemicals in the shallow groundwater system, and, to a certain extent, retrieve contaminated leachate that had migrated to the area just outside the barrier drain. As described under Phase I Remediation, migrating leachate is captured and collected by the barrier drain then stored in either the North and Central Sector Holding Tank or the South Sector Holding Tank (see Figure 10). Once the capacity is reached in these underground tanks, (approximately 52,000 gallons combined), the leachate is pumped to the treatment facility for processing (see Figure 11). At the treatment plant the leachate is then treated to reduce its toxicity and solids content prior to discharging from the site into the city sewer system in compliance with the sewer use ordinance.

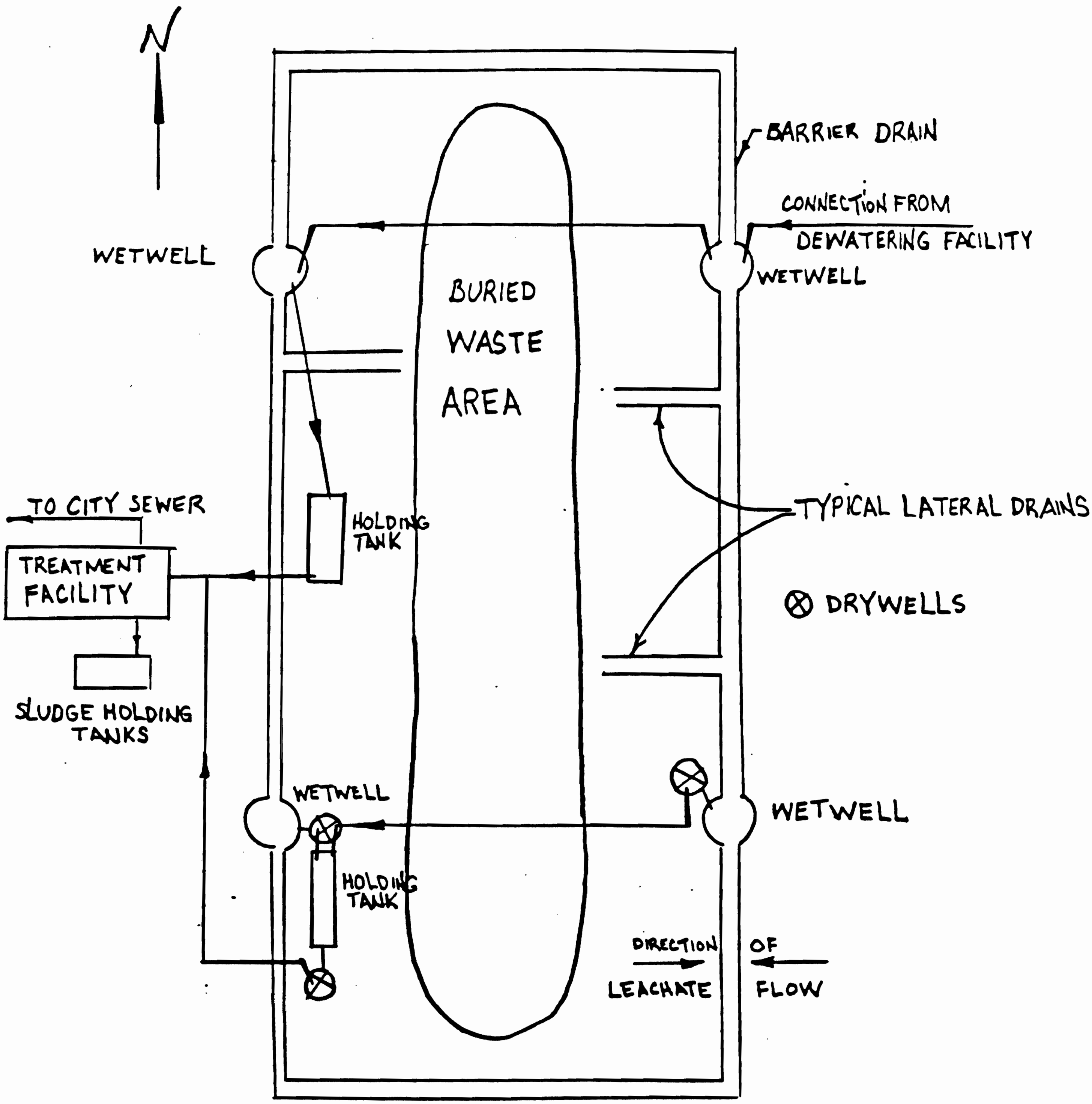
The treatment system consists of the following major process elements (see Figure 12):

1. Raw leachate from the underground holding tanks is pumped into a 6000 gallon raw water tank. The raw water tank allows for any fluctuation between the flow rates from the holding tanks in the field and the process flow rate of the treatment plant.

2. From the raw water tank the leachate is pumped to a clarifier. The clarifier separates the heavier chemicals and any larger suspended solids from the leachate. Thus, two effluent streams are formed at the clarifier: the heavier chemical contaminants (NAPL) and suspended solids (sludge stream), and a lighter phase leachate (APL). The detention time of the leachate in the clarifier is from 2 to 4 hours, depending on the processing flow rate. The plant operators generally run the flow rate at about 100 gallons per minute.

3. After clarification, the less dense leachate is decanted to a filter feed tank prior to pumping through a bag filtration unit. The filtration unit removes any remaining suspended material (above a 50 micron size) which didn't settle out in the clarifier to reduce the potential for clogging the activated carbon system. The sludge is pumped from the clarifier to a sludge storage tank within the treatment plant. The sludge is transferred to one of four outdoor sludge storage tanks when the plant storage tank becomes full (every 3 to 4 months).

4. After filtering, the leachate is pumped through two 8,000 gallon down flow granulated activated carbon adsorbers to remove chemical contaminants. The treated leachate must meet the discharge conditions as specified in the Love Canal Waste Water Discharge Permit.



SCHEMATIC
LEACHATE COLLECTION SYSTEM PLAN

The barrier drain captures chemical-waste-laden groundwater as the groundwater begins to migrate outward. Groundwater outside the drain is also attracted to the collection tile.

DIAGRAM IB: LEACHATE COLLECTION SYSTEM

FIGURE 11

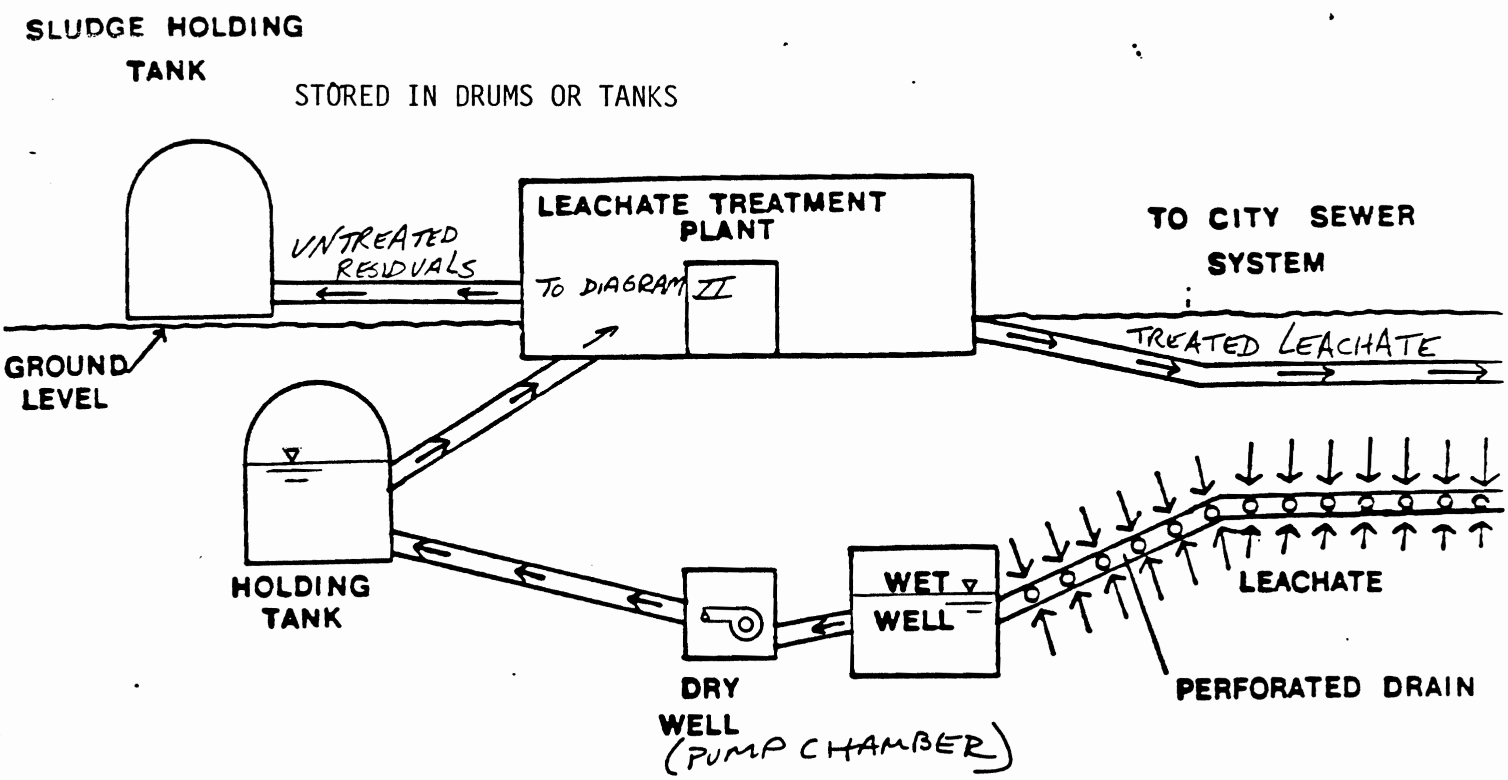
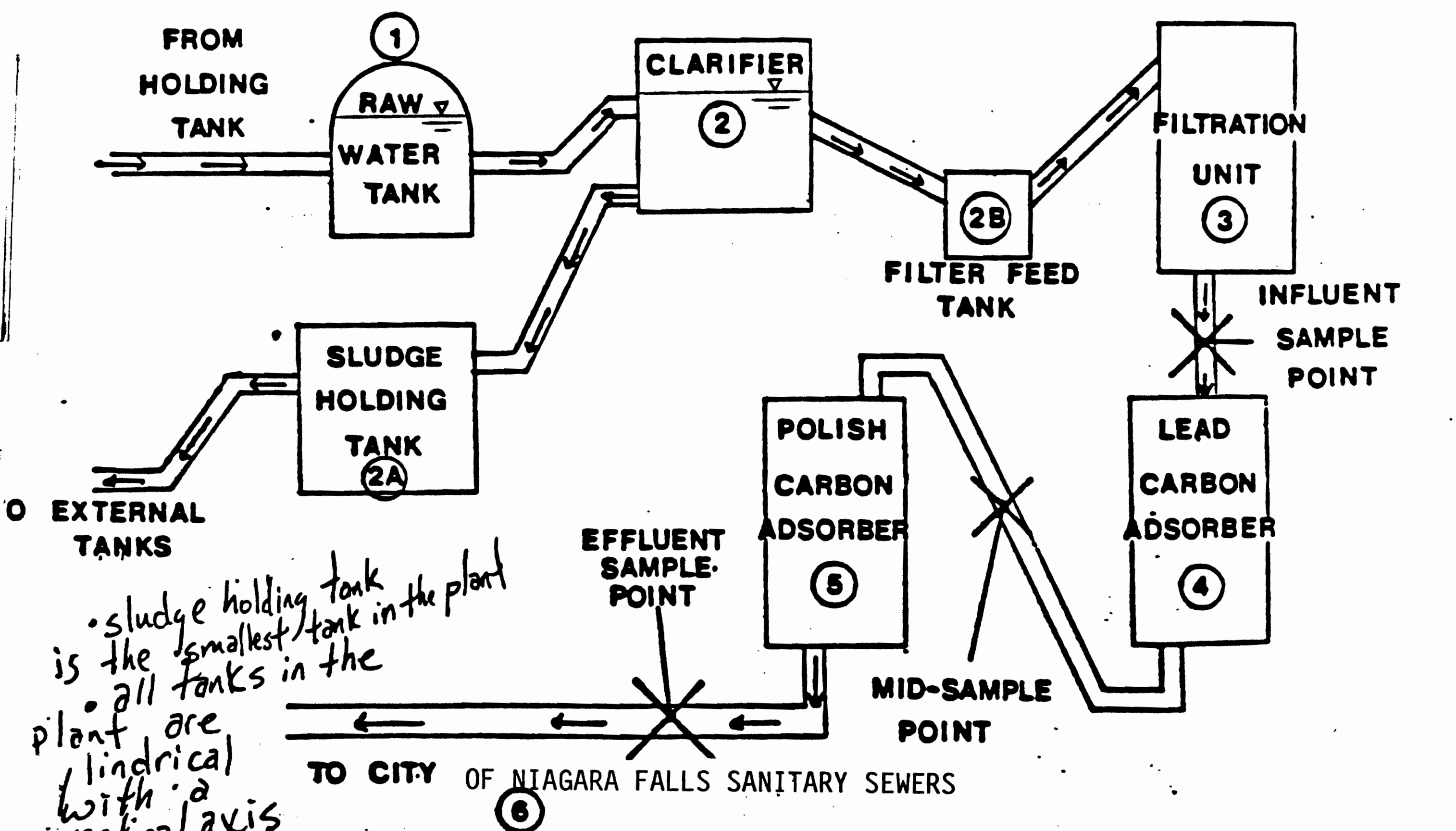


DIAGRAM II: LEACHATE TREATMENT PLANT

FIGURE 12



• sludge holding tank is the smallest tank in the plant
• all tanks in the plant are cylindrical with a vertical axis

5. Following the activated carbon treatment, hydrogen peroxide is injected into the effluent waste stream to control any sulphur odors that might develop as a result of bacterial action on the carbon. The treated effluent volume is recorded by a turbine meter, prior to its discharge to the City of Niagara Falls sanitary sewer system and is subsequently processed at the publicly owned treatment works for additional treatment.

Samples are collected and at various points in the process stream and analyzed to aid the operators in controlling the treatment process effectiveness and to determine maintenance schedules (carbon change, etc.). Effluent (after second carbon adsorber) results are reported to the City of Niagara Falls quarterly.

Since March 1981, the NYSDEC has been responsible for the operation and maintenance of the leachate treatment facility at the Love Canal. During that time the quality of the effluent has been regularly monitored during each process day, and the leachate has consistently been treated to a level allowing for the safe discharge of the waste to the municipal sanitary sewers as specified in the City of Niagara Falls discharge permit. Appendix 4 lists the analytical results for leachate data which are the basis for the sewer use ordinance requirements described later in this report.

Site Operations

The Love Canal Leachate Treatment Facility operators maintain the fenced area. Their tasks include maintenance of the vegetation (both mowing fertilization, erosion control and tree trimming), debris cleanup and snow removal from the on-site roads. The operators perform weekly inspections of the sewer dewatering facility on the east side of the site. They inspect the site security fence daily and repair breaches in the fence immediately. The operators also inspect the drums in the North Container Storage Area. They stage drums and overpack any poor quality drums as necessary. Their responsibility will also include inspection of the dewatering containment facility and the decontamination/drum storage facility once the construction is completed (1989).

Maintenance Summary

Since March 1981, the New York State Department of Environmental Conservation has had the responsibility of maintaining the Love Canal Site and its associated facilities. Prior to that time, the treatment facility was maintained by Albert Elia Building Company, the contracting firm which constructed the facility. NYSDEC's goal is to maintain the site and to insure that the leachate collection system, treatment facility, support equipment and administration building operate effectively.

The NYSDEC has established and implemented a preventative maintenance program. The program is designed around equipment operating frequency, operating environment, equipment serviceability, the manufacturers recommended maintenance intervals and system design. In addition, an employee's experience and expertise is also taken into consideration in implementing the preventive maintenance schedule.

There are a great number of individual maintenance activities performed by the Love Canal Treatment Facility personnel. These activities have been grouped as presented below:

A. Treating the Leachate

1. Field collection equipment maintenance
2. Process equipment maintenance

B. Site Maintenance

1. Roads
2. Cap and perimeter area
3. Security

C. Building Maintenance

1. Treatment plant
2. Administration building
3. Public Information Office

D. Vehicle Maintenance

E. Inventory

1. Spare Parts and Routine Fittings and Pipe Sizes
2. Protective Clothing and Equipment
3. Office Supplies
4. Equipment

Most of the required maintenance is performed by the two full time operators and one maintenance assistant. However, when situations arise that require outside assistance, service representatives or contractors are hired to perform the work under the supervision of the plant operators.

Operation and maintenance of the plant is documented in an Operations and Maintenance Manual. The manual consists of two volumes; Volume I describes the various general procedures used in operating the plant while Volume II lists equipment, parts, maintenance intervals, repair procedures, and local representatives. A third volume of more detailed maintenance procedures is continually being developed as further knowledge is acquired. The Department of Environmental Conservation will be programming this data as well as inventory records on a computer.

A) <u>Leachate Treatment</u>

The leachate from the point of collection to the point of discharge into the city sewer system travels through a multitude of pipes and equipment. Field pumps, tanks, treatment process pumps,air compressors, filtration units and carbon adsorption units all require routine maintenance such as cleaning, lubricating, minor repair and replacement of worn parts.

Some examples of plant upgrading or maintenance are as follows:

1981

* Ball checks and diaphragms were replaced in all plant pumps.
* Controls for south sector pumps were brought indoors to plant office.

1982

* Air dryer installed. This eliminated detrimental condensate from air going to the compressor.
* Water paths from above the liner into the dry wells were sealed.
* South sector collection tile, wet wells and leachate storage tank cleaned.

1983

* North and central sector collection tile cleaned.

1984

* Electrical breakers installed in sludge tank vacuum loss signal wiring to prevent false alarm reports.
* Stainless steel sampling lines and valve ports installed after each phase of treatment to improve sampling methods.
* One pump in the north sector was removed to clean out accumulated pea gravel, sediment, and chemical residues within the pump.

1985

* Ball checks, diaphragms, and actuator pins replaced on filter feed pumps.
* Methods initiated to reduce moisture in south sector pump chamber including sump pumping of collected water in bottom of chamber, sealing and forced ventilation of chamber.
* Clarifier shearpin replaced. Sight window installed to inspect shearpin during operation.

1986

* North sector wet wells cleaned.
* Stainless steel screens designed and installed on wet well 2A pumps
* Collection tile, small pump and sewer guard placed by pump chambers 1 and 2 to minimize water infiltration into the chambers.
* Tranquilizer units installed on diaphragm pumps to steady flows and pressure in the process piping.

1987

* Old hosing was replaced, and a new hose from the sewer dewatering facility was relocated directly into a wet well to improve discharge from the facility.
* Tarps were placed over the several dewatering facility settling tanks to reduce odors.
* Additional sampling ports were installed in the plant leachate sampling lines for more accurate treatment analysis.

B) Site Maintenance

The Love Canal site covers approximately 65 acres. This area requires constant upkeep for aesthetics and safety. Service roads must be plowed and maintained to allow for vehicle access to the field pump chambers. The drum storage area is inspected frequently and drums in poor condition are placed in overpack containers. Site security, building security systems and site fence are maintained for the buildings and all along the approximately 8400 foot perimeter.

1981
* Temporary irrigation system set up to enhance grass growth on cap.

1982
* Well monitoring stations identified and painted.

1983
* Electronic security system installed at the treatment plant.

1984
* The Love Canal site received a snow plow to clear the site more quickly of snow.

1985
* Security equipment rehabilitated and placed on an annual inspection by the security company.
* Monitoring wells painted, manholes and electrical boxes staked to reduce hazard to mowers.

1986
* Heavy vegetation was cleared along the site fence. Damaged fence repaired.
* Snow fence erected along 97th Street.

1987
* Drums in drum storage area segregated by waste category and placed on new pallets.
* "DANGER" signs posted along the site perimeter
* 450 feet of snow fence erected along Colvin Blvd.
* Additional gravel placed on drum storage and north pump chamber access roads to improve base.

C) Building Maintenance

The treatment plant operators maintain the treatment facility, administration building, and public information office. Along with cleaning and painting, site personnel perform plumbing, electrical, heating and ventilating repairs and improvements.

Highlights

1981
* A low volume fan installed in the plant to vent organic vapors.
* Peroxide addition to treated leachate established to reduce generation of hydrogen sulfide odors.

1982
* A more efficient thermal control system was installed in the treatment plant.

1983
* Fume hood installed over leachate sampling ports and the effluent vent extended.

1984
* Exhaust piping from the air-driven process pumps rerouted to discharge into the trench collection/settling chamber. This was a safety measure designed to entrap organic vapors and collect leachate in the event of a diaphragm rupture.
* The treatment plant vent pipe extended to reduce occasional sulfide odors near the building.

1985
* Gas pressure limiting switch replaced on treatment room make-up air unit.

1986
* Overhead door replaced on public information office garage.
* Flood lamps installed at the treatment facility.
* Hard piped decontamination pad to eliminate odors.

1987
* Non-treatment area of the treatment plant painted and tile ceiling replaced.
* Vent-sorbs (activated carbon units which treat organic vapors) replaced in sludge containment area and pump chambers.

D) Vehicle Maintenance

The vehicles are well maintained to reduce costly repairs and inconvenience. Vehicles are used to plow roads, transport heavy equipment, overpack drums, support groundwater monitoring operations, and provide for quick site inspection and investigation.

E) Inventory

Because some equipment is unique and suppliers are few and distantly located the treatment plant and administration building are run as self-sufficiently as possible. This requires establishment and maintenance of a good inventory system. Many supplies are vital to the safe operation of the site as well as being critical to the proper execution of the contingency (emergency) plan (Appendix 3). There must always be an adequate supply of protective clothing, breathing quality air, spill cleanup equipment along with respirators and fire extinguishers in good operating condition. Sampling, household, and office supplies must also be available at the site.

PLANT DISCHARGE PERMIT

Leachate Processed - Quantity

The quantity of effluent from the treatment facility is regulated by its wastewater discharge permit as to the maximum amount of processed water that can be discharged per day to the city sewerage system. The NYSDEC also pays a sewer use bill which is proportional to the amount of water discharged to the sewers.

The treatment plant treats three different sources of waste. Nearly all of the influent comes from the perimeter drain and is pumped on demand to the treatment plant through two pump stations. (pump stations no. 3 and 3a, see Love Canal site plan). The treatment plant has also treated water that has been discharged from the sewer dewatering facility. Water from this facility has gone through settling and filtering operations to remove particles, but has not been treated for any chemical contaminants removal. The facility has discharged to the treatment plant only twice, during the sewer cleaning projects in 1986 and 1987. In 1986, from April thru August, approximately 1.3 million gallons was discharged, representing about one-forth of the total volume treated in 1986. In 1987, from October thru December, 99,870 gallons was discharged from the dewatering facility to the treatment plant. A lift station at the sewer dewatering facility pumps the contaminated water after settling and filtering to pump chamber no. 1a in the north sector. It is then pumped to the central and north sector holding tank from where it is pumped into the treatment plant. The third source of influent is from liquids used in decontamination of equipment. Shovels, drums, vehicles, boots, and other equipment that comes in contact with soil, sludge or leachate, is washed with water or alcohol on the decontamination pad. A drain in the pad allows the contaminated liquids to flow to the central and north sector holding tank where it is later pumped into the treatment plant. The percentage of decontamination water as compared to the total processed water is estimated to be not significant.

The amount of leachate processed at the Love Canal has shown an overall downward trend. In December, 1979, when the permanent treatment facility became operational, the plant was processing daily. In this first month of operation, the facility processed over half a million gallons of leachate; in 1987 about three months elapsed before the same amount of leachate was processed.

From 1980 to 1983 approximately four and one-half million gallons of leachate were treated per year. However, the amount of leachate generated at the canal was drastically reduced in 1984 (see Figure 13). Since 1984, the plant has averaged 2.7 million gallons of leachate yearly. The reduction in leachate volume is attributable to installation of a waterproof synthetic cover in 1984 that extends well beyond the perimeter drain. This cap limits the amount of precipitation that can enter the canal. For reasons that cannot be explained as yet, the amount of leachate processed tends to be slightly less in the second half of the year (see Figure 14).

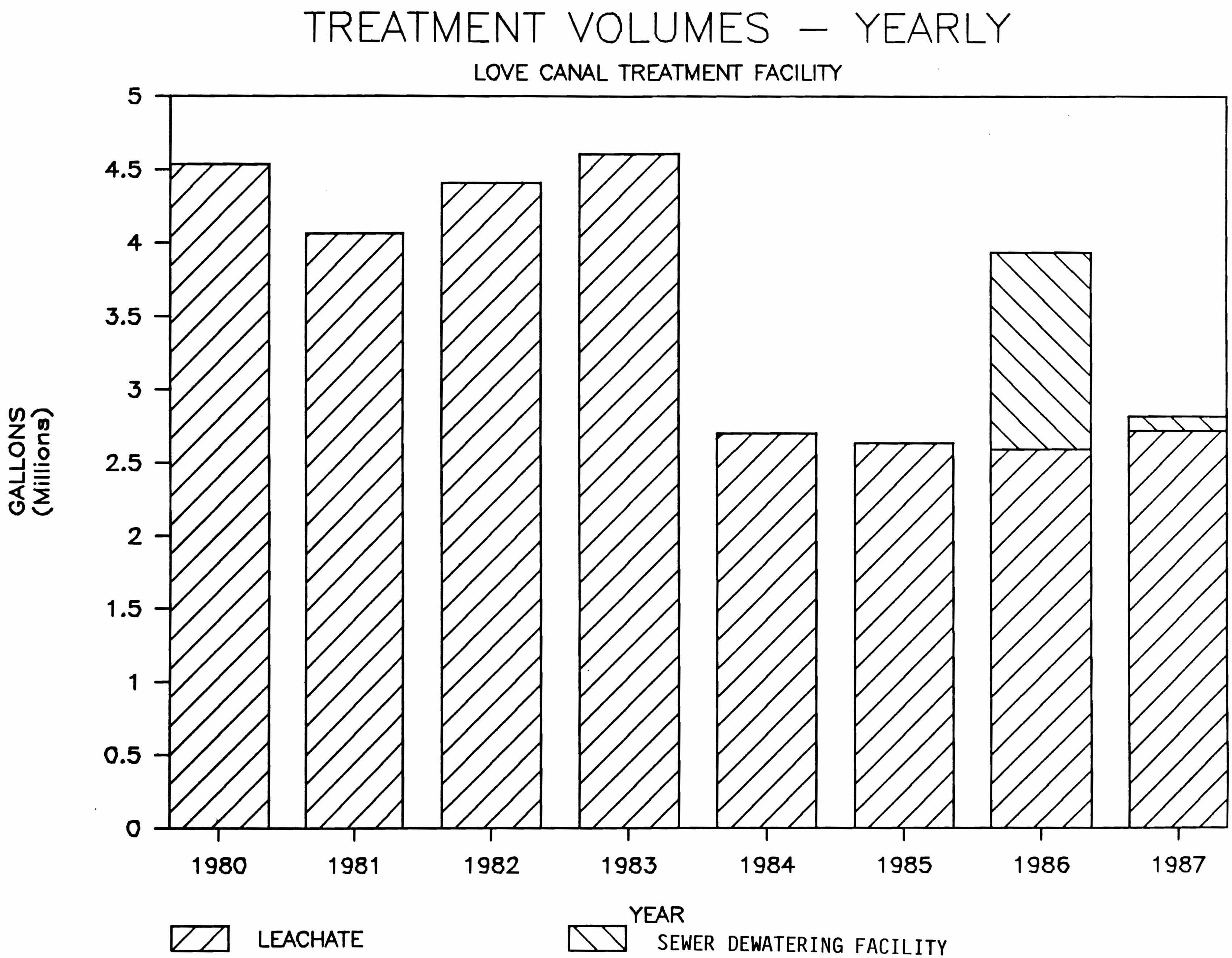

TREATMENT VOLUMES — YEARLY
LOVE CANAL TREATMENT FACILITY
GALLONS (Millions)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
1980
1981
1982
1983
1984
1985
1986
1987
YEAR
LEACHATE
SEWER DEWATERING FACILITY

FIGURE 13

LOVE CANAL LEACHATE TREATMENT FACILITY FLOW DATA (1979-1987)
GALLONS PROCESSED, [OPERATING DAYS/MONTH]

*1979	1980		1981		1982		1983	
JAN	474630	[21]	203980	[13]	562100	[14]	399950	[9]
FEB	256650	[4]	657780	[14]	216090	[9]	323890	[11]
MARCH	390640	[12]	378980	[16]	489570	[14]	580740	[13]
APRIL	664740	[15]	324010	[14]	955550	[19]	549930	[14]
MAY	520650	[13]	349420	[13]	236880	[8]	417690	[11]
JUNE	318740	[13]	192630	[12]	290430	[9]	198900	[6]
JULY	232940	[13]	228680	[11]	218740	[9]	149740	[6]
AUG	234560	[13]	207360	[9]	201350	[6]	184650	[6]
SEPT	264710	[13]	226920	[8]	97880	[3]	177920	[8]
OCT	406800	[15]	309856	[10]	94440	[3]	312440	[11]
NOV	242910	[11]	379420	[10]	394750	[8]	839490	[18]
DEC	526340	[16]	605150	[14]	653420	[14]	472420	[14]
TOTALS	4534310	[169]	4064186	[144]	4411200	[116]	4607760	[127]
SEMI-ANNUAL TOTALS								
JAN-JUNE	2626050		2106800		2750620		2471100	
JULY-DEC	1908260		1957386		1660580		2136660	

	1984		1985		***1986		***1987	
JAN	252380	[9]	239150	[8]	268120	[7]	181410	[5]
FEB	189620	[7]	451080	[10]	155320	[4]	98780	[4]
MARCH	415360	[13]	379970	[9]	283450	[7]	273540	[6]
APRIL	348170	[11]	216730	[6]	354410	[12]	327050	[7]
MAY	258960	[10]	125890	[5]	407210	[11]	93850	[3]
JUNE	176620	[5]	103000	[3]	563530	[15]	174200	[4]
JULY	138630	[6]	91490	[3]	623920	[15]	209670	[5]
AUG	283300	[14]	83690	[3]	290240	[9]	230600	[5]
SEPT	131110	[7]	92280	[3]	127320	[4]	237810	[5]
OCT	**196560	[8]	109020	[4]	308160	[8]	271640	[6]
NOV	162560	[7]	411540	[9]	165350	[5]	175320	[5]
DEC	147630	[8]	330420	[9]	388450	[9]	543370	[12]
TOTALS	2700900	[105]	2634260	[72]	3935480	[106]	2817240	[67]
SEMI-ANNUAL TOTALS								
JAN-JUNE	1641110		1515820		2032040		1148830	
JULY-DEC	1059790		1118440		1903440		1668410	

* PERMANENT TREATMENT PLANT STARTED OPERATION ON 12/07/79.
THE TOTAL PROCESSED IN 1979 WAS 560140 ON 21 OPERATING DAYS.

** LINER THAT EXTENDED CAP TO 40 ACRES WAS COMPLETED

*** 1986 AND 1987 DATA INCLUDES DEWATERING FACILITY PROCESSING.

[#] NUMBER OF OPERATING DAYS

A correlation between the amount of precipitation and the amount of leachate generated has not been found. The amount of leachate processed and the amount of precipitation appear to vary independently of each other. In theory, this should happen since the cap shelters the collection system from infiltrating precipitation. Pump shut-down, snow melt, and dewatering facility discharges add complexity to finding a correlation.

The heavy residue contained in the leachate settled out in the clarifier is referred to as sludge. The sludge is considered the most hazardous of the waste streams at the Love Canal. The sludge generated at the treatment plant is accumulated on-site. The sludge generation is closely monitored.

Sludge generation is influenced by the volume of leachate processed through the clarifier, detention time and the quality of the leachate. A reduction in process volumes, fewer settleable solids, and less heavy-nonaqueous phase leachate is expected to reduce sludge production. As we noted earlier, the volume of leachate treated per year has shown a downward trend. Similarly, the amount of sludge being generated per year has decreased. The amount of sludge generated increased in 1986 as compared to 1985, however, this was most likely due to the large volumes of contaminated water from the dewatering facility being processed and cleaning of on-site wells.

The amount of sludge generated per volume of leachate varies according to the quality of the leachate. Normally a gallon of sludge results from 1200 to 1700 gallons of leachate processed through the clarifier. When water is being processed from the sewer dewatering facility generally less sludge is generated as compared to leachate. When treating sewer dewatering leachate in 1986, about 3400 to 4400 gallons produced a gallon of sludge. The reason for this higher ratio is because the leachate is diluted by the sewer dewatering flows.

Leachate Processed - Quality

The leachate generated at the Love Canal is carefully analyzed for chemical and physical composition. The analysis serves two purposes: the analysis is required for the City of Niagara Falls, Department of Utilities, as part of the site's sewer use ordinance discharge permit and the analysis also provides a record for evaluating the effectiveness of the treatment, particularly the carbon adsorption units.

The wastewater discharge permit, which was issued by the City of Niagara Falls, establishes the following conditions on the Love Canal Treatment Facility effluent:

1. No more than 100,000 gallons per day of leachate may be treated.

2. The volume of each treated batch must be reported to the city.

3. Soluble Organic Carbon (SOC) and Total Suspended Solids (TSS) effluent values for each process day must be reported each quarter. The maximum daily concentration allowable is:

	Quarterly Avg. Load	Max. Daily Load	Max. Daily Conc.
SOC	50 lb/day	75 lb/day	820 ppm
TSS	6.25 lb/day	16 lb/day	170 ppm

4. Volatile Priority Pollutant, Acid Extractable Priority Pollutant and Base Neutral Priority Pollutant data plus total phenols, monochlorotoluenes, monochlorobenzotrichlorides must also be reported to the city each quarter.

The treatment plant has never exceeded 100,000 gallons in one operating day. Although the treatment plant is capable of running three shifts, a second shift has never been operated. The treatment process is usually started up when at least one of the two leachate holding tanks becomes full, where the leachate volume in storage is between 30,000 gallons and 55,000 gallons.

Soluble Organic Carbon and Total Suspended Solids are analyzed each time the leachate is processed. In addition to the effluent, these parameters are analyzed before the adsorption step (influent) and also between the two carbon adsorption beds (midpoint). Hydrogen sulfide concentration is also determined with the SOC and TSS analysis.

When the leachate treatment plant was designed, little data existed on the chemical and physical characteristics of the leachate. The leachate entering the treatment plant is the result of mixing between ground water and contaminants in the landfill. The mixing action can produce wide fluctuations in chemical and solids concentrations in the influent. For these reasons, the treatment plant was built with some margin to allow for these variations in the influent (see Appendix 4 - Love Canal Leachate Data).

Effluent SOC averages 20 to 40 ppm while TSS averages 5 to 15 ppm. The daily load limit for SOC and TSS is converted to an average concentration value. The concentration value will vary depending upon the daily volume treated; less volume treated means a higher SOC and TSS concentration can be present in the effluent before the load limit is exceeded, however, then the maximum daily concentration limit becomes the critical permit condition.

Although process volumes vary each operating day, for 1987, the process volume was generally about 40,000 gallons per day. The maximum daily load limit concentration for treating 40,000 gallons is 225 ppm for SOC and 48 ppm for TSS. Figures 15 and 16 show effluent SOC and TSS values for 1987. The figures indicate treatment plant compliance with the permit conditions for maximum daily load and maximum daily concentration.

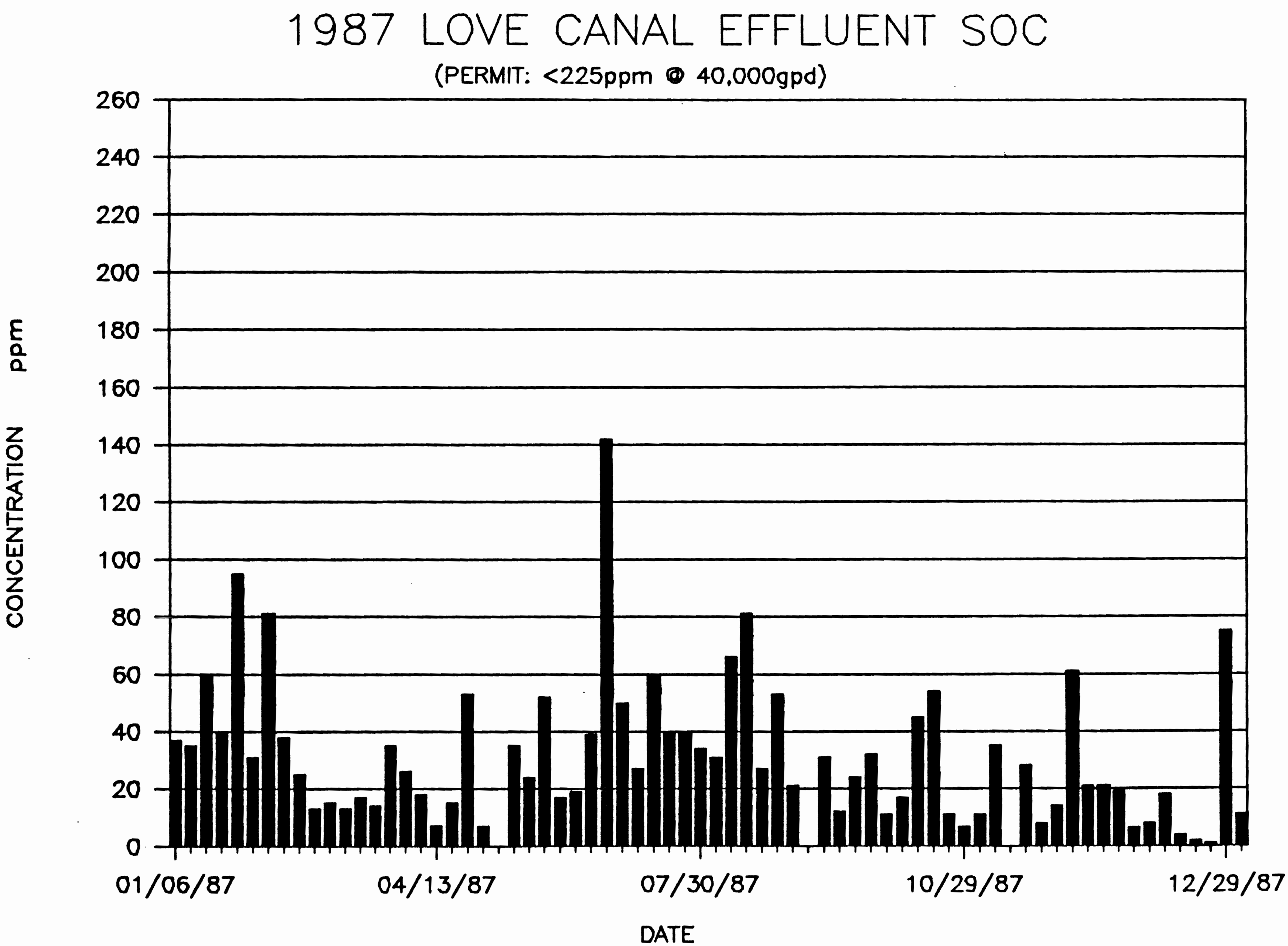
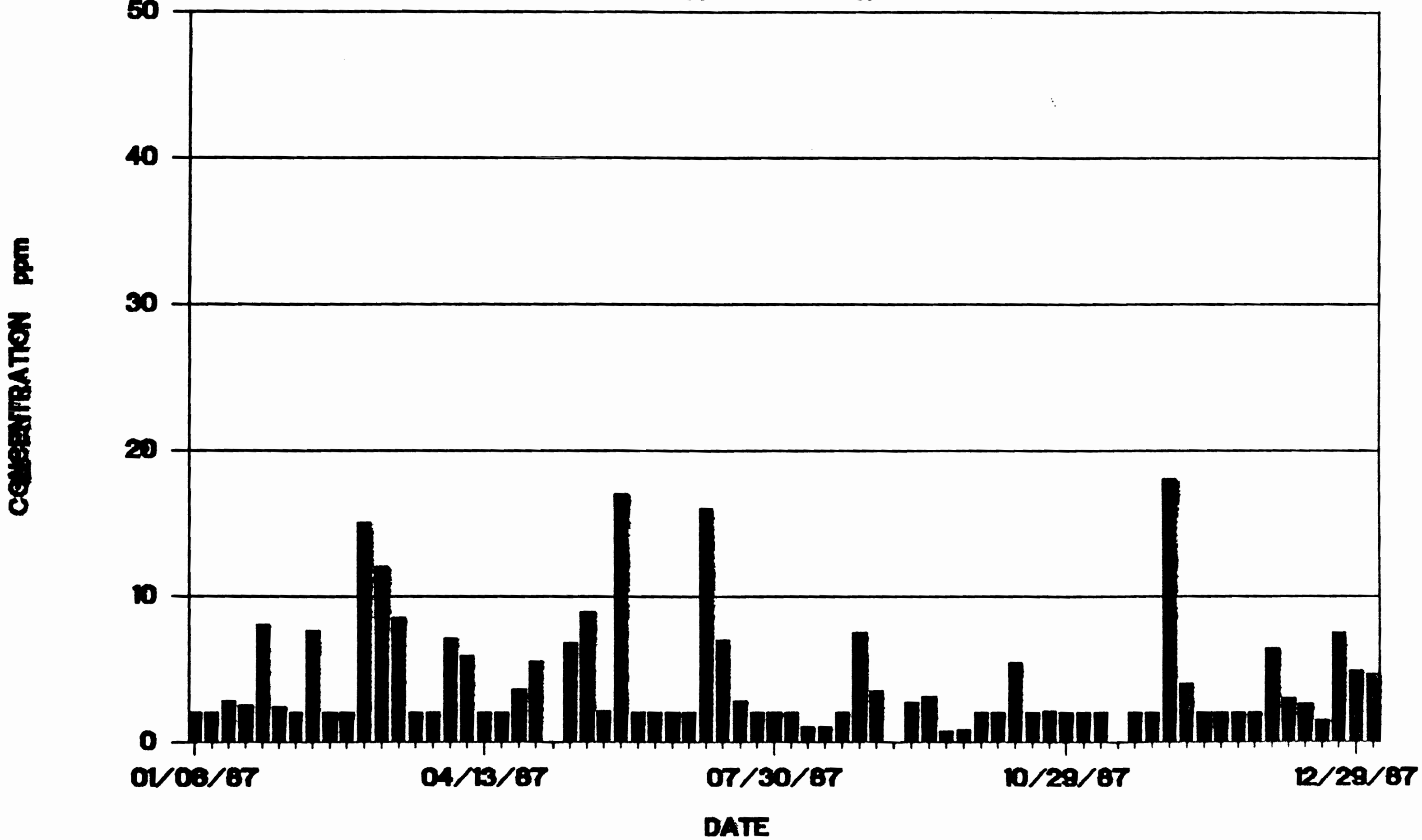

1987 LOVE CANAL EFFLUENT SOC
(PERMIT: <225ppm @ 40,000gpd)
CONCENTRATION ppm
0
20
40
60
80
100
120
140
160
180
200
220
240
260
01/06/87
04/13/87
07/30/87
10/29/87
12/29/87
DATE

FIGURE 16

1987 LOVE CANAL EFFLUENT TSS

(PERMIT: <48ppm @ 40,000gpd)



The priority pollutants which were initially monitored consisted of 113 components, which are categorized as follows:

<u>Priority Pollutant Categories and Components</u>

Base Neutrals		61
Acid Extractables		12
Volatiles		27
Metals		13
	Total	113

As a result of compiling this data over several years, it became evident that many of these priority pollutant components are not present in the influent samples collected at the treatment plant. In the case of base neutrals, only 9 of 61 components have been observed at levels above detection limits established by the laboratory. For acid extractables, only 4 of 12 chemicals have been detected and are consistently present. For the volatiles category, 12 of 27 chemicals are normally observed; for metals, none of the 13 components were present consistently enough to warrant continuous monitoring. Therefore, analysis for metals is done only every other quarter.

Most of the chemicals detected in the influent readily adsorb onto the activated carbon and are thus easily removed from the leachate. For the base neutral category, the 9 components observable in the influent samples at concentrations of several ppb are at or below detection limits in the corresponding midpoint and effluent analyses. Materials such as chlorinated benzenes (including the pesticide ingredient lindane) and chlorinated naphthalene are examples of this category in which binding to activated carbon is very strong. Similarly, for the acid extractable category, the four observable components are represented by phenols and their chlorinated derivatives, e.g., 2,4,5 trichlorophenol (2,4,5-T).

After years of close monitoring, the base neutral and acid extractable categories are no longer analyzed routinely. Such sampling is now performed quarterly so that we can continue to monitor for any subtle changes in the leachate over time. This frequency of data collection continues to meet the requirements of the municipal discharge permit. In similar fashion, samples are also submitted quarterly for analysis of total organic phosphorus and total phenols.

The volatile priority pollutant chemicals in the influent samples represent the highest concentrations of all monitored components. Upon treatment with activated carbon, volatiles are removed from the leachate with more difficulty than from the base neutral and acid extractable categories. These chemicals possess a lower binding capacity with the activated carbon. Chloroform and methylene chloride are examples of two components which are not easily retained by carbon and "break through" into the effluent easier in comparison to the other pollutants. Constant monitoring of these two chemicals in particular and a conservative treatment operating procedure have insured the highest removal of contaminants. The data from November 1980 to the end of 1987 reflect that the entire class of volatiles have been reduced to well within the requirements of the discharge permit. An example of contaminate reduction is shown in Figure 17, where the influent and effluent values of ethylbenzene for 1985 are exhibited.

or are interested to have some input into the decision-making process. Responsiveness summaries also serve as a review method for agency officials to verify for themselves that all pertinent comments have been addressed. Comments and input included in a responsiveness summary may come from internal sources, as well as externally, and may be received informally through drop in visits or during a more formalized session--such as formal public comment periods. The summary also provides the public with a written explanation as to how their comments were addressed in the decision making process.

Fact sheets and information documents are developed for specific program purposes. They are used as handouts at meetings or included in mailings. Executive summaries are written for major documents. They highlight the major aspects of the total document and allow for a general understanding of the document's contents in concise, easily read format.

Toll-free Telephone

A toll-free telephone number (800-342-9296) is maintained in the NYSDEC central office. This serves as a backup for the Love Canal Public Information Office and provides a direct link to the central office for interested parties in the Love Canal area.

Public Availability Sessions

These sessions are designated periods (usually both afternoon and evening) in which representatives of government agencies and/or their consultants make themselves available so individuals can stop by and discuss a specific aspect of the program. This technique allows for individuals' schedules to be accommodated and still provides sufficient opportunity to speak directly with experts in particular program areas.

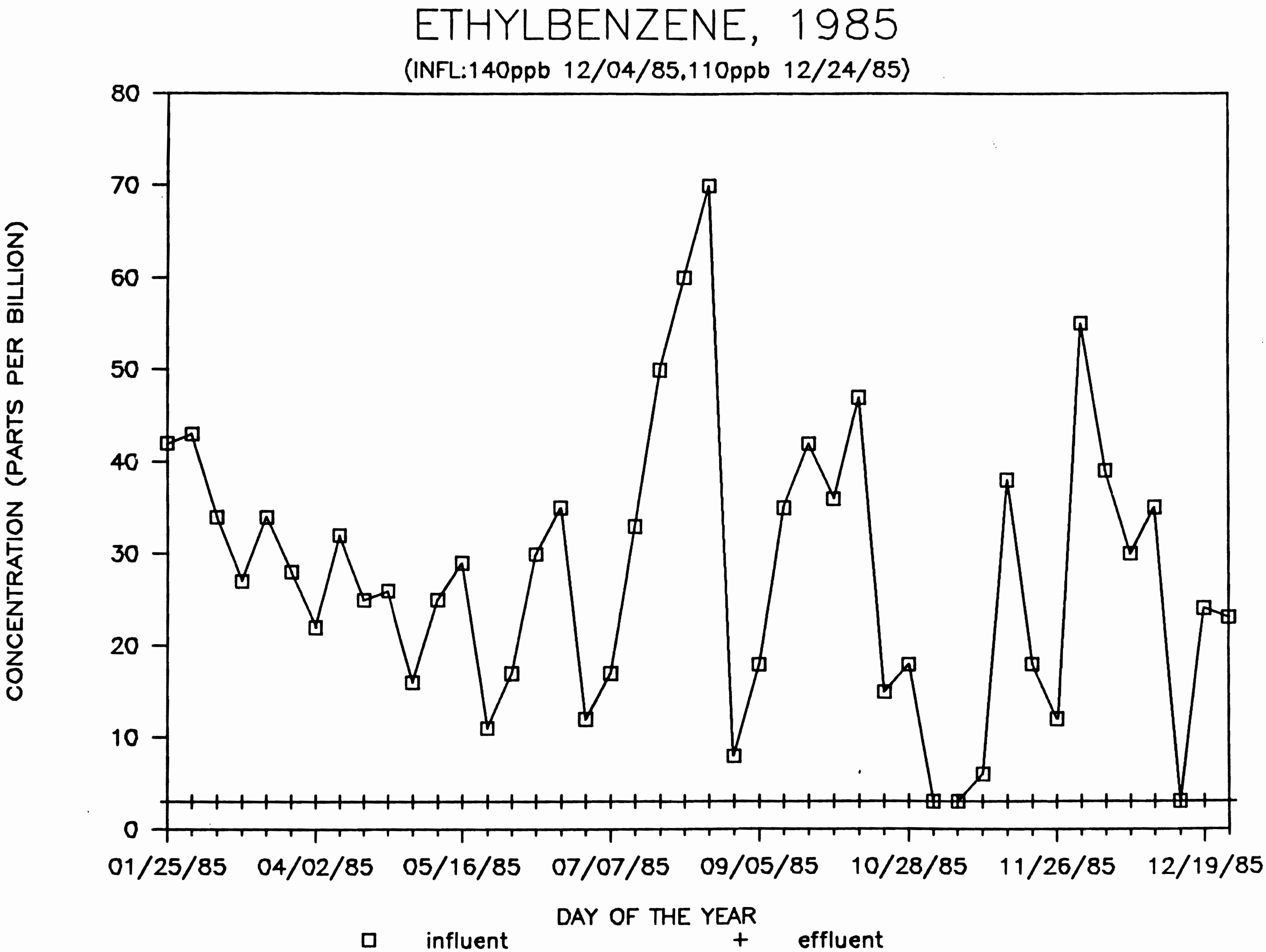
News Releases

Periodically, noteworthy program information, documents, or meeting announcements are brought to the public's attention through the distribution of news releases to the media. Media representatives often respond to news releases with follow-up calls to acquire more detailed information.

Citizen Participation Program Summary

The aforementioned methods constitute the majority of the techniques that the NYSDEC uses in its citizen participation program; however, there is a great deal of less formalized activity that occurs in concert with these techniques to accomplish the citizen participation program goals.

At the core of the citizen participation program is the encouragement and promotion of effective communication between various publics and the government agencies responsible for the Love Canal remedial program. The NYSDEC's citizen participation program at Love Canal can be summarized as a concerted effort to provide up-to-date, accurate information fostering the exchange of facts and feelings, and the development of an atmosphere for input from all interested parties.


ETHYLBENZENE, 1985
(INFL:140ppb 12/04/85,110ppb 12/24/85)
CONCENTRATION (PARTS PER BILLION)
80
70
60
50
40
30
20
10
0
01/25/85
04/02/85
05/16/85
07/07/85
09/05/85
10/28/85
11/26/85
12/19/85
DAY OF THE YEAR
influent
effluent

Because the activated carbon inside the adsorber units plays a vital role as the last step in removal of chemical contaminants in the leachate before it is discharged, treatment plant operators maintain the effectiveness of the carbon and closely monitor removal efficiencies. Besides meeting the condition of the permit, treatment plant operators like to keep the total suspended solids low since solids flowing through the adsorbers can reduce the surface area of the activated carbon, thus limiting their chemical treatment ability. Soluble Organic Carbon parameter provides an overall measurement of how well the plant is chemically treating the influent. Consistent higher-than-average midpoint SOC values generally indicate a breakthrough in the lead carbon adsorber, (see Carbon Usage below). The treatment plant operators redirect the flow so that the second bed of carbon (polishing bed) now becomes the lead bed and the carbon is replaced. With this method the carbon beds are removed in succession. Measurement of hydrogen sulfide concentration is used as a qualitative indication of the amount of biological activity on the carbon; bacteria inside the adsorber vessel produce hydrogen sulfide as a result of their respiratory process.

Initial analysis of the leachate was conducted by the New York State Department. of Health. In December, 1980, RECRA Research of Tonawanda was contracted to perform testing analysis of Total Organic Carbon and Total Suspended Solids. Currently, RECRA Research performs all testing on the leachate.

Department of Environmental Conservation engineers and scientists who oversee the operation of the treatment facility have concentrated their efforts into making sure the effluent discharged from the plant meets the sewer use ordinance conditions and into finding ways to improve the life of the plant equipment. Extensive studies have not been performed on the relationships between contaminant removal and such parameters as flow rate, time, age of the carbon and the interactions of other contaminants. Determining these relationships is difficult because of the large number of chemical components in the leachate and because of the extreme variation in influent concentrations of these components. Toluene, for example, has been as high as 77000 parts per billion in the influent on some treatment days while at other times toluene has been at the laboratory detection limit.

Other Wastes

Only leachate treated in accordance with the facilities wastewater discharge permit is permitted to be discharged from the site. In treating the leachate and through remedial activities, other wastes are generated which must be stored on-site until a safe and proper method of disposal is found. The wastes are stored on-site because of the presence of dioxin in some of the wastes. Commercial hazardous wastes disposal firms will not accept the wastes because of concern for their own liability. Sludge, spent carbon, and dewatering facility sediments comprise most of the waste stored on-site. Other wastes include soil from drilling operations, used protective clothing, and deteriorated equipment. The sludge, spent carbon, and dewatering facility residues have been analyzed so that these wastes can be properly stored. The analyses are voluminous and hence have not been included in this report.

Carbon Usage

Since the start of operation on December 7, 1979, the Love Canal Leachate Treatment Facility has had 23 loads of bulk activated granular carbon put in service thru the end of 1987. The following table shows the length of time each carbon bed was in service and the amount of leachate that was treated by each bed.

Love Canal Leachate Treatment Facility Carbon Treatment Volumes

Bed No.	Dates of Load	Months in Service	Volume Treated (gal)
1	12/07/79-01/16/80	1.3	811860
2	12/07/79-03/01/80	2.8	1291420
3	01/16/80-05/28/80	4.4	1979440
4	03/01/80-09/03/80	6.1	2362270
5	05/28/80-12/09/80	6.4	1927400
6	09/03/80-12/09/80	3.2	1065010
7	12/09/80-04/28/81	4.6	1881370
8	12/09/80-09/17/81	9.3	3049920
9	04/28/81-09/17/81	4.7	1168550
10	09/17/81-04/15/81	7.9	3110536
11	09/17/81-10/13/82	12.3	4689196
12	04/15/82-07/18/83	14.1	6010860
13	10/13/82-12/26/83	15.0	5698610
14	07/18/83-08/22/84	13.2	4108080
15	12/26/83-12/27/84	12.1	2676280
16	08/22/84-12/05/84	3.5	532380
17	12/05/84-10/21/85	10.5	1979710
18	12/27/84-10/30/85	10.1	1938090
19	10/21/85-03/21/86	5.0	1394500
20	10/30/85-08/18/86	9.6	3595850
21	03/21/86-12/11/87	20.7	5763900
22	08/18/86-06/29/88	22.4	5142720
23	12/11/87 current bed		
24	06/29/88 current bed		

The decision to change the lead bed of carbon is based on two factors. One factor is the decreased capacity of the carbon to remove organic pollutants from the leachate. Through the review of analytical results of the influent and midpoint samples the NYSDEC is able to determine the effectiveness of the carbon in removing the contaminants. The carbon bed is removed in advance of being unable to meet the facility's wastewater discharge permit conditions.

The second factor involves the compaction of the carbon in the adsorbers which increases during the length of time the bed is in service. The air driven leachate pumps create a water hammer effect in the treatment piping leading to packing of the carbon and back pressure resistance in the carbon beds. The ability of the activated carbon to remove contaminants in the leachate is reduced when the carbon is tightly packed.

In 1986 air surge suppressor units were installed to stabilize the discharge pressure in the treatment process. The carbon beds now receive steadier leachate flows, instead of flow surges (water hammer). The present carbon beds are assumed to have less compaction and there is decreased back pressure. These suppressor units have helped extend the life of the carbon beds.

CHAPTER IV
OPERATION AND MAINTENANCE PROGRAM

CONTINUOUS SAFEGUARDS

The habitability decision requires that assurances be provided that continuous safeguards are available for a number of functions associated with operating the site. These continuous safeguards refer to actions that can be taken in case of malfunctions in the collection and treatment system to assure that collection and treatment of leachate will occur on a regular basis. Examples of these safeguards include spare surface pumps and a generator to dewater a tank if both pumps fail or the collection system does not function. Operators are continually monitoring pump output to verify operation. One carbon unit or a portable carbon unit could be used in the case where the treatment system malfunctions or needs replacement. Tanks are checked routinely and alarm systems tested monthly. In general, a maintenance program and continuous updating of procedures insures minimal malfunction of equipment. This insures that the groundwater flow will be towards the collection system at all times. A gradient shift or equalization is not an immediate occurrence and, therefore, sufficient time exists to implement these safeguards.

Plant Operations

Since the installation of the expanded liner in 1984 the plant operates every three to four days. Therefore, maintenance operations have time to be completed to maintain the necessary operating time frame.

The plant is staffed by two operators and one maintenance person. This insures that experienced personnel are on-site at all times. This also provides for flexibility in personnel change over. Personnel are continually updating the operation and maintenance manual which insures that the most efficient and effective means to maintain the plant is performed routinely. This O&M Manual also provides for training of new personnel. As experience is gained concerning the necessary frequency of various maintenance operations, it is recorded in this O&M manual. It is planned to incorporate maintenance procedures into a computer system which will assure that various operations are performed. The procedures include updating current supplier contacts and telephone numbers for obtaining service or information on a piece of equipment. The computer system would also provide an efficient means to assure purchase of backup equipment by monitoring supplies, materials and equipment usage.

To insure that the plant and site are operating satisfactorily regular maintenance inspections are conducted. These inspections include the following:

- Pump-outputs are reviewed each operating day

- The interior carbon and sludge storage tanks and piping as well as the exterior of the clarifier are examined each operating day.

- The clarifier is scheduled to be inspected internally every five years and had its first interior inspection in August 1988.

- The security system is tested yearly and a service contract is maintained on all security systems for the treatment plant, administration building and main gate.

- The fire alarm system is tested annually.

- The cap will be surveyed on a annual basis.

Site Operations

The groundwater monitoring program will continue and provide measurements of elevations on a monthly basis and analysis on a annual basis. The analytical results will be compared to previous groundwater data to determine if there is any statistically significant increase in contaminant levels. Also, the groundwater elevation data will be plotted to monitor the groundwater flow.

The site's contingency plan (included in Appendix 3) will be updated on a annual basis. It is planned to continually add safety data sheets for chemicals found in the residuals stored on-site. A chapter will also be added to document the alternative procedures which will be utilized in case of breakdown of equipment or failure of the collection system, such as bypass pumping and a portable carbon treatment system. This chapter will also include the long term replacement procedures for major on-site equipment such as the clarifier, carbon tanks or monitoring wells. Also included will be estimated time tables for replacement of all major components such as groundwater monitoring wells, clarifier and carbon tanks. These estimated times for replacement will be verified by specialized tests such as measurements of the wall thickness of tanks as compared to the original thickness, etc.

Additional site inspections are as follows:

* Drum storage area is inspected weekly - A drum storage facility will be constructed which meets the Resource Conservation and Recovery Act (RCRA) regulations and the frequency of inspection at that facility will be the same.

* The wet wells are examined annually for any accumulation of foreign materials such as pea stone, etc.. This examination will also provide an indication of the condition of the collection system.

* The collection system is inspected every five years.

* The monitoring wells will be inspected annually.

ACCOUNTABILITY AND REPORTING

In order to be assured that the Love Canal site is operated satisfactorily a reporting system is required. Therefore, in the future, an annual report will replace the periodic reports issued at the TRC meetings. The report will be produced by June of the following year and be available for public review. The annual report will also be distributed and a public availability session held to discuss the previous year's operation.

Other regular activities insure that the site is operated in accordance with the Resource Conservation and Recovery Act (RCRA) regulations. Site inspections are conducted by the United States Environmental Protection Agency (USEPA) and by Department's Compliance Inspection staff based on the authority under RCRA Public Law 94-580 as amended and Article 27 Title 9 Section 27-0915 of the New York State Environmental Conservation Law both of which allow the Federal and State governments respectively to enter at reasonable times to inspect and obtain samples. New York State has final authorization to run its hazardous waste program, however State, Federal and local Treatment, Disposal and Storage Facilities (TDSF's) are currently inspected by the United States Environmental Protection Agency (EPA). The State also can inspect these facilities.

Personnel responsible for operation of the site are trained in the RCRA regulations to insure that all management reporting requirements under 6NYCRR Parts 364, 370, 371, 372, 373 are met, such as the required USEPA and New York State Department of Environmental Conservation (NYSDEC) generator reports required under 40CFR Part 262.41 (a) and 6NYCRR Part 372.1 (e)(i)(viii)(f) respectively.

Outside review by the public is also conducted through the City of Niagara Falls sewer use ordinance permit. The City conducts sampling inspections as well as other industrial inspections to insure proper discharges.

Treatment plant sampling analysis is currently conducted by an outside independent contract laboratory and it is planned to always have a percentage of these analyses performed by an independent contract laboratory to provide independent verification of the data.

Citizen Participation

In the early stages of remedial program, numerous public meetings were held by the government agencies involved in the Love Canal program to discuss various aspects of the program with the community. Government representatives also worked at the Love Canal site to be more accessible to the public and to respond to their concerns and site problems.

As a result of continued requests from the public, the NYSDEC established a Public Information Office in March of 1983 at the Love Canal site. The office is located within the Love Canal Emergency Declaration Area (EDA) at 9820 Colvin Boulevard. The office, which is open to the public, provides assistance in finding specific information or interpreting difficult-to-understand documents or program aspects. The office and its staff facilitate the transfer of information to the public, government, and any other interest groups. The office also serves as a document depository for Love Canal reports, information, and correspondence, and the numerous "publics" are encouraged to review, discuss, and comment on them.

While the public information office is the focal point of the citizen participation program, it does not constitute the Department's entire effort. The NYSDEC uses a variety of methods and techniques to inform the affected public and accomplish the program's goal of informing the public which is an effective and valuable component of the Love Canal decision-making process. These methods include:

1. Publication of a newsletter
2. Meetings between individuals and government officials
3. Small group discussion sessions
4. Public information meetings
5. Telephone communication
6. Drop-in visits to the Public Information Office
7. "At-home" visits and discussions
8. Mailings of pertinent documents, meeting notifications, etc.
9. Briefings with local government officials, the press, and special interest groups
10. Development and distribution of responsiveness summaries, fact sheets, information documents, and executive summaries
11. Maintenance of a toll-free "800" telephone
12. Public availability sessions
13. News releases
14. Responses to letters

Newsletter

The newsletter (Love Canal Update) is published periodically to inform the interested public of planned and ongoing remedial work activities and projects at the Love Canal. Program problems are presented and alternatives reviewed. Lists of available documents and meeting notices are included in each newsletter. Each issue also includes telephone numbers and addresses for information on Love Canal and other hazardous waste sites.

Meetings Between Individuals and Government Officials

Government officials meet with individuals on a one-on-one basis to provide an opportunity for individuals to discuss their specific concerns. This allows for a detailed discussion that leads to a more complete understanding of what will occur. It also allows the discussion to focus on very personal or individual concerns that might never surface at larger meetings. Working on problems together in this format also improves the relationship between the various parties, thereby enhancing the effectiveness of future discussions and problem-solving efforts.

Small Group Discussions

NYSDEC officials meet with various special interest groups to provide more detailed information on various aspects of the Love Canal Superfund program and other hazardous waste activities. These small group discussions promote the interchange of detailed information. They also promote a better understanding among interest groups regarding for each other's concerns and viewpoints.

Public Information Meetings

Large public information meetings are held to provide updates and presentations on an extensive amount of information to be disseminated to a fairly large number of people at one time.

Public information meetings provide the public with an opportunity to express their concerns to government officials. They also provide an educational opportunity for all interested parties to hear the various concerns of other groups and individuals.

Drop-in Visits

The Public Information Office is open daily to interested individuals and groups. Visitors are welcome to "drop in" for information on the history and major events that developed as a result of the Love Canal. Local residents and concerned interest groups also visit the office regularly to stay informed on the most recent developments and to discuss issues of concern.

At-home Visits

To communicate with those individuals unable or reluctant to "drop-in" at the Public Information Office, at-home visits are often arranged. These visits allow for a personalized discussion of topics and activities that most directly influence or concern the specific individuals.

Mailings

Mailings are used for the release of information and for meeting notifications. A comprehensive mailing list has been developed to include a large number (600-700) and wide variety of people including Love Canal homeowners, special interest groups, media representatives, government officials, and concerned and interested citizens.

Briefings

Press briefings are often held to accommodate media deadlines and to provide the press with a specific question-and-answer period. Local elected officials and special interest groups are also briefed on major findings, proposed activities, and other significant program details.

Responsiveness Summaries, Fact Sheets, Information Documents, Executive Summaries

Responsiveness summaries are public documents that are prepared to record government responses to input and comment. They allow those who make comments or are interested to have some input into the decision-making process. Responsiveness summaries also serve as a review method for agency officials to verify for themselves that all pertinent comments have been addressed. Comments and input included in a responsiveness summary may come from internal sources, as well as externally, and may be received informally through drop in visits or during a more formalized session--such as formal public comment periods. The summary also provides the public with a written explanation as to how their comments were addressed in the decision making process.

Fact sheets and information documents are developed for specific program purposes. They are used as handouts at meetings or included in mailings. Executive summaries are written for major documents. They highlight the major aspects of the total document and allow for a general understanding of the document's contents in concise, easily read format.

Toll-free Telephone

A toll-free telephone number (800-342-9296) is maintained in the NYSDEC central office. This serves as a backup for the Love Canal Public Information Office and provides a direct link to the central office for interested parties in the Love Canal area.

Public Availability Sessions

These sessions are designated periods (usually both afternoon and evening) in which representatives of government agencies and/or their consultants make themselves available so individuals can stop by and discuss a specific aspect of the program. This technique allows for individuals' schedules to be accommodated and still provides sufficient opportunity to speak directly with experts in particular program areas.

News Releases

Periodically, noteworthy program information, documents, or meeting announcements are brought to the public's attention through the distribution of news releases to the media. Media representatives often respond to news releases with follow-up calls to acquire more detailed information.

Citizen Participation Program Summary

The aforementioned methods constitute the majority of the techniques that the NYSDEC uses in its citizen participation program; however, there is a great deal of less formalized activity that occurs in concert with these techniques to accomplish the citizen participation program goals.

At the core of the citizen participation program is the encouragement and promotion of effective communication between various publics and the government agencies responsible for the Love Canal remedial program. The NYSDEC's citizen participation program at Love Canal can be summarized as a concerted effort to provide up-to-date, accurate information fostering the exchange of facts and feelings, and the development of an atmosphere for input from all interested parties.

SARA 5 Year Evaluation of Site

Section 121 (c) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), requires that where a remedy is selected which results in hazardous pollutants remaining at a site, the USEPA and the NYSDEC "must review the site at no less than five (5) year intervals to assure protection of human health and the environment." The NYSDEC's required compliance with this review provision will insure that the remedy implemented at the Love Canal will continue to function as designed.

APPENDIX 1

GLOSSARY

GLOSSARY
(Described as these words relate to the report)

Adsorption - Adhesion of molecules of a dissolved substance to a surface. Chemicals dissolved in the leachate adhere to the surface of activated carbon in the treatment facility's adsorber units thereby removing the chemicals from the leachate.

Aquifer - A body of rock (or soil) sufficiently permeable to conduct groundwater.

Aquitard - A body of rock (or soil) that retards the flow of groundwater.

Breakthrough - The point at which a carbon bed is no longer effective at removing contaminants from the leachate.

Carbon Bed - The volume of activated carbon located in an adsorber unit. When the activated carbon is no longer effective in removing chemical contaminants, the carbon bed is replaced.

Clarifier - Treatment unit resembling a tank which removes dense organic chemicals from the leachate by settling action.

Desiccated Clays - Dried clay, usually exhibiting shrinkage cracks.

Destruction and Removal Efficiency - The percentage of a specified chemical compound that was chemically altered by a treatment process such as plasma arc.

Detection Limit - The lowest concentration of a chemical that must be present in order for the chemical to be discernible in a laboratory analysis.

Dewater - Removing water from the ground or sediment.

Dolomite - A rock type, similar to limestone, composed of calcium-magnesium carbonate.

Effluent - The point at the end of the process line; the point when all the leachate has been treated and is to be discharged into the city sewer system.

Glacial Till - Non-sorted material deposited by a glacier, consisting of intermixed clay, sand, gravel and boulders.

Glaciofluvial - Pertaining to deposits from streams resulting from melting glaciers.

Hydraulic Gradient - Pressure differences which cause groundwater to flow favorably in a particular direction.

Infiltration - Water which seeps into a medium such as a sewer pipe or into the ground.

Influent - The point in the leachate process line prior to adsorption treatment.

GLOSSARY

(Described as these words relate to the report)

Interim Containment Facility - An earthen vault with leak prevention systems designed to contain sediments from the creeks excavation projects. The vault is later opened and the sediments removed for destruction.

Lacustrine Sediments - Lake sediments.

Leachate - Solution or product produced by action of a groundwater percolating through the soil which dissolves some of the chemicals contained in the soil. Non-aqueous phase leachate is the liquid chemical wastes which percolate through the soil but do not dissolve into the groundwater.

Lift - In construction, the thickness (height) of a soil layer prior to compaction.

Midpoint - The point in the leachate process line between the lead adsorber treatment unit and the polish adsorber treatment unit.

Overburden - All unconsolidated materials lying above the bedrock.

Permeability - Measure of the ability of a soil, rock, or other material to transmit water or other fluids through its porous openings.

Piezometer - A small diameter well used to measure the elevation of ground water.

Nest Piezometer - Two or more piezometers at the same location list at different depths to measure water elevations of different aquifers.

Ppm - Parts per million. A measurement of concentration in very weak solutions. More precisely, the ratio of the weight of solute to the weight of solvent times one million.

Pump Chambers - Large manholes used to house the pumps used in the collection of leachate.

Residence Time - The time it takes for a specific particle to go through a specific treatment process unit. Residence times can be controlled by the operator and hence are useful in measuring the effectiveness of the treatment unit.

Sludge - Term given to the organic residue which settles in the clarifier and is subsequently separated from the leachate.

Synthetic Membrane (Synthetic Liner) - A waterproof plastic sheet. The sheets are thermally sewn together to cover the area over which the wastes are buried this preventing rainwater from coming in contact with the waste.

Swale - A small channel running around the perimeter of the cap used to collect rainwater and convey it away from the buried wastes.

Zone of Saturation - That portion of the earth below the water table.

APPENDIX 2

LOVE CANAL WORKPLAN

LOVE CANAL WORK PLAN

JOB NAME	1988	1989	1990
A) TRC-HABITABILITY			
1. Dioxin Study	-------------		
2. Air Sampling Report	-------------		
3. Soil Sampling Report	-------------		
4. Habitability Study	-------------		
5. Tech. Review Committee	-------------	-------------	-------------
6. NYSDOH Decision	-------------		
B) REMEDIAL ACTIVITIES			
1. B&B Creeks Remediation Creek Clean-up, DDSF	-------------	-------------	
2. Cayuga Creek Study	-------------		-------------
3. 93rd Street School	-------------	-------------	-------------
4. Methodist Church	-------------		
5. Thermal Destruction	-------------	-------------	-------------
6. Long Term Monitoring	-------------	-------------	-------------
7. EDA Home Maintenance	-------------	(Depends on A6 above)	

	1988	1989	1990
C) PLANT OPERATION & MAINTENANCE			
1. Leachate Treatment	-------------	-------------	-------------
2. Clarifier Chem. Addition	-------------	-------------	-------------
3. Backwash Implementation	-------------	-------------	-------------
4. Piping (Replace as necessary)	-------------	-------------	-------------
5. Clarifier Investigation	-------------		
6. Sludge Tank Alarm	-------------	-------------	-------------
7. O & M Manual	-------------	-------------	-------------
8. Computerized Parts Inv.	-------------	-------------	-------------
D) SITE OPERATION & MAINTENANCE			
1. Fertilizing,Mowing,Trim	-------------	-------------	-------------
2. Fence Repair (as needed)	-------------	-------------	-------------
3. Drum Maintenance	-------------	-------------	-------------
4. Carbon Change & Stage	-------------	-------------	-------------
5. Carbon Supply	-------------	-------------	-------------
6. Electrical Renovation	-------------	-------------	
7. Pump Renovation	-------------	-------------	
8. Collection System Inspect.		-------------	
9. Renovate Tank 3A Access	-------------		
10. Painting	-------------	-------------	-------------
11. Site Surveying	-------------	-------------	-------------

APPENDIX 3

CONTINGENCY PLAN LOVE CANAL TREATMENT FACILITY

APPENDIX 3

CONTINGENCY PLAN

LOVE CANAL TREATMENT FACILITY
Niagara Falls, New York

SEP 23 1986

Division of Solid and Hazardous Waste

New York State Department of Environmental Conservation

TABLE OF CONTENTS

A. INTRODUCTION

1.) Purpose

The purpose of this plan is to establish procedures which must be followed in order to minimize hazards to human health and the environment. These hazards could occur as a result of unplanned release of hazardous waste to the environment during operation and maintenance of the Love Canal Treatment Facility. The provisions of this plan must be carried out whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents related to the operation and maintenance of the leachate collection and treatment system.

2.) General Site Description

The Love Canal leachate collection and treatment system was constructed to prevent the outward migration of chemical contamination from the abandoned hazardous waste landfill. The leachate collection system consists of approximately 6500 linear feet of perforated drain pipe with sand backfill. The depths of the system ranges from 15 to 18 feet. Included in the system are four wet-wells and two underground holding tanks of 25,000 and 30,000 gallon capacity.

The treatment system consists of mechanical clarification, filtration and carbon adsorption. There are also four 10,000 gallon holding tanks on site for sludge storage. Inside the treatment plant, there are two fiberglass leachate holding tanks of 5,940 and 2,910 gallon capacity. There is also a sludge holding tank with a capacity of 1,580 gallons.

The treatment plant area has a floor trench designed to intercept any spills which may occur. This trench drains to the 30,000 gallon holding tank for eventual treatment. Additionally, there is a concrete carbon loading pad in back of the treatment plant which can be used for equipment decontamination. This also drains into the 30,000 gallon holding tank.

Ventilation in the plant area is provided by a Dravo-Hastings Blower, located on the roof, and two floor exhaust fans. Additionally six exhaust fans ventilates organic vapors from the influent holding tank, the clarifier, the filter feed tank and the sludge holding tank. These exhaust fans draw the organic vapors through four carbon ventsorbs before discharge to the atmosphere.

3.) Implementation

Whenever an event occurs which requires the contingency plan to be put into effect, the emergency coordinator must be notified immediately. Persons qualified to act as emergency coordinators are listed in Section D. If a spill occurs, the emergency coordinator must determine by visual observation if there is a possible adverse impact extending beyond the fenced area. If he determines that the possibility of adverse impact exists, he must immediately call the following numbers:

NATIONAL RESPONSE CENTER (800) 424-8802

N.Y. STATE OIL AND HAZARDOUS MATERIAL SPILL NOTIFICATION NUMBER (518) 457-7362

If there is a possibility of the discharge reaching the city's sanitary sewers, the wastewater treatment plant must be informed immediately:

NIAGARA FALL WASTEWATER TREATMENT PLANT (716) 278-8138

These numbers are posted on the bulletin board in the office area of the treatment plant. A written report must be made to the EPA and the NYSDEC within 15 days of an incident.

If the Emergency Coordinator determines that a fire, explosion or spill may make evacuation of local areas advisable, he must contact the local authorities by calling 911. This number is also posted on the bulletin board in the office area. A phone is also located in the office area.

Niagara Falls Memorial Hospital, Niagara Falls Fire Department and the Niagara Falls Wastewater Treatment Plant will receive copies of this plan. Agreements made with local officials are discussed further in Section C.

If this plan fails to meet its goals during an incident, it will be modified. Additionally, it will be modified whenever the list of emergency equipment changes, whenever the list of emergency coordinators changes, whenever the facility design or operation changes in such a way that there is an increase in the potential for hazardous materials incidents or whenever applicable regulations are revised. The modified plan will be sent to all parties involved.

Each time the contingency plan is put into effect, the complete details of the incident must be noted in the operators daily log, and reported to the Director of the Division of Solid and Hazardous Waste through the Chief of the Bureau of Western Remedial Action in a written report.

After each incident which requires implementation of the plan, an inspection must be made by the Section supervisor or someone he appoints to insure that all affected areas have been properly decontaminated and all emergency equipment is in working order. Specific decontamination procedures can be found in the section entitled "response to emergency situations" and "decontamination of tools and equipment".

All drums of contaminated material generated during clean-up activities will be transported by truck to the drum staging area on site.

Whenever this plan is implemented, at least two (2) NYSDEC staff members must be present. Each specific section describing a given emergency list the number of personnel required.

In all situations, any injuries should be given top priority. Phone numbers for the Niagara Falls Memorial Hospital and two local ambulance services are posted in the office area.

4.) Ventilation and Air Monitoring

During all clean-up operations inside the treatment plant all doors to the outside should be opened to assist in ventilation. During cleanup operations indoors or outdoors, the atmosphere will be monitored using an HNU Model PL 101 or equivalent. When the reading on the HNU is between 0 and 5 PPM, respiratory protection must be a full-face canister type respirator, Model #65 coupled with adaptor #802472-01 and cannister #600252-11. If the reading exceeds 5 PPM, respirators are no longer sufficient. Cleanup personnel must either leave the immediate area and wait for fumes to dissipate or resume operations using self-contained breathing apparatus (SCBA) or positive pressure supplied air using either air cylinders or a portable air compressor. Supplied air must be used in conjunction with a 5-minute escape bottle.

If the HNU reading exceeds 300 PPM, cleanup activities must be abandoned until fumes are allowed to dissipate.

The atmosphere should also be monitored with an oxygen/explosion meter MS4 Model 260 or equivalent. If the oxygen meter reading falls below 19.5%, SCBA or supplied air must be used. If the Lower Explosive Level (LEL) reading is above 25%, cleanup personnel should leave the immediate area until further monitoring indicates that an explosive atmosphere no longer exists.

5.) Decontamination of Equipment and Tools

All equipment and tools used during cleanup operations must be throughly decontaminated or disposed of. All washwater used during decontamination will be returned to the leachate collection system for treatment. This can be accomplished by making sure that all clean up is done on the carbon delivery pad in back of the treatment plant.

Small hand tools may be decontaminated by wiping clean with rags soaked in a solvent (i.e. methylene chloride, acetone) or in an industrial strength detergent (i.e. penetone). If, in the emergency coordinators judgement, this is not sufficient, they may be cleaned with high pressure steam or water.

Larger tools and vehicles such as trucks and backhoes may be cleaned using high pressure water and steam upon the discretion of the emergency coordinator.

6.) Responsibilities and Authority of Local Personnel

During normal operations at the Love Canal Leachate Treatment Facility there are two on-site plant operators. In the event of a spill or other emergency, both persons have full authority and responsibilities for implementing the contingency plan. The primary emergency coordinator will direct work by on-site personnel or private contractors in clean-up operations. He is also responsible for the notification of all outside agencies during implementation and for providing an accurate description of the situation to outside response groups. He must insure that clean-up operations are carried out as described in this plan. Job titles and responsibilities of on-site personnel in order of priority are as follows:

1.) Brian Sadowski - Senior Love Canal Treatment Plant Operator

Office (716) 283-0111
Home (716) 731-5654

2.) Maurice Moore - Love Canal Treatment Plant Operator

Office (716) 283-0111
Home (716) 693-8679

3.) Abul Barkat - Senior Sanitary Engineer

Office (716) 847-4585
Home (716) 691-4157

4.) Yavuz Erk - Senior Sanitary Engineer

Office (716) 847-4585
Home (716) 882-7134

5.) John Tygert - Associate Sanitary Engineer (SWM)

Office (716) 847-4590
Home (716) 649-3545

Mr. Sadowski will act as primary emergency coordinator. All duties are as described above. Additionally, there are personnel based in Albany who are on-site from time to time. Again, these are listed in order of priority.

Authority of Albany, NY-based Personnel

1.) Gerald Rider, Supervisor - Special Projects Section

Office (518) 457-0927
Home (518) 674-5985

Mr. Rider will act as primary emergency coordinator whenever he is on site.

2.) Philip Waite - Senior Sanitary Engineer

Office (518) 457-0927
Home (518) 583-0571

Mr. Waite will act as primary emergency coordinator in Mr. Rider's absence.

3.) John Strang - Assistant Sanitary Engineer

Office	(518)	457-0927
Home	(518)	383-0154

All persons listed above are familiar with the contingency plan and have full authority to implement it as described in this document.

B. RESPONSE TO EMERGENCY SITUATIONS

1. General Instructions

For all cases which require implementation of the contingency plan, the following actions should be taken in order of priority.

a. Get immediate medical attention for any injuries. Emergency medical phone numbers are posted in the office.

b. Shut down all plant process pumps and field pumps. Field pumps can be shut down from the office control panel. Plant pumps can be shut down by closing the air valve at each individual pump. If the emergency situation exists within the treatment area, plant pumps should be shut down by turning off the air compressors in the mechanical room.

c. Take immediate action to ensure that there is no continued release of hazardous materials to the environment.

d. Inform the appropriate emergency response organizations and the NYSDEC Central Office in Albany.

e. Proceed with response and cleanup activities outlined in each section.

This contingency plan is intended as a guidance document. In any case, the emergency coordinator should apply his best judgement to the situation, and proceed in the manner that the situation dictates.

2. Rupture of indoor leachate holding tank and pipe system

a. Protective clothing required. Treatment plant personnel should be clothed in Level C protective gear. This should include chemical resistant gloves and boots, water-resistant coveralls (i.e. polylaminated tyvek or equivalent) and full-face mask respirators, model #65 coupled with adaptor, #802472-01 and canister, # 600252-11. See section A.4 for air monitoring and ventilation.

b. Equipment and materials required for cleanup. Two brooms and two squeeges are located in the treatment area. A maximum of 2 drums would be required for disposal of safety gear and clothing.

c. Action to be taken.

- Shut down all plant processes
- Suit up in protective clothing and respirators
- Monitor air to determine proper respiratory protection and upgrade protection if need be
- Flush floor with large volume of water using hoses in treatment room
- Use brooms and squeeges to push water to floor trench
- Steam clean affected areas of floor using high pressure steam from Steam Jenny model # 1000-C-OMP or equivalent
- Water rinse floor again

d. Final clean-up and inspection. All brooms and protective clothing should be decontaminated in accordance with Section A.5 or placed in 55 gallon drums for final disposal. Immediate arrangements should be made through Albany to replace and/or repair all affected pipes and tanks. The floor should be visually inspected for contamination. Air should be monitored with an HNU. If readings persist above background levels, the floor should be steam cleaned and rinsed until readings come back to normal.

3. Rupture of indoor sludge tank

a. Protective clothing required. Treatment plant personnel should be clothed in Level C protective gear. This should include chemical resistant gloves and boots, water-resistant coveralls (i.e. polylaminated tyvek or equivalent) and full-face mask respirators, model #65 coupled with adapter #802472-01 and canister #600252-11. See section A.4 for air monitoring and ventilation.

b. Equipment and materials required for cleanup. Two shovels are located in the treatment area. Bags of floorsorb are located in a storage blockhouse on the southside of the plant.

c. Action to be taken.

- Suit up in protective clothing and respirators
- Monitor air to determine proper respiratory protection and upgrade protection if need be
- Stop the leak

- Set up a perimeter around the spill using floorsorb to contain the sludge from spreading
- Take shovelfuls of floorsorb and apply to the sludge perimeter and leak area
- Cover the spill with floorsorb until the sludge is not permeating the upper layer
- Shovel the spent floorsorb into drums
- Flush floor with large volume of water using hoses in treatment room
- Apply penetone to the floor as a surfactant, to draw any remaining sludge off the floor
- Water rinse floor again
- Use brooms and squeeges to push water to floor trench

d. Final cleanup and inspection. All shovels, brooms and protective clothing should be decontaminated in accordance with Section A.5 or placed in 55 gallon drums for final disposal. Immediate arrangements should be made through Albany to replace and/or repair all affected pipes and tanks. The floor should be visually inspected for contamination. Air should be monitored with an HNU. If readings persist above background levels, the floor should be steam cleaned and rinsed until readings come back to normal.

4. Fire or Explosion in the treatment plant or collection system.

a. Protective clothing required. Response personnel should be clothed in Level B protective gear, including SCBA.

b. Equipment and materials required. Fire extinguishers are located in the treatment area as shown on the floor plan. One active fire hydrant is on site. The hydrant is located approximately 180 feet north of the plant.

c. Action to be taken.

- If the situation appears dangerous, evacuate the area immediately and call the police and fire departments.

- If no immediate danger exists, call the police and fire departments, then put on protective clothing including SCBA and extinguish flames with handheld extinguishers.

d. Final cleanup and inspection. All water and liquids used should be returned to the treatment plant system. Any equipment or materials used should either be decontaminated or disposed of in 55 gallon drums. The fire department should conduct an inspection to determine the cause of the accident.

5. Overflowing of South Holding Tank

a. Shut down 50 GPM pumps feeding the holding tank. This may be done from the control panel in the office or from the circuit breaker mounted on the telephone pole directly west of the holding tank. Pumps are controlled by circuits #3 and #4. All other processes and pumps on the facility should be shut down so that full attention can be directed to the spill.

b. Determine extent of contamination. This should be done by visual observation. If it is determined that leachate has reached the storm sewers, the City of Niagara Falls Wastewater Treatment Plant, the National Response Center and the New York State Oil and Hazardous Material Spill Notification Number should be called. A worst-case situation could release a volume of leachate in the order of five hundred (500) gallons from the holding tank. The frequent checks by personnel of the leachate level via strip chart reorder in the office, will enable quick detection of any overflow. Staff moves constantly between the leachate room and office during operations, and a check on all recorders is made once per five minutes. If both feed pumps at 50 GPM each are on, then a five minute flow would be 500 gallons total.

c. Protective clothing required. Cleanup personnel should be clothed in Level C protective gear. This should include rubber gloves and boots, water-resistent coveralls (i.e. polylaminated tyvek or equivalent) and half or full face mask respirators, Model #65 coupled with adaptor #802472-01 and canister #600252-11. Air should be monitored with an HNU #P1 101.

d. Equipment and materials required for cleanup. A worst case estimate of absorbent materials required is 25 50 lb. bags of floorsorb. This material is stored in the storage blockhouse, south of the treatment plant. Shovels, rakes and plastic are also stored in this blockhouse. 55 gallon drums are stored along side the metal shed north of the treatment plant. A worst case situation would require 20 - 30 drums. At least 2 NYSDEC employees must be present during cleanup operations.

e. Action to be taken.

- Shut down 50 GPM pumps feeding the holding tank (Section A)
- Determine the extent of contamination (Section B)
- Spread absorbent material over the entire spill area. First priority should be given to stopping any flow at the spills outer boundary. This should be done by forming a dike with the floorsorb. After the flow has stopped, the affected area should be covered with a one-half inch layer of the absorbent material. Once the spill has been contained, a decision must be made involving final cleanup. The emergency coordinator must decide if the spill can be cleaned by hand or if a backhoe or other equipment is required. In either case, the top inch of soil should be removed. All soil and absorbent material should be placed in 55 gallon drums for placement at the drum staging area north of the treatment plan. The area should then be covered with a plastic tarpaulin and roped off to prevent access.

f. Final inspection and cleanup of contaminated area. Before the area can be considered a non-hazardous zone, soil samples must be analyzed for contamination. If contaminents still exist, then more soil should be removed for disposal. When it has been determined that the area is not contaminated, clean topsoil should be spread and the area should be seeded. See Section A.5 for decontamination of tools and equipment.

C. SUMMARY OF AGREEMENTS WITH EMERGENCY RESPONSE OFFICIALS

The following arrangements have been made through meetings, phone calls and correspondence with the Niagara Falls Police and Fire Departments and the Niagara Falls Memorial Hospital.

1. Niagara Falls Police Department has agreed to the following:

   - To provide frequent patrols of the Love Canal area
   - To secure the area and restrict unauthorized entry during any emergency at the facility
   - In case of forced entry at the facility, officers will not enter the building until a NYSDEC employee arrives. In addition, a burglar alarm is monitored by the Niagara Falls Police Department

2. Officials from the Niagara Falls Fire Department were given a tour of the facility. The following points were made:

   - In case of fire, forced entry should be made into the site and the facility rather than waiting for a NYSDEC staff member
   - If entry is made into the facility during a fire, full protective clothing must be worn including a full face mask with SCBA. This also holds true for entry into pump chambers
   - The sludge holding tank was identified as being a possible source of toxic fumes if ignited. Areas where flammable solvents are likely to be found were also pointed out. These areas are marked on the floor plan, Appendix B.

3. Representatives of the Niagara Falls Memorial Medical Center were also given a tour of the facility. The following arrangements were made:

   - In case of medical emergency, the hospital will be contacted at 278-4000
   - Hospital emergency room personnel will be equipped with isolation suits if needed. Emergency room procedures will be the same as those for the hospital's disaster preparedness program.
   - Arrangements for use of an isolation room at the hospital have been made.
   - Any protective clothing contaminated during medical operations will be placed in a drum and returned to the Love Canal

D. EMERGENCY COORDINATORS

The following people are qualified to act as emergency coordinators in order of priority:

1. Gerald Rider

Office	(518) 457-0927
Home	(518) 674-5985

2. Brian Sadowski

Office	(716) 283-0111
Home	(716) 731-5654

3. Maurice Moore

Office	(716) 283-0111
Home	(716) 693-8679

4. Philip Waite

Office	(518) 457-0927
Home	(518) 583-0571

5. Abul Barkat

Office	(716) 847-4585
Home	(716) 691-4157

6. Yavuz Erk

Office	(716) 847-4585
Home	(716) 882-7134

7. John Tygert

Office	(716) 847-4590
Home	(716) 649-3545

8. John Strang

Office	(518) 457-0927
Home	(518) 383-0154

E. EMERGENCY EQUIPMENT AVAILABLE AT THE LOVE CANAL TREATMENT FACILITY

ITEM (# of)	LOCATION	DESCRIPTION AND CAPABILITIES
Fire extinguishers (4)	1) at main entrance to the facility 1) in the treatment area at the doorway between the plant and the hallway 1) at the northeast exit of the treatment plant 1) at the southeast exit of the treatment plant	Model 10H ABC Multiuse CB dry chemical fire extinguisher for use on A,B,C type fires A - wood, paper (ordinary combustible) B - flammable liquids C - electrical
Scott air-paks (4)	4) located under table in office area	30 minute air supply with full face masks. Positive pressure self-contained breathing apparatus
Scott ska-pak emergency escape unit (4)	1) ska-pak is kept in the locker room area 3) in locker #4 on the west wall of the treatment plant area	The ska-pak is a full face 5 min. escape SCBA. Its primary purpose is for use with an external air supply
Full face mask respirators, canister type (2)	2) on coat rack in hallway	For use in presence of organic vapors and acid gases, only when oxygen content is greater than 19.5%
half face respirators cartridge type (2)	2) on coat rack in hallway	For use in presence of organic vapors, acid gases, only when oxygen content is greater than 19.5%
half face mask respirators, cartridge type (12)	12) in cabinet #2 on the west wall of the treatment plant area	For use in presence of organic vapors and acid gases, only when oxygen content is greater than 19.5%
portable air compressor for use with ska-paks (1)	1) near southeast exit to treatment plant	Supplies air suitable for breathing when located in an area with uncontaminated air. Can supply two air-lines at 60 PSI. Airlines are kept on the west wall of the treatment plant area

E. EMERGENCY EQUIPMENT AVAILABLE AT THE LOVE CANAL TREATMENT FACILITY (CONT'D)

ITEM	LOCATION	DESCRIPTION AND CAPABILITIES
50 pound bags of adsorbent material (10)	in block house south of plant	Adsorbent material used to contain spills and increase solids content of sludges and slurries.
protective coveralls, gloves, boots, and hardhats	in cabinet #2, west wall of treatment plant	Coveralls, gloves and boots are used to protect against dermal contamination. Variations exist to equip in all protection levels.
Bellow and tank resucitation units (1)	1) on lower shelf of coat rack in hallway	Used to resucitate accident victims overcome by fumes and/or lack of oxygen.
First aid kits (4)	1) in office 3) lockerroom	Basic first aid kit for treatment of accident victims.
Shower/eyewash stations (3)	1) north end of clarifier 1) south end of clarifier 1) portable	Used to flush contaminants from body or eyes in the event of situation that is IDLH.

F. SPILL CONTROL

Any spills occuring inside the treatment plant or on the carbon loading pad in back of the building will be intercepted by a floor trench which serves to recycle the flow back into the treatment system. This includes the three fiberglass holding tanks and the three carbon contact vessels.

Four 10,000 gallon sludge storage tanks are located approximately 30 feet south of the treatment plant. These above ground tanks are surrounded by a reinforced concrete containment pad and walls. The containment enclosure is capable of storing approximately 45,000 gallons of material. These tanks are double-walled steel tanks and a vacuum is constantly maintained between the two walls. This vacuum is monitored by an alarm system which will sound if the vacuum is lost. With this system, a leak or break in the primary tank wall will be detected, while the sludge will remain contained by the secondary tank wall. If both tank walls failed, the concrete structure would contain the material. If this should occur, the sludge would be pumped either to an empty tank or to 55 gallon drums. The drums would be temporarily stored on the carbon delivery pad.

The north leachate holding tank (30,000 gallon) is located directly in back of the treatment plant. The tank is underground, and is composed of 6 discrete concrete tanks connected by furan coated steel pipe. Liquid level in this tank is monitored by a sonic level meter which is equipped with a high level alarm which will automatically shut-off all wet-well pumps when the tank reaches 90% capacity. Under normal operating conditions, the wet-well pumps must be operating to fill the tank. Therefore, this system prevents accidental over-filling of the tank. The north holding tank also has an overflow pipe which will flow direcly into the southern sector collection system if overfilling does occur.

The south leachate tank (25,000 gallons) is also underground and is contructed of furan coated steel. It is located on the west side of the canal approximately 800 feet south of the treatment plant. Liquid level in this tank is also monitored by a sonic level meter equipped with a high level alarm which automatically shuts off all wet-well pumps when the tank reaches 90% of capacity. As in the north, this system prevents accidental overfill of the tank. The tank is also double sealed to prevent leakage through the manway.

The sonic level meters in the north and the south leachate holding tanks, each control a strip chart recorder which are located in the treatment plant office. From these recorders the emergency coordinator can monitor the liquid levels in the tanks.

Both the north and south leachate holding tanks are located within the influence of the barrier drain. Therefore, any leakage from the tanks would be intercepted and recycled through the system.

G. ALARM SYSTEMS

The treatment plant is equipped with an intrusion alarm system which includes door contacts, motion detectors, and window shock alarms. This system also includes two fire and smoke detectors in the treatment area. For a description of alarm systems covering operations and spill control, see Section F.

H. EVACUATION PLAN

During any incident in which toxic fumes or other hazardous material has been released, facility personnel should proceed to a well ventilated area through the nearest exit. Due to the small size of the facility, detailed escape routes are not required. Personnel should proceed to the Public Information Office at 9820 Colvin Boulevard and contact the emergency coordinator. The appropriate emergency response team should be contacted as well as the Central Office in Albany.

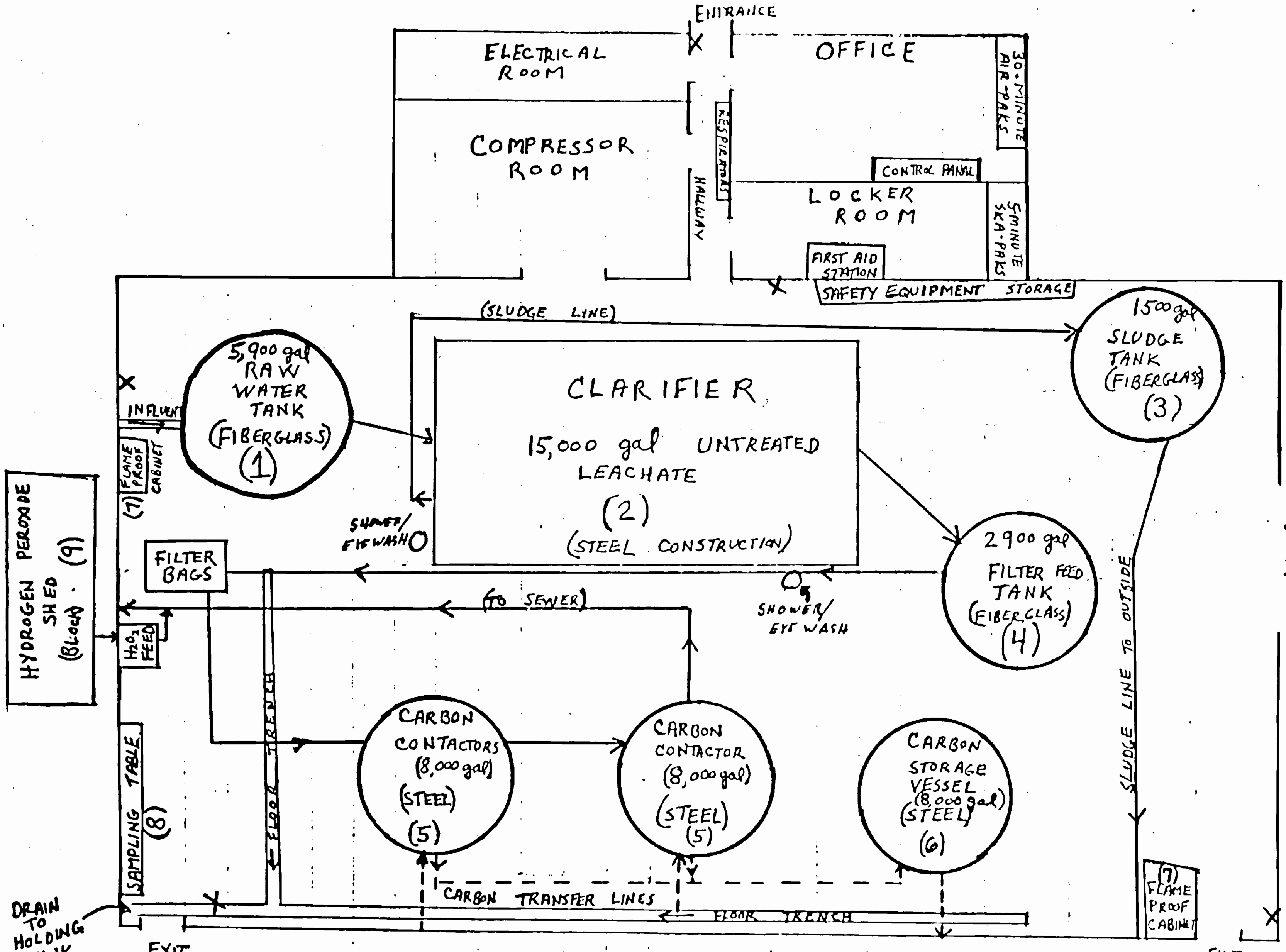
DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233

APPENDIX B

FLOOR PLAN

APPENDIX 3

TREATMENT FACILITY



FLOOR PLAN (Not to Scale)

N →

NOTE: NUMBERS REFER TO COMMENTS ON FOLLOWING PAGE

X DENOTES LOCATION OF FIRE EXTINGUISHERS

NOTES

1. Contaminated water. During processing, this tank would contain between 1,000 and 4,000 gallons. At all other times, it contains approximately 200 to 300 gallons. This material would most probably extinguish flames on contact.

2. Contains approximately 15,000 gallons of contaminated water at all times. Would extinguish flames on contact.

3. Contains from 0 to 1,500 gallons of highly toxic sludge. This material may burn if in contact with an ignition source, and would probably give off toxic fumes while burning.

4. Contains contaminated water which would extinguish flames on contact. During processing contains 700 to 2,500 gallon. At all other times contains 200 to 300 gallons.

5. Steel pressure vessels containing activated carbon saturated with water. May give off toxic, flammable gases if heated. Protected from rupture by pressure release system.

6. Steel storage vessel. Normally empty, but may contain same material as in (5) above.

7. Flame-proof cabinet contains highly flammable solvents - Acetone, Hexane, Methylene Chloride.

8. Small quantities of nitric acid and various solvents may be present in this area.

9. Hydrogen peroxide stored in this area is fed into the plant through a small plastic tube. 30 to 90 gallons of 50% hydrogen peroxide may be present. Peroxide is a strong oxidizer and may be flammable.

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
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50 WOLF ROAD
ALBANY, NEW YORK 12233

APPENDIX C

EMERGENCY PHONE NUMBERS

EMERGENCY PHONE NUMBERS

NIAGARA FALLS POLICE	911
NIAGARA FALLS FIRE	911

AMBULANCE SERVICE

Frontier Ambulance Service	(716) 285-3663
Niagara Ambulance Service	(716) 284-4228
Niagara Falls Memorial Hospital	(716) 278-4000

POLICE NUMBERS

Niagara Falls	(716) 278-8280	SECURITY ALARM MONITOR STATION 278-8388 (For LCTF)
Sheriff	(716) 285-5355	
State Police	(716) 297-0755	

SPILL CONTROL

In the event of off-site contamination each of the following agencies is to be notified.

National Response Center	(800) 424-8802
N.Y.S. Oil and Hazardous Material Spill Notification	(518) 457-7362
Niagara Falls Wastewater Treatment Plant	(716) 278-8138 (716) 278-8416 Shift Operator
Niagara County Dept. of Health	(716) 284-3128 Business Hours (716) 439-6141 After Hours

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233

APPENDIX D

CHARACTERISTICS OF ABSORBENTS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME: FLORIDIN COMPANY	EMERGENCY TELEPHONE NO.: Not applicable
ADDRESS (Number, Street, City, State, and ZIP Code): Berkeley Springs, West Virginia 25411	
CHEMICAL NAME AND SYNONYMS: Attapulgite (Fuller's Earth)	TRADE NAME AND SYNONYMS: FLORCO-X
CHEMICAL FAMILY: Magnesium Aluminum Silicate	FORMULA: $(OH_2)_4 (OH_2) Mg_5Si_8O_{20} \cdot 4H_2O$

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS		%	TLV (Units)	ALLOYS AND METALLIC COATINGS		%	TLV (Units)
PIGMENTS	None			BASE METAL	None		
CATALYST	None			ALLOYS	None		
VEHICLE	None			METALLIC COATINGS	None		
SOLVENTS	None			FILLER METAL PLUS COATING OR CORE FLUX	None		
ADDITIVES	None			OTHERS	None		
OTHERS	None						

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
None		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Not applicable	SPECIFIC GRAVITY (H_2O=1)	1.47
VAPOR PRESSURE (mm Hg.)	" "	PERCENT, VOLATILE BY VOLUME (%)	None
VAPOR DENSITY (AIR=1)	" "	EVAPORATION RATE (______ =1)	None
SOLUBILITY IN WATER	" "		
APPEARANCE AND ODOR	Gray to Reddish Brown, Granular or Flour, No Odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used): Not applicable	FLAMMABLE LIMITS: Not applicable	Lel	Uel
EXTINGUISHING MEDIA: No fire or explosive hazard			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE As specified in OSHA standard currently 29 CFR 1910.1000 Table Z-3 for crystalline silica (respirable quartz).

EFFECTS OF OVEREXPOSURE Repeated inhalation of dust in excess of TLV over an extended period of time may result in injury to the lungs.

EMERGENCY AND FIRST AID PROCEDURES None

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	

INCOMPATABILITY *(Materials to avoid)*

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Not hazardous

WASTE DISPOSAL METHOD Any - Not hazardous

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*
Dust respirator in compliance with OSHA Standards currently 29 CFR 1910.134

VENTILATION	LOCAL EXHAUST	SPECIAL
	Follow OSHA Standards	
	MECHANICAL *(General)* Follow OSHA Standards	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Follow OSHA Standards as required	Normal for dust

OTHER PROTECTIVE EQUIPMENT
As required to meet applicable OSHA Standards

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
None

OTHER PRECAUTIONS
None

APPENDIX 3

Phone: 895-2707

OFFICE AND PLANT
80 LESLIE STREET

Bison Laboratories, Inc.
P. O. BOX 1108
Buffalo, N. Y. 14211

ABSORBENTS

COMPARATIVE DATA

COMPANY	TRADE NAME	DENSITY (Lbs./cu. ft.)	ABSORPTION VAN TRUMP OIL	ABSORPTION VAN TRUMP WATER
Absorbent Clay Products	Private Label	45	65	85
Anna, Illinois				
Bennett Minerals	Private Label	46	63	80
Pinewood, South Carolina				
BISON LABORATORIES, INC.	FLOOR-SORB	28	130	150
BUFFALO, NEW YORK				
Bratton Enterprizes	Clean N'Dri	45	65	85
Oran, Missouri				
Englehard Min. & Chemical	Sol-Speedi-Dri	33	105	125
Attapulgus, Georgia	Auto-Dri	36	85	110
Floridin Company	Floor Kleen	34	100	120
Quincy, Florida	Flor Co	28	130	150
Ochlocknee, Georgia				
A. P. Green	A. P. Green	39	80	95
Oran, Missouri	Absorbent			
Georgia-Tenn. Mining	Dri White			
Wrens, Georgia	Inst-A-Sorb	37	75	100
	Sorbo Lite			
Lowes, Inc.	Lowes Safety Absorbent			
Paris, Tennessee	All-Purpose	38	80	100
	Regular	42	75	100
Oil-Dri Corp. of America	Oil-Dri			
Ochlocknee, Georiga	All-Purpose	32	100	115
Ripley, Mississippi	Industrial	37	85	105
Paris, Tennessee	Regular	42	75	100
Waverley Mineral Products	Hi-Dri	32	110	120
Meigs, Georgia	Petro-Sorb	34	100	120
	Zip-Sorb	34	100	120
Wyandotte Chemical Corp.	Zorb-All	37	90	115
Zorball, MS	Zorb-All Regular	40	85	110

APPENDIX 1

GLOSSARY

GLOSSARY

(Described as these words relate to the report)

Adsorption - Adhesion of molecules of a dissolved substance to a surface. Chemicals dissolved in the leachate adhere to the surface of activated carbon in the treatment facility's adsorber units thereby removing the chemicals from the leachate.

Aquifer - A body of rock (or soil) sufficiently permeable to conduct groundwater.

Aquitard - A body of rock (or soil) that retards the flow of groundwater.

Breakthrough - The point at which a carbon bed is no longer effective at removing contaminants from the leachate.

Carbon Bed - The volume of activated carbon located in an adsorber unit. When the activated carbon is no longer effective in removing chemical contaminants, the carbon bed is replaced.

Clarifier - Treatment unit resembling a tank which removes dense organic chemicals from the leachate by settling action.

Desiccated Clays - Dried clay, usually exhibiting shrinkage cracks.

Destruction and Removal Efficiency - The percentage of a specified chemical compound that was chemically altered by a treatment process such as plasma arc.

Detection Limit - The lowest concentration of a chemical that must be present in order for the chemical to be discernible in a laboratory analysis.

Dewater - Removing water from the ground or sediment.

Dolomite - A rock type, similar to limestone, composed of calcium-magnesium carbonate.

Effluent - The point at the end of the process line; the point when all the leachate has been treated and is to be discharged into the city sewer system.

Glacial Till - Non-sorted material deposited by a glacier, consisting of intermixed clay, sand, gravel and boulders.

Glaciofluvial - Pertaining to deposits from streams resulting from melting glaciers.

Hydraulic Gradient - Pressure differences which cause groundwater to flow favorably in a particular direction.

Infiltration - Water which seeps into a medium such as a sewer pipe or into the ground.

Influent - The point in the leachate process line prior to adsorption treatment.

GLOSSARY

(Described as these words relate to the report)

Interim Containment Facility - An earthen vault with leak prevention systems designed to contain sediments from the creeks excavation projects. The vault is later opened and the sediments removed for destruction.

Lacustrine Sediments - Lake sediments.

Leachate - Solution or product produced by action of a groundwater percolating through the soil which dissolves some of the chemicals contained in the soil. Non-aqueous phase leachate is the liquid chemical wastes which percolate through the soil but do not dissolve into the groundwater.

Lift - In construction, the thickness (height) of a soil layer prior to compaction.

Midpoint - The point in the leachate process line between the lead adsorber treatment unit and the polish adsorber treatment unit.

Overburden - All unconsolidated materials lying above the bedrock.

Permeability - Measure of the ability of a soil, rock, or other material to transmit water or other fluids through its porous openings.

Piezometer - A small diameter well used to measure the elevation of ground water.

Nest Piezometer - Two or more piezometers at the same location list at different depths to measure water elevations of different aquifers.

Ppm - Parts per million. A measurement of concentration in very weak solutions. More precisely, the ratio of the weight of solute to the weight of solvent times one million.

Pump Chambers - Large manholes used to house the pumps used in the collection of leachate.

Residence Time - The time it takes for a specific particle to go through a specific treatment process unit. Residence times can be controlled by the operator and hence are useful in measuring the effectiveness of the treatment unit.

Sludge - Term given to the organic residue which settles in the clarifier and is subsequently separated from the leachate.

Synthetic Membrane (Synthetic Liner) - A waterproof plastic sheet. The sheets are thermally sewn together to cover the area over which the wastes are buried this preventing rainwater from coming in contact with the waste.

Swale - A small channel running around the perimeter of the cap used to collect rainwater and convey it away from the buried wastes.

Zone of Saturation - That portion of the earth below the water table.

APPENDIX 2

LOVE CANAL WORKPLAN

LOVE CANAL WORK PLAN

JOB NAME	1988	1989	1990
A) TRC-HABITABILITY			
1. Dioxin Study	-------------		
2. Air Sampling Report	-------------		
3. Soil Sampling Report	-------------		
4. Habitability Study	-------------		
5. Tech. Review Committee	-------------	-------------	-------------
6. NYSDOH Decision	-------------		
B) REMEDIAL ACTIVITIES			
1. B&B Creeks Remediation Creek Clean-up, DDSF	-------------	-------------	
2. Cayuga Creek Study	-------------		-------------
3. 93rd Street School	-------------	-------------	-------------
4. Methodist Church	-------------		
5. Thermal Destruction	-------------	-------------	-------------
6. Long Term Monitoring	-------------	-------------	-------------
7. EDA Home Maintenance	-------------	(Depends on A6 above)	

	1988	1989	1990
C) PLANT OPERATION & MAINTENANCE			
1. Leachate Treatment	-------------	-------------	-------------
2. Clarifier Chem. Addition	-------------	-------------	-------------
3. Backwash Implementation	-------------	-------------	-------------
4. Piping (Replace as necessary)	-------------	-------------	-------------
5. Clarifier Investigation	-------------		
6. Sludge Tank Alarm	-------------	-------------	-------------
7. O & M Manual	-------------	-------------	-------------
8. Computerized Parts Inv.	-------------	-------------	-------------
D) SITE OPERATION & MAINTENANCE			
1. Fertilizing,Mowing,Trim	-------------	-------------	-------------
2. Fence Repair (as needed)	-------------	-------------	-------------
3. Drum Maintenance	-------------	-------------	-------------
4. Carbon Change & Stage	-------------	-------------	-------------
5. Carbon Supply	-------------	-------------	-------------
6. Electrical Renovation	-------------	-------------	
7. Pump Renovation	-------------	-------------	
8. Collection System Inspect.		-------------	
9. Renovate Tank 3A Access	-------------		
10. Painting	-------------	-------------	-------------
11. Site Surveying	-------------	-------------	-------------

APPENDIX 3

CONTINGENCY PLAN LOVE CANAL TREATMENT FACILITY

APPENDIX 3

CONTINGENCY PLAN

LOVE CANAL TREATMENT FACILITY
Niagara Falls, New York

SEP 23 1986

Division of Solid and Hazardous Waste

New York State Department of Environmental Conservation

TABLE OF CONTENTS

A. INTRODUCTION

1.) Purpose

The purpose of this plan is to establish procedures which must be followed in order to minimize hazards to human health and the environment. These hazards could occur as a result of unplanned release of hazardous waste to the environment during operation and maintenance of the Love Canal Treatment Facility. The provisions of this plan must be carried out whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents related to the operation and maintenance of the leachate collection and treatment system.

2.) General Site Description

The Love Canal leachate collection and treatment system was constructed to prevent the outward migration of chemical contamination from the abandoned hazardous waste landfill. The leachate collection system consists of approximately 6500 linear feet of perforated drain pipe with sand backfill. The depths of the system ranges from 15 to 18 feet. Included in the system are four wet-wells and two underground holding tanks of 25,000 and 30,000 gallon capacity.

The treatment system consists of mechanical clarification, filtration and carbon adsorption. There are also four 10,000 gallon holding tanks on site for sludge storage. Inside the treatment plant, there are two fiberglass leachate holding tanks of 5,940 and 2,910 gallon capacity. There is also a sludge holding tank with a capacity of 1,580 gallons.

The treatment plant area has a floor trench designed to intercept any spills which may occur. This trench drains to the 30,000 gallon holding tank for eventual treatment. Additionally, there is a concrete carbon loading pad in back of the treatment plant which can be used for equipment decontamination. This also drains into the 30,000 gallon holding tank.

Ventilation in the plant area is provided by a Dravo-Hastings Blower, located on the roof, and two floor exhaust fans. Additionally six exhaust fans ventilates organic vapors from the influent holding tank, the clarifier, the filter feed tank and the sludge holding tank. These exhaust fans draw the organic vapors through four carbon ventsorbs before discharge to the atmosphere.

3.) Implementation

Whenever an event occurs which requires the contingency plan to be put into effect, the emergency coordinator must be notified immediately. Persons qualified to act as emergency coordinators are listed in Section D. If a spill occurs, the emergency coordinator must determine by visual observation if there is a possible adverse impact extending beyond the fenced area. If he determines that the possibility of adverse impact exists, he must immediately call the following numbers:

NATIONAL RESPONSE CENTER (800) 424-8802

N.Y. STATE OIL AND HAZARDOUS
MATERIAL SPILL NOTIFICATION NUMBER (518) 457-7362

If there is a possibility of the discharge reaching the city's sanitary sewers, the wastewater treatment plant must be informed immediately:

NIAGARA FALL WASTEWATER TREATMENT PLANT (716) 278-8138

These numbers are posted on the bulletin board in the office area of the treatment plant. A written report must be made to the EPA and the NYSDEC within 15 days of an incident.

If the Emergency Coordinator determines that a fire, explosion or spill may make evacuation of local areas advisable, he must contact the local authorities by calling 911. This number is also posted on the bulletin board in the office area. A phone is also located in the office area.

Niagara Falls Memorial Hospital, Niagara Falls Fire Department and the Niagara Falls Wastewater Treatment Plant will receive copies of this plan. Agreements made with local officials are discussed further in Section C.

If this plan fails to meet its goals during an incident, it will be modified. Additionally, it will be modified whenever the list of emergency equipment changes, whenever the list of emergency coordinators changes, whenever the facility design or operation changes in such a way that there is an increase in the potential for hazardous materials incidents or whenever applicable regulations are revised. The modified plan will be sent to all parties involved.

Each time the contingency plan is put into effect, the complete details of the incident must be noted in the operators daily log, and reported to the Director of the Division of Solid and Hazardous Waste through the Chief of the Bureau of Western Remedial Action in a written report.

After each incident which requires implementation of the plan, an inspection must be made by the Section supervisor or someone he appoints to insure that all affected areas have been properly decontaminated and all emergency equipment is in working order. Specific decontamination procedures can be found in the section entitled "response to emergency situations" and "decontamination of tools and equipment".

All drums of contaminated material generated during clean-up activities will be transported by truck to the drum staging area on site.

Whenever this plan is implemented, at least two (2) NYSDEC staff members must be present. Each specific section describing a given emergency list the number of personnel required.

In all situations, any injuries should be given top priority. Phone numbers for the Niagara Falls Memorial Hospital and two local ambulance services are posted in the office area.

4.) Ventilation and Air Monitoring

During all clean-up operations inside the treatment plant all doors to the outside should be opened to assist in ventilation. During cleanup operations indoors or outdoors. the atmosphere will be monitored using an HNU Model PL 101 or equivalent. When the reading on the HNU is between 0 and 5 PPM, respiratory protection must be a full-face canister type respirator, Model #65 coupled with adaptor #802472-01 and cannister #600252-11. If the reading exceeds 5 PPM, respirators are no longer sufficient. Cleanup personnel must either leave the immediate area and wait for fumes to dissipate or resume operations using self-contained breathing apparatus (SCBA) or positive pressure supplied air using either air cylinders or a portable air compressor. Supplied air must be used in conjunction with a 5-minute escape bottle.

If the HNU reading exceeds 300 PPM, cleanup activities must be abandoned until fumes are allowed to dissipate.

The atmosphere should also be monitored with an oxygen/explosion meter MS4 Model 260 or equivalent. If the oxygen meter reading falls below 19.5%, SCBA or supplied air must be used. If the Lower Explosive Level (LEL) reading is above 25%, cleanup personnel should leave the immediate area until further monitoring indicates that an explosive atmosphere no longer exists.

5.) Decontamination of Equipment and Tools

All equipment and tools used during cleanup operations must be throughly decontaminated or disposed of. All washwater used during decontamination will be returned to the leachate collection system for treatment. This can be accomplished by making sure that all clean up is done on the carbon delivery pad in back of the treatment plant.

Small hand tools may be decontaminated by wiping clean with rags soaked in a solvent (i.e. methylene chloride, acetone) or in an industrial strength detergent (i.e. penetone). If, in the emergency coordinators judgement, this is not sufficient, they may be cleaned with high pressure steam or water.

Larger tools and vehicles such as trucks and backhoes may be cleaned using high pressure water and steam upon the discretion of the emergency coordinator.

6.) Responsibilities and Authority of Local Personnel

During normal operations at the Love Canal Leachate Treatment Facility there are two on-site plant operators. In the event of a spill or other emergency, both persons have full authority and responsibilities for implementing the contingency plan. The primary emergency coordinator will direct work by on-site personnel or private contractors in clean-up operations. He is also responsible for the notification of all outside agencies during implementation and for providing an accurate description of the situation to outside response groups. He must insure that clean-up operations are carried out as described in this plan. Job titles and responsibilities of on-site personnel in order of priority are as follows:

1.) Brian Sadowski - Senior Love Canal Treatment Plant Operator

Office (716) 283-0111
Home (716) 731-5654

2.) Maurice Moore - Love Canal Treatment Plant Operator

Office (716) 283-0111
Home (716) 693-8679

3.) Abul Barkat - Senior Sanitary Engineer

Office (716) 847-4585
Home (716) 691-4157

4.) Yavuz Erk - Senior Sanitary Engineer

Office (716) 847-4585
Home (716) 882-7134

5.) John Tygert - Associate Sanitary Engineer (SWM)

Office (716) 847-4590
Home (716) 649-3545

Mr. Sadowski will act as primary emergency coordinator. All duties are as described above. Additionally, there are personnel based in Albany who are on-site from time to time. Again, these are listed in order of priority.

Authority of Albany, NY-based Personnel

1.) Gerald Rider, Supervisor - Special Projects Section

Office (518) 457-0927
Home (518) 674-5985

Mr. Rider will act as primary emergency coordinator whenever he is on site.

2.) Philip Waite - Senior Sanitary Engineer

Office (518) 457-0927
Home (518) 583-0571

Mr. Waite will act as primary emergency coordinator in Mr. Rider's absence.

3.) John Strang - Assistant Sanitary Engineer

Office	(518)	457-0927
Home	(518)	383-0154

All persons listed above are familiar with the contingency plan and have full authority to implement it as described in this document.

B. RESPONSE TO EMERGENCY SITUATIONS

1. General Instructions

For all cases which require implementation of the contingency plan, the following actions should be taken in order of priority.

a. Get immediate medical attention for any injuries. Emergency medical phone numbers are posted in the office.

b. Shut down all plant process pumps and field pumps. Field pumps can be shut down from the office control panel. Plant pumps can be shut down by closing the air valve at each individual pump. If the emergency situation exists within the treatment area, plant pumps should be shut down by turning off the air compressors in the mechanical room.

c. Take immediate action to ensure that there is no continued release of hazardous materials to the environment.

d. Inform the appropriate emergency response organizations and the NYSDEC Central Office in Albany.

e. Proceed with response and cleanup activities outlined in each section.

This contingency plan is intended as a guidance document. In any case, the emergency coordinator should apply his best judgement to the situation, and proceed in the manner that the situation dictates.

2. Rupture of indoor leachate holding tank and pipe system

a. Protective clothing required. Treatment plant personnel should be clothed in Level C protective gear. This should include chemical resistant gloves and boots, water-resistant coveralls (i.e. polylaminated tyvek or equivalent) and full-face mask respirators, model #65 coupled with adaptor, #802472-01 and canister, # 600252-11. See section A.4 for air monitoring and ventilation.

b. Equipment and materials required for cleanup. Two brooms and two squeeges are located in the treatment area. A maximum of 2 drums would be required for disposal of safety gear and clothing.

c. Action to be taken.

- Shut down all plant processes
- Suit up in protective clothing and respirators
- Monitor air to determine proper respiratory protection and upgrade protection if need be
- Flush floor with large volume of water using hoses in treatment room
- Use brooms and squeeges to push water to floor trench
- Steam clean affected areas of floor using high pressure steam from Steam Jenny model # 1000-C-OMP or equivalent
- Water rinse floor again

d. Final clean-up and inspection. All brooms and protective clothing should be decontaminated in accordance with Section A.5 or placed in 55 gallon drums for final disposal. Immediate arrangements should be made through Albany to replace and/or repair all affected pipes and tanks. The floor should be visually inspected for contamination. Air should be monitored with an HNU. If readings persist above background levels, the floor should be steam cleaned and rinsed until readings come back to normal.

3. Rupture of indoor sludge tank

a. Protective clothing required. Treatment plant personnel should be clothed in Level C protective gear. This should include chemical resistant gloves and boots, water-resistant coveralls (i.e. poly-laminated tyvek or equivalent) and full-face mask respirators, model #65 coupled with adapter #802472-01 and canister #600252-11. See section A.4 for air monitoring and ventilation.

b. Equipment and materials required for cleanup. Two shovels are located in the treatment area. Bags of floorsorb are located in a storage blockhouse on the southside of the plant.

c. Action to be taken.

- Suit up in protective clothing and respirators
- Monitor air to determine proper respiratory protection and upgrade protection if need be
- Stop the leak

- Set up a perimeter around the spill using floorsorb to contain the sludge from spreading
- Take shovelfuls of floorsorb and apply to the sludge perimeter and leak area
- Cover the spill with floorsorb until the sludge is not permeating the upper layer
- Shovel the spent floorsorb into drums
- Flush floor with large volume of water using hoses in treatment room
- Apply penetone to the floor as a surfactant, to draw any remaining sludge off the floor
- Water rinse floor again
- Use brooms and squeeges to push water to floor trench

d. Final cleanup and inspection. All shovels, brooms and protective clothing should be decontaminated in accordance with Section A.5 or placed in 55 gallon drums for final disposal. Immediate arrangements should be made through Albany to replace and/or repair all affected pipes and tanks. The floor should be visually inspected for contamination. Air should be monitored with an HNU. If readings persist above background levels, the floor should be steam cleaned and rinsed until readings come back to normal.

4. Fire or Explosion in the treatment plant or collection system.

a. Protective clothing required. Response personnel should be clothed in Level B protective gear, including SCBA.

b. Equipment and materials required. Fire extinguishers are located in the treatment area as shown on the floor plan. One active fire hydrant is on site. The hydrant is located approximately 180 feet north of the plant.

c. Action to be taken.

- If the situation appears dangerous, evacuate the area immediately and call the police and fire departments.

- If no immediate danger exists, call the police and fire departments, then put on protective clothing including SCBA and extinguish flames with handheld extinguishers.

d. Final cleanup and inspection. All water and liquids used should be returned to the treatment plant system. Any equipment or materials used should either be decontaminated or disposed of in 55 gallon drums. The fire department should conduct an inspection to determine the cause of the accident.

5. Overflowing of South Holding Tank

a. Shut down 50 GPM pumps feeding the holding tank. This may be done from the control panel in the office or from the circuit breaker mounted on the telephone pole directly west of the holding tank. Pumps are controlled by circuits #3 and #4. All other processes and pumps on the facility should be shut down so that full attention can be directed to the spill.

b. Determine extent of contamination. This should be done by visual observation. If it is determined that leachate has reached the storm sewers, the City of Niagara Falls Wastewater Treatment Plant, the National Response Center and the New York State Oil and Hazardous Material Spill Notification Number should be called. A worst-case situation could release a volume of leachate in the order of five hundred (500) gallons from the holding tank. The frequent checks by personnel of the leachate level via strip chart reorder in the office, will enable quick detection of any overflow. Staff moves constantly between the leachate room and office during operations, and a check on all recorders is made once per five minutes. If both feed pumps at 50 GPM each are on, then a five minute flow would be 500 gallons total.

c. Protective clothing required. Cleanup personnel should be clothed in Level C protective gear. This should include rubber gloves and boots, water-resistent coveralls (i.e. polylaminated tyvek or equivalent) and half or full face mask respirators, Model #65 coupled with adaptor #802472-01 and canister #600252-11. Air should be monitored with an HNU #P1 101.

d. Equipment and materials required for cleanup. A worst case estimate of absorbent materials required is 25 50 lb. bags of floorsorb. This material is stored in the storage blockhouse, south of the treatment plant. Shovels, rakes and plastic are also stored in this blockhouse. 55 gallon drums are stored along side the metal shed north of the treatment plant. A worst case situation would require 20 - 30 drums. At least 2 NYSDEC employees must be present during cleanup operations.

e. Action to be taken.

- Shut down 50 GPM pumps feeding the holding tank (Section A)
- Determine the extent of contamination (Section B)
- Spread absorbent material over the entire spill area. First priority should be given to stopping any flow at the spills outer boundary. This should be done by forming a dike with the floorsorb. After the flow has stopped, the affected area should be covered with a one-half inch layer of the absorbent material. Once the spill has been contained, a decision must be made involving final cleanup. The emergency coordinator must decide if the spill can be cleaned by hand or if a backhoe or other equipment is required. In either case, the top inch of soil should be removed. All soil and absorbent material should be placed in 55 gallon drums for placement at the drum staging area north of the treatment plan. The area should then be covered with a plastic tarpaulin and roped off to prevent access.

f. Final inspection and cleanup of contaminated area. Before the area can be considered a non-hazardous zone, soil samples must be analyzed for contamination. If contaminents still exist, then more soil should be removed for disposal. When it has been determined that the area is not contaminated, clean topsoil should be spread and the area should be seeded. See Section A.5 for decontamination of tools and equipment.

C. SUMMARY OF AGREEMENTS WITH EMERGENCY RESPONSE OFFICIALS

The following arrangements have been made through meetings, phone calls and correspondence with the Niagara Falls Police and Fire Departments and the Niagara Falls Memorial Hospital.

1. Niagara Falls Police Department has agreed to the following:

   - To provide frequent patrols of the Love Canal area
   - To secure the area and restrict unauthorized entry during any emergency at the facility
   - In case of forced entry at the facility, officers will not enter the building until a NYSDEC employee arrives. In addition, a burglar alarm is monitored by the Niagara Falls Police Department

2. Officials from the Niagara Falls Fire Department were given a tour of the facility. The following points were made:

   - In case of fire, forced entry should be made into the site and the facility rather than waiting for a NYSDEC staff member
   - If entry is made into the facility during a fire, full protective clothing must be worn including a full face mask with SCBA. This also holds true for entry into pump chambers
   - The sludge holding tank was identified as being a possible source of toxic fumes if ignited. Areas where flammable solvents are likely to be found were also pointed out. These areas are marked on the floor plan, Appendix B.

3. Representatives of the Niagara Falls Memorial Medical Center were also given a tour of the facility. The following arrangements were made:

   - In case of medical emergency, the hospital will be contacted at 278-4000
   - Hospital emergency room personnel will be equipped with isolation suits if needed. Emergency room procedures will be the same as those for the hospital's disaster preparedness program.
   - Arrangements for use of an isolation room at the hospital have been made.
   - Any protective clothing contaminated during medical operations will be placed in a drum and returned to the Love Canal

D. EMERGENCY COORDINATORS

The following people are qualified to act as emergency coordinators in order of priority:

1. Gerald Rider

Office	(518) 457-0927
Home	(518) 674-5985

2. Brian Sadowski

Office	(716) 283-0111
Home	(716) 731-5654

3. Maurice Moore

Office	(716) 283-0111
Home	(716) 693-8679

4. Philip Waite

Office	(518) 457-0927
Home	(518) 583-0571

5. Abul Barkat

Office	(716) 847-4585
Home	(716) 691-4157

6. Yavuz Erk

Office	(716) 847-4585
Home	(716) 882-7134

7. John Tygert

Office	(716) 847-4590
Home	(716) 649-3545

8. John Strang

Office	(518) 457-0927
Home	(518) 383-0154

E. EMERGENCY EQUIPMENT AVAILABLE AT THE LOVE CANAL TREATMENT FACILITY

ITEM (# of)	LOCATION	DESCRIPTION AND CAPABILITIES
Fire extinguishers (4)	1) at main entrance to the facility 1) in the treatment area at the doorway between the plant and the hallway 1) at the northeast exit of the treatment plant 1) at the southeast exit of the treatment plant	Model 10H ABC Multiuse CB dry chemical fire extinguisher for use on A,B,C type fires A - wood, paper (ordinary combustible) B - flammable liquids C - electrical
Scott air-paks (4)	4) located under table in office area	30 minute air supply with full face masks. Positive pressure self-contained breathing apparatus
Scott ska-pak emergency escape unit (4)	1) ska-pak is kept in the locker room area 3) in locker #4 on the west wall of the treatment plant area	The ska-pak is a full face 5 min. escape SCBA. Its primary purpose is for use with an external air supply
Full face mask respirators, canister type (2)	2) on coat rack in hallway	For use in presence of organic vapors and acid gases, only when oxygen content is greater than 19.5%
half face respirators cartridge type (2)	2) on coat rack in hallway	For use in presence of organic vapors, acid gases, only when oxygen content is greater than 19.5%
half face mask respirators, cartridge type (12)	12) in cabinet #2 on the west wall of the treatment plant area	For use in presence of organic vapors and acid gases, only when oxygen content is greater than 19.5%
portable air compressor for use with ska-paks (1)	1) near southeast exit to treatment plant	Supplies air suitable for breathing when located in an area with uncontaminated air. Can supply two air-lines at 60 PSI. Airlines are kept on the west wall of the treatment plant area

E. EMERGENCY EQUIPMENT AVAILABLE AT THE LOVE CANAL TREATMENT FACILITY (CONT'D)

ITEM	LOCATION	DESCRIPTION AND CAPABILITIES
50 pound bags of adsorbent material (10)	in block house south of plant	Adsorbent material used to contain spills and increase solids content of sludges and slurries.
protective coveralls, gloves, boots, and hardhats	in cabinet #2, west wall of treatment plant	Coveralls, gloves and boots are used to protect against dermal contamination. Variations exist to equip in all protection levels.
Bellow and tank resucitation units (1)	1) on lower shelf of coat rack in hallway	Used to resucitate accident victims overcome by fumes and/or lack of oxygen.
First aid kits (4)	1) in office 3) lockerroom	Basic first aid kit for treatment of accident victims.
Shower/eyewash stations (3)	1) north end of clarifier 1) south end of clarifier 1) portable	Used to flush contaminants from body or eyes in the event of situation that is IDLH.

F. SPILL CONTROL

Any spills occuring inside the treatment plant or on the carbon loading pad in back of the building will be intercepted by a floor trench which serves to recycle the flow back into the treatment system. This includes the three fiberglass holding tanks and the three carbon contact vessels.

Four 10,000 gallon sludge storage tanks are located approximately 30 feet south of the treatment plant. These above ground tanks are surrounded by a reinforced concrete containment pad and walls. The containment enclosure is capable of storing approximately 45,000 gallons of material. These tanks are double-walled steel tanks and a vacuum is constantly maintained between the two walls. This vacuum is monitored by an alarm system which will sound if the vacuum is lost. With this system, a leak or break in the primary tank wall will be detected, while the sludge will remain contained by the secondary tank wall. If both tank walls failed, the concrete structure would contain the material. If this should occur, the sludge would be pumped either to an empty tank or to 55 gallon drums. The drums would be temporarily stored on the carbon delivery pad.

The north leachate holding tank (30,000 gallon) is located directly in back of the treatment plant. The tank is underground, and is composed of 6 discrete concrete tanks connected by furan coated steel pipe. Liquid level in this tank is monitored by a sonic level meter which is equipped with a high level alarm which will automatically shut-off all wet-well pumps when the tank reaches 90% capacity. Under normal operating conditions, the wet-well pumps must be operating to fill the tank. Therefore, this system prevents accidental over-filling of the tank. The north holding tank also has an overflow pipe which will flow direcly into the southern sector collection system if overfilling does occur.

The south leachate tank (25,000 gallons) is also underground and is contructed of furan coated steel. It is located on the west side of the canal approximately 800 feet south of the treatment plant. Liquid level in this tank is also monitored by a sonic level meter equipped with a high level alarm which automatically shuts off all wet-well pumps when the tank reaches 90% of capacity. As in the north, this system prevents accidental overfill of the tank. The tank is also double sealed to prevent leakage through the manway.

The sonic level meters in the north and the south leachate holding tanks, each control a strip chart recorder which are located in the treatment plant office. From these recorders the emergency coordinator can monitor the liquid levels in the tanks.

Both the north and south leachate holding tanks are located within the influence of the barrier drain. Therefore, any leakage from the tanks would be intercepted and recycled through the system.

G. ALARM SYSTEMS

The treatment plant is equipped with an intrusion alarm system which includes door contacts, motion detectors, and window shock alarms. This system also includes two fire and smoke detectors in the treatment area. For a description of alarm systems covering operations and spill control, see Section F.

H. EVACUATION PLAN

During any incident in which toxic fumes or other hazardous material has been released, facility personnel should proceed to a well ventilated area through the nearest exit. Due to the small size of the facility, detailed escape routes are not required. Personnel should proceed to the Public Information Office at 9820 Colvin Boulevard and contact the emergency coordinator. The appropriate emergency response team should be contacted as well as the Central Office in Albany.

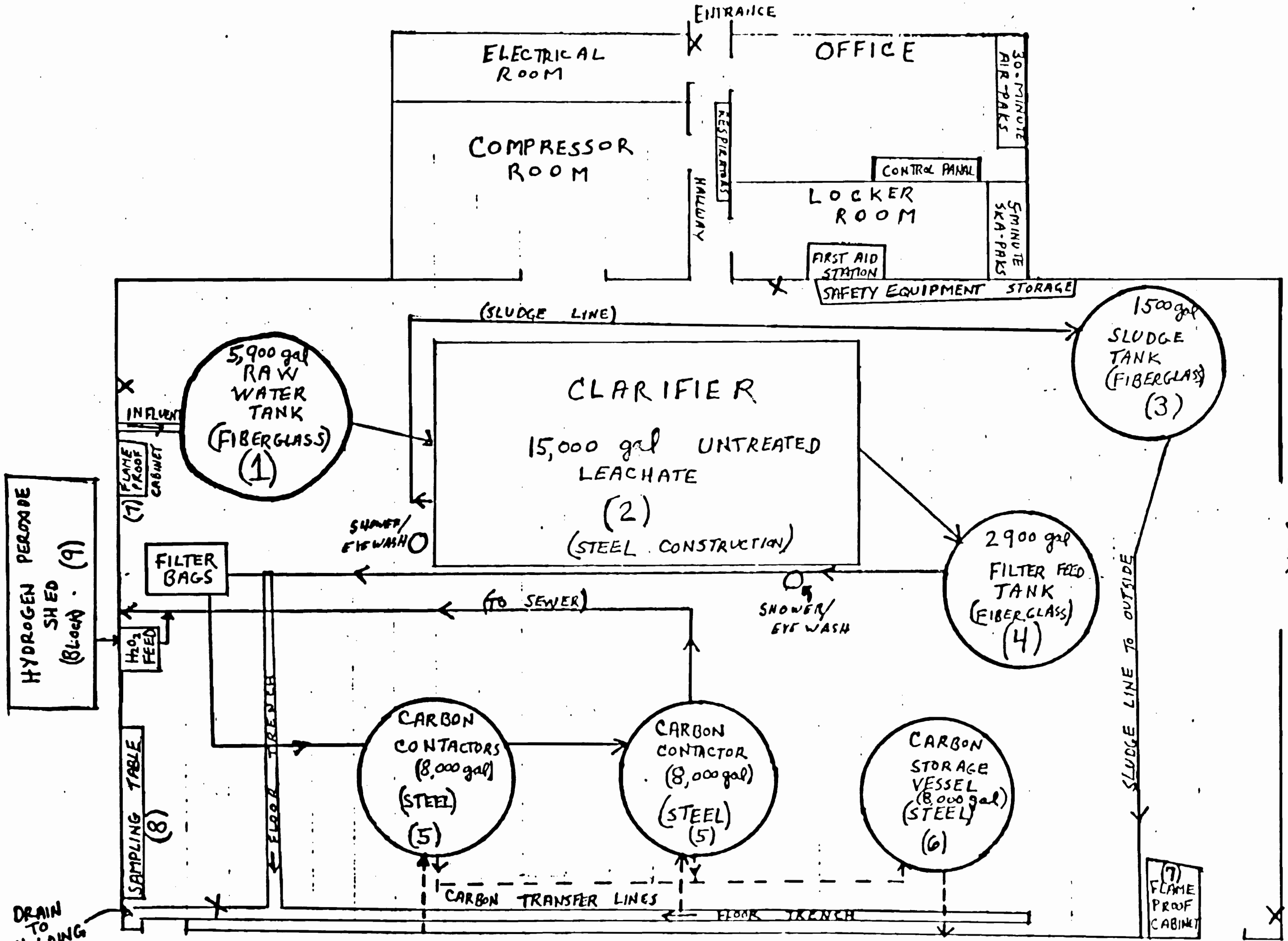
SEP 23 1986

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233

APPENDIX B

FLOOR PLAN

TREATMENT FACILITY



FLOOR PLAN (Not to Scale)

N →

NOTE: NUMBERS REFER TO COMMENTS ON FOLLOWING PAGE
X DENOTES LOCATION OF FIRE EXTINGUISHERS

APPENDIX 3

NOTES

1. Contaminated water. During processing, this tank would contain between 1,000 and 4,000 gallons. At all other times, it contains approximately 200 to 300 gallons. This material would most probably extinguish flames on contact.

2. Contains approximately 15,000 gallons of contaminated water at all times. Would extinguish flames on contact.

3. Contains from 0 to 1,500 gallons of highly toxic sludge. This material may burn if in contact with an ignition source, and would probably give off toxic fumes while burning.

4. Contains contaminated water which would extinguish flames on contact. During processing contains 700 to 2,500 gallon. At all other times contains 200 to 300 gallons.

5. Steel pressure vessels containing activated carbon saturated with water. May give off toxic, flammable gases if heated. Protected from rupture by pressure release system.

6. Steel storage vessel. Normally empty, but may contain same material as in (5) above.

7. Flame-proof cabinet contains highly flammable solvents - Acetone, Hexane, Methylene Chloride.

8. Small quantities of nitric acid and various solvents may be present in this area.

9. Hydrogen peroxide stored in this area is fed into the plant through a small plastic tube. 30 to 90 gallons of 50% hydrogen peroxide may be present. Peroxide is a strong oxidizer and may be flammable.

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233

APPENDIX C

EMERGENCY PHONE NUMBERS

EMERGENCY PHONE NUMBERS

NIAGARA FALLS POLICE	911
NIAGARA FALLS FIRE	911

AMBULANCE SERVICE

Frontier Ambulance Service	(716) 285-3663
Niagara Ambulance Service	(716) 284-4228
Niagara Falls Memorial Hospital	(716) 278-4000

POLICE NUMBERS

Niagara Falls	(716) 278-8280
Sheriff	(716) 285-5355
State Police	(716) 297-0755

SECURITY ALARM
MONITOR STATION
278-8388 (For LCTF)

SPILL CONTROL

In the event of off-site contamination each of the following agencies is to be notified.

National Response Center	(800) 424-8802
N.Y.S. Oil and Hazardous Material Spill Notification	(518) 457-7362
Niagara Falls Wastewater Treatment Plant	(716) 278-8138 (716) 278-8416 Shift Operator
Niagara County Dept. of Health	(716) 284-3128 Business Hours (716) 439-6141 After Hours

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233

APPENDIX D

CHARACTERISTICS OF ABSORBENTS

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing, Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME: FLORIDIN COMPANY	EMERGENCY TELEPHONE NO.: Not applicable
ADDRESS (Number, Street, City, State, and ZIP Code): Berkeley Springs, West Virginia 25411	
CHEMICAL NAME AND SYNONYMS: Attapulgite (Fuller's Earth)	TRADE NAME AND SYNONYMS: FLORCO-X
CHEMICAL FAMILY: Magnesium Aluminum Silicate	FORMULA: $(OH_2)_4(OH_2)Mg_5Si_8O_{20} \cdot 4H_2O$

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS		%	TLV (Units)	ALLOYS AND METALLIC COATINGS		%	TLV (Units)
PIGMENTS	None			BASE METAL	None		
CATALYST	None			ALLOYS	None		
VEHICLE	None			METALLIC COATINGS	None		
SOLVENTS	None			FILLER METAL PLUS COATING OR CORE FLUX	None		
ADDITIVES	None			OTHERS	None		
OTHERS	None						

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES	%	TLV (Units)
None		

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)	Not applicable		SPECIFIC GRAVITY (H_2O=1)	1.47
VAPOR PRESSURE (mm Hg.)	"		PERCENT, VOLATILE BY VOLUME (%)	None
VAPOR DENSITY (AIR=1)	" "		EVAPORATION RATE (______ =1)	None
SOLUBILITY IN WATER	" "			
APPEARANCE AND ODOR	Gray to Reddish Brown, Granular or Flour, No Odor			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Not applicable	FLAMMABLE LIMITS: Not applicable	Lel	Uel
EXTINGUISHING MEDIA	No fire or explosive hazard			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				

(Continued on reverse side)

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE	As specified in OSHA standard currently 29 CFR 1910.1000 Table Z-3 for crystalline silica (respirable quartz).
EFFECTS OF OVEREXPOSURE	Repeated inhalation of dust in excess of TLV over an extended period of time may result in injury to the lungs.
EMERGENCY AND FIRST AID PROCEDURES	None

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATABILITY (Materials to avoid)			
HAZARDOUS DECOMPOSITION PRODUCTS			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Not hazardous

WASTE DISPOSAL METHOD
Any - Not hazardous

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type): Dust respirator in compliance with OSHA Standards currently 29 CFR 1910.134		
VENTILATION	LOCAL EXHAUST: Follow OSHA Standards	SPECIAL
	MECHANICAL (General): Follow OSHA Standards	OTHER
PROTECTIVE GLOVES: Follow OSHA Standards as required	EYE PROTECTION: Normal for dust	
OTHER PROTECTIVE EQUIPMENT: As required to meet applicable OSHA Standards		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
None

OTHER PRECAUTIONS
None

Phone: 895-2707

OFFICE AND PLANT
80 LESLIE STREET

Bison Laboratories, Inc.
P. O. BOX 1108
Buffalo, N. Y. 14211

ABSORBENTS

COMPARATIVE DATA

COMPANY	TRADE NAME	DENSITY (Lbs./cu. ft.)	ABSORPTION VAN TRUMP	
			OIL	WATER
Absorbent Clay Products Anna, Illinois	Private Label	45	65	85
Bennett Minerals Pinewood, South Carolina	Private Label	46	63	80
BISON LABORATORIES, INC. BUFFALO, NEW YORK	FLOOR-SORB	28	130	150
Stratton Enterprizes Oran, Missouri	Clean N'Dri	45	65	85
Englehard Min. & Chemical Attapulgus, Georgia	Sol-Speedi-Dri Auto-Dri	33 36	105 85	125 110
Floridin Company Quincy, Florida Ochlocknee, Georgia	Floor Kleen Flor Co	34 28	100 130	120 150
A. P. Green Oran, Missouri	A. P. Green Absorbent	39	80	95
Georgia-Tenn. Mining Wrens, Georgia	Dri White Inst-A-Sorb Sorbo Lite	37	75	100
Lowes, Inc. Paris, Tennessee	Lowes Safety Absorbent All-Purpose Regular	 38 42	 80 75	 100 100
Oil-Dri Corp. of America Ochlocknee, Georiga Ripley, Mississippi Paris, Tennessee	Oil-Dri All-Purpose Industrial Regular	 32 37 42	 100 85 75	 115 105 100
Waverley Mineral Products Meigs, Georgia	Hi-Dri Petro-Sorb Zip-Sorb	32 34 34	110 100 100	120 120 120
Wyandotte Chemical Corp. Zorball, MS	Zorb-All Zorb-All Regular	37 40	90 85	115 110

APPENDIX 4

LOVE CANAL LEACHATE DATA
COMPILATION OF INFLUENT, MIDPOINT AND EFFLUENT CHEMICAL DATA
FROM 1980 THRU 1987

APPENDIX 4

EXPLANATION OF CODES

CDATE	-	CALENDAR DATE
JDATE	-	JULIAN CALENDAR DATE (CONTINUOUS COUNTING DAY CALENDER)
ND	-	COMPOUND WAS NOT DETECTED
LT	-	COMPOUND WAS DETECTED, BUT AT LEVELS BELOW CONTRACT DETECTION LIMITS
*	-	COMPOUND VALUE IS SUSPECT. POSSIBLE ERROR IN LAB ANALYSIS. THERE IS NO CONFIDENCE FROM THE LAB WITH THIS VALUE.

APPENDIX 4: LOVE CANAL LEACHATE DATA - TETRACHLOROETHENE

TETRACHLOROETHENE INFL(ppb)			TETRACHLOROETHENE MDPT(ppb)			TETRACHLOROETHENE EFFL(ppb)		
CDATE	JDATE	VALUE	CDATE	JDATE	VALUE	CDATE	JDATE	VALUE
						800804	80217	1.0
						800811	80224	1.0
						800825	80238	10.0
						800826	80239	4.0
						800829	80242	1.0
						800929	80273	1.0
						801014	80288	1.0
						801020	80294	1.0
						801027	80301	1.0
						801103	80308	1.0
						801110	80315	1.0
						801117	80322	1.0
			801124	80329	1.0	801124	80329	1.0
801201	80336	4600.0	801201	80336	1.0	801201	80336	1.0
						801208	80343	1.0
801215	80350	1600.0				801215	80350	1.0
			801217	80352	4.0	801217	80352	4.0
			801222	80357	1.0	801222	80357	1.0
			801229	80364	1.0	801229	80364	1.0
						810105	81005	1.0
			810112	81012	1.0	810112	81012	1.0
810114	81014	590.0	810114	81014	1.0	810119	81019	1.0
810124	81024	13000.0	810126	81026	1.0	810126	81026	1.0
810202	81033	3000.0	810129	81029	1.0	810202	81033	1.0
810211	81042	1000.0				810209	81040	1.0
			810216	81047	4.0	810216	81047	1.0
			810223	81054	1.0	810223	81054	10.0
810302	81061	2000.0	810302	81061	10.0	810302	81061	10.0
			810320	81079	10.0	810313	81072	10.0
810322	81081	500.0	810327	81086	4.0	810320	81079	10.0
810327	81086	4.0	810402	81092	1.0	810327	81086	4.0
810402	81092	740.0	810409	81099	10.0	810402	81092	4.0
810410	81100	1849.0	810410	81100	10.0	810410	81100	10.0
			810417	81107	4.0	810417	81107	4.0
810424	81114	320.0	810424	81114	10.0	810424	81114	10.0
810501	81121	5300.0	810501	81121	10.0	810501	81121	10.0
810508	81128	3400.0	810508	81128	10.0	810508	81128	10.0
810511	81131	10.0	810515	81135	10.0	810511	81131	10.0
810522	81142	4200.0	810522	81142	10.0	810522	81142	10.0
810602	81153	83.0	810602	81153	10.0	810602	81153	10.0
810605	81156	4200.0	810605	81156	10.0	810605	81156	10.0
810612	81163	2900.0	810612	81163	10.0	810612	81163	10.0
810615	81166	1600.0	810617	81168	10.0	810615	81166	10.0
810622	81173	1600.0	810622	81173	10.0	810622	81173	10.0
810703	81184	1500.0	810703	81184	4.0	810703	81184	4.0
810710	81191	1400.0	810710	81191	4.0	810710	81191	4.0
810717	81198	2600.0	810717	81198	4.0	810717	81198	4.0
810731	81212	2200.0	810731	81212	4.0	810731	81212	4.0
810805	81217	1400.0	810805	81217	4.0	810805	81217	4.0
810814	81226	470.0	810814	81226	4.0	810814	81226	4.0

810821	81233	3200.0	810828	81240	4.0	810828	81240	4.0
810828	81240	14.0	810918	81261	4.0	810918	81261	4.0
			810929	81272	4.0	810929	81272	4.0
811013	81286	1600.0	811013	81286	4.0	811013	81286	4.0
			811027	81300	4.0	811027	81300	4.0
811104	81308	140.0	811104	81308	4.0	811104	81308	4.0
811106	81310	1700.0	811106	81310	4.0	811106	81310	4.0
811117	81321	1000.0	811117	81321	4.0	811117	81321	4.0
811124	81328	1300.0				811124	81328	4.0
811201	81335	970.0	811201	81335	4.0	811201	81335	4.0
811208	81342	880.0	811208	81342	4.0	811208	81342	4.0
811211	81345	870.0	811211	81345	4.0	811211	81345	4.0
811221	81355	1800.0	811221	81355	4.0	811221	81355	4.0
811229	81363	2300.0	811229	81363	4.0	811229	81363	4.0
820104	82004	1900.0	820104	82004	4.0	820104	82004	4.0
820105	82005	1100.0	820105	82005	4.0	820105	82005	4.0
820112	82012	1300.0	820112	82012	4.0	820112	82012	4.0
820119	82019	1900.0	820119	82019	4.0	820119	82019	4.0
820121	82021	4100.0	820121	82021	4.0	820121	82021	4.0
820201	82032	1300.0	820201	82032	4.0	820201	82032	4.0
820209	82040	1100.0	820209	82040	4.0	820209	82040	4.0
820216	82047	780.0	820216	82047	4.0	820216	82047	4.0
820223	82054	2500.0	820223	82054	4.0	820223	82054	4.0
820301	82060	1700.0	820301	82060	4.0	820301	82060	4.0
820309	82068	1500.0	820309	82068	4.0	820309	82068	4.0
820316	82075	1500.0	820316	82075	4.0	820316	82075	4.0
820322	82081	1600.0	820322	82081	4.0	820322	82081	4.0
820326	82085	2000.0	820326	82085	4.0	820326	82085	4.0
820406	82096	310.0	820406	82096	4.0	820406	82096	4.0
820413	82103	810.0	820413	82103	4.0	820413	82103	4.0
820420	82110	1200.0	820420	82110	4.0	820420	82110	4.0
820426	82116	700.0	820426	82116	4.0	820426	82116	1300.0 *
820503	82123	1400.0	820503	82123	4.0	820503	82123	4.0
820510	82130	1200.0	820510	82130	4.0	820510	82130	4.0
820518	82138	1800.0	820518	82138	4.0	820518	82138	4.0
820521	82141	4.0	820521	82141	4.0	820521	82141	4.0
820528	82148	2300.0	820528	82148	4.0	820528	82148	4.0
820611	82162	3100.0	820611	82162	4.0	820611	82162	4.0
820618	82169	1200.0	820618	82169	4.0	820618	82169	4.0
820628	82179	1100.0	820628	82179	4.0	820628	82179	4.0
820702	82183	1000.0	820702	82183	4.0	820702	82183	4.0
820712	82193	1200.0	820712	82193	4.0	820712	82193	4.0
820715	82196	1100.0	820715	82196	4.0	820715	82196	4.0
820722	82203	1300.0	820722	82203	4.0	820722	82203	4.0
820802	82214	1100.0	820802	82214	4.0	820802	82214	4.0
820805	82217	940.0	820805	82217	4.0	820805	82217	4.0
820817	82229	1000.0	820817	82229	4.0	820817	82229	4.0
820824	82236	1000.0	820824	82236	4.0	820824	82236	4.0
820902	82245	1000.0	820902	82245	4.0	820902	82245	4.0
820913	82256	1100.0	820913	82256	4.0	820913	82256	4.0
820923	82266	1100.0	820923	82266	4.0	820923	82266	4.0
821001	82274	1900.0	821001	82274	4.0	821001	82274	4.0
821015	82288	1100.0	821015	82288	4.0	821015	82288	4.0
821022	82295	1400.0	821022	82295	4.0	821022	82295	4.0
821105	82309	1500.0	821105	82309	4.0	821105	82309	4.0

821116	82320	1300.0		821116	82320	4.0		821116	82320	4.0	
821123	82327	1400.0		821123	82327	4.0		821123	82327	4.0	
821130	82334	1200.0		821130	82334	4.0		821130	82334	4.0	
821206	82340	4.0	LT					821206	82340	4.0	
821213	82347	2500.0		821213	82347	4.0		821213	82347	4.0	
821221	82355	2600.0		821221	82355	4.0		821221	82355	4.0	
821228	82362	1400.0		821228	82362	4.0		821228	82362	4.0	
830114	83014	1800.0		830114	83014	4.0		830110	83010	4.0	
830119	83019	1500.0		830119	83019	4.0		830114	83014	4.0	
830131	83031	1800.0		830131	83031	4.0		830119	83019	4.0	
830207	83038	1200.0		830207	83038	4.0		830131	83031	4.0	
830214	83045	1500.0		830214	83045	4.0		830207	83038	4.0	
830217	83048	600.0		830217	83048	4.0		830214	83045	4.0	
830301	83060	760.0		830301	83060	4.0		830301	83060	4.0	
830308	83067	420.0		830308	83067	4.0		830308	83067	4.0	
830314	83073	550.0		830314	83073	4.0		830314	83073	4.0	
830316	83075	4.0		830322	83081	4.0		830322	83081	4.0	
830329	83088	790.0		830329	83088	4.0		830329	83088	4.0	
830404	83094	530.0		830404	83094	4.0		830404	83094	4.0	
830407	83097	750.0		830407	83097	4.0		830407	83097	4.0	
830418	83108	690.0		830418	83108	4.0		830418	83108	4.0	
830425	83115	1300.0		830425	83115	4.0		830425	83115	4.0	
830502	83122	PRESENT		830502	83122	0.0	ND	830502	83122	0.0	ND
830509	83129	1100.0		830509	83129	4.0		830509	83129	4.0	
830516	83136	870.0		830516	83136	4.0		830516	83136	4.0	
830523	83143	1200.0		830523	83143	4.0		830523	83143	4.0	
830607	83158	1800.0		830607	83158	4.0		830607	83158	4.0	
830614	83165	1400.0		830614	83165	4.0		830614	83165	4.0	
830624	83175	1100.0		830624	83175	4.0		830624	83175	4.0	
830721	83202	1600.0		830721	83202	4.0		830721	83202	4.0	
830728	83209	1100.0		830728	83209	4.0		830728	83209	4.0	
830804	83216	1100.0		830804	83216	4.0		830804	83216	4.0	
830812	83224	1300.0		830812	83224	4.0		830812	83224	4.0	
830818	83230	1900.0		830818	83230	4.0		830818	83230	4.0	
830823	83235	2100.0		830823	83235	4.0		830823	83235	4.0	
830909	83252	1200.0		830909	83252	4.0		830909	83252	4.0	
830926	83269	1200.0		830926	83269	4.0		830926	83269	4.0	
830930	83273	970.0		830930	83273	4.0		830930	83273	4.0	
831005	83278	2300.0		831005	83278	4.0		831005	83278	4.0	
831011	83284	980.0		831011	83284	4.0		831011	83284	4.0	
831019	83292	1000.0		831019	83292	4.0		831019	83292	4.0	
831028	83301	1300.0		831028	83301	4.0		831028	83301	4.0	
831107	83311	450.0		831107	83311	4.0		831107	83311	4.0	
831114	83318	460.0		831114	83318	4.0		831114	83318	4.0	
831120	83324	560.0		831120	83324	4.0		831120	83324	4.0	
831205	83339	490.0		831205	83339	4.0		831205	83339	4.0	
831212	83346	460.0		831212	83346	4.0		831212	83346	4.0	
831219	83353	640.0		831219	83353	7.0		831219	83353	4.0	

APPENDIX 4: LOVE CANAL LEACHATE DATA - ETHYL BENZENE

ETHYL BENZENE INFL(ppb)			ETHYL BENZENE MIDPT(ppb)			ETHYL BENZENE EFFL(ppb		
CDATE	JDATE	VALUE	CDATE	JDATE	VALUE	CDATE	JDATE	VALUE
						800804	80217	1.0
						800811	80224	1.0
						800825	80238	10.0
						800826	80239	3.0
						800829	80242	1.0
						800929	80273	1.0
						801014	80288	1.0
						801020	80294	1.0
						801027	80301	1.0
						801103	80308	1.0
						801110	80315	1.0
						801117	80322	1.0
			801124	80329	1.0	801124	80329	1.0
801201	80336	260.0	801201	80336	1.0	801201	80336	1.0
						801208	80343	1.0
801215	80350	25.0				801215	80350	1.0
			801217	80352	3.0	801217	80352	3.0
			801222	80357	1.0	801222	80357	1.0
			801229	80364	1.0	801229	80364	1.0
						810105	81005	1.0
			810112	81012	1.0	810112	81012	1.0
810114	81014	21.0	810114	81014	3.0	810119	81019	1.0
810124	81024	90.0	810126	81026	3.0	810126	81026	1.0
810202	81033	84.0	810129	81029	3.0	810202	81033	1.0
810211	81042	15.0				810209	81040	1.0
			810216	81047	3.0	810216	81047	1.0
			810223	81054	1.0	810223	81054	10.0
810302	81061	38.0	810302	81061	10.0	810302	81061	10.0
810322	81081	10.0	810320	81079	10.0	810313	81072	10.0
810327	81086	3.0	810327	81086	3.0	810320	81079	10.0
810402	81092	13.0	810402	81092	3.0	810327	81086	3.0
			810409	81099	10.0	810402	81092	3.0
810410	81100	82.0	810410	81100	10.0	810410	81100	10.0
			810417	81107	3.0	810417	81107	3.0
810424	81114	230.0	810424	81114	10.0	810424	81114	10.0
810501	81121	10.0	810501	81121	10.0	810501	81121	10.0
810508	81128	10.0	810508	81128	10.0	810508	81128	10.0
810511	81131	10.0	810515	81135	10.0	810511	81131	10.0
810522	81142	10.0	810522	81142	10.0	810522	81142	10.0
810602	81153	10.0	810602	81153	10.0	810602	81153	10.0
810605	81156	120.0	810605	81156	10.0	810605	81156	10.0
810612	81163	12.0	810612	81163	10.0	810612	81163	10.0
810615	81166	68.0	810617	81168	10.0	810615	81166	10.0
810622	81173	30.0	810622	81173	10.0	810622	81173	10.0
810703	81184	3.0	810703	81184	3.0	810703	81184	3.0
810710	81191	20.0	810710	81191	3.0	810710	81191	3.0
810717	81198	64.0	810717	81198	3.0	810717	81198	3.0
810731	81212	46.0	810731	81212	3.0	810731	81212	3.0
810805	81217	32.0	810805	81217	3.0	810805	81217	3.0
810814	81226	3.0	810814	81226	3.0	810814	81226	3.0
810821	81233	42.0	810828	81240	3.0	810828	81240	3.0
810828	81240	3.0	810918	81261	3.0	810918	81261	3.0

APPENDIX 4: LOVE CANAL LEACHATE DATA - ETHYL BENZENE

			810929	81272	3.0	810929	81272	3.0
811013	81286	40.0	811013	81286	3.0	811013	81286	3.0
			811027	81300	3.0	811027	81300	3.0
811104	81308	3.0	811104	81308	3.0	811104	81308	3.0
811106	81310	72.0	811106	81310	3.0	811106	81310	3.0
811117	81321	3.0	811117	81321	3.0	811117	81321	3.0
811124	81328	3.0				811124	81328	3.0
811201	81335	40.0	811201	81335	3.0	811201	81335	3.0
811208	81342	24.0	811208	81342	3.0	811208	81342	3.0
811211	81345	58.0	811211	81345	3.0	811211	81345	3.0
811221	81355	98.0	811221	81355	3.0	811221	81355	3.0
811229	81363	190.0	811229	81363	3.0	811229	81363	3.0
820104	82004	26.0	820104	82004	3.0	820104	82004	3.0
820105	82005	55.0	820105	82005	3.0	820105	82005	3.0
820112	82012	46.0	820112	82012	3.0	820112	82012	3.0
820119	82019	32.0	820119	82019	3.0	820119	82019	3.0
820121	82021	3.0	820121	82021	3.0	820121	82021	3.0
820201	82032	81.0	820201	82032	3.0	820201	82032	3.0
820209	82040	92.0	820209	82040	3.0	820209	82040	3.0
820216	82047	82.0	820216	82047	3.0	820216	82047	3.0
820223	82054	13.0	820223	82054	3.0	820223	82054	3.0
820301	82060	80.0	820301	82060	3.0	820301	82060	3.0
820309	82068	73.0	820309	82068	3.0	820309	82068	3.0
820316	82075	60.0	820316	82075	3.0	820316	82075	3.0
820322	82081	50.0	820322	82081	3.0	820322	82081	3.0
820326	82085	79.0	820326	82085	3.0	820326	82085	3.0
820406	82096	3.0	820406	82096	3.0	820406	82096	3.0
820413	82103	16.0	820413	82103	3.0	820413	82103	3.0
820420	82110	23.0	820420	82110	3.0	820420	82110	3.0
820426	82116	15.0	820426	82116	3.0	820426	82116	82.0 *
820503	82123	71.0	820503	82123	3.0	820503	82123	3.0
820510	82130	70.0	820510	82130	3.0	820510	82130	3.0
820518	82138	80.0	820518	82138	3.0	820518	82138	3.0
820521	82141	130.0	820521	82141	3.0	820521	82141	3.0
820528	82148	29.0	820528	82148	3.0	820528	82148	3.0
820611	82162	68.0	820611	82162	3.0	820611	82162	3.0
820618	82169	50.0	820618	82169	3.0	820618	82169	3.0
820628	82179	68.0	820628	82179	3.0	820628	82179	3.0
820702	82183	45.0	820702	82183	3.0	820702	82183	3.0
820712	82193	49.0	820712	82193	3.0	820712	82193	3.0
820715	82196	54.0	820715	82196	3.0	820715	82196	3.0
820722	82203	54.0	820722	82203	3.0	820722	82203	3.0
820802	82214	45.0	820802	82214	3.0	820802	82214	3.0
820805	82217	36.0	820805	82217	3.0	820805	82217	3.0
820817	82229	74.0	820817	82229	3.0	820817	82229	3.0
820824	82236	47.0	820824	82236	3.0	820824	82236	3.0
820902	82245	30.0	820902	82245	3.0	820902	82245	3.0
820913	82256	29.0	820913	82256	3.0	820913	82256	3.0
820923	82266	23.0	820923	82266	3.0	820923	82266	3.0
821001	82274	29.0	821001	82274	3.0	821001	82274	3.0
821015	82288	53.0	821015	82288	3.0	821015	82288	3.0
821022	82295	51.0	821022	82295	3.0	821022	82295	3.0
821105	82309	43.0	821105	82309	3.0	821105	82309	3.0
821116	82320	65.0	821116	82320	3.0	821116	82320	3.0
821123	82327	30.0	821123	82327	3.0	821123	82327	3.0
821130	82334	30.0	821130	82334	3.0	821130	82334	8.0

821206	82340	3.0	LT					821206	82340	3.0	
821213	82347	24.0		821213	82347	3.0		821213	82347	3.0	
821221	82355	58.0		821221	82355	3.0		821221	82355	3.0	
821228	82362	18.0		821228	82362	3.0		821228	82362	3.0	
830114	83014	28.0		830114	83014	3.0		830110	83010	3.0	
830119	83019	21.0		830119	83019	3.0		830114	83014	3.0	
830131	83031	64.0		830131	83031	3.0		830119	83019	3.0	
830207	83038	13.0		830207	83038	3.0		830131	83031	3.0	
830214	83045	18.0		830214	83045	3.0		830207	83038	3.0	
830217	83048	27.0		830217	83048	3.0		830214	83045	3.0	
830301	83060	27.0		830301	83060	3.0		830217	83048	3.0	
830308	83067	17.0		830308	83067	3.0		830301	83060	3.0	
830314	83073	17.0		830314	83073	3.0		830308	83067	3.0	
830316	83075	3.0		830322	83081	3.0		830314	83073	3.0	
830329	83088	13.0		830329	83088	3.0		830322	83081	3.0	
830404	83094	3.0		830404	83094	3.0		830404	83094	3.0	
830407	83097	3.0		830407	83097	3.0		830407	83097	3.0	
830418	83108	34.0		830418	83108	3.0		830418	83108	3.0	
830425	83115	3.0		830425	83115	3.0		830425	83115	3.0	
830502	83122	0.0	ND	830502	83122	0.0	ND	830502	83122	0.0	ND
830509	83129	28.0		830509	83129	3.0		830509	83129	3.0	
830516	83136	33.0		830516	83136	3.0		830516	83136	3.0	
830523	83143	31.0		830523	83143	3.0		830523	83143	3.0	
830607	83158	18.0		830607	83158	3.0		830607	83158	3.0	
830614	83165	3.0		830614	83165	3.0		830614	83165	3.0	
830624	83175	14.0		830624	83175	3.0		830624	83175	3.0	
830721	83202	22.0		830721	83202	3.0		830721	83202	3.0	
830728	83209	25.0		830728	83209	3.0		830728	83209	3.0	
830804	83216	21.0		830804	83216	3.0		830804	83216	3.0	
830812	83224	28.0		830812	83224	3.0		830812	83224	3.0	
830818	83230	8.0		830818	83230	3.0		830818	83230	3.0	
830823	83235	25.0		830823	83235	3.0		830823	83235	3.0	
830909	83252	3.0		830909	83252	3.0		830909	83252	3.0	
830926	83269	28.0		830926	83269	3.0		830926	83269	3.0	
830930	83273	3.0		830930	83273	3.0		830930	83273	3.0	
831005	83278	18.0		831005	83278	18.0		831005	83278	3.0	
831011	83284	30.0		831011	83284	3.0		831011	83284	3.0	
831019	83292	14.0		831019	83292	3.0		831019	83292	3.0	
831028	83301	40.0		831028	83301	3.0		831028	83301	3.0	
831107	83311	3.0		831107	83311	3.0		831107	83311	3.0	
831114	83318	3.0		831114	83318	3.0		831114	83318	3.0	
831120	83324	3.0		831120	83324	3.0		831120	83324	3.0	
831205	83339	3.0		831205	83339	3.0		831205	83339	3.0	
831212	83346	3.0		831212	83346	3.0		831212	83346	3.0	
831219	83353	3.0		831219	83353	3.0					

APPENDIX 4: LOVE CANAL LEACHATE DATA - TRICHLOROETHENE

TRICHLOROETHENE INFL(ppb)			TRICHLOROETHENE MIDPT(ppb)			TRICHLOROETHENE EFFL(ppb)		
CDATE	JDATE	VALUE	CDATE	JDATE	VALUE	CDATE	JDATE	VALUE
						800804	80217	1.0
						800811	80224	1.0
						800825	80238	10.0
						800826	80239	4.0
						800829	80242	1.0
						800929	80273	1.0
						801014	80288	1.0
						801020	80294	1.0
						801027	80301	1.0
						801103	80308	1.0
						801110	80315	1.0
						801117	80322	1.0
			801124	80329	1.0	801124	80329	1.0
801201	80336	1600.0	801201	80336	2.0	801201	80336	1.0
						801208	80343	1.0
801215	80350	360.0				801215	80350	1.0
			801217	80352	4.0	801217	80352	4.0
			801222	80357	1.0	801222	80357	1.0
			801229	80364	1.0	801229	80364	1.0
						810105	81005	1.0
			810112	81012	1.0	810112	81012	1.0
810114	81014	161.0	810114	81014	4.0	810119	81019	1.0
810124	81024	1300.0	810126	81026	4.0	810126	81026	1.0
810202	81033	620.0	810129	81029	4.0	810202	81033	1.0
810211	81042	770.0				810209	81040	1.0
			810216	81047	4.0	810216	81047	1.0
			810223	81054	1.0	810223	81054	10.0
810302	81061	310.0	810302	81061	10.0	810302	81061	10.0
			810320	81079	10.0	810313	81072	10.0
810322	81081	380.0	810327	81086	4.0	810320	81079	10.0
810327	81086	4.0	810402	81092	12.0	810327	81086	4.0
810402	81092	180.0	810409	81099	10.0	810402	81092	4.0
810410	81100	517.0	810410	81100	10.0	810410	81100	10.0
			810417	81107	4.0	810417	81107	4.0
810424	81114	200.0	810424	81114	10.0	810424	81114	10.0
810501	81121	400.0	810501	81121	10.0	810501	81121	10.0
810508	81128	360.0	810508	81128	10.0	810508	81128	10.0
810511	81131	10.0	810515	81135	10.0	810511	81131	10.0
810522	81142	530.0	810522	81142	10.0	810522	81142	10.0
810602	81153	18.0	810602	81153	10.0	810602	81153	10.0
810605	81156	870.0	810605	81156	10.0	810605	81156	10.0
810612	81163	570.0	810612	81163	10.0	810612	81163	10.0
810615	81166	480.0	810617	81168	10.0	810615	81166	10.0
810622	81173	440.0	810622	81173	10.0	810622	81173	10.0
810703	81184	400.0	810703	81184	4.0	810703	81184	4.0
810710	81191	360.0	810710	81191	4.0	810710	81191	4.0
810717	81198	750.0	810717	81198	4.0	810717	81198	4.0
810731	81212	470.0	810731	81212	4.0	810731	81212	4.0
810805	81217	340.0	810805	81217	4.0	810805	81217	4.0
810814	81226	110.0	810814	81226	4.0	810814	81226	4.0
810821	81233	940.0	810828	81240	4.0	810828	81240	4.0

810828	81240	63.0	810918	81261	4.0	810918	81261	4.0
			810929	81272	4.0	810929	81272	4.0
811013	81286	480.0	811013	81286	4.0	811013	81286	4.0
			811027	81300	4.0	811027	81300	4.0
811104	81308	50.0	811104	81308	4.0	811104	81308	4.0
811106	81310	480.0	811106	81310	4.0	811106	81310	4.0
811117	81321	370.0	811117	81321	4.0	811117	81321	4.0
811124	81328	420.0				811124	81328	4.0
811201	81335	290.0	811201	81335	4.0	811201	81335	4.0
811208	81342	460.0	811208	81342	4.0	811208	81342	4.0
811211	81345	380.0	811211	81345	4.0	811211	81345	4.0
811221	81355	740.0	811221	81355	4.0	811221	81355	4.0
811229	81363	840.0	811229	81363	4.0	811229	81363	4.0
820104	82004	490.0	820104	82004	4.0	820104	82004	4.0
820105	82005	370.0	820105	82005	4.0	820105	82005	4.0
820112	82012	260.0	820112	82012	4.0	820112	82012	4.0
820119	82019	600.0	820119	82019	4.0	820119	82019	4.0
820121	82021	560.0	820121	82021	4.0	820121	82021	4.0
820201	82032	510.0	820201	82032	4.0	820201	82032	4.0
820209	82040	490.0	820209	82040	4.0	820209	82040	4.0
820216	82047	370.0	820216	82047	4.0	820216	82047	4.0
820223	82054	680.0	820223	82054	4.0	820223	82054	4.0
820301	82060	520.0	820301	82060	4.0	820301	82060	4.0
820309	82068	390.0	820309	82068	4.0	820309	82068	4.0
820316	82075	500.0	820316	82075	4.0	820316	82075	4.0
820322	82081	340.0	820322	82081	4.0	820322	82081	4.0
820326	82085	520.0	820326	82085	4.0	820326	82085	4.0
820406	82096	190.0	820406	82096	4.0	820406	82096	4.0
820413	82103	390.0	820413	82103	4.0	820413	82103	4.0
820420	82110	180.0	820420	82110	4.0	820420	82110	4.0
820426	82116	170.0	820426	82116	4.0	820426	82116	530.0 *
820503	82123	460.0	820503	82123	4.0	820503	82123	4.0
820510	82130	480.0	820510	82130	4.0	820510	82130	4.0
820518	82138	670.0	820518	82138	4.0	820518	82138	4.0
820521	82141	640.0	820521	82141	4.0	820521	82141	4.0
820528	82148	570.0	820528	82148	4.0	820528	82148	4.0
820611	82162	820.0	820611	82162	4.0	820611	82162	4.0
820618	82169	440.0	820618	82169	4.0	820618	82169	4.0
820628	82179	470.0	820628	82179	4.0	820628	82179	4.0
820702	82183	410.0	820702	82183	4.0	820702	82183	4.0
820712	82193	590.0	820712	82193	4.0	820712	82193	4.0
820715	82196	440.0	820715	82196	4.0	820715	82196	4.0
820722	82203	380.0	820722	82203	4.0	820722	82203	4.0
820802	82214	450.0	820802	82214	4.0	820802	82214	4.0
820805	82217	470.0	820805	82217	4.0	820805	82217	4.0
820817	82229	740.0	820817	82229	4.0	820817	82229	4.0
820824	82236	660.0	820824	82236	4.0	820824	82236	4.0
820902	82245	850.0	820902	82245	4.0	820902	82245	4.0
820913	82256	810.0	820913	82256	4.0	820913	82256	4.0
820923	82266	620.0	820923	82266	4.0	820923	82266	4.0
821001	82274	810.0	821001	82274	4.0	821001	82274	4.0
821015	82288	590.0	821015	82288	4.0	821015	82288	4.0
821022	82295	630.0	821022	82295	4.0	821022	82295	4.0
821105	82309	820.0	821105	82309	4.0	821105	82309	4.0
821116	82320	540.0	821116	82320	4.0	821116	82320	4.0
821123	82327	660.0	821123	82327	4.0	821123	82327	4.0

821130	82334	500.0		821130	82334	4.0		821130	82334	4.0	
821206	82340	4.0	LT					821206	82340	4.0	
821213	82347	690.0		821213	82347	4.0		821213	82347	4.0	
821221	82355	790.0		821221	82355	4.0		821221	82355	4.0	
821228	82362	560.0		821228	82362	4.0		821228	82362	4.0	
								830110	83010	4.0	
830114	83014	860.0		830114	83014	4.0		830114	83014	4.0	
830119	83019	1000.0		830119	83019	4.0		830119	83019	4.0	
830131	83031	700.0		830131	83031	4.0		830131	83031	4.0	
830207	83038	560.0		830207	83038	4.0		830207	83038	4.0	
830214	83045	650.0		830214	83045	4.0		830214	83045	4.0	
830217	83048	490.0		830217	83048	4.0		830217	83048	4.0	
830301	83060	390.0		830301	83060	4.0		830301	83060	4.0	
830308	83067	250.0		830308	83067	4.0		830308	83067	4.0	
830314	83073	420.0		830314	83073	4.0		830314	83073	4.0	
830316	83075	4.0		830322	83081	4.0		830322	83081	4.0	
830329	83088	700.0		830329	83088	4.0		830329	83088	4.0	
830404	83094	490.0		830404	83094	4.0		830404	83094	4.0	
830407	83097	600.0		830407	83097	4.0		830407	83097	4.0	
830418	83108	530.0		830418	83108	4.0		830418	83108	4.0	
830425	83115	650.0		830425	83115	4.0		830425	83115	4.0	
830502	83122	PRESENT		830502	83122	0.0	ND	830502	83122	0.0	ND
830509	83129	490.0		830509	83129	4.0		830509	83129	4.0	
830516	83136	530.0		830516	83136	4.0		830516	83136	4.0	
830523	83143	740.0		830523	83143	6.0		830523	83143	4.0	
830607	83158	950.0		830607	83158	7.5		830607	83158	4.0	
830614	83165	930.0		830614	83165	4.0		830614	83165	4.0	
830624	83175	1200.0		830624	83175	4.0		830624	83175	4.0	
830721	83202	840.0		830721	83202	4.0		830721	83202	4.0	
830728	83209	840.0		830728	83209	4.0		830728	83209	4.0	
830804	83216	670.0		830804	83216	4.0		830804	83216	4.0	
830812	83224	710.0		830812	83224	4.0		830812	83224	4.0	
830818	83230	960.0		830818	83230	4.0		830818	83230	4.0	
830823	83235	880.0		830823	83235	4.0		830823	83235	4.0	
830909	83252	1200.0		830909	83252	4.0		830909	83252	4.0	
830926	83269	740.0		830926	83269	4.0		830926	83269	4.0	
830930	83273	560.0		830930	83273	4.0		830930	83273	4.0	
831005	83278	610.0		831005	83278	4.0		831005	83278	4.0	
831011	83284	490.0		831011	83284	4.0		831011	83284	4.0	
831019	83292	480.0		831019	83292	4.0		831019	83292	4.0	
831028	83301	640.0		831028	83301	4.0		831028	83301	4.0	
831107	83311	210.0		831107	83311	4.0		831107	83311	4.0	
831114	83318	150.0		831114	83318	4.0		831114	83318	4.0	
831120	83324	300.0		831120	83324	4.0		831120	83324	4.0	
831205	83339	260.0		831205	83339	4.0		831205	83339	4.0	
831212	83346	240.0		831212	83346	4.0		831212	83346	4.0	
831219	83353	320.0		831219	83353	4.0		831219	83353	4.0	

APPENDIX 4: LOVE CANAL LEACHATE DATA - TRANS 1,2-DICHLOROETHANE

TRANS 1,2-DICHLOROETHANE INFL(ppb)			TRANS 1,2-DICHLOROETHAN MIDPT(ppb)			TRANS 1,2-DICHLOROETHANE EFFL(ppb)		
CDATE	JDATE	VALUE	CDATE	JDATE	VALUE	CDATE	JDATE	VALUE
						800804	80217	1.0
						800811	80224	1.0
						800825	80238	10.0
						800826	80239	13.0
						800829	80242	1.0
						800929	80273	1.0
						801014	80288	1.0
						801020	80294	1.0
						801027	80301	1.0
						801103	80308	1.0
						801110	80315	1.0
						801117	80322	1.0
			801124	80329	1.0	801124	80329	1.0
801201	80336	810.0	801201	80336	2.5	801201	80336	1.0
						801208	80343	1.0
801215	80350	54.0				801215	80350	1.0
			801217	80352	13.0	801217	80352	13.0
			801222	80357	1.0	801222	80357	1.0
			801229	80364	1.0	801229	80364	1.0
						810105	81005	1.0
			810112	81012	1.0	810112	81012	1.0
810114	81014	28.0	810114	81014	13.0			
						810119	81019	1.0
810124	81024	340.0						
			810126	81026	13.0	810126	81026	1.0
			810129	81029	13.0			
810202	81033	100.0				810202	81033	1.0
						810209	81040	1.0
810211	81042	110.0						
			810216	81047	13.0	810216	81047	1.0
			810223	81054	1.0	810223	81054	10.0
810302	81061	35.0	810302	81061	10.0	810302	81061	10.0
						810313	81072	10.0
			810320	81079	10.0	810320	81079	10.0
810322	81081	37.0						
810327	81086	13.0	810327	81086	13.0	810327	81086	13.0
810402	81092	31.0	810402	81092	5.0	810402	81092	13.0
			810409	81099	10.0			
810410	81100	2055.0	810410	81100	40.0	810410	81100	10.0
			810417	81107	6.0	810417	81107	13.0
810424	81114	44.0	810424	81114	10.0	810424	81114	10.0
810501	81121	10.0	810501	81121	10.0	810501	81121	10.0
810508	81128	10.0	810508	81128	10.0	810508	81128	10.0
810511	81131	10.0				810511	81131	10.0
			810515	81135	10.0			
810522	81142	17.0	810522	81142	10.0	810522	81142	10.0
810602	81153	10.0	810602	81153	10.0	810602	81153	10.0
810605	81156	89.0	810605	81156	10.0	810605	81156	10.0
810612	81163	69.0	810612	81163	10.0	810612	81163	10.0
810615	81166	96.0				810615	81166	10.0
			810617	81168	10.0			

810622	81173	84.0	810622	81173	10.0	810622	81173	10.0
810703	81184	150.0	810703	81184	13.0	810703	81184	13.0
810710	81191	920.0	810710	81191	13.0	810710	81191	13.0
810717	81198	255.0	810717	81198	13.0	810717	81198	13.0
810731	81212	80.0	810731	81212	13.0	810731	81212	13.0
810805	81217	67.0	810805	81217	13.0	810805	81217	13.0
810814	81226	20.0	810814	81226	13.0	810814	81226	13.0
810821	81233	130.0						
810828	81240	53.0	810828	81240	13.0	810828	81240	13.0
			810918	81261	13.0	810918	81261	13.0
			810929	81272	13.0	810929	81272	13.0
811013	81286	120.0	811013	81286	13.0	811013	81286	13.0
			811027	81300	13.0	811027	81300	13.0
811104	81308	18.0	811104	81308	13.0	811104	81308	13.0
811106	81310	100.0	811106	81310	13.0	811106	81310	13.0
811117	81321	110.0	811117	81321	13.0	811117	81321	13.0
811124	81328	81.0				811124	81328	13.0
811201	81335	93.0	811201	81335	13.0	811201	81335	13.0
811208	81342	180.0	811208	81342	13.0	811208	81342	13.0
811211	81345	110.0	811211	81345	13.0	811211	81345	13.0
811221	81355	190.0	811221	81355	13.0	811221	81355	13.0
811229	81363	270.0	811229	81363	13.0	811229	81363	13.0
820104	82004	84.0	820104	82004	13.0	820104	82004	13.0
820105	82005	110.0	820105	82005	13.0	820105	82005	13.0
820112	82012	71.0	820112	82012	13.0	820112	82012	13.0
820119	82019	200.0	820119	82019	13.0	820119	82019	13.0
820121	82021	13.0	820121	82021	13.0	820121	82021	13.0
820201	82032	91.0	820201	82032	13.0	820201	82032	13.0
820209	82040	100.0	820209	82040	13.0	820209	82040	13.0
820216	82047	280.0	820216	82047	13.0	820216	82047	13.0
820223	82054	120.0	820223	82054	13.0	820223	82054	13.0
820301	82060	87.0	820301	82060	13.0	820301	82060	13.0
820309	82068	89.0	820309	82068	13.0	820309	82068	13.0
820316	82075	95.0	820316	82075	13.0	820316	82075	13.0
820322	82081	13.0	820322	82081	13.0	820322	82081	13.0
820326	82085	110.0	820326	82085	13.0	820326	82085	13.0
820406	82096	13.0	820406	82096	26.0	820406	82096	13.0
820413	82103	63.0	820413	82103	13.0	820413	82103	13.0
820420	82110	13.0	820420	82110	13.0	820420	82110	13.0
820426	82116	46.0	820426	82116	13.0	820426	82116	150.0 *
820503	82123	61.0	820503	82123	13.0	820503	82123	13.0
820510	82130	82.0	820510	82130	13.0	820510	82130	13.0
820518	82138	86.0	820518	82138	13.0	820518	82138	13.0
820521	82141	80.0	820521	82141	13.0	820521	82141	13.0
820528	82148	91.0	820528	82148	13.0	820528	82148	13.0
820611	82162	140.0	820611	82162	13.0	820611	82162	13.0
820618	82169	13.0	820618	82169	13.0	820618	82169	13.0
820628	82179	69.0	820628	82179	13.0	820628	82179	13.0
820702	82183	13.0	820702	82183	13.0	820702	82183	13.0
820712	82193	94.0	820712	82193	13.0	820712	82193	13.0
820715	82196	64.0	820715	82196	13.0	820715	82196	13.0
820722	82203	13.0	820722	82203	13.0	820722	82203	13.0
820802	82214	75.0	820802	82214	13.0	820802	82214	13.0
820805	82217	56.0	820805	82217	13.0	820805	82217	13.0
820817	82229	130.0	820817	82229	13.0	820817	82229	13.0
820824	82236	92.0	820824	82236	13.0	820824	82236	13.0

820902	82245	120.0		820902	82245	13.0		820902	82245	13.0	
820913	82256	130.0		820913	82256	13.0		820913	82256	13.0	
820923	82266	98.0		820923	82266	13.0		820923	82266	13.0	
821001	82274	170.0		821001	82274	13.0		821001	82274	13.0	
821015	82288	160.0		821015	82288	13.0		821015	82288	13.0	
821022	82295	180.0		821022	82295	13.0		821022	82295	13.0	
821105	82309	220.0		821105	82309	13.0		821105	82309	13.0	
821116	82320	130.0		821116	82320	13.0		821116	82320	13.0	
821123	82327	160.0		821123	82327	13.0		821123	82327	13.0	
821130	82334	140.0		821130	82334	13.0		821130	82334	13.0	
821206	82340	13.0	LT					821206	82340	13.0	
821213	82347	130.0		821213	82347	13.0		821213	82347	13.0	
821221	82355	140.0		821221	82355	13.0		821221	82355	13.0	
821228	82362	110.0		821228	82362	13.0		821228	82362	13.0	
								830110	83010	13.0	
830114	83014	120.0		830114	83014	13.0		830114	83014	13.0	
830119	83019	160.0		830119	83019	13.0		830119	83019	13.0	
830131	83031	110.0		830131	83031	13.0		830131	83031	13.0	
830207	83038	110.0		830207	83038	13.0		830207	83038	13.0	
830214	83045	63.0		830214	83045	13.0		830214	83045	13.0	
830217	83048	87.0		830217	83048	13.0					
830301	83060	48.0		830301	83060	13.0		830301	83060	13.0	
830308	83067	32.0		830308	83067	13.0		830308	83067	13.0	
830314	83073	43.0		830314	83073	13.0		830314	83073	13.0	
830329	83088	69.0						830329	83088	13.0	
830404	83094	54.0		830404	83094	17.0		830404	83094	13.0	
830407	83097	83.0		830407	83097	27.0		830407	83097	13.0	
830418	83108	120.0		830418	83108	40.0		830418	83108	13.0	
830425	83115	85.0		830425	83115	48.0		830425	83115	13.0	
				830502	83122	0.0	ND	830502	83122	0.0	ND
830509	83129	100.0		830509	83129	90.0		830509	83129	13.0	
830516	83136	110.0		830516	83136	50.0		830516	83136	13.0	
830523	83143	84.0		830523	83143	42.0		830523	83143	13.0	
830607	83158	140.0		830607	83158	78.0		830607	83158	13.0	
830614	83165	91.0		830614	83165	64.0		830614	83165	13.0	
830624	83175	120.0		830624	83175	24.0		830624	83175	13.0	
830721	83202	160.0		830721	83202	13.0					
830728	83209	160.0		830728	83209	13.0					
830804	83216	110.0		830804	83216	13.0		830804	83216	13.0	
830812	83224	120.0		830812	83224	13.0					
830818	83230	160.0		830818	83230	13.0		830818	83230	13.0	
830823	83235	110.0		830823	83235	13.0		830823	83235	13.0	
830909	83252	220.0		830909	83252	13.0					
830926	83269	100.0		830926	83269	13.0					
830930	83273	60.0		830930	83273	13.0					
831005	83278	67.0		831005	83278	13.0		831005	83278	13.0	
831011	83284	55.0		831011	83284	13.0					
831019	83292	38.0		831019	83292	13.0					
831028	83301	65.0						831028	83301	13.0	
831107	83311	18.0		831107	83311	13.0		831107	83311	13.0	
				831114	83318	13.0		831114	83318	13.0	
831120	83324	25.0		831120	83324	13.0		831120	83324	13.0	
831205	83339	27.0		831205	83339	13.0		831205	83339	13.0	
831212	83346	21.0		831212	83346	13.0		831212	83346	13.0	
831219	83353	31.0		831219	83353	13.0		831219	83353	13.0	

APPENDIX 4: LOVE CANAL LEACHATE DATA - 1,1,2,2-TETRACHLOROETHANE

1,1,2,2-TETRACHLOROETHANE INFL			1,1,2,2-TETRACHLOROETHANE MIDPT(ppb)			1,1,2,2-TETRACHLOROETH EFFL(ppb)		
CDATE	JDATE	VALUE	CDATE	JDATE	VALUE	CDATE	JDATE	VALUE
						800804	80217	1.0
						800811	80224	1.0
						800825	80238	10.0
						800826	80239	9.0
						800829	80242	1.0
						800929	80273	1.0
						801014	80288	1.0
						801020	80294	1.0
						801027	80301	1.0
						801103	80308	1.0
						801110	80315	1.0
						801117	80322	1.0
			801124	80329	1.0	801124	80329	1.0
801201	80336	4600.0	801201	80336	1.0	801201	80336	1.0
						801208	80343	1.0
801215	80350	1600.0				801215	80350	1.0
			801217	80352	9.0	801217	80352	9.0
			801222	80357	1.0	801222	80357	1.0
			801229	80364	1.0	801229	80364	1.0
						810105	81005	1.0
			810112	81012	1.0	810112	81012	1.0
810114	81014	641.0	810114	81014	2.0	810119	81019	1.0
810124	81024	16000.0	810126	81026	1.0	810126	81026	1.0
810202	81033	3500.0	810129	81029	1.0	810202	81033	1.0
						810209	81040	1.0
810211	81042	1000.0	810216	81047	9.0	810216	81047	1.0
			810223	81054	1.0	810223	81054	10.0
810302	81061	2000.0	810302	81061	10.0	810302	81061	10.0
810322	81081	500.0	810320	81079	10.0	810313	81072	10.0
810327	81086	280.0	810327	81086	9.0	810320	81079	10.0
810402	81092	4200.0	810402	81092	8.0	810327	81086	9.0
810410	81100	1218.0	810409	81099	1.0	810402	81092	9.0
			810410	81100	10.0	810410	81100	10.0
			810417	81107	9.0	810417	81107	9.0
810424	81114	2400.0	810424	81114	10.0	810424	81114	10.0
810501	81121	3900.0	810501	81121	10.0	810501	81121	10.0
810508	81128	1400.0	810508	81128	10.0	810508	81128	10.0
810511	81131	81.0	810515	81135	10.0	810511	81131	10.0
810522	81142	2600.0	810522	81142	10.0	810522	81142	10.0
810602	81153	370.0	810602	81153	10.0	810602	81153	10.0
810605	81156	6100.0	810605	81156	10.0	810605	81156	10.0
810612	81163	4100.0	810612	81163	10.0	810612	81163	10.0
810615	81166	4300.0	810617	81167	10.0	810615	81166	10.0
810622	81173	5500.0	810622	81173	10.0	810622	81173	10.0
810703	81184	4400.0	810703	81184	9.0	810703	81184	9.0
810710	81191	2800.0	810710	81191	9.0	810710	81191	9.0
810717	81198	6400.0	810717	81198	9.0	810717	81198	9.0
810731	81212	2500.0	810731	81212	9.0	810731	81212	9.0
810805	81217	1900.0	810805	81217	9.0	810805	81217	9.0
810814	81226	680.0	810814	81226	9.0	810814	81226	9.0
810821	81233	3500.0						

810828	81240	1100.0	810828	81240	9.0	810828	81240	9.0
			810918	81261	9.0	810918	81261	9.0
			810929	81272	9.0	810929	81272	9.0
811013	81286	3400.0	811013	81286	9.0	811013	81286	9.0
			811027	81300	9.0	811027	81300	9.0
811104	81308	750.0	811104	81308	9.0	811104	81308	9.0
811106	81310	3300.0	811106	81310	9.0	811106	81310	9.0
811117	81321	2000.0	811117	81321	9.0	811117	81321	9.0
811124	81328	1700.0				811124	81328	9.0
811201	81335	9.3	811201	81335	9.0	811201	81335	9.0
811208	81342	1200.0	811208	81342	9.0	811208	81342	9.0
811211	81345	1500.0	811211	81345	9.0	811211	81345	9.0
811221	81355	5100.0	811221	81355	9.0	811221	81355	9.0
811229	81363	3200.0	811229	81363	9.0	811229	81363	9.0
820104	82004	1800.0	820104	82004	9.0	820104	82004	9.0
820105	82005	1300.0	820105	82005	9.0	820105	82005	9.0
820112	82012	1300.0	820112	82012	9.0	820112	82012	9.0
820119	82019	1900.0	820119	82019	9.0	820119	82019	9.0
820121	82021	2000.0	820121	82021	9.0	820121	82021	9.0
820201	82032	2700.0	820201	82032	9.0	820201	82032	9.0
820209	82040	2200.0	820209	82040	9.0	820209	82040	9.0
820216	82047	1600.0	820216	82047	9.0	820216	82047	9.0
820223	82054	5000.0	820223	82054	9.0	820223	82054	9.0
820301	82060	4400.0	820301	82060	9.0	820301	82060	9.0
820309	82068	3400.0	820309	82068	9.0	820309	82068	9.0
820316	82075	2400.0	820316	82075	9.0	820316	82075	9.0
820322	82081	2400.0	820322	82081	9.0	820322	82081	9.0
820326	82085	1400.0	820326	82085	9.0	820326	82085	9.0
820406	82096	470.0	820406	82096	9.0	820406	82096	9.0
820413	82103	880.0	820413	82103	9.0	820413	82103	9.0
820420	82110	470.0	820420	82110	9.0	820420	82110	9.0
820426	82116	1100.0	820426	82116	17.0	820426	82116	1500.0 *
820503	82123	2000.0	820503	82123	9.0	820503	82123	9.0
820510	82130	2300.0	820510	82130	9.0	820510	82130	9.0
820518	82138	9.0	820518	82138	9.0	820518	82138	9.0
820521	82141	2100.0	820521	82141	9.0	820521	82141	9.0
820528	82148	2800.0	820528	82148	9.0	820528	82148	9.0
820611	82162	4900.0	820611	82162	9.0	820611	82162	9.0
820618	82169	1700.0	820618	82169	9.0	820618	82169	9.0
820628	82179	2900.0	820628	82179	9.0	820628	82179	9.0
820702	82183	2200.0	820702	82183	9.0	820702	82183	9.0
820712	82193	2200.0	820712	82193	9.0	820712	82193	9.0
820715	82196	2500.0	820715	82196	9.0	820715	82196	9.0
820722	82203	1300.0	820722	82203	9.0	820722	82203	9.0
820802	82214	670.0	820802	82214	9.0	820802	82214	9.0
820805	82217	610.0	820805	82217	9.0	820805	82217	9.0
820817	82229	2600.0	820817	82229	9.0	820817	82229	9.0
820824	82236	2200.0	820824	82236	9.0	820824	82236	9.0
820902	82245	2400.0	820902	82245	9.0	820902	82245	9.0
820913	82256	2400.0	820913	82256	9.0	820913	82256	9.0
820923	82266	2400.0	820923	82266	9.0	820923	82266	9.0
821001	82274	3100.0	821001	82274	9.0	821001	82274	9.0
821015	82288	2800.0	821015	82288	9.0	821015	82288	9.0
821022	82295	2900.0	821022	82295	9.0	821022	82295	9.0
821105	82309	4100.0	821105	82309	9.0	821105	82309	9.0
821116	82320	4200.0	821116	82320	4.0	821116	82320	9.0

821123	82327	1700.0	821123	82327	9.0		821123	82327	9.0
821130	82334	1500.0	821130	82334	9.0		821130	82334	9.0
821206	82340	9.0 LT					821206	82340	9.0
821213	82347	3100.0	821213	82347	9.0		821213	82347	9.0
821221	82355	4100.0	821221	82355	9.0		821221	82355	9.0
821228	82362	1400.0	821228	82362	9.0		821228	82362	9.0
							830110	83010	9.0
830114	83014	2900.0	830114	83014	9.0		830114	83014	9.0
830119	83019	2800.0	830119	83019	9.0		830119	83019	9.0
830131	83031	2500.0	830131	83031	9.0		830131	83031	9.0
830207	83038	1400.0	830207	83038	9.0				
830214	83045	2200.0	830214	83045	9.0		830214	83045	9.0
830217	83048	1900.0	830217	83048	9.0		830217	83048	9.0
830301	83060	1200.0	830301	83060	1.0		830301	83060	1.0
830308	83067	810.0	830308	83067	9.0		830308	83067	9.0
830314	83073	980.0	830314	83073	9.0		830314	83073	9.0
830316	83075	9.0	830322	83081	9.0		830322	83081	9.0
830329	83088	1400.0	830329	83088	9.0		830329	83088	9.0
830404	83094	880.0	830404	83094	9.0		830404	83094	9.0
830407	83097	1200.0	830407	83097	9.0		830407	83097	9.0
830418	83108	1300.0	830418	83108	9.0		830418	83108	9.0
830425	83115	1300.0	830425	83115	9.0		830425	83115	9.0
830502	83122	PRESENT	830502	83122	0.0 ND		830502	83122	0.0 ND
830509	83129	1400.0	830509	83129	9.0		830509	83129	9.0
830516	83136	1500.0	830516	83136	18.0		830516	83136	9.0
830523	83143	2800.0	830523	83143	33.0		830523	83143	9.0
830607	83158	2900.0	830607	83158	16.0		830607	83158	9.0
830614	83165	4900.0	830614	83165	9.0		830614	83165	9.0
830624	83175	2500.0	830624	83175	9.0		830624	83175	9.0
830721	83202	3700.0	830721	83202	9.0		830721	83202	9.0
830728	83209	2000.0	830728	83209	9.0		830728	83209	9.0
830804	83216	2900.0	830804	83216	9.0		830804	83216	9.0
830812	83224	3100.0	830812	83224	9.0		830812	83224	9.0
830818	83230	4100.0	830818	83230	9.0		830818	83230	9.0
830823	83235	6200.0	830823	83235	9.0		830823	83235	9.0
830909	83252	2400.0	830909	83252	9.0		830909	83252	9.0
830926	83269	2100.0	830926	83269	9.0		830926	83269	9.0
830930	83273	2200.0	830930	83273	9.0		830930	83273	9.0
831005	83278	9.0	831005	83278	9.0		831005	83278	9.0
831011	83284	2100.0	831011	83284	3.6		831011	83284	3.6
831019	83292	1400.0	831019	83292	9.0		831019	83292	9.0
831028	83301	1400.0	831028	83301	9.0		831028	83301	9.0
831107	83311	1400.0	831107	83311	9.0		831107	83311	9.0
831114	83318	470.0	831114	83318	9.0		831114	83318	9.0
831120	83324	1400.0	831120	83324	9.0		831120	83324	9.0
831205	83339	1900.0	831205	83339	9.0		831205	83339	9.0
831212	83346	840.0	831212	83346	9.0		831212	83346	9.0
831219	83353	1100.0	831219	83353	30.0		831219	83353	9.0

1,1,2-TRICHLOROETHANE INFL(ppb)			1,1,2-TRICHLOROETHANE MIDPT(ppb)			1,1,2-TRICHLOROETHANE EFFL(ppb)		
CDATE	JDATE	VALUE	CDATE	JDATE	VALUE	CDATE	JDATE	VALUE
						800804	80217	1.0
						800811	80224	1.0
						800825	80238	10.0
						800826	80239	4.0
						800829	80242	1.0
						800929	80273	1.0
						801014	80288	1.0
						801020	80294	1.0
						801027	80301	1.0
						801103	80308	1.0
						801110	80315	1.0
						801117	80322	1.0
			801124	80329	1.0	801124	80329	1.0
801201	80336	210.0				801201	80336	1.0
						801208	80343	1.0
801215	80350	37.0				801215	80350	1.0
			801217	80352	4.0	801217	80352	4.0
			801222	80357	1.0	801222	80357	1.0
			801229	80364	1.0	801229	80364	1.0
						810105	81005	1.0
			810112	81012	1.0	810112	81012	1.0
810114	81014	70.0	810114	81014	4.0	810119	81019	1.0
810124	81024	310.0	810126	81026	4.0	810126	81026	1.0
810202	81033	130.0	810129	81029	4.0	810202	81033	1.0
810211	81042	42.0				810209	81040	1.0
			810216	81047	7.0	810216	81047	1.0
			810223	81054	1.0	810223	81054	10.0
810302	81061	40.0	810302	81061	10.0	810302	81061	10.0
						810313	81072	10.0
810322	81081	28.0	810320	81079	10.0	810320	81079	10.0
810327	81086	4.0	810327	81086	4.0	810327	81086	1.0
810402	81092	44.0	810402	81092	10.0	810402	81092	4.0
			810409	81099	10.0			
810410	81100	113.0	810410	81100	14.0	810410	81100	10.0
			810417	81107	8.0	810417	81107	4.0
810424	81114	80.0	810424	81114	21.0	810424	81114	10.0
810501	81121	10.0	810501	81121	10.0	810501	81121	10.0
810508	81128	10.0	810508	81128	10.0	810508	81128	10.0
810511	81131	10.0	810515	81135	10.0	810511	81131	10.0
810522	81142	10.0	810522	81142	10.0	810522	81142	10.0
810602	81153	10.0	810602	81153	10.0	810602	81153	10.0
810605	81156	98.0	810605	81156	10.0	810605	81156	10.0
810612	81163	80.0	810612	81163	10.0	810612	81163	10.0
810615	81166	140.0				810615	81166	10.0
			810617	81168	10.0			
810622	81173	120.0	810622	81173	10.0	810622	81173	10.0
810703	81184	98.0	810703	81184	4.0	810703	81184	4.0
810710	81191	60.0	810710	81191	4.0	810710	81191	4.0
810717	81198	150.0	810717	81198	4.0	810717	81198	4.0
810731	81212	56.0	810731	81212	4.0	810731	81212	4.0
810805	81217	50.0	810805	81217	4.0	810805	81217	4.0

			810814	81226	4.0	810814	81226	4.0
810814	81226	13.0	810828	81240	4.0	810828	81240	4.0
810821	81233	92.0	810918	81261	4.0	810918	81261	4.0
810828	81240	54.0	810929	81272	4.0	810929	81272	4.0
811013	81286	79.0	811013	81286	4.0	811013	81286	4.0
			811027	81300	4.0	811027	81300	4.0
811104	81308	43.0	811104	81308	4.0	811104	81308	4.0
811106	81310	140.0	811106	81310	4.0	811106	81310	4.0
811117	81321	76.0	811117	81321	4.0	811117	81321	4.0
811124	81328	137.0				811124	81328	4.0
811201	81335	35.0	811201	81335	4.0	811201	81335	4.0
811208	81342	37.0	811208	81342	4.0	811208	81342	4.0
811211	81345	98.0	811211	81345	4.0	811211	81345	4.0
811221	81355	240.0	811221	81355	4.0	811221	81355	4.0
811229	81363	170.0	811229	81363	4.0	811229	81363	4.0
820104	82004	47.0	820104	82004	4.0	820104	82004	4.0
820105	82005	55.0	820105	82005	4.0	820105	82005	4.0
820112	82012	34.0	820112	82012	4.0	820112	82012	4.0
820119	82019	60.0	820119	82019	4.0	820119	82019	4.0
820121	82021	55.0	820121	82021	4.0	820121	82021	4.0
820201	82032	210.0	820201	82032	4.0	820201	82032	4.0
820209	82040	180.0	820209	82040	4.0	820209	82040	4.0
820216	82047	220.0	820216	82047	4.0	820216	82047	4.0
820223	82054	220.0	820223	82054	4.0	820223	82054	4.0
820301	82060	160.0	820301	82060	4.0	820301	82060	4.0
820309	82068	110.0	820309	82068	4.0	820309	82068	4.0
820316	82075	66.0	820316	82075	4.0	820316	82075	4.0
820322	82081	60.0	820322	82081	4.0	820322	82081	4.0
820326	82085	35.0	820326	82085	4.0	820326	82085	4.0
820406	82096	4.0	820406	82096	4.0	820406	82096	4.0
820413	82103	22.0	820413	82103	4.0	820413	82103	4.0
820420	82110	4.0	820420	82110	4.0	820420	82110	4.0
820426	82116	30.0	820426	82116	4.0	820426	82116	82.0 *
820503	82123	97.0	820503	82123	4.0	820503	82123	4.0
820510	82130	120.0	820510	82130	4.0	820510	82130	4.0
820518	82138	140.0	820518	82138	4.0	820518	82138	4.0
820521	82141	120.0	820521	82141	4.0	820521	82141	4.0
820528	82148	34.0	820528	82148	4.0	820528	82148	4.0
820611	82162	89.0	820611	82162	4.0	820611	82162	4.0
820618	82169	84.0	820618	82169	4.0	820618	82169	4.0
820628	82179	120.0	820628	82179	4.0	820628	82179	4.0
820702	82183	88.0	820702	82183	4.0	820702	82183	4.0
820712	82193	100.0	820712	82193	4.0	820712	82193	4.0
820715	82196	110.0	820715	82196	4.0	820715	82196	4.0
820722	82203	63.0	820722	82203	4.0	820722	82203	4.0
820802	82214	33.0	820802	82214	4.0	820802	82214	4.0
820805	82217	60.0	820805	82217	4.0	820805	82217	4.0
820817	82229	130.0	820817	82229	4.0	820817	82229	4.0
820824	82236	90.0	820824	82236	4.0	820824	82236	4.0
820902	82245	100.0	820902	82245	4.0	820902	82245	4.0
820913	82256	110.0	820913	82256	4.0	820913	82256	4.0
820923	82266	99.0	820923	82266	4.0	820923	82266	4.0
821001	82274	68.0	821001	82274	4.0	821001	82274	4.0
821015	82288	91.0	821015	82288	4.0	821015	82288	4.0
821022	82295	110.0	821022	82295	4.0	821022	82295	4.0
821105	82309	110.0	821105	82309	4.0	821105	82309	4.0

821116	82320	60.0		821116	82320	4.0		821116	82320	4.0	
821123	82327	59.0		821123	82327	4.0		821123	82327	4.0	
821130	82334	44.0		821130	82334	4.0		821130	82334	4.0	
821206	82340	4.0	LT					821206	82340	4.0	
821213	82347	62.0		821213	82347	4.0		821213	82347	4.0	
821221	82355	120.0		821221	82355	4.0		821221	82355	4.0	
821228	82362	42.0		821228	82362	4.0		821228	82362	4.0	
				830110	83010	4.0		830110	83010	4.0	
830114	83014	120.0		830114	83014	4.0		830114	83014	4.0	
830119	83019	120.0		830119	83019	4.0		830119	83019	4.0	
830131	83031	100.0		830131	83031	4.0		830131	83031	4.0	
830207	83038	38.0		830207	83038	4.0		830207	83038	4.0	
830214	83045	32.0		830214	83045	4.0		830214	83045	4.0	
830217	83048	90.0		830217	83048	4.0		830217	83048	4.0	
830301	83060	66.0		830301	83060	4.0		830301	83060	4.0	
830308	83067	54.0		830308	83067	4.0		830308	83067	4.0	
830314	83073	54.0		830314	83073	4.0		830314	83073	4.0	
830316	83075	4.0		830322	83081	4.0		830322	83081	4.0	
830329	83088	38.0		830329	83088	4.0		830329	83088	4.0	
830404	83094	46.0		830404	83094	4.0		830404	83094	4.0	
830407	83097	51.0		830407	83097	4.0		830407	83097	4.0	
830418	83108	42.0		830418	83108	4.0		830418	83108	4.0	
830425	83115	58.0		830425	83115	4.0		830425	83115	4.0	
830502	83122	0.0	ND	830502	83122	0.0	ND	830502	83122	0.0	ND
830509	83129	56.0		830509	83129	19.0		830509	83129	4.0	
830516	83136	69.0		830516	83136	29.0		830516	83136	4.0	
830523	83143	98.0		830523	83143	36.0		830523	83143	4.0	
830607	83158	130.0		830607	83158	26.0		830607	83158	4.0	
830614	83165	120.0		830614	83165	24.0		830614	83165	4.0	
830624	83175	130.0		830624	83175	23.0		830624	83175	4.0	
830721	83202	120.0		830721	83202	4.0		830721	83202	4.0	
830728	83209	89.0		830728	83209	4.0		830728	83209	4.0	
830804	83216	110.0		830804	83216	4.0		830804	83216	4.0	
830812	83224	100.0		830812	83224	4.0		830812	83224	4.0	
830818	83230	85.0		830818	83230	4.0		830818	83230	4.0	
830823	83235	120.0		830823	83235	4.0		830823	83235	4.0	
830909	83252	49.0		830909	83252	4.0		830909	83252	4.0	
830926	83269	85.0		830926	83269	4.0		830926	83269	4.0	
830930	83273	77.0		830930	83273	4.0		830930	83273	4.0	
831005	83278	1200.0		831005	83278	4.0		831005	83278	4.0	
831011	83284	45.0		831011	83284	4.0		831011	83284	4.0	
831019	83292	47.0		831019	83292	4.0		831019	83292	4.0	
831028	83301	73.0		831028	83301	4.0		831028	83301	4.0	
831107	83311	4.0		831107	83311	4.0		831107	83311	4.0	
831114	83318	4.0		831114	83318	4.0		831114	83318	4.0	
831120	83324	24.0		831120	83324	4.0		831120	83324	4.0	
831205	83339	4.0		831205	83339	4.0		831205	83339	4.0	
831212	83346	4.0		831212	83346	4.0		831212	83346	4.0	
831219	83353	24.0		831219	83353	4.0		831219	83353	4.0	

CARBON TETRACHLORIDE (ppb)

CDATE	JDATE	INFL	MIDPT	EFFL
800804	80217			1.0
800811	80224			1.0
800825	80238			10.0
800826	80239			4.0
800829	80242			1.0
800929	80273			1.0
801014	80288			1.0
801020	80294			1.0
801027	80301			1.0
801103	80308			1.0
801110	80315			1.0
801117	80322			1.0
801124	80329		1.0	1.0
801201	80336	2900.0	1.0	1.0
801208	80343			1.0
801215	80350	1100.0		1.0
801217	80352		4.0	4.0
801222	80357		1.0	1.0
801229	80364		1.0	1.0
810105	81005			1.0
810112	81012		1.0	1.0
810114	81014	328.0	4.0	
810119	81019			1.0
810124	81024	7000.0		
810126	81026		4.0	1.0
810129	81029		4.0	
810202	81033	1200.0		1.0
810209	81040			1.0
810211	81042	3300.0		
810216	81047		4.0	1.0
810223	81054		1.0	10.0
810302	81061	820.0	10.0	10.0
810313	81072			10.0
810320	81079		10.0	10.0
810322	81081	1800.0		
810327	81086	4.0	4.0	4.0
810402	81092	720.0	4.0	4.0
810409	81099		10.0	
810410	81100	1546.0	10.0	10.0
810417	81107		4.0	4.0
810424	81114	210.0	10.0	10.0
810501	81121	1100.0	10.0	10.0
810508	81128	480.0	10.0	10.0
810511	81131	10.0		10.0
810515	81135		10.0	
810522	81142	670.0	10.0	10.0
810602	81153	490.0	10.0	10.0
810605	81156	2300.0	10.0	10.0
810612	81163	1800.0	10.0	10.0
810615	81166	1600.0		10.0
810617	81168		10.0	
810622	81173	1800.0	10.0	10.0

810703	81184	1300.0	4.0	4.0	
810710	81191	960.0	4.0	4.0	
810717	81198	2400.0	4.0	4.0	
810731	81212	1400.0	4.0	4.0	
810805	81217	1000.0	4.0	4.0	
810814	81226	250.0	4.0	4.0	
810821	81233	1200.0			
810828	81240	28.0	4.0	4.0	
810918	81261		4.0	4.0	
810929	81272		4.0	4.0	
811013	81286	1300.0	4.0	4.0	
811027	81300		4.0	4.0	
811104	81308	94.0	4.0	4.0	
811106	81310	1300.0	4.0	4.0	
811117	81321	580.0	4.0	4.0	
811124	81328	850.0		4.0	
811201	81335	220.0	4.0	4.0	
811208	81342	370.0	4.0	4.0	
811211	81345	590.0	4.0	4.0	
811221	81355	2000.0	4.0	4.0	
811229	81363	1800.0	4.0	4.0	
820104	82004	580.0	4.0	4.0	
820105	82005	510.0	4.0	4.0	
820112	82012	590.0	4.0	4.0	
820119	82019	880.0	4.0	4.0	
820121	82021	810.0	4.0	4.0	
820201	82032	1300.0	4.0	4.0	
820209	82040	860.0	4.0	4.0	
820216	82047	850.0	4.0	4.0	
820223	82054	2100.0	4.0	4.0	
820301	82060	1700.0	4.0	4.0	
820309	82068	830.0	4.0	4.0	
820316	82075	820.0	4.0	4.0	
820322	82081	810.0	4.0	4.0	
820326	82085	150.0	4.0	4.0	
820406	82096	69.0	4.0	4.0	
820413	82103	160.0	4.0	4.0	
820420	82110	42.0	4.0	4.0	
820426	82116	310.0	4.0	850.0	*
820503	82123	1100.0	4.0	4.0	
820510	82130	960.0	4.0	4.0	
820518	82138	1500.0	4.0	4.0	
820521	82141	1400.0	4.0	4.0	
820528	82148	1300.0	4.0	4.0	
820611	82162	2000.0	4.0	4.0	
820618	82169	790.0	4.0	4.0	
820628	82179	920.0	4.0	4.0	
820702	82183	780.0	4.0	4.0	
820712	82193	1000.0	4.0	4.0	
820715	82196	1000.0	4.0	4.0	
820722	82203	645.0	4.0	4.0	
820802	82214	530.0	4.0	4.0	
820805	82217	410.0	4.0	4.0	
820817	82229	890.0	4.0	4.0	
820824	82236	500.0	4.0	4.0	
820902	82245	600.0	4.0	4.0	

820913	82256	760.0	4.0	4.0
820923	82266	700.0	4.0	4.0
821001	82274	880.0	4.0	4.0
821015	82288	790.0	0.0	4.0
821022	82295	900.0	4.0	4.0
821105	82309	780.0	4.0	4.0
821116	82320	560.0	4.0	4.0
821123	82327	560.0	4.0	4.0
821130	82334	433.0	4.0	4.0
821206	82340	4.0		4.0
821213	82347	940.0	4.0	4.0
821221	82355	1300.0	4.0	4.0
821228	82362	370.0	4.0	4.0
830110	83010			4.0
830114	83014	870.0	4.0	4.0
830119	83019	810.0	4.0	4.0
830131	83031	1200.0	4.0	4.0
830207	83038	300.0	4.0	4.0
830214	83045	510.0	4.0	4.0
830217	83048	260.0	4.0	4.0
830301	83060	270.0	4.0	4.0
830308	83067	160.0	4.0	4.0
830314	83073	180.0	4.0	4.0
830316	83075	4.0 LT		
830322	83081		4.0	4.0
830329	83088	100.0	4.0	4.0
830404	83094	91.0	4.0	4.0
830407	83097	200.0	4.0	4.0
830418	83108	240.0	4.0	4.0
830425	83115	240.0	4.0	4.0
830502	83122	PRESENT	0.0 ND	0.0 ND
830509	83129	490.0	4.0	4.0
830516	83136	370.0	4.0	4.0
830523	83143	590.0	4.0	4.0
830607	83158	730.0	4.0	4.0
830614	83165	730.0	4.0	4.0
830624	83175	720.0	4.0	4.0
830721	83202	2500.0	4.0	4.0
830728	83209	980.0	4.0	4.0
830804	83216	5700.0	4.0	4.0
830812	83224	990.0	4.0	4.0
830818	83230	1500.0	4.0	4.0
830823	83235	1700.0	4.0	4.0
830909	83252	330.0	4.0	4.0
830926	83269	600.0	4.0	4.0
830930	83273	510.0	4.0	4.0
831005	83278	390.0	4.0	4.0
831011	83284	390.0	4.0	4.0
831019	83292	360.0	4.0	4.0
831028	83301	540.0	4.0	4.0
831107	83311	450.0	4.0	4.0
831114	83318	82.0	4.0	4.0
831120	83324	170.0	4.0	4.0
831205	83339	130.0	4.0	4.0
831212	83346	110.0	4.0	4.0
831219	83353	170.0	4.0	4.0

CHLOROBENZENE (ppb)

CDATE	JDATE	INFL	MIDPT	EFFL
800804	80217			1.0
800811	80224			1.0
800825	80238			10.0
800826	80239			8.0
800829	80242			1.0
800929	80273			1.0
801014	80288			1.0
801020	80294			1.0
801027	80301			1.0
801103	80308			1.0
801110	80315			1.0
801117	80322			1.0
801124	80329		1.0	1.0
801201	80336	6100.0	2.0	1.0
801208	80343			1.0
801215	80350	2400.0		1.0
801217	80352		8.0	8.0
801222	80357		1.0	1.0
801229	80364		1.0	1.0
810105	81005			1.0
810112	81012		1.0	1.0
810114	81014	648.0	8.0	
810119	81019			1.0
810124	81024	16000.0		
810126	81026		8.0	1.0
810129	81029		8.0	
810202	81033	3000.0		1.0
810209	81040			1.0
810211	81042	1500.0		
810216	81047		8.0	1.0
810223	81054		1.0	10.0
810302	81061	2600.0	10.0	10.0
810313	81072			10.0
810320	81079		10.0	10.0
810322	81081	500.0		
810327	81086	8.0	8.0	8.0
810402	81092	2600.0	6.0	8.0
810409	81099		10.0	
810410	81100	4302.0	10.0	10.0
810417	81107		8.0	8.0
810424	81114	1700.0	10.0	10.0
810501	81121	4700.0	10.0	10.0
810508	81128	4200.0	10.0	10.0
810511	81131	10.0		10.0
810515	81135		10.0	
810522	81142	5200.0	10.0	10.0
810602	81153	5100.0	10.0	10.0
810605	81156	9400.0	10.0	10.0
810612	81163	4800.0	10.0	10.0
810615	81166	4600.0		10.0
810617	81168		10.0	
810622	81173	4000.0	10.0	10.0

810703	81184	4400.0	8.0	8.0	
810710	81191	3600.0	8.0	8.0	
810717	81198	5900.0	8.0	8.0	
810731	81212	4400.0	8.0	8.0	
810805	81217	2800.0	8.0	8.0	
810814	81226	780.0	8.0	8.0	
810821	81233	9000.0			
810828	81240	270.0	8.0	8.0	
810918	81261		8.0	8.0	
810929	81272		8.0	8.0	
811013	81286	4300.0	8.0	8.0	
811027	81300		8.0	8.0	
811104	81308	500.0	8.0	8.0	
811106	81310	6200.0	8.0	8.0	
811117	81321	5800.0	8.0	8.0	
811124	81328	7500.0		8.0	
811201	81335	4500.0	8.0	8.0	
811208	81342	4300.0	8.0	8.0	
811211	81345	3900.0	8.0	8.0	
811221	81355	9100.0	8.0	8.0	
811229	81363	14000.0	8.0	8.0	
820104	82004	6100.0	8.0	8.0	
820105	82005	5500.0	8.0	8.0	
820112	82012	4600.0	8.0	8.0	
820119	82019	3800.0	8.0	8.0	
820121	82021	7500.0	8.0	8.0	
820201	82032	4400.0	8.0	8.0	
820209	82040	4700.0	8.0	8.0	
820216	82047	4800.0	8.0	8.0	
820223	82054	7000.0	8.0	8.0	
820301	82060	5000.0	8.0	8.0	
820309	82068	4100.0	8.0	8.0	
820316	82075	3800.0	8.0	8.0	
820322	82081	5000.0	8.0	8.0	
820326	82085	4300.0	8.0	8.0	
820406	82096	1300.0	8.0	8.0	
820413	82103	2900.0	8.0	8.0	
820420	82110	2400.0	8.0	8.0	
820426	82116	1800.0	9.0	5100.0	*
820503	82123	6400.0	8.0	8.0	
820510	82130	4900.0	8.0	8.0	
820518	82138	11000.0	8.0	8.0	
820521	82141	11000.0	8.0	8.0	
820528	82148	23000.0	8.0	8.0	
820611	82162	7500.0	8.0	8.0	
820618	82169	4800.0	8.0	8.0	
820628	82179	6200.0	8.0	8.0	
820702	82183	4300.0	8.0	8.0	
820712	82193	4600.0	8.0	6.0	
820715	82196	4000.0	8.0	8.0	
820722	82203	8700.0	8.0	8.0	
820802	82214	5200.0	8.0	8.0	
820805	82217	3000.0	8.0	8.0	
820817	82229	6100.0	8.0	8.0	
820824	82236	5600.0	8.0	8.0	
820902	82245	7500.0	8.0	8.0	

820913	82256	7600.0	8.0	8.0
820923	82266	8500.0	8.0	8.0
821001	82274	16000.0	8.0	8.0
821015	82288	8800.0	8.0	8.0
821022	82295	11000.0	8.0	8.0
821105	82309	18000.0	8.0	8.0
821116	82320	9800.0	8.0	8.0
821123	82327	5000.0	8.0	8.0
821130	82334	4100.0	8.0	8.0
821206	82340	8.0		8.0
821213	82347	8500.0	8.0	8.0
821221	82355	9400.0	8.0	8.0
821228	82362	5500.0	8.0	8.0
830110	83010			8.0
830114	83014	10000.0	8.0	8.0
830119	83019	7000.0	8.0	8.0
830131	83031	7300.0	8.0	8.0
830207	83038	5000.0	8.0	8.0
830214	83045	1100.0	8.0	8.0
830217	83048	3200.0	8.0	8.0
830301	83060	3000.0	8.0	8.0
830308	83067	2200.0	8.0	8.0
830314	83073	3200.0	8.0	8.0
830316	83075	8.0 LT		
830322	83081		8.0	8.0
830329	83088	4100.0	8.0	
830404	83094	4000.0	8.0	8.0
830407	83097	5700.0	8.0	8.0
830418	83108	3100.0	8.0	8.0
830425	83115	8300.0	8.0	8.0
830502	83122	PRESENT	0.0 ND	0.0 ND
830509	83129	4500.0	8.0	8.0
830516	83136	4500.0	8.0	8.0
830523	83143	6300.0	8.0	8.0
830607	83158	9300.0	8.0	8.0
830614	83165	12000.0	8.0	8.0
830624	83175	7900.0	8.0	8.0
830721	83202	6200.0	8.0	8.0
830728	83209	5400.0	8.0	8.0
830804	83216	5500.0	8.0	8.0
830812	83224	6200.0	8.0	8.0
830818	83230	7500.0	8.0	8.0
830823	83235	8100.0	8.0	8.0
830909	83252	6500.0	8.0	8.0
830926	83269	5800.0	8.0	8.0
830930	83273	6000.0	8.0	8.0
831005	83278	7300.0	8.0	8.0
831011	83284	4800.0	8.0	8.0
831019	83292	4900.0	8.0	8.0
831028	83301	6300.0		8.0
831107	83311	2400.0	8.0	8.0
831114	83318	2500.0	8.0	8.0
831120	83324	2500.0	8.0	8.0
831205	83339	2700.0	8.0	8.0
831212	83346	2100.0	17.0	8.0
831219	83353	2600.0	27.0	8.0

TOLUENE (ppb)

CDATE	JDATE	INFL	MIDPT	EFFL
800804	80217			1.0
800811	80224			1.0
800825	80238			10.0
800826	80239			11.0
800829	80242			1.0
800929	80273			1.0
801014	80288			4.0
801020	80294			1.0
801027	80301			1.0
801103	80308			1.0
801110	80315			1.0
801117	80322			1.0
801124	80329		3.3	1.0
801201	80336	36000.0	18.0	1.0
801208	80343			2.0
801215	80350	14000.0		1.0
801217	80352		36.0	1.0
801222	80357		1.0	1.0
801229	80364		1.0	1.0
810105	81005			1.0
810112	81012		1.0	1.0
810114	81014	494.0	11.0	
810119	81019			1.0
810124	81024	77000.0		
810126	81026		1.0	1.0
810129	81029		1.0	
810202	81033	1300.0		1.0
810209	81040			1.0
810211	81042	3000.0		
810216	81047		6.0	1.0
810223	81054		1.0	10.0
810302	81061	1600.0	10.0	10.0
810313	81072			10.0
810320	81079		10.0	10.0
810322	81081	2000.0		
810327	81086	700.0	11.0	11.0
810402	81092	12000.0	42.0	4.0
810409	81099		1.0	
810410	81100	2502.0	10.0	10.0
810417	81107		11.0	1.0
810424	81114	3800.0	10.0	10.0
810501	81121	19000.0	10.0	10.0
810508	81128	19000.0	10.0	10.0
810511	81131	1100.0		10.0
810515	81135		10.0	
810522	81142	23000.0	10.0	10.0
810602	81153	57000.0	10.0	10.0
810605	81156	57000.0	10.0	10.0
810612	81163	36000.0	10.0	10.0
810615	81166	25000.0		10.0
810617	81168		10.0	
810622	81173	26000.0	900.0	10.0

810703	81184	36000.0	11.0	11.0	
810710	81191	33000.0	11.0	11.0	
810717	81198	45000.0	11.0	11.0	
810731	81212	19000.0	11.0	11.0	
810805	81217	16000.0	11.0	11.0	
810814	81226	3200.0	11.0	11.0	
810821	81233	48000.0			
810828	81240	1600.0	11.0	11.0	
810918	81261		14.0	11.0	
810929	81272		11.0	11.0	
811013	81286	14000.0	11.0	11.0	
811027	81300		11.0	11.0	
811104	81308	5300.0	11.0	11.0	
811106	81310	12000.0	11.0	11.0	
811117	81321	24000.0	11.0	11.0	
811124	81328	18000.0		11.0	
811201	81335	15000.0	11.0	18.0	
811208	81342	14000.0	11.0	11.0	
811211	81345	11000.0	11.0	11.0	
811221	81355	19000.0	11.0	11.0	
811229	81363	27000.0	11.0	11.0	
820104	82004	17000.0	11.0	11.0	
820105	82005	14000.0	100.0	11.0	
820112	82012	14000.0	23.0	32.0	
820119	82019	19000.0	11.0	11.0	
820121	82021	41000.0	11.0	11.0	
820201	82032	33000.0	11.0	11.0	
820209	82040	27000.0	11.0	11.0	
820216	82047	36000.0	11.0	11.0	
820223	82054	32000.0	11.0	11.0	
820301	82060	25000.0	11.0	11.0	
820309	82068	19000.0	11.0	11.0	
820316	82075	18000.0	11.0	11.0	
820322	82081	18000.0	11.0	11.0	
820326	82085	14000.0	11.0	11.0	
820406	82096	4600.0	11.0	11.0	
820413	82103	14000.0	11.0	11.0	
820420	82110	8200.0	11.0	11.0	
820426	82116	9900.0	55.0	7300.0	*
820503	82123	24000.0	11.0	11.0	
820510	82130	20000.0	11.0	11.0	
820518	82138	35000.0	11.0	11.0	
820521	82141	25000.0	11.0	11.0	
820528	82148	29000.0	11.0	11.0	
820611	82162	24000.0	11.0	11.0	
820618	82169	18000.0	11.0	11.0	
820628	82179	21000.0	11.0	11.0	
820702	82183	22000.0	11.0	11.0	
820712	82193	37000.0	11.0	11.0	
820715	82196	35000.0	11.0	11.0	
820722	82203	34000.0	11.0	11.0	
820802	82214	13000.0	11.0	11.0	
820805	82217	21000.0	11.0	11.0	
820817	82229	42000.0	11.0	11.0	
820824	82236	6100.0	11.0	11.0	
820902	82245	19000.0	11.0	11.0	

820913	82256	17000.0		11.0	11.0	
820923	82266	32000.0		11.0	11.0	
821001	82274	37000.0		11.0	11.0	
821015	82288	20000.0		11.0	11.0	
821022	82295	20000.0		11.0	11.0	
821105	82309	75000.0		11.0	11.0	
821116	82320	40000.0		11.0	11.0	
821123	82327	9400.0		11.0	11.0	
821130	82334	8300.0		11.0	11.0	
821206	82340	11.0	LT		11.0	
821213	82347	26000.0		11.0	11.0	
821221	82355	10000.0		11.0	11.0	
821228	82362	20000.0		11.0	11.0	
830110	83010				11.0	
830114	83014	36000.0		11.0	11.0	
830119	83019	21000.0		11.0	11.0	
830131	83031	24000.0		11.0	11.0	
830207	83038	23000.0		11.0	11.0	
830214	83045	14000.0		11.0	11.0	
830217	83048	18000.0		11.0	11.0	
830301	83060	22000.0		11.0	11.0	
830308	83067	21000.0		11.0	11.0	
830314	83073	25000.0		11.0	11.0	
830316	83075	11.0				
830322	83081			11.0	11.0	
830329	83088	16000.0		11.0	11.0	
830404	83094	29000.0		11.0	11.0	
830407	83097	35000.0		11.0	11.0	
830418	83108	9800.0		11.0	11.0	
830425	83115	26000.0		11.0	11.0	
830502	83122	PRESENT		PRESENT	0.0	ND
830509	83129	33000.0		49.0	11.0	
830516	83136	12000.0		100.0	11.0	
830523	83143	18000.0		140.0	11.0	
830607	83158	33000.0		130.0	11.0	
830614	83165	71000.0		170.0	11.0	
830624	83175	49000.0		75.0	11.0	
830721	83202	38000.0		11.0	36.0	
830728	83209	37000.0		11.0	16.0	
830804	83216	49000.0		11.0	11.0	
830812	83224	44000.0		11.0	11.0	
830818	83230	67000.0		11.0	11.0	
830823	83235	42000.0		11.0	11.0	
830909	83252	45000.0		11.0	11.0	
830926	83269	32000.0		11.0	11.0	
830930	83273	49000.0		11.0	11.0	
831005	83278	35000.0		11.0	11.0	
831011	83284	26000.0		11.0	11.0	
831019	83292	36000.0		11.0	11.0	
831028	83301	37000.0		11.0	11.0	
831107	83311	17000.0		11.0	11.0	
831114	83318	14000.0		11.0	11.0	
831120	83324	15000.0		11.0	11.0	
831205	83339	16000.0		11.0		
831212	83346	11000.0		230.0	11.0	
831219	83353	14000.0		270.0	11.0	

APPENDIX 4: LOVE CANAL LEACHATE DATA - BENZENE

BENZENE (ppb)

CDATE	JDATE	INFL VALUE	MIDPT VALUE	EFFL VALUE
800804	80217			1.0
800811	80224			1.0
800825	80238			10.0
800826	80239			4.0
800829	80242			1.0
800929	80273			1.0
801014	80288			2.0
801020	80294			1.0
801027	80301			1.0
801103	80308			1.0
801110	80315			1.0
801117	80322			2.0
801124	80329		4.9	3.0
801201	80336	10000.0	19.0	1.0
801208	80343			1.0
801215	80350	2100.0		1.0
801217	80352		23.0	4.0
801222	80357		1.0	1.0
801229	80364		1.0	1.0
810105	81005			1.0
810112	81012		1.0	1.0
810114	81014	313.0	1.0	
810119	81019			1.0
810124	81024	8500.0		
810126	81026		2.0	1.0
810129	81029		4.0	
810202	81033	550.0		1.0
810209	81040			1.0
810211	81042	3600.0		
810216	81047		10.0	1.0
810223	81054		1.0	10.0
810302	81061	720.0	22.0	10.0
810313	81072			10.0
810320	81079		83.0	10.0
810322	81081	1900.0		
810327	81086	240.0	189.0	6.0
810402	81092	2000.0	152.0	6.0
810409	81099		28.0	
810410	81100	2266.0	1071.0	16.0
810417	81107		216.0	3.0
810424	81114	2600.0	430.0	10.0
810501	81121	2300.0	120.0	10.0
810508	81128	2400.0	10.0	10.0
810511	81131	330.0		10.0
810515	81135		10.0	
810522	81142	3100.0	10.0	10.0
810602	81153	3200.0	20.0	10.0
810605	81156	7700.0	10.0	13.0
810612	81163	3800.0	10.0	10.0
810615	81166	3900.0		10.0
810617	81168		10.0	
810622	81173	3700.0	10.0	10.0

810703	81184	4600.0	4.0	4.0	
810710	81191	3900.0	4.0	4.0	
810717	81198	8600.0	4.0	4.0	
810731	81212	2800.0	4.0	4.0	
810805	81217	2700.0	4.0	4.0	
810814	81226	820.0	4.0	4.0	
810821	81233	6500.0			
810828	81240	940.0	4.0	4.0	
810918	81261		4.0	4.0	
810929	81272		4.0	4.0	
811013	81286	3800.0	4.0	4.0	
811027	81300		4.0	4.0	
811104	81308	540.0	4.0	4.0	
811106	81310	3400.0	4.0	4.0	
811117	81321	2900.0	4.0	4.0	
811124	81328	3500.0		4.0	
811201	81335	2200.0	4.0	4.0	
811208	81342	3600.0	4.0	4.0	
811211	81345	3100.0	4.0	4.0	
811221	81355	5400.0	4.0	4.0	
811229	81363	5400.0	4.0	4.0	
820104	82004	3200.0	4.0	4.0	
820105	82005	2800.0	4.0	4.0	
820112	82012	2000.0	4.0	4.0	
820119	82019	3800.0	4.0	4.0	
820121	82021	3900.0	4.0	4.0	
820201	82032	3500.0	4.0	4.0	
820209	82040	3000.0	4.0	4.0	
820216	82047	2900.0	4.0	4.0	
820223	82054	4700.0	4.0	4.0	
820301	82060	3400.0	4.0	13.0	
820309	82068	2200.0	4.0	4.0	
820316	82075	2600.0	4.0	4.0	
820322	82081	1600.0	4.0	4.0	
820326	82085	2100.0	4.0	4.0	
820406	82096	930.0	4.0	4.0	
820413	82103	1900.0	4.0	4.0	
820420	82110	930.0	4.0	4.0	
820426	82116	1300.0	4.0	2400.0	*
820503	82123	2400.0	4.0	4.0	
820510	82130	3100.0	4.0	4.0	
820518	82138	4200.0	4.0	4.0	
820521	82141	4000.0	4.0	4.0	
820528	82148	3100.0	4.0	4.0	
820611	82162	4700.0	4.0	4.0	
820618	82169	3300.0	4.0	4.0	
820628	82179	4200.0	4.0	4.0	
820702	82183	3000.0	4.0	4.0	
820712	82193	4300.0	4.0	4.0	
820715	82196	3400.0	4.0	4.0	
820722	82203	2900.0	4.0	4.0	
820802	82214	2900.0	4.0	4.0	
820805	82217	2700.0	4.0	4.0	
820817	82229	5900.0	4.0	4.0	
820824	82236	3200.0	4.0	4.0	
820902	82245	3700.0	4.0	4.0	

820913	82256	3900.0		4.0	4.0	
820923	82266	4200.0		4.0	4.0	
821001	82274	6400.0		4.0	4.0	
821015	82288	4700.0		4.0	4.0	
821022	82295	4700.0		4.0	4.0	
821105	82309	8200.0		4.0	4.0	
821116	82320	5500.0		4.0	4.0	
821123	82327	1900.0		4.0	4.0	
821130	82334	2500.0		4.0	4.0	
821206	82340	4.0	LT		4.0	
821213	82347	4200.0		4.0	4.0	
821221	82355	3900.0		4.0	4.0	
821228	82362	3400.0		4.0	4.0	
830110	83010				4.0	
830114	83014	5400.0		4.0	4.0	
830119	83019	4400.0		4.0	4.0	
830131	83031	4000.0		4.0	4.0	
830207	83038	2800.0		4.0	4.0	
830214	83045	2500.0		4.0	4.0	
830217	83048	3200.0		4.0	4.0	
830301	83060	2400.0		4.0	4.0	
830308	83067	1500.0		4.0	4.0	
830314	83073	1900.0		4.0	4.0	
830316	83075	4.0	LT			
830322	83081			4.7	4.0	
830329	83088	3100.0		28.0	4.0	
830404	83094	2600.0		36.0	4.0	
830407	83097	3200.0		48.0	4.0	
830418	83108	2800.0		170.0	4.0	
830425	83115	3700.0		320.0	4.0	
830502	83122	PRESENT		PRESENT	0.0	ND
830509	83129	3100.0		550.0	4.0	
830516	83136	2900.0		840.0	4.0	
830523	83143	3700.0		750.0	4.0	
830607	83158	4800.0		1000.0	13.0	
830614	83165	4400.0		1000.0	18.0	
830624	83175	4900.0		890.0	4.0	
830721	83202	4500.0		4.0	21.0	
830728	83209	3700.0		4.0	9.3	
830804	83216	3300.0		4.0	4.0	
830812	83224	3800.0		4.0	6.0	
830818	83230	4500.0		4.0	11.0	
830823	83235	4100.0		4.0	4.4	
830909	83252	5100.0		4.0	11.0	
830926	83269	4100.0		4.0	9.8	
830930	83273	3300.0		4.0	9.1	
831005	83278	2800.0		4.0	7.3	
831011	83284	2200.0		4.0	6.4	
831019	83292	2200.0		4.0	8.4	
831028	83301	3200.0		4.0	7.2	
831107	83311	940.0		4.0	5.6	
831114	83318	720.0		4.0	6.7	
831120	83324	1000.0		4.0	7.4	
831205	83339	1400.0		26.0	6.4	
831212	83346	1000.0		55.0	5.0	
831219	83353	1500.0		75.0	6.0	

METHYLENE CHLORIDE (ppb)

CDATE	JDATE	INFL	MIDPT	EFFL
800804	80217			13.0
800811	80224			8.0
800825	80238			10.0
800826	80239			5.0
800829	80242			2.0
800929	80273			1.0
801014	80288			3.0
801020	80294			5.0
801027	80301			19.0
801103	80308			140.0
801110	80315			630.0
801117	80322			1200.0
801124	80329		2600.0	1900.0
801201	80336	6700.0	2000.0	570.0
801208	80343			2700.0
801215	80350	10.0		7.5
801217	80352		9848.0	9296.0
801222	80357		1.0	1.0
801229	80364		1.0	1.0
810112	81012		37.0	
810114	81014	138.0	10.0	
810124	81024	1300.0		
810126	81026		232.0	
810129	81029		216.0	
810202	81033	250.0		1.0
810209	81040			1.0
810211	81042	250.0		
810216	81047		860.0	1.0
810223	81054		910.0	10.0
810302	81061	50.0	340.0	30.0
810313	81072			3100.0
810320	81079		180.0	270.0
810322	81081	92.0		
810327	81086	6.0	10468.0	1362.0
810402	81092	47.0	260.0	409.0
810409	81099		240.0	
810410	81100	442350.0	9123.0	9903.0
810417	81107		1275.0	99.0
810424	81114	32.0	640.0	490.0
810501	81121	10.0	430.0	180.0
810508	81128	10.0	300.0	10.0
810511	81131	10.0		10.0
810515	81135		58.0	
810522	81142	28.0	330.0	93.0
810602	81153	48.0	110.0	36.0
810605	81156	88.0	380.0	110.0
810612	81163	70.0	390.0	10.0
810615	81166	82.0		10.0
810617	81168		340.0	
810622	81173	89.0	220.0	10.0
810703	81184	6.0	260.0	6.0
810710	81191	6.0	630.0	6.0

810717	81198	54.0	760.0	6.0	
810731	81212	15.0	1890.0	6.0	
810805	81217	120.0	870.0	13.0	
810814	81226	17.0	450.0	40.0	
810821	81233	6.0			
810828	81240	6100.0	720.0	410.0	
810918	81261		18.0	33.0	
810929	81272		6.0	13.0	
811013	81286	29.0	73.0	22.0	
811027	81300		6.0	10.0	
811104	81308	5400.0	30.0	8.6	
811106	81310	140.0	6.0	7.6	
811117	81321	430.0	6.0	8.6	
811124	81328	97.0		6.0	
811201	81335	12.0	38.0	6.0	
811208	81342	180.0	280.0	97.0	
811211	81345	120.0	190.0	1900.0	
811221	81355	110.0	180.0	8.5	
811229	81363	6.0	310.0	6.0	
820104	82004	21.0	220.0	6.0	
820105	82005	6.0	460.0	6.0	
820112	82012	100.0	660.0	57.0	
820119	82019	6.0	190.0	52.0	
820121	82021	6.0	850.0	450.0	
820201	82032	38.0	540.0	460.0	
820209	82040	28.0	490.0	570.0	
820216	82047	83.0	310.0	440.0	
820223	82054	1400.0	1800.0	190.0	
820301	82060	1200.0	1100.0	600.0	
820309	82068	260.0	940.0	710.0	
820316	82075	67.0	1300.0	710.0	
820322	82081	38.0	1300.0	320.0	
820326	82085	6.0	640.0	290.0	
820406	82096	110.0	790.0	300.0	
820413	82103	6.0	180.0	30.0	
820420	82110	6.0	5.0	6.0	
820426	82116	25.0	6.0	28.0	*
820503	82123	28.0	150.0	6.0	
820510	82130	28.0	6.0	6.0	
820518	82138	50.0	6.0	6.0	
820521	82141	51.0	6.0	6.0	
820528	82148	2200.0	6.0	6.0	
820611	82162	46.0	95.0	6.0	
820618	82169	6.0	6.0	6.0	
820628	82179	38.0	6.0	6.0	
820702	82183	35.0	6.0	6.0	
820712	82193	61.0	6.0	6.0	
820715	82196	57.0	6.0	7.0	
820722	82203	6.0	6.0	6.0	
820802	82214	35.0	150.0	210.0	
820805	82217	45.0	6.0	6.0	
820817	82229	89.0	6.0	6.0	
820824	82236	55.0	30.0	6.0	
820902	82245	61.0	6.0	6.0	
820913	82256	63.0	40.0	6.0	
820923	82266	33.0	6.0	6.0	

821001	82274	6.0	6.0	6.0
821015	82288	120.0	7.0	18.0
821022	82295	90.0	6.0	9.3
821105	82309	57.0	6.0	6.0
821116	82320	33.0	6.0	6.0
821123	82327	6.0	6.0	6.0
821130	82334	6.0	6.0	6.0
821206	82340	6.0		6.0
821213	82347	40.0	82.0	6.0
821221	82355	53.0	120.0	6.0
821228	82362	17.0	100.0	6.0
830110	83010			6.0
830114	83014	32.0	360.0	14.0
830119	83019	51.0	550.0	24.0
830131	83031	19.0	1300.0	75.0
830207	83038	8.0	1600.0	99.0
830214	83045	24.0	1000.0	160.0
830217	83048	43.0	1100.0	250.0
830301	83060	55.0	870.0	330.0
830308	83067	21.0	750.0	450.0
830314	83073	31.0	700.0	720.0
830316	83075	1300.0		
830322	83081		1400.0	1500.0
830329	83088	900.0	1600.0	650.0
830404	83094	630.0	2400.0	1300.0
830407	83097	790.0	3100.0	2700.0
830418	83108	110.0	660.0	1400.0
830425	83115	120.0	790.0	1200.0
830502	83122	0.0	PRESENT	PRESENT
830509	83129	42.0	340.0	1100.0
830516	83136	53.0	290.0	980.0
830523	83143	180.0	370.0	550.0
830607	83158	47.0	560.0	740.0
830614	83165	57.0	740.0	1200.0
830624	83175	69.0	760.0	770.0
830721	83202	110.0	220.0	6.0
830728	83209	63.0	200.0	6.0
830804	83216	96.0	350.0	6.0
830812	83224	86.0	120.0	6.0
830818	83230	69.0	150.0	12.0
830823	83235	67.0	120.0	6.2
830909	83252	42.0	61.0	6.0
830926	83269	42.0	44.0	6.0
830930	83273	39.0	39.0	15.0
831005	83278	24.0	39.0	6.0
831011	83284	19.0	28.0	6.0
831019	83292	62.0	37.0	6.0
831028	83301	260.0	30.0	6.0
831107	83311	9.2	35.0	6.0
831114	83318	6.0	53.0	6.0
831120	83324	19.0	75.0	6.0
831205	83339	14.0	42.0	8.3
831212	83346	10.0	37.0	14.0
831219	83353	24.0	37.0	19.0

CHLOROFORM (ppb)

CDATE	JDATE	INFL	MIDPT	EFFL
800804	80217			1.0
800811	80224			9.0
800825	80238			10.0
800826	80239			5.0
800829	80242			29.0
800929	80273			6.0
801014	80288			1.0
801020	80294			1.0
801027	80301			7.0
801103	80308			1.0
801110	80315			1.0
801117	80322			1.0
801124	80329		13.0	1.0
801201	80336	4000.0	30.0	1.0
801208	80343			1.0
801215	80350	1100.0		1.0
801217	80352		96.0	1.0
801222	80357		1.0	1.0
801229	80364		1.0	1.0
810105	81005			1.0
810112	81012		1.0	1.0
810114	81014	449.0	3.0	
810119	81019			1.0
810124	81024	10000.0		
810126	81026		2.0	1.0
810129	81029		3.0	
810202	81033	370.0		1.0
810209	81040			1.0
810211	81042	3300.0		
810216	81047		1686.0	1.0
810223	81054		210.0	17.0
810302	81061	300.0	240.0	10.0
810313	81072			48.0
810320	81079		230.0	10.0
810322	81081	1300.0		
810327	81086	200.0	695.0	15.0
810402	81092	730.0	428.0	180.0
810409	81099		500.0	
810410	81100	1419.0	2983.0	113.0
810417	81107		190.0	3.0
810424	81114	340.0	500.0	12.0
810501	81121	1000.0	220.0	10.0
810508	81128	480.0	21.0	22.0
810511	81131	100.0		10.0
810515	81135		10.0	
810522	81142	715.0	10.0	10.0
810602	81153	500.0	22.0	25.0
810605	81156	2600.0	10.0	10.0
810612	81163	1700.0	10.0	10.0
810615	81166	3000.0		11.0
810617	81168		10.0	
810622	81173	3300.0	10.0	10.0

810703	81184	2800.0	3.0	3.0
810710	81191	1600.0	3.0	3.0
810717	81198	3800.0	10.0	3.0
810731	81212	1100.0	3.0	3.0
810805	81217	890.0	30.0	15.0
810814	81226	320.0	10.0	3.0
810821	81233	1400.0		
810828	81240	580.0	34.0	3.0
810918	81261		3.0	3.0
810929	81272		3.0	3.0
811013	81286	2700.0	14.0	3.2
811027	81300		3.0	3.3
811104	81308	360.0	3.0	6.8
811106	81310	1800.0	21.0	6.0
811117	81321	1100.0	3.0	3.0
811124	81328	1300.0		3.0
811201	81335	500.0	3.0	3.0
811208	81342	660.0	3.0	3.0
811211	81345	500.0	3.0	6.3
811221	81355	3900.0	3.0	4.9
811229	81363	2300.0	16.0	9.8
820104	82004	1200.0	3.0	3.0
820105	82005	740.0	14.0	12.0
820112	82012	470.0	150.0	4.7
820119	82019	900.0	160.0	3.0
820121	82021	990.0	270.0	3.0
820201	82032	2500.0	170.0	3.0
820209	82040	2000.0	160.0	3.0
820216	82047	2300.0	25.0	3.0
820223	82054	3600.0	140.0	3.0
820301	82060	2800.0	130.0	3.0
820309	82068	1800.0	70.0	3.0
820316	82075	1200.0	64.0	3.0
820322	82081	1000.0	61.0	3.0
820326	82085	660.0	74.0	3.0
820406	82096	310.0	56.0	3.0
820413	82103	410.0	120.0	3.0
820420	82110	250.0	3.0	3.0
820426	82116	460.0	3.0	880.0 *
820503	82123	890.0	3.0	3.0
820510	82130	1600.0	3.0	3.0
820518	82138	2300.0	3.0	3.0
820521	82141	2300.0	3.0	3.0
820528	82148	1500.0	3.0	3.0
820611	82162	2400.0	3.0	3.0
820618	82169	1600.0	3.0	3.0
820628	82179	2100.0	3.0	3.0
820702	82183	1400.0	3.0	3.0
820712	82193	2000.0	3.0	3.0
820715	82196	1800.0	3.0	3.0
820722	82203	840.0	3.0	3.0
820802	82214	670.0	3.0	3.0
820805	82217	860.0	3.0	3.0
820817	82229	2300.0	3.0	3.0
820824	82236	1300.0	3.0	3.0
820902	82245	1800.0	3.0	3.0

820913	82256	1800.0	3.0	3.0	
820923	82266	1700.0	3.0	3.0	
821001	82274	2100.0	3.0	3.0	
821015	82288	2400.0	3.0	3.0	
821022	82295	2500.0	14.0	3.0	
821105	82309	2400.0	3.0	3.0	
821116	82320	1300.0	8.0	3.0	
821123	82327	1400.0	3.0	3.0	
821130	82334	1300.0	3.0	3.0	
821206	82340	3.0	LT	3.0	
821213	82347	1900.0	3.0	3.0	
821221	82355	2800.0	3.0	3.0	
821228	82362	950.0	3.0	3.0	
830110	83010			3.0	
830114	83014	1900.0	44.0	3.5	
830119	83019	2200.0	20.0	3.0	
830131	83031	1600.0	73.0	3.0	
830207	83038	720.0	100.0	3.0	
830214	83045	1100.0	98.0	3.0	
830217	83048	1300.0	110.0	3.0	
830301	83060	950.0	100.0	3.0	
830308	83067	640.0	180.0	3.0	
830314	83073	800.0	200.0	3.0	
830316	83075	3.0			
830322	83081		390.0	3.0	
830329	83088	760.0	380.0	3.0	
830404	83094	540.0	450.0	3.0	
830407	83097	1100.0	590.0	3.0	
830418	83108	870.0	490.0	3.0	
830425	83115	860.0	540.0	3.0	
830502	83122	PRESENT	PRESENT	0.0	ND
830509	83129	850.0	580.0	3.0	
830516	83136	900.0	710.0	5.1	
830523	83143	1500.0	620.0	3.0	
830607	83158	360.0	200.0	12.0	
830614	83165	2400.0	700.0	3.0	
830624	83175	2000.0	190.0	59.0	
830721	83202	1500.0	3.0	3.0	
830728	83209	1300.0	3.0	3.0	
830804	83216	1800.0	3.0	3.0	
830812	83224	1800.0	5.0	3.0	
830818	83230	2400.0	18.0	3.0	
830823	83235	3100.0	3.0	3.0	
830909	83252	1500.0	3.0	3.0	
830926	83269	1500.0	9.0	3.0	
830930	83273	1200.0	27.0	6.4	
831005	83278	790.0	3.0	3.0	
831011	83284	510.0	3.0	3.0	
831019	83292	750.0	3.0	3.0	
831028	83301	1200.0	44.0	10.0	
831107	83311	240.0	20.0	7.1	
831114	83318	100.0	10.0	3.0	
831120	83324	460.0	48.0	3.0	
831205	83339	510.0	60.0	3.7	
831212	83346	420.0	110.0	3.0	
831219	83353	600.0	150.0	3.0	

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY APRIL 17, 1987

CALENDAR DATE	FLOW GPD	EFFLUENT SOC ppm	EFFLUENT TSS ppm
01/03/84	40580		
01/04/84	51680		
01/05/84	14770		
01/06/84	17030		
01/11/84	40780		
01/19/84	23420		
01/25/84	18430		
01/27/84	28880		
01/31/84	16810		
	252380		
02/07/84	43220	103	17.6
02/14/84	41370		
02/15/84	23410		
02/16/84	10170	41	1.6
02/21/84	22300		
02/24/84	25450	35	1.6
02/27/84	23700		
	189620		
03/01/84	37330	61	11
03/02/84	8860		
03/05/84	32260		
03/08/84	18580	235	120
03/12/84	35630		
03/16/84	33420	235	<2
03/20/84	41790		
03/21/84	26000		
03/22/84	15180		
03/23/84	50400	22	5.4
03/28/84	56500		
03/29/84	40420	62	11
03/30/84	18990		
	415360		
04/04/84	9660		
04/05/84	50640	62	3.8
04/10/84	52760		
04/11/84	22630		
04/12/84	53250		
04/13/84	6490		
04/16/84	54150		
04/17/84	18940	120	2.2
04/18/84	8660		
04/23/84	37460		
04/30/84	33530	160	<2
	348170		

EFFLUENT

CALENDAR DATE	FLOW GPD	SOC ppm	TSS ppm
05/03/84	23530		
05/07/84	29940		
05/08/84	14000		
05/11/84	36180	90	3.2
05/15/84	22200		
05/16/84	17870		
05/18/84	31750	220	14
05/23/84	27690	170	<2
05/25/84	11120		
05/30/84	44680	183	<2
	258960		
06/04/84	35300		
06/08/84	26110	290	2.2
06/15/84	28560	161	2
06/19/84	41720	32	4.2
06/26/84	44930	155	<2.0
	176620		
07/02/84	31980	200	<2
07/05/84	18770		
07/12/84	29200	320	<2
07/20/84	14960	213	<2
07/26/84	34510	195	3.4
07/27/84	9210		
	138630		
08/03/84	17820	204	<2
08/06/84	29340		
08/07/84	8600		
08/08/84	5890		
08/09/84	22300	170	<2
08/10/84	8480		
08/14/84	50030	57	<2
08/15/84	52810		
08/16/84	17700		
08/21/84	28180		
08/23/84	7640		
08/28/84	14350		
08/29/84	12190		
08/31/84	7970	200	20
	283300		
09/05/84	10070		
09/11/84	6580		
09/12/84	7090		
09/13/84	41380		
09/14/84	35530		
09/18/84	12030		
09/25/84	18430		
	131110		
10/03/84	36610	*	5.1
10/04/84	44730		
10/09/84	19840		
10/12/84	21780	220	<2
10/19/84	7200		
10/24/84	18160	240	<2
10/25/84	12700		
10/26/84	35540		
	196560		

* SAMPLES WERE DESTROYED IN A LAB ACCIDENT

1984		INFLUENT		MIDPOINT		EFFLUENT	
CALENDAR DATE	FLOW GPD	SOC ppm	TSS ppm	SOC ppm	TSS ppm	SOC ppm	TSS ppm
11/07/84	8510						
11/08/84	48250					126	2.6
11/09/84	25790						
11/15/84	27120	370		180		225	<2
11/16/84	12940	372		205		183	<2
11/28/84	5030						
11/30/84	34920	380		189		150	<2
	162560						
12/06/84	18360	260		150		135	<2
12/11/84	13880	183				113	<2
12/12/84	20020	330				115	<2
12/13/84	15260	110				100	2.4
12/17/84	27920	270				99	2
12/18/84	6400						
12/27/84	9280	260		540		46	<2
12/28/84	36510	320		130		53	<2
	147630						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION SOLID & HAZARDOUS WASTE
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY

1985			INFLUENT		MIDPOINT		EFFLUENT	
JULIAN DATE	CALENDAR DATE	FLOW GPD	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm
85004	01/04/85	5340						
85014	01/14/85	13590						
85016	01/16/85	59370	150	39	19	<2	4.5	<2
85017	01/17/85	12770	260	62	17	<2	<1	<2
85024	01/24/85	22310	245	121	19	3.5	14	<2
85025	01/25/85	40320	170	112	20	2.4	17	<2
85029	01/29/85	56750	121	120	4.6	11	16	9
85030	01/30/85	28700	187	110	7.6	2.4	15	3
		239150						
85035	02/04/85	59290	134	142	39	9.2	84	15
85037	02/06/85	25070	148	86	85	5.4	59	13
85038	02/07/85	23780	166	76	42	4.6	8.3	3
85046	02/15/85	37700	139	53	6	6.6	6.5	4.8
85051	02/20/85	41790	114	53	6.8	5.4	17	15
85052	02/21/85	27920	110	41	4.6	<2	7.4	3.8
85053	02/22/85	18150	95	83	6.2	2.6	9	7.5
85056	02/25/85	62220	34	3.3	49	8.6	81	62
85057	02/26/85	94000	59	18	28	3.4	24	2.3
85059	02/28/85	61160	83	22	35	19	47	3.8
		451080						
85060	03/01/85	67950	105	18	37	3.2	44	4.6
85063	03/04/85	57830	87	33	2.5	3.2	2.5	3.6
85065	03/06/85	38500	63	40	2.8	2	3	2.1
85067	03/08/85	35680	87	59	4	2.1	3.3	2.9
85071	03/12/85	54540	91	63	3	2.9	5.5	3.6
85073	03/14/85	31200	62	64	2.5	4.9	3.4	2.9
85077	03/18/85	36240	58	61	3.4	4.1	2	<1
85079	03/20/85	24650	97	64	2.8	1.3	2.1	<1
85085	03/26/85	33380	137	76	4	3.3	5.7	3.4
		379970						
85091	04/01/85	54350	78	146	16	3.1	13	2.4
85092	04/02/85	28960	76	86	11	2.5	8.3	<2
85095	04/05/85	31940	82	101	9	<2	6.3	2.1
85101	04/11/85	37000	100	63	11	3.1	8.3	<2
85107	04/17/85	32620	138	47	18	8	*	*
85113	04/23/85	31860	129	42	18	<2	12	<2
		216730						
85122	05/02/85	33470	188	70	37	<2	44	<5
85130	05/10/85	27100	196	97	26	2.2	18	6.8
85136	05/16/85	18750	255	60	109	<2	77	<2
85143	05/23/85	20170	213	59	58	<2	26	2.8
85151	05/31/85	26400	218	77	61	<2	22	11
		125890						

APPENDIX 4

1985			INFLUENT		MIDPOINT		EFFLUENT	
JULIAN DATE	CALENDAR DATE	FLOW GPD	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm
85158	06/07/85	29700	215	58	100	2.2	104	1
85171	06/20/85	35900	245	48	102	2.7	84	9.9
85178	06/27/85	37400	177	83	78	4.6	18	9
		103000						
85188	07/07/85	34920	190	61	130	6.2	66	15
85197	07/16/85	31350	267	450	120	6.8	34	9.1
85205	07/24/85	25220	254	68	104	4	38	22
		91490						
85218	08/06/85	30860	310	83	140	4	88	16
85232	08/20/85	28550	220	125	150	9	92	8.7
85239	08/27/85	1050						
85240	08/28/85	23230	269	53	120	5	39	5.5
		83690						
85248	09/05/85	32400	168	47	109	5.5	51	17
85255	09/12/85	27400	235	108	200	5.2	114	13
85267	09/24/85	32480	353	100	164	9.6	114	10
		92280						
85277	10/04/85	21320	280	69	145	7.6	90	11
	10/10/85	26940	346	65	144	23	75	8.9
85294	10/21/85	50230	160	83	89	7	77	4.8
85301	10/28/85	10530	360	164	72	3	40	<2
		109020						
85308	11/04/85	32000	170	168	50	5	13	10
85312	11/08/85	68900	89	100	4.5	11	8.5	<2
85319	11/15/85	41020	118	111	8.5	20	9	2.6
85322	11/18/85	28700	83	140	30	4	37	2.4
85323	11/19/85	40110	152	85	37	8	38	4.4
85324	11/20/85	57560	83	61	43	8.8	59	6.4
85325	11/21/85	96250	59	137	79	5.6	74	9.6
85326	11/22/85	22650	117	68	53	7.2	58	5.6
85330	11/26/85	22070	140	45	38	3.2	55	15
		411540						
85337	12/03/85	36000	167	166	11	5.4	5.3	17
85338	12/04/85	33370	118	54	13	<2	66	7.4
85339	12/05/85	46920	190	278	19	<2	60	9.2
85340	12/06/85	4980						
85343	12/09/85	21990	142	156	12	2.4	11	14
85344	12/10/85	3060						
85345	12/11/85	28810	170	266	20	<2	44	10
85346	12/12/85	7130						
85347	12/13/85	32300	84	149	15	<2	6	<2
85351	12/17/85	110						
85352	12/18/85	6260						
85353	12/19/85	29330	210	214	62	3	55	10
85358	12/24/85	39100	162	296	37	4.8	32	3
85365	12/31/85	41060	134	234	62	3.8	52	2.1
		330420						

APPENDIX. 4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION SOLID & HAZARDOUS WASTE
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY

1986			INFLUENT		MIDPOINT		EFFLUENT	
JULIAN DATE	CALENDAR DATE	FLOW GPD	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm
86008	01/08/86	28200	215	128	14	4.4	60	2.8
86014	01/14/86	51300	230	118	76	4.1	14	<2
86016	01/16/86	18900	245	116	15	5.8	20	<2
86021	01/21/86	52850	110	185	11	2.2	30	<2
86022	01/22/86	56000	110	222	9.5	<2	1.5	<2
86024	01/24/86	30180	117	248	38	<2	18	<2
86029	01/29/86	29650	165	238	28	3	30	<2
		267080						
86036	02/05/86	30580	146	261	47	3	69	<2
86038	02/07/86	35700	95	188	31	<2	37	<2
86050	02/19/86	40410	173	268	27	5.6	24	<2
86056	02/25/86	48630	118	191	91	6.4	30	<2
		155320						
86064	03/05/86	37450	300	196	85	3.4	99	<2
86071	03/12/86	25060	106	168	78	2	97	<2
86073	03/14/86	46000	72	199	52	2.8	80	2.4
86078	03/19/86	60870	83	142	42	4	20	<2
86080	03/21/86	27170	92	205	22	2.1	12	16
86085	03/26/86	44910	80	207	26	<2	22	<2
86090	03/31/86	41990	173	179	26	3.2	27	<2
		283450						
86097	04/07/86	32190	213	250	57	<2	46	<2
86100	04/10/86	33210	110	239	18	<2	46	<2
86104	04/14/86	4980						
86105	04/15/86	32640	81	193	36	<2	29	3
86108	04/18/86	23670	86	120	40	<2	21	2.6
86111	04/21/86	30530	95	590	22	5.2	38	4.4
86113	04/23/86	41990	110	202	40	<2	48	2.6
86115	04/25/86	43640	89	170	28	<2	31	2.1
86116	04/26/86	17790	86	216	24	<2	29	2.7
86117	04/27/86	37170	75	260	21	<2	36	4.8
86118	04/28/86	17200	79	225	56	3.1	17	<2
86120	04/30/86	39400	125	299	31	8.6	20	2
		354410						
86122	05/02/86	20450	83	162	21	2	31	6
86126	05/06/86	54650	22	146	7	2.2	55	<2
86127	05/07/86	13380	92	134	43	3	41	<2
86128	05/08/86	29880	104	295	22	4.6	18	<2
86129	05/09/86	23480	66	121	37	<2	18	3
86134	05/14/86	39810	81	189	6	<2	4	<2
86141	05/21/86	65100	139	178	59	2.4	78	2.4
86142	05/22/86	43000	97	114	78	<2	73	<2
86147	05/27/86	44100	44	180	3	2.7	12	<2
86148	05/28/86	14860	43	121	8.5	2.8	12	2.8
86150	05/30/86	58500	58	118	14	<2	13	<2
		407210						

86153	06/02/86	15980	50	96	19	<2	17	<2
86155	06/04/86	22800	101	115	8.5	<2	18	2.9
86157	06/06/86	60510	36	108	9	3.2	34	<2
86160	06/09/86	53830	38	186	4	<2	23	<2
86162	06/11/86	24920	22	105	27	<2	20	<2
86163	06/12/86	57390	58	93	12	<2	9.5	<2
86164	06/13/86	41280	20	150	7.5	2.3	32	<2
86167	06/16/86	14700	47	215	26	2.8	26	4.4
86168	06/17/86	53930	106	133	67	4.6	13	2
86170	06/19/86	32080	77	235	27	<2	30	3.4
86171	06/20/86	32880	70	172	23	4.8	25	<2
86174	06/23/86	19080	63	70	11	3.6	6	<2
86175	06/24/86	16330	34	72	31	<2	27	<2
86176	06/25/86	53850	35	63	12	<2	6	<2
86178	06/27/86	62800	74	75	9	6.4	5	<2
		562360						
86182	07/01/86	45800	44	119	44	20	16	3.5
86184	07/03/86	44840	62	112	51	20	16	2.9
86189	07/08/86	40650	78	79	43	7	31	2.4
86191	07/10/86	35740	73	131	36	12	13	<2
86195	07/14/86	60860	73	92	34	16	37	<2
86196	07/15/86	45680	174	292	70	46	34	<2
86198	07/17/86	30540	47	89	10	46	38	<2
86199	07/18/86	56250	100	107	9.5	32	4.5	<2
86202	07/21/86	5650	44	81	33	22	36	<2
86203	07/22/86	40000	38	90	70	11	30	<2
86205	07/24/86	44550	51	53	39	46	30	<2
86209	07/28/86	38600	48	64	56	55	28	2.5
86210	07/29/86	43420	134	112	26	20	65	<2
86211	07/30/86	62050	182	84	22	110	41	<2
86212	07/31/86	29290	86	76	38	67	41	<2
		623920						
86216	08/04/86	39500	63	60	25	33	36	2.3
86217	08/05/86	26000	66	136	29	59	32	<2
86218	08/06/86	1860	-	-	-	-	-	-
86219	08/07/86	28740	40	100	45	10	46	2
86220	08/08/86	48070	58	43	25	41	20	<2
86224	08/12/86	36290	125	104	58	18	17	<2
86226	08/14/86	450	NS	NS	NS	NS	NS	NS
86227	08/15/86	18060	86	91	31	14	18	<2
86231	08/19/86	24710	124	223	46	<2	33	4
86233	08/21/86	37960	88	149	7	<2	7.5	<2
86240	08/28/86	28600	103	85	4.5	3.4	13	2
		290240						
86247	09/04/86	33340	140	232	9	<2	30	3.3
86255	09/12/86	28100	150	99	42	<2	32	4.5
86259	09/16/86	1550						
86261	09/18/86	3350						
86262	09/19/86	21360	169	56	52	<2	20	2.4
86269	09/26/86	39620	170	81	6	<2	10	6.5
		127320						

86274	10/01/86	20660	96	121	39	<2	65	13
86279	10/06/86	50900	106	167	30	<2	8.5	<2
86281	10/08/86	41280	89	37	10	<2	7	<2
86288	10/14/86	55700	133	103	15	2.1	40	<2
86289	10/15/86	46000	160	157	38	3	43	<2
86296	10/23/86	35010	62	276	3	2	7	<2
86297	10/24/86	26500	97	162	3	<2	11	<2
86303	10/30/86	32110	142	96	31	<2	29	<2
		308160						
86309	11/05/86	28800	144	94	16	<2	26	<2
86317	11/13/86	43170	168	70	12	<2	22	<2
86322	11/18/86	31050	136	118	20	3.4	14	<2
86328	11/24/86	21730	143	101	48	<2	48	4.7
86330	11/26/86	40600	148	266	55	<2	36	2.2
		165350						
86335	12/01/86	67400	98	102	44	<2	40	<2
86337	12/03/86	46490	88	129	26	<2	36	<2
86339	12/05/86	36950	86	133	41	<2	20	<2
86343	12/09/86	31100	95	130	48	2.4	40	<2
86344	12/10/86	38270	93	78	16	4.6	18	10
86352	12/18/86	56620	152	104	48	<2	43	<2
86353	12/19/86	36350	158	114	52	<2	52	<2
86358	12/24/86	25020	160	152	49	6	59	<2
86364	12/30/86	50250	154	63	40	<2	57	<2
		388450						

APPENDIX 4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY VOLATILES 1987

WEEK ENDING	ETHYLBENZENE INFL ppb	ETHYLBENZENE MDPT ppb	ETHYLBENZENE EFFL ppb	METHYLENE CHLORIDE INFL ppb	METHYLENE CHLORIDE MDPT ppb	METHYLENE CHLORIDE EFFL ppb	1,1,2,2-TETRACHLOROETHA INFL ppb	1,1,2,2-TETRACHLOROETHA MDPT ppb	1,1,2,2-TETRACHLOROETHA EFFL ppb	TETRACHLOROETHYLENE INFL ppb	TETRACHLOROETHYLENE MDPT ppb	TETRACHLOROETHYLENE EFFL ppb	TOLUENE INFL ppb	TOLUENE MDPT ppb	TOLUENE EFFL ppb
01/06/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1600	<6.9	<6.9	880	<4.1	<4.1	14000	<6.0	<6.0
01/12/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1200	<6.9	<6.9	770	<4.1	<4.1	18000	<6.0	<6.0
01/22/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2400	<6.9	<6.9	1000	<4.1	<4.1	32000	<6.0	<6.0
01/30/87	<360	<7.2	<7.2	<140	<2.8	<2.8	2200	<6.9	<6.9	1700	<4.1	<4.1	28000	<6.0	<6.0
02/06/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1900	<6.9	<6.9	1800	<4.1	<4.1	34000	<6.0	<6.0
02/13/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1400	<6.9	<6.9	1000	<4.1	<4.1	24000	<6.0	<6.0
02/20/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1600	<6.9	<6.9	920	<4.1	<4.1	16000	<6.0	<6.0
02/27/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2200	<6.9	<6.9	1400	<4.1	<4.1	27000	<6.0	<6.0
03/04/87															
03/11/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2000	<6.9	<6.9	1900	<4.1	<4.1	20000	<6.0	<6.0
03/20/87	<720	<72	<7.2	<280	<28	<2.8	2400	<69	<6.9	2400	<41	<4.1	37000	<60	<6.0
03/26/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1800	<6.9	<6.9	2100	14	<4.1	25000	44	<6.0
03/31/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1600	<6.9	<6.9	1700	5.3	<4.1	22000	21	<6.0
04/08/87	<720	<7.2	<7.2	920	4.6	<2.8	880	<6.9	<6.9	1800	<4.1	<4.1	26000	20	<6.0
04/13/87	<720	<7.2	<7.2	<280	<2.8	<2.8	840	<6.9	<6.9	680	<4.1	<4.1	18000	24	<6.0
04/22/87	<720	<7.2	<7.2	<280	3	<2.8	1600	<6.9	<6.9	1000	<4.1	<4.1	25000	23	<6.0
04/30/87	<720	<7.2	<7.2	<56	<2.8	<2.8	1200	<6.9	<6.9	920	<4.1	<4.1	22000	35	<6.0
05/07/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1500	<6.9	<6.9	730	<4.1	<4.1	20000	53	<6.0
05/15/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2000	8	<6.9	1100	8.4	<4.1	26000	81	<6.0
05/22/87	<720	<7.2	<7.2	340	3.6	<2.8	1700	<6.9	<6.9	1400	<4.1	<4.1	20000	21	<6.0
06/01/87	<720	<7.2	<7.2	<280	<2.8	<2.8	3300	<6.9	<6.9	1900	<4.1	<4.1	25000	20	<6.0
06/12/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2600	10	<6.9	1300	19	<4.1	33000	140	<6.0
06/19/87	QUARTERLY		<7.2			<2.8			<6.9			<4.1			<6.0
07/02/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2300	17	<6.9	1700	18	<4.1	27000	140	<6.0
07/22/87	<720	<7.2	<7.2	<280	<2.8	<2.8	1400	<6.9	<6.9	1000	5.2	<4.1	25000	51	<6.0
08/10/87	<720	<7.2	<7.2	<280	<2.8	<2.8	2400	20	<6.9	1200	11	<4.1	28000	110	<6.0
09/08/87	QUARTERLY		<7.2			<2.8			<6.9			<4.1			<6.0
10/06/87	<720	<7.2	<7.2	760	14	<2.8	1100	28	<6.9	790	16	<4.1	17000	430	<6.0
10/26/87	<720	<7.2	<7.2	<280	11	<2.8	1800	43	<6.9	930	17	<4.1	30000	690	<6.0
11/13/87	<720	<36	<7.2	<280	<14	<2.8	1400	81	<6.9	760	58	<4.1	40000	2500	<6.0
12/16/87	QUARTERLY		<7.2			<2.8			<6.9			<4.1			14
12/29/87	<720	<7.2	<7.2	<280	9.6	<2.8	1200	<6.9	<6.9	730	<4.1	<4.1	18000	<6.0	7.1

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY VOLATILES 1987

WEEK ENDING	BENZENE INFL ppb	BENZENE MDPT ppb	BENZENE EFFL ppb	CARBON TETRACHLORIDE INFL ppb	CARBON TETRACHLORIDE MDPT ppb	CARBON TETRACHLORIDE EFFL ppb	CHLOROBENZENE INFL ppb	CHLOROBENZENE MDPT ppb	CHLOROBENZENE EFFL ppb	CHLOROFORM INFL ppb	CHLOROFORM MDPT ppb	CHLOROFORM EFFL ppb	TRANS-1,2 DICHLOROETHYLENE INFL ppb	TRANS-1,2 DICHLOROETHYLENE MDPT ppb	TRANS-1,2 DICHLOROETHYLENE EFFL ppb
01/06/87	2100	<4.4	<4.4	<280	<2.8	<2.8	3300	<6.0	<6.0	730	<1.6	<1.6	<160	<1.6	<1.6
01/12/87	2100	<4.4	<4.4	<280	<2.8	<2.8	3500	<6.0	<6.0	680	<1.6	<1.6	<160	<1.6	<1.6
01/22/87	7800	<4.4	<4.4	11000	<2.8	<2.8	5000	<6.0	<6.0	2400	<1.6	<1.6	260	<1.6	<1.6
01/30/87	4600	<4.4	<4.4	5000	<2.8	<2.8	6700	<6.0	<6.0	1100	<1.6	<1.6	250	<1.6	<1.6
02/06/87	4200	<4.4	<4.4	4900	<2.8	<2.8	6500	<6.0	<6.0	1100	<1.6	<1.6	<160	<1.6	<1.6
02/13/87	2400	<4.4	<4.4	<280	<2.8	<2.8	4500	<6.0	<6.0	750	<1.6	<1.6	<160	<1.6	<1.6
02/20/87	1600	<4.4	<4.4	<280	<2.8	<2.8	3800	<6.0	<6.0	860	<1.6	<1.6	<160	<1.6	<1.6
02/27/87	2800	<4.4	<4.4	3400	<2.8	<2.8	6200	<6.0	<6.0	1300	<1.6	<1.6	<160	<1.6	<1.6
03/04/87															
03/11/87	2100	<4.4	<4.4	420	<2.8	<2.8	5400	<6.0	<6.0	1100	<1.6	<1.6	<160	<1.6	<1.6
03/20/87	3700	<44	<4.4	370	<28	<2.8	7000	<60	<6.0	1300	<16	<1.6	<160	<16	<1.6
03/26/87	3300	4.6	<4.4	<280	<2.8	<2.8	<6800	14	<6.0	1100	9.7	<1.6	<160	<1.6	<1.6
03/31/87	2700	4.7	<4.4	<280	<2.8	<2.8	5500	<6.0	<6.0	1100	<1.6	<1.6	<160	<1.6	<1.6
04/08/87	2900	5.2	<4.4	<280	<2.8	<2.8	4500	<6.0	<6.0	400	10	<1.6	<160	<1.6	<1.6
04/13/87	1400	5.8	<4.4	<280	<2.8	<2.8	2800	<6.0	<6.0	<460	<11	<1.6	<160	<1.6	<1.6
04/22/87	8700	31	<4.4	<280	<2.8	<2.8	4100	<6.0	<6.0	900	12	<1.6	<160	<1.6	<1.6
04/30/87	1600	9.6	<4.4	1300	<2.8	<2.8	4200	7.6	<6.0	500	17	<1.6	96	<1.6	<1.6
05/07/87	1800	15	<4.4	<280	<2.8	<2.8	3800	9.4	<6.0	600	17	<1.6	<160	1.9	<1.6
05/15/87	2300	17	<4.4	2600	<2.8	<2.8	4200	16	<6.0	800	18	<1.6	<160	3	<1.6
05/22/87	2100	9.8	<4.4	2900	<2.8	<2.8	5500	<6.0	<6.0	1200	18	<1.6	<160	<1.6	<1.6
06/01/87	2500	13	<4.4	520	<2.8	<2.8	5500	<6.0	<6.0	1200	19	<1.6	<160	1.8	<1.6
06/12/87	3100	20	<4.4	<280	<2.8	<2.8	5600	29	<6.0	960	17	<1.6	<160	2.8	<1.6
06/19/87	QUARTERLY		<4.4			<2.8			<6.0			<1.6			<1.6
07/02/87	2000	40	<4.4	380	<2.8	<2.8	5900	31	<6.0	760	41	<1.6	<160	7	<1.6
07/22/87	2000	23	<4.4	<280	<2.8	<2.8	4600	10	<6.0	600	17	<1.6	<160	8	<1.6
08/10/87	2400	47	<4.4	<280	<2.8	<2.8	4200	20	<6.0	560	23	<1.6	<160	19	<1.6
09/08/87	QUARTERLY		<4.4			<2.8			<6.0			<1.6			<1.6
10/06/87	1800	190	<4.4	110	<2.8	<2.8	2700	54	<6.0	550	52	<1.6	230	180	<1.6
10/26/87	<440	270	<4.4	<280	<2.8	<2.8	4100	75	<6.0	690	57	<1.6	250	350	<1.6
11/13/87	2000	350	<4.4	<280	<14	<2.8	3500	160	<6.0	630	98	<1.6	192	320	<1.6
12/16/87	QUARTERLY		<4.4			<2.8			<6.0			<1.6			2.4
12/29/87	1900	<4.4	<4.4	<280	<2.8	<2.8	3400	<6.0	<6.0	520	<1.6	<1.6	<160	<1.6	<1.6

APPENDIX 4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY VOLATILES 1987

WEEK	TRICHLOROETHYLENE			1,1,2-TRICHLOROETHANE		
ENDING	INFL ppb	MDPT ppb	EFF ppb	INFL ppb	MDPT ppb	EFF ppb
01/06/87	570	<1.9	<1.9	<500	<5.0	<5.0
01/12/87	400	5.8	<1.9	<500	<5.0	<5.0
01/22/87	1500	<1.9	<1.9	<500	<5.0	<5.0
01/30/87	1000	<1.9	<1.9	<500	<5.0	<5.0
02/06/87	1100	<1.9	<1.9	<500	<5.0	<5.0
02/13/87	660	<1.9	<1.9	<500	<5.0	<5.0
02/20/87	520	<1.9	<1.9	<500	<5.0	<5.0
02/27/87	870	<1.9	<1.9	<500	<5.0	<5.0
03/04/87						
03/11/87	680	<1.9	<1.9	<500	<5.0	<5.0
03/20/87	1200	<19	<1.9	<500	<5.0	<5.0
03/26/87	1100	<1.9	<1.9	<500	<5.0	<5.0
03/31/87	920	<1.9	<1.9	<500	<5.0	<5.0
04/08/87	960	<1.9	<1.9	<500	<5.0	<5.0
04/13/87	380	<1.9	<1.9	<500	<5.0	<5.0
04/22/87	620	<1.9	<1.9	<500	<5.0	<5.0
04/30/87	550	<1.9	<1.9	<500	<5.0	<5.0
05/07/87	450	<1.9	<1.9	<500	<5.0	<5.0
05/15/87	580	<1.9	<1.9	<500	<5.0	<5.0
05/22/87	800	<1.9	<1.9	<500	<5.0	<5.0
06/01/87	800	<1.9	<1.9	<500	<5.0	<5.0
06/12/87	780	<1.9	<1.9	<500	<5.0	<5.0
06/19/87	QUARTERLY		<1.9			<5.0
07/02/87	740	4.6	<1.9	<500	<5.0	<5.0
07/22/87	540	<1.9	<1.9	<500	<5.0	<5.0
08/10/87	580	3.4	<1.9	<500	<5.0	<5.0
09/08/87	QUARTERLY		<1.9			<5.0
10/06/87	430	14	<1.9	<500	<5.0	<5.0
10/26/87	540	17	<1.9	<500	<5.0	<5.0
11/13/87	520	36	<1.9	<500	<5.0	<5.0
12/16/87	QUARTERLY		<1.9			<5.0
12/11/87	CARBON IN THE LEAD BED WAS CHANGED					
12/29/87	450	<1.9	<1.9	<500	<5.0	<5.0

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION
LOVE CANAL LEACHATE TREATMENT FACILITY

ACETONE, MEK, MIBK 1987

SAMPLE DATE	ACETONE FILT ppb	ACETONE MDPT ppb	ACETONE EFFL ppb	2-BUTANONE (MEK) FILT ppb	2-BUTANONE (MEK) MDPT ppb	2-BUTANONE (MEK) EFFL ppb	(MIBK) 4-METHYL-2-PENTANONE FILT ppb	(MIBK) 4-METHYL-2-PENTANONE MDPT ppb	(MIBK) 4-METHYL-2-PENTANONE EFFL ppb
01/06/87	<1000	3400	<10	<1000	<10	<10	<1000	<10	<10
01/12/87	<1000	3900	76	<1000	<10	<10	<1000	<10	<10
01/22/87	<1000	3600	24	<1000	<10	<10	<1000	<10	<10
01/30/87	26000	3800	25	<500	<10	<10	<500	<10	<10
02/06/87	2600	7000	57	<1000	29	<10	<1000	<10	<10
02/13/87	<1000	5600	61	<1000	31	13	<1000	<10	<10
02/20/87	1200	4800	41	<1000	<10	<10	<1000	<10	<10
02/27/87	<1000	6200	41	<1000	31	<10	<1000	<10	<10
03/11/87	<1000	1100	24	<1000	31	<10	<1000	<10	<10
03/20/87	<1000	1900	<10	<1000	200	<10	<1000	<100	<10
03/26/87	<1000	2700	100	<1000	77	<10	<1000	<10	<10
03/31/87	<1000	3000	94	1600	80	11	<1000	<10	<10
04/08/87	<1000	470	120	<1000	18	<10	<1000	<10	<10
04/13/87	<1000	450	47	<1000	58	<10	<1000	<10	<10
04/22/87	<1000	2400	<10	<1000	160	<10	<1000	<10	<10
04/30/87	<200	1400	300	<200	150	<10	<200	<10	<10
05/07/87	<1000	1100	310	<1000	150	<10	<1000	<10	<10
05/15/87	<1000	660	290	<1000	170	<10	<1000	<10	<10
05/22/87	<1000	1400	260	<1000	230	<10	<1000	<10	<10
06/01/87	<1000	1100	410	<1000	240	<10	<1000	<10	<10
06/12/87	<1000	1200	730	<1000	240	<10	<1000	<10	<10
07/02/87	<1000	480	660	<1000	190	<10	<1000	<10	<10
07/22/87	<1000	490	1100	<1000	180	<10	<1000	<10	<10
08/10/87	1400	310	840	3800	260	<10	<1000	<10	<10
10/06/87	<1000	76	140	<1000	160	<10	<1000	<10	<10
10/26/87	<1000	330	97	<1000	150	<10	<1000	<10	<10
11/13/87	<1000	86	23	<1000	<50	<10	<1000	<50	<10
12/11/88	CARBON IN THE LEAD BED WAS CHANGED								
12/29/87	<1000	<10	<10	<1000	<10	<10	<1000	<10	<10
01/22/88	<1000	<10	<10	<1000	<10	<10	<1000	<10	<10
02/19/88	<1000	<10	<10	<1000	<10	<10	<1000	<10	<10
03/18/88	<10	RAW SAMPLING		<10			<10		
04/11/88	<100	<10	<10	<100	<10	<10	<100	<10	<10
05/11/88	39	<10	<10	<10	<10	<10	770	<10	<10

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY   ACID EXTRACTIBLES 1987

WEEK ENDING	2,4,6-TRICHLOROPHENOL			2,4,5-TRICHLOROPHENOL			2,4-DICHLOROPHENOL			PHENOL			HEXACHLOROBENZENE		
	INFL ppb	MDPT ppb	EFFL ppb	INFL ppb	MDPT ppb	EFFL ppb	INFL ppb	MDPT ppb	EFFL ppb	INFL ppb	MDPT ppb	EFFL ppb	INFL ppb	MDPT ppb	EFFL ppb
07/10/87	200	<10	<10	1800	<50	<50	1200	<10	<10	82	<10	<10	89	4	<10
07/10/87	<140	<27	<2.7	5300	<500	<50	<140	<27	<2.7	<75	<15	<1.5	<95	<19	<1.9
07/30/87	<270	<2.7	<2.7	<5000	<50	<50	2400	<2.7	<2.7	<150	8	<1.5	<190	<1.9	<1.9
08/21/87	34	<27	<2.7	1500	<500	<50	1700	<27	<2.7	140	<15	<1.5	31	<19	<1.9
09/08/87	QUARTERLY		<2.7			NO DATA			<2.7			<1.5			<1.9
09/29/87	5.5	<2.7	<2.7	1100	<50	<50	710	18	<2.7	<1.5	28	<1.5	7.8	5.8	<1.9
10/21/87	<27	<2.7	<2.7	1700	17	<50	1000	24	<2.7	90	37	<1.5	28	<1.9	<1.9
11/05/87	1500	41	<2.7	<500	<50	<50	410	26	<2.7	22	22	<1.5	<19	4.1	<1.9
12/08/87	920	25	<2.7	<500	<50	<50	570	31	<2.7	56	34	<1.5	<19	2.6	<1.9
12/16/87	QUARTERLY		<2.7			NO DATA			<2.7			<1.5			<1.9

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY   BASE NEUTRALS 1987

WEEK	1,2,4-TRICHLOROBENZENE			2-CHLORONAPTHALENE			1,2-DICHLOROBENZENE			1,3-DICHLOROBENZENE			1,4-DICHLOROBENZENE		
ENDING	INFL	MDPT	EFFL	INFL	MDPT	EFFL	INFL	MDPT	EFFL	INFL	MDPT	EFFL	INFL	MDPT	EFFL
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
07/10/87	2900	82	<10	<50	<10	<10	510	4	<10	41	<10	<10	620	5	<10
07/10/87	1600	98	<1.9	<95	<19	<1.9	310	<19	<1.9	<95	<19	<1.9	340	<44	<4.4
07/30/87	2400	33	<1.9	<190	<1.9	<1.9	460	<1.9	<1.9	<190	<1.9	<1.9	630	<4.4	<4.4
08/21/87	2400	43	<1.9	<19	<19	<1.9	620	<19	<1.9	66	<19	<1.9	750	<44	<4.4
09/08/87	QUARTERLY		<1.9			<1.9			<1.9			<1.9			<4.4
09/29/87	1500	430	<1.9	<1.9	<1.9	<1.9	350	8.9	<1.9	20	<1.9	<1.9	450	11	<4.4
10/21/87	1900	100	<1.9	<19	1.9	<1.9	430	6.7	<1.9	25	<1.9	<1.9	570	9.6	<4.4
11/05/87	2300	380	<1.9	<19	7.6	<1.9	370	18	<1.9	<19	<1.9	<1.9	540	25	<4.4
12/08/87	1300	100	<1.9	23	3.6	<1.9	260	7.6	<1.9	<19	<1.9	<1.9	270	9.9	<4.4
12/16/87	QUARTERLY		<1.9			<1.9			<1.9			<1.9			<4.4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY PESTICIDES 1987

WEEK	BHC ALPHA			BHC BETA			BHC DELTA			BHC GAMMA			ALDRIN		
ENDING	INFL	MDPT	EFFL	INFL	MDPT	EFFL	INFL	MDPT	EFFL	INFL	MDPT	EFFL	INFL	MDPT	EFFL
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
06/26/87	1400	35	0.11	75	1.7	0.12	2100	41	0.37	1100	29	0.12	100	2.1	<0.08
07/17/87	560	24	0.028	63	2.3	0.048	1300	34	0.16	570	24	0.052	55	2.7	0.014
08/04/87	450	69	0.094	56	18	0.17	1300	92	0.42	430	60	0.11	59	15	<0.02
08/28/87	310	6.8	0.072	47	<0.9	0.039	960	14	0.27	370	6.2	0.097	29	<0.9	0.021
09/15/87	370	23	0.062	50	1	0.049	1100	35	0.25	390	23	0.076	<30	<0.9	<0.01
10/15/87	1300	42	0.057	83	5.2	0.057	2500	61	0.22	1200	39	0.063	130	4.9	0.034
11/02/87	1300	170	0.21	62	60	0.11	1900	170	0.71	1000	130	0.19	110	12	0.08
12/03/87	470	23	0.088	170	2.7	<0.005	1100	44	0.32	520	26	<0.005	<20	<0.2	<0.005
12/11/87	CARBON IN THE LEAD BED WAS CHANGED														
12/22/87	330	0.28	0.047	34	0.059	0.041	260	0.48	0.27	340	0.15	0.038	53	<0.01	0.028

APPENDIX 4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
BUREAU OF WESTERN REMEDIAL ACTION
SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY

1987			INFLUENT		MIDPOINT		EFFLUENT	
JULIAN DATE	CALENDAR DATE	FLOW GPD	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm	SOC(A) ppm	TSS(NA) ppm
87006	01/06/87	36250	113	48	51	<2	37	<2
87012	01/12/87	33650	92	154	37	<2	35	<2
87016	01/16/87	41860	124	64	46	<2	60	2.8
87022	01/22/87	39100	120	218	11	3.5	40	2.5
87030	01/30/87	30550	176	122	68	4.9	95	8
		181410						
87037	02/06/87	23570	130	62	69	<2	31	2.4
87044	02/13/87	26130	125	52	89	<2	81	<2
87051	02/20/87	26380	122	73	25	<2	38	7.6
87058	02/27/87	22700	125	72	24	6.5	25	<2
		98780						
87063	03/04/87	42990	97	62	38	<2	13	<2
87070	03/11/87	42780	100	36	36	2.3	15	15
87072	03/13/87	39350	101	53	13	<2	13	12
87079	03/20/87	55850	83	121	22	6.6	17	8.5
87085	03/26/87	44630	101	72	26	4.6	14	<2
87090	03/31/87	47940	104	46	33	3.3	35	<2
		273540						
87093	04/03/87	52340	69	36	24	5.5	26	7.1
87098	04/08/87	55860	40	41	26	5.1	18	5.9
87103	04/13/87	47800	67	49	16	2.5	7.2	2
87106	04/16/87	54790	82	22	22	21	15	2
87112	04/22/87	53080	130	35	38	5.9	53	3.6
87114	04/24/87	32010	59	30	26	5.4	7	5.5
87119	04/29/87	840						
87120	04/30/87	30330	76	47	51	3.8	35	6.8
		327050						
87127	05/07/87	29250	120	36	28	5.9	24	8.9
87135	05/15/87	30600	105	58	45	7.3	52	2.1
87142	05/22/87	34000	100	30	21	16	17	17
		93850						
87152	06/01/87	38950	94	29	31	2.1	19	<2
87163	06/12/87	48930	156	63	72	5.3	39	<2
87170	06/19/87	31000	265	34	180	4.5	142	<2
87177	06/26/87	55320	88	55	57	<2	50	<2
		174200						
87183	07/02/87	38960	66	19	49	6	27	16
87191	07/10/87	37980	110	40	55	5.4	60	7
87198	07/17/87	38640	86	44	45	4	40	2.8
87203	07/22/87	49990	75	45	41	5	40	<2
87211	07/30/87	44100	93	29	41	8.3	34	<2
		209670						
87216	08/04/87	59950	80	57	44	5.5	31	<2
87222	08/10/87	65440	115	49	100	4.8	66	<1
87225	08/13/87	32210	150	48	88	6.6	81	<1
87233	08/21/87	39100	66	30	32	4.4	27	<2
87240	08/28/87	33900	80	39	46	5	53	7.5

87251	09/08/87	38270	80	30	35	9.8	21	3.5
87254	09/11/87	4700						
87258	09/15/87	56570	75	55	38	3.8	31	2.7
87261	09/18/87	47990	59	53	29	8.2	12	3.1
87268	09/25/87	52120	57	39	32	5	24	0.75
87272	09/29/87	38160	48	44	28	7.6	32	0.82
		237810						
87279	10/06/87	48300	80	62	24	7.6	11	<2
87281	10/08/87	36770	83	37	32	2.2	17	<2
87288	10/15/87	40300	97	71	52	4.6	45	5.4
87294	10/21/87	45740	110	40	58	3.6	54	<2
87299	10/26/87	45270	91	82	47	17	11	2.1
87302	10/29/87	55260	52	98	26	9.5	6.7	<2
		271640						
87306	11/02/87	46610	29	70	32	13	11	<2
87309	11/05/87	29320	55	71	37	11	35	<2
87316	11/12/87	2800						
87317	11/13/87	44270	97	100	58	20	28	<2
87324	11/20/87	22900	140	67	27	21	8	<2
87329	11/25/87	27650	130	41	52	19	14	18
87334	11/30/87	1770						
		175320						
87337	12/03/87	10600	110	34	82	28	61	4
87342	12/08/87	35270	64	30	52	8.1	21	<2
87343	12/09/87	41110	90	44	41	3.8	21	<2
87344	12/10/87	60200	67	43	45	6.2	19	<2
87345	12/11/87	59840	77	220	32	7.3	6.5	<2
87350	12/16/87	65960	210	120	26	3.3	7.9	6.4
87351	12/17/87	68000	60	94	16	<2	18	3
87352	12/18/87	31100	70	86	7.1	2.8	4	2.6
87356	12/22/87	65020	58	90	6	3.6	1.8	1.5
87357	12/23/87	28590	67	120	2.7	<2	1	7.5
87363	12/29/87	50700	96	92	42	2.3	75	4.9
87364	12/30/87	26980	110	120	9.3	<2	11	4.6
		543370						

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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LOVE CANAL LEACHATE TREATMENT FACILITY VOLATILES 1988

WEEK	TRICHLOROETHYLENE			1,1,2-TRICHLOROETHANE			ACETONE		
ENDING	FILT ppb	MDPT ppb	EFF ppb	FILT ppb	MDPT ppb	EFF ppb	FILT ppb	MDPT ppb	EFF ppb
01/22/88	420	<1.9	<1.9	<500	<5.0	<5.0	<1000	<10	<10
02/19/88	460	<1.9	<1.9	<500	<5.0	<5.0	<1000	<10	<10
03/18/88	QUARTERLY		<1.9			<5.0	NO ANALYSIS DONE		
03/18/88	520	RAW SAMPLING		25			<10		
04/11/88	380	<1.9	<1.9	<50	<5.0	<5.0	<100	<10	<10
05/11/88	470	<1.9	<1.9	<5.0	<5.0	<5.0	39	<10	<10
06/24/88	750	<1.9	<1.9	<500	<5.0	<5.0	<1000	<10	<10
06/29/88	CARBON IN THE LEAD BED WAS CHANGED								
07/20/88	750	<1.9	<1.9	<500	<5.0	<5.0	4800	<10	<10
07/28/88	QUARTERLY		<1.9			<5.0			NO DATA

WEEK	MEK 2-BUTANONE			MIBK 4-METHYL-2-PENTANONE		
ENDING	FILT ppb	MDPT ppb	EFF ppb	FILT ppb	MDPT ppb	EFF ppb
01/22/88	<1000	<10	<10	<1000	<10	<10
02/19/88	<1000	<10	<10	<1000	<10	<10
03/18/88	NO ANALYSIS DONE			NO ANALYSIS DONE		
03/18/88	<10	RAW SAMPLING		<10		
04/11/88	<100	<10	<10	<100	<10	<10
05/11/88	<10	<10	<10	770	<10	<10
06/24/88	<1000	<10	<10	<1000	<10	<10
06/29/88	CARBON IN THE LEAD BED WAS CHANGED					
07/20/88	<1000	<10	<10	<1000	<10	<10
07/28/88	QUARTERLY		NO DATA			NO DATA

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LOVE CANAL LEACHATE TREATMENT FACILITY VOLATILES 1988

WEEK ENDING	ETHYLBENZENE FILT ppb	ETHYLBENZENE MDPT ppb	ETHYLBENZENE EFFL ppb	METHYLENE CHLORIDE FILT ppb	METHYLENE CHLORIDE MDPT ppb	METHYLENE CHLORIDE EFFL ppb	1,1,2,2-TETRACHLOROETHAN FILT ppb	1,1,2,2-TETRACHLOROETHAN MDPT ppb	1,1,2,2-TETRACHLOROETHAN EFFL ppb
01/22/88	<720	<7.2	<7.2	<280	<2.8	<2.8	950	<6.9	<6.9
02/19/88	<720	<7.2	<7.2	<280	<2.8	<2.8	1400	<6.9	<6.9
03/18/88	QUARTERLY		<7.2			<2.8			<6.9
03/18/88	59	RAW SAMPLING		21			1400		
04/11/88	<72	<7.2	<7.2	<28	<2.8	<2.8	970	<6.9	<6.9
05/11/88	38	<7.2	<7.2	<2.8	<2.8	<2.8	890	<6.9	<6.9
06/24/88	<720	<7.2	<7.2	<280	24	<2.8	1300	<6.9	<6.9
06/29/88	CARBON IN THE LEAD BED WAS CHANGED								
07/20/88	<720	<7.2	<7.2	<280	<2.8	<2.8	1300	<6.9	<6.9
07/28/88	QUARTERLY		<7.2			<2.8			<6.9

WEEK ENDING	TETRACHLOROETHYLENE FILT ppb	TETRACHLOROETHYLENE MDPT ppb	TETRACHLOROETHYLENE EFFL ppb	TOLUENE FILT ppb	TOLUENE MDPT ppb	TOLUENE EFFL ppb
01/22/88	870	<4.1	<4.1	19000	<6.0	8.1
02/19/88	990	<4.1	<4.1	20000	<6.0	9
03/18/88	QUARTERLY		<4.1			<6.0
03/18/88	1100	RAW SAMPLING		20000		
04/11/88	810	<4.1	<4.1	17000	<6.0	<6.0
05/11/88	950	<4.1	<4.1	14000	<6.0	<6.0
06/24/88	1100	<4.1	<4.1	21000	<6.0	11
06/29/88	CARBON IN THE LEAD BED WAS CHANGED					
07/20/88	1300	<4.1	<4.1	22000	<6.0	<6.0
07/28/88			<4.1			<6.0

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LOVE CANAL LEACHATE TREATMENT FACILITY VOLATILES 1988

WEEK ENDING	BENZENE FILT ppb	BENZENE MDPT ppb	BENZENE EFFL ppb	CARBON TETRACHLORIDE FILT ppb	CARBON TETRACHLORIDE MDPT ppb	CARBON TETRACHLORIDE EFFL ppb	CHLOROBENZENE FILT ppb	CHLOROBENZENE MDPT ppb	CHLOROBENZENE EFFL ppb
01/22/88	1800	<4.4	<4.4	<280	<2.8	<2.8	3500	<6.0	<6.0
02/19/88	2000	<4.4	<4.4	<280	<2.8	<2.8	3900	<6.0	<6.0
03/18/88	QUARTERLY		<4.4			<2.8			<6.0
03/18/88	2600	RAW SAMPLING		250			4300		
04/11/88	1800	<4.4	<4.4	170	<2.8	<2.8	3400	<6.0	<6.0
05/11/88	1500	<4.4	<4.4	110	<2.8	<2.8	3200	<6.0	<6.0
06/24/88	2300	<4.4	<4.4	<280	<2.8	<2.8	4700	<6.0	<6.0
06/29/88		CARBON IN THE LEAD BED WAS CHANGED							
07/20/88	2000	<4.4	<4.4	<280	<2.8	<2.8	4600	<6.0	<6.0
07/28/88	QUARTERLY		<4.4			<2.8			<6.0

WEEK ENDING	CHLOROFORM FILT ppb	CHLOROFORM MDPT ppb	CHLOROFORM EFFL ppb	TRANS-1,2 DICHLOROETHYLENE FILT ppb	TRANS-1,2 DICHLOROETHYLENE MDPT ppb	TRANS-1,2 DICHLOROETHYLENE EFFL ppb
01/22/88	500	<1.6	<1.6	<160	<1.6	<1.6
02/19/88	600	<1.6	<1.6	<160	<1.6	<1.6
03/18/88			<1.6			<1.6
03/18/88	840			110		
04/11/88	560	<1.6	<1.6	98	<1.6	<1.6
05/11/88	450	170	<1.6	100	<1.6	<1.6
06/24/88	700	<1.6	<1.6	<160	<1.6	<1.6
06/29/88		CARBON IN THE LEAD BED WAS CHANGED				
07/20/88	810	<1.6	<1.6	<160	<1.6	<1.6
07/28/88			<1.6			<1.6

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LOVE CANAL LEACHATE TREATMENT FACILITY BASE NEUTRALS 1988

WEEK ENDING	1,2,4-TRICHLOROBENZENE FILT ppb	MDPT ppb	EFFL ppb	2-CHLORONAPTHALENE FILT ppb	MDPT ppb	EFFL ppb
01/06/88	2700	<1.9	<1.9	55	<1.9	<1.9
02/05/88	1500	<1.9	<1.9	44	<1.9	<1.9
03/18/88	1500	RAW SAMPLING		100		
03/18/88	QUARTERLY		<1.9			<1.9
03/31/88	3200	4.3	<1.9	67	<1.9	<1.9
04/26/88	EFFLUENT ONLY		<1.9			<1.9
06/13/88	1600	2.3	<1.9	<19	<1.9	<1.9
06/29/88	CARBON IN THE LEAD BED WAS CHANGED					
07/12/88	1900	2.1	<1.9	<38	<1.9	<1.9
07/28/88	QUARTERLY		<1.9			<1.9

WEEK ENDING	1,2-DICHLOROBENZENE FILT ppb	MDPT ppb	EFFL ppb	1,3-DICHLOROBENZENE FILT ppb	MDPT ppb	EFFL ppb	1,4-DICHLOROBENZENE FILT ppb	MDPT ppb	EFFL ppb
01/06/88	590	<1.9	<1.9	40	<1.9	<1.9	620	<4.4	<4.4
02/05/88	350	<1.9	<1.9	22	<1.9	<1.9	400	<4.4	<4.4
03/18/88	540	RAW SAMPLING		<19			560		
03/18/88	QUARTERLY		<1.9			<1.9			<4.4
03/31/88	390	<1.9	<1.9	<19	<1.9	<1.9	510	<4.4	<4.4
04/26/88	EFFLUENT ONLY		<1.9			<1.9			<4.4
06/13/88	<19	<1.9	<1.9	<19	<1.9	<1.9	450	<4.4	<4.4
06/29/88	CARBON IN THE LEAD BED WAS CHANGED								
07/12/88	380	<1.9	<1.9	500	<1.9	<1.9	440	<4.4	<4.4
07/28/88	QUARTERLY		<1.9			<1.9			<4.4

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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SPECIAL PROJECTS SECTION

LOVE CANAL LEACHATE TREATMENT FACILITY ACID EXTRACTIBLES 1988

WEEK ENDING	2,4,6-TRICHLOROPHENOL			2,4,5-TRICHLOROPHENOL			2,4-DICHLOROPHENOL		
	FILT ppb	MDPT ppb	EFFL ppb	FILT ppb	MDPT ppb	EFFL ppb	FILT ppb	MDPT ppb	EFFL ppb
01/06/88	<27	<2.7	<2.7	2000	<50	<50	1400	<2.7	<2.7
02/05/88	45	<2.7	<2.7	2000	<50	<50	990	<2.7	<2.7
03/18/88	3500	RAW SAMPLING		<500			2500		
03/18/88	QUARTERLY		<2.7		NO DATA				<2.7
03/31/88	29	<2.7	<2.7	1200	<50	<50	800	<2.7	<2.7
04/26/88	EFFLUENT ONLY		<2.7			<50			<2.7
06/13/88	<27	<2.7	<2.7	1200	<50	<50	830	<2.7	<2.7
06/29/88	CARBON IN THE LEAD BED WAS CHANGED								
07/12/88	<54	<2.7	<2.7	1200	<50	<50	90	<2.7	<2.7
07/28/88	QUARTERLY		<2.7		NO DATA				<2.7

WEEK ENDING	PHENOL			HEXACHLOROBENZENE		
	FILT ppb	MDPT ppb	EFFL ppb	FILT ppb	MDPT ppb	EFFL ppb
01/06/88	120	<1.5	<1.5	21	<1.9	<1.9
02/05/88	51	<1.5	<1.5	22	<1.9	<1.9
03/18/88	130	RAW SAMPLING		30		
03/18/88	QUARTERLY		<1.5			<1.9
03/31/88	31	<1.5	<1.5	78	<1.9	<1.9
04/26/88	EFFLUENT ONLY		<1.5			<1.9
06/13/88	59	<1.5	<1.5	<19	<1.9	<1.9
06/29/88						
07/12/88	84	<1.5	<1.5	<38	<1.9	<1.9
07/28/88	QUARTERLY		<1.5			<1.9

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
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LOVE CANAL LEACHATE TREATMENT FACILITY PESTICIDES 1988

WEEK ENDING	BHC ALPHA INFL ppb	BHC ALPHA MDPT ppb	BHC ALPHA EFFL ppb	BHC BETA INFL ppb	BHC BETA MDPT ppb	BHC BETA EFFL ppb	BHC DELTA INFL ppb	BHC DELTA MDPT ppb	BHC DELTA EFFL ppb
01/15/88	640	0.16	0.035	47	0.025	0.022	1900	0.33	0.11
02/12/88	640	0.15	0.063	50	<0.02	<0.01	1700	0.6	0.39
03/07/88	1300	0.13	<0.1	<80	0.13	<0.04	3100	0.47	0.37
03/18/88	620	RAW SAMPLING		40			2900		
04/07/88	1600	<0.08	0.11	490	<0.08	<0.04	4800	<0.08	0.78
05/03/88	820	0.33	0.32	93	0.082	0.21	1900	0.9	0.6
05/26/88	730	0.66	0.075	100	0.44	0.07	2600	2.1	0.26
06/03/88	570	0.75	<0.05	100	0.36	0.16	2100	1.9	0.5
06/29/88	CARBON IN THE LEAD BED WAS CHANGED								
07/01/88	890	0.41	0.022	480	1.4	0.058	12000	0.6	0.062

WEEK ENDING	BHC GAMMA INFL ppb	BHC GAMMA MDPT ppb	BHC GAMMA EFFL ppb	ALDRIN INFL ppb	ALDRIN MDPT ppb	ALDRIN EFFL ppb
01/15/88	670	0.061	0.018	<40	<0.01	<0.01
02/12/88	640	0.15	0.079	76	<0.02	0.038
03/07/88	1400	0.21	0.08	120	0.051	0.071
03/18/88	950	RAW SAMPLING		<10		
04/07/88	1600	<0.08	0.14	460	0.21	<0.04
05/03/88	720	0.43	0.15	260	0.08	<0.04
05/26/88	810	0.59	0.047	97	<0.05	0.037
06/03/88	660	0.84	0.09	75	<0.05	<0.05
06/29/88	CARBON IN THE LEAD BED WAS CHANGED					
07/01/88	910	0.29	0.026	<200	<0.1	<0.01

APPENDIX 5

GROUNDWATER MONITORING DATA

TABLE 1 - HYDRAULIC DATA

TABLE 2 - ACETONE OCCURRENCES IN PERIMETER MONITORING WELLS

TABLE 3 - CHEMICAL ANALYSES FROM PERIMETER MONITORING WELLS *

TABLE 4 - CHEMICAL ANALYSES FROM OTHER WELLS *

* ONLY RESULTS OTHER THAN "ND" (NON-DETECT) VALUES ARE INCLUDED.

LOVE CANAL WATER LEVEL DATA
NESTED PIEZOMETERS
JANUARY 1985 TO DATE

DATE	850114	850131	850221	850311	850411	850514	850611	850722	850822	850923	851021	851111	851210	860116	860206	860429	860514	860604
TIME	0.04	0.08	0.14	0.19	0.28	0.37	0.44	0.56	0.64	0.73	0.81	0.86	0.94	1.04	1.08	1.32	1.36	1.42
WELL																		
1150A																561.08	562.16	564.30
1150B																566.70	566.92	567.45
1151A																566.10	566.03	567.35
1151B																563.31	573.15	569.13
1151C																	571.28	571.29
1151D																		
1153A																560.81	562.29	564.64
1153B																568.28	566.67	568.76
1153C																566.80	569.19	569.98
1153D																569.53	569.41	570.18
1153E																		
1154A																569.85	569.30	570.31
1154B																569.02	568.94	569.68
1154C																567.43	567.78	568.84
1154D																569.72	569.12	570.05
1160A	571.98	566.11	566.35	566.61	566.11	565.62	565.22	565.16	565.26	565.60	565.66	566.02	566.67	568.51	565.91	569.75	570.65	566.15
1160C	570.64	569.16	569.36	568.41	569.29	569.45	569.49	569.73	569.84	570.12	570.06	569.82	569.84	566.76	569.30	569.25	569.72	569.79
1161A	567.11	565.73	566.05	566.35	566.08	566.03	565.25	565.27	565.28	565.56	565.71	565.95	566.58		565.92	563.43	564.73	565.69
1161B	573.78	568.64	568.41	568.67	567.58	567.21	566.98	567.29	567.34	567.61	567.68	568.07	568.16	567.30	567.14	566.85	567.65	568.27
1161C	570.00	569.12	569.29	569.45	569.29	569.41	569.68	569.89	569.93	569.88	569.81	569.60	569.73	568.98	569.09	569.30	570.23	570.48
1161D	570.07	570.03	569.94	569.92	569.83	569.95	569.68	570.22	570.45	570.24	570.24	570.05	570.14	569.56	569.67	570.34	571.01	571.16
1161E																	559.46	565.68
1162A	569.84	569.58	569.27	569.05	568.62	568.22	567.24	567.72	567.90	568.06	568.29	568.42	568.78	568.21	568.09	566.66	567.87	568.27
1162C	570.44	570.27	570.09	570.22	570.69	570.37	571.08	571.19	570.82	570.71	570.46	570.38	570.57	569.92	570.01	570.32	571.06	571.25
1162D	570.48	570.37	570.20	570.40	570.45	569.71	570.55	570.60	571.01	570.89	570.55	570.58	570.71	570.11	570.26	570.69	571.33	571.45
1163A	574.21	570.81	570.54	570.30	569.83	568.36	571.05	569.37	569.54	569.85	569.96	569.97	569.98	569.36	569.22	568.93	569.63	569.79
1163B	571.15	570.20	570.40	570.45	570.45	569.53	570.16	570.97	571.00	570.97	570.83	570.66	570.61	569.89	569.97	570.19	571.04	571.45
1163C	570.99	570.79	570.56	570.61	570.79	571.12	569.31	571.62	571.73	571.66	571.23	571.00	570.91	570.17	570.40	571.18	572.13	572.35
1163D	572.85		570.67	570.50	570.40	570.23	570.70	570.15								572.00	572.55	572.38
1165A	571.27	570.59	570.77	570.49	570.46	570.37	570.42	570.58	570.57	570.91	570.97	571.00	571.22	570.66	570.50	570.22	570.92	571.00
1165B	571.55	571.32	571.12	571.35	571.58	571.53	571.62	570.00	571.59	571.55	571.52	571.50	571.75	571.22	571.26	571.42	572.14	572.28
1165C		571.05	570.78	571.77	572.21	572.27	572.30	571.13	571.95	571.75	571.53	571.61	572.00	571.00	571.61	572.25	572.92	573.03
1165D	571.53	571.18	571.15	572.06	572.35	572.45	572.37		571.93	571.74	571.38	571.56	571.96	571.31	571.50	572.52	573.08	573.14
1167A	571.71	571.02	571.62	572.34	571.80	571.23	571.09	571.25	571.13	571.11	571.77	572.42	572.54	573.49	571.32	571.23	571.64	571.94
1167B	571.71	571.56	572.26	573.06	572.28	572.08	571.99	571.76	571.41	571.36	572.26	571.86	572.91	572.14	572.16	571.89	572.35	572.62
1167C	571.74	571.43	571.88	572.81	572.66	572.39	572.37	571.94	571.62	571.49	571.51	571.24	572.78	573.99	571.54	572.33	572.83	573.09
1167D	571.80	571.56	572.33	573.10	572.64	572.27	572.29	571.03	571.67		571.96	573.07	572.89	572.02	572.26	572.21	572.58	572.82
1170A																563.95	564.20	564.41
1170B																562.83	563.19	563.48
1171A																564.93	566.42	566.81
1171B																563.69	564.20	564.45

APPENDIX 5 - TABLE 1

LOVE CANAL WATER LEVEL DATA
NESTED PIEZOMETERS
JANUARY 1985 TO DATE

DATE	850114	850131	850221	850311	850411	850514	850611	850722	850822	850923	851021	851111	851210	860116	860206	860429	860514	860604
TIME	0.04	0.08	0.14	0.19	0.28	0.37	0.44	0.56	0.64	0.73	0.81	0.86	0.94	1.04	1.08	1.32	1.36	1.42
1171C																	563.67	560.76
1172A																563.75	564.84	565.53
1172B																568.30	568.90	568.97
1172C																569.20	569.94	569.95
1173A																568.46	569.09	570.74
1173B																569.72	570.44	572.22
1173C																571.42	572.31	572.46
1173D																572.41	572.62	572.85
1174A																567.14	568.50	570.94
1174B																569.23	569.10	571.97
1174C																573.10	572.79	573.99
1174D																572.26	571.96	572.75
1180A																559.58	560.77	562.62
1180B																561.80	561.75	562.32
1180C																	564.35	
1181A																568.46	567.49	569.92
1181B																566.83	567.43	568.53
1181C																569.88	569.03	568.59
1183A																565.10	564.76	565.60
1183B																566.13	565.41	566.58
1183C																568.49	567.75	568.72
1183D																	567.56	568.27
1184A																		
1184B																		
1184C																		
1184D																		
1190A																565.44	564.86	567.00
1190B																564.76	564.89	564.78
1191A																567.11	567.49	567.44
1191B																565.77	566.25	566.33
1191C																	562.21	564.54
1192A																565.51	565.61	565.83
1192B																568.21	569.23	569.45
1192C																568.67	569.73	570.15
1193A																566.96	569.29	567.32
1193B																569.11	570.01	570.17
1193C																571.21	572.12	572.27
1193D																572.14	571.65	573.10
1194A																565.59	565.58	566.07
1194B																569.84	570.43	570.52
1194C																571.24	[illegible]	572.54
1194D																572.61	575.38	573.49

APPENDIX 5 - TABLE 1

LOVE CANAL WATER LEVEL DATA
NESTED PIEZOMETERS
JANUARY 1985 TO DATE

DATE	860730	860926	860930	861031	861204	861229
TIME	1.58	1.65	1.75	1.83	1.93	1.99
WELL						
1150A	566.65	566.56	566.41	566.56	566.67	568.23
1150B	567.47	566.87	567.02	566.97	567.43	567.66
1151A	567.98	566.99	567.43	567.88	568.38	569.16
1151B	569.14	568.89	568.12	568.31	568.50	568.96
1151C	570.23	569.09	568.68	569.23	569.21	569.87
1151D					570.93	571.35
1153A	566.88	566.84	566.99	566.27	566.66	
1153B	569.35	568.58	568.48	567.87	569.16	569.55
1153C	569.95	569.17	568.95	569.24	568.97	569.47
1153D	570.11	569.12	569.01	569.38	569.10	
1153E						
1154A	569.51	568.50	569.30	568.88	568.26	572.32
1154B	569.15	568.56	568.56	568.56	568.08	569.24
1154C		568.38	568.25	570.13	569.80	569.53
1154D	570.31	568.36	569.11	570.41	570.11	571.54
1160A	565.97	564.95	564.70	564.89	565.24	566.26
1160C	569.48	568.99	568.99	568.99		569.54
1161A	566.30	565.36	565.45	564.03	565.56	566.42
1161B	568.11	566.92	566.92	565.97	566.92	567.84
1161C	569.81	569.24	569.05	567.84	568.94	569.40
1161D	570.41	569.99	569.84	569.57	569.34	569.86
1161E	566.64	565.60	565.75	565.56	566.21	566.96
1162A	568.48	567.67	567.72	567.80	567.79	568.48
1162C	570.44	570.02	569.84	569.70	569.57	570.10
1162D	571.33	570.33	570.20	569.66	570.00	570.32
1163A	570.03	569.43	569.43	568.18	569.41	569.73
1163B	571.57	570.65	570.33	570.17	569.89	570.31
1163C	571.44	571.08	570.86	570.55	570.33	570.54
1163D	571.20	570.65	570.65	570.52	570.18	570.53
1165A	571.02	570.27	571.33	570.51	570.45	570.73
1165B	572.01	571.17	570.32	570.98	570.93	571.36
1165C	571.86	571.52	571.27	571.26	571.02	571.63
1165D	572.04	571.66	571.81	571.00	571.18	571.72
1167A	570.97	569.22	571.17	570.77	571.27	571.38
1167B	571.52	572.44	571.60	571.14	571.76	571.85
1167C	572.55	571.48	570.38	569.95	571.92	572.06
1167D	571.58	571.38	572.16	571.38	572.04	572.10
1170A	563.92	563.12	564.54	562.95	563.02	564.47
1170B	562.96	562.43	562.14	563.54	562.03	563.14
1171A	565.39	565.64	565.07	563.47	564.27	565.06
1171B	563.90	563.00	563.70	563.00	562.90	564.02

APPENDIX 5 - TABLE 1

LOVE CANAL WATER LEVEL DATA
NESTED PIEZOMETERS
JANUARY 1985 TO DATE

DATE	860730	860826	860930	861031	861204	861229
TIME	1.58	1.65	1.75	1.83	1.93	1.99
1171C	565.31	569.61	564.04	564.09	557.41	564.03
1172A	565.75	565.52	565.71	565.79	566.08	566.98
1172B	568.62	568.23	568.18	568.16	568.17	569.04
1172C	569.35	569.03	568.81	569.11	568.96	569.65
1173A		569.52	569.66	568.51	569.66	570.31
1173B		569.91	568.71	570.12	569.96	570.57
1173C		571.35	571.22	570.14	571.35	571.87
1173D		571.20	571.55	571.12	571.53	572.20
1174A		568.23	568.17	568.44	568.61	569.18
1174B		569.96	570.03	570.12	570.40	570.79
1174C		571.67	571.39	569.96	571.11	571.60
1174D		570.89	570.98	570.05	572.08	572.43
1180A	562.21	562.02	561.74	561.97	561.94	562.70
1180B	561.96	561.20	561.22	561.01	560.82	562.18
1180C	562.81	562.15	562.45	562.45	562.45	563.09
1181A	568.77	567.95	568.66	568.78	569.36	569.36
1181B		567.52	566.36	567.76	568.12	568.22
1181C	568.47	568.50	569.10	567.25	570.97	570.34
1183A	565.60	564.43	564.71	564.61	565.25	565.99
1183B	566.44	565.20	565.21	565.80	565.73	566.56
1183C	568.53	566.70	567.60	567.68	568.23	568.57
1183D	568.09	566.67	567.19	567.00	566.93	567.01
1184A					565.77	565.58
1184B					566.23	565.98
1184C					568.77	569.52
1184D					567.18	567.29
1190A		564.11	565.76	564.08		
1190B		564.88	564.01	563.88		565.28
1191A		566.61	570.05	565.70	567.83	567.62
1191B		565.50	565.50	564.25	565.18	566.09
1191C		564.25	564.43	564.22	567.43	564.23
1192A		564.08	565.03	564.97	566.13	566.03
1192B		568.95	569.03	567.55	568.48	569.35
1192C		569.85	570.11	568.02	569.79	570.33
1193A	566.43	565.89	566.07	556.16	566.93	567.35
1193B	565.19	568.90	563.05	567.08	568.90	569.86
1193C	571.36	570.83	570.76	570.90	570.49	571.56
1193D	571.73	571.33	571.44	571.52	571.35	572.16
1194A	565.30	564.53	565.24	564.72	565.35	566.07
1194B	569.29	569.17	568.65	567.18	569.49	570.37
1194C	571.42	571.18	570.83	571.20	571.63	572.35
1194D	572.21	571.72	571.62	571.63	572.49	573.14

APPENDIX 5 - TABLE 1

LOVE CANAL WATER LEVEL DATA
SELECTED BEDROCK WELLS
NYSDEC DATA
JANUARY 1985 TO DATE

WELL	DATE	850114	850131	850221	850311	850412	850515	850611	850723	850822	850924	851022	851111	851210	860115	860206	860303	860429	860513
	TIME	0.04	0.08	0.14	0.19	0.28	0.37	0.44	0.56	0.64	0.73	0.81	0.86	0.94	1.04	1.08	1.17	1.32	1.36
3201			564.43	564.19	564.88	563.90	563.99	563.63	563.60	564.39	564.30	564.67	566.76	565.60	565.31	565.70	564.99	565.40	564.84
3203			564.26	564.17	565.09	563.64	563.36	563.63	563.64	564.37	564.30	564.71	566.81	565.55	565.29	565.65	565.15	565.37	564.89
3205			564.21	564.02	564.56	566.60	563.26	563.61	563.59	564.60	564.63	564.95	567.09	565.81	565.55	565.82	565.28	565.49	565.10
3211								565.78											
3213				563.91	564.90	563.58	563.25	563.51	563.59	564.60	564.67	565.00	568.10	565.99	565.51	565.91	565.19	565.49	565.05
3222				564.32	565.13	563.94	563.74	564.02	563.81	564.52	564.56	564.83	566.79	565.60	565.33	565.74	565.19	565.34	564.96
3223		564.94		564.89	565.16	564.06	563.90	564.07	564.06	564.47	564.49	564.85	566.51	565.56	565.23	565.63	565.03	565.16	564.85
3233				564.52	565.58	565.01	563.98	564.14	564.03	564.47	564.46	564.73	566.34	565.25	565.21	565.12	564.87	566.00	564.73
3251		564.57		564.50	565.23	565.89	563.89	563.81	563.91	564.37	564.29	564.52	566.54	565.69	565.42	565.64	565.07	566.34	564.86
4204			564.16	563.95	564.54	563.50	563.18	572.13	563.52	564.58	564.50	564.92	567.04	565.83	565.49	565.84	565.19	565.47	565.76
4205			564.00	563.88	564.43	563.34	563.08	563.13	563.37	564.53	564.62	564.90	567.02	565.73	565.48	565.91	565.30	565.44	565.73
4206			564.06	563.84	564.47	563.41	563.02	563.33	563.49	564.59	564.60	564.99	567.03	565.79	565.50	565.85	565.12	565.02	565.72
4207			564.03	563.80	564.50	563.35	562.93	563.41	563.30	564.51	564.50	564.93	567.17	565.76	565.46	565.82	565.24	567.14	565.50
4211			564.25		565.36	563.80	563.33	563.67	563.66	564.48	564.44	564.81	566.98	565.69	565.39	565.68	565.16	565.36	564.97
4215				565.39	565.36	564.37	563.57	563.60	563.72	564.45	564.40	564.65	566.57	566.02	565.52	565.81	565.27	563.23	564.89
4221				563.93	565.06	563.59	563.21	563.45	563.52	564.51	564.50	564.99	567.49	565.91	565.45	566.13	565.36	565.48	565.05
5201			564.18	568.14	564.43	563.79	563.09	563.48	563.51	564.47	564.40	564.80	567.34	565.75	565.46	565.97	565.25	565.45	565.64
5203		564.53	564.34	561.30	564.56	563.60	563.37	563.52	563.52	564.55	564.65	564.82	566.79	565.61	565.42	565.73	565.04	565.33	565.50
5204			564.33	564.86	564.37	563.62	563.29	563.71	563.64	564.43	564.48	564.83	566.70	565.57	565.45	565.73	565.12	565.32	565.72
5205			565.03	562.20	564.30	563.93	564.07	564.60	564.34	564.55	564.55	564.70	565.37	564.90	565.25	565.02	564.73	564.83	565.40
5211				563.96	564.92	564.13	564.13	563.50	563.60	564.59	564.65	564.93	568.10	565.69	565.58	565.90	565.30	565.48	565.09
5212				564.12	564.15	564.12	564.10	564.16	564.24	564.34	564.37	564.40	564.44	564.75	565.29	564.44	564.61	564.76	564.77
5213				564.45	564.41	563.71	564.32	564.64	564.44	564.59	564.81	564.72	565.44	564.88	565.32	564.96	564.80	564.99	564.61
5214				564.44	564.56	563.70	564.32	564.58	564.44	564.66	564.75	564.70	565.49	564.92	565.30	564.98	564.76	564.91	564.61
5221				564.46	564.58	564.20	564.43	564.62	564.41	564.70	564.79	564.64	565.33	564.87	565.20	564.91	564.78	564.92	564.63
5222				564.11	564.80	563.64	563.26	563.45	563.72	564.65	564.76	565.06	567.29	565.77	565.53	565.77	565.31	565.54	565.15
6201			564.02	563.86	564.19	563.71	563.52	563.27	563.39	564.50	564.52	564.93	567.10	565.84	565.45	565.88	565.30	565.53	565.77
6203			564.18	563.91	564.65	563.80	563.12	563.36	563.45	564.47	564.67	565.02	567.06	565.98	565.53	565.99	565.41	565.62	565.85
6207				564.15	565.23	563.85	563.47	563.56	563.66	564.49	564.78	565.14	566.62	566.07	565.62	565.98	565.64	566.09	565.86
6209			564.55	564.13	564.02	563.43	563.67	564.00	563.98	564.58	564.68	564.80	565.55	565.05		565.08	564.62	565.08	565.45
6211		564.24		563.79	564.83	563.36	562.93	563.33	563.41	564.73	564.67	565.06	567.60	565.86	565.51	566.01	565.35	565.53	565.12
6212						563.40	563.08	563.24	563.48	564.72	564.68	565.07	567.38	565.88	565.41	566.07	565.37	565.61	565.16
6213				563.62	564.63	563.35	562.90	563.23	563.42	564.60	564.71	565.05	567.49	565.62	565.57	566.01	565.38	565.52	565.12
6214				564.07	564.03	563.86	563.24	563.23	563.37	564.55	564.63	564.79	565.31	566.09	565.36	565.66	565.68	565.69	565.48
6222				564.54	565.49	563.67	563.82	564.05	563.99	564.67	564.75	564.77	565.78	565.14	565.52	565.24	564.88	565.09	565.79
6241		564.97		564.20	564.65	563.54	563.87	563.91	564.03	564.73	564.68	564.81	565.72	565.19	565.26	565.22	564.95	565.14	564.80
7205																			564.91
9203																			565.14
9205																			565.17
9210																			564.79

APPENDIX 5 - TABLE 1

LOVE CANAL WATER LEVEL DATA
SELECTED BEDROCK WELLS
NYSDEC DATA
JANUARY 1985 TO DATE

WELL	DATE / TIME	860604 1.42	860730 1.58	860826 1.65	860930 1.75	861030 1.83	861204 1.93	861229 1.99
3201		568.48	565.67	564.88	567.81	564.15	565.90	565.69
3203		565.71	565.49	564.13	565.16	564.21	565.60	565.72
3205		563.33		564.40	562.58	564.36	566.14	565.92
3211								
3213		566.29	565.70	564.68	565.55	564.80	565.92	565.94
3222		565.78	565.60	564.38	565.09	564.56	565.52	565.74
3223		565.83						
3233		565.73	565.48	564.13	564.76	564.12	565.27	565.49
3251		565.72	565.52	563.94	564.52	564.26	565.54	565.79
4204		566.09	565.91	564.58	565.06	564.56	566.11	565.88
4205		565.82		564.28	565.35	564.50	566.06	565.88
4206		566.10	565.37	564.41	565.57	564.44	565.81	565.92
4207		565.92	565.50	564.32	565.50	564.20	565.90	565.88
4211		565.98	565.71	564.28	565.36	564.46	566.26	565.83
4215		566.09	565.87	564.39	564.77	564.44	566.03	565.97
4221		566.09	565.65	564.56	565.35	564.61	565.92	566.07
5201		565.96	565.64	564.15		564.44	566.32	565.90
5203		565.85	563.16	564.35	565.14	564.49	566.18	565.64
5204		565.99	564.89	565.09	565.19	564.39	565.94	565.66
5205		565.52	565.43	564.14	564.53	564.15	565.58	565.09
5211		566.22						
5212		566.03	569.72	567.69	571.39	570.39		
5213		565.63		564.22	564.48	564.47		
5214		565.69	565.44	564.25	564.48	564.04	565.09	565.07
5221		565.60	565.35	563.98	564.06	564.23	565.28	565.10
5222		566.01	565.85	564.54	565.52	564.87	565.93	565.93
6201		565.95	565.67	564.43	565.62	564.45	566.16	
6203		566.08	565.95	564.68	565.65	563.65	566.44	566.06
6207		566.13	566.08	565.05	565.59	564.49	566.39	566.25
6209		565.63	565.55	564.42	564.60	564.22	565.48	565.30
6211		566.16	565.80	564.56	565.29	564.80	565.73	565.98
6212		566.09	565.83	564.67	565.38	564.77	565.59	566.04
6213		566.02	565.85	564.80	565.39	564.87	566.14	566.04
6214		566.17	565.99	564.95	564.41	564.95	566.18	565.81
6222		565.77	565.29	564.37	564.58	564.29	565.12	565.39
6241		565.70	565.48	564.35	564.55	564.36	565.23	565.34
7205		565.88	565.09					
8210		566.18	565.75	564.64	565.54	564.63	566.20	566.30
9205		566.12	565.86	564.89	565.48	564.77	565.66	566.18
9210		565.64						

APPENDIX 5 - TABLE 1

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

LOVE CANAL WATER LEVEL MONITORING DATA

*Date					SAMPLING DATE					
	870128	870224	870324	870429	870527	870625	870731	870826	870923	871028
WELLNUMBER	H2OELEV	H2OELEV	H2OELEV	H2OELEV	H2OELEV	H2OELEV	H2OELEV	H2OELEV	H2OELEV	H2OELEV
1160A		565.63	565.56	565.58	564.98	564.90	565.03	564.95	565.30	565.55
1160C	569.43	569.21	569.20	569.24	569.04	569.05	569.18	569.21	569.44	569.42
1161A	566.27	565.96	565.88	565.94	565.55	565.37	565.60	565.58	565.83	565.93
1161B	567.48	567.22	567.17	567.37	567.01	567.08	567.37	567.35	567.47	567.65
1161C	569.38	569.21	569.24	569.62	569.45	569.44	569.49	569.44	569.39	569.27
1161D	570.06	569.92	570.13	570.62	570.39	570.38	569.26	570.16	569.74	569.99
1161E	566.57	566.24	566.31	566.44	566.03	566.03		566.35	566.56	566.81
1162A	568.41	568.22	567.92	567.86	567.67	567.52	567.61	567.72	567.87	568.15
1162C	570.19	569.87	570.05	570.38	570.12	570.22	570.10	570.07	569.92	569.77
1162D	570.48	570.12	570.28	570.85	570.50	570.91	570.40	570.25	570.25	570.05
1163A	569.56	569.33	569.04	569.15	568.97	570.07	569.26	569.36	569.58	569.73
1163B	570.37	570.20	570.26	569.64	570.61	570.62	570.65	570.70	570.45	570.50
1163C	570.71	570.59	570.73	571.27	571.33	571.90	571.29	571.26	571.06	570.94
1163D	570.45	570.55	570.33	574.44	573.80	573.32	572.80	572.30	572.10	571.67
1165A	570.64	570.47	570.12	570.19	569.99	570.00	570.07	570.28	570.49	569.67
1165B	571.39	571.17	571.16	571.38	571.22	571.01	571.15	571.22	571.12	571.22
1165C	571.82	571.54	571.82	572.23	571.82	571.67	571.70	571.62	571.57	571.22
1165D	571.90	571.63	571.96	572.45	572.01	571.89	571.68	571.61	571.66	571.23
1167A	571.18	570.87	570.94	571.05	570.51	570.63	570.77	570.75	571.32	571.22
1167B	571.51	571.16	571.41	571.59	571.23	571.25	571.21	571.14	571.61	571.53
1167C	571.84	571.48	571.93	572.23	571.68	571.53	571.58	571.43	571.48	571.40
1167D	571.61	571.33	571.82	572.06	571.61	571.61	571.73	571.23	571.93	571.66

APPENDIX 5 - TABLE 1

* Date is reported as YY MM DD

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION

LOVE CANAL WATER LEVEL MONITORING DATA

SAMPLING DATE

	871221
WELLNUMBER	H2OELEV
1160A	565.75
1160C	569.31
1161A	566.08
1161B	567.72
1161C	569.29
1161D	570.19
1161E	566.96
1162A	568.08
1162C	570.17
1162D	570.59
1163A	569.48
1163B	569.95
1163C	570.56
1163D	571.40
1165A	570.47
1165B	571.17
1165C	571.44
1165D	571.61
1167A	571.37
1167B	571.81
1167C	572.08
1167D	572.43

EXPLANATION OF TABLE 2

Acetone results from perimeter monitoring wells vary over substantial ranges. This characteristic is true for samples from the same well through time and even from the same round of sampling when different aliquots of the same sample are sent to different laboratories. Several attempts were made to understand these phenomena. Results were examined on a well by well basis. The data was scanned for trends, and various averaging techniques were applied to it. When these approaches are followed, it is intuitively apparent that acetone levels in these wells are decreasing with time. Perhaps the clearest illustration of this point is Table 2.

Table 2 shows the numbers of wells whose results fall within a certain orders of magnitude ranges in parts per billion. For example, "1 - 10" means one to ten, (10 to 10^2) means ten to one hundred, and so forth. Each column represents one sampling event, with the date of the event at the top of the column. Because the numbers in the columns represent the number of wells that fall into each category, each column total should equal the others. (Only wells which were sampled during every event were included for this analysis.) Columns are spaced according to the elapsed time between sampling events. Where multiple analyses were reported from the same well for a given round of sampling, a representative value near the highest was chosen. The concentration range containing the highest number of wells for each sampling event is circled.

For the first sampling event there were 9 wells with results between 1,000 and 10,000 parts per billion, 19 wells with results between 100 and 1,000 ppb, etc. Notice that the concentration range for the highest number of wells decreases consistently with time. It is this observation which is reported in the text of Chapter III.

LOVE CANAL MONITORING PROGRAM

ACETONE RESULTS - OVERBURDEN WELLS

CONCENTRATION (PPB)	12/85	4/86	11/86	6/87	5/88
10^3-10^4	9	4	1		
10^2-10^3	19	13	11	1	
10^1-10^2	2	12	17	19	1
1-10				8	2
ND				1	26

17 CIRCLED NUMBER IS HIGHEST FREQUENCY FOR SAMPLING EVENT

APPENDIX 5 - TABLE 2

\- Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) -

QUERY NAME . . . . PERIMPOS
LIBRARY . . . . LIB.LCAN

FILE NAME . . . . LC.WSMPL
FILE NAME . . . . LC.XREFL

DATE 09/20/88
TIME 15.25.08

Love Canal Data By Well #-Pos Hits-Perimeter

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 1

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10105		861101	ACETONE	23.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	171.000	B	MCG/L	00679
			DI-N-BUTYLPHTHALATE	8.000	J	MCG/L	00644
			DIOCTYL PHTHALATE	26.000	B	MCG/L	00422
			METHYLENE CHLORIDE	1.700	JB	MCG/L	00238
			TETRACHLOROETHYLENE	140.000	JB	MCG/L	00412
		870610	ACETONE	13.000	B	MCG/L	00420
			METHYLENE CHLORIDE	170.000	B	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 2

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10113		870612	ACETONE	6.800	JB	MCG/L	00420
			BENZO(A)PYRENE	12.000		MCG/L	00636
			BIS(2 ETHYL HEXYL)PHTHALATE	340.000		MCG/L	00679
			CHLOROFORM	5.000	J	MCG/L	00390
			DIOCTYL PHTHALATE	30.000		MCG/L	00422
			METHYLENE CHLORIDE	1.300	JB	MCG/L	00238
			2-HEXANONE	30.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
10115		860428	ACETONE	16.000	B	MCG/L	00420
			BENZENE	.900	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	5.000	B	MCG/L	00679
			CARBONDISULFIDE	240.000	B	MCG/L	30020
			METHYLENE CHLORIDE	10.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	41.000	JB	MCG/L	00412
			TOLUENE	1.300	J	MCG/L	00392
		870612	ACETONE	24.000	JB	MCG/L	00420
			BENZENE	5.000	J	MCG/L	00344
			TRICHLOROETHYLENE	5.000	J	MCG/L	00411
			2-HEXANONE	79.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10125		860423	ACETONE	320.000	B	MCG/L	00420
			BENZENE	.700	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	1.000	JB	MCG/L	00679
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	23.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	40.000	JB	MCG/L	00412
			TOLUENE	.800	J	MCG/L	00392
		861104	ACETONE	40.000	B	MCG/L	00420
			TETRACHLOROETHYLENE	44.000	JB	MCG/L	00412
		870612	ACETONE	9.800		MCG/L	00420
			METHYLENE CHLORIDE	67.000		MCG/L	00238
			2-HEXANONE	10.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 5

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10130		860423	ACETONE	61.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	10.000	B	MCG/L	00679
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			TETRACHLOROETHYLENE	48.000	JB	MCG/L	00412
			3,3-DICHLOROBENZIDINE	4.000	J	MCG/L	00645
		861104	ACETONE	37.500	B	MCG/L	00420
			BENZENE	3.300	J	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	21.000		MCG/L	00679
			METHYLENE CHLORIDE	87.200	B	MCG/L	00238
			TETRACHLOROETHYLENE	52.000	JB	MCG/L	00412
			TOLUENE	13.400		MCG/L	00392
		870612	ACETONE	8.900	JB	MCG/L	00420
			BENZENE	23.000		MCG/L	00344
			CHLOROBENZENES	9.100		MCG/L	00409
			METHYLENE CHLORIDE	5.600		MCG/L	00238
			TOLUENE	86.000		MCG/L	00392
			TRICHLOROETHYLENE	2.800	J	MCG/L	00411
			2-BUTANONE	5.000	J	MCG/L	30002
			2-HEXANONE	57.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 6

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
10135		860424	ACETONE	1,200.000	B	MCG/L	00420
			B.H.C. ALPHA	24.600		MCG/L	00157
			B.H.C. ALPHA	29.500		MCG/L	00157
			BENZENE	2,100.000	B	MCG/L	00344
			BENZO(A)PYRENE	1.000	J	MCG/L	00636
			BENZO(K)FLUORANTHENE	4.000	J	MCG/L	00635
			BENZOIC ACID	5,669.000		MCG/L	30016
			BENZYL ALCOHOL	2,343.000		MCG/L	30017
			BIS(2 ETHYL HEXYL)PHTHALATE	8.000	JB	MCG/L	00679
			BIS(2-CHLOROETHYL)ETHER	12.000		MCG/L	00639
			CARBONDISULFIDE	14.000	J	MCG/L	30020
			CHLOROBENZENES	940.000		MCG/L	00409
			CHLOROFORM	62.000	J	MCG/L	00390
			DIELDRIN	3.000	J	MCG/L	00085
			DIELDRIN	.000	J	MCG/L	00085
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	490.000	B	MCG/L	00238
			PHENOL	24.000		MCG/L	00671
			PHENOLS, TOTAL RECOVERABLE	24.000		MCG/L	00027
			TETRACHLOROETHYLENE	38.000	J	MCG/L	00412
			TOLUENE	7,700.000		MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	36.000	J	MCG/L	00612
			TRICHLOROETHYLENE	210.000		MCG/L	00411
			1,1,2-TRICHLOROETHANE	37.000	J	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	110.000		MCG/L	00518
			1,2,4-TRICHLOROBENZENE	78.000		MCG/L	00440
			1,4-DICHLOROBENZENE	91.000		MCG/L	01442
			2-CHLOROPHENOL	6.000	J	MCG/L	00664
			2-METHYL PHENOL	44.000		MCG/L	30004
			2-NITROPHENOL	199.000		MCG/L	00668
			2,4-DICHLOROPHENOL	1,000.000		MCG/L	00665
			2,4-DIMETHYLPHENOL	2.000	J	MCG/L	00666
			2,4-DINITROTOLUENE	3.000	J	MCG/L	00648
			2,4,5-TRICHLOROPHENOL	853.000		MCG/L	00496
			3,3-DICHLOROBENZIDINE	7.000		MCG/L	00645
			4-CHLOROPHENYL PHENYL ETHER	1.000	J	MCG/L	00684
			4-METHYL PHENOL	33.000		MCG/L	30010
		870612	ACETONE	140.000	B	MCG/L	00420
			BENZENE	3,000.000		MCG/L	00344
			CHLOROBENZENES	1,600.000		MCG/L	00409
			CHLOROFORM	110.000		MCG/L	00390
			METHYLENE CHLORIDE	55.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	71.000		MCG/L	00412
			TOLUENE	6,500.000		MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	140.000		MCG/L	00612
			TRICHLOROETHYLENE	300.000		MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 7

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
10135		870612	1,1,2,2-TETRACHLOROETHANE	230.000		MCG/L	00518
		871211	ACETONE	120.000	B	MCG/L	00420
			ACETONE	120.000	B	MCG/L	00420
			BENZENE	1,300.000		MCG/L	00344
			BENZENE	1,300.000		MCG/L	00344
			BENZOIC ACID	71.000		MCG/L	30016
			BENZOIC ACID	71.000		MCG/L	30016
			BENZYL ALCOHOL	898.400		MCG/L	30017
			BENZYL ALCOHOL	898.400		MCG/L	30017
			BIS(2 ETHYL HEXYL)PHTHALATE	79.200		MCG/L	00679
			BIS(2 ETHYL HEXYL)PHTHALATE	79.200		MCG/L	00679
			CHLOROBENZENES	530.000		MCG/L	00409
			CHLOROBENZENES	530.000		MCG/L	00409
			ENDOSULFAN SULFATE	1.100		MCG/L	00673
			ENDOSULFAN SULFATE	1.100		MCG/L	00673
			METHYLENE CHLORIDE	140.000	B	MCG/L	00238
			METHYLENE CHLORIDE	140.000	B	MCG/L	00238
			PHENOL	48.300		MCG/L	00671
			PHENOL	48.300		MCG/L	00671
			TRANS-1,2-DICHLOROETHENE	83.000		MCG/L	00612
			TRANS-1,2-DICHLOROETHENE	83.000		MCG/L	00612
			TRICHLOROETHYLENE	71.000		MCG/L	00411
			TRICHLOROETHYLENE	71.000		MCG/L	00411
			1,1,2-TRICHLOROETHANE	27.000		MCG/L	00517
			1,1,2-TRICHLOROETHANE	27.000		MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	66.000		MCG/L	00518
			1,1,2,2-TETRACHLOROETHANE	66.000		MCG/L	00518
			1,2-DICHLOROBENZENE	35.200		MCG/L	01441
			1,2-DICHLOROBENZENE	35.200		MCG/L	01441
			1,2,4-TRICHLOROBENZENE	97.400		MCG/L	00440
			1,2,4-TRICHLOROBENZENE	97.400		MCG/L	00440
			1,4-DICHLOROBENZENE	99.000		MCG/L	01442
			1,4-DICHLOROBENZENE	99.000		MCG/L	01442
			2-CHLOROPHENOL	14.300		MCG/L	00664
			2-CHLOROPHENOL	14.300		MCG/L	00664
			2-METHYL PHENOL	227.100		MCG/L	30004
			2-METHYL PHENOL	227.100		MCG/L	30004
			2,4-DICHLOROPHENOL	1,184.100		MCG/L	00665
			2,4-DICHLOROPHENOL	1,184.100		MCG/L	00665
			2,4,5-TRICHLOROPHENOL	689.700		MCG/L	00496
			2,4,5-TRICHLOROPHENOL	689.700		MCG/L	00496
			2,4,6-TRICHLOROPHENOL	197.900		MCG/L	00672
			2,4,6-TRICHLOROPHENOL	197.900		MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	15.200		MCG/L	00663
			4-CHLORO-3-METHYLPHENOL	15.200		MCG/L	00663
			4-METHYL PHENOL	47.100		MCG/L	30010

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 8

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10135		871211	4-METHYL PHENOL	47.100		MCG/L	30010
			4-METHYL-2-PENTANONE	17.000	J	MCG/L	30011
			4-METHYL-2-PENTANONE	17.000	J	MCG/L	30011

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 9

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10140		870612	ACETONE	26.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	580.000		MCG/L	00679
			DI-N-BUTYLPHTHALATE	5.500	JB	MCG/L	00644
			DIOCTYL PHTHALATE	79.000		MCG/L	00422
			METHYLENE CHLORIDE	6.700	B	MCG/L	00238
			2-HEXANONE	600.000		MCG/L	30003
		871212	ACETONE	19.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	43.200		MCG/L	00679
			METHYLENE CHLORIDE	17.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	37.000	J	MCG/L	00412
			TOLUENE	2.000	J	MCG/L	00392
			4-METHYL-2-PENTANONE	68.000		MCG/L	30011

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 10

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10145		860423	ACETONE	140.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	6.000	JB	MCG/L	00679
			DIOCTYL PHTHALATE	13.000	B	MCG/L	00422
			METHYLENE CHLORIDE	7.600	B	MCG/L	00238
			TETRACHLOROETHYLENE	45.000	JB	MCG/L	00412
		860425	ACETONE	140.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	6.000	JB	MCG/L	00679
			DIOCTYL PHTHALATE	13.000	B	MCG/L	00422
			METHYLENE CHLORIDE	7.600	JB	MCG/L	00238
			TETRACHLOROETHYLENE	45.000	JB	MCG/L	00412
		870612	ACETONE	6.300	JB	MCG/L	00420
			BENZENE	1.800	J	MCG/L	00344
			STYRENE	5.000	J	MCG/L	30034
			TOLUENE	8.200		MCG/L	00392
			2-HEXANONE	22.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10150		860424	ACETONE	130.000	B	MCG/L	00420
			BENZENE	3.100	JB	MCG/L	00344
			METHYLENE CHLORIDE	31.000	B	MCG/L	00238
			TOLUENE	2.200	JB	MCG/L	00392
		871211	ACETONE	4.300	J	MCG/L	00420
			ACETONE	44.000	B	MCG/L	00420
			BENZENE	1.200	J	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	22.000		MCG/L	00679
			CHLOROFORM	1.400	J	MCG/L	00390
			METHYLENE CHLORIDE	7.900		MCG/L	00238
			METHYLENE CHLORIDE	110.000	B	MCG/L	00238
			2-HEXANONE	15.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 12

Well ID ******	QA/QC Code *****	Sample Date ******	Parameter Description ********************	Sample Results **********	Comm ****	Units Description ***********	Parm. ID *****
10150	MS	871211	ACENAPHTHENE	65.000	S	MCG/L	00630
			ACETONE	43.000	B	MCG/L	00420
			ALDRIN	.200	S	MCG/L	00077
			B.H.C. GAMA	.300	S	MCG/L	00159
			BENZENE	57.000	S	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	170.000	B	MCG/L	00679
			CHLOROBENZENES	61.000	S	MCG/L	00409
			CHLOROFORM	1.400	J	MCG/L	00390
			DIELDRIN	.300	S	MCG/L	00085
			ENDRIN	.500	S	MCG/L	00084
			HEPTACHLOR	.100	S	MCG/L	00080
			METHYLENE CHLORIDE	120.000	B	MCG/L	00238
			N-NITROSODI-N-PROPYLAMINE	52.000	S	MCG/L	00659
			PENTACHLOROPHENOL	150.000	S	MCG/L	00670
			PHENOL	48.000	S	MCG/L	00671
			PYRENE	44.000	S	MCG/L	00662
			TOLUENE	40.000	S	MCG/L	00392
			TRICHLOROETHYLENE	46.000	S	MCG/L	00411
			1,1-DICHLOROETHYLENE	42.000	S	MCG/L	00509
			1,2,4-TRICHLOROBENZENE	59.000	S	MCG/L	00440
			1,4-DICHLOROBENZENE	55.000	S	MCG/L	01442
			2-CHLOROPHENOL	91.000	S	MCG/L	00664
			2,4-DINITROTOLUENE	83.000	S	MCG/L	00648
			4-CHLORO-3-METHYLPHENOL	73.000	S	MCG/L	00663
			4-NITROPHENOL	36.000	J	MCG/L	00669
			4,4-D.D.T.	.600	S	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 13

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
10150	MSD	871211	ACENAPHTHENE	52.000	S	MCG/L	00630
			ACETONE	27.000	B	MCG/L	00420
			ALDRIN	.200	S	MCG/L	00077
			B.H.C. GAMA	.200	S	MCG/L	00159
			BENZENE	61.000	S	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	8.100	JB	MCG/L	00679
			CHLOROBENZENES	54.000	S	MCG/L	00409
			CHLOROMETHANE	4.600	J	MCG/L	00620
			DIELDRIN	.300	S	MCG/L	00085
			ENDRIN	.400	S	MCG/L	00084
			HEPTACHLOR	.200	S	MCG/L	00080
			METHYLENE CHLORIDE	110.000	B	MCG/L	00238
			N-NITROSODI-N-PROPYLAMINE	43.000	S	MCG/L	00659
			PENTACHLOROPHENOL	113.000	S	MCG/L	00670
			PHENOL	42.000	S	MCG/L	00671
			PYRENE	39.000	S	MCG/L	00662
			TOLUENE	44.000	S	MCG/L	00392
			TRICHLOROETHYLENE	49.000	S	MCG/L	00411
			1,1-DICHLOROETHYLENE	39.000	S	MCG/L	00509
			1,2,4-TRICHLOROBENZENE	48.000	S	MCG/L	00440
			1,4-DICHLOROBENZENE	46.000	S	MCG/L	01442
			2-CHLOROPHENOL	76.000	S	MCG/L	00664
			2,4-DINITROTOLUENE	57.000	S	MCG/L	00648
			4-CHLORO-3-METHYLPHENOL	65.000	S	MCG/L	00663
			4-NITROPHENOL	7.800	J	MCG/L	00669

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 14

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10210A		871209	BIS(2 ETHYL HEXYL)PHTHALATE	28.000		MCG/L	00679

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10210B		871209	BIS(2 ETHYL HEXYL)PHTHALATE	47.000		MCG/L	00679
			DI-N-BUTYLPHTHALATE	8.300		MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 16

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10210C		871209	ACETONE	120.000		MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	85.000		MCG/L	00679
			DI-N-BUTYLPHTHALATE	7.000		MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10220	R	870613	ACETONE	10.000	B	MCG/L	00420
			BENZENE	10.000		MCG/L	00344
			STYRENE	5.000	J	MCG/L	30034
			TOLUENE	38.000		MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 18

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10225A		871208	BIS(2 ETHYL HEXYL)PHTHALATE	13.000		MCG/L	00679
			DI-N-BUTYLPHTHALATE	9.000		MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 19

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
10225C	R	860424	BIS(2 ETHYL HEXYL)PHTHALATE	11.000	B	MCG/L	00679
			DIOCTYL PHTHALATE	3.000	JB	MCG/L	00422
			TETRACHLOROETHYLENE	47.000	JB	MCG/L	00412

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 20

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4108		820211	METHYLENE CHLORIDE	10.000	OK	MCG/L	00238
		830325	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			DIOCTYL PHTHALATE	10.000	PR	MCG/L	00422
		840330	BIS(2 ETHYLHEXYL)PHTHALATE	15.000	OK	MCG/L	00679
		840919	ENDOSULFAN SULFATE	69.000	OK	MCG/L	00673
			4,4-D.D.T.	69.000	OK	MCG/L	01147
		860423	ACETONE	690.000	JB	MCG/L	00420
			ACETONE	45.000	B	MCG/L	00420
			BENZENE	.400	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	12.000	B	MCG/L	00679
			BIS(2 ETHYL HEXYL)PHTHALATE	104.000	B	MCG/L	00679
			CARBONDISULFIDE	.400	J	MCG/L	30020
			DI-N-BUTYLPHTHALATE	3.500	J	MCG/L	00644
			DIOCTYL PHTHALATE	.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			METHYLENE CHLORIDE	16.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	102.000	JB	MCG/L	00412
			TETRACHLOROETHYLENE	40.000	JB	MCG/L	00412
			3,3-DICHLOROBENZIDINE	5.000	J	MCG/L	00645

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 21

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4215		820420	METHYL CHLORIDE	10.000	OK	MCG/L	30341
		840712	CHROMUIM,TOTAL	4.200	OK	MCG/L	01098
			ZINC,TOTAL	144.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5102		811113	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	OK	MCG/L	00679
		820211	CHLOROBENZENES	10.000	LE	MCG/L	00409
			METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
		820317	LEAD	.140	OK	MCG/L	00101
			NICKEL,TOTAL	.040	OK	MCG/L	01128
			ZINC,TOTAL	.012	OK	MG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 23

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
7105		860424	ACETONE	220.000	B	MCG/L	00420
			B.H.C. ALPHA	.000	J	MCG/L	00157
			BENZENE	2.600	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	2.000	JB	MCG/L	00679
			DIOCTYL PHTHALATE	2.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	24.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	44.000	JB	MCG/L	00412
			TOLUENE	15.000	B	MCG/L	00392
		870611	ACETONE	12.000	B	MCG/L	00420
			METHYLENE CHLORIDE	5.600	B	MCG/L	00238
			2-HEXANONE	41.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 24

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7115		860424	ACETONE	86.000	B	MCG/L	00420
			BENZENE	2.900	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	16.000	B	MCG/L	00679
			DIOCTYL PHTHALATE	2.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	46.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	40.000	JB	MCG/L	00412
			TOLUENE	3.100	JB	MCG/L	00392
		870611	ACETONE	26.000	B	MCG/L	00420
			CARBONDISULFIDE	7.800		MCG/L	30020
			METHYLENE CHLORIDE	7.800	B	MCG/L	00238
			2-HEXANONE	250.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 25

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
7115	QAQC	860424	ACETONE	38.000	B	MCG/L	00420
			BENZENE	1.700	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	16.000	B	MCG/L	00679
			CARBONDISULFIDE	.400	J	MCG/L	30020
			DIOCTYL PHTHALATE	22.000	B	MCG/L	00422
			METHYLENE CHLORIDE	3.100	JB	MCG/L	00238
			TETRACHLOROETHYLENE	55.000	JB	MCG/L	00412
			TOLUENE	9.700		MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7120		860424	ACETONE	120.000	B	MCG/L	00420
			BENZENE	.500	JB	MCG/L	00344
			DIOCTYL PHTHALATE	16.000	B	MCG/L	00422
			METHYLENE CHLORIDE	2.900	JB	MCG/L	00238
			TETRACHLOROETHYLENE	46.000	JB	MCG/L	00412
			TOLUENE	.800	J	MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 27

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7125		860424	ACETONE	46.000	JB	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	6.000	B	MCG/L	00679
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	33.000	JB	MCG/L	00412
			1,1,1-TRICHLOROETHANE	1.600	J	MCG/L	00236
		870611	ACETONE	7.300	JB	MCG/L	00420
			2-HEXANONE	38.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 28

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7130		860428	ACETONE	590.000	JB	MCG/L	00420
			BENZENE	.300	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	3.600	JB	MCG/L	00679
			DIOCTYL PHTHALATE	8.200	J	MCG/L	00422
			METHYLENE CHLORIDE	5.200	B	MCG/L	00238
			TETRACHLOROETHYLENE	36.000	JB	MCG/L	00412
		870611	ACETONE	10.000		MCG/L	00420
			METHYLENE CHLORIDE	9.700		MCG/L	00238
			2-HEXANONE	42.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7132		870612	ACETONE	5.400	JB	MCG/L	00420
			B.H.C. DELTA	.100	J	MCG/L	00160
			BENZOIC ACID	160.000		MCG/L	30016
			BIS(2 ETHYL HEXYL)PHTHALATE	37.000		MCG/L	00679
			METHYLENE CHLORIDE	3.300	J	MCG/L	00238
			PHENOL	33.000		MCG/L	00671
			STYRENE	3.000	J	MCG/L	30034
			2-HEXANONE	73.000		MCG/L	30003
			4-METHYL PHENOL	66.000		MCG/L	30010
		871212	ACETONE	18.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	14.200		MCG/L	00679
			DI-N-BUTYLPHTHALATE	2.500	JB	MCG/L	00644
			DIOCTYL PHTHALATE	1.500		MCG/L	00422
			METHYLENE CHLORIDE	20.000	B	MCG/L	00238
			4-METHYL-2-PENTANONE	3.800	J	MCG/L	30011

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7135		860428	ACETONE	15.000	B	MCG/L	00420
			BENZENE	1.100	JB	MCG/L	00344
			METHYLENE CHLORIDE	40.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	42.000	JB	MCG/L	00412
			TOLUENE	4.100	J	MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 31

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7140		860428	ACETONE	120.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	6.200	JB	MCG/L	00679
			METHYLENE CHLORIDE	3.400	JB	MCG/L	00238
			TETRACHLOROETHYLENE	19.000	JB	MCG/L	00412
			TOLUENE	1.300	J	MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 32

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
7145		860428	ACETONE	70.000	B	MCG/L	00420
			BENZENE	11.000	B	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	47.000	B	MCG/L	00679
			CHLOROBENZENES	4.400	J	MCG/L	00409
			EICOSANE	17.000	J	MCG/L	30200
			METHYLENE CHLORIDE	5.400	B	MCG/L	00238
			TETRACHLOROETHYLENE	35.000	JB	MCG/L	00412
			TOLUENE	47.000		MCG/L	00392
			TRICHLOROETHYLENE	1.200	J	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7150		860428	ACETONE	88.000	B	MCG/L	00420
			ACETONE	88.000	B	MCG/L	00420
			BENZENE	.400	JB	MCG/L	00344
			BENZENE	.400	JB	MCG/L	00344
			METHYLENE CHLORIDE	4.300	JB	MCG/L	00238
			METHYLENE CHLORIDE	4.300	JB	MCG/L	00238
			TETRACHLOROETHYLENE	29.000	JB	MCG/L	00412
			TETRACHLOROETHYLENE	29.000	JB	MCG/L	00412
			TOLUENE	1.400	J	MCG/L	00392
			TOLUENE	1.400	J	MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 34

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7155		860428	ACETONE	1,600.000	JB	MCG/L	00420
			BENZENE	1.100	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	6.000		MCG/L	00679
			DI-N-BUTYLPHTHALATE	.000		MCG/L	00644
			METHYLENE CHLORIDE	13.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	36.000	JB	MCG/L	00412
			TOLUENE	3.200	J	MCG/L	00392
		870612	ACETONE	12.000	B	MCG/L	00420
			BENZENE	24.000		MCG/L	00344
			BROMODICHLOROMETHANE	9.100		MCG/L	00389
			CARBONDISULFIDE	6.000		MCG/L	30020
			CHLOROFORM	8.400		MCG/L	00390
			STYRENE	11.000		MCG/L	30034
			TETRACHLOROETHYLENE	14.000		MCG/L	00412
			TRANS-1,2-DICHLOROETHENE	6.800		MCG/L	00612
			TRICHLOROETHYLENE	11.000		MCG/L	00411
			1,1-DICHLOROETHANE	7.100		MCG/L	00519
			1,1,1-TRICHLOROETHANE	10.000		MCG/L	00236
			1,2-DICHLOROETHANE	9.200		MCG/L	01508
			1,2-DICHLOROPROPANE	8.500		MCG/L	00613
			2-BUTANONE	27.000		MCG/L	30002
			2-HEXANONE	21.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
7161		860428	ACETONE	390.000	B	MCG/L	00420
			BENZENE	5.200	B	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	54.000	B	MCG/L	00679
			DI-N-BUTYLPHTHALATE	1.000		MCG/L	00644
			DIOCTYL PHTHALATE	11.000		MCG/L	00422
			METHYLENE CHLORIDE	14.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	39.000	JB	MCG/L	00412
			TOLUENE	32.000		MCG/L	00392
		870610	ACETONE	12.000	B	MCG/L	00420
			BENZENE	1.100	J	MCG/L	00344
			METHYLENE CHLORIDE	23.000		MCG/L	00238
			2-HEXANONE	14.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
7205		860428	ACETONE	850.000	B	MCG/L	00420
			BENZENE	1.800	JB	MCG/L	00344
			METHYLENE CHLORIDE	9.300	B	MCG/L	00238
			TOLUENE	2.400	J	MCG/L	00392
		861104	ACETONE	395.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	28.000		MCG/L	00679
			METHYLENE CHLORIDE	179.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	53.000	JB	MCG/L	00412
			1,1,2-TRI F TRI CL ETHANE	160.000	J	MCG/L	00418

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
8106		860428	ACETONE	45.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	1.000	B	MCG/L	00679
			METHYLENE CHLORIDE	7.200	B	MCG/L	00238
			TETRACHLOROETHYLENE	34.000	JB	MCG/L	00412
		870610	ACETONE	19.000	B	MCG/L	00420
			BENZENE	1.600	J	MCG/L	00344
			METHYLENE CHLORIDE	3.200	J	MCG/L	00238
			2-HEXANONE	22.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
8110		860422	ACETONE	40.000	B	MCG/L	00420
			BENZENE	.900	JB	MCG/L	00344
			DIOCTYL PHTHALATE	6.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	8.100	B	MCG/L	00238
			TETRACHLOROETHYLENE	75.000	JB	MCG/L	00412
			TOLUENE	1.000	J	MCG/L	00392
		870609	ACETONE	25.000	B	MCG/L	00420
			METHYLENE CHLORIDE	25.000		MCG/L	00238
			2-HEXANONE	52.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 39

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
8115		860422	ACETONE	330.000	B	MCG/L	00420
			BENZENE	.600	JB	MCG/L	00344
			DIOCTYL PHTHALATE	3.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	7.800	B	MCG/L	00238
			TETRACHLOROETHYLENE	64.000	JB	MCG/L	00412
		870609	ACETONE	18.000	B	MCG/L	00420
			METHYLENE CHLORIDE	9.700		MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 40

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
8120		860422	ACETONE	220.000	B	MCG/L	00420
			BENZENE	.600	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	3.000	JB	MCG/L	00679
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	7.300	B	MCG/L	00238
			TETRACHLOROETHYLENE	75.000	JB	MCG/L	00412
		861101	ACETONE	13.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	23.200	B	MCG/L	00679
			METHYLENE CHLORIDE	10.300	B	MCG/L	00238
			TETRACHLOROETHYLENE	93.000	JB	MCG/L	00412
		870609	ACETONE	20.000	B	MCG/L	00420
			2-HEXANONE	10.000		MCG/L	30003
			4-METHYL-2-PENTANONE	6.000	J	MCG/L	30011
		871212	ACETONE	14.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	35.000		MCG/L	00679
			DI-N-BUTYLPHTHALATE	3.800	JB	MCG/L	00644
			METHYLENE CHLORIDE	21.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	24.000	J	MCG/L	00412
			4-METHYL-2-PENTANONE	41.000		MCG/L	30011

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 41

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
8125		860422	ACETONE	110.000	B	MCG/L	00420
			BENZENE	.400	JB	MCG/L	00344
			DIOCTYL PHTHALATE	2.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	81.000	JB	MCG/L	00412
		870609	ACETONE	27.000	B	MCG/L	00420
			METHYLENE CHLORIDE	23.000		MCG/L	00238
			2-HEXANONE	58.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
8130		860423	DIOCTYL PHTHALATE	5.000	JB	MCG/L	00422
			TETRACHLOROETHYLENE	88.000	JB	MCG/L	00412
		861101	ACETONE	100.000	B	MCG/L	00420
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	130.000	JB	MCG/L	00412
		870609	ACETONE	26.000	B	MCG/L	00420
			METHYLENE CHLORIDE	18.000		MCG/L	00238
			2-HEXANONE	68.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 43

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
8140		860422	ACETONE	160.000	B	MCG/L	00420
			BENZENE	.400	JB	MCG/L	00344
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	10.000	B	MCG/L	00238
			NAPHTHALENE	3.000	J	MCG/L	00656
			TETRACHLOROETHYLENE	59.000	JB	MCG/L	00412
			2-METHYL NAPHTHALENE	5.000	J	MCG/L	30005
		860424	ACETONE	160.000	B	MCG/L	00420
			BENZENE	.400	JB	MCG/L	00344
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	10.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	59.000	JB	MCG/L	00412
		870610	ACETONE	10.000	B	MCG/L	00420
			CARBONDISULFIDE	4.100	J	MCG/L	30020
			METHYLENE CHLORIDE	5.000	B	MCG/L	00238
			2-HEXANONE	15.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 44

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
8210		870610	ACETONE	5.300	B	MCG/L	00420
			BENZENE	1.000	J	MCG/L	00344
			CARBONDISULFIDE	3.500	J	MCG/L	30020
			METHYLENE CHLORIDE	3.400	J	MCG/L	00238
			1,1,1-TRICHLOROETHANE	5.200		MCG/L	00236
			2-HEXANONE	400.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 45

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9105		860423	ACETONE	280.000	JB	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	31.000	B	MCG/L	00679
			METHYLENE CHLORIDE	16.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	130.000	JB	MCG/L	00412
		870610	ACETONE	28.000	B	MCG/L	00420
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			2-HEXANONE	81.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 46

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9110		860423	ACETONE	96.000	JB	MCG/L	00420
			BENZENE	.400	JB	MCG/L	00344
			BENZO(A)PYRENE	2.000	JB	MCG/L	00636
			BENZO(B)FLUORANTHENE	3.000	J	MCG/L	00634
			BIS(2 ETHYL HEXYL)PHTHALATE	41.000	B	MCG/L	00679
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	10.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	35.000	JB	MCG/L	00412
		870610	ACETONE	14.000	B	MCG/L	00420
			METHYLENE CHLORIDE	10.000	B	MCG/L	00238
			2-HEXANONE	12.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 47

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9113		861104	ACETONE	20.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	30.000	B	MCG/L	00679
			DI-N-BUTYLPHTHALATE	3.600	J	MCG/L	00644
			METHYLENE CHLORIDE	12.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	160.000	JB	MCG/L	00412
		870611	ACETONE	18.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	160.000		MCG/L	00679
			METHYLENE CHLORIDE	9.100	B	MCG/L	00238
		871210	ACETONE	15.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	8.900		MCG/L	00679
			BROMOMETHANE	3.400	J	MCG/L	00618
			CHLOROMETHANE	12.000		MCG/L	00620
			METHYLENE CHLORIDE	61.000	B	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 48

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
9115		860424	ACETONE	41.000	B	MCG/L	00420
			BENZO(B)FLUORANTHENE	2.000	J	MCG/L	00634
			BIS(2 ETHYL HEXYL)PHTHALATE	6.000	JB	MCG/L	00679
			BUTYL BENZYL PHTHALATE	1.000	J	MCG/L	00640
			DI-N-BUTYLPHTHALATE	1.000	JB	MCG/L	00644
			DIOCTYL PHTHALATE	.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	17.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	40.000	JB	MCG/L	00412
		861104	ACETONE	75.000	B	MCG/L	00420
			METHYLENE CHLORIDE	155.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	51.000	JB	MCG/L	00412
			1,1,2-TRI F TRI CL ETHANE	140.000	J	MCG/L	00418
		870611	ACETONE	19.000	B	MCG/L	00420
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			2-HEXANONE	20.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9118		870611	ACETONE	18.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	160.000		MCG/L	00679
			METHYLENE CHLORIDE	7.400	B	MCG/L	00238
		871210	ACETONE	12.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	40.000		MCG/L	00679
			CHLOROFORM	2.800	J	MCG/L	00390
			METHYLENE CHLORIDE	47.000	B	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9120		860424	ACETONE	49.000	B	MCG/L	00420
			BENZENE	.500	JB	MCG/L	00344
			BENZO(B)FLUORANTHENE	2.000	J	MCG/L	00634
			DI-N-BUTYLPHTHALATE	1.000	JB	MCG/L	00644
			DIOCTYL PHTHALATE	1.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	56.000	JB	MCG/L	00412
		870611	ACETONE	11.000	B	MCG/L	00420
			METHYLENE CHLORIDE	8.300	B	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 51

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9122		870611	ACETONE	200.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	91.000		MCG/L	00679
			METHYLENE CHLORIDE	8.500	B	MCG/L	00238
		871210	ACETONE	38.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	34.000		MCG/L	00679
			METHYLENE CHLORIDE	51.000	B	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9125		860423	ACETONE	27.000	B	MCG/L	00420
			DIOCTYL PHTHALATE	4.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	11.000	B	MCG/L	00238
			TETRACHLOROETHYLENE	42.000	JB	MCG/L	00412
			TOLUENE	.600	J	MCG/L	00392
		870611	ACETONE	12.000	JB	MCG/L	00420
			BENZENE	1.500	J	MCG/L	00344
			TRICHLOROETHYLENE	1.200	J	MCG/L	00411
			2-HEXANONE	10.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
9130		860423	ACETONE	72.000	B	MCG/L	00420
			BENZENE	.700	JB	MCG/L	00344
			BIS(2 ETHYL HEXYL)PHTHALATE	9.000	JB	MCG/L	00679
			DIOCTYL PHTHALATE	2.000	JB	MCG/L	00422
			METHYLENE CHLORIDE	8.400	B	MCG/L	00238
			TETRACHLOROETHYLENE	63.000	JB	MCG/L	00412
			TOLUENE	.800	J	MCG/L	00392
		870611	ACETONE	7.500		MCG/L	00420
			METHYLENE CHLORIDE	27.000		MCG/L	00238
			2-HEXANONE	21.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9140		861101	ACETONE	31.000	B	MCG/L	00420
			DI-N-BUTYLPHTHALATE	6.800	J	MCG/L	00644
			EICOSANE	9.000	J	MCG/L	30200
			METHYLENE CHLORIDE	2.300	JB	MCG/L	00238
			TETRACHLOROETHYLENE	90.000	J	MCG/L	00412
		870609	METHYLENE CHLORIDE	190.000	B	MCG/L	00238
			1,1,2-TRI F TRI CL ETHANE	13.000	J	MCG/L	00418

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 55

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
9205		870612	ACETONE	14.000		MCG/L	00420
			METHYLENE CHLORIDE	74.000		MCG/L	00238
			2-HEXANONE	10.000		MCG/L	30003

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

09/20/88 15.25.08 - Love Canal Sample Data By Well ID (Perimeter Wells with Positive Hits) - PAGE 56

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
9210		861101	ACETONE	12.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	159.000	B	MCG/L	00679
			DI-N-BUTYLPHTHALATE	3.400	J	MCG/L	00644
			METHYLENE CHLORIDE	3.300	JB	MCG/L	00238
			TETRACHLOROETHYLENE	130.000	JB	MCG/L	00412
		870609	ACETONE	36.000	B	MCG/L	00420
			BENZENE	1.300	J	MCG/L	00344
			METHYLENE CHLORIDE	42.000		MCG/L	00238

***** END OF REPORT *****

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 3

\- Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) -

QUERY NAME . . . . . . INNERPOS
LIBRARY . . . . LIB.LCAN

FILE NAME . . . . . . LC.WSMPL
FILE NAME . . . . . . LC.XREFL

DATE 09/21/88
TIME 08.24.20

Love Canal Data By Well #-Pos Hits-Inner

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1092		850515	ANTHRACENE	10.000	OK	MCG/L	00632
			CHLOROTOLUENE(O/P)	2.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	13.000	OK	MCG/L	00644
			DIOCTYL PHTHALATE	14.000	OK	MCG/L	00433
			ENDRIN	33.000	OK	MCG/L	00084
			FLUORANTHENE	24.000	OK	MCG/L	00680

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 2

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1101		850116	B.H.C. DELTA	13.000	OK	MCG/L	00160
			BENZENE	140.000	OK	MCG/L	00344
			CHLOROBENZENES	75.000	OK	MCG/L	00409
			CHLOROFORM	20.000	OK	MCG/L	00390
			CHLOROTOLUENE(O/P)	150.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	180.000	OK	MCG/L	00644
			ENDRIN	22.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	110.000	OK	MCG/L	00674
			FLUORANTHENE	21.000	OK	MCG/L	00680
			HEPTACHLOR	56.000	OK	MCG/L	00080
			HEXACHLOROBENZENE	31.000	OK	MCG/L	00488
			PHENANTHRENE	34.000	OK	MCG/L	00661
			PYRENE	260.000	OK	MCG/L	00662
			TRICHLOROETHYLENE	40.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	20.000	OK	MCG/L	01441
			1,4-DICHLOROBENZENE	20.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	12.000	OK	MCG/L	00641
			2,4-DINITROTOLUENE	18.000	OK	MCG/L	00648
			4,4-D.D.E.	68.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 3

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1101A		850116	B.H.C. ALPHA	11.000	OK	MCG/L	00157
			B.H.C. DELTA	28.000	OK	MCG/L	00160
			B.H.C. GAMA	13.000	OK	MCG/L	00159
			BENZENE	140.000	OK	MCG/L	00344
			CHLOROBENZENES	96.000	OK	MCG/L	00409
			CHLOROFORM	1.000	OK	MCG/L	00390
			CHLOROTOLUENE(O/P)	130.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	29.000	OK	MCG/L	00644
			PHENANTHRENE	12.000	OK	MCG/L	00661
			PYRENE	73.000	OK	MCG/L	00662
			TETRACHLOROETHYLENE	3.000	OK	MCG/L	00412
			TOLUENE	140.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	17.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	16.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	46.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	11.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	10.000	OK	MCG/L	00641
			2,4-DINITROTOLUENE	10.000	OK	MCG/L	00648

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1102		850116	B.H.C. DELTA	14.000	OK	MCG/L	00160
			BENZENE	90.000	OK	MCG/L	00344
			CHLOROBENZENES	14.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	100.000	OK	MCG/L	30353
			PYRENE	16.000	OK	MCG/L	00662
			TETRACHLOROETHYLENE	1.000	OK	MCG/L	00412
			TOLUENE	100.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	3.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	7.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	1.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	15.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 5

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1102A		850116	B.H.C. DELTA	19.000	OK	MCG/L	00160
			BENZENE	160.000	OK	MCG/L	00344
			CHLOROBENZENES	4.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	270.000	OK	MCG/L	30353
			ENDOSULFAN	30.000	OK	MCG/L	00424
			ENDRIN	12.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	23.000	OK	MCG/L	00674
			TETRACHLOROETHYLENE	2.000	OK	MCG/L	00412
			TOLUENE	200.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	6.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	12.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	5.000	OK	MCG/L	01497
			4,4-D.D.D.	23.000	OK	MCG/L	01149

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1103		810617	METHYLENE CHLORIDE	7.000	OK	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 7

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1104		810617	BIS(2 ETHYLHEXYL)PHTHALATE	18.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	LE	MCG/L	00640
			DI-N-BUTYLPHTHALATE	25.000	LE	MCG/L	00644
		850116	ANTHRACENE	16.000	OK	MCG/L	00632
			BENZENE	50.000	OK	MCG/L	00344
			CHLOROBENZENES	10.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	70.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	64.000	OK	MCG/L	00644
			ENDOSULFAN	49.000	OK	MCG/L	00424
			ENDOSULFAN II	12.000	OK	MCG/L	00434
			ENDRIN	25.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	14.000	OK	MCG/L	00674
			HEXACHLOROBENZENE	35.000	OK	MCG/L	00488
			PHENANTHRENE	37.000	OK	MCG/L	00661
			PYRENE	170.000	OK	MCG/L	00662
			TETRACHLOROETHYLENE	2.000	OK	MCG/L	00412
			TOLUENE	70.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	2.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	5.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	8.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	3.000	OK	MCG/L	01442
			4,4-D.D.D.	12.000	OK	MCG/L	01149

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 8

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1104A		850116	B.H.C. DELTA	20.000	OK	MCG/L	00160
			BENZENE	30.000	OK	MCG/L	00344
			BENZIDINE	11.000	OK	MCG/L	00638
			CHLOROBENZENES	6.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	50.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	55.000	OK	MCG/L	00644
			FLUORANTHENE	10.000	OK	MCG/L	00680
			NITROBENZENE	10.000	OK	MCG/L	00657
			PYRENE	28.000	OK	MCG/L	00662
			TETRACHLOROETHYLENE	2.000	OK	MCG/L	00412
			TOLUENE	27.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	3.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	4.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	6.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	3.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	10.000	OK	MCG/L	00641

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 9

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1105		850116	B.H.C. DELTA	15.000	OK	MCG/L	00160
			BENZENE	90.000	OK	MCG/L	00344
			CHLOROBENZENES	51.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	120.000	OK	MCG/L	30353
			TETRACHLOROETHYLENE	4.000	OK	MCG/L	00412
			TOLUENE	110.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	6.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	11.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	36.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	7.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 10

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1105A		850116	B.H.C. DELTA	14.000	OK	MCG/L	00160
			BENZENE	50.000	OK	MCG/L	00344
			CHLOROBENZENES	48.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	76.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	16.000	OK	MCG/L	00644
			PYRENE	46.000	OK	MCG/L	00662
			TETRACHLOROETHYLENE	2.000	OK	MCG/L	00412
			TRICHLOROETHYLENE	7.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	12.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	36.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	10.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 11

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1107		840918	BIS(2 ETHYLHEXYL)PHTHALATE	62.000	OK	MCG/L	00679
			CHLOROFORM	2.000	OK	MCG/L	00390
			DI-N-BUTYLPHTHALATE	61.000	OK	MCG/L	00644
			ENDRIN	85.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	17.000	OK	MCG/L	00674
			HEPTACHLOR EPOXIDE	23.000	OK	MCG/L	00083
			4,4-D.D.D.	17.000	OK	MCG/L	01149
			4,4-D.D.E.	37.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 12

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1107A		830325	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
		840918	BIS(2 ETHYLHEXYL)PHTHALATE	88.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	120.000	OK	MCG/L	00640
			ENDOSULFAN SULFATE	410.000	OK	MCG/L	00673
			ENDRIN	240.000	OK	MCG/L	00084
			FLUORANTHENE	87.000	OK	MCG/L	00680
			PYRENE	120.000	OK	MCG/L	00662

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1108		840919	ENDOSULFAN SULFATE	32.000	OK	MCG/L	00673

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 14

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1109A		840919	ALDRIN	19.000	OK	MCG/L	00077
			B.H.C. DELTA	13.000	OK	MCG/L	00160
			DI-N-BUTYLPHTHALATE	13.000	OK	MCG/L	00644
			DIELDRIN	24.000	OK	MCG/L	00085
			ENDOSULFAN SULFATE	13.000	OK	MCG/L	00673
			ENDRIN ALDEHYDE	24.000	OK	MCG/L	00674
			HEPTACHLOR EPOXIDE	28.000	OK	MCG/L	00083
			4,4-D.D.T.	13.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1113		810617	BIS(2 ETHYLHEXYL)PHTHALATE	18.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	LE	MCG/L	00640
			DI-N-BUTYLPHTHALATE	25.000	LE	MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 16

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1114		810617	BIS(2 ETHYLHEXYL)PHTHALATE	50.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	LE	MCG/L	00640
			CHLOROFORM	5.000	LE	MCG/L	00390
			DI-N-BUTYLPHTHALATE	25.000	LE	MCG/L	00644
			DIOCTYL PHTHALATE	10.000	LE	MCG/L	00422
			ETHYLBENZENE	5.000	LE	MCG/L	00510

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1115		810617	BIS(2 ETHYLHEXYL)PHTHALATE	18.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	LE	MCG/L	00640
			DI-N-BUTYLPHTHALATE	25.000	LE	MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 18

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1117		840918	BIS(2 ETHYLHEXYL)PHTHALATE	95.000	OK	MCG/L	00679
			D.D.E	100.000	OK	MCG/L	01148
			DI-N-BUTYLPHTHALATE	93.000	OK	MCG/L	00644
			DIOCTYL PHTHALATE	53.000	OK	MCG/L	00422
			ENDOSULFAN SULFATE	270.000	OK	MCG/L	00673
			ENDRIN	390.000	OK	MCG/L	00084
			HEPTACHLOR	76.000	OK	MCG/L	00080
			PHENANTHRENE	10.000	OK	MCG/L	00661
			PYRENE	31.000	OK	MCG/L	00662

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1118		830325	DI-N-BUTYLPHTHALATE	10.000	OK	MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 20

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1160A		830322	CHLOROBENZENES	580.000	OK	MCG/L	00409
			CHLOROFORM	1.600	PR	MCG/L	00390
			ETHYLBENZENE	7.700	OK	MCG/L	00510
			METHYL CHLORIDE	10.000	PR	MCG/L	30341
			METHYLENE CHLORIDE	28.000	OK	MCG/L	00238
			PHENOL	3.600	OK	MCG/L	00671
			TETRACHLOROETHYLENE	4.100	PR	MCG/L	00412
			TOLUENE	270.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	7.100	OK	MCG/L	00612
			TRICHLOROETHYLENE	17.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	32.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	32.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	1.900	PR	MCG/L	01497
			1,4-DICHLOROBENZENE	24.000	OK	MCG/L	01442
			2-CHLOROPHENOL	3.300	PR	MCG/L	00664
			2,4-DICHLOROPHENOL	2.700	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	2.700	PR	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	4.300	OK	MCG/L	00663
		830609	B.H.C. ALPHA	38.000	OK	MCG/L	00157
			B.H.C. DELTA	62.000	OK	MCG/L	00160
			B.H.C. GAMA	12.000	OK	MCG/L	00159
			BENZENE	1,300.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	16.000	OK	MCG/L	00679
			CHLOROBENZENES	3,400.000	OK	MCG/L	00409
			DI-N-BUTYLPHTHALATE	13.000	OK	MCG/L	00644
			HEXACHLOROBENZENE	6.400	OK	MCG/L	00488
			TOLUENE	6,500.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	88.000	OK	MCG/L	00411
			1,2,4-TRICHLOROBENZENE	53.000	OK	MCG/L	00440
			2,4,6-TRICHLOROPHENOL	12.000	OK	MCG/L	00672
		850115	B.H.C. ALPHA	150.000	OK	MCG/L	00157
			B.H.C. BETA	100.000	OK	MCG/L	00158
			B.H.C. DELTA	100.000	OK	MCG/L	00160
			B.H.C. GAMA	280.000	OK	MCG/L	00159
			BENZENE	3,300.000	OK	MCG/L	00344
			CHLOROBENZENES	2,500.000	OK	MCG/L	00409
			CHLOROFORM	10.000	OK	MCG/L	00390
			METHYLENE CHLORIDE	10.000	OK	MCG/L	00238
			TETRACHLOROETHYLENE	55.000	OK	MCG/L	00412
			TOLUENE	9,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	13.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	150.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	1,200.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	2,000.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	910.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 21

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1160C		830322	BENZENE	56,000.000	OK	MCG/L	00344
			CARBON TETRACHLORIDE	6.500	OK	MCG/L	00366
			CHLOROBENZENES	14,000.000	OK	MCG/L	00409
			CHLOROFORM	210.000	OK	MCG/L	00390
			ETHYLBENZENE	34.000	OK	MCG/L	00510
			HEXACHLOROBENZENE	3,200.000	OK	MCG/L	00488
			HEXACHLOROBUTADIENE(C-46)	7,600.000	OK	MCG/L	00525
			HEXACHLOROCYCLOPENTADIENE	5,700.000	OK	MCG/L	00492
			HEXACHLOROETHANE	1,700.000	OK	MCG/L	00653
			METHYL CHLORIDE	10.000	PR	MCG/L	30341
			METHYLENE CHLORIDE	110.000	OK	MCG/L	00238
			NAPHTHALENE	160.000	PR	MCG/L	00656
			PENTACHLOROPHENOL	820.000	OK	MCG/L	00670
			TETRACHLOROETHYLENE	250.000	OK	MCG/L	00412
			TOLUENE	60,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	180.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	1,800.000	OK	MCG/L	00411
			TRICHLOROFLUOROMETHANE	10.000	PR	MCG/L	00617
			VINYL CHLORIDE	11.000	OK	MCG/L	00410
			1,1-DICHLOROETHANE	4.700	PR	MCG/L	00519
			1,1-DICHLOROETHYLENE	11.000	OK	MCG/L	00509
			1,1,2-TRICHLOROETHANE	130.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	420.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	17,000.000	OK	MCG/L	01441
			1,2-DICHLOROETHANE	9.300	OK	MCG/L	01508
			1,2,4-TRICHLOROBENZENE	79,000.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	12,000.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	2,000.000	OK	MCG/L	00641
		850115	B.H.C. ALPHA	930.000	OK	MCG/L	00157
			B.H.C. BETA	240.000	OK	MCG/L	00158
			B.H.C. DELTA	3,200.000	OK	MCG/L	00160
			B.H.C. GAMA	1,400.000	OK	MCG/L	00159
			BENZENE	5,500.000	OK	MCG/L	00344
			CHLOROBENZENES	10,000.000	OK	MCG/L	00409
			CHLOROFORM	110.000	OK	MCG/L	00390
			ETHYLBENZENE	3.000	OK	MCG/L	00510
			HEXACHLOROBENZENE	37.000	OK	MCG/L	00488
			METHYLENE CHLORIDE	50.000	OK	MCG/L	00238
			TETRACHLOROETHYLENE	230.000	OK	MCG/L	00412
			TOLUENE	15,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	100.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	1,000.000	OK	MCG/L	00411
			TRICHLOROFLUOROMETHANE	6.000	OK	MCG/L	00617
			VINYL CHLORIDE	18.000	OK	MCG/L	00410
			1,1-DICHLOROETHYLENE	13.000	OK	MCG/L	00509
			1,1,2,2-TETRACHLOROETHANE	600.000	OK	MCG/L	00518

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1160C		850115	1,2-DICHLOROBENZENE	2,200.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	2,600.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	1,700.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 23

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1161A		830322	BENZENE	38.000	OK	MCG/L	00344
			CHLOROBENZENES	9.700	OK	MCG/L	00409
			CHLOROFORM	1.600	PR	MCG/L	00390
			ETHYLBENZENE	7.200	PR	MCG/L	00510
			PHENOL	3.400	OK	MCG/L	00671
			TETRACHLOROETHYLENE	4.100	PR	MCG/L	00412
			TOLUENE	46.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	1.600	PR	MCG/L	00612
			TRICHLOROETHYLENE	6.000	OK	MCG/L	00411
			1,2,4-TRICHLOROBENZENE	3.200	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	4.400	PR	MCG/L	01442
			2,4-DICHLOROPHENOL	2.700	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	2.700	PR	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	3.000	PR	MCG/L	00663
		850115	B.H.C. ALPHA	100.000	OK	MCG/L	00157
			B.H.C. GAMA	150.000	OK	MCG/L	00159
			BENZENE	800.000	OK	MCG/L	00344
			CHLOROBENZENES	600.000	OK	MCG/L	00409
			CHLOROFORM	3.000	OK	MCG/L	00390
			METHYLENE CHLORIDE	6.000	OK	MCG/L	00238
			TETRACHLOROETHYLENE	24.000	OK	MCG/L	00412
			TOLUENE	1,800.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	13.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	50.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	890.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	2,200.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	710.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID ******	QA/QC Code *****	Sample Date ******	Parameter Description ********************	Sample Results **********	Comm ****	Units Description ***********	Parm. ID *****
1161B		821029	BIS(2 ETHYLHEXYL)PHTHALATE	29.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
		830322	BENZENE	110.000	OK	MCG/L	00344
			CHLOROBENZENES	24.000	OK	MCG/L	00409
			CHLOROFORM	1.600	PR	MCG/L	00390
			ETHYLBENZENE	7.200	PR	MCG/L	00510
			PHENOL	1.500	PR	MCG/L	00671
			TETRACHLOROETHYLENE	4.100	PR	MCG/L	00412
			TOLUENE	120.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	1.600	PR	MCG/L	00612
			TRICHLOROETHYLENE	6.400	OK	MCG/L	00411
			2,4-DICHLOROPHENOL	2.700	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	2.700	PR	MCG/L	00672

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 25

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1161C		821029	BENZENE	1,100.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	95.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	OK	MCG/L	00640
			CHLOROBENZENES	380.000	OK	MCG/L	00409
			CHLOROFORM	63.000	OK	MCG/L	00390
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
			DIOCTYL PHTHALATE	10.000	PR	MCG/L	00422
			PHENOL	10.000	PR	MCG/L	00671
			TETRACHLOROETHYLENE	2,400.000	OK	MCG/L	00412
			TOLUENE	16,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	850.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	10.000	PR	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	730.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	230.000	OK	MCG/L	01497
			2-CHLORONAPHTHALENE	260.000	OK	MCG/L	00641
			2-CHLOROPHENOL	10.000	PR	MCG/L	00664
			2,4-DICHLOROPHENOL	10.000	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	10.000	PR	MCG/L	00672
			4-NITROPHENOL	10.000	PR	MCG/L	00669
		830322	BENZENE	420.000	OK	MCG/L	00344
			CHLOROBENZENES	170.000	OK	MCG/L	00409
			CHLOROFORM	20.000	OK	MCG/L	00390
			ETHYLBENZENE	7.200	OK	MCG/L	00510
			METHYLENE CHLORIDE	24.000	OK	MCG/L	00238
			PHENOL	6.500	OK	MCG/L	00671
			TETRACHLOROETHYLENE	590.000	OK	MCG/L	00412
			TOLUENE	7,800.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	11.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	37.000	OK	MCG/L	00411
			1,1-DICHLOROETHYLENE	2.800	PR	MCG/L	00509
			1,2-DICHLOROBENZENE	92.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	190.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	70.000	OK	MCG/L	01442
			2,4,6-TRICHLOROPHENOL	5.300	OK	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	18.000	OK	MCG/L	00663
		830609	B.H.C. ALPHA	32.000	OK	MCG/L	00157
			B.H.C. DELTA	68.000	OK	MCG/L	00160
			B.H.C. GAMA	27.000	OK	MCG/L	00159
			BENZENE	2,300.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	37.000	OK	MCG/L	00679
			CHLOROBENZENES	2,400.000	OK	MCG/L	00409
			CHLOROFORM	23.000	OK	MCG/L	00390
			DIBROMOCHLOROMETHANE	6.000	OK	MCG/L	00449
			HEXACHLOROBENZENE	4.100	OK	MCG/L	00488
			HEXACHLOROBUTADIENE(C-46)	13.000	OK	MCG/L	00525

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 26

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1161C		830609	TOLUENE	14,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	250.000	OK	MCG/L	00411
			1,1,2,2-TETRACHLOROETHANE	42.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	100.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	700.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	67.000	OK	MCG/L	01497
			2-CHLORONAPHTHALENE	3.300	OK	MCG/L	00641
			2,4-DICHLOROPHENOL	62.000	OK	MCG/L	00665
			2,4-DINITROPHENOL	72.000	OK	MCG/L	00667
			4-CHLORO-3-METHYLPHENOL	22.000	OK	MCG/L	00663
			4-NITROPHENOL	100.000	OK	MCG/L	00669
		850115	B.H.C. ALPHA	100.000	OK	MCG/L	00157
			B.H.C. GAMA	170.000	OK	MCG/L	00159
			BENZENE	1,100.000	OK	MCG/L	00344
			CHLOROBENZENES	1,200.000	OK	MCG/L	00409
			CHLOROFORM	13.000	OK	MCG/L	00390
			ETHYLBENZENE	33.000	OK	MCG/L	00510
			TETRACHLOROETHYLENE	75.000	OK	MCG/L	00412
			TOLUENE	3,800.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	15.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	240.000	OK	MCG/L	00411
			1,1,2,2-TETRACHLOROETHANE	49.000	OK	MCG/L	00518
			1,2,4-TRICHLOROBENZENE	1,500.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	350.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1161D		830322	BENZENE	4.400	PR	MCG/L	00344
			CHLOROFORM	3.500	OK	MCG/L	00390
			PHENOL	1.500	PR	MCG/L	00671
		830609	B.H.C. GAMA	3.500	OK	MCG/L	00159
			BENZENE	250.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	20.000	OK	MCG/L	00679
			CHLOROBENZENES	100.000	OK	MCG/L	00409
			TOLUENE	610.000	OK	MCG/L	00392
			1,2,4-TRICHLOROBENZENE	17.000	OK	MCG/L	00440

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1162A		821029	BENZENE	10.000	PR	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	49.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	13.000	OK	MCG/L	00640
			CHLOROFORM	15.000	OK	MCG/L	00390
			METHYL CHLORIDE	160.000	OK	MCG/L	30341
			PENTACHLOROPHENOL	10.000	PR	MCG/L	00670
			TRANS-1,2-DICHLOROETHENE	17.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	10.000	OK	MCG/L	00411
			VINYL CHLORIDE	10.000	PR	MCG/L	00410
		830322	PHENOL	1.500	PR	MCG/L	00671

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 29

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1162C		821029	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	28.000	OK	MCG/L	00640
			DI-N-BUTYLPHTHALATE	10.000	PR	MCG/L	00644
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
			DIOCTYL PHTHALATE	10.000	PR	MCG/L	00422
		830322	Bromomethane	10.000	OK	MCG/L	00618
			BENZENE	5.500	OK	MCG/L	00344
			BROMODICHLOROMETHANE	2.200	OK	MCG/L	00389
			BROMOFORM	4.700	OK	MCG/L	00421
			CARBON TETRACHLORIDE	2.800	OK	MCG/L	00366
			CHLOROBENZENES	6.000	PR	MCG/L	00409
			CHLOROETHANE	10.000	OK	MCG/L	00619
			CHLOROFORM	1.600	OK	MCG/L	00390
			DIBROMOCHLOROMETHANE	3.100	OK	MCG/L	00449
			METHYL CHLORIDE	10.000	OK	MCG/L	30341
			PHENOL	1.500	PR	MCG/L	00671
			TRANS-1,2-DICHLOROETHENE	2.600	OK	MCG/L	00612
			1,1-DICHLOROETHANE	4.700	OK	MCG/L	00519
			1,1-DICHLOROETHYLENE	2.800	OK	MCG/L	00509
			1,2-DICHLOROETHANE	2.800	OK	MCG/L	01508
			2-CHLOROETHYLVINYL ETHER	10.000	OK	MCG/L	00611
		830609	BIS(2 ETHYLHEXYL)PHTHALATE	240.000	OK	MCG/L	00679
			CHLOROBENZENES	11.000	OK	MCG/L	00409
			CHLOROFORM	610.000	OK	MCG/L	00390
			DI-N-BUTYLPHTHALATE	20.000	OK	MCG/L	00644
			ENDOSULFAN(BETA)	17.000	OK	MCG/L	30018
			TRICHLOROETHYLENE	13.000	OK	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 30

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1162D		830322	HEXACHLOROCYCLOPENTADIENE	25.000	OK	MCG/L	00492
			HEXACHLOROETHANE	1.600	OK	MCG/L	00653
			INDENO(1,2,3-CD)PYRENE	3.700	OK	MCG/L	00654
			ISOPHORONE	2.200	OK	MCG/L	00655
			N-NITROSODIMETHYLAMINE	25.000	OK	MCG/L	00658
			N-NITROSODIPHENYLAMINE	1.900	OK	MCG/L	00660
			NAPHTHALENE	1.600	OK	MCG/L	00656
			NITROBENZENE	1.900	OK	MCG/L	00657
			PHENANTHRENE	5.400	OK	MCG/L	00661
			PYRENE	1.900	OK	MCG/L	00662
			1,2,4-TRICHLOROBENZENE	1.900	OK	MCG/L	00440
		830609	B.H.C. GAMA	3.600	OK	MCG/L	00159
			BIS(2 ETHYLHEXYL)PHTHALATE	17.000	OK	MCG/L	00679
			1,2-DICHLOROBENZENE	17.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	17.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	14.000	OK	MCG/L	01497

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 31

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1163A		821029	BENZENE	47.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	23.000	OK	MCG/L	00679
			CHLOROBENZENES	50.000	OK	MCG/L	00409
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
			PENTACHLOROPHENOL	10.000	PR	MCG/L	00670
			PHENOL	10.000	PR	MCG/L	00671
			1,2,4-TRICHLOROBENZENE	180.000	OK	MCG/L	00440
			2-CHLOROPHENOL	10.000	PR	MCG/L	00664
			2,4-DICHLOROPHENOL	10.000	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	11.000	OK	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	34.000	OK	MCG/L	00663
		830322	BENZENE	6.700	OK	MCG/L	00344
			CHLOROBENZENES	6.000	PR	MCG/L	00409
			PHENOL	1.500	PR	MCG/L	00671
			TETRACHLOROETHYLENE	7.200	OK	MCG/L	00412
			TOLUENE	6.000	PR	MCG/L	00392
			TRICHLOROETHYLENE	7.900	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	2.500	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	5.900	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	4.400	PR	MCG/L	01442
			2-CHLOROPHENOL	3.300	PR	MCG/L	00664
			2,4-DICHLOROPHENOL	2.700	PR	MCG/L	00665
			4-CHLORO-3-METHYLPHENOL	8.400	OK	MCG/L	00663
		850515	ALDRIN	110.000	OK	MCG/L	00077
			ANTHRACENE	27.000	OK	MCG/L	00632
			B.H.C. ALPHA	31.000	OK	MCG/L	00157
			B.H.C. BETA	40.000	OK	MCG/L	00158
			B.H.C. DELTA	47.000	OK	MCG/L	00160
			B.H.C. GAMA	43.000	OK	MCG/L	00159
			BENZENE	32.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	51.000	OK	MCG/L	00679
			BIS-2-CHLOROETHOXY METHANE	10.000	OK	MCG/L	00686
			BUTYL BENZYL PHTHALATE	37.000	OK	MCG/L	00640
			CHLOROBENZENES	7.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	44.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	52.000	OK	MCG/L	00644
			DIOCTYL PHTHALATE	240.000	OK	MCG/L	00433
			ENDRIN	490.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	280.000	OK	MCG/L	00674
			ETHYLBENZENE	8.000	OK	MCG/L	00510
			FLUORANTHENE	92.000	OK	MCG/L	00680
			HEPTACHLOR	77.000	OK	MCG/L	00080
			HEXACHLOROBENZENE	12.000	OK	MCG/L	00488
			HEXACHLOROETHANE	66.000	OK	MCG/L	00653
			METHYLENE CHLORIDE	1.000	OK	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 32

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1163A		850515	NITROBENZENE	23.000	OK	MCG/L	00657
			PHENANTHRENE	12.000	OK	MCG/L	00661
			TOLUENE	3.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	34.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	4.000	OK	MCG/L	00411
			XYLENE(META)	44.000	OK	MCG/L	30027
			XYLENE(ORTHO)	15.000	OK	MCG/L	00514
			1,2-DICHLOROBENZENE	3.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	7.000	OK	MCG/L	00440
			1,2,4-TRIMETHYL BENZENE	3.000	OK	MCG/L	30343
			1,3-DICHLOROBENZENE	14.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	3.000	OK	MCG/L	01442
			4-BROMOPHENYL PHENYL ETHER	21.000	OK	MCG/L	00683
			4,4-D.D.E.	110.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1163B		821029	BENZENE	64.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	16.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	11.000	OK	MCG/L	00640
			DI-N-BUTYLPHTHALATE	10.000	PR	MCG/L	00644
			DIETHYLPHTHALATE	10.000	OK	MCG/L	00646
			DIOCTYL PHTHALATE	10.000	PR	MCG/L	00422
			PHENOL	10.000	PR	MCG/L	00671
			1,2,4-TRICHLOROBENZENE	10.000	PR	MCG/L	00440
			4-CHLORO-3-METHYLPHENOL	10.000	PR	MCG/L	00663
		830322	BENZENE	8,400.000	OK	MCG/L	00344
			CARBON TETRACHLORIDE	3.000	OK	MCG/L	00366
			CHLOROBENZENES	1,000.000	OK	MCG/L	00409
			CHLOROFORM	160.000	OK	MCG/L	00390
			ETHYLBENZENE	8.800	PR	MCG/L	00510
			HEXACHLOROBENZENE	1.900	PR	MCG/L	00488
			HEXACHLOROBUTADIENE(C-46)	3.100	OK	MCG/L	00525
			HEXACHLOROETHANE	1.600	PR	MCG/L	00653
			METHYL CHLORIDE	10.000	PR	MCG/L	30341
			METHYLENE CHLORIDE	770.000	OK	MCG/L	00238
			NAPHTHALENE	3.200	OK	MCG/L	00656
			PHENOL	23.000	OK	MCG/L	00671
			TETRACHLOROETHYLENE	3,900.000	OK	MCG/L	00412
			TOLUENE	42,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	1,700.000	OK	MCG/L	00411
			VINYL CHLORIDE	10.000	PR	MCG/L	00410
			1,1,2,2-TETRACHLOROETHANE	7.100	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	360.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	810.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	7.400	OK	MCG/L	01497
			1,3-DICHLOROPROPENE	5.000	PR	MCG/L	00516
			1,4-DICHLOROBENZENE	250.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	1.900	PR	MCG/L	00641
			2-CHLOROPHENOL	3.300	PR	MCG/L	00664
			2,4,6-TRICHLOROPHENOL	42.000	OK	MCG/L	00672
			4-BROMOPHENYL PHENYL ETHER	1.900	PR	MCG/L	00683
			4-CHLORO-3-METHYLPHENOL	19.000	OK	MCG/L	00663
		830609	B.H.C. GAMA	69.000	OK	MCG/L	00159
			BENZENE	7,000.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	270.000	OK	MCG/L	00679
			CHLOROBENZENES	2,100.000	OK	MCG/L	00409
			CHLOROFORM	380.000	OK	MCG/L	00390
			DI-N-BUTYLPHTHALATE	510.000	OK	MCG/L	00644
			HEXACHLOROBENZENE	640.000	OK	MCG/L	00488
			HEXACHLOROBUTADIENE(C-46)	1,200.000	OK	MCG/L	00525
			PENTACHLOROPHENOL	120.000	OK	MCG/L	00670

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1163B		830609	TOLUENE	44,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	1,600.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	240.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	30,000.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	53.000	OK	MCG/L	01497
			2,4-DICHLOROPHENOL	4,500.000	OK	MCG/L	00665
			2,4-DINITROPHENOL	45.000	OK	MCG/L	00667
			4-CHLORO-3-METHYLPHENOL	26.000	OK	MCG/L	00663
			4-NITROPHENOL	76.000	OK	MCG/L	00669
		850115	B.H.C. ALPHA	80.000	OK	MCG/L	00157
			B.H.C. GAMA	39.000	OK	MCG/L	00159
			BENZENE	50.000	OK	MCG/L	00344
			CHLOROBENZENES	50.000	OK	MCG/L	00409
			METHYLENE CHLORIDE	60.000	OK	MCG/L	00238
			TOLUENE	120.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	13.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	4.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	64.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	550.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	110.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 35

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1163C		821029	BENZENE	6,100.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	39.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			CHLOROBENZENES	1,700.000	OK	MCG/L	00409
			DI-N-BUTYLPHTHALATE	10.000	PR	MCG/L	00644
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
			METHYLENE CHLORIDE	680.000	OK	MCG/L	00238
			PENTACHLOROPHENOL	10.000	PR	MCG/L	00670
			PHENOL	160.000	OK	MCG/L	00671
			TETRACHLOROETHYLENE	3,000.000	OK	MCG/L	00412
			TOLUENE	32,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	2,300.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	307.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	345.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	10.000	PR	MCG/L	01497
			1,4-DICHLOROBENZENE	240.000	OK	MCG/L	01442
			2-CHLOROPHENOL	11.000	OK	MCG/L	00664
			2,4-DICHLOROPHENOL	10.000	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	10.000	PR	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	46.000	OK	MCG/L	00663
		830322	ETHYLBENZENE	17.000	OK	MCG/L	00510
			HEXACHLOROCYCLOPENTADIENE	.000	OK	MCG/L	00492
			HEXACHLOROETHANE	.000	OK	MCG/L	00653
			INDENO(1,2,3-CD)PYRENE	.000	OK	MCG/L	00654
			ISOPHORONE	.000	OK	MCG/L	00655
			N-NITROSODIMETHYLAMINE	.000	OK	MCG/L	00658
			N-NITROSODIPHENYLAMINE	.000	OK	MCG/L	00660
			NAPHTHALENE	.000	OK	MCG/L	00656
			NITROBENZENE	.000	OK	MCG/L	00657
			PHENANTHRENE	.000	OK	MCG/L	00661
			PHENOL	1.500	PR	MCG/L	00671
			PYRENE	.000	OK	MCG/L	00662
			TETRACHLOROETHYLENE	4.100	OK	MCG/L	00412
			TRANS-1,2-DICHLOROETHENE	7.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	18.000	OK	MCG/L	00411
			1,2,4-TRICHLOROBENZENE	.000	OK	MCG/L	00440
			2-CHLOROPHENOL	3.300	PR	MCG/L	00664
			2,3,7,8-TCDD	.000	OK	MCG/L	00687
		830609	B.H.C. DELTA	15.000	OK	MCG/L	00160
			B.H.C. GAMA	5.000	OK	MCG/L	00159
			BENZENE	440.000	OK	MCG/L	00344
			CHLOROBENZENES	420.000	OK	MCG/L	00409
			CHLOROFORM	.000	OK	MCG/L	00390
			TOLUENE	1,800.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	38.000	OK	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 36

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1163C		830609	1,2-DICHLOROBENZENE	18.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	41.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	14.000	OK	MCG/L	01497
		850515	ALDRIN	10.000	OK	MCG/L	00077
			ANTHRACENE	2,000.000	OK	MCG/L	00632
			B.H.C. ALPHA	28.000	OK	MCG/L	00157
			BENZENE	7.000	OK	MCG/L	00344
			BENZO(K)FLUORANTHENE	32.000	OK	MCG/L	00635
			BIS(2 ETHYLHEXYL)PHTHALATE	47.000	OK	MCG/L	00679
			CHLOROTOLUENE(O/P)	30.000	OK	MCG/L	30353
			CHRYSENE	43.000	OK	MCG/L	00642
			DIOCTYL PHTHALATE	11.000	OK	MCG/L	00433
			DIOCTYL PHTHALATE	77.000	OK	MCG/L	00422
			ENDRIN ALDEHYDE	89.000	OK	MCG/L	00674
			FLUORANTHENE	21.000	OK	MCG/L	00680
			HEPTACHLOR EPOXIDE	59.000	OK	MCG/L	00083
			HEXACHLOROBENZENE	23.000	OK	MCG/L	00488
			PYRENE	23.000	OK	MCG/L	00662
			TRANS-1,2-DICHLOROETHENE	9.000	OK	MCG/L	00612
			1,2-DICHLOROBENZENE	3.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	5.000	OK	MCG/L	00440
			4-BROMOPHENYL PHENYL ETHER	16.000	OK	MCG/L	00683
			4,4-D.D.E.	19.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 37

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1163D		830322	BENZENE	12.000	OK	MCG/L	00344
			CHLOROBENZENES	30.000	OK	MCG/L	00409
			ETHYLBENZENE	7.200	PR	MCG/L	00510
			HEXACHLOROBENZENE	1.900	PR	MCG/L	00488
			PHENOL	7.700	OK	MCG/L	00671
			TETRACHLOROETHYLENE	13.000	OK	MCG/L	00412
			TOLUENE	230.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	5.200	OK	MCG/L	00612
			TRICHLOROETHYLENE	43.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	36.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	280.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	29.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	1.900	PR	MCG/L	00641
			2-CHLOROPHENOL	3.300	PR	MCG/L	00664
			2,4-DICHLOROPHENOL	13.000	OK	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	17.000	OK	MCG/L	00672
		850115	BENZENE	900.000	OK	MCG/L	00344
			CHLOROBENZENES	330.000	OK	MCG/L	00409
			CHLOROFORM	34.000	OK	MCG/L	00390
			HEXACHLOROBUTADIENE(C-46)	60.000	OK	MCG/L	00525
			METHYLENE CHLORIDE	23.000	OK	MCG/L	00238
			TETRACHLOROETHYLENE	300.000	OK	MCG/L	00412
			TOLUENE	5,500.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	13.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	120.000	OK	MCG/L	00411
			1,1,2,2-TETRACHLOROETHANE	9.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	480.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	1,800.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	320.000	OK	MCG/L	01497

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1165A		821029	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			PENTACHLOROPHENOL	10.000	PR	MCG/L	00670
			PHENOL	10.000	PR	MCG/L	00671
		830322	BENZENE	4.400	PR	MCG/L	00344
			BENZIDINE	1.900	PR	MCG/L	00638
		850115	BENZENE	8.600	OK	MCG/L	00344
			METHYLENE CHLORIDE	120.000	OK	MCG/L	00238
			TOLUENE	11.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	7.600	OK	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID ******	QA/QC Code *****	Sample Date ******	Parameter Description ********************	Sample Results **********	Comm ****	Units Description ***********	Parm. ID *****
1165B		821029	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
			PHENOL	10.000	PR	MCG/L	00671
			1,2,4-TRICHLOROBENZENE	10.000	PR	MCG/L	00440
		830322	BENZENE	5.800	OK	MCG/L	00344
		850515	ALDRIN	42.000	OK	MCG/L	00077
			B.H.C. ALPHA	33.000	OK	MCG/L	00157
			B.H.C. BETA	380.000	OK	MCG/L	00158
			B.H.C. DELTA	58.000	OK	MCG/L	00160
			BIS(2 ETHYLHEXYL)PHTHALATE	69.000	OK	MCG/L	00679
			CHLOROTOLUENE(O/P)	4.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	18.000	OK	MCG/L	00644
			DIELDRIN	36.000	OK	MCG/L	00085
			DIOCTYL PHTHALATE	40.000	OK	MCG/L	00433
			ENDRIN ALDEHYDE	140.000	OK	MCG/L	00674
			FLUORANTHENE	45.000	OK	MCG/L	00680
			HEPTACHLOR	34.000	OK	MCG/L	00080
			HEXACHLOROBENZENE	29.000	OK	MCG/L	00488
			METHYLENE CHLORIDE	5.000	OK	MCG/L	00238
			PYRENE	65.000	OK	MCG/L	00662
			4-BROMOPHENYL PHENYL ETHER	13.000	OK	MCG/L	00683
			4,4-D.D.E.	23.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 40

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1165C		821029	BIS(2 ETHYLHEXYL)PHTHALATE	60.000	OK	MCG/L	00679
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
		850115	BENZENE	12.000	OK	MCG/L	00344
			CHLOROFORM	54.000	OK	MCG/L	00390
			METHYLENE CHLORIDE	170.000	OK	MCG/L	00238
			TOLUENE	11.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	9.100	OK	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1165D		830322	PHENOL	1.500	PR	MCG/L	00671
		850515	ALDRIN	21.000	OK	MCG/L	00077
			B.H.C. DELTA	15.000	OK	MCG/L	00160
			B.H.C. GAMA	18.000	OK	MCG/L	00159
			BENZO(A)ANTHRACENE	30.000	OK	MCG/L	00633
			CHLOROBENZENES	2.000	OK	MCG/L	00409
			CHLOROTOLUENE(O/P)	7.000	OK	MCG/L	30353
			CHRYSENE	84.000	OK	MCG/L	00642
			DI-N-BUTYLPHTHALATE	10.000	OK	MCG/L	00644
			DIOCTYL PHTHALATE	61.000	OK	MCG/L	00433
			DIOCTYL PHTHALATE	130.000	OK	MCG/L	00422
			ENDRIN ALDEHYDE	120.000	OK	MCG/L	00674
			FLUORANTHENE	21.000	OK	MCG/L	00680
			HEPTACHLOR	12.000	OK	MCG/L	00080
			1,2-DICHLOROBENZENE	3.000	OK	MCG/L	01441
			1,3-DICHLOROBENZENE	4.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	2.000	OK	MCG/L	01442
			4,4-D.D.E.	27.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1167A		850515	B.H.C. GAMA	62.000	OK	MCG/L	00159
			BENZO(K)FLUORANTHENE	45.000	OK	MCG/L	00635
			CHLOROTOLUENE(O/P)	3.000	OK	MCG/L	30353
			FLUORANTHENE	11.000	OK	MCG/L	00680
			METHYLENE CHLORIDE	1.000	OK	MCG/L	00238
			XYLENE(ORTHO)	2.000	OK	MCG/L	00514

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 43

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1167B		850515	ALDRIN	91.000	OK	MCG/L	00077
			ANTHRACENE	20.000	OK	MCG/L	00632
			B.H.C. BETA	14.000	OK	MCG/L	00158
			B.H.C. DELTA	23.000	OK	MCG/L	00160
			B.H.C. GAMA	15.000	OK	MCG/L	00159
			BUTYL BENZYL PHTHALATE	54.000	OK	MCG/L	00640
			CHLOROTOLUENE(O/P)	4.000	OK	MCG/L	30353
			DI-N-BUTYLPHTHALATE	150.000	OK	MCG/L	00644
			DIELDRIN	91.000	OK	MCG/L	00085
			ENDOSULFAN SULFATE	130.000	OK	MCG/L	00673
			FLUORANTHENE	78.000	OK	MCG/L	00680
			HEPTACHLOR	53.000	OK	MCG/L	00080
			1,2,4-TRICHLOROBENZENE	5.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	2.000	OK	MCG/L	01497
			4,4-D.D.D.	120.000	OK	MCG/L	01149
			4,4-D.D.E.	101.000	OK	MCG/L	01148
			4,4-D.D.T.	130.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
1167C		821029	BIS(2 ETHYLHEXYL)PHTHALATE	20.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
		850515	CHLOROTOLUENE(O/P)	5.000	OK	MCG/L	30353
			DIOCTYL PHTHALATE	14.000	OK	MCG/L	00433
			ENDRIN	34.000	OK	MCG/L	00084
			FLUORANTHENE	16.000	OK	MCG/L	00680
			HEXACHLOROBUTADIENE(C-46)	5.000	OK	MCG/L	00525
			HEXACHLOROETHANE	17.000	OK	MCG/L	00653
			PYRENE	24.000	OK	MCG/L	00662
			1,2-DICHLOROBENZENE	1.000	OK	MCG/L	01441
			1,2-DICHLOROETHANE	4.000	OK	MCG/L	01508
			1,3-DICHLOROBENZENE	1.000	OK	MCG/L	01497

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 45

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
1167D		821029	BIS(2 ETHYLHEXYL)PHTHALATE	9.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			DIETHYLPHTHALATE	10.000	PR	MCG/L	00646
			ETHYLBENZENE	25.000	OK	MCG/L	00510
		850515	ALDRIN	12.000	OK	MCG/L	00077
			BIS(2 ETHYLHEXYL)PHTHALATE	53.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	35.000	OK	MCG/L	00640
			CHLOROTOLUENE(O/P)	14.000	OK	MCG/L	30353
			CHRYSENE	30.000	OK	MCG/L	00642
			DIOCTYL PHTHALATE	59.000	OK	MCG/L	00433
			ENDOSULFAN II	14.000	OK	MCG/L	00434
			ENDRIN ALDEHYDE	140.000	OK	MCG/L	00674
			ETHYLBENZENE	3.000	OK	MCG/L	00510
			FLUORANTHENE	21.000	OK	MCG/L	00680
			METHYLENE CHLORIDE	1.000	OK	MCG/L	00238
			PYRENE	36.000	OK	MCG/L	00662
			XYLENE(ORTHO)	8.000	OK	MCG/L	00514
			1,2-DICHLOROBENZENE	2.000	OK	MCG/L	01441
			1,2-DICHLOROETHANE	3.000	OK	MCG/L	01508
			1,2,4-TRIMETHYL BENZENE	3.000	OK	MCG/L	30343
			1,3-DICHLOROBENZENE	2.000	OK	MCG/L	01497
			1,4,1-DIBROMOFLUOROBENZENE	5.000	OK	MCG/L	30352
			4,4-D.D.E.	31.000	OK	MCG/L	01148

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 46

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
214		871211	ACETONE	14.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	24.000	B	MCG/L	00679
			CARBONDISULFIDE	2.700	J	MCG/L	30020
			CHLOROFORM	2.400	J	MCG/L	00390
			DI-N-BUTYLPHTHALATE	8.400	JB	MCG/L	00644
			METHYLENE CHLORIDE	4.800	J	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 47

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3101		820415	METHYLENE CHLORIDE	12.000	OK	MCG/L	00238
		840919	ALDRIN	11.000	OK	MCG/L	00077
			BROMODICHLOROMETHANE	11.000	OK	MCG/L	00389
			CHLOROFORM	1.000	OK	MCG/L	00390
			DIBROMOCHLOROMETHANE	2.000	OK	MCG/L	00449
			ENDOSULFAN SULFATE	36.000	OK	MCG/L	00673
			4,4-D.D.T.	36.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3103		810819	BIS(2 ETHYLHEXYL)PHTHALATE	31.000	OK	MCG/L	00679

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 49

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3105		810617	BIS(2 ETHYLHEXYL)PHTHALATE	44.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	LE	MCG/L	00640
			DI-N-BUTYLPHTHALATE	25.000	LE	MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3111		820427	BENZENE	26.000	OK	MCG/L	00344
		840711	ARSENIC,TOTAL	16.000	OK	MCG/L	01093
			BERYLLIUM,TOTAL	1.500	OK	MCG/L	01095
			CHROMUIM,TOTAL	84.000	OK	MCG/L	01098
			COPPER, DISSOLVED	190.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	212.000	OK	MCG/L	00101
			NICKEL,TOTAL	198.000	OK	MCG/L	01128
			ZINC,TOTAL	224.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 51

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
3112		820427	PHENOL	25.000	LE	MCG/L	00671
		840711	ARSENIC,TOTAL	12.000	OK	MCG/L	01093
			BERYLLIUM,TOTAL	1.700	OK	MCG/L	01095
			CHROMUIM,TOTAL	78.000	OK	MCG/L	01098
			COPPER, DISSOLVED	82.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	329.000	OK	MCG/L	00101
			NICKEL,TOTAL	124.000	OK	MCG/L	01128
			ZINC,TOTAL	279.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3113		820427	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
		840711		.210	OK	MCG/L	00S03
			ARSENIC,TOTAL	11.000	OK	MCG/L	01093
			BERYLLIUM,TOTAL	1.400	OK	MCG/L	01095
			CADMIUM,TOTAL	11.000	OK	MCG/L	01097
			CHROMUIM,TOTAL	52.000	OK	MCG/L	01098
			COPPER, DISSOLVED	85.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	260.000	OK	MCG/L	00101
			NICKEL,TOTAL	126.000	OK	MCG/L	01128
			ZINC,TOTAL	310.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 53

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3122		820427	PHENOL	25.000	LE	MCG/L	00671
			TETRACHLOROETHYLENE	14.000	OK	MCG/L	00412
			1,1,1-TRICHLOROETHANE	18.000	OK	MCG/L	00236
		840828	PHENOL	35.000	OK	MCG/L	00671
			ZINC,TOTAL	730.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
3123		840828	ALDRIN	19.000	OK	MCG/L	00077
			D.D.E	19.000	OK	MCG/L	01148
			DIELDRIN	19.000	OK	MCG/L	00085
			ENDOSULFAN SULFATE	19.000	OK	MCG/L	00673
			ENDRIN	19.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	19.000	OK	MCG/L	00674
			HEPTACHLOR	19.000	OK	MCG/L	00080
			HEPTACHLOR EPOXIDE	19.000	OK	MCG/L	00083
			ZINC,TOTAL	140.000	OK	MCG/L	01109
			4,4-D.D.D	19.000	OK	MCG/L	01149
			4,4-D.D.T.	19.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3133		840828	ZINC,TOTAL	180.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3151		840828	ALDRIN	84.000	OK	MCG/L	00077
			D.D.E	29.000	OK	MCG/L	01148
			DIELDRIN	63.000	OK	MCG/L	00085
			ENDOSULFAN SULFATE	15.000	OK	MCG/L	00673
			ENDRIN	.000	OK	MCG/L	00084
			ENDRIN ALDEHYDE	.000	OK	MCG/L	00674
			HEPTACHLOR	13.000	OK	MCG/L	00080
			HEPTACHLOR EPOXIDE	54.000	OK	MCG/L	00083
			ZINC,TOTAL	2,500.000	OK	MCG/L	01109
			4,4-D.D.D	.000	OK	MCG/L	01149
			4,4-D.D.T.	15.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3201		820415	1,4-DICHLOROBENZENE	10.000	LE	MCG/L	01442
		840919	CHLOROFORM	3.000	OK	MCG/L	00390

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3203		820211	METHYLENE CHLORIDE	13.000	OK	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 59

Well ID ******	QA/QC Code *****	Sample Date ******	Parameter Description ********************	Sample Results **********	Comm ****	Units Description ***********	Parm. ID *****
3213		820427	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
		840711	ARSENIC,TOTAL	12.000	OK	MCG/L	01093
			BERYLLIUM,TOTAL	1.800	OK	MCG/L	01095
			CHROMUIM,TOTAL	9.900	OK	MCG/L	01098
			COPPER, DISSOLVED	26.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	239.000	OK	MCG/L	00101
			NICKEL,TOTAL	21.000	OK	MCG/L	01128
			ZINC,TOTAL	127.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3222		820427	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
			1,1,1-TRICHLOROETHANE	10.000	LE	MCG/L	00236
		840828	CYANIDE, TOTAL	1.000	OK	MCG/L	00029
			ZINC,TOTAL	90.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 61

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3223		840828	CYANIDE, TOTAL	4.000	OK	MCG/L	00029
			ZINC,TOTAL	360.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3233		820420	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
			1,3-DICHLOROPROPENE	10.000	LE	MCG/L	00516
		820427	TRANS-1,2-DICHLOROETHENE	10.000	LE	MCG/L	00612
		840828	ZINC,TOTAL	110.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
3251		840828	CYANIDE, TOTAL	2.000	OK	MCG/L	00029
			ZINC,TOTAL	170.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4102		820318	METHYLENE CHLORIDE	81.000	OK	MCG/L	00238
		820415	METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
		820513	CHLOROBENZENES	10.000	PR	MCG/L	00409
		840406	B.H.C. ALPHA	.030	OK	MCG/L	00157
			B.H.C. DELTA	.016	OK	MCG/L	00160
			B.H.C. GAMA	.040	OK	MCG/L	00159
		840919	ENDOSULFAN SULFATE	38.000	OK	MCG/L	00673
			4,4-D.D.T.	38.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 65

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4103		820211	CHLOROBENZENES	22.000	OK	MCG/L	00409
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
			TETRACHLOROETHYLENE	64.000	OK	MCG/L	00412
			TOLUENE	190.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	10.000	LE	MCG/L	00411
			1,2,4-TRICHLOROBENZENE	45.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	10.000	LE	MCG/L	01497
			1,4-DICHLOROBENZENE	10.000	LE	MCG/L	01442
			4-CHLORO-3-METHYLPHENOL	25.000	LE	MCG/L	00663
		820318	CARBON TETRACHLORIDE	10.000	OK	MCG/L	00366
			TETRACHLOROETHYLENE	48.000	OK	MCG/L	00412
			TOLUENE	97.000	OK	MCG/L	00392
			1,2-DICHLOROBENZENE	68.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	370.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	80.000	OK	MCG/L	01442
			2,4-DICHLOROPHENOL	25.000	LE	MCG/L	00665
			4-CHLORO-3-METHYLPHENOL	40.000	OK	MCG/L	00663
		820415	CHLOROBENZENES	14.000	OK	MCG/L	00409
			TETRACHLOROETHYLENE	51.000	OK	MCG/L	00412
			TOLUENE	85.000	OK	MCG/L	00392
			1,2-DICHLOROBENZENE	110.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	600.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	130.000	OK	MCG/L	01442
			2,4,6-TRICHLOROPHENOL	25.000	LE	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	40.000	OK	MCG/L	00663
		820513	BENZENE	10.000	PR	MCG/L	00344
			CHLOROBENZENES	18.000	OK	MCG/L	00409
			TETRACHLOROETHYLENE	37.000	OK	MCG/L	00412
			TOLUENE	73.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	10.000	PR	MCG/L	00411
			1,2-DICHLOROBENZENE	95.000	OK	MCG/L	01441
			1,4-DICHLOROBENZENE	110.000	OK	MCG/L	01442
			4-CHLORO-3-METHYLPHENOL	62.000	OK	MCG/L	00663
		840919	BENZENE	15.000	OK	MCG/L	00344
			CHLOROFORM	2.000	OK	MCG/L	00390
			DI-N-BUTYLPHTHALATE	37.000	OK	MCG/L	00644
			DIETHYLPHTHALATE	19.000	OK	MCG/L	00646
			ETHYLBENZENE	5.000	OK	MCG/L	00510
			PHENOL	23.000	OK	MCG/L	00671
			STYRENE	3.000	OK	MCG/L	30034
			TOLUENE	74.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	2.000	OK	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 66

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4103		840919	XYLENE(META)	80.000	OK	MCG/L	30027
			XYLENE(ORTHO)	20.000	OK	MCG/L	00514
			XYLENE(PARA)	6.000	OK	MCG/L	30031
			1,2,4-TRICHLOROBENZENE	1,070.000	OK	MCG/L	00440
			2-CHLOROPHENOL	37.000	OK	MCG/L	00664
			2,3-BENZOFURAN	28.000	OK	MCG/L	30007
			2,4,5-TRICHLOROPHENOL	12.000	OK	MCG/L	00496
			2,4,6-TRICHLOROPHENOL	12.000	OK	MCG/L	00672
			4-CHLORO-3-METHYLPHENOL	23.000	OK	MCG/L	00663
			4-NITROPHENOL	6.000	OK	MCG/L	00669
		850116	TETRACHLOROETHYLENE	4.000	OK	MCG/L	00412

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4104		820211	METHYLENE CHLORIDE	370.000	OK	MCG/L	00238
		820420	METHYL CHLORIDE	24.000	OK	MCG/L	30341
		820513	CHLOROBENZENES	10.000	PR	MCG/L	00409
			CHLOROFORM	17.000	OK	MCG/L	00390

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4105		820318	METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
		830325	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
		840406	B.H.C. ALPHA	.030	OK	MCG/L	00157
			B.H.C. GAMA	.013	OK	MCG/L	00159

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4106		811113	CHLOROFORM	8.100	OK	MCG/L	00390
			METHYLENE CHLORIDE	8.100	OK	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 70

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4107		820211	METHYLENE CHLORIDE	10.000	OK	MCG/L	00238
		820415	METHYLENE CHLORIDE	60.000	OK	MCG/L	00238
		820513	1,1,1-TRICHLOROETHANE	60.000	OK	MCG/L	00236
		820715	DI-N-BUTYLPHTHALATE	10.000	PR	MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 71

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
4111		820318	BENZIDINE	20.000	LE	MCG/L	00638
			BENZO(A)ANTHRACENE	20.000	LE	MCG/L	00633
			FLUORANTHENE	20.000	LE	MCG/L	00680
			METHYLENE CHLORIDE	170.000	OK	MCG/L	00238
			PYRENE	20.000	LE	MCG/L	00662
		820415	ANTHRACENE	10.000	LE	MCG/L	00632
			INDENO(1,2,3-CD)PYRENE	25.000	LE	MCG/L	00654
			METHYLENE CHLORIDE	14.000	OK	MCG/L	00238
			PYRENE	10.000	OK	MCG/L	00662
		820513	FLUORANTHENE	10.000	PR	MCG/L	00680
			FLUORENE	10.000	PR	MCG/L	00652
			PHENANTHRENE	10.000	PR	MCG/L	00661
			PYRENE	10.000	PR	MCG/L	00662

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
4121		840712	ALDRIN	.890	OK	MCG/L	00077
			B.H.C. ALPHA	19.000	OK	MCG/L	00157
			B.H.C. BETA	18.000	OK	MCG/L	00158
			B.H.C. GAMA	6.500	OK	MCG/L	00159
			CADMIUM,TOTAL	13.000	OK	MCG/L	01097
			CHROMIUM,TOTAL	182.000	OK	MCG/L	01098
			COPPER, DISSOLVED	130.000	OK	MCG/L	01099
			HEPTACHLOR EPOXIDE	50.000	OK	MCG/L	00083
			LEAD IN DRY SOLIDS	265.000	OK	MCG/KG	00101
			NICKEL,TOTAL	207.000	OK	MCG/L	01128
			ZINC,TOTAL	145.000	OK	MCG/L	01109
			2,3,7,8-TCDD	.460	OK	MCG/L	00S03

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4134		840712	B.H.C. ALPHA	.640	OK	MCG/L	00157
			B.H.C. BETA	11.000	OK	MCG/L	00158
			B.H.C. GAMA	.490	OK	MCG/L	00159
			CHROMIUM,TOTAL	21.000	OK	MCG/L	01098
			HEPTACHLOR EPOXIDE	32.000	OK	MCG/L	00083
			LEAD IN DRY SOLIDS	142.000	OK	MCG/L	00101
			NICKEL,TOTAL	49.000	OK	MCG/L	01128
			ZINC,TOTAL	122.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4141		820429	METHYL CHLORIDE	33.000	OK	MCG/L	30341

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4152		820429	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
			1,1,1-TRICHLOROETHANE	13.000	OK	MCG/L	00236

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4203		820318	TOLUENE	10.000	LE	MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 77

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
4204		820211	METHYLENE CHLORIDE	2,600.000	OK	MCG/L	00238
		820318	METHYLENE CHLORIDE	17.000	OK	MCG/L	00238
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
		840330	B.H.C. ALPHA	.030	OK	MCG/L	00157

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4205		820415	PHENOL	25.000	LE	MCG/L	00671
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
		840406	PHENOL	7.000	OK	MCG/L	00671

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 79

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4206		820211	METHYLENE CHLORIDE	10.000	OK	MCG/L	00238
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	45.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			PHENOL	66.000	OK	MCG/L	00671
		840330	BIS(2 ETHYLHEXYL)PHTHALATE	15.000	OK	MCG/L	00679

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4207		820211	METHYLENE CHLORIDE	10.000	OK	MCG/L	00238
		820318	METHYLENE CHLORIDE	410.000	OK	MCG/L	00238
			PHENOL	25.000	LE	MCG/L	00671
		820415	METHYLENE CHLORIDE	74.000	OK	MCG/L	00238
		820513	METHYL CHLORIDE	62.000	OK	MCG/L	30341
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	18.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			PHENOL	10.000	OK	MCG/L	00671

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4221		840712	COPPER, DISSOLVED	28.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	67.000	OK	MCG/L	00101
			METHYLENE CHLORIDE	70.000	OK	MCG/L	00238
			ZINC,TOTAL	64.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
4252		820429	TETRACHLOROETHYLENE	11.000	OK	MCG/L	00412
			1,1,1-TRICHLOROETHANE	10.000	LE	MCG/L	00236

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5101		811007	CHLOROBENZENES	2,700.000	OK	MCG/L	00409
			CHLOROFORM	200.000	OK	MCG/L	00390
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			METHYL CHLORIDE	10.000	LE	MCG/L	30341
			PENTACHLOROPHENOL	120.000	OK	MCG/L	00670
			TRANS-1,2-DICHLOROETHENE	88.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	1,500.000	OK	MCG/L	00411
			1,1,2-TRICHLOROETHANE	110.000	OK	MCG/L	00517
		811113	BENZENE	6,600.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	30.000	OK	MCG/L	00679
			BIS(2-CHLOROETHYL)ETHER	10.000	LE	MCG/L	00639
			BIS-2-CHLOROETHOXY METHANE	130.000	OK	MCG/L	00686
			CHLOROBENZENES	890.000	OK	MCG/L	00409
			CHLOROFORM	160.000	OK	MCG/L	00390
			HEXACHLOROBUTADIENE(C-46)	10.000	LE	MCG/L	00525
			METHYL CHLORIDE	10.000	LE	MCG/L	30341
			NITROBENZENE	1,400.000	OK	MCG/L	00657
			TOLUENE	24,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	69.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	440.000	OK	MCG/L	00411
			1,1-DICHLOROETHYLENE	10.000	LE	MCG/L	00509
			1,1,2-TRICHLOROETHANE	42.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	410.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	41.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	81.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	10.000	LE	MCG/L	01497
			1,4-DICHLOROBENZENE	83.000	OK	MCG/L	01442
		820108	BENZENE	5,200.000	OK	MCG/L	00344
			BIS(2-CHLOROETHYL)ETHER	40.000	LE	MCG/L	00639
			CHLOROBENZENES	1,400.000	OK	MCG/L	00409
			CHLOROFORM	150.000	OK	MCG/L	00390
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			TETRACHLOROETHYLENE	240.000	OK	MCG/L	00412
			TOLUENE	21,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	110.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	920.000	OK	MCG/L	00411
			1,1,2-TRICHLOROETHANE	82.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	450.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	40.000	LE	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	120.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	62.000	OK	MCG/L	01442
		820211	ANTHRACENE	60.000	LE	MCG/L	00632
			BENZENE	4,600.000	OK	MCG/L	00344
			CHLOROBENZENES	3,200.000	OK	MCG/L	00409

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 84

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5101		820211	CHLOROFORM	200.000	OK	MCG/L	00390
			ETHYLBENZENE	20.000	OK	MCG/L	00510
			HEXACHLOROBENZENE	200.000	OK	MCG/L	00488
			HEXACHLOROBUTADIENE(C-46)	140.000	OK	MCG/L	00525
			METHYL CHLORIDE	10.000	LE	MCG/L	30341
			METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
			NITROBENZENE	370.000	OK	MCG/L	00657
			PHENOL	120.000	LE	MCG/L	00671
			TETRACHLOROETHYLENE	370.000	OK	MCG/L	00412
			TOLUENE	34,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	68.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	2,200.000	OK	MCG/L	00411
			VINYL CHLORIDE	10.000	OK	MCG/L	00410
			1,1-DICHLOROETHYLENE	31.000	OK	MCG/L	00509
			1,1,2-TRICHLOROETHANE	86.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	16.000	OK	MCG/L	00518
			1,2,4-TRICHLOROBENZENE	2,400.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	420.000	OK	MCG/L	01497
			1,3-DICHLOROPROPENE	10.000	OK	MCG/L	00516
			1,4-DICHLOROBENZENE	230.000	OK	MCG/L	01442
			2-CHLOROPHENOL	120.000	LE	MCG/L	00664
			2,4-DICHLOROPHENOL	10,000.000	OK	MCG/L	00665
		820317	BENZENE	3,900.000	OK	MCG/L	00344
			BIS-2-CHLOROETHOXY METHANE	240.000	OK	MCG/L	00686
			CARBON TETRACHLORIDE	10.000	OK	MCG/L	00366
			CHLOROBENZENES	2,100.000	OK	MCG/L	00409
			CHLOROFORM	18.000	OK	MCG/L	00390
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			HEXACHLOROBENZENE	100.000	LE	MCG/L	00488
			HEXACHLOROBUTADIENE(C-46)	100.000	LE	MCG/L	00525
			METHYL CHLORIDE	10.000	LE	MCG/L	30341
			METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
			PENTACHLOROPHENOL	10.000	LE	MCG/L	00670
			PHENOL	89.000	OK	MCG/L	00671
			TETRACHLOROETHYLENE	390.000	OK	MCG/L	00412
			TOLUENE	40,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	560.000	OK	MCG/L	00411
			1,1,2-TRICHLOROETHANE	77.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	1,500.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	180.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	1,200.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	250.000	OK	MCG/L	01497
			1,3-DICHLOROPROPENE	86.000	OK	MCG/L	00516
			2-CHLOROPHENOL	25.000	OK	MCG/L	00664
			2,4-DICHLOROPHENOL	11,000.000	OK	MCG/L	00665
			2,6-DINITROTOLUENE	290.000	OK	MCG/L	00649

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5101		820318		10.000	OK	MCG/L	00612
			BENZENE	10.000	OK	MCG/L	00344
			BENZENE	3,200.000	OK	MCG/L	00344
			CHLOROBENZENES	1,600.000	OK	MCG/L	00409
			CHLOROBENZENES	10.000	OK	MCG/L	00409
			CHLOROFORM	490.000	OK	MCG/L	00390
			CHLOROFORM	10.000	OK	MCG/L	00390
			ETHYLBENZENE	10.000	PR	MCG/L	00510
			ETHYLBENZENE	10.000	OK	MCG/L	00510
			METHYLENE CHLORIDE	10.000	OK	MCG/L	00238
			METHYLENE CHLORIDE	44.000	OK	MCG/L	00238
			TETRACHLOROETHYLENE	10.000	OK	MCG/L	00412
			TETRACHLOROETHYLENE	830.000	OK	MCG/L	00412
			TOLUENE	8,800.000	OK	MCG/L	00392
			TOLUENE	10.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	10.000	OK	MCG/L	00612
			TRANS-1,2-DICHLOROETHENE	220.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	2,500.000	OK	MCG/L	00411
			TRICHLOROETHYLENE	2,100.000	OK	MCG/L	00411
			1,1-DICHLOROETHYLENE	13.000	OK	MCG/L	00509
			1,1,2-TRICHLOROETHANE	10.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	2,200.000	OK	MCG/L	00518
			1,1,2,2-TETRACHLOROETHANE	10.000	OK	MCG/L	00518
		850115	B.H.C. ALPHA	59.000	OK	MCG/L	00157
			B.H.C. BETA	22.000	OK	MCG/L	00158
			B.H.C. GAMA	28.000	OK	MCG/L	00159
			BENZENE	800.000	OK	MCG/L	00344
			CHLOROBENZENES	1,000.000	OK	MCG/L	00409
			CHLOROFORM	35.000	OK	MCG/L	00390
			METHYLENE CHLORIDE	240.000	OK	MCG/L	00238
			TETRACHLOROETHYLENE	27.000	OK	MCG/L	00412
			TOLUENE	12,000.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	13.000	OK	MCG/L	00612
			TRICHLOROETHYLENE	240.000	OK	MCG/L	00411
			1,1,2-TRICHLOROETHANE	80.000	OK	MCG/L	00517
			1,1,2,2-TETRACHLOROETHANE	380.000	OK	MCG/L	00518
			1,2-DICHLOROBENZENE	49.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	130.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	120.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5103		820108	BIS(2 ETHYLHEXYL)PHTHALATE	20.000	LE	MCG/L	00679
			DI-N-BUTYLPHTHALATE	39.000	OK	MCG/L	00644
		820318	BIS(2 ETHYLHEXYL)PHTHALATE	14.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			TOLUENE	10.000	OK	MCG/L	00392
			TOLUENE	10.000	OK	MCG/L	00392
			1,1,2,2-TETRACHLOROETHANE	10.000	OK	MCG/L	00518
		850115	B.H.C. ALPHA	35.000	OK	MCG/L	00157
			B.H.C. DELTA	66.000	OK	MCG/L	00160
			B.H.C. GAMA	56.000	OK	MCG/L	00159
			BENZENE	50.000	OK	MCG/L	00344
			METHYLENE CHLORIDE	210.000	OK	MCG/L	00238
			TRICHLOROETHYLENE	4.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	57.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	120.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	47.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5104		811113	BENZO(A)PYRENE	10.000	LE	MCG/L	00636
			BENZO(B)FLUORANTHENE	10.000	OK	MCG/L	00634
			BIS(2 ETHYLHEXYL)PHTHALATE	100.000	OK	MCG/L	00679
			CHLOROBENZENES	2,300.000	OK	MCG/L	00409
			CHLOROFORM	16.000	OK	MCG/L	00390
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			HEXACHLOROBUTADIENE(C-46)	10.000	LE	MCG/L	00525
			NAPHTHALENE	12.000	OK	MCG/L	00656
			TETRACHLOROETHYLENE	360.000	OK	MCG/L	00412
			TOLUENE	10,000.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	21.000	OK	MCG/L	00411
			1,1,2,2-TETRACHLOROETHANE	10.000	LE	MCG/L	00518
			1,2-DICHLOROBENZENE	700.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	1,400.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	50.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	570.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	15.000	OK	MCG/L	00641
		820108	BIS(2 ETHYLHEXYL)PHTHALATE	52.000	OK	MCG/L	00679
			CHLOROBENZENES	2,300.000	OK	MCG/L	00409
			CHLOROFORM	48.000	OK	MCG/L	00390
			DI-N-BUTYLPHTHALATE	69.000	OK	MCG/L	00644
			DIETHYLPHTHALATE	10.000	LE	MCG/L	00646
			DIOCTYL PHTHALATE	19.000	OK	MCG/L	00422
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			NAPHTHALENE	10.000	LE	MCG/L	00656
			TETRACHLOROETHYLENE	500.000	OK	MCG/L	00412
			TOLUENE	8,900.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	62.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	320.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	300.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	10.000	LE	MCG/L	01497
			1,4-DICHLOROBENZENE	270.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	10.000	LE	MCG/L	00641
		820211	CHLOROBENZENES	10.000	OK	MCG/L	00409
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			FLUORENE	10.000	LE	MCG/L	00652
			HEXACHLOROBENZENE	10.000	LE	MCG/L	00488
			NAPHTHALENE	10.000	LE	MCG/L	00656
			PHENOL	10.000	LE	MCG/L	00671
			TETRACHLOROETHYLENE	10.000	OK	MCG/L	00412
			TRICHLOROETHYLENE	10.000	OK	MCG/L	00411
			1,1,2,2-TETRACHLOROETHANE	10.000	LE	MCG/L	00518
			1,2-DICHLOROBENZENE	10.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	10.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	10.000	LE	MCG/L	01497

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 88

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5104		820211	1,4-DICHLOROBENZENE	10.000	OK	MCG/L	01442
			2-CHLOROETHYLVINYL ETHER	10.000	OK	MCG/L	00611
			2-CHLORONAPHTHALENE	10.000	LE	MCG/L	00641
			2-CHLOROPHENOL	10.000	LE	MCG/L	00664
			2,4-DICHLOROPHENOL	10.000	LE	MCG/L	00665
			4-CHLORO-3-METHYLPHENOL	10.000	LE	MCG/L	00663
		820317	CHLOROBENZENES	1,500.000	OK	MCG/L	00409
			CHLOROFORM	11.000	OK	MCG/L	00390
			COPPER,TOTAL	.018	OK	MG/L	01099
			TETRACHLOROETHYLENE	260.000	OK	MCG/L	00412
			TOLUENE	6,200.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	18.000	OK	MCG/L	00411
			ZINC,TOTAL	.014	OK	MG/L	01109
			1,2-DICHLOROBENZENE	510.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	830.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	16.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	440.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	10.000	LE	MCG/L	00641
			2-CHLOROPHENOL	25.000	LE	MCG/L	00664
			2,4-DICHLOROPHENOL	25.000	LE	MCG/L	00665
			4-CHLORO-3-METHYLPHENOL	25.000	LE	MCG/L	00663
		820318	BENZENE	5.000	OK	MCG/L	00344
			BENZENE	260.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	20.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			CHLOROBENZENES	5,300.000	OK	MCG/L	00409
			CHLOROBENZENES	5.000	OK	MCG/L	00409
			CHLOROFORM	5.000	OK	MCG/L	00390
			ETHYLBENZENE	5.000	OK	MCG/L	00510
			NAPHTHALENE	10.000	PR	MCG/L	00656
			PHENOL	10.000	PR	MCG/L	00671
			TETRACHLOROETHYLENE	5.000	OK	MCG/L	00412
			TETRACHLOROETHYLENE	1,100.000	OK	MCG/L	00412
			TOLUENE	5.000	OK	MCG/L	00392
			TOLUENE	7,100.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	79.000	OK	MCG/L	00411
			TRICHLOROETHYLENE	26.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	490.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	750.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	37.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	420.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	10.000	PR	MCG/L	00641
			2-CHLOROPHENOL	11.000	OK	MCG/L	00664
			2,4-DICHLOROPHENOL	10.000	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	10.000	PR	MCG/L	00672

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 89

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5104		820318	4-CHLORO-3-METHYLPHENOL	16.000	OK	MCG/L	00663
		820415	CHLOROBENZENES	1,100.000	OK	MCG/L	00409
			CHLOROFORM	40.000	OK	MCG/L	00390
			ETHYLBENZENE	10.000	LE	MCG/L	00510
			METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
			PHENOL	25.000	LE	MCG/L	00671
			TETRACHLOROETHYLENE	850.000	OK	MCG/L	00412
			TOLUENE	7,100.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	59.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	480.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	940.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	12.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	380.000	OK	MCG/L	01442
			2-CHLORONAPHTHALENE	10.000	LE	MCG/L	00641
			2-CHLOROPHENOL	25.000	LE	MCG/L	00664
			2,4,6-TRICHLOROPHENOL	25.000	LE	MCG/L	00672
			4-BROMOPHENYL PHENYL ETHER	10.000	LE	MCG/L	00683
			4-CHLORO-3-METHYLPHENOL	25.000	LE	MCG/L	00663
		850116	BENZENE	170.000	OK	MCG/L	00344
			CHLOROBENZENES	880.000	OK	MCG/L	00409
			CHLOROFORM	12.000	OK	MCG/L	00390
			DI-N-BUTYLPHTHALATE	80.000	OK	MCG/L	00644
			DIETHYLPHTHALATE	40.000	OK	MCG/L	00646
			TETRACHLOROETHYLENE	270.000	OK	MCG/L	00412
			TOLUENE	1,300.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	21.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	340.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	490.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	620.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	340.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 90

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5105		820317	LEAD	.120	OK	MCG/L	00101
			NICKEL,TOTAL	.070	OK	MCG/L	01128
			ZINC,TOTAL	.019	OK	MG/L	01109
		820318	BIS(2 ETHYLHEXYL)PHTHALATE	130.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			METHYLENE CHLORIDE	5.000	OK	MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 91

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5111		840711	CHROMUIM,TOTAL	6.400	OK	MCG/L	01098
			COPPER, DISSOLVED	26.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	107.000	OK	MCG/L	00101
			NICKEL,TOTAL	35.000	OK	MCG/L	01128
			ZINC,TOTAL	209.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5112		840828	ENDOSULFAN SULFATE	17.000	OK	MCG/L	00673
			ZINC,TOTAL	180.000	OK	MCG/L	01109
			4,4-D.D.T.	17.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5113		820420	METHYL CHLORIDE	13.000	OK	MCG/L	30341
		840711	CHROMUIM,TOTAL	21.000	OK	MCG/L	01098
			COPPER, DISSOLVED	45.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	198.000	OK	MCG/L	00101
			NICKEL,TOTAL	68.000	OK	MCG/L	01128
			ZINC,TOTAL	198.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5114		820420	METHYL CHLORIDE	33.000	OK	MCG/L	30341
		840828	ALDRIN	49.000	OK	MCG/L	00077
			B.H.C. DELTA	11.000	OK	MCG/L	00160
			DIELDRIN	14.000	OK	MCG/L	00085
			HEPTACHLOR	13.000	OK	MCG/L	00080
			HEPTACHLOR EPOXIDE	30.000	OK	MCG/L	00083
			ZINC,TOTAL	260.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5120		861104	ACETONE	15.000	B	MCG/L	00420
			METHYLENE CHLORIDE	6.000		MCG/L	00238
			TETRACHLOROETHYLENE	43.000	JB	MCG/L	00412
			TOLUENE	7.000		MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5121		840711	CHROMUIM,TOTAL	22.000	OK	MCG/L	01098
			COPPER, DISSOLVED	20.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	242.000	OK	MCG/L	00101
			NICKEL,TOTAL	66.000	OK	MCG/L	01128
			ZINC,TOTAL	121.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 97

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5122		820427	CHLOROFORM	10.000	LE	MCG/L	00390
			METHYL CHLORIDE	10.000	LE	MCG/L	30341
			PHENOL	25.000	LE	MCG/L	00671
		840711	CADMIUM,TOTAL	21.000	OK	MCG/L	01097
			CHROMUIM,TOTAL	5.400	OK	MCG/L	01098
			COPPER, DISSOLVED	25.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	82.000	OK	MCG/L	00101
			NICKEL,TOTAL	35.000	OK	MCG/L	01128
			ZINC,TOTAL	33.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5123		820427	TETRACHLOROETHYLENE	18.000	OK	MCG/L	00412
			1,1,1-TRICHLOROETHANE	66.000	OK	MCG/L	00236

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5201		820108	CHLOROBENZENES	23.000	OK	MCG/L	00409
			CHLOROFORM	18.000	OK	MCG/L	00390
			TOLUENE	280.000	OK	MCG/L	00392
			1,2,4-TRICHLOROBENZENE	20.000	LE	MCG/L	00440
		820211	BENZENE	40.000	OK	MCG/L	00344
			CHLOROBENZENES	32.000	OK	MCG/L	00409
			CHLOROFORM	19.000	OK	MCG/L	00390
			FLUORANTHENE	10.000	LE	MCG/L	00680
			METHYLENE CHLORIDE	11.000	OK	MCG/L	00238
			N-NITROSODI-N-PROPYLAMINE	10.000	LE	MCG/L	00659
			NAPHTHALENE	10.000	LE	MCG/L	00656
			PHENOL	25.000	LE	MCG/L	00671
			TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
			TOLUENE	380.000	OK	MCG/L	00392
			TRANS-1,2-DICHLOROETHENE	10.000	LE	MCG/L	00612
			TRICHLOROETHYLENE	10.000	LE	MCG/L	00411
			1,2-DICHLOROBENZENE	10.000	LE	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	10.000	LE	MCG/L	00440
			1,3-DICHLOROBENZENE	10.000	LE	MCG/L	01497
			2-CHLORONAPHTHALENE	10.000	LE	MCG/L	00641
			2,4-DICHLOROPHENOL	25.000	LE	MCG/L	00665
			4-NITROPHENOL	250.000	LE	MCG/L	00669
		820317	TOLUENE	50.000	OK	MCG/L	00392
			ZINC,TOTAL	.013	OK	MG/L	01109
			2,4-DICHLOROPHENOL	42.000	OK	MCG/L	00665
		820318	BENZENE	10.000	OK	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	190.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			CHLOROBENZENES	16.000	OK	MCG/L	00409
			CHLOROFORM	10.000	PR	MCG/L	00390
			CHLOROFORM	5.000	OK	MCG/L	00390
			PHENOL	10.000	PR	MCG/L	00671
			TOLUENE	5.000	OK	MCG/L	00392
			2,4-DICHLOROPHENOL	55.000	OK	MCG/L	00665
		850115	BENZENE	21.000	OK	MCG/L	00344
			CHLOROBENZENES	8.000	OK	MCG/L	00409
			TOLUENE	120.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	4.000	OK	MCG/L	00411

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 100

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5203		820317	COPPER,TOTAL	.018	OK	MG/L	01099
			TOLUENE	10.000	LE	MCG/L	00392
			ZINC,TOTAL	.007	OK	MG/L	01109
		820318	BENZENE	5.000	OK	MCG/L	00344
			BENZENE	10.000	PR	MCG/L	00344
			BIS(2 ETHYLHEXYL)PHTHALATE	10.000	OK	MCG/L	00679
			ETHYLBENZENE	5.000	OK	MCG/L	00510
			ETHYLBENZENE	10.000	PR	MCG/L	00510
			METHYLENE CHLORIDE	5.000	OK	MCG/L	00238
			NAPHTHALENE	10.000	PR	MCG/L	00656
			TOLUENE	5.000	OK	MCG/L	00392
		830609	TOLUENE	23.000	OK	MCG/L	00392
		850115	B.H.C. ALPHA	21.000	OK	MCG/L	00157
			B.H.C. DELTA	30.000	OK	MCG/L	00160
			B.H.C. GAMA	33.000	OK	MCG/L	00159
			BENZENE	62.000	OK	MCG/L	00344
			CHLOROBENZENES	32.000	OK	MCG/L	00409
			CHLOROFORM	18.000	OK	MCG/L	00390
			METHYLENE CHLORIDE	150.000	OK	MCG/L	00238
			TOLUENE	99.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	6.800	OK	MCG/L	00411
			1,2,4-TRICHLOROBENZENE	63.000	OK	MCG/L	00440
			1,4-DICHLOROBENZENE	22.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) -

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5204		820211	CHLOROFORM	11.200	LE	MCG/L	00390
		820317	ANTIMONY,TOTAL	.300	OK	MCG/L	01112
			COPPER,TOTAL	.022	OK	MG/L	01099
			LEAD	.210	OK	MCG/L	00101
			ZINC,TOTAL	.012	OK	MG/L	01109
		820318	BIS(2 ETHYLHEXYL)PHTHALATE	11.000	OK	MCG/L	00679
			METHYLENE CHLORIDE	5.000	OK	MCG/L	00238
		830609	B.H.C. ALPHA	19.000	OK	MCG/L	00157
			B.H.C. DELTA	14.000	OK	MCG/L	00160
			B.H.C. GAMA	14.000	OK	MCG/L	00159
			BENZENE	24.000	OK	MCG/L	00344
			TOLUENE	76.000	OK	MCG/L	00392
		850116	CHLOROTOLUENE(O/P)	10.000	OK	MCG/L	30353

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5205		820108	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	LE	MCG/L	00679
			DI-N-BUTYLPHTHALATE	10.000	LE	MCG/L	00644
		820211	ACENAPHTHYLENE	10.000	OK	MCG/L	00631
			ANTHRACENE	10.000	OK	MCG/L	00632
			BENZIDINE	10.000	OK	MCG/L	00638
			BENZO(A)ANTHRACENE	10.000	LE	MCG/L	00633
		820318	FLUORANTHENE	10.000	PR	MCG/L	00680
		820382	ANTIMONY,TOTAL	.300	OK	MCG/L	01112
			CHROMUIM,TOTAL	.012	OK	MG/L	01098
			LEAD	.110	OK	MCG/L	00101
			ZINC,TOTAL	.018	OK	MG/L	01109
		840919	BENZENE	2.000	OK	MCG/L	00344
			TOLUENE	4.000	OK	MCG/L	00392
			XYLENE(META)	1.000	OK	MCG/L	30027

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 103

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5211		820420	METHYL CHLORIDE	10.000	OK	MCG/L	30341
		820519	HEXACHLOROBUTADIENE(C-46)	10.000	PR	MCG/L	00525
		840711	ARSENIC,TOTAL	21.000	OK	MCG/L	01093
			BERYLLIUM,TOTAL	2.600	OK	MCG/L	01095
			CHROMUIM,TOTAL	22.000	OK	MCG/L	01098
			COPPER, DISSOLVED	52.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	472.000	OK	MCG/L	00101
			METHYLENE CHLORIDE	42.000	OK	MCG/L	00238
			NICKEL,TOTAL	162.000	OK	MCG/L	01128
			ZINC,TOTAL	495.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5212		820420	CHLOROFORM	10.000	OK	MCG/L	00390
			METHYL CHLORIDE	33.000	OK	MCG/L	30341
		820519	ANTHRACENE	10.000	PR	MCG/L	00632
			NAPHTHALENE	10.000	PR	MCG/L	00656
			PHENOL	25.000	PR	MCG/L	00671
		840828	ZINC,TOTAL	130.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 105

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5213		840711	CHROMUIM,TOTAL	9.500	OK	MCG/L	01098
			COPPER, DISSOLVED	32.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	568.000	OK	MCG/L	00101
			NICKEL,TOTAL	20.000	OK	MCG/L	01128
			ZINC,TOTAL	171.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5214		840828	ZINC,TOTAL	90.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5221		820420	CHLOROFORM	10.000	LE	MCG/L	00390
			METHYL CHLORIDE	58.000	OK	MCG/L	30341
		840711		.210	OK	MCG/L	00S03
			BERYLLIUM,TOTAL	1.400	OK	MCG/L	01095
			CADMIUM,TOTAL	26.000	OK	MCG/L	01097
			CHROMUIM,TOTAL	9.800	OK	MCG/L	01098
			COPPER, DISSOLVED	24.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	170.000	OK	MCG/L	00101
			NICKEL,TOTAL	17.000	OK	MCG/L	01128
			ZINC,TOTAL	112.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
5222		840711	ARSENIC,TOTAL	13.000	OK	MCG/L	01093
			BERYLLIUM,TOTAL	1.300	OK	MCG/L	01095
			CADMIUM,TOTAL	27.000	OK	MCG/L	01097
			CHROMUIM,TOTAL	6.200	OK	MCG/L	01098
			COPPER, DISSOLVED	18.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	338.000	OK	MCG/L	00101
			NICKEL,TOTAL	32.000	OK	MCG/L	01128
			ZINC,TOTAL	136.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5223		820427	TETRACHLOROETHYLENE	120.000	OK	MCG/L	00412
			1,1,1-TRICHLOROETHANE	330.000	OK	MCG/L	00236
			1,2-DICHLOROETHANE	11.000	OK	MCG/L	01508

*** NOTE: Most Data is Significant to One Decimal Place Only ***

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 110

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
5251		820429	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 111

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6101		840303	BIS(2 ETHYLHEXYL)PHTHALATE	36.000	OK	MCG/L	00679
		850116	BENZENE	115.000	OK	MCG/L	00344
			BUTYL BENZYL PHTHALATE	270.000	OK	MCG/L	00640
			CHLOROBENZENES	84.000	OK	MCG/L	00409
			DI-N-BUTYLPHTHALATE	80.000	OK	MCG/L	00644
			PHENANTHRENE	20.000	OK	MCG/L	00661
			TETRACHLOROETHYLENE	13.000	OK	MCG/L	00412
			TOLUENE	125.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	9.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	39.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	75.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	44.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	31.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 112

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6102		820108	BIS(2 ETHYLHEXYL)PHTHALATE	22.000	OK	MCG/L	00679
			DI-N-BUTYLPHTHALATE	31.000	OK	MCG/L	00644
			DIETHYLPHTHALATE	20.000	LE	MCG/L	00646
			DIOCTYL PHTHALATE	20.000	LE	MCG/L	00422
			1,2-DIPHENYLHYDRAZINE	40.000	LE	MCG/L	00651
		820415	FLUORANTHENE	10.000	LE	MCG/L	00680
			PYRENE	16.000	OK	MCG/L	00662
		820715	DI-N-BUTYLPHTHALATE	10.000	PR	MCG/L	00644
			DIOCTYL PHTHALATE	10.000	PR	MCG/L	00422
		830325	CHLOROFORM	9.000	OK	MCG/L	00390
		840330	BIS(2 ETHYLHEXYL)PHTHALATE	16.000	OK	MCG/L	00679
		840919	ETHYLBENZENE	4.000	OK	MCG/L	00510
			XYLENE(PARA)	2.000	OK	MCG/L	30031
			1,2,4-TRICHLOROBENZENE	5.000	OK	MCG/L	00440

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6103		820108	BIS(2 ETHYLHEXYL)PHTHALATE	20.000	LE	MCG/L	00679
			DI-N-BUTYLPHTHALATE	20.000	LE	MCG/L	00644
			DIOCTYL PHTHALATE	20.000	LE	MCG/L	00422
		820318	METHYLENE CHLORIDE	310.000	OK	MCG/L	00238
		820415	METHYLENE CHLORIDE	11.000	OK	MCG/L	00238
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	18.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
			DI-N-BUTYLPHTHALATE	10.000	OK	MCG/L	00644
		840330	BIS(2 ETHYLHEXYL)PHTHALATE	47.000	OK	MCG/L	00679
			TOLUENE	4.000	OK	MCG/L	00392

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6107		820715	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			BUTYL BENZYL PHTHALATE	11.000	OK	MCG/L	00640
			DI-N-BUTYLPHTHALATE	18.000	OK	MCG/L	00644

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
6109		820415	METHYLENE CHLORIDE	10.000	LE	MCG/L	00238
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	14.000	OK	MCG/L	00679
			BUTYL BENZYL PHTHALATE	13.000	OK	MCG/L	00640
		830325	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
		840330	P.C.B.,AROCLOR 1260	2.230	OK	MCG/L	00416
		840919	BIS(2-CHLOROETHYL)ETHER	31.000	OK	MCG/L	00639
			ENDOSULFAN SULFATE	10.000	OK	MCG/L	00673
			HEXACHLOROETHANE	15.000	OK	MCG/L	00653
			4,4-D.D.T.	10.000	OK	MCG/L	01147

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6201		820415	HEXACHLOROBUTADIENE(C-46)	10.000	LE	MCG/L	00525
			HEXACHLOROETHANE	10.000	LE	MCG/L	00653
			NAPHTHALENE	10.000	LE	MCG/L	00656
			1,2-DIPHENYLHYDRAZINE	25.000	LE	MCG/L	00651
		820513	BENZENE	10.000	PR	MCG/L	00344
			TETRACHLOROETHYLENE	10.000	PR	MCG/L	00412
			TRICHLOROETHYLENE	10.000	PR	MCG/L	00411
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
		840330	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	OK	MCG/L	00679
		850116	B.H.C. ALPHA	8.000	OK	MCG/L	00157
			B.H.C. DELTA	10.000	OK	MCG/L	00160
			B.H.C. GAMA	57.000	OK	MCG/L	00159
			BENZENE	120.000	OK	MCG/L	00344
			CHLOROBENZENES	59.000	OK	MCG/L	00409
			DI-N-BUTYLPHTHALATE	8.000	OK	MCG/L	00644
			TETRACHLOROETHYLENE	4.000	OK	MCG/L	00412
			TOLUENE	115.000	OK	MCG/L	00392
			TRICHLOROETHYLENE	9.000	OK	MCG/L	00411
			1,2-DICHLOROBENZENE	14.000	OK	MCG/L	01441
			1,2,4-TRICHLOROBENZENE	15.000	OK	MCG/L	00440
			1,3-DICHLOROBENZENE	38.000	OK	MCG/L	01497
			1,4-DICHLOROBENZENE	10.000	OK	MCG/L	01442

*** NOTE: Most Data is Significant to One Decimal Place Only ***

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6203		820415	HEXACHLOROBUTADIENE(C-46)	10.000	LE	MCG/L	00525
			NAPHTHALENE	10.000	LE	MCG/L	00656
		830609	CHLOROFORM	240.000	OK	MCG/L	00390

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6207		820318	METHYLENE CHLORIDE	220.000	OK	MCG/L	00238
		820415	HEXACHLOROBUTADIENE(C-46)	10.000	LE	MCG/L	00525
			METHYLENE CHLORIDE	120.000	OK	MCG/L	00238
			NAPHTHALENE	11.000	OK	MCG/L	00656
			PHENOL	55.000	OK	MCG/L	00671
		820513	BENZENE	10.000	PR	MCG/L	00344
			BENZIDINE	10.000	PR	MCG/L	00638
			BIS(2 ETHYLHEXYL)PHTHALATE	25.000	OK	MCG/L	00679
			DI-N-BUTYLPHTHALATE	10.000	PR	MCG/L	00644
			DIMETHYLPHTHALATE	33.000	OK	MCG/L	00647
			ISOPHORONE	25.000	PR	MCG/L	00655
			METHYL CHLORIDE	42.000	OK	MCG/L	30341
			NAPHTHALENE	10.000	PR	MCG/L	00656
			PHENOL	36.000	OK	MCG/L	00671
			2,4-DICHLOROPHENOL	25.000	PR	MCG/L	00665
			2,4,6-TRICHLOROPHENOL	25.000	PR	MCG/L	00672
		820715	DIMETHYLPHTHALATE	27.000	OK	MCG/L	00647
			PHENOL	19.000	OK	MCG/L	00671
			2,4,6-TRICHLOROPHENOL	10.000	PR	MCG/L	00672
		830609	CHLOROFORM	15,000.000	OK	MCG/L	00390

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
6209		820318	N-NITROSODI-N-PROPYLAMINE	10.000	LE	MCG/L	00659
		820415	HEXACHLOROBUTADIENE(C-46)	10.000	LE	MCG/L	00525
		820513	BENZENE	10.000	PR	MCG/L	00344
		820715	BIS(2 ETHYLHEXYL)PHTHALATE	10.000	PR	MCG/L	00679
			BUTYL BENZYL PHTHALATE	10.000	PR	MCG/L	00640
		840330	ACETONE	260.000	OK	MCG/L	00420
		840919	STYRENE	1.000	OK	MCG/L	30034

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6211		820429	TETRACHLOROETHYLENE	10.000	LE	MCG/L	00412
		840712	LEAD IN DRY SOLIDS	91.000	OK	MCG/L	00101
			ZINC,TOTAL	80.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 121

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6212		840712	CHROMUIM,TOTAL	6.700	OK	MCG/L	01098
			COPPER, DISSOLVED	22.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	52.000	OK	MCG/L	00101
			ZINC,TOTAL	65.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6213		840828	ZINC,TOTAL	90.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 123

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
6214		820429	METHYL CHLORIDE	21.000	OK	MCG/L	30341
		840828	LEAD IN DRY SOLIDS	100.000	OK	MCG/L	00101
			NICKEL,TOTAL	90.000	OK	MCG/L	01128
			ZINC,TOTAL	90.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 124

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6222		820420	CHLOROFORM	10.000	LE	MCG/L	00390
		840712	B.H.C. BETA	2.100	OK	MCG/L	00158
			B.H.C. DELTA	.560	OK	MCG/L	00160
			B.H.C. GAMA	.360	OK	MCG/L	00159
			CHROMUIM,TOTAL	6.900	OK	MCG/L	01098
			COPPER, DISSOLVED	21.000	OK	MCG/L	01099
			LEAD IN DRY SOLIDS	78.000	OK	MCG/L	00101
			ZINC,TOTAL	56.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

09/21/88 08.24.20 - Love Canal Sample Data By Well ID (Inner Wells with Positive Hits) - PAGE 125

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
6241		840712	CADMIUM,TOTAL	11.000	OK	MCG/L	01097
			CHROMUIM,TOTAL	5.300	OK	MCG/L	01098
			LEAD IN DRY SOLIDS	184.000	OK	MCG/L	00101
			ZINC,TOTAL	79.000	OK	MCG/L	01109

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
762		871211	ACETONE	5.500	JB	MCG/L	00420
			METHYLENE CHLORIDE	5.700		MCG/L	00238

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	********************	**********	****	***********	*****
790		871211	ACETONE	35.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	25.000	B	MCG/L	00679
			METHYLENE CHLORIDE	43.000	B	MCG/L	00238
			TRICHLOROFLUOROMETHANE	25.000	J	MCG/L	00617

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

Well ID	QA/QC Code	Sample Date	Parameter Description	Sample Results	Comm	Units Description	Parm. ID
******	*****	******	*******************	**********	****	***********	*****
818		871211	ACETONE	39.000	B	MCG/L	00420
			BIS(2 ETHYL HEXYL)PHTHALATE	14.000		MCG/L	00679
			CHLOROFORM	2.800	J	MCG/L	00390
			METHYLENE CHLORIDE	37.000	B	MCG/L	00238
			1,2-DICHLOROBENZENE	70.000	J	MCG/L	01441

***** E N D O F R E P O R T *****

*** NOTE: Most Data is Significant to One Decimal Place Only ***

APPENDIX 5 - TABLE 4

APPENDIX 6

ANALYTICAL SOIL DATA - LOT C
USEPA CONSULTANT REPORT ON 100TH STREET, LOT C - LOVE CANAL EDA

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

July 28, 1988

Mr. Doug Garbarini
USEPA - Region II
26 Federal Plaza, Room 737
New York, NY 10278

RE: 2,3,7,8-TCDD Concentrations in Soil Samples Collected in the Vicinity of Lot C, 100th St., Love Canal EDA, Niagara Falls, NY

Dear Doug:

Enclosed please find the final report for the soil sampling which was conducted by Ecology and Environment, Inc. (E&E), on April 11 and 12, 1988 in and around Lot C, 100th Street, Love Canal EDA, Niagara Falls, New York. This report supersede the letter report of July 6, 1988. In that report, the sampling locations for the 1986-1987 sampling event were located incorrectly. The enclosed report contains a revised map and table to correct this error. As the report indicates, Station 1033 was located within a foot of station 4256 of the 1986-1987 study.

If you have any questions concerning this report, please do not hesitate to give me a call.

Sincerely,

Nancy J. Aungst

Nancy J. Aungst
Project Manager

Enclosures

ecology and environment, inc.
BUFFALO CORPORATE CENTER
368 PLEASANTVIEW DRIVE, LANCASTER, NEW YORK 14086, TEL. 716/684-8060
International Specialists in the Environment

July 28, 1988

Mr. Doug Garbarini
USEPA - Region II
26 Federal Plaza, Room 737
New York, NY 10278

RE: 2,3,7,8-TCDD Concentrations in Soil Samples Collected in the Vicinity of Lot C, 100th St., Love Canal EDA, Niagara Falls, NY

Dear Mr. Garbarini:

This letter report summarizes the results of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) analysis of soil samples collected by Ecology and Environment, Inc. (E & E), on April 11 and 12, 1988, in and around Lot C, 100th Street, Love Canal EDA, Niagara Falls, New York.

HISTORY

During 1986 and 1987, over 2,000 soil samples were collected in the Love Canal Emergency Declaration Area (EDA) to determine the concentrations of 2,3,7,8-TCDD as part of the Love Canal EDA Habitability Study. These results are summarized in Volume IV of the Love Canal EDA Habitability Study report (CH2M Hill, March 1988).

In the 1986-87 study, 2,3,7,8-TCDD was found at concentrations above the study target level of 1 part per billion (1 ppb) at only one sample location (Station 4256), located in Lot C, 100th Street, where only surface soil was sampled. In several analyses, the 2,3,7,8-TCDD was found at concentrations ranging from 17.3 to 21.2 ppb.

Based on these data, USEPA-Region II requested E & E to sample surface and subsurface soils in the vicinity of Station 4256 to determine the extent of dioxin contamination. The sampling strategy was developed by NUS Corporation, Superfund Division, and employed a radially stratified random sample design (NUS 1986).

E & E determined sampling locations and developed the soil sampling plan (E & E 1988). Surface (0 to 2 inches) and subsurface (2 to 7 inches, and 7 to 12 inches) samples were collected at 33 locations (see Figure 1). The surface sample was analyzed from all locations. Subsurface samples were analyzed from selected locations. One-hundred-sixty-six samples were collected, including 32 QA/QC samples. Sampling procedures, chain-of-custody procedures, documentation and the Health and Safety plan are presented in the soil sampling plan (E & E 1988) and the sampling letter report appended to this letter.

ANALYTICAL LABORATORIES

Thirty-five surface soil samples and eight QA/QC samples were shipped for analysis to Compuchem Laboratories, Research Triangle Park, NC, on April 12, 1988. Sixteen subsoil samples were sent for analysis to Environmental Testing Corporation on May 13, 1988. The results of these analyses are presented herein.

ANALYTICAL RESULTS

Surface soil analyses in the current study revealed 2,3,7,8-TCDD at only one location (Station 1033) at a concentration of 35.1 ppb. This location was within a foot of Station 4256 of the 1986-87 study.

Subsoil samples were also collected at Station 1033. Analyses for 2,3,7,8-TCDD revealed 32.7 ppb in the 2 to 7 inch interval (sample 1033-2) and 5.9 ppb in the 7 to 12 inch interval (sample 1033-4).

All analytical results are presented in Table 1. Horizontal and vertical coordinates shown were calculated relative to the center point (1033). Radial distances from the center point to each sample station are also shown.

Maximum possible concentrations are listed for samples which were below the analytical detection limit.

DISCUSSION

The compound 2,3,7,8-TCDD was found at only one location (Station 1033), in close proximity to Station 4256, the only location where 2,3,7,8-TCDD was found in the 1986-87 study. The surface soil concentration in the current study was the same range as was found in the 1986-87 study. Decreasing concentrations were found at progressively greater depths. No other detectable concentrations were found. No statistical data analysis is presented, since there is no evidence of any lateral concentration gradient at the site.

Sincerely,

Harry J. August for

Joseph T. Angley, Ph.D.

JTA/jf

Enclosure

L1

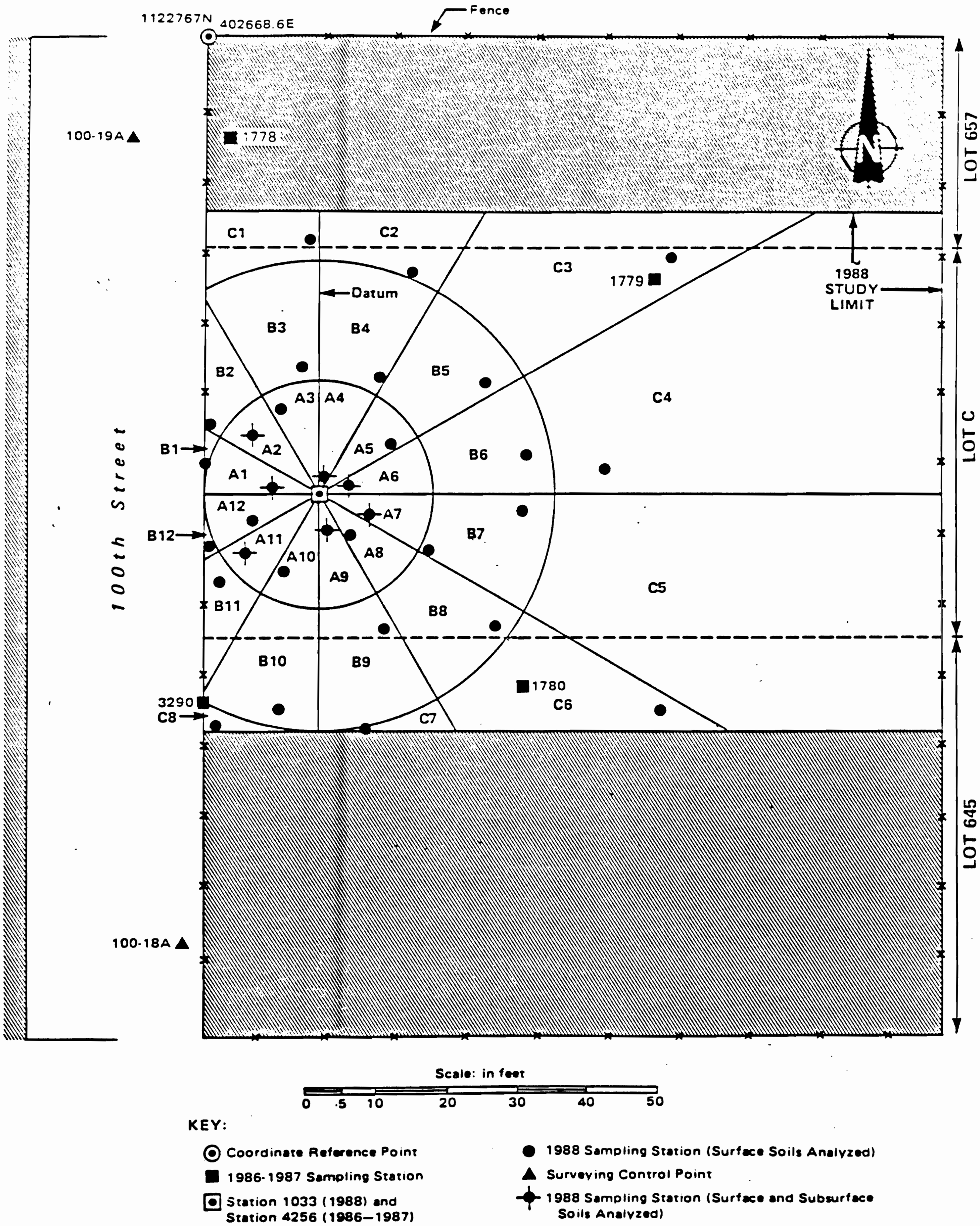


Figure 1 ACTUAL DIOXIN SAMPLING POINTS, 100TH STREET, LOVE CANAL EDA, NIAGARA FALLS, NEW YORK

APPENDIX 6

Table 1
SUMMARY OF ANALYTICAL RESULTS

E & E SAMPLE NO.	SECTOR	DEPTH INCHES	HORIZONTAL[1] COORDINATE	VERTICAL[2] COORDINATE	CONCENTRATION PPB	MPC[3]	RADIAL DISTANCE FROM CENTER (FT)
1988 DATA							
1033-1	CENTER POINT	0-2	0	0	35.10	-[5]	0
1033-3	CENTER POINT	2-7	0	0	32.7	-	0
1033-4	CENTER POINT	7-12	0	0	5.9	-	0
1001-1	A1	0-2	- 6.608	+ 0.772	ND[4]	0.46	6.65
1001-3	A1	2-7	- 6.608	+ 0.772	ND	0.13	6.65
1001-4	A1	7-12	- 6.608	+ 0.772	ND	0.12	6.65
1002-1	A2	0-2	- 9.385	+ 8.561	ND	0.13	12.64
1002-3	A2	2-7	- 9.385	+ 8.561	ND	0.20	12.64
1002-4	A2	7-12	- 9.385	+ 8.561	ND	0.13	12.64
1003-1	A3	0-2	- 5.332	+12.122	ND	0.87	13.24
1004-1	A4	0-2	+ 1.485	+ 2.896	ND	0.72	3.25
1004-3	A4	2-7	+ 1.485	+ 2.896	ND	0.17	3.25
[illegible]4-4	A4	7-12	+ 1.485	+ 2.896	ND	0.10	3.25
[illegible]5-1	A5	0-2	+10.343	+ 6.439	ND	0.43	12.18
[illegible]5-6	A5	0-2	+10.343	+ 6.439	REJECTED[6]		12.18
1006-1	A6	0-2	+ 4.216	+ 2.110	ND	0.77	4.71
1006-3	A6	2-7	+ 4.216	+ 2.110	ND	0.17	4.71
1006-4	A6	7-12	+ 4.216	+ 2.110	ND	0.080	4.71
1007-1	A7	0-2	+ 6.835	- 3.115	ND	0.72	7.51
1007-3	A7	2-7	+ 6.835	- 3.115	ND	0.16	7.51
1007-4	A7	7-12	+ 6.835	- 3.115	ND	0.12	7.51
1008	A8	0-2	+ 3.799	- 5.641	ND	0.52	6.8
1042-1	A9	0-2	+ 0.708	- 5.582	ND	0.49	5.63
1042-3	A9	2-7	+ 0.708	- 5.582	ND	0.17	5.63
1042-4	A9	7-12	+ 0.708	- 5.582	ND	0.12	5.63
1010	A10	0-2	- 5.387	-10.364	ND	0.27	11.68
1011-1	A11	0-2	-10.063	- 8.027	ND	0.28	12.87
1011-3	A11	2-7	-10.063	- 8.027	ND	0.11	12.87
1011-4	A11	7-12	-10.063	- 8.027	ND	0.23	12.87
1012	A12	0-2	- 8.885	- 2.198	ND	0.55	9.15
1013	B1	0-2	-15.450	+ 3.819	ND	0.40	15.92
1014	B2	0-2	-14.248	+ 9.490	ND	0.57	17.12

Table 1 (Cont.)

E & E SAMPLE NO.	SECTOR	DEPTH INCHES	HORIZONTAL[1] COORDINATE	VERTICAL[2] COORDINATE	CONCENTRATION PPB	MPC [3]	RADIAL DISTANCE FROM CENTER (FT)
1015	B3	0-2	- 2.668	+17.965	ND	0.33	18.16
1016	B4	0-2	+ 8.966	+15.747	ND	0.62	18.12
1017	B5	0-2	+22.749	+15.753	ND	0.71	27.67
1018-1	B6	0-2	+29.137	+ 5.814	ND	0.64	29.71
1019-1	B7	0-2	+15.422	- 8.674	ND	0.40	17.69
1031-1	B7	0-2	+ 8.505	-32.496	ND	0.33	33.59
1020-1	B8	0-2	+20.870	-14.824	ND	0.20	25.60
1021-1	B9	0-2	+ 9.648	-18.802	ND	0.35	21.13
1022-1	B10	0-2	- 5.067	-30.171	REJECTED		30.59
1023-1	B11	0-2	-13.592	-12.383	ND	0.40	18.39
1024-1	B12	0-2	-15.241	- 6.005	ND	0.40	16.38
1025-1	C1	0-2	- 1.333	+37.379	ND	0.66	37.40
1025-5	C1	0-2	- 1.333	+37.379	ND	0.26	37.40
1059-1	C2	0-2	+12.335	+31.986	ND	0.23	34.28
1027-1	C3	0-2	+52.630	+37.303	ND	0.65	64.51
1028-1	C4	0-2	+39.840	+ 3.610	ND	0.50	40.00
1029-1	C5	0-2	+26.611	- 5.580	ND	0.28	27.19
1030-1	C6	0-2	+48.016	-29.260	ND	0.74	56.23
1032-1	C8	0-2	-15.081	-32.806	ND	0.21	36.11
1986-1987 DATA							
1778	-	0-2	- 13.53	+ 55.51	ND		57.14
1779	-	0-2	+ 51.73	+ 41.29	ND		66.19
1780	-	0-2	+ 38.86	- 27.79	ND		47.77
3290	-	0-2	- 24.98	- 19.51	ND		31.70
4256	-	0-2	- 0.01	- 0.82	17.3-21.2		0.82

1. Values represent distance in feet from the center point, perpendicular to the datum line in Figure 1. Minus values indicate westward direction. Positive values indicate eastward direction.

2. Values represent distance in feet from the center point, parallel to the datum line in Figure 1. Minus values indicate southward direction. Positive values indicate northward direction.

3. MPC: maximum possible concentration.

4. ND: not detected.

5. - not applicable

6. Rejected: indicates data did not pass QA review by USEPA Region II Environmental Services Division.

Cambridge Analytical Associates
1106 Commonwealth Avenue / Boston, Massachusetts 02215 / (617) 232-2207

Via Federal Express

MEMORANDUM

TO: George Pavlou / EPA
Ed Horne / DOH
John Liddle /CDC

COPY: Tim Van Epp / CH2M Hill

FROM: Mike Delaney / CAA MFD

DATE: August 31, 1988

RE: PRELIMINARY RESULTS FOR THE "SPECIAL" SAMPLE

Enclosed are the concentration and compound identification results for the "special" Love Canal sample. The sample was analyzed in duplicate for LCICs and for semivolatile priority pollutants. The data packages are in the process of being finalized and will then be sent to the EMSL-Las Vegas for validation.

If you have any questions, please call me at (617) 566-1520.

?/?0/88 11:40 FINAL Version: 2.?? | LCIC ANALYSIS DATA FORM SEMI-VOLATILE LCIC | SAMPLE ID: H50001

LABORATORY: CAG

Lab Project No: 88-08-330 Internal QC Report No:

Lab Login Id: J1019 Percent Moisture: ?3.6

Screened: Sulfur Cleanup:

Analyst: JOHN WED ?/?/88 Weight Extracted: 20

	Date/Time Analyzed	Conc/Dil Factor	Shift Results File Name/ Data File Name
Semi-Volatile SIM:	08/26/88 22:01	10	OS880826.C40 >J1019::J2

Date Released/Authorized by: WCFerol

GC/MS SIM

PARAMETER (Semi-Volatile)	CAS NUMBER	Conc. ug/kg	Data Qualifier	ID Criteria All Ions	Scan Range	Ion Ratio	RRT
1,?-Dichlorobenzene	000095-50-1	2.01					
1,2,4-Trichlorobenzene	000120-82-1	40.74					
1,2,3,4-Tetrachlorobenzene	000634-66-2	96.81					
2-Chloronaphthalene	000091-58-7	ND			*	*	
Alpha-BHC	000319-84-6	29.03					
Delta-BHC	000319-86-8	12.25					
Beta-BHC	000319-85-7	30.06					
Gamma-BHC	000058-89-9	10.37					

COMMENTS:

Form I

APPENDIX 6

T0/88 11:40
FINAL
Version: 2.33

LCIC ANALYSIS DATA FORM SAMPLE ID: H80002
SEMI-VOLATILE LCIC

LABORATORY: CAA

Lab Project No: 88-08-330 Internal QC Report No:

Lab Login Id: J1020 Percent Moisture: 33.8

Screened: Sulfur Cleanup:

Analyst: JOHN WFD 8/30/88 Weight Extracted: 20

	Date/Time Analyzed	Conc/Dil Factor	Shift Results File Name/ Data File Name
Semi-Volatile SIM:	08/26/88 22:40	10	QS880826.CAA >J1020::J2

Date Released/Authorized by: WCFencl

PARAMETER (Semi-Volatile)	CAS NUMBER	Conc. ug/kg	Data Qualifier	GC/MS SIM ID Criteria All Ions	Scan Range	Ion Ratio	RRT
1, Dichlorobenzene	000095-50-1	2.17					
1 2,4-Trichlorobenzene	000120-82-1	37.53					
1,2,3,4-Tetrachlorobenzene	000634-66-2	83.78					
2-Chloronaphthalene	000091-58-7	ND	C		*	+	
Alpha-BHC	000319-84-6	27.97					
Delta-BHC	000319-86-8	13.18					
Beta-BHC	000319-85-7	28.52					
GAmma-BHC	000058-89-9	11.74					

COMMENTS:

GC/MS Acid/Base/Neutral analysis

part I. Detected Target Compounds

Compound	Concentration (ug/Kg-dry wt) Sample	Duplicate
Naphthalene	100	100
2-Methylnaphthalene	200	200
Acenapthene	-	200
Dibenzofuran	100	100
Fluorene	200	200
Phenanthrene	2,300	2,700
Anthracene	600	600
Fluoranthene	3,000	3,100
Pyrene	3,000	3,330
Benzo(a)anthracene	1,500	1,600
* bis(2-Ethylhexylphthalate)	700	8,100
Chrysene	1,900	2,000
** Benzo(b)fluoranthene	2,700	2,700
** Benzo(k)fluoranthene	-	-
Benzo(a)pyrene	1,600	1,600
Indeno(1,2,3-cd)pyrene	1,000	1,200
Benzo(g,h,i)perylene	1,300	1,400

---

* Present in blank at 3,200 ug/Kg
** Compounds are chromatographically unresolved. Concentration is sum of both anlaytes.

part II. Tentatively Identified Compounds (TICs)

Tentative identification	Estimated Concentration (ug/Kg-dry) Sample	Duplicate
Unknown (methylphenanthrene?)	400	600
Unknown (monochlorodioxin?)	400	400
Benzo(a)fluorene	800	400
Unknown (aromatic?)	400	400
Unknown	600	<400
Unknown (aldehyde?)	2,700	1,300
Unknown (aromatic?)	1,400	1,700
Unknown	<400	800
Unknown	<400	1,000
Unknown (alkane?)	1,100	1,100

SAMPLE LOCATION Love Canal
DESCRIPTION Soil from Lot C 100th Street
SAMPLE NUMBER 882914 (Field # 1033)

CHEMICAL	OBSERVED ng/gram	DL ng/gram	TOXICITY FACTORS Old NYS	New NYS	EPA	CALCULATED DIOXIN EQUIVALENTS Old NYS ng/gram	New NYS ng/gram	EPA ng/gram	Old NYS ng/gram	New NYS ng/gram	EPA ng/gram
DIOXINS											
2378-TCDD	38.00		1.00	1.00000	1.00000	38.00	38.00	38.00	38.00	38.00	38.00
Other TCDD	1.00		0.00	0.01000	0.01000	0.00	0.01	0.01	0.00	0.01	0.01
Total TCDD	39.00										
12378-PeCDD	0.04		1.00	0.50000	0.50000	0.04	0.02	0.02	0.04	0.02	0.02
Other PeCDDs	0.53		0.00	0.00500	0.00500	0.00	0.00	0.00	0.00	0.00	0.00
Total PeCDDs	0.57										
123678-HxCDD	0.07		0.03	0.05000	0.04000	0.00	0.00	0.00	0.00	0.00	0.00
123789-HxCDD	ND	0.07	0.03	0.05000	0.04000	0.00	0.00	0.00	0.00	0.00	0.00
123478-HxCDD	ND	0.10	0.03	0.05000	0.04000	0.00	0.00	0.00	0.00	0.01	0.00
Other HxCDDs	0.24		0.00	0.00050	0.00040	0.00	0.00	0.00	0.00	0.00	0.00
Total HxCDDs	0.31										
1234678-HpCDD	0.44		0.00	0.00500	0.00100	0.00	0.00	0.00	0.00	0.00	0.00
Other HpCDDs	0.33		0.00	0.00005	0.00001	0.00	0.00	0.00	0.00	0.00	0.00
Total HpCDDs	0.77										
OCDD	6.30		0.00	0.00500	0.00000	0.00	0.03	0.00	0.00	0.03	0.00
DIBENZOFURANS											
2378-TCDF	1.40		0.33	0.10000	0.10000	0.47	0.14	0.14	0.47	0.14	0.14
Other TCDFs	4.40		0.00	0.00100	0.00100	0.00	0.00	0.00	0.00	0.00	0.00
Total TCDFs	5.80										
23478-PeCDF	0.37		0.33	0.50000	0.10000	0.12	0.19	0.04	0.12	0.19	0.04
12378-PeCDF	0.33		0.33	0.05000	0.10000	0.11	0.02	0.03	0.11	0.02	0.03
Other PeCDFs	1.00		0.00	0.00500	0.00100	0.00	0.01	0.00	0.00	0.01	0.00
Total PeCDFs	1.70										
123478-HxCDF	0.41		0.01	0.10000	0.01000	0.00	0.04	0.00	0.00	0.04	0.00
123678-HxCDF	0.07		0.01	0.10000	0.01000	0.00	0.01	0.00	0.00	0.01	0.00
234678-HxCDF	0.03		0.01	0.10000	0.01000	0.00	0.00	0.00	0.00	0.00	0.00
123789-HxCDD	ND	0.05	0.01	0.10000	0.01000	0.00	0.00	0.00	0.00	0.01	0.00
Other HxCDFs	0.25		0.00	0.00100	0.00010	0.00	0.00	0.00	0.00	0.00	0.00
Total HxCDFs	0.76										
1234678-HpCDF	0.26		0.00	0.00500	0.00100	0.00	0.00	0.00	0.00	0.00	0.00
Other HpCDFs	0.22		0.00	0.00005	0.00001	0.00	0.00	0.00	0.00	0.00	0.00
Total HpCDFs	0.48										
OCDF	0.64		0.00	0.00500	0.00000	0.00	0.00	0.00	0.00	0.00	0.00
					TOTAL	38.75	38.48	38.26	38.75	38.49	38.26
						Assuming ND = 0			Assuming ND = DL		

APPENDIX 7

COMPILATION OF WASTE CHARACTERISTIC AT LOVE CANAL

APPENDIX 7

W A S T E C H A R A C T E R I Z A T I O N

O F

L O V E C A N A L

APPENDIX 7

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont)

SECTION 1

1.1 INTRODUCTION

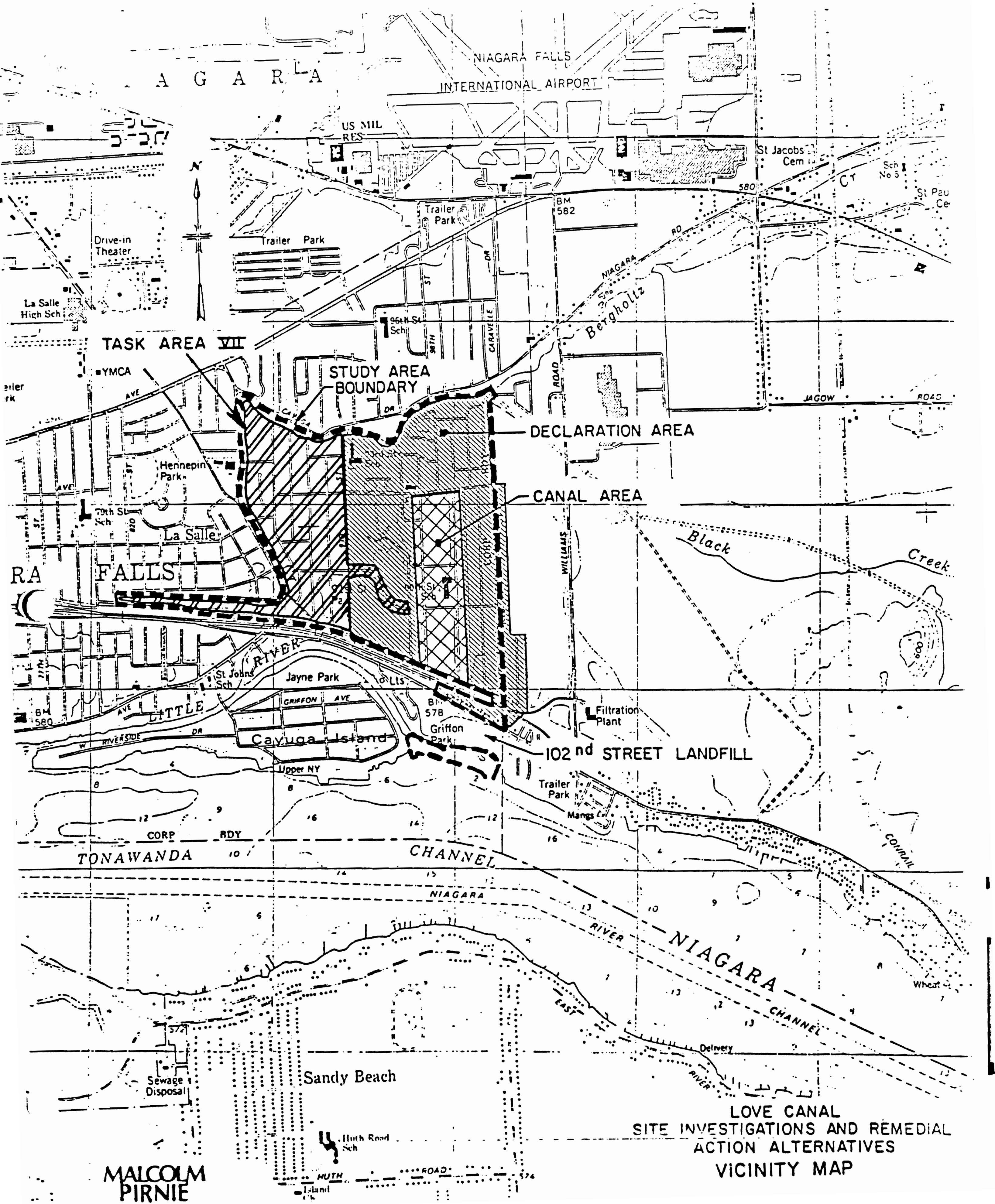
The former chemical waste disposal site at Love Canal occupies a 16-acre rectangular plot of ground in the LaSalle District of Niagara Falls, New York. A vicinity map illustrating its location is presented in the next page.

The site is bounded by Colvin Boulevard on the North, 99th street on the East, Frontier Avenue on the South and 97th street on the West. Two roads, Read and Wheatfield Avenues, crossed the landfill in an east-west direction. A public elementary school, known as 99th street school, occupied a portion of the land between Read and Wheatfield Avenues and was built adjacent to the eastern boundary of the landfill. the southernmost portion of the site is approximately 1500 feet north of the Niagara River.

The primary objective of this report is to provide brief information on the type of contaminants present in the Love Canal area. This report is summarised from the Malcolm-Pirnie report on Site Investigations and Remedial Action Alternatives, Love Canal. Additional information on Dioxin contamination in Creek beds is also provided in this report. The table in the last section gives the quantity and category of drums stationed at the Love Canal area.

Each section is provided with figures showing the vicinity of that section, the location of the samples taken and low, medium and high level priority contamination assessment of that section.

APPENDIX 7



LOVE CANAL
SITE INVESTIGATIONS AND REMEDIAL ACTION ALTERNATIVES
VICINITY MAP

MALCOLM PIRNIE

1.2 ANALYTICAL METHODS:

The aspect of engineering investigations for Love Canal involved the chemical analyses of samples collected from the site. The results of these analyses were used to establish the presence or absence of contaminants. Where contamination was found, the data were essential to establish the type and magnitude of that contamination.

The chemical analyses were conducted in two different phases. The first phase required "screening" of a representative and therefore large population of samples from the areas under study. The second phase was the detailed qualitative and quantitative analysis of the selected samples. The analytical effort of this phase was comprised of three parts; qualitative and quantitative analysis of organic compounds; quantitative analysis of dioxin; and quantitative analysis for inorganics(toxic elemental metals).

The screening approach implemented was a solvent extraction of the sample followed by direct injection of the extract for GC/MS(gas chromotography/mass spectrometry) analysis. The data output from the contaminant analysis was formatted in such a way to allow rapid and justifiable selection of a subset of samples to be subjected to full and detailed quantitative analysis. The tabular output indicated the sample identification, number of volatile and/or non-volatile contaminants detected above a threshold value and the concentration range of each of those contaminants.

After completion of the contaminant screening phase of the project, specific samples from the total population were selected to undergo detailed and extensive chemical analysis. The quantitative and qualitative GC/MS analysis for both target and non-target organic compounds was conducted first. The target compounds were those 113 organic compounds commonly referred to as the "Priority Pollutants" (40 CFR 136, Appendix I). The non-target compounds were anyother organic constituents present in the sample which were not a member of the set of 113 compounds.

1.2 ANALYTICAL METHODS (Cont)

The inductively coupled argon plasma (ICAP) instrument was utilised for the analysis of elemental toxic metals except for mercury. Mercury, having physio-chemical characterstics was best analysed by the cold vapor technique. The elements of interest were the 13 priority pollutant toxic metals.

1.3 Contamination Assessment Maps: Description

The maps depict areas of relatively low, medium and high priority for remedial action. The rankings are defined as follows:

Low: Low matrix score, indicating inorganic compounds occuring at or near "upstream" concentration; organic compounds, if any, not specifically Love Canal related; and/or existing contaminants appear to have minimum potential for human exposure.

Medium: Intermediate matrix score, indicating a limited number of Love Canal related compounds occuring at low to moderate concentrations; and/or existing contaminants appear to have moderate potential for human exposure.

High: High matrix score, indicating several or numerous Love Canal related compounds occuring at significant concentrations; and/or existing contaminants appear to have a high potential for human exposure.

SECTION 2

2.1 LOCATION

NORTH STORM AND SANITARY SEWERS

Location: Black Creek - North; 102nd Street - East;
95th Street - West; Wheatfield Avenue - South

Total of 46 liquid, 40 sediment and 13 bedding materials samples investigated.

2.2 STORM SEWERS - NORTH: Brief Summary

Storm sewer reaches of particular interest included Colvin Boulevard directly adjacent to the canal area and the three outfalls to Black Creek. The outfalls are located at 101st street, 98th street and 96th street. Sampling location includes a 1400 foot portion of Black Creek between 98th street and 102nd streets which is enclosed in large corrugated steel pipes buried 6 to 8 feet below ground level.

Storm sewer pipes are constructed of various materials including virtified clay (8 to 18 inches diameter), concrete (18 to 36 inches diameter) and corrugated steel (48 to 72 inches diameter). Depths range from 3.5 to 10 feet below street level in the northwest section and 4.5 to 6.5 feet below street level in the northeast section.

Catch basins on streets adjacent to the canal fence were inspected visually and for odor during the dry weather sampling. Catch-basin samples were not collected since no odor or anomalies were observed. Additionally, previous investigations had revealed catchbasin contamination only within the fenced canal area.

The condition of the storm manholes was generally good. Most of the manholes had sediment accumulation on the benches and in channels. Sediment consisted of silts and sands, gravel and isolated pockets of decayed organic material. No visual evidence of chemical contamination was present. Sediment depths generally ranged from 1 to 6 inches in the northwest storm tributary, 4 to 8 inches in Black Creek corrugated steel pipes and 1 to 4 inches in northeast storm tributary.

Five storm sewer sampling locations exhibited varying degrees of contamination. Sediment samples which exhibited low levels of contamination were found at MH Nos. 224, 206, 214 and 213. Low level contamination consisted primarily of heavy metals and phthalates. No quantifiable amount of Love Canal related contamination were found in manholes designated as having low contamination assessment priority levels.

2.2 STORM SEWER - NORTH: Brief Summary(Cont)

MH 221, was the only sampling location that contained predominant compounds such as chlorinated benzenes (primarily trichloro and hexachloro species) and lesser amounts of volatile compounds. No quantifiable amounts of contamination were discovered during the storm weather sampling period. Similarly, no liquid samples exhibited quantifiable amounts of contaminants.

2.3 SANITARY SEWERS - NORTH: Brief Sumary

The sanitary sewers which had direct connection to the canal area were 101st street between Wheatfield Ave. and Colvin Boulevard and Colvin Boulevard from 93rd street to 101st street. All sanitary sewers flow toward Colvin Boulevard, then west beneath Colvin Boulevard to lift station No. 4.

The sewers are generally 40 to 50 years old and constructed of virtified clay pipe ranging from 8 to 18 inches in diameter. Depths vary from 6.5 feet below street level within Griffon Manor to 21 feet below Colvin Boulevard at 95th street. Flows were generally low in the sewers, except on Colvin Boulevard down stream of 97th street where the Love Canal Leachate Treatment Plant was discharging its effluent at the time of sampling.

The condition of the sanitary manholes was generally good, with a few major cracks or leaks. No surcharged manholes were encountered. However, several manholes did exhibit evidence of past surcharge as high water marks and/or excessive sediment on the benches. MH No. 265 on 101st street and MH No. 283 on 95th street both appeared to have been previously surcharged to a depth of about 5 feet.

Most sanitary manholes had some accumulation of sediment, usually more on the benches than in the channels. The sediment consisted of solids and residual material. Depths of sediment was 0.5 to 2 inches on 101st street between Wheatfield Ave. and Colvin Boulevard and 2 to 4 inches on colvin Boulevard from 98th street to 101st street and 0.5 to 6 inches on 95th street south of Colvin boulevard.

Eleven sanitary sewer sampling locations exhibited varying degrees of contamination. The samples which exhibited low level of contamination were MH Nos. 283, 288, 257 and 273. The contamination on these samples consisted primarily of metals and phthalates. Love Canal related contaminants was not found in these samples.

2.3 SANITARY SEWERS - NORTH: Brief Summary(Cont)

At MH Nos. 262, 265, 264 and 267 high concentration of Love Canal related contaminants were identified. 2,3,7,8-TCDD (dioxin) was found at MH No. 264. Compounds prevalent in other locations 262, 265 and 267 were hexa, di and tri chlorobenzene and hexachlorobutadiene.

MH Nos. 251, 286 and 277 were assigned medium contamination assessment priority level. MH 251 contained quantities of trichlorobenzene in the sediments. MH 286 had quantifiable amounts of toulene and dochlorobenzene in the sediments. MH 277 had concentrations of pyrene and fluoranthene in the sediments.

2.4 Results of Chemical Analysis: STORM SEWER - NORTH

Sampling Date: Jan. 1983

ORGANICS

Volatiles

*	Conc. ug/kg (ppb)	** P/NP
Benzene (2000)	2100	P
Methylene Chloride (2000)	2400 - 29000	P
Ethylbenzene (2000)	2200	P
Toulene (2000	2700	P

Acids

Benzene, Pentachloro	6800	NP

Base/Neutral/Pesticides

BIS (2-ethylhexyl) phthalate (200)	220 - 34000	P
Hexachlorobenzene (4000)	9200	P
1,2,4 Trichlorobenzene (4000)	26000	P
cyclohexane	52000	NP
Benzene 1,2,3,5 tetrachloro	20000	NP
Cyclotrisilixane (hexamethyl)	4000 - 16000	NP
3-Pentanamine	21000	NP
Hydroxylamine; O-Decyl-	2800	NP

2.4 Results of Chemical Analysis: STORM SEWER - NORTH(cont)
Sampling Date: Jan. 1983

INORGANICS

***	Conc. ug/g (ppm)	** P/NP
Arsenic, total (1.0)	6.8 - 18.0	P
Cadmium, total	1.0 - 1.7	P
Chromium,total	14.0 - 25.0	P
Copper, total	9.3 - 48.0	P
Lead, total	31.0 - 420.0	P
Nickel, total	3.4 - 7.1	P
Thallium,total	4.5 - 7.4	P
Zinc, total	61.0 - 220.0	P

Notes:

* The numbers in parenthesis represents the detection limit in ug/kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug/g.

** P - Priority pollutant; NP - Non-priority pollutant
(Refer 40 CFR 136, Appendix I) Sanitary Sewer:

2.5 Results of Chemical Analysis: SANITARY SEWER - NORTH

Sampling Date: Jan. 1983

ORGANICS

Volatiles

*	Conc. ug/kg (ppb)	** P\NP
Methylene Chloride (2000)	2600	P
Toluene (2000)	17000	P

Acids

Benzene compounds (2,4-dichloro, 1,2,3,5-tetrachloro, pentachloro, etc.)	3400 - 44000	NP
Pentacosane	10000	NP
Cyclohexane	24000	NP
Phenol (500)	500	P
Propanoicacid	2800	NP
Phenol, 2-methyl-	1300 - 9600	NP
Dodecanoicacid	1500	NP
Hexathiepane	4600	NP
Hexadecanol	6000	NP
1-Hexadecene	5600	NP
Tricosane	4400	NP
1-Octadecene	4600	NP

Base/Neutral/Pesticides

BIS (2-ethylhexyl)phthalate (10)	370 - 19000	P
1,2,4-Trichlorobenzene (10)	5200 - 160000	P
Anthracene/Phenanthrene (4000)	5200	P
Hexachlorobenzene (4000)	6000 - 22000	P
Hexachlorobutadiene (4000)	13000 - 18000	P
Cyclotrisiloxane (hexamethyl)	4200	NP
1,3-dichlorobenzene	4800	NP

2.5 Results of Chemical Analysis: SANITARY SEWER - NORTH(cont)

Sampling Date: Jan. 1983

Fluroanthene (4000)	4000	P
Pyrene (4000)	4000	P
Hexadecanol	10000 - 68000	NP
1-Heptadecanol	84000	NP

INORGANICS

***	Conc. ug/g (ppm)	** P/NP
Arsenic, total (1.0)	4.9 - 14.0	P
Cadmium, total	1.2 - 11.0	P
Chromium, total	8.7 - 40.0	P
Copper, total	14.7 - 620.0	P
Lead, total	9.8 - 790.0	P
Nickel, total	4.3 - 10.0	P
Zinc, total	28.0 - 340.0	P
Thallium, total	1.6 - 6.9	P
Antimony, total	3.0	P

Notes:

* Numbers in parenthesis indicates the detection limit in ug/kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug/g.

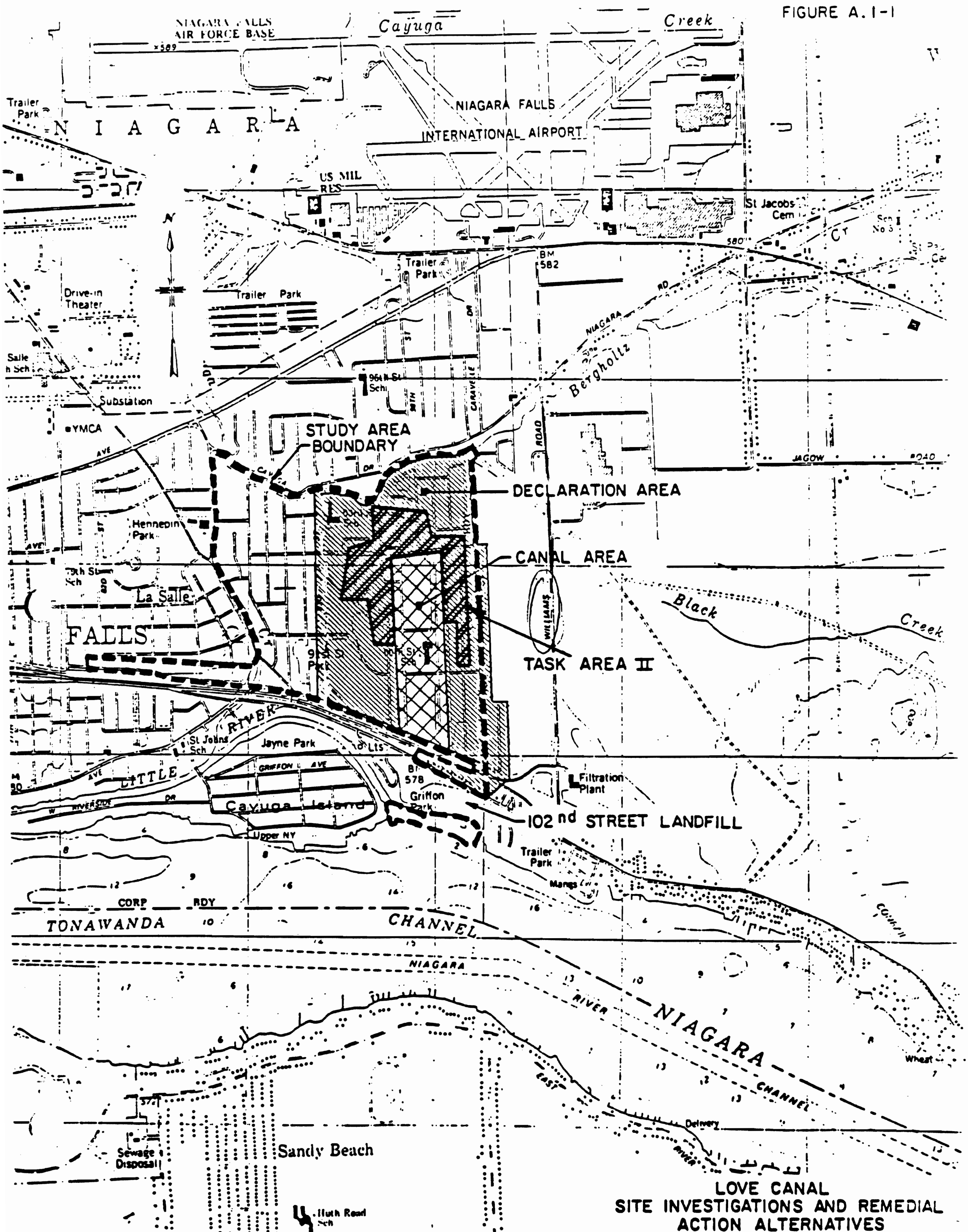
** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOT

Location	Concentration
MH No. 264	30.0 ppb

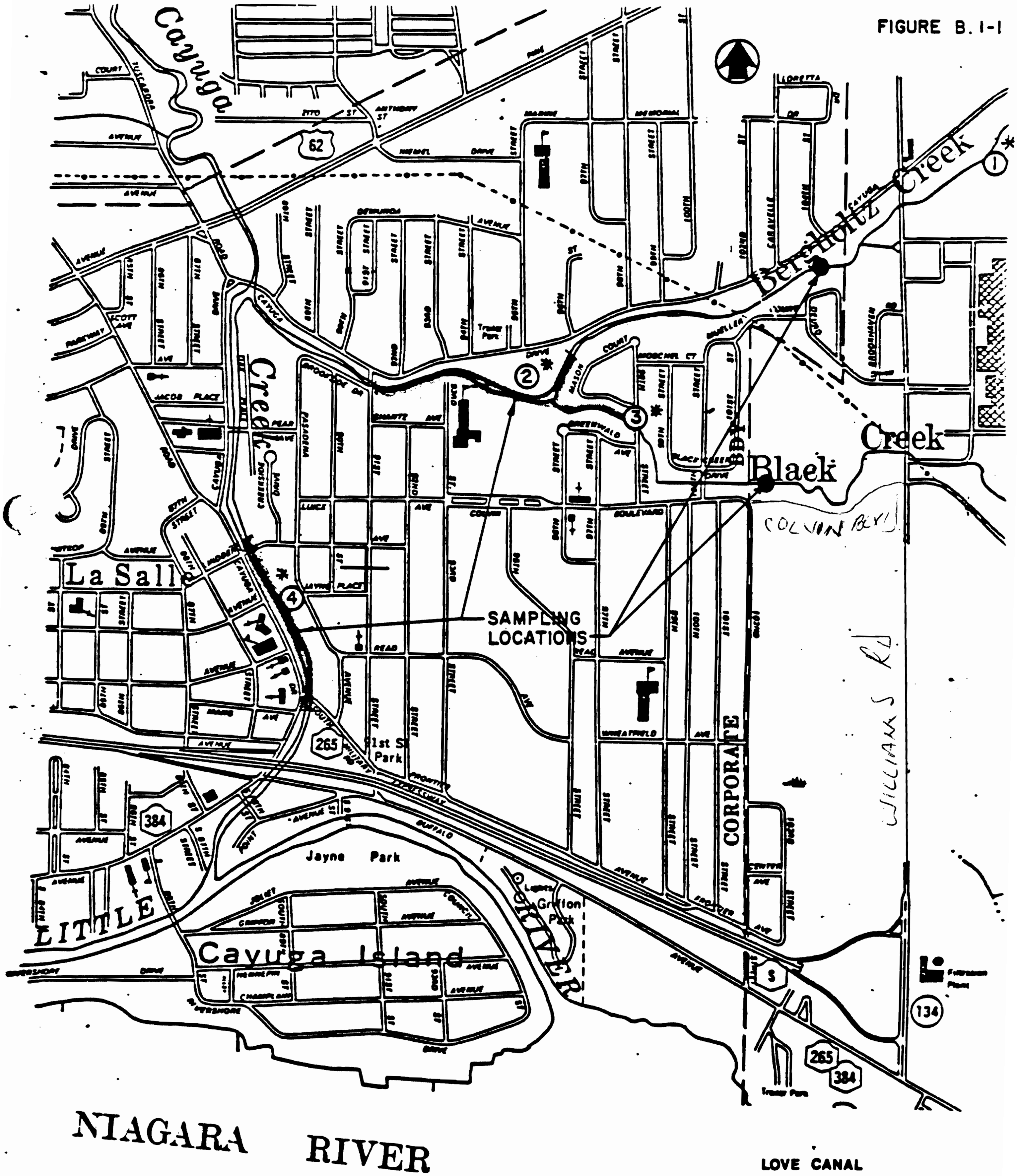
APPENDIX 7

FIGURE A.1-1



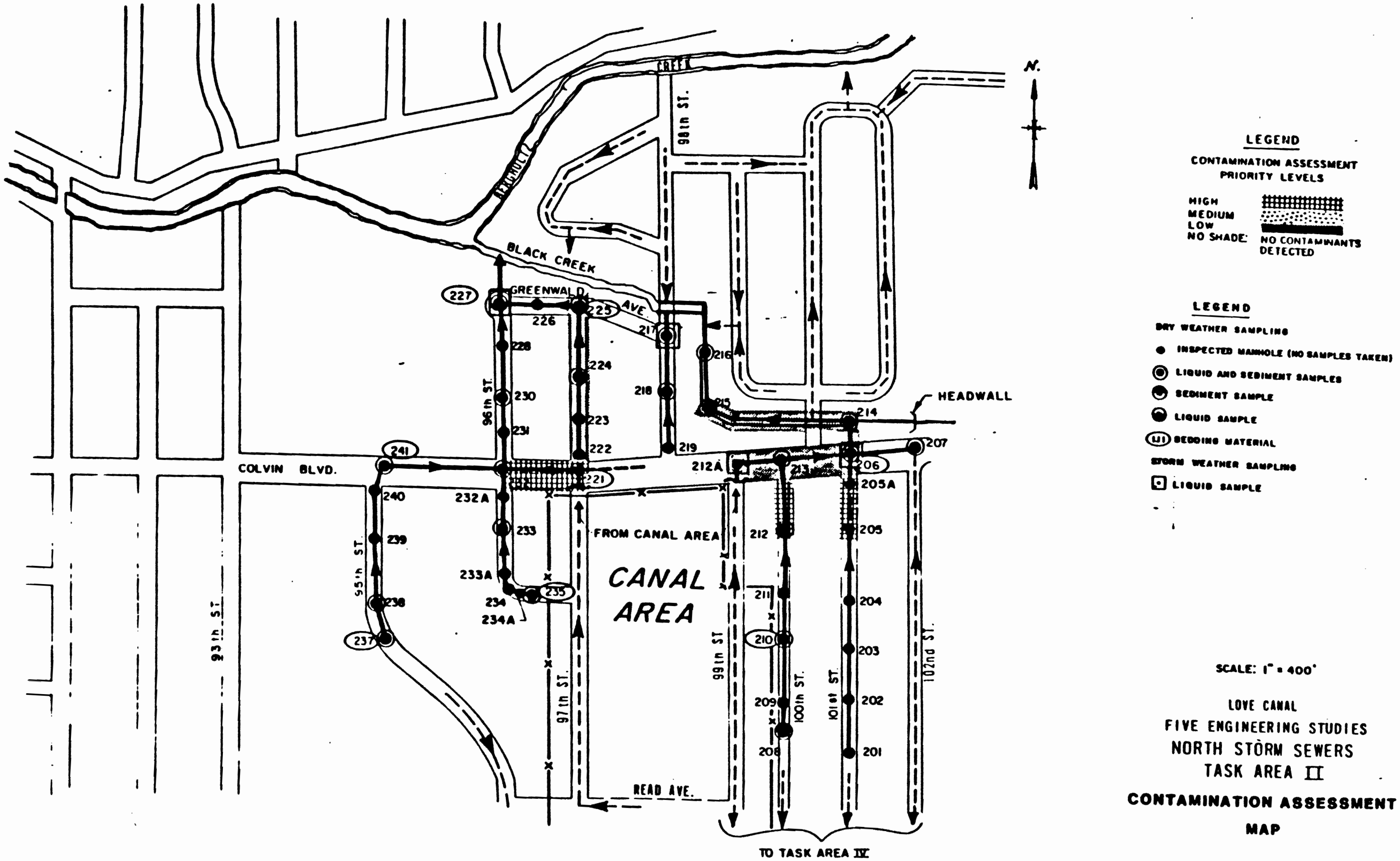
LOVE CANAL
SITE INVESTIGATIONS AND REMEDIAL
ACTION ALTERNATIVES

FIGURE B.1-1



LOVE CANAL
FIVE ENGINEERING STUDIES
BLACK AND

FIGURE A.5-1

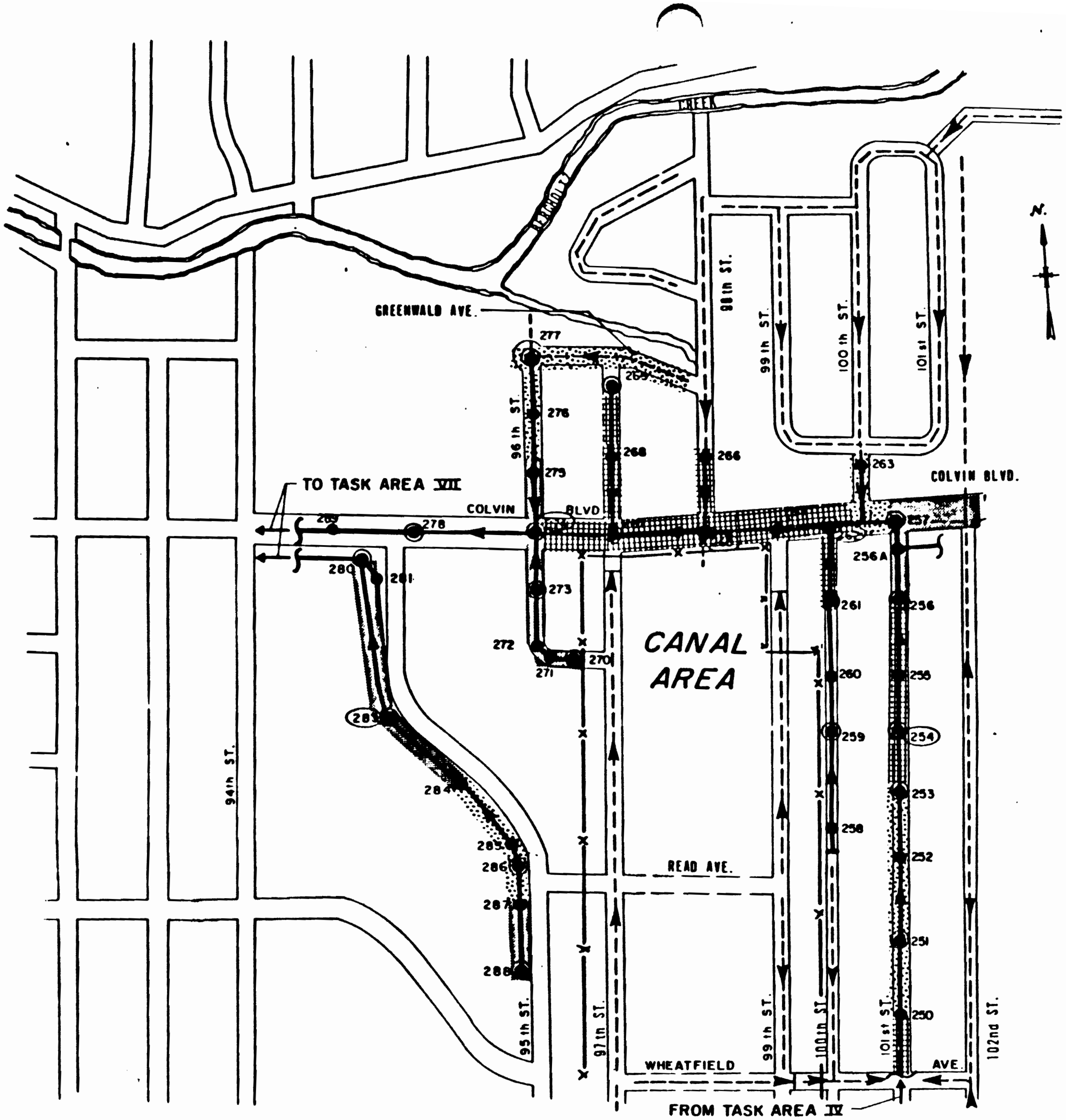


SCALE: 1" = 400'

LOVE CANAL
FIVE ENGINEERING STUDIES
NORTH STORM SEWERS
TASK AREA II
CONTAMINATION ASSESSMENT MAP

APPENDIX 7

FIGURE A.5-2



LEGEND

CONTAMINATION ASSESSMENT PRIORITY LEVELS

HIGH
MEDIUM
LOW
NO SHADE: NO CONTAMINANTS DETECTED

LEGEND

DRY WEATHER SAMPLING

INSPECTED MANHOLE (NO SAMPLES TAKEN)

LIQUID AND SEDIMENT SAMPLES

SEDIMENT SAMPLE

LIQUID SAMPLE

(123) BEDDING MATERIAL

STORM WEATHER SAMPLING

LIQUID SAMPLE

SCALE: 1" = 400'

LOVE CANAL
FIVE ENGINEERING STUDIES
NORTH SANITARY SEWERS
TASK AREA II

CONTAMINATION ASSESSMENT MAP

APPENDIX 7

SECTION 3

3.1 LOCATION

SOUTH STORM AND SANITARY SEWERS

Location: 102nd Street - E; Niagara River - S;
95th Street - W; Read Avenue - N

Total of 34 liquid, 28 sediment and 14 bedding material samples investigated.

3.2 STORM SEWERS - SOUTH: Brief Summary

Storm sewer reaches known or suspected of being contaminated included the network draining the southern end of the canal area which was actively receiving flow from 97th and 99th streets. This portion of the storm sewer system passes under the Lasalle Expressway and traverses the Olin 102nd street landfill before discharging to the Niagara River.

The size of the storm sewer varied from 6 inches to 42 inches. Storm sewers less than 18 inches in diameter were constructed of virtified clay tile. All pipes greater than 18 inches in diameter are reinforced concrete. The depth to invert of the storm sewers varies from approximately 3 feet below street level in the Griffon Manor housing developement to 10 feet below street level along Buffalo Avenue.

Most of the manholes are 6 feet in diameter and constructed of brick and mortar. The storm sewers and manholes appeared to be in very good condition with little debris in them, although a few of the manholes had bricks and mortar from the walls laying in the channel. The average depth of sediment in the storm sewers was less than 2 inches.

Thirteen Storm sewer sampling locations exhibited varying degrees of contamination. Most of the contamination was found in the sediment samples; however, two liquid samples with Love Canal related contamination were found. The Storm sewer samples which exhibited low level contamination were found at MH Nos. 403, 404, 416, 435, 427 and 431. The low level contamination consisted primarily of heavy metals and phthalates. In MH 431, trace quantities of phenathrene, anthracene and fluoranthene were found.

Seven (five sediment, two liquid) stormwater sampling points were found to contain Love Canal related contaminants. BHC, hexachloro-benzene, diphenylhydrazine, napthalene, chlorobenzenes(mono-, di-, tri-) and toulene were present at MH 412. Dichlorobenzene was detected at MH 407. Fluroanthene, chlorobenzene, dioxin were present at MH 415.

3.2 STORM SEWER - SOUTH: Brief Summary(Cont)

99th street and frontier exhibited phenanthrene, anthracene, chlorobenzenes (mono-, di-, tri-) and toulene. The compounds detected at 97th street and frontier were Chlorobenzenes (mono-, di-, tri-), phenanthrene, anthracene, pyrene and hexachlorobutadiene. The two contaminated liquid samples were found at Drop Inlet (D.I) 1 and Drop Inlet (D.I) 2. These samples contained dichloroethane, chlorobenzene, carbontetrachloride, bromoform, napthlene, ethylbenzene and toulene.

3.3 SANITARY SEWER - SOUTH: Brief Summary

Sanitary sewers previously known or suspected to be contaminted included the intersection of Wheatfield Ave. and 99th street (MH-466) and the intersection of Wheatfield Avenue and 101st street (MH-457). These locations and downstream and adjacent sewer reaches were investigated. All of the sanitary sewers are virtified clay tile pipe with mortar joints, with most of the sewers 10 inches in diameter.

The depth to invert of the sanitary sewers ranges from approximately 6 feet to 14 feet below ground level, with most of the sewers being approximately 8 feet deep. The deepest sewer reaches are on Wheatfield Avenue between 100th and 102nd streets. All sewage flows to Wheatfield Avenue, then to 101st street where it heads towards northward to Colvin Boulevard sewer.

Sanitary manholes are all of brick and mortar construction and are approximately 4 feet in diameter. All the manholes and sewer pipes inspected appear to be in good condition. The depth of flow in manholes was generally 2 inches or less. The average depth of sediment in the pipe channels was typically one inch or less.

Five sanitary sewer sampling locations exhibited varying degree of contamination. Four of the contaminated samples were sediment samples and the remaining was a liquid sample. The sanitary sewer sediment samples which exhibited low contamination assessment priority levels were found at MH464 and MH454. The contamination consisted primarily of heavy metals and phthalates. At 463A, heavy metals and phthalates were found in the liquid sample. But no Love Canal related contaminants were found.

Two sanitary sewer sediment samples had medium or high contamination assessment priority levels. MH466 and MH457, the two sediment samples contained BHC, hexachlorobenzene, tri- and tetra-chloroethylene, hexachlorobutadiene, di- and tri- chlorobenzene, dichlorophenol and chlorocresol.

3.4 Results of Chemcial Analysis: STORM SEWER - SOUTH

Sampling Date: Jan. 1983

ORGANICS

Volatiles

*	Conc. ug/kg (ppb)	** P/NP
Methylene Chloride (2000)	4500 - 30000	P
Chlorobenzene (10)	5900 - 35000	P
Toulene (10)	4400 - 280000	P
Cyclohexane	35000	NP
Cyclohexane,methyl-	18000	NP
Benzene,1-chloro,2-methyl	1900000 - 2600000	NP
Benzene,1,4-dichloro	300000	NP
1-pentene,2-methyl	19000	NP
Benzene (10)	480 - 980	P
Bromoform (10)	21	P
Carbontetrachloride (10)	13	P
1-2 dichloroethane (10)	13 - 20	P
Ethylbenzene (10)	640 - 740	P
1,1,2,2 - tetrachloroethane (10)	25 - 110	P
Tetrachloroethylene (10)	10	P
1,1,1 - trichloroethane (10)	13	P

Acids

2,4,6 - trichlorophenol (5000)	6000	P
Tetradecane	52000	NP
Pentadecane	56000	NP
Hexadecane	54000	NP
Heptadecane	50000	NP
Pentacosane	30000	NP
Benzene,2,4-dichloro,1-methyl	13000 - 130000	NP
Benzene,2,4-dichloro-1-(chloromethyl)	6100 - 120000	NP
Benzene,1-chloro-2-methyl	6200	NP
Benzene,2,4-dichloro-1-methyl	9400	NP
Benzene,2,4-dichloro-1-chloromethyl	6800	NP

3.4 Results of Chemical Analysis: STORM SEWER - SOUTH(Cont)

Sampling Date: Jan. 1983

Base/Neutral/Pesticides

*	Conc. ug/mg (ppb)	** P/NP
BIS (2-ethylhexyl) Phthalate (200)	200 - 26000	P
Butyl Benzyl Phthalate (200)	280 - 820	P
Di-N-Octyl Phthalate (200)	200 - 320	P
Eicosane	1000	NP
1-Heptadecanol	5100	NP
Pentacosane	1200	NP
Hexatriacontane	800	NP
2-chloronapthalene (4000)	46000	P
1-2 dichlorobenzene (4000)	6400 - 48000	P
1-4 dichlorobenzene (4000)	9200 - 64000	P
Hexachlorobenzene (4000)	7200 - 34000	P
1-2 diphenylhydrazine (4000)	19000	P
Napthalene (4000)	11000	P
1,2,4-trichlorobenzene (4000)	48000 - 130000	P
Alpha-BHC (4000)	11000	P
Fluoranthene (200)	200 - 4400	P
Cyclotrisiloxane (hexamethyl)	18000 - 56000	NP
Cyclotrisiloxane (octamethyl)	6800 - 19000	NP
Phenanthrene/Anthracene (200)	200 - 13000	P
1-3 dichlorbenzene (4000)	4400	P
Hexachlorobutadiene (4000)	43000	P
Pyrene (4000)	5200	P
Beta-BHC (4000)	6800	P
Napthalene (20)	280	P

3.4 Results of Chemical Analysis: STORM SEWER - SOUTH(Cont)
Sampling Date: Jan. 1983

INORGANICS

***	Conc. ug/g (ppm)	P/NP
Arsenic, total (1.0)	4.0 - 26.0	P
Chromium, total	4.7 - 22.0	P
Copper, total	5.6 - 27.0	P
Lead, total	16.0 - 190.0	P
Nickel, total	1.2 - 17.0	P
Zinc, total	28.0 - 220.0	P
Thallium, total	2.4 - 23.0	P
Cadmium, total	1.0 - 2.3	P

Notes:

* The numbers in parenthesis represents the detection limit in ug/kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug/g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOT

Location	Concentration
MH - 415	0.87 ppb

3.5 Results of Chemical Analysis: SANITARY SEWER - SOUTH
Sampling Date: Jan. 1983

ORGANICS

Volatiles

	Conc. ug/kg (ppb)	** P/NP
Methylene Chloride (2000)	4800 - 5900	P
Chlorobenzene (2000)	14 - 3900	P
Toulene (10)	2300 - 2900	P
1,1,1 - Trichloroethane (10)	13 - 2500	P
Trichlorofluoromethane (2000)	3300	P
Tetrachloroethylene (10)	10 - 15	P
Trichloroethylene (10)	10	P

Acids

2,4-dichlorophenol (25)	63	P
P-chloro-m-cresol (25)	48	P
Benzene,1,2,4-trichloro	120	NP
Benzene,1,2,3,5-tetrachloro	180	NP
Benzene,pentachloro	100	NP

Base/Neutral/Pesticides

BIS (2-ethylhexyl) Phthalate (10)	350 - 26000	P
Hexachlorobenzene (10)	270 - 85000	P
Hexachlorobutadiene (10)	550 - 56000	P
1,2,4 - Trichlorobenzene (10)	860 - 510000	P
Alpha - BHC (10)	1500 - 140000	P
Gamma - BHC (10)	1200 - 120000	P
Delta - BHC (10)	1100 - 130000	P
1,2-dichlorobenzene (10)	6400 - 12000	P
1,4-dichlorobenzene (10)	9200 - 32000	P

3.5 Results of Chemical Analysis: SANITARY SEWER - SOUTH(Cont)
Sampling Date: Jan. 1983

INORGANICS

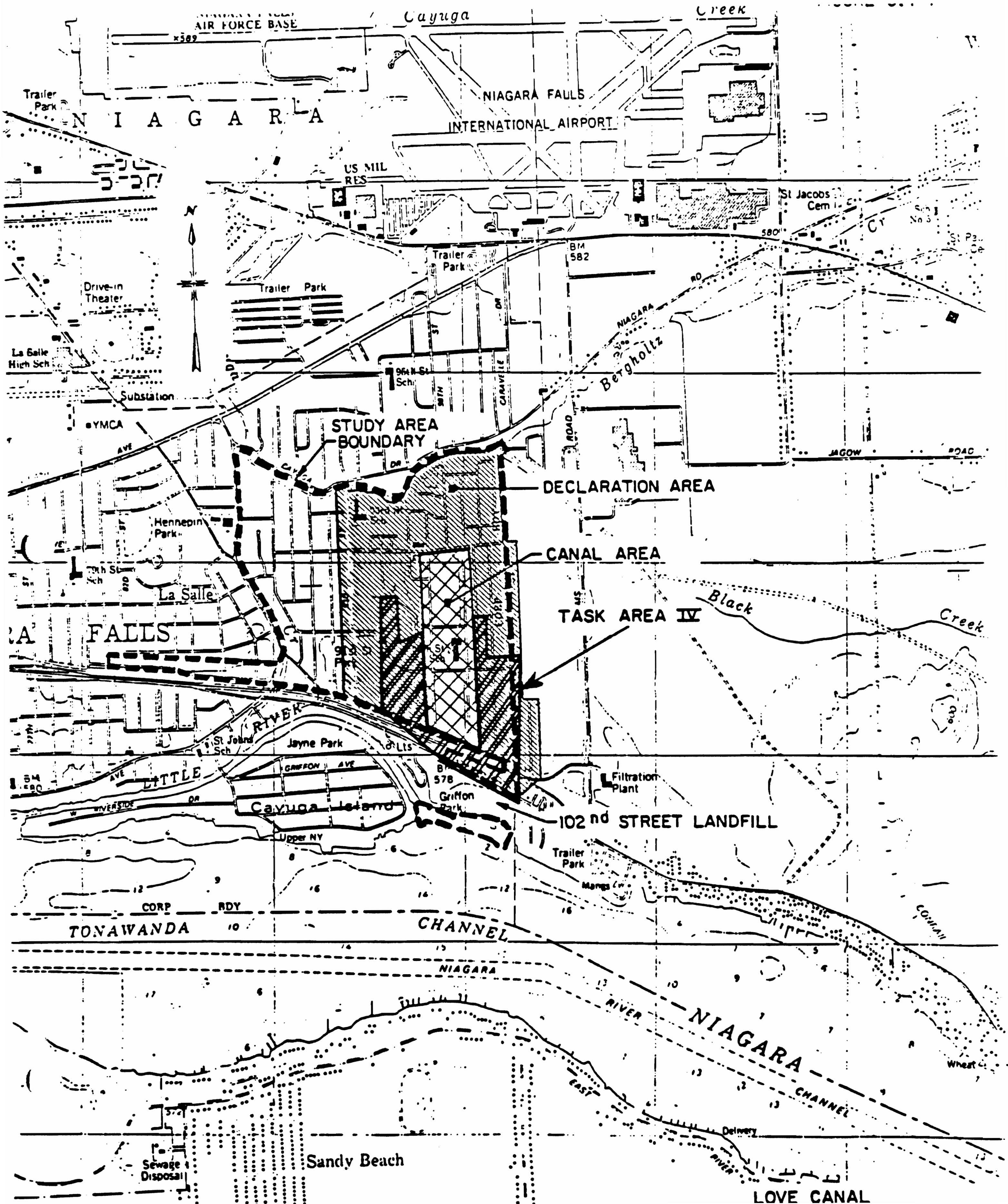
			Conc. ug/g (ppm)	P/NP
		***		
Arsenic,	total	(1.0)	4.0 - 32.0	P
Cadmium,	total		1.0 - 1.9	P
Chromium,	total		4.5 - 21.0	P
Copper,	total		6.9 - 320.0	P
Lead,	total		11.0 - 100.0	P
Nickel,	total		4.8 - 12.0	P
Thallium,	total		1.5 - 19.0	P
Zinc,	total		15.0 - 280.0	P

Notes:

* The numbers in parenthesis represents the detection limit in ug/kg of that particular compound.

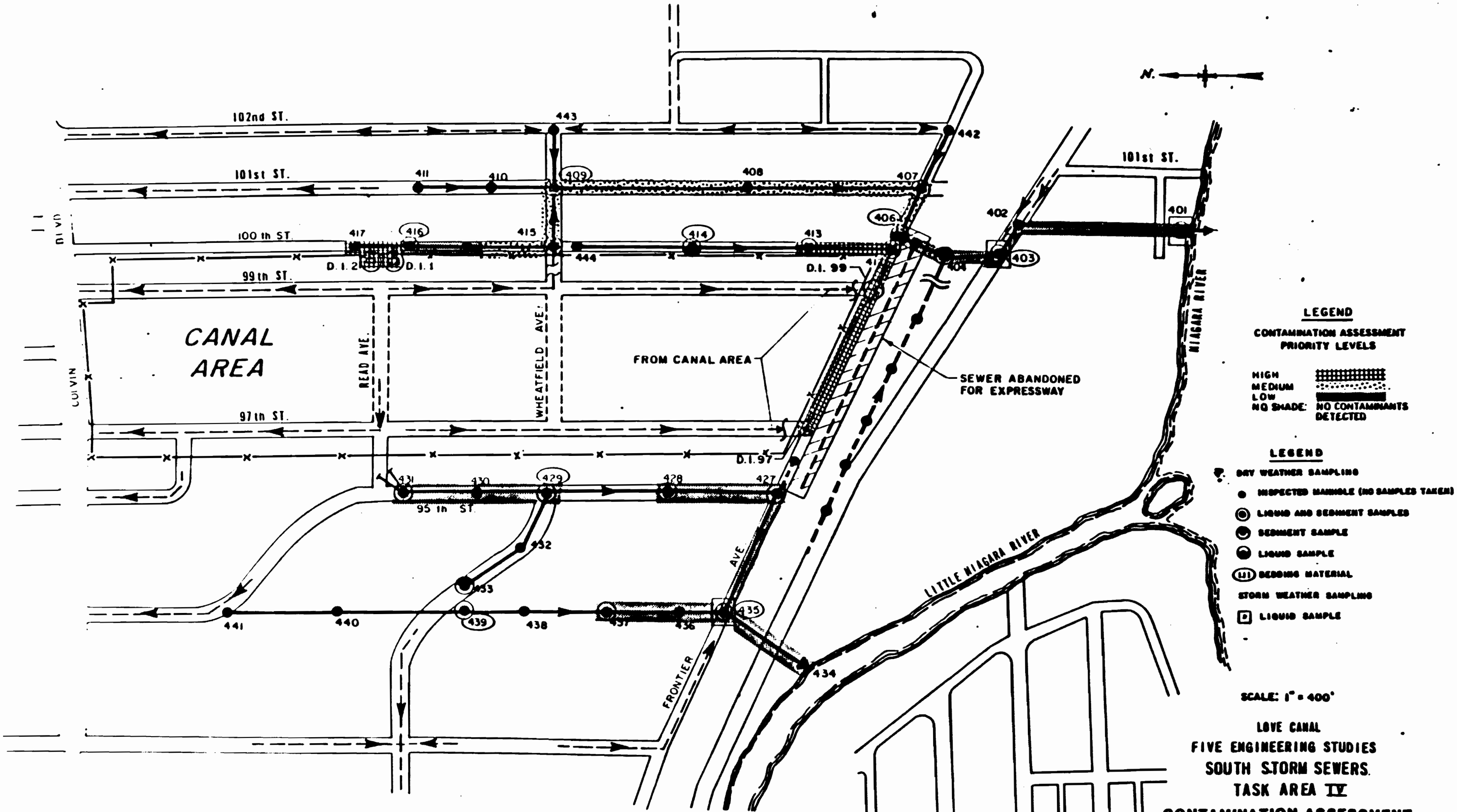
*** The detection limit for all inorganic compound is 1.0 ug/g.

** P - Priority pollutant; NP - Non-priority pollutant
(Refer 40 CFR 136, Appendix I)


AIR FORCE BASE
Cayuga
Creek
NIAGARA FALLS
INTERNATIONAL AIRPORT
Trailer Park
N I A G A R A
US MIL RES
St Jacobs Cem
580
BM 582
Trailer Park
Drive-in Theater
Trailer Park
La Salle High Sch
NIAGARA
Bergholtz
Substation
YMCA
STUDY AREA BOUNDARY
JAGOW ROAD
DECLARATION AREA
Hennepin Park
CANAL AREA
La Salle
FALLS
TASK AREA IV
Black Creek
RIVER
St Johns Sch
Jayne Park
GRIFFON AVE
LITTLE
Filtration Plant
Cayuga Island
Griffon Park
102nd STREET LANDFILL
Upper NY
Trailer Park
CORP BDY
TONAWANDA
CHANNEL
NIAGARA
RIVER
NIAGARA
CHANNEL
Sandy Beach
Sewage Disposal
Delivery
LOVE CANAL

APPENDIX 7

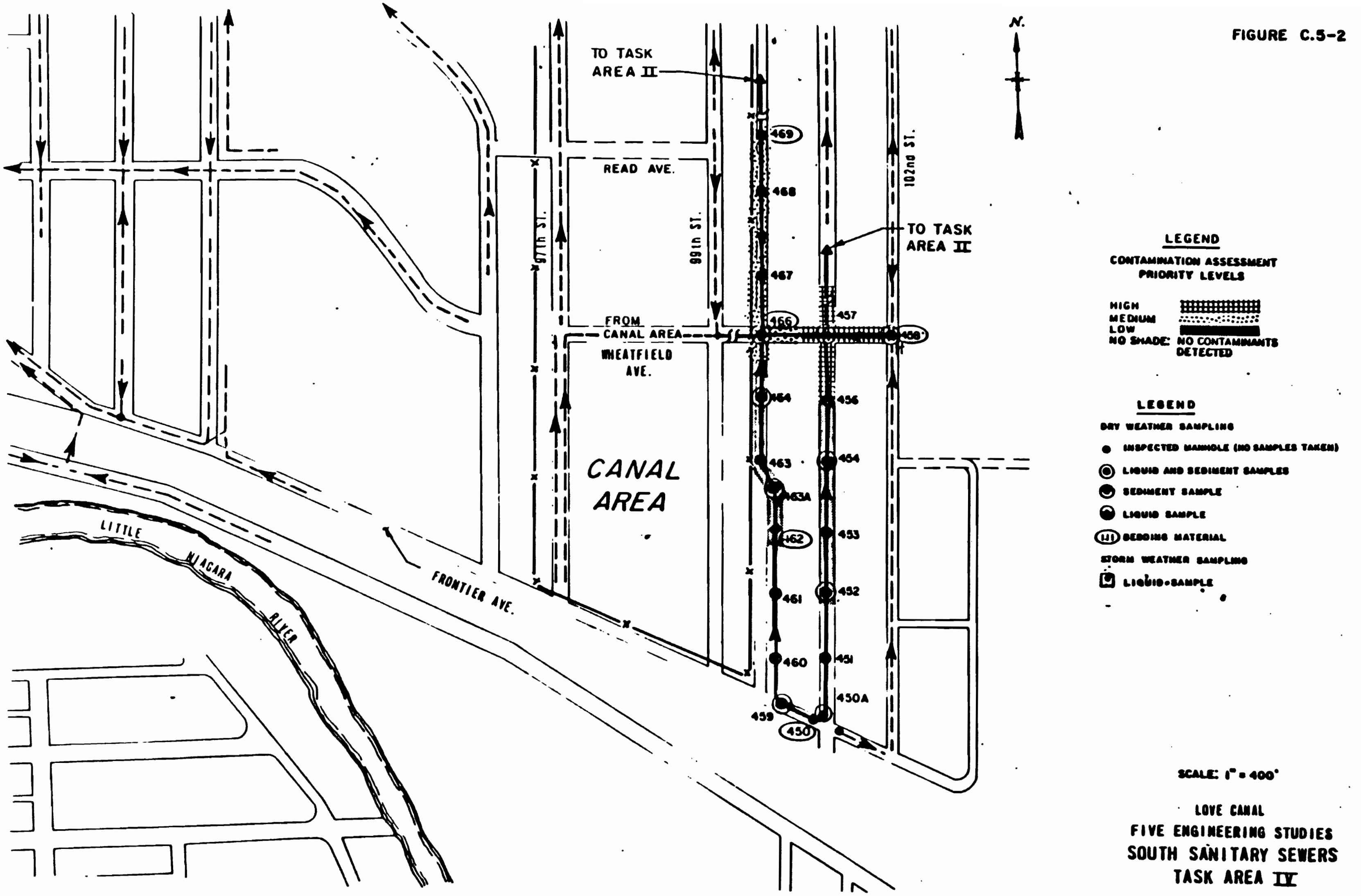
FIGURE C.5-1



LOVE CANAL
FIVE ENGINEERING STUDIES
SOUTH STORM SEWERS
TASK AREA IV
CONTAMINATION ASSESSMENT MAP

APPENDIX 7

FIGURE C.5-2



SCALE: 1" = 400'

LOVE CANAL
FIVE ENGINEERING STUDIES
SOUTH SANITARY SEWERS
TASK AREA IV

CONTAMINATION ASSESSMENT MAP

SECTION 4

4.1 LOCATION

BLACK CREEK, BERGHOLTZ CREEK, CAYUGA CREEK

Location: These creeks are tributaries of Niagara River. The site map attached indicates the exact location of these creeks.

4.2 BLACK CREEK: Brief Summary

Black Creek flows in an east-to-west direction from the edge of the Love Canal area to a point near Colvin Boulevard and 102nd street where it enters an underground pipe. This then flows to the west, then north and then west to the area of Greenwald Avenue and 98th street where it received stormwater from the canal area. The Creek resurfaces just north of Greenbald Avenue and flows west to its confluence with Bergholtz Creek in the vicinity of 96th street. Approximately 100 feet upstream from the confluence is the 96th street outfall which discharged Love Canal related storm water.

The channel is about 10 feet wide at the point where the Black Creek enters the eastern end of the Love Canal and flows along the southern edge of an open field to the area of colvin Boulevard and 102nd street. The stream varied from 2 to 4 feet in width as it meandered through the cattails and bush within the channel. The water depth was generally less than 1 foot and the sediment material is clay which extends to atleast 21 inches below the Creek bed.

At 102nd street Black Creek enters a storm sewer at a concrete headwall and is piped underground due west for about 500 feet and then northwest for about 500 feet to 98th street. The storm sewer consists of 72 inches pipe in some reaches and 48 inches in others. Storm sewers on 98th, 100th and 101st streets discharges into the piped portion of the Creek. The Creek discharges through twin 48 inches pipes into an open Creek bed along 98th street just north of Greenwald Avenue and then flows west to its conluence with Bergholtz Creek just north of 96th street. A 30 inches storm sewer outfall is located about 100 feet upstream from this confluence. This outfall discharged storm water from the canal area and is beleived to be a source of contamination of Black Creek.

4.2 BLACK CREEK: Brief Summary(Cont)

In the area of 48 inches outfalls, the Creek channel is over 20 feet wide. Proceeding downstream, it narrows 10 feet wide and then widens to 17 feet at the outlet to Bergholtz Creek. The Stream has a gentle slope and varied from 4 to 8 feet in width within the channel. Stream bed sediment composition is clay overlaid with organic materials. The clay extends to atleast 3 feet below the Creek bed. Strong odors were detected immedietly downstream from 96th street storm sewer outfall. Throughout this portion of the Creek, oily films surfaced when the sediments were disturbed.

The contaminants detected in black Creek were Dioxin and a limited number of organic and inorganic compounds. Phthalate esters, di-n-octyl-Phthalate and BIS(2-ethylhexyl)phthalate were present singly or in combination throughout the Creek. Methylene Chloride was detected at sample site B-1N. Contaminants were detected in all sediment levels sampled(top, middle and bottom levels). The pattern of dioxin contamination suggests that the storm sewer outfall near the confluence of Black and Begholtz Creeks is presently or has been the source of the contamination.

4.3 BERGHOLTZ CREEK: Brief Summary

Bergholtz Creek flows in a south-westerly direction from the northeast corner of the Love Canal area to its confluence with Black Creek in the area of 96th street. From here the Creek continues to flow west until joining Cayuga Creek near the intersection of Cayuga Drive and 88th street.

The Creek enters the Love canal area from the northeast and flows west to form the northern boundary of the area. At the northeast corner of the area, the Creek is bordered by Cayuga Drive to the north and Deuro Drive to the south. At this point, the channel is about 30 feet wide. The stream has a moderate gradient and varied from 5 feet to 10 feet width within the channel. The creek bed is composed of gravels, cobbles and other coarse material. Disturbance of the sediments released an oily film to the surface and a strong odor of decaying material. The accumulated sediment was a mixture of clay and organic material.

In the area between Cayuga drive and Mason court on south, the creek flows with the channel width increasing from about 25 feet in in the north to about 40 feet just above the confluence with the Black Creek. The stream has a gentle slope and varied from 15 to 30 feet in width within the channel. The sediment composition is clay overlaid with organic material and the clay extends to about 4 feet below the Creek bed. Throughout this portion, disturbance of sediment resulted in the release of an oily film which rose to the surface.

A thousand foot stretch of the creek from its confluence with Black Creek downstream to the 93rd street pedestrian bridge was also examined. In this area, the Creek flows due west and the channel varies from 35 to 60 feet in width. The stream has a very gentle gradient and varied from 25 to 45 feet in width within the channel. The sediment composition is clay overlaid with organic material. The

4.3 BERGHOLTZ CREEK: Brief Summary(Cont)

clay extends to atleast four feet below the creek bed. Throughout this portion of the Creek disturbance of the sediments often resulted in an oily film on the water and a odor of decaying organic material.

Dioxin(2,3,7,8-TCDD) and a limited number of other organic compounds and inorganic constituents characterised the contamination detected in Bergholtz Creek. Phthalate esters, di-n-octyl phthalate and BIS(2-ethylhexyl)phthalate were present singly or in combination throughout the creek. Methylent Chloride was detected at site # D-9N. Contaminants were detected in all sediment levels (top, middle and bottom levels). The pattern of dioxin contamination suggests that the storm sewer outfall near the confluence of Bergholtz and Black creeks is presently or has been the source of contamination. Dioxin contamination was also detected at the 93rd street outfall into Bergholtz Creek.

4.4 CAYUGA CREEK: Brief Summary

Cayuga Creek forms the western boundary of the Love Canal area and flows in a north to south direction from the mouth of Bergholtz Creek to its confluence with the Little Niagara River near south of 87th street. The Little Niagara River empties into the Niagara River on the west end of Cayuga Island.

The Bergholtz Creek empties into Cayuga Creek near 88th street and Cayuga Drive. The Cayuga Creek flows from north to south parallel and outside of the western boundary of the Love Canal area. The Creek in this area receives discharges from storm sewer and sanitary sewer overflows originating from the Canal area.

An 800 foot portion of the Creek flowing due south from Lindberg Avenue to Military Road was examined. The channel in this area varies from about 80 to 100 feet in width in the northern portion to about 60 feet wide south of Military Road. The stream is gently sloped and varied from about 60 feet wide in northern reach to about 35 feet south of Military Road.

The sediment composition is clay overlaid with organic material and the clay extends to about 4 feet below the Creek bed. In portions of the Creek, disturbance of the sediments resulted in the release of an oily film. The portion of the Creek under the Military Road Bridge was found to have several feet of unconsolidated sediment mixed with organic material. The sediments in this area were unstable and when disturbed, produced a very string odor.

No contamination which could be specifically classified as Love canal related compounds were found in Cayuga Creek. Inorganic constituents were detected. Phthalate esters, di-n-octyl phthalate and BIS(2-ethylhexyl)phthalate were present singly or in combination throughout the Creek. Methylene Chloride was detected at site location

4.4 CAYUGA CREEK: Brief Summary(Cont)

ID # C-2-E. No dioxin was found in the Cayuga Creek.

Concentrations of heavy metals and phthalate esters were similar to concentrations of these contaminants detected in samples taken upstream of the influence of Love Canal. With one exception, the sample site # C-7-M exhibited concentrations of Arsenic upto 170 ppm and 160 ppm in the upper and middle sediment layers respectively.

4.5 Results of Chemical Analysis: BLACK CREEK

Sampling Date: Jan. 1983

ORGANICS

Volatiles

	Conc. ug/kg (ppb)	** P\NP
*		
Methylene Chloride (2000)	2300	P
2-Propanone	6500	NP

Acids

Heneicosane	500 - 270000	NP
Eicosane	300 - 80000	NP
Cyclotrisiloxane (hexamethyl)	390	NP
Cyclotrisiloxane (octamethyl)	320	NP
Pentacosane	1300 - 310000	NP
Tricosane	8000	NP
Pentatriacontane	560	NP

Base/Neutral/Pesticides

BIS (2-ethylhexyl) Phthalate (10)	220 - 8000	P
Di-N-Octyl Phthalate (200)	220 - 420	P

4.5 Results of Chemical Analysis: BLACK CREEK(Cont)
Sampling Date: Jan. 1983

INORGANICS

			Conc. ug/g (ppm)	P\NP
		***		
Arsenic,	total	(1.0)	17.0 - 43.0	P
Chromium,	total		6.8 - 13.0	P
Copper,	total		9.9 - 18.0	P
Lead,	total		15.0 - 62.0	P
Nickel,	total		7.1 - 16.0	P
Thallium,	total		2.5 - 17.0	P
Zinc,	total		28.0 - 91.0	P
Cadmium,	total		1.0 - 2.2	P

Notes:

* Numbers in parenthesis indicates the detection limit in ug\kg of that particular compound.

*** The Detection limit for all inorganic compounds is 1.0 ug\g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOTS

Location	Cocentration (ppb)
B-1-N	1.3
B-2-S	4.0

4.6 Results of Chemcial Analysis: BERGHOLTZ CREEK(Cont)
Sampling Date: Jan. 1983

INORGANICS

			Conc. ug/g (ppm)	P\NP
		***		
Arsenic,	total	(1.0)	7.2 - 40.0	P
Cadmium,	total		1.0 - 2.2	P
Chromium,	total		3.5 - 36.0	P
Copper,	total		8.4 - 20.0	P
Lead,	total		9.4 - 49.0	P
Nickel,	total		4.7 - 15.0	P
Thallium,	total		4.0 - 22.0	P
Zinc,	total		17.0 - 110.0	P

Notes:

* Numbers in parenthesis indictes the detection limit in ug\kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug\g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOTS

Location	Concentration (ppb)
D-6-N	1.2
D-7-M	9.4
D-9-N	45.8

4.7 Results of Chemical Analysis: CAYUGA CREEK

Sampling Date: Jan. 1983

ORGANICS

Volatiles

*	Conc. ug/kg (ppb)	** P\NP
Methylene Chloride (2000)	2100	P
1-4- Dioxane	5300	NP
2- Propanone	390	NP

Acids

Pentacosane	3200 - 3600	NP
Pentatriacontane	3400 - 17000	NP
Eicosane	440 - 1000	NP
Phenanthrene	450	NP
Heneicosane	1400 - 7400	NP
Fluroanthene	450	NP
Tridecane, 2-methyl-	3800	NP
Cyclotrisiloxane (hexamethyl)	600 - 1160	NP
Cyclotrisiloxane (octamethyl)	280 - 770	NP

Base/Neutral/Pesticides

Di-N-Octyl Phthalate (200)	200 - 1800	P
BIS (2-ethylhexyl) Phthalate (10)	330 - 5300	P
2-Pentanone,4-Hydroxy,4-Methyl	10000	NP

4.7 Results of Chemical Analysis: CAYUGA CREEK(Cont)

Sampling Date: Jan. 1983

INORGANICS

		Conc. ug/g (ppm)	P\NP
	***		
Arsenic, total	(1.0)	13.0 - 170.0	P
Cadmium, total		1.0 - 2.4	P
Chromium, total		4.5 - 14.0	P
Copper, total		7.7 - 20.0	P
Lead, total		12.0 - 25.0	P
Nickel, total		4.1 - 14.0	P
Thallium, total		3.8 - 16.0	P
Zinc, total		21.0 - 100.0	P

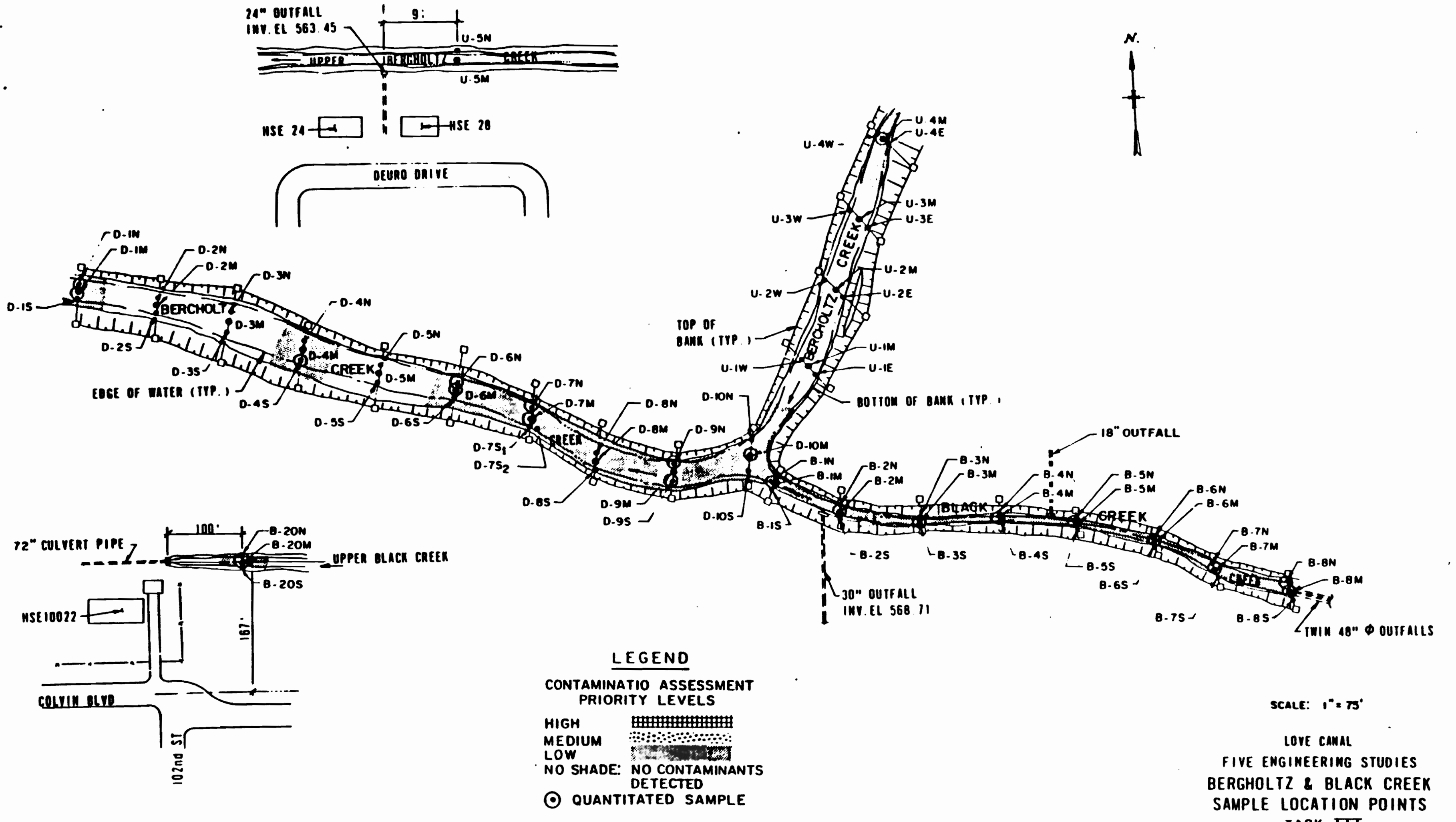
Notes:

* Numbers in parenthesis indicates the detection limit in ug\kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug\g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

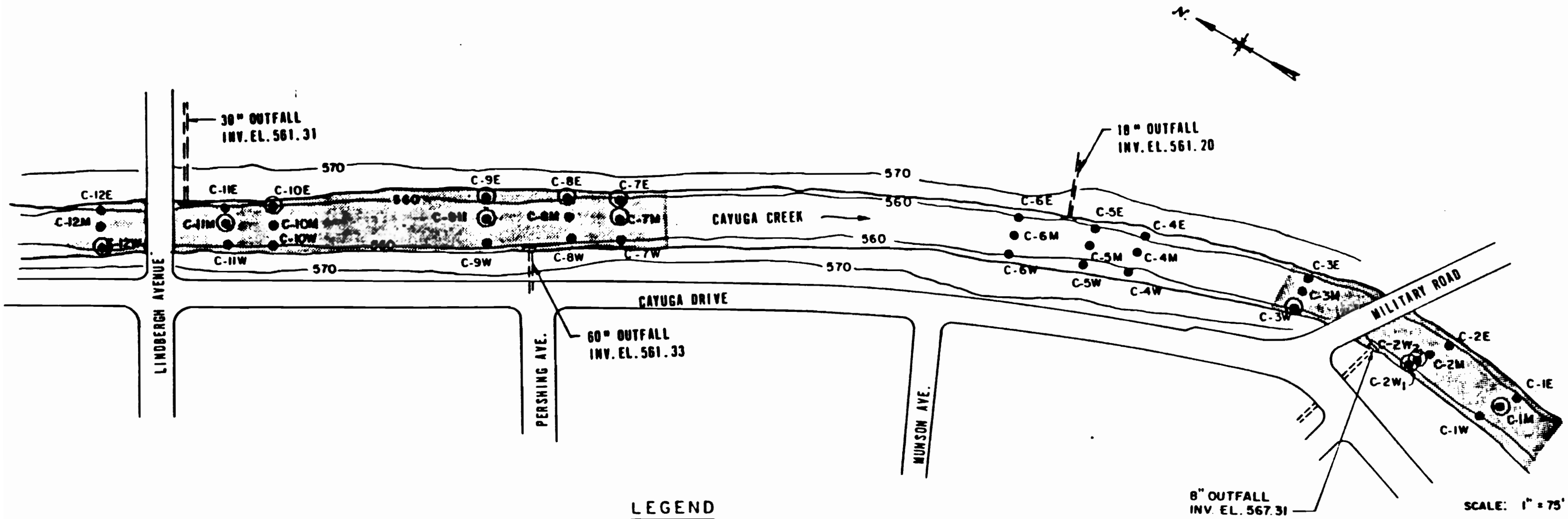
FIGURE B.5-1



LOVE CANAL
FIVE ENGINEERING STUDIES
BERGHOLTZ & BLACK CREEK
SAMPLE LOCATION POINTS
TASK III
CONTAMINATION ASSESSMENT MAP

APPENDIX 7

FIGURE B.5-3



LEGEND

CONTAMINATIO ASSESSMENT PRIORITY LEVELS

HIGH
MEDIUM
LOW
NO SHADE: NO CONTAMINANTS DETECTED
⊙ QUANTITATED SAMPLE

LOVE CANAL
FIVE ENGINEERING STUDIES
CAYUGA CREEK
TASK III

CONTAMINATION ASSESSMENT MAP

APPENDIX 7

SECTION 5

5.1 LOCATION

102nd STREET OUTFALL

The 102nd street outfall is a 42 inches storm sewer outfall which discharges to the Niagara River Approx. 1500 feet from the southern most portion of the Love Canal area.

A total of 111 sediment cores were taken and were divided into 329 sediment samples which were then analysed.

5.2 102nd STREET OUTFALL: Brief Summary

The outfall originally discharged storm waters collected in tributary storm sewers on 97th, 99th, 100th, 101st and 102nd streets and a portion of Frontier Avenue. The 97th and 99th street storm sewers have recently been cut and plugged to prevent any discharge of storm water from Love Canal, but storm drainage from Frontier Avenue and the area from 100th to 102nd street south of Wheatfield Avenue is still carried by the outfall sewer. South of Frontier Avenue, the outfall sewer passes under an expressway and Buffalo Avenue, and through an inactive industrial waste disposal site (102nd street landfill) to the Niagara River.

The locations of the 102nd street outfall sewer, tributary sewers and the sampling site in the Niagara River area were shown in the map attached. The sampling site is a small inlet area on the north shore of the river at the head of Cayuga Island, where a deltaic deposit of sediments has built up at the end of the outfall sewer.

The shore area at the outfall site consists mostly of a rip-rapped slope along the southern portion of the 102nd street landfill. The landfill area behind the rip-rap is fairly flat and grassed. The property to the east of the sampled inlet area was scattered with debris such as broken grinding wheels, glass and construction debris, discarded household goods and the foundation of a razed structure. Griffon Park is located at the west end of the sampling site. This area appeared to have been filled with clay soil and developed into a city park.

Love Canal related contaminants (including BHC isomers and chlorinated benzenes) were found in a moderate number of sediment samples. Contaminants were detected in all three sampling depths. In general, there was more contamination in the upper layer than in the bottom layers. Samples taken in the proximity of 102nd street outfall had the highest scores, with samples taken further from shore exhibiting decreasing scores.

5.2 102nd STREET OUTFALL: Brief Summary(Cont)

All samples which exceeded the screening analysis are indicated on the contamination assessment map and designated as high, medium or low. For samples that did not exceed the qualitative screen no further chemical analyses were performed and these samples are not given further consideration. The designation of a sample site as high, medium or low was based upon the highest score given to any of the three sediment layers.

Contamination was not found at most sample sites outside the medium priority area. With the exception of samples K-6A and K-21A, the contaminants detected were low levels of Love Canal related contaminants (BHC isomers, 1,2,4-trichlorobenzene), phthalate esters, methylene chloride and inorganics. Dioxin was found at one sample site, adjacent to the outfall. This area has already been determined to be a high priority area.

5.3 Results of Chemical Analysis: 102nd STREET OUTFALL
Sampling Date: Jan. 1983

ORGANICS

Volatiles

	Conc. ug/kg (ppb)	** P/NP
Methylene Chloride (2000)	1500 - 49000	P
Chlorobenzene (2000)	1100 - 27000	P
Tetrachloroethylene (2000)	26000	P
Toulene (2000)	3200	P
Trichloroethylene (2000)	6200	P
Chloroform (2000)	2000	P
Pentane	5800 - 9000	NP
Formic acid, methylester	7900 - 50000	NP
Carbontetrachloride (2000)	2300	P
Trichlorofluoromethane (2000)	2500	P
Ethanol,2-methoxy-,carbonete	9900	NP

Acids

Benzene, chloro	170 - 2300	NP
Phenol, pentafluoro	280	NP
Benzene,1,4-dichloro-	200 - 1400	NP
Benzene,1,2,4-trichloro	540 - 200000	NP
Cyclotrisiloxane-hexamethyl	190 - 1800	NP
Cyclotrisiloxane-octamethyl	180 - 3800	NP
Benzene,1,2,3,5-tetrachloro	520 - 160000	NP
Cyclohexane,1,2,3,4,5,6-hexachloro	300 - 200000	NP
Benzene,pentachloro	500 - 11000	NP
Benzene,1,2,3,4-tetrachloro	330 - 19000	NP
Cyclohexane,methyl	240	NP
Benzene,1,3-dichloro	320 - 700	NP
2,5,8,11,14-penta-oxapentadecane	260 - 850	NP
Cyclohexane	3200	NP
Benzene,2,4-dichloro-1-mehtyl	460 - 6800	NP
Benzene,1,3,5-trichloro	760	NP

5.3 Results of Chemical Analysis: 102nd STREET OUTFALL(Cont)

Sampling Date: Jan. 1983

Base/Neutral/Pesticides

	Conc. ug/kg (ppb)	** P/NP
BIS (2-ethylhexyl) phthalate (200)	230 - 10000	P
Alpha - BHC (200)	220 - 48000	P
Pentriacontane	8000 - 11000	NP
Hextriacontane	370 - 7800	NP
1,2-dichlorobenzene (200)	300 - 36000	P
Beta - BHC (200)	300 - 49000	P
BIS (2-chloroethyl) ether (200)	260 - 5200	P
Hexachlorobenzene (200)	780 - 52000	P
Anthracene/Phenanthrene (200)	200 - 2000	P
1,3-dichlorobenzene (200)	360 - 64000	P
1,4-dichlorobenzene (200)	360 - 54000	P
1,2,4-trichlorobenzene (200)	280 - 300000	P
Gamma - BHC (200)	440 - 2400	P
Delta - BHC (200)	260	P
Pentacosane	340 - 110000	NP
Eicosane	340 - 140000	NP
Chrysene (200)	710	P
Di-N-butyl phthalate (200)	250	P
Di-N-octyl phthalate (200)	530	P
Pyrene (200)	540	P
Tricosane	1100 - 310000	NP
Butyl benzyl phthalate (200)	280	P
Heneicosane	1000	NP

5.3 Results of Chemical Analysis: 102nd STREET OUTFALL(Cont)

Sampling Date: Jan. 1983

INORGANICS

	***	Conc. ug/g (ppm)	** P/NP
Arsenic, total	(1.0)	1.0 - 79.0	P
Chromium, total		1.0 - 34.0	P
Cadmium, total		1.0 - 1.2	P
Copper, total		2.0 - 40.0	P
Lead, total		1.0 - 46.0	P
Nickel, total		1.4 - 10.0	P
Thallium, total		1.2 - 7.2	P
Zinc, total		21.0 - 69.0	P
Mercury, total		1.0 - 50.0	P

Notes:

* Numbers in parenthesis indicates the detection limit in ug /kg of that particular compound.

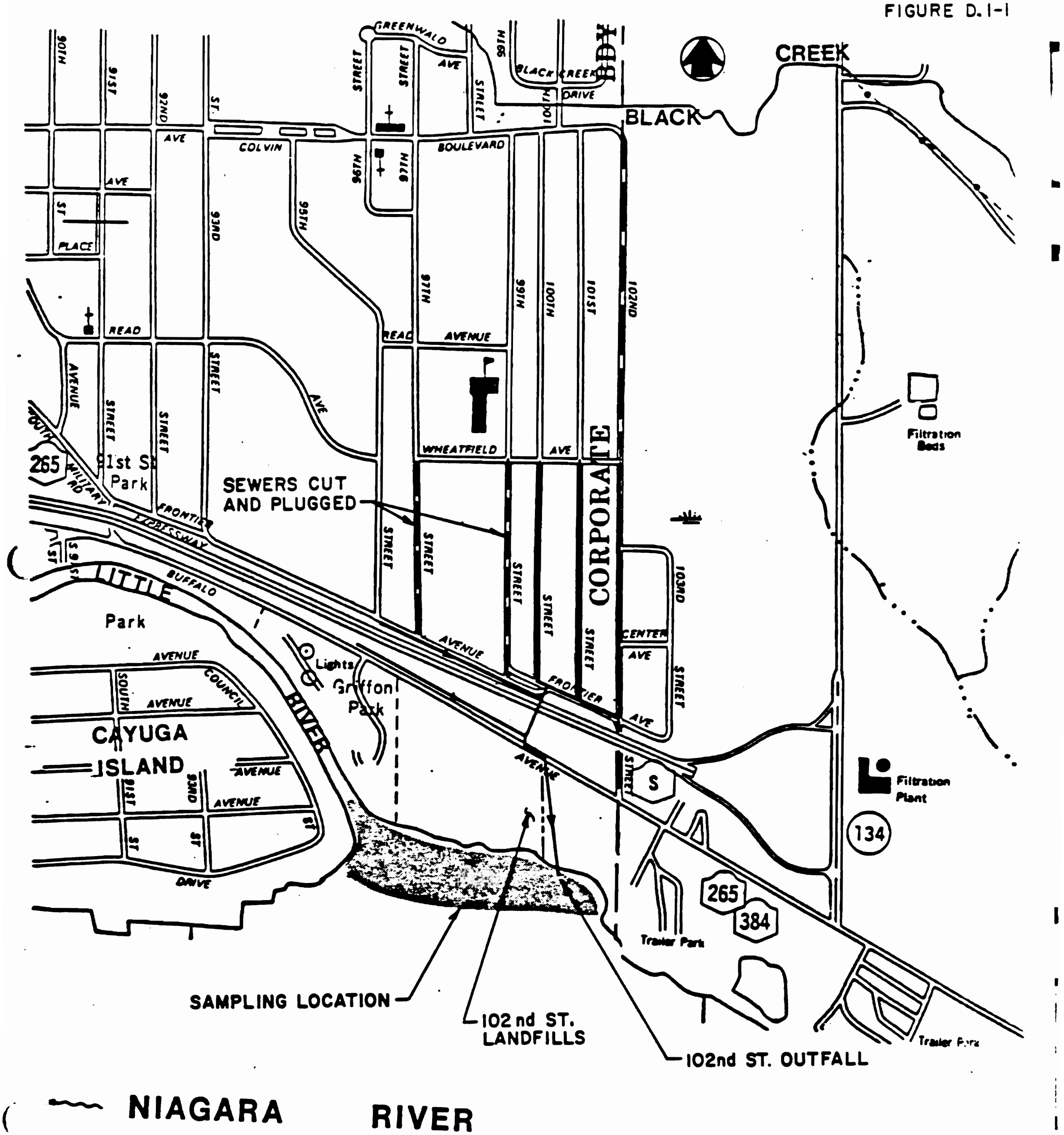
*** The detection limit for all inorganic compounds is 1.0 ug/g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOT

Location	Concentration
F-8	3.3 ppb

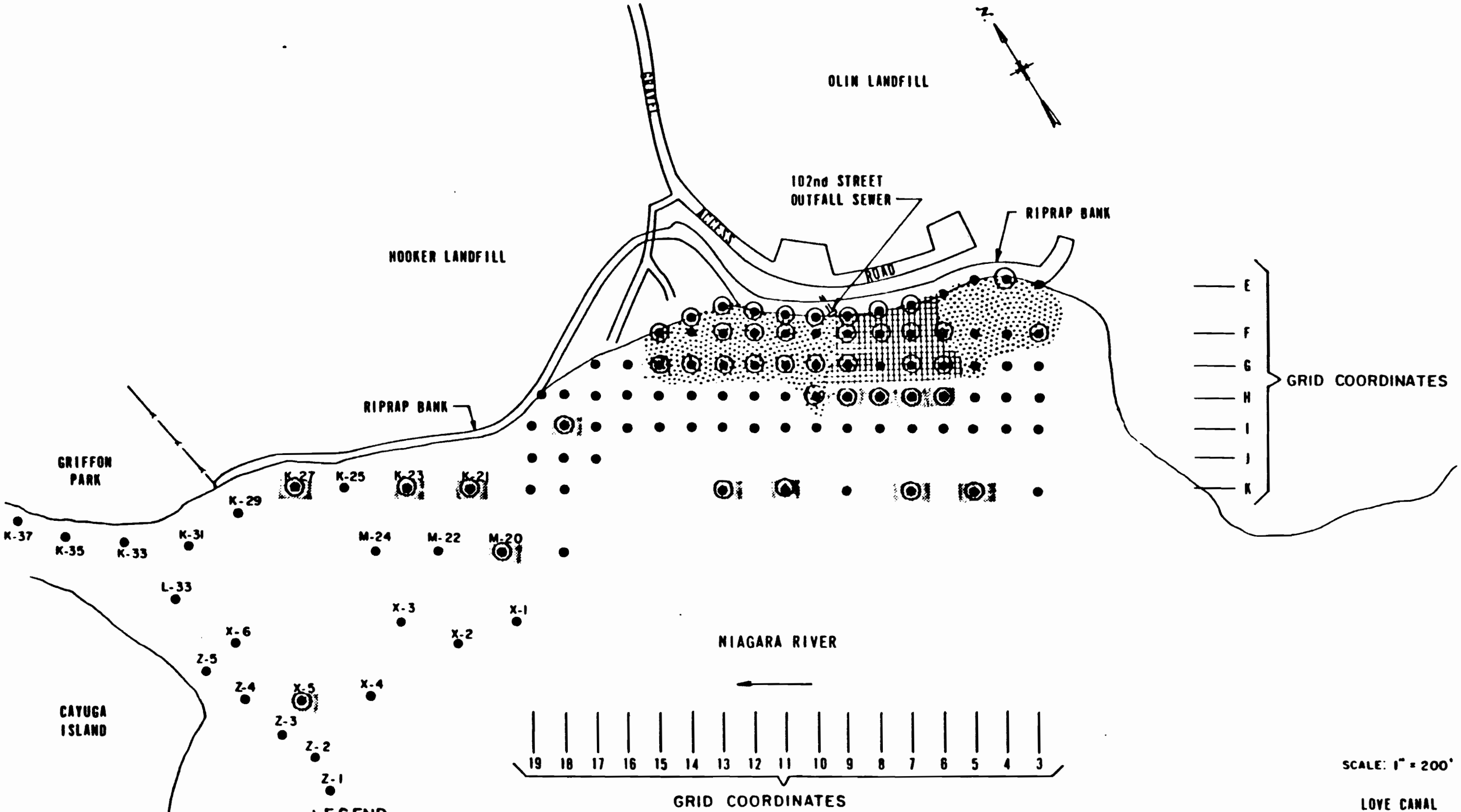
FIGURE D.1-1



LOVE CANAL
FIVE ENGINEERING STUDIES

102nd ST. OUTFALL
TASK VI

FIGURE D.5-1



LEGEND
CONTAMINATION ASSESSMENT

PRIORITY LEVELS

HIGH
MEDIUM
LOW
NO SHADE: NO CONTAMINANTS DETECTED
⊙ QUANTITATED SAMPLE

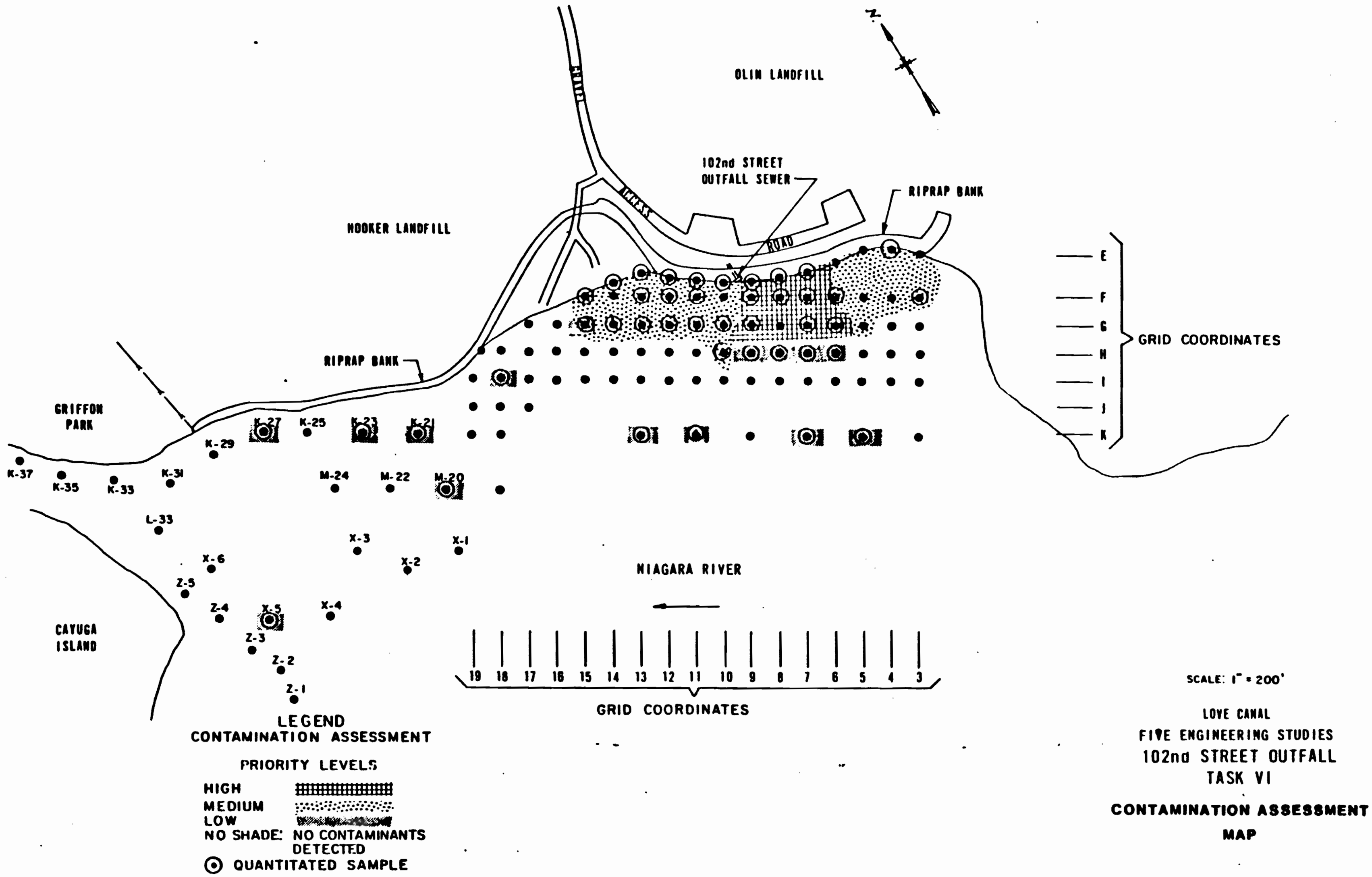
SCALE: 1" = 200'

LOVE CANAL
FIVE ENGINEERING STUDIES
102nd STREET OUTFALL
TASK VI

CONTAMINATION ASSESSMENT MAP

APPENDIX 7

FIGURE D.5-1



SCALE: 1" = 200'

LOVE CANAL
FIVE ENGINEERING STUDIES
102nd STREET OUTFALL
TASK VI

CONTAMINATION ASSESSMENT MAP

APPENDIX 7

SECTION 6

6.1 LOCATION

WEST STORM AND SANITARY SEWERS

Location: 96th street - east; Cayuga Creek - south;
Bergholtz Creek - north; Military Road - west

A total of 45 liquid, 36 sediment and 16 bedding material samples were collected during the investigation.

6.2 STORM SEWERS: Brief Summary

Storm sewers known from previous studies to be contaminated are located on 93rd street just south of Bergholtz Creek. Additionally, any storm sewer which discharges into Bergholtz Creek has the potential for contamination because of the possibility of sewer surcharging during periods when the Creek experiences high water levels. Lift stations No. 4 and No.6 has overflow bypasses which discharges into storm sewers during high flow periods. These storm sewers were chosen as specific sampling locations.

Most storm sewers are constructed of virtified clay or concrete. The manholes are typically constructed of brick with mortar joints. The strom sewers ranges from 6 to 11 feet below street level. The Storm manholes, in general, in worse condition than the sanitary manholes, with considerable amounts of sediment on the walls and benches. Most manholes had loose bricks under the cover frame, a source of sediment in the sewer channels. Many of the storm sewers did have standing water usually less than one-half inches.

Four storm sewer sampling locations exhibited varying degrees of sediment contamination. Four sediment samples showed varying degrees of contamination (two low, one medium and one high). The sediment samples which exhibited contamination were found in Creek sediments at the outfalls of storm sewers on 93rd street and on Lindbergh Avenue. The 93rd street outfall sample consisted primarily of base-neutral and volatile organics. Dioxin was also detected in this sample. The Lindbergh Avenue outfall sample contained both acid and base-neutral organics. No liquid samples, either dry weather or storm weather exhibited any indication of contamination.

6.3 SANITARY SEWERS: Brief Summary

Previous samples taken in Lift Stations No.4 and No.6 indicated high quantities of Love Canal related contaminants. Therefore, the sewers which lead to and exit from these Lift Stations have been given additional attention. It was determined that syrcharging occurs in the area of 91st, 92nd and 93rd streets and Read Avenue during high rainfall periods. This area was given special attention because of the potential for Love Canal area contaminated wastewater to surcharge into areas which were not directly connected into sewers eminating from the Love Canal area.

Most sanitary sewers are constructed of virtified clay with mortar joints. Pipe sizes range from 8 to 15 inches in diameter. Sanitary sewers are generally a minimum of 5 feet below street level. The greatest depth is approximately 24 feet just upstream of Lift Station No.4. The condition of the manholes were good with few, if any, major cracks or leaks.

Nineteen sanitary sewer sediment samples showed varying degrees of contamination (nine low, five medium and five high). No liquid sample exhibited any indication of Love Canla related contamination; however, the liquid sample at MH-756 showed low levels of phthalate contamination.

The sanitary sewer sediment samples (MH Nos.776, 773, 774, 756, 787, 752, 750, 760 and 791) which were designated as low contamination assessment priority level contained only trace leves of metals and phthalates. The sampling locations which exhibited low levels of contamination were distributed throughout the task area.

The sanitary sewer sediment samples which exhibited medium or high contamination assessment priority levels were primarily found along the main interceptor route in the task area. At Lift station Nos.4 and 6, chlorobenzenes, polynuclear aromatic hydrocarbons (PAH) and BHC isomers were found.

6.3. SANITARY SEWERS: Brief Summary(Cont)

MH-779 had the second highest score in the matrix of all the samples in the entire study area. Several volatile compounds (such as chlorobrnzene and toulene), PAH's, several isomers of dichlorobenzene, BHC and a variety of other organics were found. At MH-777, chemicals similar to those found in MH-779 were identified, although at lower concentrations.

The other sanitary sewers on the main interceptor route that exhibited Love Canal related contaminants were at MH Nos.786, 759 and 765. Dioxin was detected at MH-786 and MH-765. The sanitary sewer sediment samples not on the main interceptor route that exhibited medium or high levels of contamination were found at MH Nos.768,754 and 755.

6.4 Results of chemical Analysis: STORM SEWERS - WEST
Sampling Date: Jan. 1983

ORGANICS

Volatiles

*	Conc. ug/kg (ppb)	** P/NP
Methylene Chloride (2000)	4900 - 7200	P
Benzene,1,2,3-trichloro	6600	NP
Chlorobenzene (2000)	18000 - 55000	P
Toulene (2000)	2400 - 3700	P
1,4-dioxane	170000	NP
Ethane,1,2-dimethoxy	15000	NP

Acids

Cyclotetrasiloxane,octamethyl	400	NP
Benzne,1,4-dichloro	2200 - 6200	NP
Hexathiepane	200	NP

Base/Neutral/ pesticides

BIS (2-ethylhexyl) phthalate (200)	1700 - 100000	P
Fluoranthene (4000)	6800	P
Pyrene (4000)	5600	P
1,2,4-trichlorobenzene (4000)	12000 - 72000	P
1,4-dichlorobenzene (4000)	480 - 92000	P
1,2-dichlorobenzene (4000)	18000	P
1,3-dichlorobenzene (4000)	6000	P
Hexachlorobenzene (4000)	9200	P
Hexachlorobutadiene (4000)	14000	P

6.4 Results of Chemical Analysis: STORM SEWERS - WEST(Cont)

Sampling Date: Jan. 1983

INORGANICS

	***	Conc. ug/g (ppm)	** P/NP
Arsenic, total	(1.0)	1.8 - 120.0	P
Cadmium, total		1.2 - 1.6	P
Chromium, total		2.4 - 12.0	P
Copper, total		4.1 - 110.0	P
Lead, total		12.0 - 39.0	P
Nickel, total		2.5 - 13.0	P
Thallium, total		3.6 - 14.0	P
Zinc, total		22.0 - 70.0	P

Notes:

* Numbers in parenthesis indicates the detection limit in ug/kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug/g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOT

Location	Concentration (ppb)
MH-712	1.9

6.5 Results of Chemical Analysis: SANITARY SEWERS - WEST
Sampling Date: Jan. 1983

ORGANICS

Volatiles

*	Conc. ug/kg (ppb)	** P/NP
Methylene Chloride (2000)	4200 - 9300	P
Toulene (2000)	4800 - 35000	P
Chlorobenzene (10000)	78000	P

Acids

Benzene,1,2,3,5-tetrachloro	2200 - 31000	NP
Dodecanoiacid	26000 - 43000	NP
Tetradecanoiacid	17000 - 42000	NP
2-heptadecanone	11000	NP
Cyclohexane	15000	NP
2,4,6-trichlorophenol (500)	560	P

Base/Neutral/Pesticides

BIS (2-ethylhexyl) phthalate (10)	280 - 23000	P
1-hexadecane	23000	NP
1,4-dichlorobenzene (2000)	2200 - 98000	P
Fluoranthene (4000)	3800 - 6400	P
Phenanthrene (4000)	6400	P
Pyrene (4000)	4000 - 4800	P
Tridecane	3400 - 14000	NP
Pentacosane	12000 - 30000	NP
Anthracene/Phenanthrene (2000)	2000 - 16000	P
Hexachlorobenzene (200)	280 - 82000	P
1,2,4-trichlorobenzene (200)	300 - 310000	P

6.5 Results of Chemical Analysis: SANITARY SEWERS - WEST(Cont)
Sampling Date: Jan. 1983

Base/Neutral/Pesticides(Cont)

1,3-dichlorobenzene (4000)	3800 - 52000	P
Di-N-butyl phthalate (4000)	5600	P
Hexachlorobutadiene (4000)	6000 - 76000	P
Alpha - BHC (4000)	6400 - 56000	P
Gamma - BHC (4000)	4800 - 43000	P
Delta - BHC (4000)	3400 - 4000	P
1,2-dichlorobenzene (4000)	2200 - 34000	P
Benzo(A) Anthracene/Chrysene (2000)	4600	P
Butyl benzyl phthalate (2000)	3400	P
Napthalene (2000)	7000	P

INORGANICS

		***	conc. ug/g (ppm)	P/NP
Arsenic,	total	(1.0)	1.6 - 36.0	P
Chromium,	total		1.3 - 48.0	P
Copper,	total		2.6 - 430.0	P
Lead,	total		4.4 - 130.0	P
Nickel,	total		2.2 - 13.0	P
Thallium,	total		2.2 - 9.6	P
Zinc,	total		19.0 - 560.0	P
Cadmium,	total		1.0 - 5.9	P

6.5 Results of Chemical Analysis: SANITARY SEWERS - WEST(Cont)
Sampling Date: Jan. 1983

Notes:

* Numbers in parenthesis indicates the detection limit in ug/kg of that particular compound.

*** The detection limit for all inorganic compounds is 1.0 ug/g.

** P - Priority pollutant; NP - Non-priority pollutant (Refer 40 CFR 136, Appendix I)

DIOXIN HOT SPOTS

Location	Concentration (ppb)
MH-759	2.5
MH-765	6.3
MH-786	5.9

FIGURE E.1-1

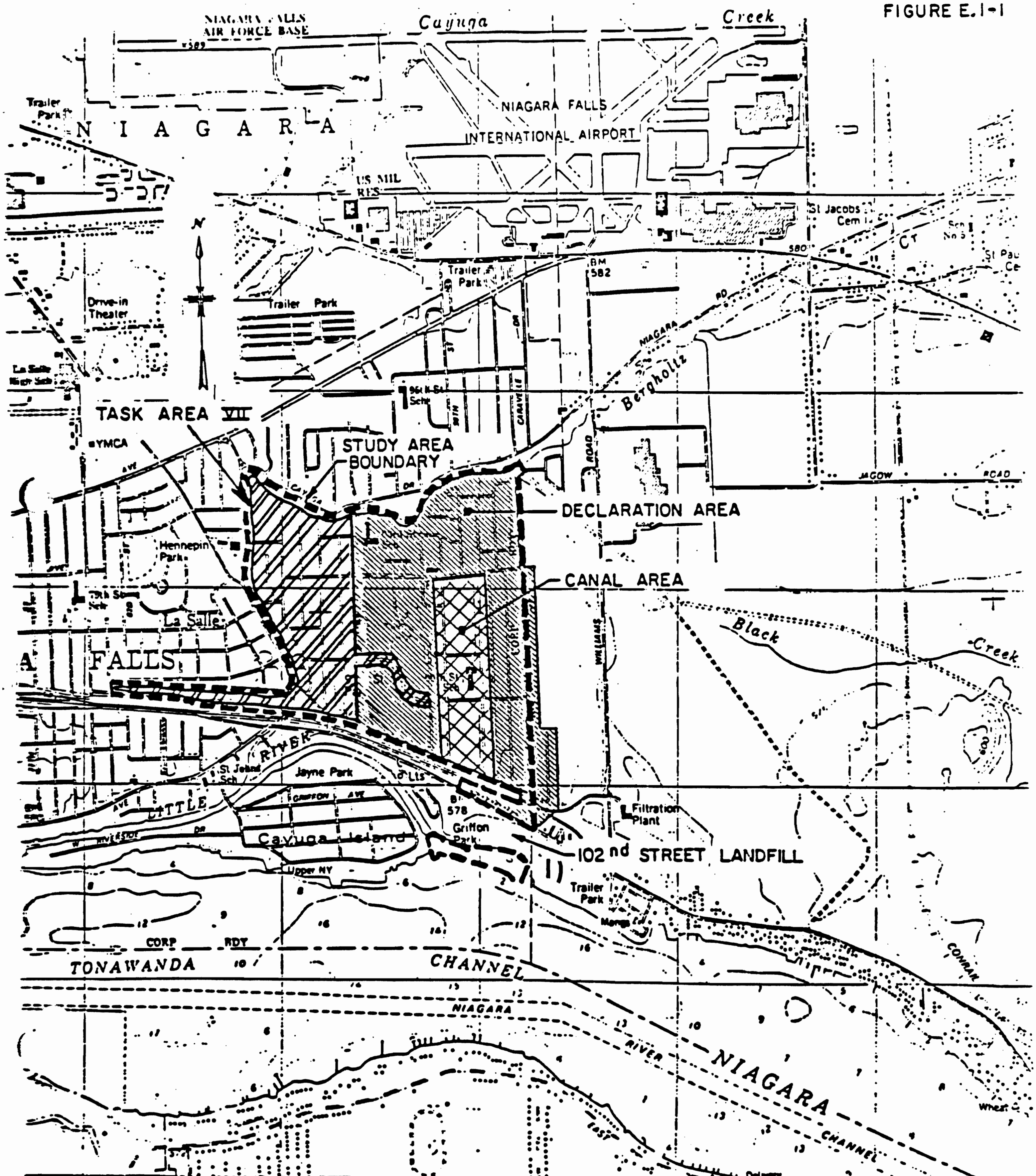
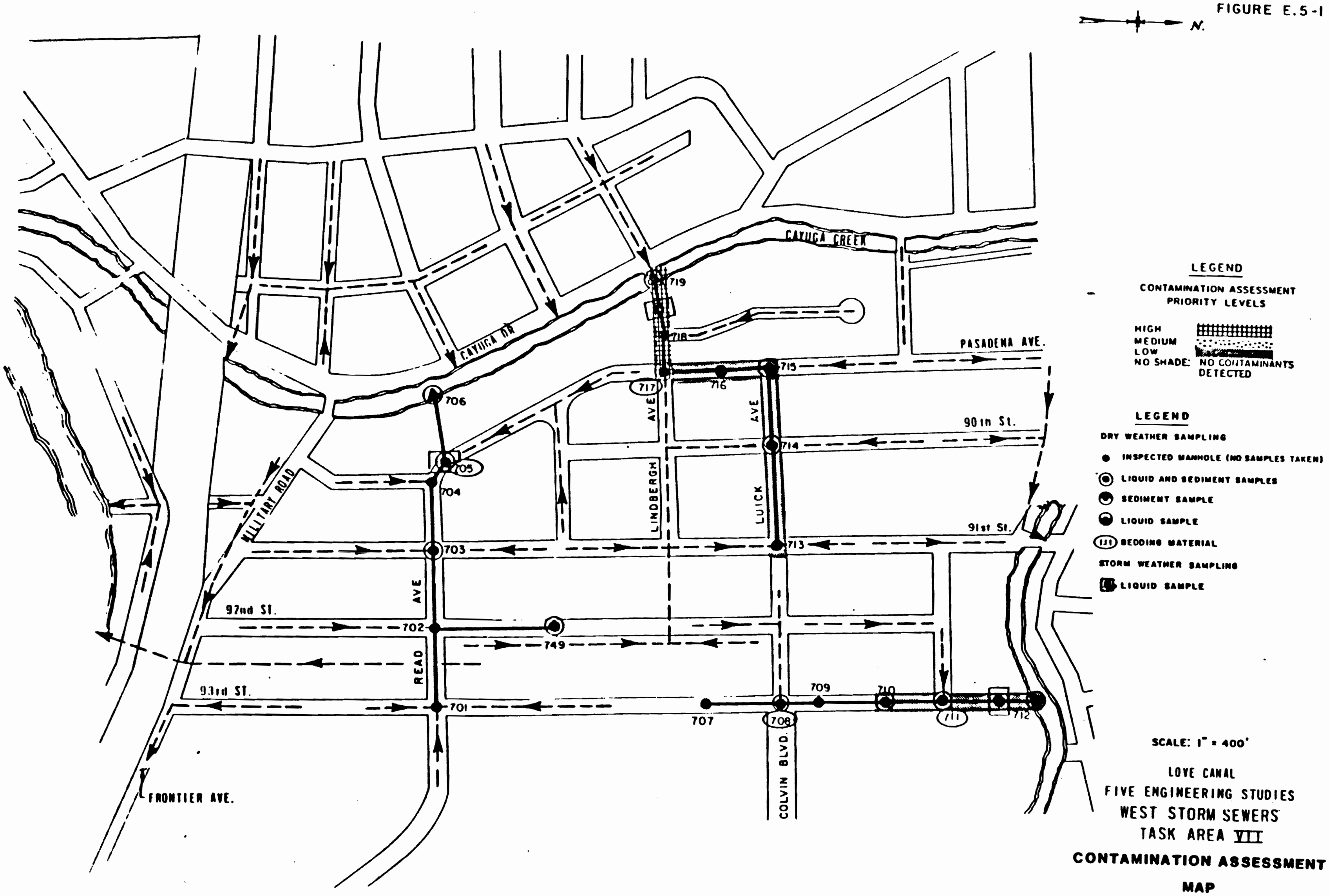

NIAGARA FALLS AIR FORCE BASE
Cayuga Creek
NIAGARA FALLS INTERNATIONAL AIRPORT
N I A G A R A
Trailer Park
US MIL RES
St Jacobs Cem
Drive-in Theater
Trailer Park
La Salle High Sch
N
TASK AREA VII
YMCA
STUDY AREA BOUNDARY
Bergholtz
NIAGARA RD
JAGOW ROAD
DECLARATION AREA
Hennepin Park
CANAL AREA
La Salle
FALLS
Black Creek
LITTLE RIVER
Jayne Park
St Johns Sch
GRIFFON AVE
RIVERSIDE DR
Cayuga Island
Griffon Park
Filtration Plant
102nd STREET LANDFILL
Trailer Park
CORP RDY
TONAWANDA CHANNEL
NIAGARA RIVER
NIAGARA CHANNEL
CONRAN

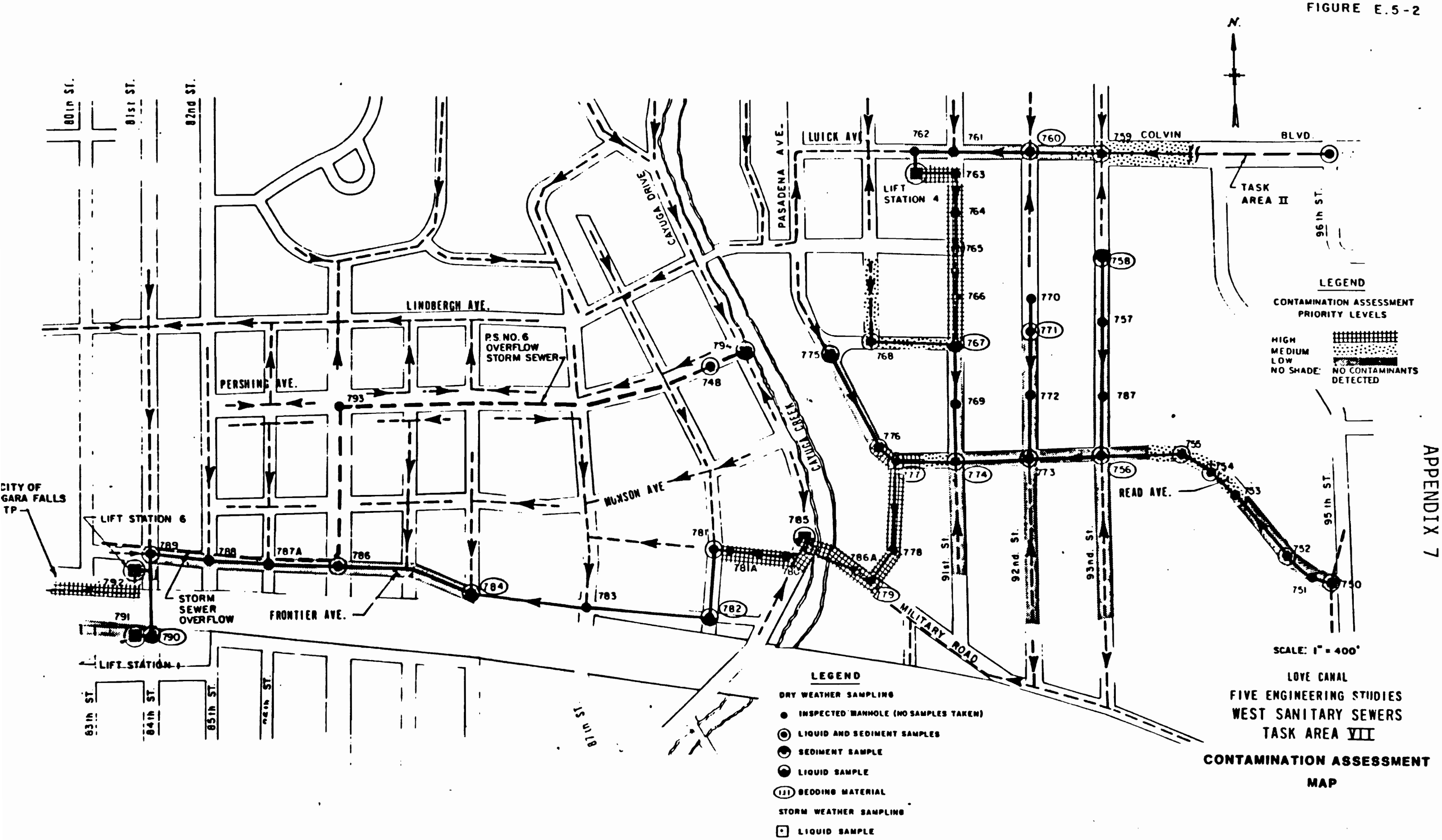
FIGURE E.5-1



LOVE CANAL
FIVE ENGINEERING STUDIES
WEST STORM SEWERS
TASK AREA VII
CONTAMINATION ASSESSMENT MAP

APPENDIX 7

FIGURE E.5-2



LOVE CANAL
FIVE ENGINEERING STUDIES
WEST SANITARY SEWERS
TASK AREA VII

CONTAMINATION ASSESSMENT MAP

APPENDIX 7

SECTION 7

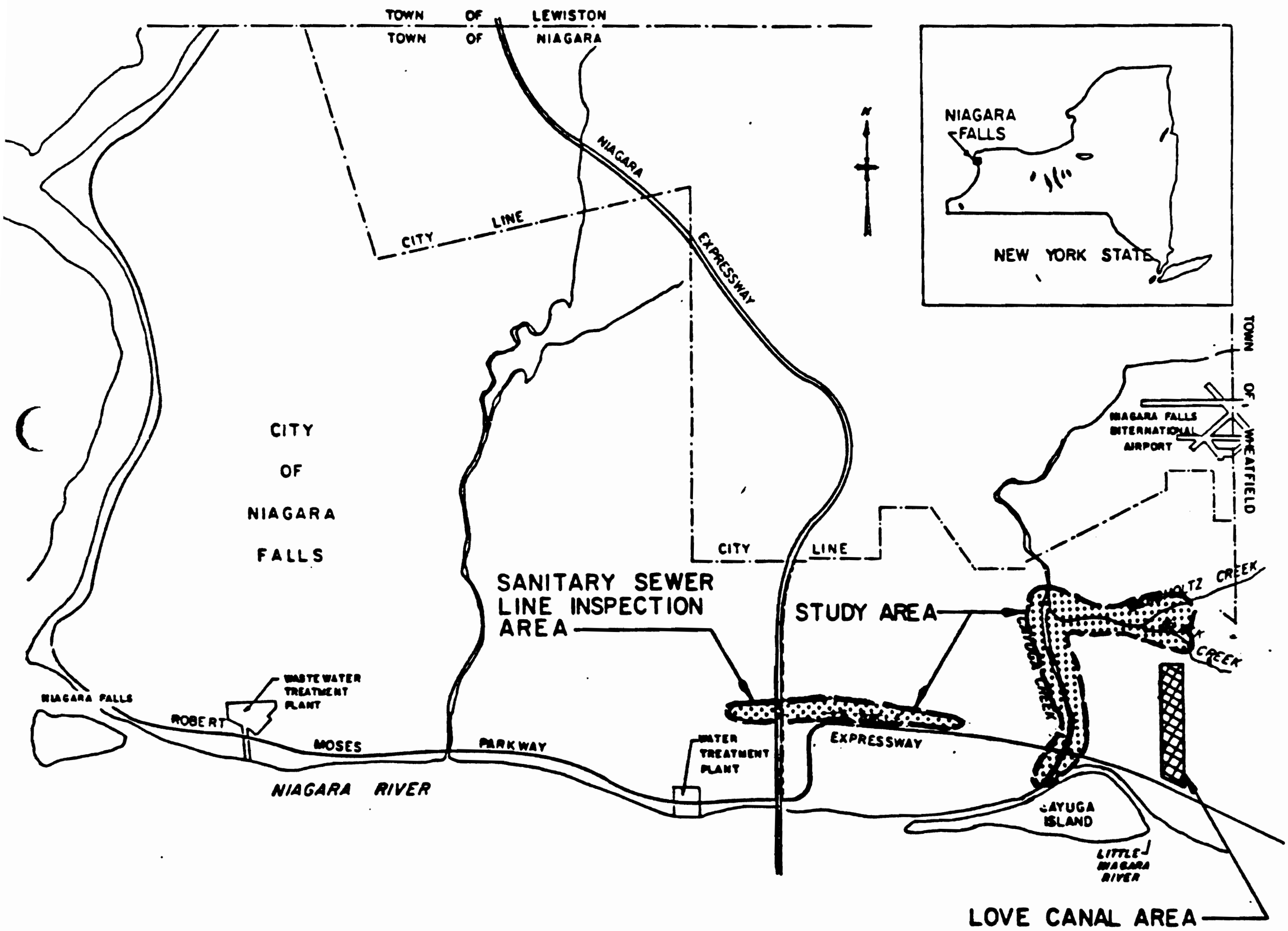
7.1 DESCRIPTION

LOVE CANAL ADDITIONAL CREEK SAMPLING AND INSPECTION OF SANITARY SEWERS

A sampling and analysis program was undertaken to provide additional information on Dioxin contamination in soil and sediment along Bergholtz, Black and Cayuga Creeks and sanitary sewers downstream of 81st street (Lift Station #6). Figure 1 shows the locations of the additional sampling conducted in the Love Canal area.

APPENDIX 7

FIGURE I.



LOVE CANAL
ADDITIONAL CREEK SAMPLING
REGIONAL MAP

MALCOLM

NEW YORK STATE DEPARTMENT DECEMBER

7.2 SANITARY SEWERS: Summary of Results

A physical inspection of 49 manholes along the main sanitary sewer line from Lift Station #6 to the intersection of John and 56th streets was conducted. Visual observation indicated that only manholes 1,2,3 and 5 contained a sufficient quantity of deposited sediment for sampling. The location of the manholes inspected and where samples were collected is shown in figure 2.

The degree of sedimentation in manholes generally is controlled by the physical configuration and flow characterstics. Intermittent pump station discharge was observed during the inspection and sampling program. This cyclic variation of flow appeared to prevent the deposition of solids in the sanitary sewers, except in manholes downstream of the pump station. Manholes 1 through 5 are square shaped in structure in contrast to the downstream manholes (Nos.4 through 40) which are circular with well-formed flow channels.

Dioxin concentrations in the manholes sampled near Lift Station #6 are shown in figure 8. As previously discussed, sediments could be collected at only four of the sanitary sewers along Frontier Avenue.

APPENDIX 7

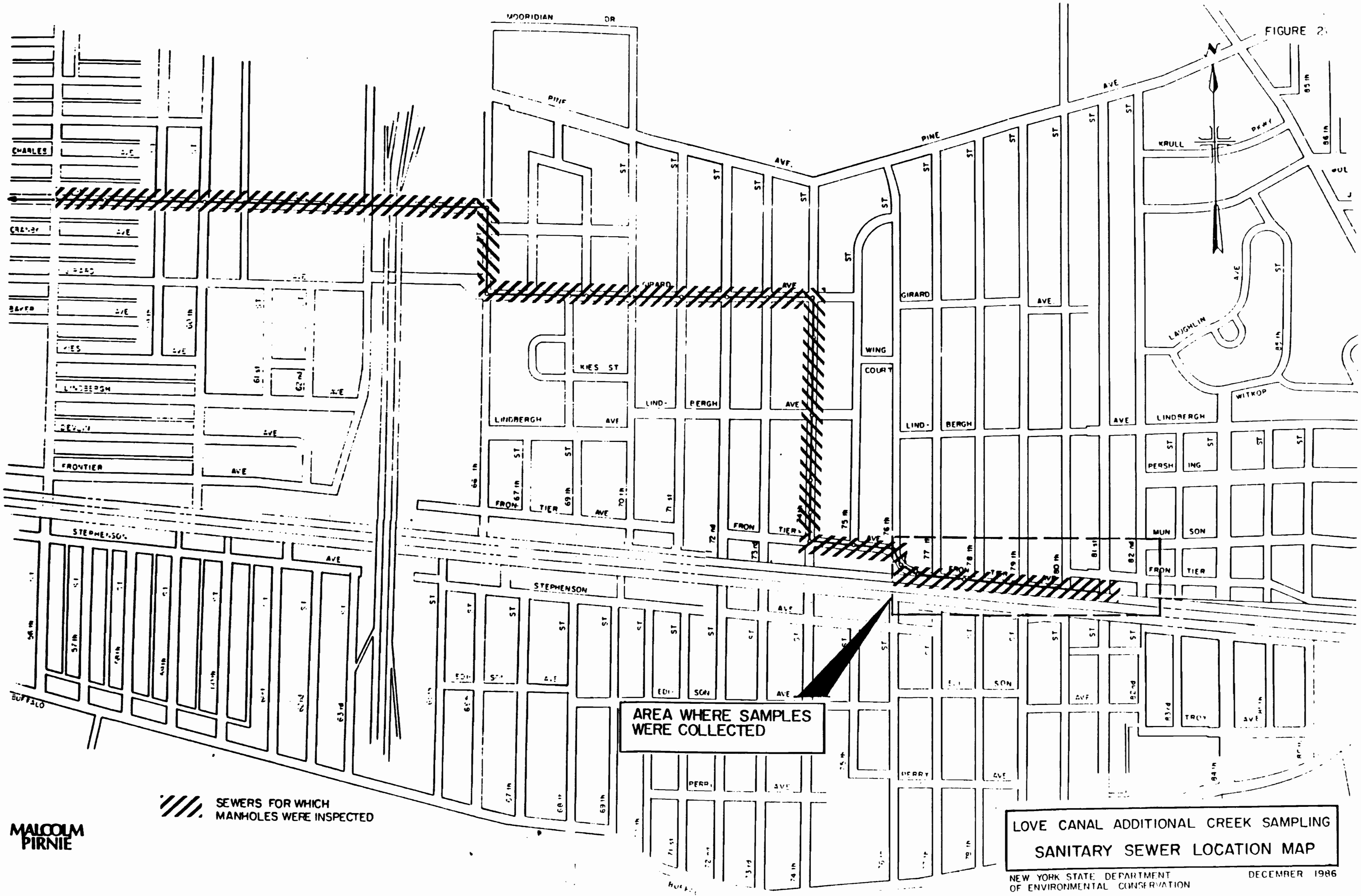
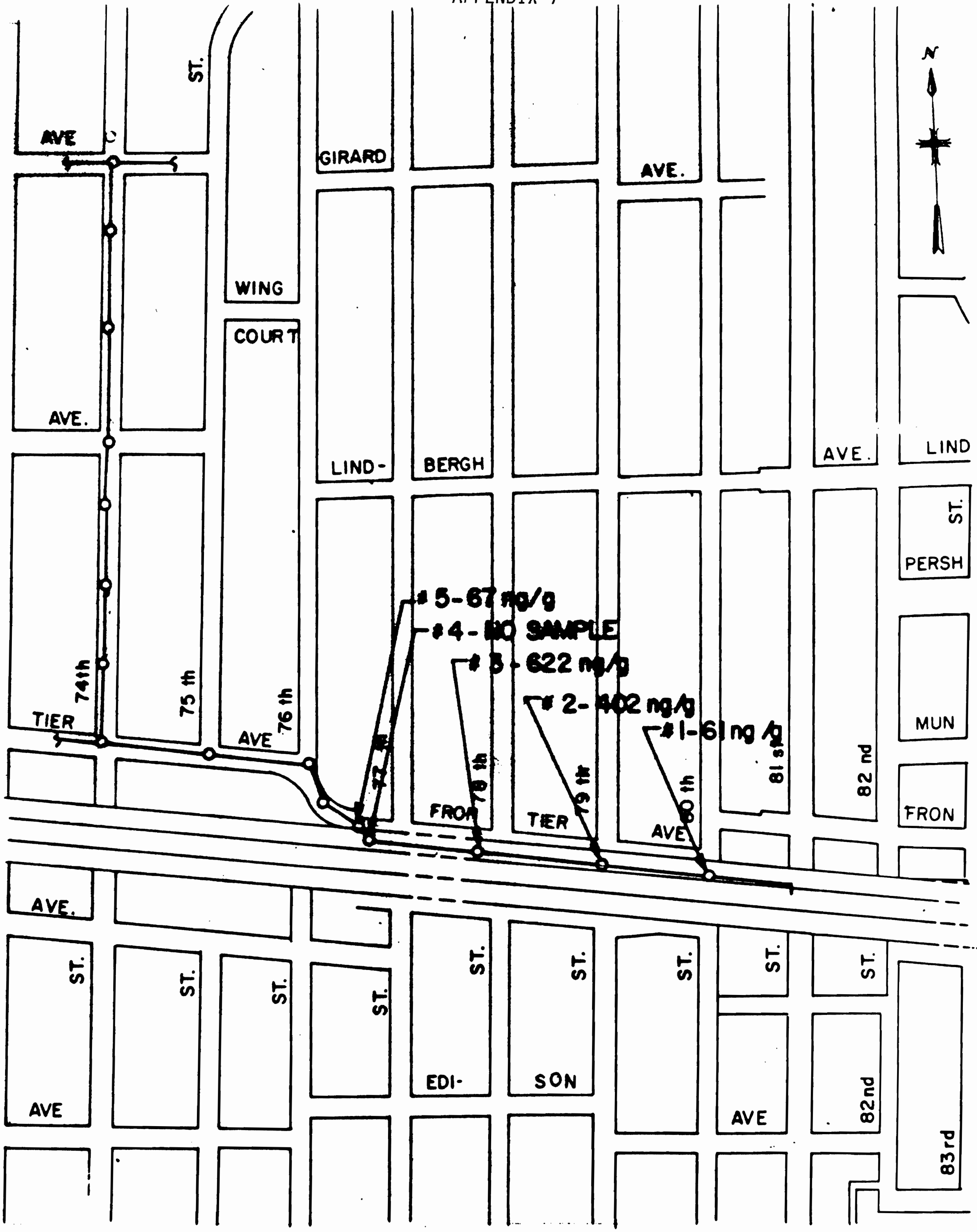


FIGURE 2
AREA WHERE SAMPLES WERE COLLECTED
SEWERS FOR WHICH MANHOLES WERE INSPECTED
MALCOLM PIRNIE
LOVE CANAL ADDITIONAL CREEK SAMPLING
SANITARY SEWER LOCATION MAP
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DECEMBER 1986
PINE AVE.
GIRARD AVE
LINDBERGH AVE
FRONTIER AVE
STEPHENSON AVE
COLVIN BLVD
LAUGHLIN
WITKOP
WING COURT
KIES ST
PERSHING
MUNSON
EDISON AVE
PERRY AVE
TROY AVE
CHARLES
KRULL PKWY

FIGURE 8



LOVE CANAL ADDITIONAL CREEK SAMPLING
DIOXIN CONCENTRATIONS IN
FRONTIER AVENUE SANITARY SEWER

MALCOLM

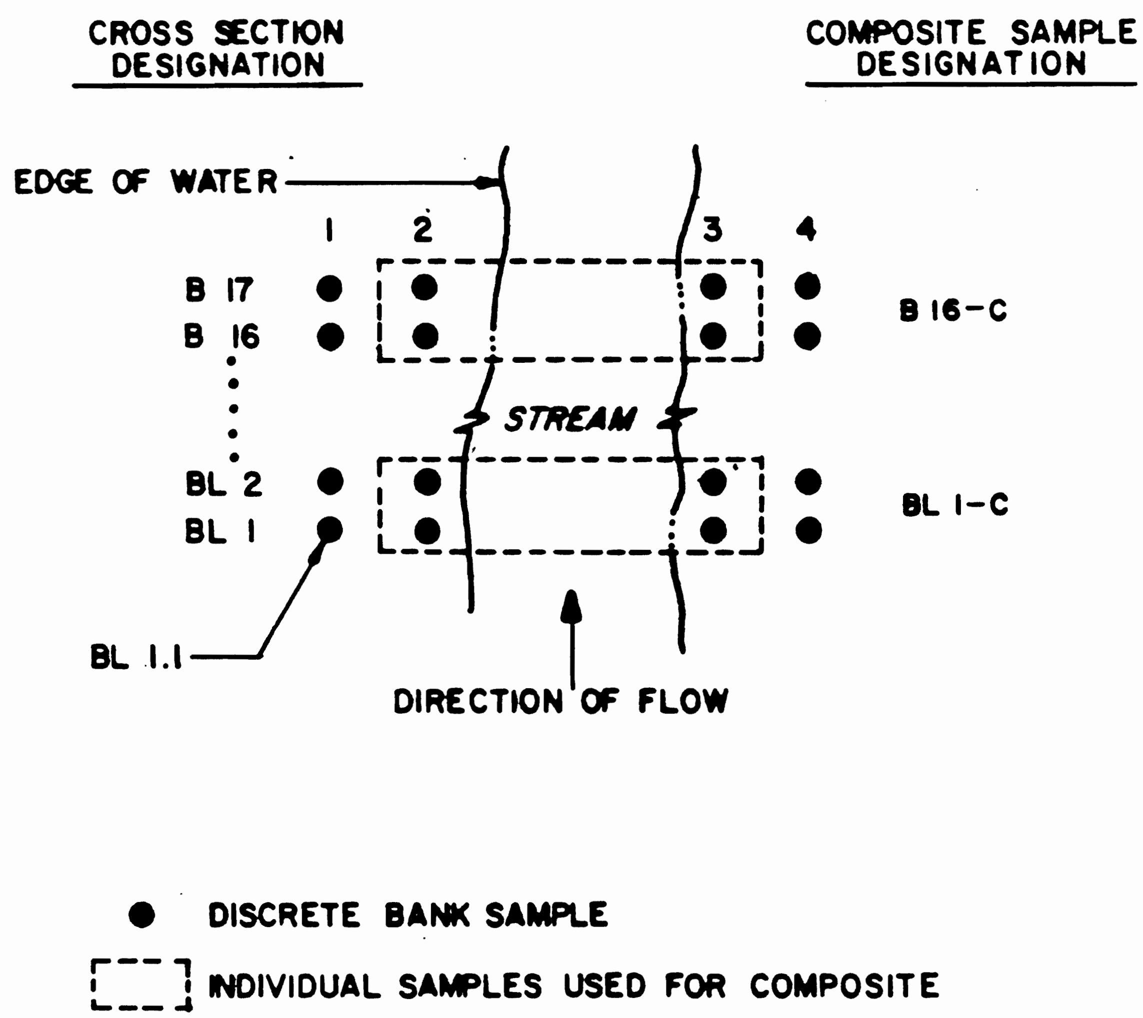
7.3 BLACK/BERGHOLTZ CREEKS: Summary of Results

Creek bank samples were obtained along Black and Bergholtz Creeks at the locations shown in figure 3. A total of 79 discrete bank soil samples were collected at 17 cross section along Bergholtz Creek beginning approximately 150 feet upstream of Bergholtz/Black Creek confluence. Samples were also collected at three locations on Black Creek. Four discrete soil samples were typically collected at each cross section. Composited samples consisted of the four discrete samples collected from the lower bank elevation for every two adjacent cross sections. The sample compositing and labelling format is illustrated in figure 4.

The results of laboratory analysis of Black and Bergholtz Creek bank samples are summarised in figure 6. The Dioxin concentration in one of the composite bank samples from Black Creek was reported at less than 0.01 ng/g (nanogram/gram); Dioxin in other sample was measured at 0.02 ng/g.

Figure 6 illustrates that Dioxin concentration increase steadily as one progresses downstream along Bergholtz Creek. The greatest concentration of Dioxin found in Bergholtz Creek bank composite samples were 0.65 ng/g; 0.61 ng/g and 0.73 ng/g, downstream of the 93rd street school.

FIGURE 4



MALCOLM PIRNIE

LOVE CANAL ADDITIONAL CREEK SAMPLING

BANK SAMPLE LABELING AND COMPOSITING FORMAT

NEW YORK STATE DEPT OF ENVIR. CONSER. JANUARY 1987

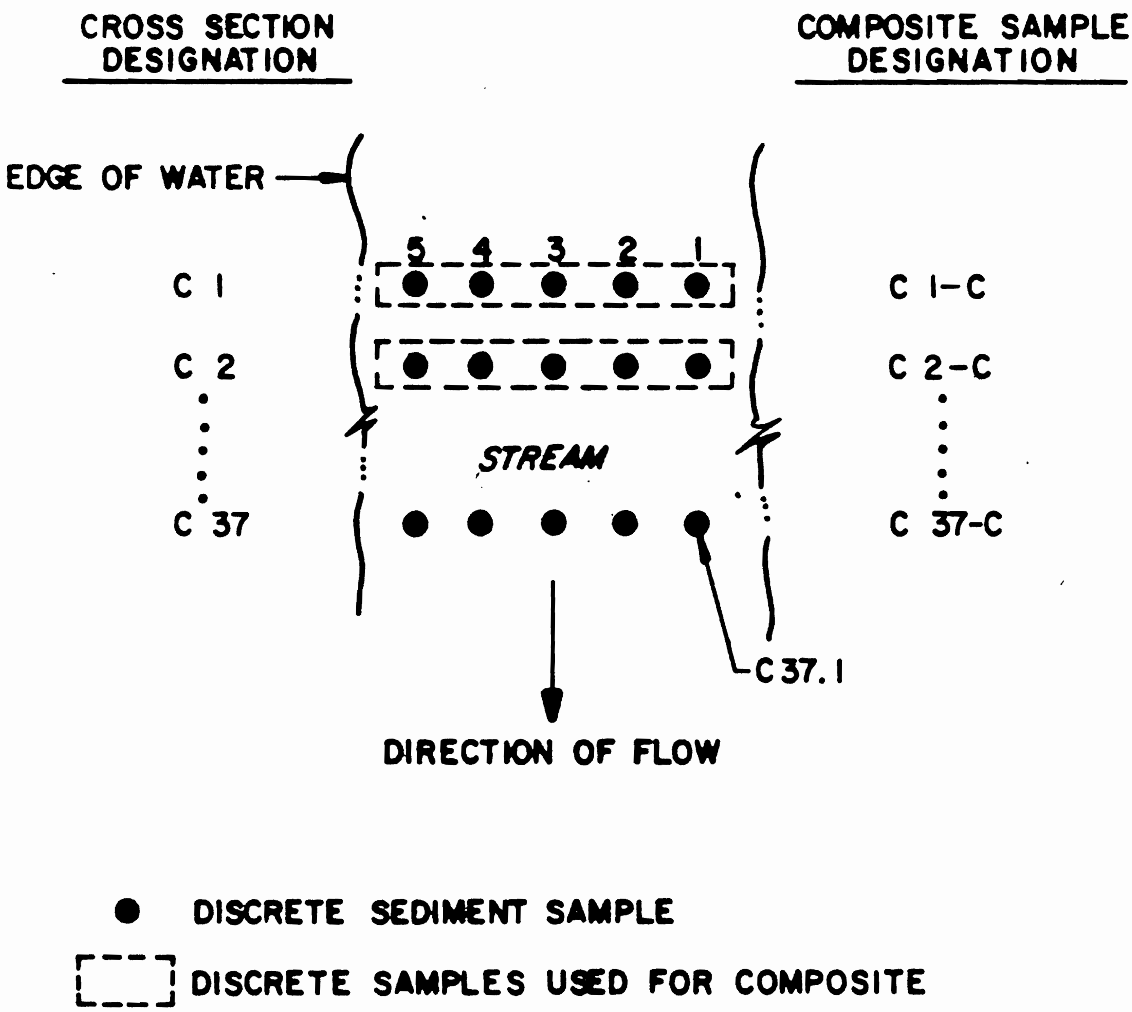
7.4 CAYUGA CREEK: Summary of Results

The Cayuga Creek bed samples were obtained from the locations shown in figure 3. Sediment samples were collected at cross sections spaced approximately 200 feet apart along the length of the Creek, beginning approximately 600 feet above the Bergholtz creek confluence. Additional sampling was performed about fifty feet downstream of three storm sewer outfalls (e.g. Lindbergh Avenue Bridge, Read Avenue and the Pershing Ave. overflow bypass from Lift Station #6), and the Military Road sanitary sewer overflow to Cayuga Creek. Five samples were collected at even intervals across the stream bed at each cross section. A total of 177 individual cores were taken and 37 cross section composite samples prepared. The compositing and labelling format is illustrated in figure 5.

The analytical results obtained from Cayuga Creek sediment samples are also summarised in figure 6. The results indicate a possible relationship between Dioxin concentrations and storm sewer outfalls to the Creek. A regular pattern of increased concentration in the vicinity of known storm and sanitary discharges can be observed along the entire length of the Creek.

The first increase in concentration was detected downstream of the Cayuga/Bergholtz Creek confluence, at a level of 0.38 ng/g. Elevated concentrations were also detected at C-16 (0.78 ng/g), C-17 (1.09 ng/g), C-20 (1.28 ng/g) and C-21 (0.99 ng/g).

FIGURE 5



MALCOLM PIRNIE

LOVE CANAL ADDITIONAL CREEK SAMPLING

CREEK SAMPLE LABELING AND COMPOSITING FORMAT

NEW YORK STATE DEPT OF ENVIR CONSER. JANUARY 198

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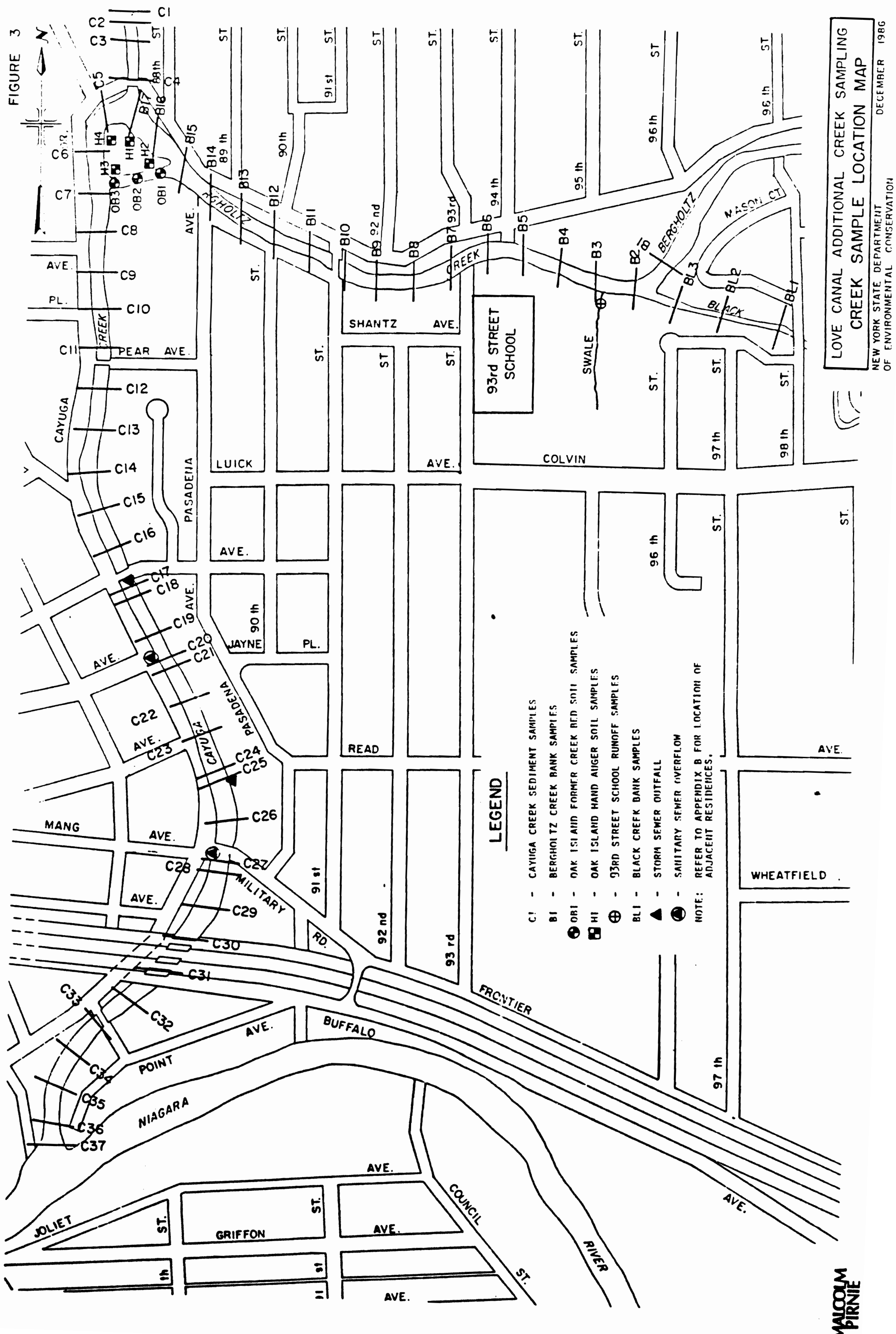
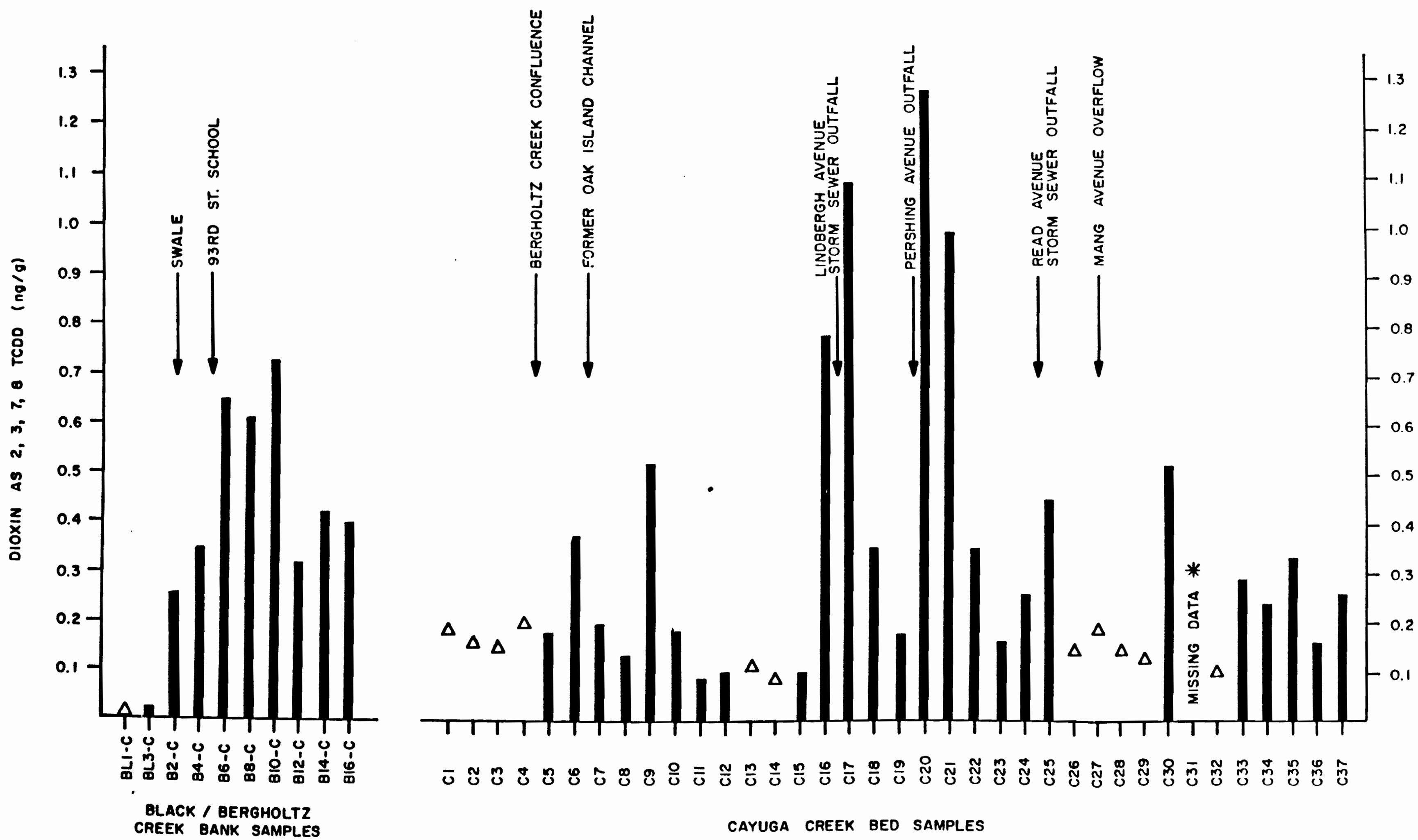


FIGURE 3
LOVE CANAL ADDITIONAL CREEK SAMPLING
CREEK SAMPLE LOCATION MAP
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DECEMBER 1986
LEGEND
C1 - CAYUGA CREEK SEDIMENT SAMPLES
B1 - BERGHOLTZ CREEK BANK SAMPLES
OB1 - OAK ISLAND FORMER CREEK BED SOIL SAMPLES
H1 - OAK ISLAND HAND AUGER SOIL SAMPLES
93RD STREET SCHOOL RUNOFF SAMPLES
BL1 - BLACK CREEK BANK SAMPLES
STORM SEWER OUTFALL
SANITARY SEWER OVERFLOW
NOTE: REFER TO APPENDIX B FOR LOCATION OF ADJACENT RESIDENCES.
93rd STREET SCHOOL
CAYUGA CREEK
BERGHOLTZ CREEK
BLACK CREEK
SWALE
PASADENA AVE.
MILITARY RD.
BUFFALO AVE.
NIAGARA FRONTIER AVE.
NIAGARA RIVER
COLVIN AVE.
READ AVE.
WHEATFIELD AVE.
MALCOLM PIRNIE



△ - REPORTED AS "LESS THAN" DETECTION LIMIT

✱ COMPOSITE SAMPLE BROKEN DURING SHIPPING

MALCOLM PIRNIE

LOVE CANAL ADDITIONAL CREEK SAMPLING
CREEK SAMPLE RESULTS

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DECEMBER 1986

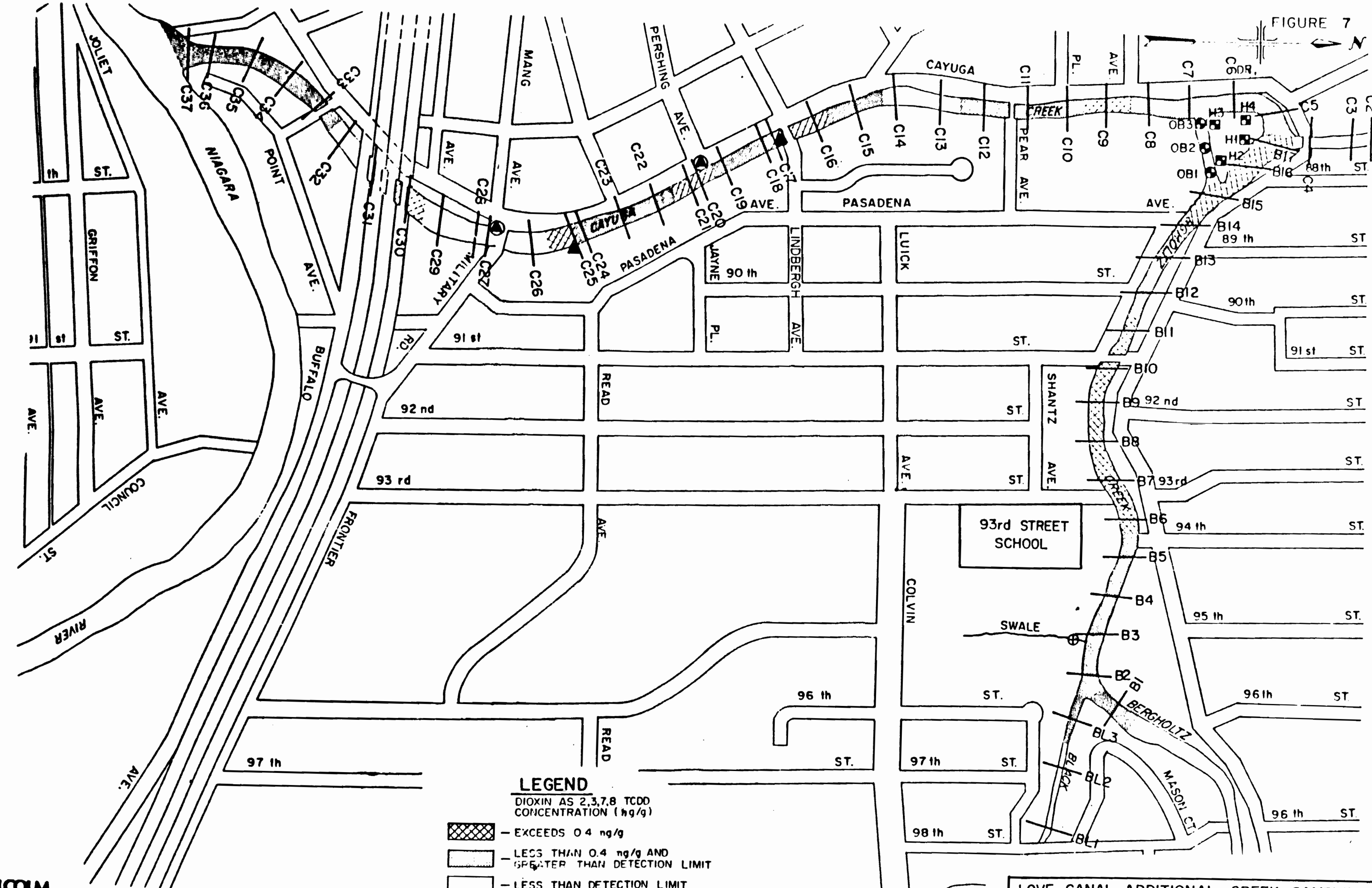
APPENDIX 7

7.5 DIOXIN HOT SPOTS: Summary

The locations of the Dioxin "hot spots" are summarised in figure 7. Shading indicates the degree of relative concentration. It is clear that Dioxin is present in most of the sediments in Cayuga Creek and the bank soils of Bergholtz Creek. The concurrence of detectable Dioxin with the location of sewer outfalls is also illustrated in this figure.

APPENDIX 7

FIGURE 7



LOVE CANAL ADDITIONAL CREEK SAMPLING
DIOXIN HOT SPOT MAP

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DECEMBER 1986

MALCOLM PIRNIE

8.1 WASTE SLUDGE CHARACTERIZATION

The two existing sludge storage tanks at Love Canal were sampled to determine the homogeneity of the organic liquid phase within the tanks. Three samples were collected from each tank; one from the bottom, middle and top. The three samples from each tank were analyzed for a limited list of parameters. If USEPA/NYSDEC determined that those limited results indicated homogeneity, the samples were to be analyzed for the remainder of a detailed list of parameters. If the results indicated non-homogeneity, the contents of the tank were to be thoroughly mixed and additional samples from the mixed tanks were to be re-submitted for analysis.

The samples were taken and analyzed in accordance with the following protocols as issued by NYSDEC, Division of Solid and Hazardous Waste.

- "Sampling procedure for Love Canal Sludge Tank", November 20, 1986.
- "Laboratory Analysis of Sludge Tank Samples", November 20, 1986.

Copies of these protocols and the detailed results of the analysis are given in Appendix B. For the purposes of this Air Permit Application and Air Report, the numerous organic compounds identified in the waste sludge have been classified into generic chemical categories under the advise of NYSDEC (e.g. chloromethylbenzene and its isomers are reported only as chloromethylbenzenes). This is to avoid having a large number of minor trace organics which are less significant individually in the air quality impact assessment, and are conservatively more significant as represented in their generic hydrocarbon groups. Certain trace toxic contaminants have been retained as an individual compound because of their relative toxicity rating as compared to their generic groups (e.g. benzene and carbon tetrachloride).

Certain hydrocarbon compounds have been tentatively identified in the organics analysis. For a conservative air modeling basis, these have been considered as detected compound and are included in the generic classification. Table 2.3, below, provides details of the organic analysis of the sludge.

TABLE 2.3
8.2 Love Canal Sludge Organic Analysis

Analyzed in March 1987 by Versar Inc. of 6850 Versar Center, Springfield, VA 22151

Compounds Group (Note 1)	Identified (Note 2) (ug/g)	Tentatively Identified (Notes 2,3) (ug/g)	Total (ug/g)
Chloroform	205	-	205
Methylethyl Ketone	535	-	535 (4)
Carbon Tetrachloride	780	-	780
Trichloroethylene	259	-	259
Tetrachloroethylene	5000	2500	7500
Benzene	762	-	762
Toluene	32778	20880	53658
Chlorobenzenes	52900	256330	309230
Benzene Hexachlorides	14900	8100	23000

Notes:

1. Organic compounds are classified into organic generic groups by FW as advised by NYSDEC based on the Versar laboratory analysis.

2. Only identified and tentatively identified compounds are included. Compounds analyzed for but not detected which may exist in quantities less than minimum detection limit of the analysis equipment are not included.

3. These compounds have been tentatively identified either by estimating a concentration where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria, but the result is less than the specified detection limit but greater than zero.

4. MEK total is for sludge only and does not include MEK (flushing liquid), which is mixed with sludge in the Plasma Arc feed system. The above analysis does not include Methanol (flushing liquid) which is also added, with MEK, to the sludge in the Plasma Arc feed system.

Table 2.4 provides an inorganic analyses of the sludge. In this case certain inorganics listed on Versar, Inc., analysis are reported as being below the detection limit value. For these inorganics, 1983 analysis data was substituted if available in order to provide a more accurate analysis. Non-toxic inorganics, not detected by Versar Inc. are not included.

TABLE 2.4

8.3 Love Canal Sludge Inorganic Analysis

Analyzed in February 1987 by Versar Inc.,
6850 Versar Center, Springfield, VA 22151

Element Name		1987 Versar Inc. Analysis (mg/kg)		1983 Analysis * (mg/kg)	Model Emission Basis (mg/kg)
1.	Aluminum	741			741
2.	Antimony	8.4	U	3	3
3.	Arsenic	11	S		11
4.	Barium	3			3
5.	Beryllium	2	U		2
6.	Cadmium	10	U	1	1
7.	Calcium	1270			1270
8.	Chromium	22	U	9	9
9.	Cobalt	16	U		16
10.	Copper	16			16
11.	Iron	836			836
12.	Lead	26	U		26
13.	Magnesium	274			274
14.	Manganese	7.6			7.6
15.	Mercury	0.28			0.28
16.	Molybdenum	10	U		0
17.	Nickel	18	U		18
18.	Selenium	12.1	U S		1
19.	Silicon	779			779
20.	Silver	13			13
21.	Sodium	108			108
22.	Thallium	120	U		120
23.	Titanium	13			13
24.	Vanadium	8.0	U		0
25.	Zinc	5.7			5.7

* 1983 inorganic analysis data provided by NYSDEC.

U = Indicates element was analyzed for but not detected. Reported as the detection limit value, (e.g. 10. U), by Versar Inc.

S = Indicates value determined by method of standard addition.

Table 2.5 below provides the polychlorinated dioxins and furans analysis of the Love Canal Sludge samples.

TABLE 2.5
84 Love Canal Sludge PCDD and PCDF Analysis
Analyzed in March 1987, by Enseco Inc. of
205 Alewife Brook Pkwy, Cambridge, MA 02138

Dioxhns		Amount Found By Enseco (ng/ml)	Sludge Concentration (ug/g) (Note 2)
tetra	(total)	7360	6.219
	(2378)	6590	5.569
penta	(total)	2540	2.146
	(12378)	79.4	0.067
hexa	(total)	4030	3.405
	(123478)	209	0.177
	(123678)	503	0.425
	(123789)	433	0.366
hepta	(total)	2350	1.985
	(1234678)	1230	1.039
octa	(total)	569	0.481
Furans			
tetra	(total)	456	0.385
	(2378)	356	0.301
penta	(total)	1360	1.149
	(12378)	161	0.136
	(23478)	99.2	0.084
hexa	(total)	789	0.667
	(123478)	94.7	0.080
	(123678)	12.1 (1)	0.010
	(123789)	15.8 (1)	0.013
	(234678)	21.5 (1)	0.018
hepta	(total)	324	0.274
	(1234678)	149	0.126
	(1234789)	44.6	0.038
octa	(total)	208	0.176

Notes:
1. This PCDF was not detected but is reported conservatively as the detection limit value in the sample analysis.
2. Sludge measured density is 1.1834 g/ml at 22°C.

Table 2.6, below, summarizes the elemental analysis and characteristics of Love Canal Sludge.

TABLE 2.6
8.5 Love Canal Sludge Elemental Analysis

Analyzed in March 1987 by Schwarzkopf Microanalytical Laboratory of 56-59 37th Avenue, Woodside, NY 11377

Element or Compound	Average Concentration (ug/g)
Potassium	23.3
Iodine	1000.0
Bromine	1000.0
Chlorine	493200.
Fluorine	459.0
Sulfur	23000.
Hydrogen Cyanide	0.7
Hydrogen Sulfide	1.0
Water	7700.0
Sludge Characteristics:	
Density @ 22°C	1.1834 gm/ml.
Calorific Value	11762 BTU/Lb.
Flash Point	104°F
Viscosity (Kinematic)	
@ -12°C	100.3 Cs
0°C	55.5 Cs
20°C	19.6 Cs
40°C	9.2 Cs
60°C	5.3 Cs
80°C	3.4 Cs

APPENDIX B

Revision 3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SOLID AND HAZARDOUS WASTE
ALBANY, NEW YORK

November 20, 1986

B.6 SAMPLING PROCEDURE FOR LOVE CANAL SLUDGE TANK

Introduction

The two existing tanks containing Love Canal sludge will be sampled to determine the homogeneity of the organic liquid phase within the tanks. Three samples will be collected from each tank; one from the top, middle, and bottom. The three samples from each tank will be analyzed for a limited list of parameters. If USEPA/NYSDEC determines that those results indicate homogeneity, the samples will be analyzed for the remaining listed parameters. If USEPA determines that the results indicate non-homogeneity, the contents of the tank will be thoroughly mixed and additional samples of the mixed material will be resubmitted for analysis. The following sampling procedure will be used before the tanks are mixed (analysis of liquid organic phase) and after the tanks are mixed (solid phase and inorganic analysis).

1. The protective clothing will include full face mask, organic vapor cartridge filters, rubber gloves and tyvek outer garments. HNU and L.E.L. monitoring will be conducted during sampling.

2. The water layer will be pumped off at the top of the tank prior to this sampling effort and the liquid level of each tank will be determined.

3. The following is a description of the sampling device (Figure 1). It will be constructed of one-half inch of copper pipe. There will be a one-half inch brass ball valve with a lever handle at one end. The other end will be left open. There will be a rod attached to one end of the lever handle, to open and close the valve. A stop will be placed at the 11:00 o'clock position to prevent the handle from going into a plumb (vertical) position. The fitting between the valve and the tubing will be of a "Swagelock" type. A stand with a pulley at the top will be used to lower and raise the sampling device.

4. A doughnut-shaped wiping disk will be used to wipe off the sampling device as the tubing is withdrawn from the tank.

5. The sampling device will be degreased using hexane followed by acetone, using a minimum of four rinses each for all surfaces of the sampling device.

6. Three samples will be taken from each of two sludge tanks. One sample will be taken one foot below the sludge liquid level. A second sample will be taken six inches above the bottom of the tank (the sampling device will be dropped to the bottom and withdrawn six inches). The final sample will be taken halfway between the top and bottom samples (the sampling device will be marked in inches). The tanks are horizonal and are ten feet in diameter.

   It is estimated that the sampling device will be immersed two, four and fourteen times for bottom, middle and top samples respectively.

7. The samples will be taken and poured into a wide neck 500 ml bottle for handling ease. The glass bottle will then be used to fill one 40 ml bottle with teflon lined cap, eliminating the air space. An additional 3 to 4 samples, each with a volume of 120 ml, will be retained at 4°C by the NYSDEC for future use.

8. The vials will be refrigerated at 4°C until they are shipped to a laboratory for analysis.

9. The following is a description of sample shipping procedures. The six samples from two tanks will be packed in a styrofoam holder. "Speedy Dry" absorbent will be placed on the lower 1/3 of the cooler. Pre-frozen "Blue Ice" will be placed on top and bottom of the styrofoam sample holder. Styrofoam peanuts will fill the remaining void of the cooler.

10. The following is a description of the chain of custody procedure. A sample of a chain of custody form is attached. This form will accompany the samples during shipment to the laboratory of choice. There will also be an additional chain of custody requirements for these samples, per diagram. The samples will be shipped via Purolator Courier. The Purolator representative will sign the chain of custody form and leave a copy at the Love Canal site. The laboratory representative will sign a copy of the form and send a copy back to the Love Canal site. A Purolator bill of lading will also be sent back to the Love Canal site.

11. The same sampling device will be reused for future sampling. The sampling device will be decontaminated using methyl ethyl ketone (MEK) with a minimum of four rinses. The ball valve will be soaked in MEK for a minimum of two minutes. A test tube brush will be pushed through the entire inside length of the copper pipe.

12. The sample results will be used to determine whether the organic phase is uniformly mixed.

13. The USEPA/NYSDEC will determine from the data presented whether the sample compositions are the same and if the analyses will be acceptable.

14. Attached is a description of the laboratory procedures to be followed.

APPENDIX B

Revision 3

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Solid and Hazardous Waste
Albany, New York

PLASMA ARC PROJECT

November 20, 1986

B.7 LABORATORY ANALYSIS OF SLUDGE TANK SAMPLES

1. Designated Field Samples

   Tank #1· A B C

   Tank #2: A B C

   Note: Total of six samples

2. Analysis

Weigh
Solid

Filter — Wash With Methylene Chloride

I

III

Sample — Filter Solids on Metal Screen — Weight Solid — GC-MS (EPA 8270)

II

Filter — Wash With Hexadecane — GC-MS (EPA 8240)

When the cooler containing the samples are opened at the laboratory, a thermometer will be placed next to the sample bottles and the styrofoam sample holder will be closed. After fifteen minutes, the temperature of the thermometer will be recorded and also reported to Nick Kolak by phone.

Each sample will be shaken vigorously for ten minutes in the laboratory; two portions from each sample will be removed and weighed for subsequent analysis. In procedure #1, the sample will be diluted with an appropriate volume of methylene chloride, or other appropriate solvent, and the mixture will be filtered (using a one micron filter) under gravity or pressure, but NO vacuum. The filtered solid will be washed further with methylene chloride until the filtrate runs clear. All filtrate and washings are to be combined in one sample. The solid will be dried at 103o - 105oC for two hours and then weighed. The organic liquid fraction will be analyzed under USEPA method 8270 for priority pollutant semivolatiles using capillary GC/MS.

The solids will be reported as percent weight of the original sludge sample. Those organic compounds which are identifiable will be reported in parts per million (ppm) or other appropriate units relative to both the original unfiltered and filtered sludge sample.

Procedure #2 will be conducted in similar fashion with the following changes. The second portion of the sample will be filtered using a solvent GC/MS such as hexadecane, or other appropriate solvent, to wash the solid. The washing will be combined with the filtrate. The filtered solid in this case will be discarded since such weight data is already determined under Procedure #1. The organic fraction is now analyzed for all parameters under USEPA method 8240 using capillary column GC/MS and direct injection of the sample. Those organic compounds which are identifiable will be reported in parts per million (ppm) or other appropriate units relative to both the original unfiltered and filtered sludge sample.

In procedure #3, a third portion of the original sample will be filtered through a 50 mesh wire screen, the same mesh that will be used to filter the sludge going to the Plasma Arc Unit. The materials collected on the screen will be dried and weighed. The remainder will be filtered, washed, dried, and weighed as discussed in procedure #1 above. The weight of the solids will be reported as a percentage of the original sample.

3. <u>Results</u>

Upon joint review of the results by USEPA/NYSDEC staff, a determination will be made as to whether the organic phase of the sample groupings A, B, and C for tank #1 and tank #2 are equivalent.

a. <u>Non-equivalent Results</u>

If results for the three depths, as determined by evaluation of the volatile and nonvolatile components of the waste, are judged by the USEPA/NYSDEC to be nonequivalent, then further analyses of these samples will not be conducted. Instead, the waste will be thoroughly mixed in the field by a device installed on the tank prior to obtaining fresh samples for analysis. The mixing will then be carried out prior to and during the removal of any material from the tank.

b. <u>Equivalent Results</u>

Once the organics are determined by EPA to be homogeneous, a composite of the three samples taken for each tank will be made and analyzed for all organic appendix 9 constituents identified by EPA and tentative identification and approximate quantification of all peaks obtained by methods (modified) 8240 and 8270.

The tanks determined to be homogeneous (organic layer) by EPA will be filtered through a 50 mesh filter prior to mixing the tanks contents.

Once the waste agitating system is designed and installed, the waste will be mixed for a given period of time. The same three level sampling procedure will be followed for the collection of samples for determining homogenity. These samples will be analyzed for total solids content utilizing procedure 1. The above analysis will be completed by the laboratory within 5 working days of receipt of samples and a copy of the results will be telexed to NYSDEC. Once the solids content of the tank is determined by EPA to be homogeneous, the three samples will be composited and analyzed for the following parameters:

C, H, N, S, Cl, P. O, H_2O	Ash (%)
Lead	Density (gm/ml)
Iron	Calorific Value (BTU/lb)
Zinc	Ignitability (°F)
Copper	Hydrogen Sulfide
Chromium	Hydrogen Cyanide
Antimony	
Cadmium	Dioxins
Sodium	Furans
Selenium	
Silver	Viscosity (Kinematic)
Mercury	
Arsenic	Appendix 9 inorganic constituents to be identified by EPA
Barium	
Beryllium	
Cobalt	
Nickel	
Thallium	

4. <u>Disposal of Residual Samples</u>

Upon completion of all analyses and reporting as directed by NYSDEC, the Contractor may elect to ship any remaining Love Canal sludge samples back to Love Canal. The Contractor shall coordinate such shipping by contacting Mr. Brian Sadowski, NYSDEC, at (716) 283-0111. It will be the Contractor's responsibility to properly package any such samples to comply with all applicable shipping regulations.

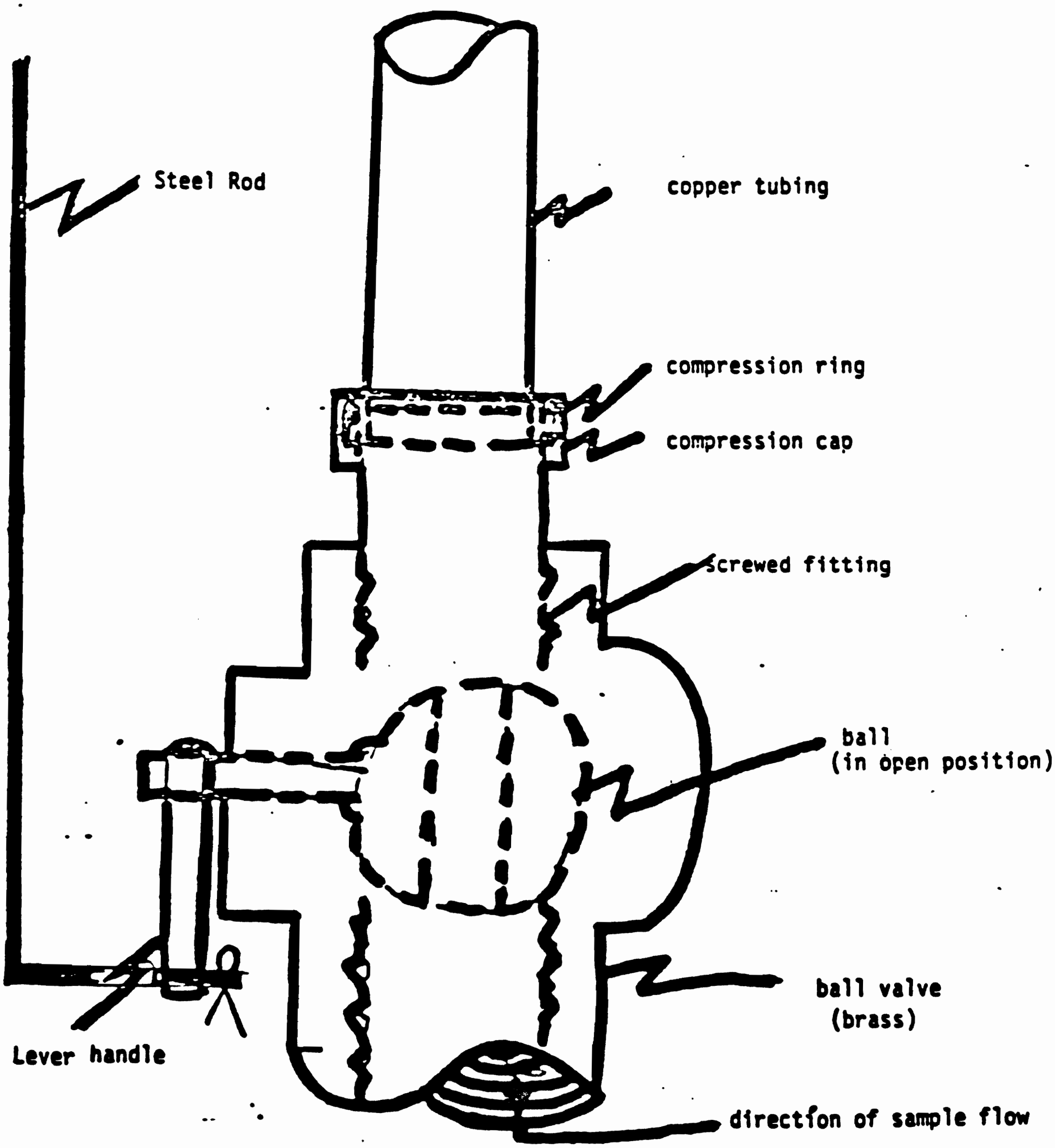
APPENDIX 7

FIGURE I

8.8 LOVE CANAL SLUDGE SAMPLING DEVICE

By:

R. L. Hall 7/22/86



APPENDIX B

DATE: 2/12/87

COVER PAGE
8.9 INORGANIC ANALYSES DATA PACKAGE

LAB NAME: VERSAR, INC.

QC REPORT: 1

SOW: HIGH CONCENTRATION

PROJECT NO.:6016.006

SAMPLE NUMBERS

FIELD NO.	PHASE NO.	LAB ID NO.	FIELD NO.	PHASE NO.	LAB ID NO.
	13	6016			

COMMENTS:

All fusion ICP parameter samples, standards, rinses, and interferences are diluted by a factor of five with deionized water prior to analysis. Further dilutions beyond this initial dilution will be noted as a total dilution factor for the applicable element on the individual FORM I's.

An alteration to the KOH fusion process was made due to sample creep. At the initial weights of 0.25 gram of sample and 2.0 grams of KOH, excessive sample creep was found. The initial sample weights were reduced to 0.125 gram of sample and 1.0 gram of KOH. This solved the problem. The final solution volume was reduced to 50 mls, preserving all the detection limits and dilution factors.

All analyte values, including those for quality control, have been reported down to the instrumental detection limits (IDL) of the instrument used. This was done in order to give NYSDEC the largest amount of information possible in order to characterize this composite sample. Normally, analyte values are reported to the contract required detection limits (CRDL) listed on page C-1 of the High Concentration Statement of Work (SOW) dated February 1985 as modified by letters of clarification (cont. on pg. 2)

ICP INTERELEMENT AND BACKGROUND CORRECTION APPLIED? YES.
CORRECTIONS APPLIED BEFORE GENERATION OF RAW DATA.

FOOTNOTES:

NR - NOT REQUIRED BY CONTRACT AT THIS TIME
VALUE - IF THE RESULT IS A VALUE GREATER THAN THE CRDL, REPORT THE VALUE AS DESCRIBED IN SECTION C-3, EXHIBIT B.
F - INDICATES SAMPLE CONCENTRATION GREATER THAN FOUR TIMES THE ANALYTICAL SPIKE VALUE
U - INDICATES ELEMENT WAS ANALYZED FOR BUT NOT DETECTED. REPORT WITH THE DETECTION LIMIT VALUE (E.G., 10U).
E - INDICATES A VALUE ESTIMATED OR NOT REPORTED DUE TO THE PRESENCE OF INTERFERENCE. EXPLANATORY NOTE INCLUDED ON COVER PAGE.
S - INDICATES VALUE DETERMINED BY METHOD OF STANDARD ADDITION
M - INDICATES SPIKE SAMPLE RECOVERY IS NOT WITHIN CONTROL LIMITS.
* - INDICATES DUPLICATE ANALYSIS IS NOT WITHIN CONTROL LIMITS.
+ - INDICATES THE CORRELATION COEFFICIENT FOR METHOD OF STANDARD ADDITION IS LESS THAN 0.995
DF - DILUTION FACTOR

10

7

FORM I

SAMPLE NO.
PHASE NO. 13

DATE 2/12/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME: VERSAR INC.

CASE NO.:

SOW NO.: ----

LAB SAMPLE ID. NO.: 6016

QC REPORT NO.: 1

PROJECT-TASK: 6016.006

BATCH: 1

ELEMENTS IDENTIFIED AND MEASURED IN MG/KG

HIGH CONCENTRATION

PHASE: 11(SOLID) ______ 12(WATER-MISCIBLE) ______ 13(NONWATER-MISCIBLE) X

1.	ALUMINUM	741.	13.	MAGNESIUM	274.
2.	ANTIMONY	8.4 U S	14.	MANGANESE	7.6
3.	ARSENIC	11. S	15.	MERCURY	0.28
4.	BARIUM	3.0	16.	MOLYBDENUM	10. U
5.	BERYLLIUM	2.0 U	17.	NICKEL	18. U
6.	CADMIUM	10. U	18.	SELENIUM	12.1 U S
7.	CALCIUM	1270.	19.	SILICON	779.
8.	CHROMIUM Total	22. U	20.	SILVER	13.
9.	COBALT	16. U	21.	SODIUM	6400. U
10.	COPPER	16.	22.	THALLIUM	120. U
11.	IRON	836.	23.	TITANIUM	13.
12.	LEAD	26. U	24.	VANADIUM	8.0 U
	CYANIDE		25.	ZINC	5.7
	SULFIDE			PHASE PERCENT	100.

OXIDANTS: PH: CONDUCTIVITY:

FOOTNOTES: SEE COVER PAGE.
COMMENTS:

LAB MANAGER

ROBERT E. MAXFIELD

8.10 ORGANIC ANALYSES DATA PACKAGE

APPENDIX B

Versar, Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
2ABC1

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: HBB1338
Sample Matrix: SLUDGE
Data Release Authorized By:

Case No: 6016.006.02
QC Report No: 6016.006.02
Contract No: C001238
Date Sample Received: 8/12/86

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 3/21/87
Date Analyzed: 3/21/87
Conc/Dil Factor: 1 pH NA
Percent Moisture: 100

CAS Number		ug/g	CAS Number		ug/g
74-87-3	Chloromethane	560 u	78-87-5	1,2-Dichloropropane	280 u
74-83-9	Bromomethane	560 u	10061-02-6	Trans-1,3-Dichloropropene	280 u
75-01-4	Vinyl Chloride	560 u	79-01-6	Trichloroethene	259 J ✓
75-00-3	Chloroethane	560 u	124-48-1	Dibromochloromethane	280 u
75-09-2	Methylene Chloride	280 u	79-00-5	1,1,2-Trichloroethane	280 u
67-64-1	Acetone	560 u	71-43-2	Benzene	762 ✓
75-15-0	Carbon Disulfide	280 u	10061-01-5	cis-1,3-Dichloropropene	280 u
75-35-4	1,1-Dichloroethene	280 u	110-75-8	2-chloroethylvinylether	560 u
75-34-3	1,1-Dichloroethane	280 u	75-25-2	Bromoform	280 u
156-60-5	Trans-1,2-Dichloroethene	280 u	108-10-1	4-Methyl-2-Pentanone	560 u
67-66-3	Chloroform	205 J ✓	591-78-6	2-Hexanone	560 u
107-06-2	1,2-Dichloroethane	280 u	127-18-4	Tetrachloroethene	3700 ✓
78-93-3	2-butanone	535 J ✓	79-34-5	1,1,2,2-Tetrachloroethane	1300 ✓
71-55-6	1,1,1-Trichloroethane	280 u	108-88-3	Toluene	31000 D ✓
56-23-5	Carbon Tetrachloride	780 ✓	108-90-7	Chlorobenzene	6200 ✓
108-05-4	Vinyl Acetate	560 u	100-41-4	Ethylbenzene	178 J ✓
75-27-4	Bromodichloromethane	280 u	100-42-5	Styrene	280 u
				Total Xylenes	1600 ✓

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

D Sample Result Reported From Reanalysis At A 1/5 Dilution.

VOAF1: REV062486

Form I

T

Versar, Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

Sample Number
2ABC1

ORGANICS ANALYSIS DATA SHEET (Page 1)

Laboratory Name: VERSAR
Lab Sample ID No: 8B1338
Sample Matrix: SLUDGE
Data Release Authorized By:

Case No: 6016.006.02
QC Report No: 6016.006.02
Contract No: C001298
Date Sample Received: 8/12/86

VOLATILE COMPOUNDS

Concentration: MID
Date Extracted/Prepared: 3/21/87
Date Analyzed: 3/21/87
Conc/Dil Factor: 1 pH NA
Percent Moisture: 100

CAS Number		ug/g	
107-18-6	Allyl Alcohol		ND u
126-98-7	Methacrylonitrile		ND u
107-02-8	Acrolein		ND u
107-5-1	3-Chloropropene		ND u
107-19-7	2-Propyn-1-ol		ND u
107-13-1	Acrylonitrile		ND u
75-05-8	Acetonitrile		ND u
107-12-0	Propionitrile		ND u
108-05-4	Vinyl Acetate		ND u
74-95-3	Dibromomethane		ND u
66-27-3	Methyl Methanesulfonate		ND u
78-83-1	Isobutyl Alcohol		ND u
107-06-2	1,2-Dibromoethane		ND u

CAS Number		ug/g	
123-91-1	1,4-Dioxane		ND u
126-99-8	2-Chloro-2,3-Butadiene		ND u
110-86-1	Pyridine		ND u
97-63-2	Ethyl Methacrylate		ND u
630-20-6	1,1,1,2-Tetrachloroethane		ND u
96-18-4	1,2,3-Trichloropropane		ND u
110-57-6	Trans-1,4-Dichloro-2-Butene		ND u
80-62-6	Methyl Methacrylate		ND u
75-71-8	Dichlorodifluoromethane		ND u
75-21-8	Ethylene Oxide		ND u
75-70-7	Trichloromethanethiol		ND u
74-88-4	Iodomethane		ND u

Data Reporting Qualifiers

Value If the result is a value greater than or equal to the detection limit, report the value.

u Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response factor is assumed, or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J)

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as the sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

ND Detection limit not determined.

VOAF1: REV022487

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 703/750-3000

|Sample Number |
|12ABC-1 |

Case No: 6016 R#34

ORGANICS ANALYSIS DATA SHEET (Page 2)
Semivolatile Compounds

Concentration:LOW

Date Extracted/Prepared: 03/02/87

Date Analyzed: 03/16/87

Conc/Dil Factor: 10

GPC Cleanup [ ]Yes [X]No

Separatory Funnel Extraction [ ]Yes

Continuous Liquid-Liquid Extraction [ ]Yes

CAS Number		ug/g
108-95-2	Phenol	2500 u
111-44-4	bis(2-Chloroethyl)Ether	2500 u
95-57-8	2-Chlorophenol	2500 u
541-73-1	1,3-Dichlorobenzene	2500 u
106-46-7	1,4-Dichlorobenzene	3000
100-51-6	Benzyl Alcohol	2500 u
95-50-1	1,2-Dichlorobenzene	2800
95-48-7	2-Methylphenol	2500 u
39638-32-9	bis(2-chloroisopropyl)ether	2500 u
106-44-5	4-methylphenol	2500 u
621-64-7	N-Nitroso-Di-n-propylamine	2500 u
67-72-1	Hexachloroethane	2500 u
98-95-3	Nitrobenzene	2500 u
78-59-1	Isophorone	2500 u
88-75-5	2-Nitrophenol	2500 u
105-67-9	2,4-dimethylphenol	2500 u
65-85-0	Benzoic Acid	13000 u
111-91-1	bis(2-chloroethoxy)methane	2500 u
120-83-2	2,4-dichlorophenol	2500 u
120-82-1	1,2,4-trichlorobenzene	19000
91-20-3	Naphthalene	2500 u
106-47-8	4-Chloroaniline	2500 u
87-68-3	Hexachlorobutadiene	2500 u
59-50-7	4-chloro-3-methylphenol	2500 u
91-57-6	2-methylnaphthalene	2500 u
77-47-4	Hexachlorocyclopentadiene	2500 u
88-06-2	2,4,6-Trichlorophenol	2500 u
95-95-4	2,4,5-Trichlorophenol	13000 u
91-58-7	2-Chloronaphthalene	2500 u
88-74-4	2-Nitroaniline	13000 u
131-11-3	Dimethyl Phthalate	2500 u
208-96-8	Acenaphthylene	2500 u
99-09-2	3-Nitroaniline	13000 u

CAS Number		ug/g
83-32-9	Acenaphthene	2500 u
51-28-5	2,4-Dinitrophenol	13000 u
100-02-7	4-Nitrophenol	13000 u
132-64-9	Dibenzofuran	2500 u
121-14-2	2,4-Dinitrotoluene	2500 u
606-20-2	2,6-Dinitrotoluene	2500 u
84-66-2	Diethylphthalate	2500 u
7005-72-3	4-Chlorophenyl-phenylether	2500 u
86-73-7	Fluorene	2500 u
100-01-6	4-Nitroaniline	13000 u
534-52-1	4,6-dinitro-2-methylphenol	13000 u
86-30-6	N-Nitrosodiphenylamine (1)	2500 u
101-55-3	4-Bromophenyl-phenylether	2500 u
118-74-1	Hexachlorobenzene	2500 u
87-86-5	Pentachlorophenol	13000 u
85-01-8	Phenanthrene	2500 u
120-12-7	Anthracene	2500 u
84-74-2	Di-n-butylphthalate	2500 u
206-44-0	Fluoranthene	2500 u
129-00-0	Pyrene	2500 u
85-68-7	Butylbenzylphthalate	2500 u
91-94-1	3,3'-Dichlorobenzidine	5000 u
56-55-3	Benzo(a)anthracene	2500 u
117-81-7	bis(2-Ethylhexyl)Phthalate	2500 u
218-01-9	Chrysene	2500 u
117-84-0	Di-n-Octylphthalate	2500 u
205-99-2	Benzo(b)Fluoranthene	2500 u
207-08-9	Benzo(k)Fluoranthene	2500 u
50-32-8	Benzo(a)pyrene	2500 u
193-39-5	Indeno(1,2,3-cd)Pyrene	2500 u
53-70-3	Dibenz(a,h)Anthracene	2500 u
191-24-2	Benzo(g,h,i)Perylene	2500 u

(1)-Cannot be separated from diphenylamine

BNAF1:R032286 TII Form I (71) 2 2

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 703/750-3000

SAMPLE ID
2ABC-1

Case No: 5016 B#34

ORGANICS ANALYSIS DATA SHEET (PAGE 2)
Semivolatile Compounds

Concentration: LOW

Date Extracted/Prepared: 03/02/87

Date Analyzed: 03/16/87

Conc/Dil Factor: 10

CAS Number		ug/g
62-75-9	N-Nitrosodimethylamine	ND u
109-06-8	2-Picoline	ND u
542-76-7	3-Chloropropionitrile	ND u
10595-95-6	N-Nitrosomethylethylamine	ND u
109-77-3	Malonitrile	ND u
*	N-Nitrosodiethylamine	ND u
*	1-Naphthylamine	ND u
76-01-7	Pentachloroethane	ND u
62-53-3	Aniline	ND u
98-86-2	Acetophenone	ND u
930-55-2	N-Nitrosopyrrolidine	ND u
59-89-2	N-Nitrosomorpholine	ND u
*	1-Nitrosopiperidine	ND u
1888-71-7	Hexachloropropene	ND u
108-46-3	Resorcinol	ND u
94-59-7	Safrole	ND u
120-58-1	Isosafrole	ND u
*	1,2,4,5-Tetrachlorobenzene	9900 ✓
130-15-4	1,4-Naphthoquinone	ND u
100-25-4	1,4-Dinitrobenzene	ND u
*	2-Naphthylamine	ND u
*	2,3,4,6-Tetrachlorophenol	ND u
608-93-5	Pentachlorobenzene	12000 ✓

CAS Number		ug/g
99-55-8	2-Methyl-5-Nitroaniline	ND u
122-39-4	Diphenylamine	ND u
122-66-7	1,2-Diphenylhydrazine	ND u
62-44-2	Phenacetin	ND u
*	Pronamide	ND u
92-87-5	Benzidine	ND u
60-11-7	P-Dimethylaminoazobenzene	ND u
*	Chlorobenzilate	ND u
*	3-3'-Dimethylbenzidine	ND u
*	2-Acetylaminofluorene	ND u
119-90-4	3-3'-Dimethoxybenzidine	ND u
*	4,4'-Methylene-Bis(Chloroaniline)	ND u
56-49-5	3-Methyl Cholanthrene	ND u
*	2-Sec-Butyl-4,6-Dinitrophenol	ND u
*	Total Aramite	ND u
82-68-8	Pentachloronitrobenzene	ND u
92-64-1	4-Aminobiphenyl	ND u
*	N-Nitrosodi-N-Butylamine	ND u
87-65-0	2,6-Dichlorophenol	ND u
*	1,12-Dimethylbenz(a)Anthracene	ND u

ND Detection limit not determined

* Denotes CAS number not available

Versar Inc. Laboratory Operations
6850 Versar Center, Springfield Va. 22151
(703) 750-3000

Sample Number
2ABC-1

ORGANICS ANALYSIS DATA SHEET
(Page 3)

Pesticides

CONCENTRATION LOW MID

GPC Cleanup [ ] Yes [X] No

Date Extracted/Prepared: 03/02/87

Separatory Funnel Extration [ ] Yes

Date Analyzed: 03/27/87

Continuous Liquid-Liquid Extraction [ ] Yes [ ] No

Conc/Dil Factor 1

Percent Moisture(decanted) 0

CAS Number		ug/g
319-84-6	alpha-BHC	4900
319-85-7	beta-BHC	ND u
319-86-8	delta-BHC	7200
58-89-9	gamma-BHC (Lindane)	2800
76-44-8	Heptachlor	ND u
309-00-2	Aldrin	ND u
1024-57-3	Heptachlor Epoxide	ND u
959-98-8	Endosulfan I	ND u
60-57-1	Dieldrin	ND u
72-55-9	4,4'-DDE	ND u
72-20-8	Endrin	ND u
33213-65-9	Endosulfan II	ND u
72-54-8	4,4'-DDD	ND u
1031-07-8	Endosulfan Sulfate	ND u
50-29-3	4,4'-DDT	ND u
72-43-5	Methoxychlor	ND u
	Endrin Aldehyde	ND u
	Kepone	ND u
	Isodrin	ND u

ND Detection limit not determined.

(73)

Versar Inc., Laboratory Operations
6850 Versar Center, Springfield VA 22151 (703) 750-3000

2ABC1

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/ g or ug/l)
1		UNKNOWN HYDROCARBON	VOA	376	1,800 J
2	110-82-7	CYCLOHEXANE(DOT	VOA	493	330 J
3		UNKNOWN HYDROCARBON	VOA	584	410 J
4		UNKNOWN	VOA	769	620 J
5		UNKNOWN	VOA	787	450 J
6		UNKNOWN	VOA	977	410 J
7	13837-67-7	M-MENTHANE, (1S,3S)-(+)-	VOA	991	870 J
8		UNKNOWN	VOA	1012	51,000 J
9		UNKNOWN CHLOROTOLUENE ISOMER	VOA	1017	31,000 J
10		UNKNOWN	VOA	1026	780 J
11	100-52-7	BENZALDEHYDE	VOA	1054	8,200 J
12		UNKNOWN SUBSTITUTED TOLUENE	VOA	1093	680 J
13		UNKNOWN DICHLOROBENZENE ISOMER	VOA	1116	4,500 J
14		UNKNOWN CHLOROTOLUENE ISOMER	VOA	1127	7,200 J
15		UNKNOWN DICHLOROBENZENE ISOMER	VOA	1162	3,700 J
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Versar Inc., Laboratory Operations
850 Versar Center, Springfield VA 22151 (703) 750-3000

12ABC-1

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/g or ug/l)
1	108-88-3	BENZENE, METHYL-	BNA	363	18,000 J
2	127-18-4	ETHENE, TETRACHLORO-	BNA	420	2,500 J
3	108-90-7	BENZENE, CHLORO-	BNA	470	4,600 J
4		UNKNOWN CHLOROTOLUENE ISOMER	BNA	609	56,000 J
5		UNKNOWN CHLOROTOLUENE ISOMER	BNA	616	39,000 J
6	100-52-7	BENZALDEHYDE	BNA	619	5,000 J
7		UNKNOWN CHLOROTOLUENE ISOMER	BNA	695	7,700 J
8		UNKNOWN DICHLOROTOLUENE ISOMER	BNA	812	16,000 J
9		UNKNOWN DICHLOROTOLUENE ISOMER	BNA	816	1,900 J
10		UNKNOWN CHLORINATED AROMATIC	BNA	831	2,300 J
11		UNKNOWN DICHLOROTOLUENE	BNA	843	5,600 J
12		UNKNOWN	BNA	864	4,800 J
13		UNKNOWN DICHLOROTOLUENE	BNA	901	3,100 J
14		UNKNOWN	BNA	916	2,500 J
15		UNKNOWN TRICHLOROTOLUENE	BNA	977	4,700 J
16		UNKNOWN TRICHLOROTOLUENE	BNA	999	12,000 J
17		UNKNOWN	BNA	1007	770 J
18		UNKNOWN TRICHLOROTOLUENE	BNA	1012	8,300 J
19	98-07-7	BENZENE, (TRICHLOROMETHYL)-	BNA	1019	2,000 J
20		UNKNOWN TRICHLOROTOLUENE	BNA	1040	4,600 J
21		UNKNOWN TETRACHLOROBENZENE ISOMER	BNA	1053	26,000 J
22		UNKNOWN DIMETHYL BIPHENYL ISOMER	BNA	1222	2,400 J
23		UNKNOWN	BNA	1308	2,900 J
24		UNKNOWN BHC ISOMER	BNA	1363	2,600 J
25		UNKNOWN BHC ISOMER	BNA	1413	1,800 J
26		UNKNOWN	BNA	1421	1,700 J
27		UNKNOWN BHC ISOMER	BNA	1448	3,700 J
28	538-74-9	BENZENE, 1,1'-[THIOBIS(METHYLENE)]BIS-	BNA	1455	2,200 J
29		UNKNOWN	BNA	1477	2,200 J
30		UNKNOWN	BNA	1499	1,800 J

PAGE 1 OF 2
BNA TIC

(75)

Versar Inc., Laboratory Operations
850 Versar Center, Springfield VA 22151 (703) 750-3000

12ABC-1

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan	Estimated Concentration (ug/l or ug/l)
1.	UNKNOWN	BNA	1505	2,100 J
2.	UNKNOWN	BNA	1571	2,600 J
3.	UNKNOWN	BNA	1590	1,400 J
4.	UNKNOWN	BNA	1603	1,700 J
5.	UNKNOWN	BNA	1607	1,600 J
6.	UNKNOWN	BNA	1617	1,200 J
7.	UNKNOWN HYDROCARBON	BNA	1621	1,000 J
8.	UNKNOWN	BNA	1631	3,700 J
9.	UNKNOWN CHLORINATED SPECIES	BNA	1638	2,500 J
10.	UNKNOWN HYDROCARBON	BNA	1685	2,200 J
11.	UNKNOWN	BNA	1695	2,200 J
12.	UNKNOWN	BNA	1719	3,500 J
13.	UNKNOWN	BNA	1746	2,400 J
14.	UNKNOWN	BNA	1755	2,500 J
15.	UNKNOWN	BNA	1977	7,200 J
16.	UNKNOWN	BNA	2076	3,500 J
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

PAGE 2 OF 2
BNA TIC

(76)

ENSECO-CAL LAB

8.11 POLYCHLORINATED DIOXIN/FURAN ANALYSIS

TICKET NO: 28367

CLIENT ID: COMPOSITE

Date Analyzed: 3/13/87

CAL ID: 28367-1CRI

Weight: 0.1 ML

FURANS	AMOUNT FOUND (ng/ML)	DETECTION LIMIT (ng/ML)
tetra (total)	456	-
(2378)	356 *	-
penta (total)	1360	-
(12378)	161	-
(23478)	99.2	-
hexa (total)	789	-
(123478)	94.7	-
(123678)	ND	12.1
(123789)	ND	15.8
(234678)	ND	21.5
hepta (total)	324	-
(1234678)	149	-
(1234789)	44.6	-
octa (total)	208	-

ND = Not Detected

All totals, hepta and octa values from DB-5 column, tetra thru hexa isomer specific values from SP-2331 column.

All furans were calculated off the 13C-tetra thru octa furan internal standards.

* Interferences with the 13C-TCDF internal standard. Number was calculated using the 13C-Pentafuran internal standard.

PREPARED BY: JD APPROVED BY: BSm DATE: 4/2/87

(77)

9.1 ANALYSIS OF DRUMS

A total of 2453 drums are stationed at the Love Canal area. They are located approximately 150 feet towards Read Avenue and right inside the main gate. The drums are arranged in 59 rows of single file. The category and the quantity in each category is given below:

Quantity	Category	Description
550	A	Spent Carbon
441	B	Protective clothing and trash.
1388	C	Soil from sewer cleaning and well boring.
30	D	Hose, plastic pail and wood.
8	E	Metal and bar stock (pumps, motors, etc.)
7	F	Sludge
18	-	Overpacked with carbon, soil, etc.
8	-	Water with 6 inches of soil.
3	-	Empty

APPENDIX 8

LOVE CANAL ANNUAL WASTE GENERATOR REPORT

APPENDIX 8

Love Canal Leachate Treatment Facility
Special Projects Section
Bureau of Western Remedial Action
Division of Hazardous Waste Remediation

September 12, 1988

Waste Code Waste	Assumed Pounds per Drum	December 1986 Total Waste On-Site (lbs)	No. of Drums	Waste Generated 1987 (lbs)	No. of Drums	December 1987 Total Waste On-Site (lbs)	No. of Drums
A spent carbon	500	275000	550	3000	6	278000	556
B plastic prot. cloth.	100	47100	471	3900	39	51000	510
C soil	500	694000	1388	155000	310	849000	1698
D + E glass/metals	150	1200	8	2550	17	3750	25
F sludge/soil	500	3500	7	1000	2	4500	9
water in drums	500	4000	8	0	0	4000	8
N.U.S. overpacks	500	9000	18	0	0	9000	18
		1033800	2450	165450	374	1199250	2824
		517 tons		83 tons		600 tons	

Sewer sediments currently in Dewatering Facility	660960 lbs.	33060 lbs.	694020 lbs.
Chemical sludge in Storage tanks	18744 gallons (est.)	1854 gallons	18326 gallons (est.)

Differences in Chemical sludge total is due to sludge filterings and dewatering of the Storage tanks.

Do not make entries in shaded areas

OMB #: 2050-0024

APPENDIX 8

ENVIRONMENTAL PROTECTION AGENCY

FACILITY BIENNIAL HAZARDOUS WASTE REPORT FOR 1987

This report is for the calendar year ending December 31, 1987.
Read All Instructions Carefully Before Making Any Entries on Form

I. NON-REGULATED STATUS

See instructions before completing this section.

This facility did not treat, store, or dispose of regulated quantities of hazardous waste at any time during 1987. . . . . ☐

Explain your non-regulated status in the space below.

Please print/type with elite type (12 characters per inch)

II. FACILITY EPA I.D. NUMBER

T/A C

F NYD000767657 1

1 2 13 14 15

This Facility's Non-Regulated Status is Expected to Apply:

☐ For 1987 Only ☐ Permanently

☐ Other (explain in comment section)

C303 ENTRY (OFFICIAL USE ONLY): ☐

III. NAME OF FACILITY

LOVE CANAL LEACHATE TREATMENT FACILITY

30 69

IV. FACILITY MAILING ADDRESS

3 50 WOLF ROAD ROOM 208

15 16 45

Street or P.O. Box

4 ALBANY NY 12233

15 16 41 42 47 51

City or Town State Zip Code

V. LOCATION OF FACILITY (if different than section IV above)

5 805 97TH STREET

15 16 45

Street or Route number

6 NIAGARA FALLS NY 14304

15 16 41 42 47 51

City or Town State Zip Code

VI. FACILITY CONTACT

2 RIDER GERALD, JR, P.E.

15 16 45

Name (last and first)

518-457-0927

46 55

Phone No. (area code & no.)

VII. COST ESTIMATES FOR FACILITIES

$ ___ ___ ___ (16 19 22)

A. Cost Estimate for Facility Closure

$ ___ , ___ , ___ (25 28 31)

B. Cost Estimate for Post Closure Monitoring and Maintenance (disposal facilities only)

VIII. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Michael J. O'Toole , P.E.

Print/Type Name | Title | Signature of Authorized Representative | Date Signed

Do not make entries in shaded areas

APPENDIX 8

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1987 (cont.)

This report is for the calendar year ending December 31, 1987.

Date rec'd: ____________ Rec'd by: ____________

IX. FACILITY'S EPA I.D. NO.

T/A C

F N Y D 0 0 0 7 6 7 6 5 7 1

X. GENERATOR'S EPA I.D. NO.

G N Y D 0 0 0 7 6 7 6 5 7

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Love Canal Leachate Treatment Facility

ON-SITE ☒

XII. GENERATOR ADDRESS

805 97th Street
Niagara Falls, NY 14304

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1987 (complete this section only once for your facility)

	AMOUNT OF WASTE	UOM
S01		
S02	18326	G
S03		
S04		
S05		

XIV. WASTE IDENTIFICATION

Sequence	Line #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
*	1	Leachate treated from canal	U129	T04	11748	T
**	2	Chemical sludge (estimated)	U129	S02	92	T
#,***	3	Spent activated carbon (ventsorbs)	U129	S01	3000	P
#	4	Contaminated soil & sludge (filterings)	U129	S01	155000	P
##	5	Miscellaneous contaminated clothing	U129	S01	3900	P
###	6	Sampling equipment (spoons, knives) sample bottles	U129	S01	2550	P
####	7	Sewer sediments (dewatering facility)	U129	S02	33060	P
	8					
	9					
	10					
	11					
	12					

XV. COMMENTS (enter information by section number—see instructions)

* Section XIV. Leachate density is 1.0 (g/cc). Treated effluent is discharged to City of Niagara Falls Sanitary Sewer.

** Section XIV. Sludge density is 1.2 (g/cc).

*** Section XIV. These wastes arise from the treatment of leachate at the Love Canal Leachate Treatment Facility.

Section XIV. Estimated weight is 500 pounds per 55 gallon drum.

Section XIV. Estimated weight is 100 pounds per 55 gallon drum.

Section XIV. Estimated weight is 150 pounds per 55 gallon drum.

Section XIV. Estimated weight is 600 pounds per 55 gallon drum.

NEW YORK STATE

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ANNUAL REPORT SUMMARY FOR 1987

WERE ANY WASTE GENERATED OFF-SITE ☐ YES ☒ NO

Love Canal Emergency Declaration Area considered part of Love Canal Site.

1. STORAGE - (ONLY THAT WASTE ON-SITE ON DECEMBER 31, 1987)

S01	600	Tons
S02	439	Tons
S03		Tons
S04		Tons
S05		Tons

Total Amount Stored on 12/31/87 1039 Tons

(DECEMBER 31, 1986)

S01	517	TONS
S02	369	TONS
TOTAL	886	TONS

12/31/86

2. TREATED - ON-SITE DURING CALENDAR YEAR 1987

T01		Tons
T02		Tons
T03		Tons
T04	11,748	Tons

Total Amount Treated Thru the Year 1987 11,748 Tons

3. DISPOSED - ON-SITE DURING CALENDAR YEAR 1987

D79		Tons
D80		Tons
D81		Tons
D82		Tons
D83		Tons
D84		Tons

Total Amount Disposed Thru the Year 1987 0 Tons

4. SHIPPED - OFF-SITE FOR TREATMENT, STORAGE OR DISPOSAL

Shipped to NYS Facility(s)	0	Tons
Shipped to Out of State Facility(s)......	0	Tons