

John G. Ballou

THE NIAGARA RIVER SITUATION REPORT

ENVIRONMENT CANADA
ONTARIO REGION

JULY 1981

TD
1045
C32
N53
1981

TABLE OF CONTENTS

	<u>PAGE</u>
I SCOPE AND NATURE OF THE PROBLEM	1
II ENVIRONMENTAL QUALITY	4
III SOURCES	7
IV ACTIONS	11
V CONCLUSIONS AND RECOMMENDATIONS	20
APPENDIX I	29
APPENDIX II	32
APPENDIX III	49
APPENDIX IV	51

- 14 -

FIGURES AND TABLES

	<u>PAGE</u>
FIGURE 1. LOCATION OF U.S. AND CANADIAN POINT AND NON-POINT SOURCES IN THE NIAGARA FRONTIER	23
FIGURE 2. POTENTIALLY HAZARDOUS DUMP SITES AS IDENTIFIED BY THE N.Y. INTERAGENCY TASK FORCE ON HAZARDOUS WASTES	24
TABLE I. SPDES SUMMARY FOR DIRECT NIAGARA RIVER POINT SOURCES	7
TABLE II. SCA'S PERMIT MODIFICATION REQUESTS AND THEIR PRESENT STATUS	46
TABLE III. DIPLOMATIC NOTES CONCERNING POLLUTION OF THE NIAGARA RIVER	56

THE NIAGARA RIVER SITUATION REPORT

I. Scope and Nature of the Problem

The Niagara Frontier has become the focus of a multiplicity of pollution problems and public issues involving toxic persistent chemicals.* The five major pollution incidents which have occurred sequentially since 1977 are the following:

1. Love Canal

North America's first major hazardous waste issue, in which a former Hooker Chemical and Plastics Corporation dump site converted into a residential area, leaked mixtures of gaseous and liquid chemicals into basements of residents. High incidents of chronic illness, birth defects, still born births and miscarriages indicated serious health hazard implications. Extensive remedial works involving extraordinary U.S. political initiatives were required to expropriate private homes, and institute corrective actions.

2. New York State/U.S. Environmental Protection Agency EPA Task Force on Hazardous Waste Site

Based on the gravity of the Love Canal situation, New York State and U.S. EPA established a joint Task Force in 1977 to identify all dump sites in Erie and Niagara Counties of the Frontier. The Task Force identified over 215 such sites all containing hazardous industrial wastes. (See Figure 2.)

3. SCA Chemical Waste Services - is an industrial waste treatment facility with a backlog of stored treated waste on its site. SCA applied to the State to construct a pipeline from its site in Porter, New York to the Niagara River to discharge treated waste to the river. Local citizen groups strongly opposed the proposal (See Appendix III). NYDEC granted permission. SCA built the pipeline during the fall of 1980 and planned to discharge in early May of 1981. Discharge was delayed due to damage to the pipeline by vandals. SCA began to discharge to the Niagara River on June 16, 1981.

* (Refer to Appendix II for a detailed discussion on the Love Canal, SCA and Hyde Park dump sites and the Niagara Falls, N.Y. Sewage Treatment Plant (NFSTP).)

4. Breakdown of the Niagara Falls, N.Y. Sewage Treatment Plant

This plant receives the waste water of all major chemical plants in the area. It was specifically built in the mid 70's to treat these wastes in addition to domestic sewage. Carbon filter beds used to take out the chemicals from the wastewater, broke in 1979. Questions regarding liability delayed commencement of remedial measures. Repairs are expected to take up to 2 years, once initiated.

5. Hyde Park Dump Site

After closing the Love Canal site in the early 1950's, Hooker Chemicals used the Hyde Park dump site up to 1974, placing approximately 80,000 tons of chemical wastes including materials contaminated with dioxin. In 1972 a leachate collection system was installed after dioxin was detected in sediments of Bloody Run Creek which drained from the site to the Niagara River. In 1978/79 further remedial measures were taken to improve the collection system and pretreat the leachate before it was discharged to the Niagara Falls, N.Y. Sewage Treatment Plant for further treatment. In 1979, the U.S. Government filed a suit against Hooker to secure the site and maintain it in perpetuity. The suit got bogged down in the courts and the two parties sought an out-of-court settlement. Before this settlement was to have been ratified by a judge, two Canadian environmental groups (Probe and Operation Clean) received "amicus curiae" standing to present further information for the purposes of requiring more stringent measures in the settlement. (See Appendix III for information on citizens' groups.)

The development of more sensitive detection equipment and methods, from 1974 to the present, has enabled scientists to detect small concentrations of toxic persistent substances. There are a number of reports concerning the widespread presence of these substances in the Great Lakes:

1. 1974 - DOE scientists report widespread contamination of Mirex and PCB in fish, gulls and sediments in Lake Ontario;
2. 1976 - IJC - Great Lakes Water Quality compiles a list of over 400 chemicals in the water, sediments and fish of the Niagara River;

3. 1978 - IJC - Great Lakes Water Quality Board reports 38 new toxic chemicals found in the Great Lakes environment including dioxin in fish;
4. 1980 - Canada-Ontario Review Board, Niagara River Environmental Baseline Report reports high levels of toxic chemicals in lower portion of the Niagara River as compared to the upper portion of the river;
5. 1980 - DOE scientist reports dioxin levels in herring gull eggs taken from Lake Ontario and Lake Michigan colonies.
6. 1981 - IJC - Special Report on Pollution in the Niagara River.

These reports have heightened public awareness and sensitivity to Niagara River pollution problems/issues. They have also underlined the existence of "de facto" transboundary pollution; however, it is difficult to attach a direct adverse affect to human health and/or environmental significance to these findings. It is not possible, therefore to identify specific real or potential damages, and to demonstrate direct violation of the Boundary Waters Treaty of 1909. Also, water quality analyses have not indicated any continuing violation of the specific water quality objectives of the 1978 Canada-U.S. Great Lakes Water Quality Agreement (GLWQA).

In summary, the pollution of the Niagara Frontier is a major public issue which consists of a multiplicity of individual problems, within a context of widespread chemical contamination of the Lake Ontario Basin. There is insufficient scientific knowledge and information to prove the actual damage, which is needed to find the U.S. in contravention of the Boundary Waters Treaty of 1909 and the 1978 Canada-U.S. Great Lakes Water Quality Agreement.

II. Environmental Quality

In June of 1980, the Review Board of the Canada-Ontario Great Lakes Water Quality Agreement, reported on the environmental quality of the Niagara. The report summarized data collected by the federal and provincial agencies between 1975 and 1979. The following findings and conclusions were made:

1. Over the period 1975-1979, yearly average water quality conditions in the Niagara River met the objectives of the 1978 Canada/U.S. Great Lakes Water Quality Agreement and those of the Ontario Ministry of the Environment (MOE). Concentration of some metals and organic compounds exceeded these objectives in less than 10% of the samples analyzed. Concentrations of iron, manganese, and zinc were observed to be higher on the U.S. side of the Niagara River.
2. Analyses of samples of raw water taken from the Niagara-on-the-Lake and Niagara Falls (Ontario) water treatment plants and from the Niagara River adjacent to the town of Fort Erie met federal and provincial criteria for acceptable drinking water. (Health implications of a number of organics for which no objectives now exist are being investigated, eg. halogenated aliphatics other than trihalomethanes, and aromatic hydrocarbons.)
3. The Niagara River Basin is a continuous source of organic compounds and metals associated with suspended sediments in Lake Ontario. Annual loading of suspended sediment-associated PCBs to the Lake is approximately 530 kg/yr. The major portion of the loading of PCBs and some pesticides occurs adjacent to or downstream from Grand Island, New York. The Love Canal and Buffalo River areas in New York are also sources for numerous organics. Results of analyses of suspended sediment samples indicated instances of high concentrations of PCBs and Hexachlorobenzenes (HCBs) 3 to 5 times the mean values detected. These instances of high concentrations could not be correlated with storm events, and it is suspected that they resulted from intermittent direct effluent discharges of these substances to the River.
4. All bottom sediment samples from the lower Niagara River and 83% of the samples from the upper Niagara River had concentrations of PCBs exceeding 50 parts

per billion. The MOE requires confined disposal of dredge spoil containing more than 50 ppb of PCB's. Also, a large percentage of sediment samples from the slower-moving section of the lower Niagara River exceeded the MOE's dredge spoil criteria for arsenic, chromium, and mercury indicating that the river section downstream from Queenston is an accumulation area for contaminated sediments.

5. Concentrations of PCBs, total DDT and mercury have declined significantly since 1975 in spottail shiners (an indicator Forage Fish species) caught at Niagara-on-the-Lake. PCB residues declined by 78%, mercury residues by 33% and total DDT residues by 89%. Comparison of contaminant residue data in spottail shiners from two Niagara River sites with those from the control station at Thunder Bay (Lake Erie) indicated the presence of PCBs, DDT, mirex, HCB and mercury sources in the River. Specific objectives for fish and other biota have not been established for a number of organic compounds present in the Niagara River ecosystem.
6. Various size ranges of coho salmon, smelt and lake trout caught in 1979 in the lower Niagara were fit for only "occasional consumption" due to excessive levels of PCBs and mirex.

More recent analyses of Niagara River water, sediment, suspended sediments, fish and biota have been completed. The results which are summarized below will be published in detail as an Up-date of the COA Niagara River Environmental Baseline Report.

Water

- The average annual water quality conditions of the Niagara River met the specified objectives of the Canada-U.S. Agreement. Objectives were exceeded in only 10% of the samples analyzed.
- Objectives for copper and iron were exceeded more frequently than for any other parameter in these samples.
- Most organic compounds are below the analytical detection limit.

Suspended Sediment

- Quantifiable amounts of total PCBs, dieldrin, mirex, BHC (lindane) HCB, p,p DDE, chlordane methoxychlor were detected.
- increases in p,p -DDT levels were detected.
- a further 22 compounds were identified in the suspended sediment.
- 21 of the above compounds were also detected in fish samples which is indicative of bioaccumulation.

Dioxin

In December 1980, Environment Canada released a report identifying the detection of dioxin in herring gull eggs taken from Lake Ontario and Lake Michigan. While the data indicated a decline in levels since 1974, the mere detection of the "world's most toxic substance" caused considerable concern.

These reports indicate that there are continuing intermittent sources of contaminants into the Niagara River and Lake Ontario. These are not detectable in the water because of their low concentrations, however, they are detected in sediments and fish. No environmental or human health significance can be attributed to these findings because of lack of scientific data on long-term exposure to these compounds.

III Sources

Inputs to the Niagara River from both Canadian and U.S. sources can broadly be divided into two categories; point source and non-point source. A point source would normally take the form of an outfall from a municipal or industrial treatment plant or process and a non-point source input could arise from urban run-off, atmospheric deposition, agricultural wastes, leachate from waste disposal or landfill operations and a number of other sources.

To completely quantify the total loading to the Niagara River is not possible at this time; a complete data base does not exist considering all upstream sources (eg. Lake Erie). The location of major U.S. and Canadian point and non-point sources in the Niagara Frontier are shown in Figure 1.

U.S. - Point Sources

On the U.S. side, 13 municipal wastewater treatment plants and 30 industrial facilities are licenced by the State to discharge their effluent into the Niagara River (or it's immediate tributaries). Numerous other industrial operations discharge to the River but do so via municipal wastewater treatment plants, eliminating individual permit requirements. Further "hidden" discharges occur when several outfalls are licenced under a single permit number.

Table I is a summary of available New York State Pollution Discharge Elimination System (SPDES) permits. The table should not be considered a complete accounting of point source contributions to the river, but rather a summary of available information.

TABLE I

SPDES SUMMARY FOR MAJOR DIRECT NIAGARA RIVER POINT SOURCES

	<u>Municipal Sources</u>	<u>Industrial Sources</u>
# of SPDES Permits	13	30
Input Flow (Liters/day)	1.50 X 10 ⁹ (Cdn 9.14 X 10 ⁷)*	6.4 X 10 ⁸ (Cdn 1.29 X 10 ⁸)*

* Canadian inputs into the Niagara River are shown in brackets for comparison.

The relative magnitude of the "municipal" discharges into the river is of particular concern as many of the wastewater treatment facilities in the area are not designed to treat the large quantities of chemically complex wastewater they receive from industries.

The New York Department of Environmental Conservation (NYDEC) and the EPA have filed suits against two of the largest wastewater treatment plants in the area for non-compliance (Refer to Appendix II for discussions on the Buffalo Sewage Treatment Plant and the Niagara Falls, N.Y. Sewage Treatment Plant). In the case of the Niagara Falls Plant, non-compliance is due to the malfunctioning of it's carbon adsorption beds which were specially designed to treat industrial wastes.

Major industrial point sources include; Hooker Chemical, Olin Chemical, DuPont, Union Carbide and Stauffer. SCA recently received a SPDES permit to discharge treated industrial waste into the river via a pipeline. The discharge volume is not significant, relative to other point sources, but the proximity of the pipeline to the Niagara-on-the-Lake water intake has resulted in public concern, on the Canadian side. (See Appendix I for SPDES summaries of municipal and industrial dischargers.)

U.S. - Non-Point Sources

The dominance of the chemical industry in the New York State Niagara Frontier has resulted in a higher than average incidence of chemical waste dump sites in this region. A 1979 NYDEC report identified 215 chemical waste dumps in the Niagara/Erie county area. (See Figure 2.) Of these, at least four are known to have leaked contaminants into the river (Love Canal, Hyde Park, 102nd St., Hooker "S" Area) and are rated Priority I.

The NYDEC and EPA have taken legal actions with respect to each of these four sites. Settlement agreements are presently being negotiated with the NYDEC and EPA and Hooker Chemicals for Hyde Park and "S" Area sites. Negotiations have not yet begun for the 102nd Street site. Love Canal is the subject of direct legal action.

All of the sites which are receiving attention are dumps which have been closed for at least five years, so in all cases the action required is remedial.

The quantity of contaminants entering the river from these sources has not been estimated, but a wide variety of persistent, carcinogenic compounds have been detected including, PCB's, TCCD, Lindane and a variety of other chlorinated hydrocarbons.

(See Appendix II for detailed discussions of industrial non-point sources).

Canadian - Point-Sources

Niagara Falls (Stamford), Fort Erie and Welland sewage treatment plants are the major municipal point-sources. The Welland plant effluent meets Provincial requirements for phosphorus, suspended solids and BOD. Plant expansion and improvement is underway to improve BOD and suspended solids removal at the Fort Erie plant and to improve phosphorus removal at the Niagara Falls plant.

Cyanamid of Canada Limited, Atlas Steels, Canadian Carborundum and Norton Company are the major industrial sources (in terms of flow rates and loadings of conventional pollutants). Canadian Carborundum is presently in compliance with the Provincial effluent requirements for BOD, suspended solids and phosphorus. Atlas Steels is presently not in compliance with the Ministry of the Environment's loading requirements for suspended solids, solvent extractables and iron. A Control Order was issued to the company requiring effluent quality improvement and the order is in effect till the end of 1981. Norton Company is presently in violation of the Provincial loading requirements for suspended solids. A program for effluent quality improvement has been approved and is in effect until the end of 1983.

Cyanamid of Canada Limited's Welland Plant is not yet in compliance with the Ministry of the Environment's requirements for phosphorus, suspended solids and nitrogen. A Control Order which requires staged installation of air and water pollution abatement facilities was issued to the company in February 1978 and is in force till September 30, 1984. The company has thus far been in compliance with the requirements outlined in the Control Order. Recently, the Canadian Environmental Law Association has charged the company under The Fisheries Act for discharging toxic substances into the Welland River. The case has been heard and the judge's decision is pending.

With respect to toxic substances in point-source effluent, the Ontario Ministry of the Environment conducted a preliminary effluent survey in January-February 1981 on all of the above-noted industrial and municipal sources and several other minor point sources in the Niagara Area (each source was grab sampled three times over a one day period). GC/MS analysis results are presently being reviewed by EPS and MOE staff. Based on this review, MOE and EPS will undertake a joint effluent sampling program later this year to further identify and quantify toxics in point-source effluents.

Canadian - Non-Point-Sources

The seriousness of the non-point source situation on the Canadian side of the River is not of the same magnitude as that on the U.S. side.

The only site which has been a concern is Cynamid Canada's former dump sites at St. David. This site was used by Cynamid for the disposal of low level cyanide wastes. Although some leaching is occurring into neighbouring wells, unsafe cyanide levels have never been detected by the MOE over the 10 year period during which monitoring occurred. (See Appendix II for a more detailed discussion of this site). In any case, the dump is several kilometers from the Niagara River and impact is most unlikely.

Note: Point source discharge information is compiled differently in Canada than in the U.S.A. In Canada, all dischargers within the Niagara River's watershed are included. Notwithstanding the discrepancies in U.S./Canadian data collection practices, the magnitude of the total U.S. point source discharge exceeds the total Canadian discharge by more than 2 billion liters per day.

IV. ACTIONS

U.S. and New York State Water Pollution Control

Federal regulation of hazardous wastes in the U.S. is governed by The Resource Conservation and Recovery Act of 1976 (RCRA). The Act requires the Environmental Protection Agency (EPA) to make regulations covering the following areas:

- definition, identification, and listing of hazardous waste (Section 3001);
- standards applicable to generators of hazardous waste (Section 3002);
- standards applicable to transporters of hazardous waste (Section 3003);
- performance, design, and operating requirements for facilities that treat, store, or dispose of hazardous waste (Section 3004);
- a permit system for such facilities (Section 3005);
- guidelines to assist States in developing their own hazardous waste programs and procedures for obtaining EPA authorization for their programs (Section 3005);
- procedures by which hazardous waste generators, transporters, and facility owners/operators notify EPA of their activities (Section 3010).

The EPA is responsible for the administration of the hazardous waste regulatory programs. A State, however, may develop its own regulatory program but it must meet the requirements under Section 3006 of the RCRA to receive approval. The State program must be equivalent to the Federal program to receive full authorization. Interim authorization is granted for a maximum of 2 years when the program is substantially equivalent to the federal program.

The national pollutant discharge elimination system (NPDES) under The Clean Water Act (CWA) regulates the discharge of wastewater to surface waters. If it meets federal requirements, a state pollution control agency can be

authorized to administer its own permit system, which is called the State Permit Discharge Elimination System (SPDES). A consolidated permit system has been developed to streamline the administrative process and permits under the RCRA (Section 3005) and NPDES (or SPDES) programs are considered simultaneously.

A five-year agreement between New York State and the EPA authorizes the New York State Department of Environmental Conservation to issue permits for hazardous waste facilities. Article 17 of The Environmental Conservation Law (ECL) provides that a permit is required for any proposed or existing facility that treats, stores or disposes of hazardous waste. The first step in obtaining a permit for a hazardous waste facility is to submit an application to the NYDEC. The NYDEC reviews the application for completeness and requests any additional information that is needed. In determining completeness, the department must take into account the State Environmental Quality Review Act (EQRA) which requires government agencies to determine whether the activity for which a permit is requested will have a significant effect on the environment. If it is determined that the activity may have a significant effect on the environment, an environmental impact statement examining all relevant factors must be prepared. When a permit application for a major project is complete, a notice of it will be published and a comment period of at least two weeks will be provided during which any interested person may submit written comments or request a public hearing. The NYDEC must make a decision on major projects for which no hearing is held within 90 days. If the project is considered minor a notice of it will not be published, and a decision will be made within 45 days. A public hearing may be held either in response to a request or on the NYDEC's initiative. A final decision must be made within 60 days of the completion of the hearing record. A participant in the hearing may petition for review of any term or condition in the permit.

U.S. Control Actions

The major problem with the regulation of U.S. point sources is the lack of specificity of the SPDES. Permits generally do not specify effluent limits (concentrations in waste stream) nor do they specify loading limits (lbs/day) for each substance. Instead, generalized restrictions for Chemical Oxygen Demand and for unspecified organics are written into the permits. Under the SPDES, permits are renewed after 5 years for municipal discharges and every 1-5 years for industrial discharges. It is expected that greater specificity especially for organics will be written in these permits as they come up for renewal.

The EPA and NYDEC are both in the process of implementing new hazardous waste controls for non-point sources. The program is primarily a permit system. The problem encountered on the Niagara Frontier is that the dump sites in question are no longer active sites; they have not been used for over 5 years. Questions of liability for damage and remedial works, therefore, must be resolved through a complicated legal process. In all cases, it appears that the regulatory agencies and the dump site owner (or former owner) negotiate a legally binding settlement agreement. The process is lengthy and cumbersome.

See Appendix II for discussion of the legal actions for specific U.S. point and non-point sources.

U.S. Surveillance and Monitoring Efforts

NYDEC depends primarily on a self-monitoring system in which dischargers are required to provide monthly reports against permit requirements. The occasional spot check is done by the State to check these reports.

U.S. EPA carries out surveillance activities in Lake Ontario and the Niagara River in accordance with the IJC's Great Lakes International Surveillance Plan, (GLISP). Lake Ontario and the Niagara River are extensively studied every 7-8 years.

Canadian Water Pollution Control

Point and non-point sources in Ontario are regulated under The Ontario Water Resources Act and The Environmental Protection Act.

1. Ontario Water Resources Act (OWRA)

The OWRA gives the Minister of the Environment supervision of all surface and ground water in the province. He may examine all waters from time to time to determine whether pollution exists and its causes.

Major water uses, requiring more than 10,000 gallons per day, are regulated by a permit system. The Director can prohibit use without a permit in circumstances where other public or private water uses are affected. This gives the Director authority to determine precedence and priorities among users.

The basic water pollution prohibition is Section 32. Every person or municipality that discharges or deposits or permits the discharge or deposit of any material in or near any waters that may impair the quality of such waters is guilty of an offence. Each day of continued contravention is a separate offence. Under Section 30 water quality is deemed to be impaired if, notwithstanding that water quality is not or may not be impaired, material deposited does or may cause injury to any person or animal as a result of the use or consumption of any plant, fish or other living thing in the water. The prohibition in Section 32 does not apply to discharges from sewage works that have been constructed and operated in accordance with an approval granted by the Director.

Any person or municipality contemplating establishment of any water works or sewage works must submit plans, specifications and an engineer's report to the Director for review and approval. Approval may be issued subject to appropriate terms and conditions. Failure to comply with the Director's orders or contravention of terms and conditions of approvals is an offence.

The Minister, subject to approval of the Lieutenant-Governor in Council, is given extensive regulation-making powers. Detailed guidelines and water quality criteria for a number of specific uses were published by the Ministry in 1978.* The Provincial Water Quality Objectives are a set of narrative and numerical criteria designed for the protection of aquatic life and recreation in and on the water. They represent a desirable level of water quality that the Ministry strives to maintain in surface waters of the Province and they are often the starting point in deriving waste effluent requirements.

The Province has agreed that the revised Specific Water Quality Objectives contained in the Great Lakes Water Quality Agreement shall be used in environmental programs to achieve and maintain Great Lakes water quality. Under the Canada-Ontario Accord (COA), Ontario will establish and enforce effluent requirements for specific industrial groups and pollutants, to be developed by the Federal Government in consultation with the provinces.

* ("Water Management - Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment," Ministry of the Environment, November 1978.)

2. Environmental Protection Act

The main offence under Section 14 of The Environmental Protection Act, which prohibits the deposit, discharge, addition or emission of any contaminant into the natural environment, is applicable to contaminants deposited in water. "Contaminant" includes any solid, liquid, gas, odour, heat, sound, vibration, radiation or combination of them, and is defined functionally in terms of "impair(ment of) the quality of the natural environment for any use that can be made of it", injury or damage to property, plants or animals, and effect on human comfort, health and safety.

The Director has the power to issue a Control Order upon finding that Section 14 has been contravened. Control Orders may limit the rate of discharge or emission of contaminants, or stop contaminant discharge or emission permanently, for a specified period or in specified circumstances. The primary regulatory tool used by the Ministry is the Control Order.

The Director may issue a stop order when, upon reasonable and probable grounds, he is of the opinion that a contaminant source constitutes an immediate danger to human life, the health of persons or to property. The order must be complied with immediately upon service.

Canadian Monitoring and Surveillance Efforts

Ontario

The Ontario Ministry of the Environment (MOE) undertakes intensive monitoring of all water intakes. In addition, water quality surveys of the Niagara River are carried out on an annual basis.

The following is a brief summary of the MOE 1980/81 Niagara River programs and its proposed 1981/82 studies:

1. Bacteria/Phenol Study

Four surveys were conducted in 1980 to update information on bacteria and phenol levels in surface waters in the upper and lower reaches of the Niagara River. Samples were also taken for PCBs, organochlorine, pesticides, arsenic, cyanide and heavy metals analysis.

2. Young-of-the-Year Fish Monitoring

Collection of young-of-the-year spottail shiners from the Niagara River continued in 1980. Samples evaluated for PCBs, mirex, mercury, chlordane, HCB, BHC and styrenes. Program will continue in 1981/82.

3. Clam Biomonitoring Study

Preliminary studies indicate that clams are useful in pinpointing sources of organics such as PCBs and certain organochlorine pesticides as well as in the study of uptake rates of these compounds. Study likely to be continued in 1981/82.

4. Drinking Water Quality Monitoring

Sampling of Niagara River water on approximately a monthly basis near Fort Erie and at the Niagara Falls and Niagara-on-the-Lake water treatment plants. Samples analyzed for PCBs, organochlorine pesticides and volatile organics such as aromatics and halogenated aliphatics. Intensive sampling carried out for three days in November 1980. Program will continue in 1981/82.

5. Niagara River Input Sampling

In accordance with the COA Review Board's Baseline Report, a survey of Ontario inputs into the Niagara River is underway. Samples from both the industrial and municipal (STPs and combined sewers) inputs will be analyzed for a broad range of parameters, including heavy metals, PCBs, pesticides, and other organics. Further work in 1981/82 is dependent on these results.

Canada

Environment Canada (DOE) also undertakes analyses of suspended sediments and sediments of the River in accordance with the IJC's Great Lakes International Surveillance Plan.

Fish analyses are also carried out by DOE and Fisheries and Oceans Canada.

DOE's involvement in the Niagara Frontier in 1979 consisted of the following four major projects:

1. Daily water sampling at Niagara-on-the-Lake for the purpose of estimating chemical loadings to Lake Ontario.
2. Weekly sampling of suspended sediments at Niagara-on-the-Lake for the purpose of identifying new and developing problems, such as organic contaminants.
3. Conducting eleven chemical surveys on the Upper Niagara River to characterize the chemical character of the outflow of Lake Erie for input into Lake Erie intensive surveillance.

4. Developing a portable sampling device which is capable of simultaneously collecting sediment and water samples for organic contaminants.

Only three of the four projects were continued during 1980. Project #3 was deleted because 1979 was the final year for intensive surveillance of Lake Erie.

The following is a brief summary of ongoing and proposed surveillance activities by DOE on the Niagara River.

1980-81 Activities

1. Weekly suspended sediment samples collected at Niagara-on-the Lake (composited biweekly) for analysis of PCBs, organochlorines and chlorobenzene.
2. Quarterly composites of suspended sediments for GC/MS scan analysis.
3. Ten consecutive days continuous sampling of suspended sediments in November 1980. Samples analyzed for:
 - i) PCBs, organochlorines, chlorobenzenes, PAHs, phthalates and trace metals;
 - ii) dioxins on two samples;
 - iii) GC/MS scans for new compounds
Portions of samples stored (archived) for future analyses.
4. Daily water samples collected at Niagara-on-the-Lake for nutrients. Weekly samples for major ions, trace metals, PCBs and organochlorines.
5. At the invitation of NYDEC, batch analysis of SCA samples prior to effluent discharge. Batch sampling was repeated in the spring.
6. A major research effort is being undertaken by the National Water Research Institute in Lake Ontario at the mouth of the Niagara River. These activities are focused on gaining specific knowledge on environmental pathways of contaminants primarily in sediments.

1981-1982 Activities

1. Continuation of (1), (2), and (4) above.
2. Monthly large water volume extracts from Niagara-on-the-Lake for PCBs, organochlorines, chlorobenzenes, PAHs and phthalates.
3. Toxic contaminants surveillance of the Upper and Lower Niagara River:
 - i) Thirty large water volume extracts and bottom sediment samples and about six suspended samples for analysis of PCBs, organochlorines, PAHs, chlorobenzenes, phthalates, trace metals (not on suspended sediments);
 - ii) From either bottom or suspended sediment samples (depending on amount of sample), a total of five samples for dioxin analysis and ten for GC/MS scans.
4. Sampling of SCA effluent batches prior to discharge in co-operation with NYDEC.
5. Invitation to sample wastewater treatment plant effluent from Niagara Falls, New York.

Since 1979, with the increased concern for the Niagara River, both MOE and DOE have increased their monitoring and surveillance of the River over and above that which is required by GLISP such that the River is now considered the most intensively monitored area in the Great Lakes System.

Other Canadian Actions

Since December, 1979, Canada has sent 4 Diplomatic Notes to the U.S. Government on SCA, the Niagara Falls Sewage Treatment Plant and the general condition of the Niagara River.* These notes have made reference to Article IV of the Boundary Waters Treaty of 1909 and have asked the U.S. for assurance that the Article would be respected. Such assurances were received.

In addition, the Minister has spoken to the Administrator of U.S. EPA on SCA and the NFSTP on several occasions in the spring and summer of 1980.

* (See Table III for a summary of the diplomatic notes concerning the Niagara River. Refer to Appendix IV for detailed information.)

In July 1980, Canada and Ontario issued a Niagara River Environmental Baseline Report summarizing the environmental quality of the Niagara River System. The report summarized all data collected between 1975-1979. The report is being updated at present.

In August 1980, DOE published a review of the proposed SCA discharge to the Niagara River. The review was based on the scientific and technical feasibility of the discharge and concluded that no appreciable damage would occur to the Niagara River water quality.

Environment Canada officials met U.S. EPA and NY DEC officials in February, April and October of 1980, to specifically discuss SCA, NFSTP and the state of the Niagara River. These discussions resulted in the formation of the Niagara River Toxic Committee (DOE, MOE, NYDEC and U.S. EPA), which is responsible for identifying specific pollution sources to the Niagara River, recommending remedial programs, and developing and implementing a joint surveillance program. The Committee has met several times and is presently finalizing a co-ordinated work plan, of which some parts have already been implemented. The work of the Committee is expected to extend for 2 years.

In addition, to these activities, Environment Canada, Ontario Region, specifically the Environmental Protection Service (EPS) and the Inland Waters Directorate, (IWD) has devoted a significant amount of time maintaining a watching brief of the various issues of the Niagara Frontier. For instance, on SCA, EPS staff have not only conducted an indepth technical/scientific review of the pipeline and its discharge to the river, but they have also tracked the progress of the permit process and the several legal cases involving SCA. EPS has also analyzed samples of the proposed discharge. IWD has maintained a survey crew on stand-by specifically to take water samples for analysis during the actual discharge. With regard to the NFSTP, EPS staff have had to persist in trying to get information on the quality of effluent and finally have had to offer to analyze samples for NFSTP in order to get the information. In summary, Environment Canada has had to invest an extraordinary amount of time and resources to maintain a questionably effective watching brief on the progress of these issues. This speaks to the failure of the U.S. to keep us informed through "proper channels" as they have assured us in their responses to our diplomatic notes.

V. Conclusions and Recommendations

A) Conclusions

1. The magnitude of the total U.S. point-source discharge exceeds the total Canadian discharge by more than 2 billion liters per day. In addition, there is actual and/or potential leakage from the numerous dump sites into the Niagara River. We already know about 4 sites and fully expect there will be more disclosed in the future.
2. Our scientific information on environmental quality indicates that contaminants are getting into the Niagara River and the Lake Ontario Ecosystem, therefore we have "de facto" transboundary pollution.
3. Responding to individual issues will not significantly alter the continuing larger problem of the wide-spread contamination of the total river system and the Lake. We run the risk of being "nickeled and dimed" to death in addressing each of these individual issues.
4. We are at a point in the Niagara River contamination issue where we have just about exhausted the range of actions that can be effectively taken bureaucratically with present resources. The problem is rapidly evolving into a major public issue, which will centre on the U.S. contamination of Lake Ontario which supplies the drinking water for millions of Canadians.
5. Faced with this issue the federal government will be expected to react in a very positive and forceful manner.

B) Recommendations

a) Recognition of the Occurrence of Transboundary Pollution in the Niagara River and Lake Ontario

"De facto" transboundary pollution of the Niagara River and Lake Ontario must be recognized by the U.S. as a major issue. The purpose of this "formal" recognition is to place the U.S. in a position of having to place more priority on remedial measures in the Niagara Frontier because of its contribution to transboundary pollution. This can, in part, be achieved by having the IJC - Water Quality Board and Science Advisory Board review existing information and come to that conclusion in time for the Commission's

annual meeting in November of this year. On the basis of this pronouncement the United States will be under greater pressure to recognize the problem and to respond appropriately to it.

b) Development and Implementation of Remedial Measures

The Niagara River Toxics Committee's Work Plan should be incorporated into the Canada/U.S. Great Lakes Water quality Agreement. The Committee's functions include identifying all sources of contaminants to the Niagara River, recommending remedial programs, and co-ordinating the development and implementation of surveillance programs to monitor the progress of remedial works. The IJC under its standing reference could monitor the progress of the remedial program.

c) Strengthen the Watching Brief, Indirect Intervention and Bilateral Communication

i) Watching Brief

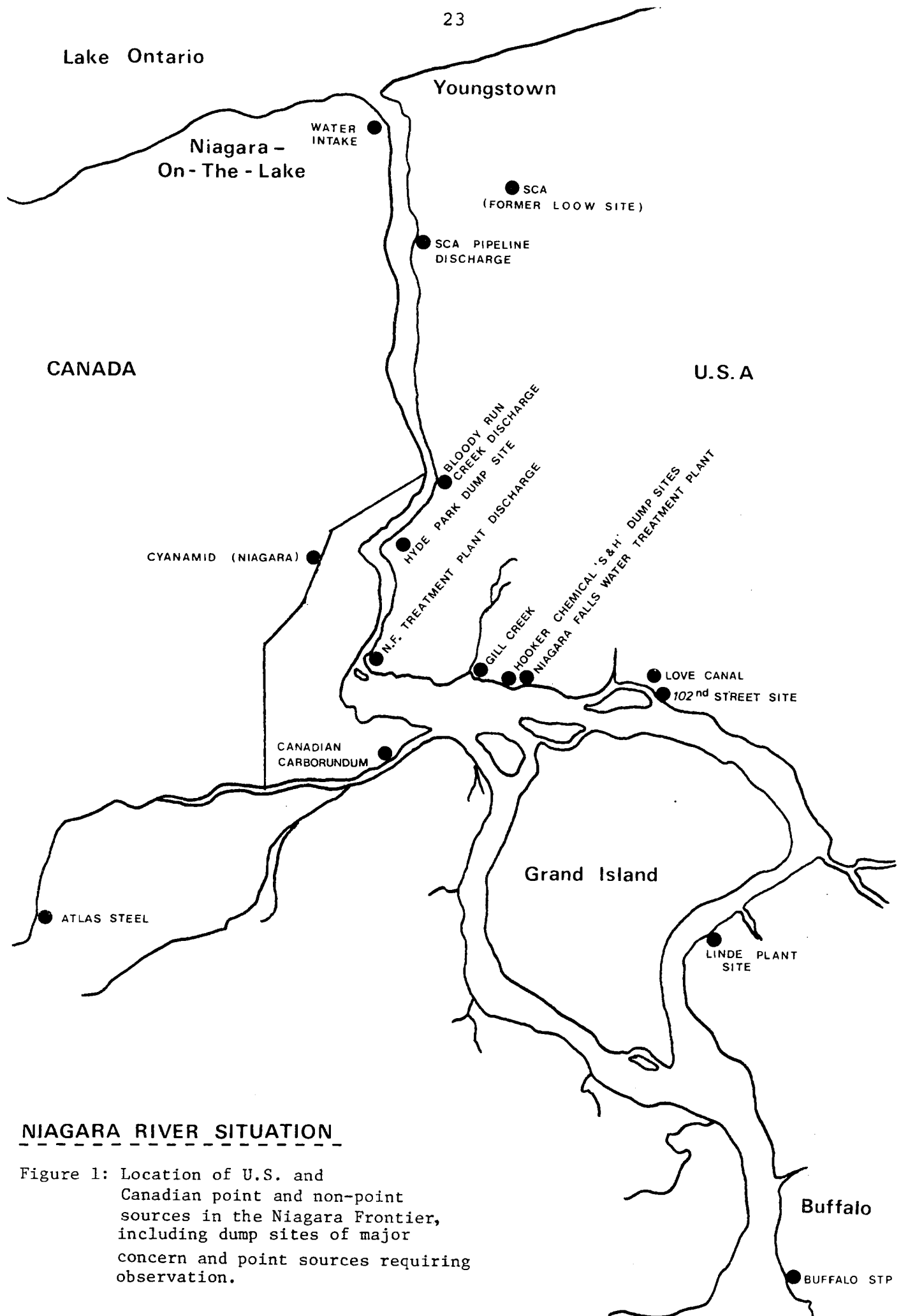
Environment Canada, Ontario Region will have to strengthen its watching brief of the pollution problems/public issues that are occurring and will occur on the U.S. side of the Niagara River. Present resources will not be adequate because of the number and complexity, (political, scientific, technical, and legal) of these issues. Our experience is that each element of the issue is extremely demanding, in both time and expertise, and another four professionals and a support individual would be necessary to do the job properly.

ii) Increased Bilateral Communication

Diplomatic Notes taken alone have had relatively little impact on the approach taken by U.S. control agencies. These notes and the actions of Ministers will be rendered vulnerable in the public mind if they continue to evoke the relatively non-committal responses which have been given to date. The notes merely raise Canadian concerns and ask for assurances that the U.S. will respect the Boundary Waters Treaty of 1909. In the future, these notes should express Canadian views on proposed and existing U.S. discharges (ie. comments on impact statements, permit applications). Channelling Canadian views in this manner, would alleviate the concern of having Canadian agencies participate directly in the U.S. regulatory/administrative processes.

iii) Indirect Intervention

It is in the interest of Canadians to bring to the attention of the U.S. regulatory agencies the potential transboundary pollution effects of all major U.S. discharges. In light of the variety of administrative and legal procedures of the U.S. EPA and NYDEC in issuing permits and in developing settlement agreements vis-a-vis individual discharges, this would be an onerous task. Environment Canada has recently given scientific and technical assistance to Pollution Probe and Operation Clean, who have attained status as "friend of the court" to bring forward pertinent environmental information on the potential impact of the Hyde Park Dump Site Settlement. Pollution Probe and Operation Clean would like to see a more stringent set of required remedial measures. It is conceivable that additional Canadian groups could intervene or participate in public hearings associated with the various permit systems for new or modified facilities, with DOE technical support.



NIAGARA RIVER SITUATION

Figure 1: Location of U.S. and Canadian point and non-point sources in the Niagara Frontier, including dump sites of major concern and point sources requiring observation.

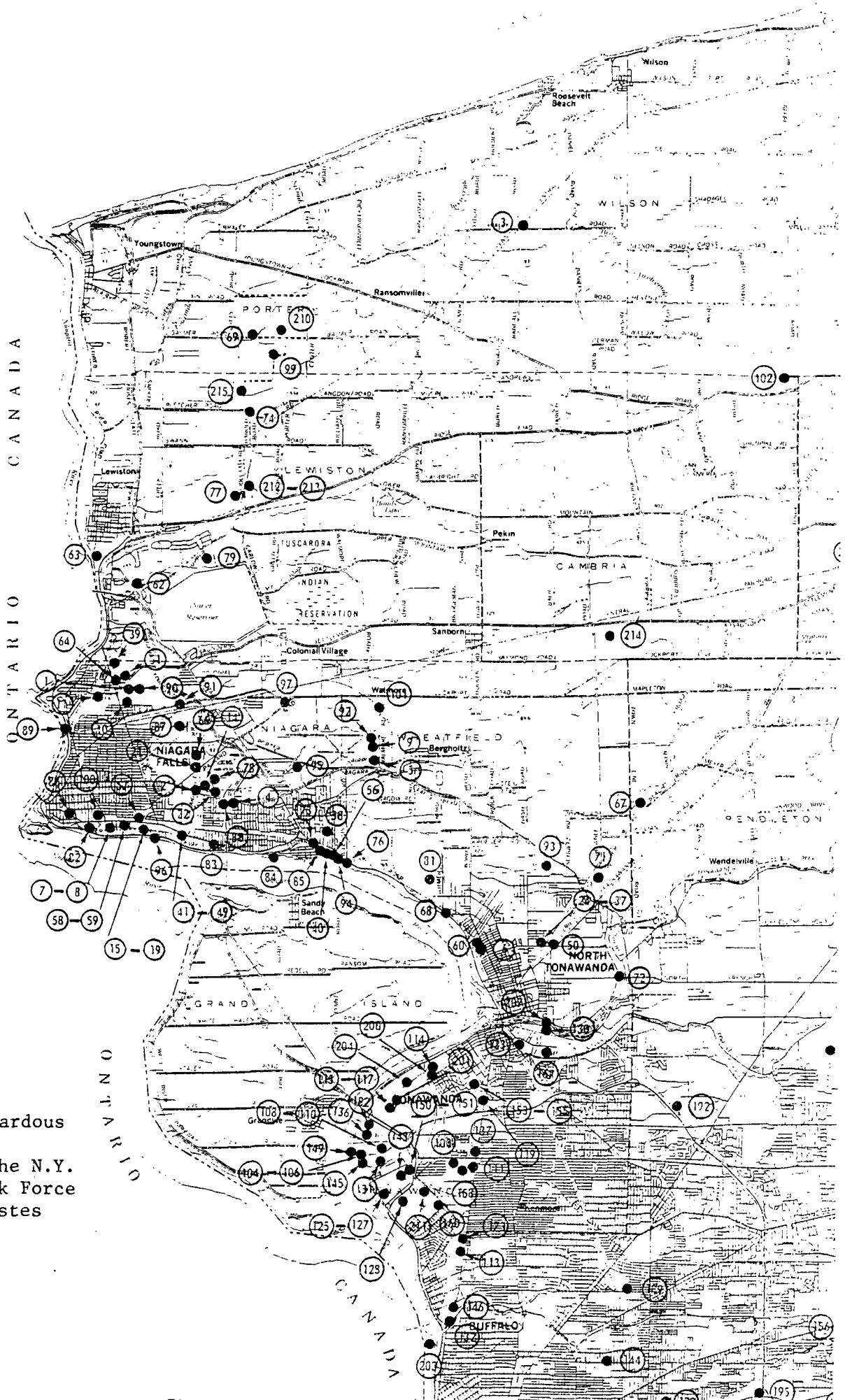


Figure 2

Potentially Hazardous
Dump sites as
identified by the N.Y.
Interagency Task Force
on Hazardous Wastes

KEY TO TASK FORCE HAZARDOUS WASTE DISPOSAL
SITE IDENTIFICATION

Priority 1 - definitely received large quantities of hazardous wastes.

Priority 2 - may have received significant quantities of hazardous wastes.

Priority 3 - unlikely to have received significant quantities of hazardous wastes.

* - operational.

<u>SITE NUMBER</u>	<u>PRIORITY</u>	<u>NAME AND LOCATION</u>
1	2	Airco Alloys, Witner Rd., N.F.
2	2	Airco Speer Carbon, Pacard Rd., NF
3	2	Allied Chemical, Ransomville
4	2	Basic Carbon, Connecting Rd., N.F.
5	2	Bell Aerospace, Route 62, N.F.
6	3	Buffalo Pumps Div., Oliver St., North Tonawanda
7	2	Carborundum, Bldg. 89, Buffalo Ave., N.F.
8	3	Carborundum, Bldg. 82, Buffalo Ave., N.F.
9	2	Carborundum, Walmore Rd., Wheatfield
10	3	Carborundum, Hyde Park Blvd., N.F.
11	3	Chisholm - Ryder Co., College Ave., N.F.
14	1	Dupont, Necco Park, N.F.
15	1	Dupont, West Yard, N.F.
16	1	Dupont, Bldg. 301, N.F.
17	1	Dupont, Bldg. 117, N.F.
18	2	Dupont, S. Boundary, N.F.
19	2	Dupont, Hyde Park Blvd., N.F.
21	2	Frontier Bronze, Packard Rd., N.F.
22	2	Great Lakes Carbon, Pine Ave., N.F.
24	1	Hooker Durez, Plant Site 1, N. Tonawanda
25	1	Hooker Durez, Plant Site 2, N. Tonawanda
26	1	Hooker Durez, Plant Site 3, N. Tonawanda
27	1	Hooker Durez, Plant Site 4, N. Tonawanda
28	1	Hooker Durez, Plant Site 5, N. Tonawanda
29	1	Hooker Durez, Plant Site 6, N. Tonawanda
30	1	Hooker Durez, Plant Site 7, N. Tonawanda
31	1	Hooker Durez, Plant Site 8, N. Tonawanda
32	1	Hooker Durez, Plant Site 9, N. Tonawanda
33	1	Hooker Durez, Plant Site 10, N. Tonawanda
34	1	Hooker Durez, Plant Site 11, N. Tonawanda
35	1	Hooker Durez, Plant Site 12, N. Tonawanda
36	1	Hooker Durez, Plant Site 13, N. Tonawanda
37	1	Hooker Durez, Plant Site 14, N. Tonawanda

<u>SITE NUMBER</u>	<u>PRIORITY</u>	<u>NAME AND LOCATION</u>
38	1	Hooker, Love Canal, N.F.
39	1	Hooker, Hyde Park, N.F.
40	1	Hooker, 102nd Street, N.F.
41	1	Hooker, S and N Areas, N.F.
42	1	Hooker, D Area, N.F.
43	1	Hooker, F Area, N.F.
44	1	Hooker, V-80 Area, N.F.
45	1	Hooker, V-56 Area, N.F.
46	2	Hooker, V-64 Area, N.F.
47	1	Hooker, U Area, N.F.
48	2	Hooker, W 107 Area, N.F.
49	1	Hooker, Bldgs. D-11 and D-21
50	3	Niagara Grinding Wheel, Walck Rd., North Tonawanda
51	1	NL Industries, Hyde Park Blvd., N.F.
56	1	Olin, 102nd Street, N.F.
57	2	Olin, Ind. Welding Corp., N.F.
58	2	Olin, Buffalo Ave., N.F. (Parking Lot)
59	2	Olin, Buffalo Ave., N.F.
60	2	Roblin Steel, East Ave., N. Tonawanda
62	2	Stauffer Chem., Upper Mtn. Rd., Lewiston
63	2	Stauffer Chem., Artpark, Lewiston
64	3	Union Carbide, Hyde Park Blvd., N.F.
66	2	Vancum Chemical, Packard Rd., N.F.
67	1	Frontier Chemical, Pendleton
68	2	Gratwick Park, River Rd., N. Tonawanda
69	3	J.T. Salvage, Balmer Rd., Youngstown
71	2	Harvey Newman, Shawnee Rd., Wheatfield
72	2	Holiday Park, Walck Rd., N. Tonawanda
73	3	LaSalle Expressway, N.F.
74	2	Town of Lewiston, Harold Rd., Lewiston
76	2	Lynch Park, River Rd., Wheatfield
77	2	Modern Disposal Services, Model City
78	*	Newco Waste Services, N.F.
79	3	N.Y.S. Power Authority, Lewiston
81	1	Niagara Co. Refuse Disposal, Witmer Rd., Wheatfield
82	2	Adams Generating Plant, 13th St., N.F.
83	3	Buffalo Ave., 52-60th St., N.F.
84	2	Cayuga Island, N.F.
85	3	Griffon Park, N.f.
86	2	Hydraulic Canal, N.F.
87	3	New Road, N.F.
88	2	64th Street, N.F.
89	3	Whirlpool Site, N.F.
90	3	Witmer Road, N.F.
91	3	Town of Niagara, Lockport Road
92	2	Niagara Frontier Transport Auth., Wheatfield

<u>SITE NUMBER</u>	<u>PRIORITY</u>	<u>NAME AND LOCATION</u>
93	2	Nash Road Site, Wheatfield
94	3	Niagara River Site, River Rd., Wheatfield
95	3	Old Creek Bed, Porter Road, N.F.
96	2	Robert Moses Pkw., N.F.
97	2	Ross Steel, Pine Ave., N.F.
99	*	SCA, Porter
100	3	Silbergeld Junk Yd, 14th Street, N.F.
101	3	Walmore Road, Wheatfield
102	2	Wilson-Cambria-Newfane, Chestnut St., Wilson
103	3	R.P. Adams Co., East Park Dr., Buffalo
104	2	Allied Chemical Plastics, River Rd. Tonawanda
105	2	" "
106	2	" "
108	2	Allied Chemcial (Tonawanda Coke), River Rd.
109	2	" "
110	2	" "
111	2	Aluminum Metal Plate, Military Rd, Kenmore
113	3	Anaconda Co., Military Rd., Buffalo
114	2	Ashland Petroleum, River Rd., Tonawanda
115	3	" "
116	3	" "
117	2	" "
119	2	Bisonite, Military Rd, Tonawanda
123	3	Columbus-McKinnon, Fremont St., Tonawanda
125	2	Dunlop Tire & Rubber, Sheridan Drive Tonawanda
126	2	" "
127	2	" "
128	2	Dupont, River Rd., Tonawanda
129	2	Ernest Steel Corp., Walden Avenue Cheektowaga
130	2	Exolon Corp., E. Niagara St., Tonawanda
131	2	FMC, Sawyer St., Tonawanda
132	3	Fedders Automotive, Tonawanda St., Buffalo
136	2	INS Equipment, River Rd., Tonawanda
137	3	Lucidol Div., River Rd., Tonawanda
143	2	O-Cel-O Products, Sawyer Ave., Tonawanda
144	2	Otis Elevators, Dutton Ave., Buffalo
145	2	Polymer Applications, River Road, Tonawanda
146	2	Pratt and Lotchworth, Buffalo
149	2	Roblin Steel, River Rd., Tonawanda
150	2	Shanco Plastics, Kenmore Ave., Tonawanda
151	2	" "

<u>SITE NUMBER</u>	<u>PRIORITY</u>	<u>NAME AND LOCATION</u>
153	2	Spalding Fiber, Wheeler St., Tonawanda
154	2	" "
155	2	" "
158	1	Union Carbide Linde, East Park Drive, Tonawanda
160	2	J.H. Williams, Valcan St., Buffalo
167	2	Chemical Leaman Tank Lines, Tonawanda
173	3	Empire Waste, Skillen Road, Buffalo
182	2	Huntley Power Stn., Tonawanda
189	3	LaSalle Reservoir, Park Ridge St., Buffalo
192	3	Morris and Reiman Wrecking, Rensch Road, Amherst
195	3	N.Y.S. Thruway Auth. Exit 52, Cheektowaga
201	2	Seaway Industrial Park, River Road, Tonawanda
203	2	Squaw Island, Buffalo
204	3	William Strassman, River Rd., Tonawanda
207	2	City of Tonawanda, Wales Avenue
208	3	Veterans Park, Niagara St., Tonawanda
210	2	Air Force Plant 38, Porter Rd., Porter
211	2	Air Force Plant 40, Kenmore Road, Tonawanda
212	1	Air Force Plant 68, Lutts Rd., Model City
213	2	" "
214	2	Lockport Air Force Base, Lockport
215	1	Lake Ontario Ordinance Works, Lewiston

APPENDIX I

SPDES PERMIT SUMMARIES

INDUSTRIAL

Company	Effective Date	Expiration Date	Organics Reported	FLOW (1979 AVERAGE)	
				LITERS/DAY	
Stauffer Chemical	Apr 01/79	Apr 01/84	1,1,1, TRCL	2.05 X 10 ⁵	
Union Carbide	Aug 01/79	Jun 30/81	-	1.51 X 10 ⁴	
Hooker Chemical	Jan 01/80	Mar 31/81	toluene, mirex, all halogenated organics, COD	4.25 X 10 ⁷	
Niagara Works	Jan 31/75	Jan 31/80	-	3.18 X 10 ⁷	
Industrial Plastics Div.	Feb 01/80	Mar 31/81	-	N/A	
CR Huntley Steam Stn.	Mar 31/75	Mar 30/81	-	N/A	
Ashland Petroleum	Oct 01/79	Sept 30/80	TOC	1.6 X 10 ⁷	
Industrial Chemical Div.	Aug 01/79	Mar 31/81	- COD	7.0 X 10 ⁷	
Specialty Chemical Div.	Apr 01/79	Mar 31/81	- COD	2.14 X 10 ⁷	
Hooker Durez Division	Oct 01/79	Mar 31/81	Trichlorobenzene, toluene, COD	2.29 X 10 ⁵	
Continental Group Inc.	Aug 31/75	Aug 31/80	-	7.73 X 10 ⁷	
Motor & Industrial Control Division	Dec 01/79	Jun 30/81	-	N/A	
Tonawanda Coke Cord	Nov 30/74	Nov 30/79	-	1.58 X 10 ⁷	

SPDES PERMIT SUMMARIES

INDUSTRIAL (Cont'd)

Company	Effective Date	Expiration Date	Organics Reported	FLOW (1979 AVERAGE)	
					LITERS/DAY
Robert Moses Niagara Power	Jun 01/78	Jun 01/83	-		6.36 X 10 ³
Buffalo Refinery	Oct 31/74	Oct 31/79	TOC, COD		8.73 X 10 ⁶
Chevrolet Motor Division	Oct 31/74	Oct 31/79	-		1.11 X 10 ⁸
FMC Corp.	Sept 01/79	Mar 31/81	-		3.91 X 10 ⁷
Yerks Plant Film Dept.	Apr 01/79	Mar 31/81	- COD		1.18 X 10 ⁷
Republic Steel Corp.	Dec 01/79	Sept 30/80	-		1.05 X 10 ⁸
Donner Hanna	Jul 01/79	Sept 30/80	phenols		
Ramco Steel Inc.	Mar 07/75	Mar 07/80	- COD		1.27 X 10 ⁵
Peavy Company	Oct 01/79	Oct 01/84	-		1.30 X 10 ⁵
Bldg CC-2, Buffalo Ave.	Nov 30/74	Nov 30/79	- COD		6.76 X 10 ⁵
Chemical Dye & Pigment Dept.	Sept 01/79	Mar 31/81	TOC, COD		8.65 X 10 ⁶
National Steel Buffalo	-	Sept 31/79	-		3.39 X 10 ⁷
Buffalo Colour Corp.	-	-	-		N/A
Lackawana Plant	-	-	-		N/A
SCA Chemical Waste Services	Apr 21/81		TOC, phenols, PCBs, halogenated hydro- carbons		3.78 X 10 ⁶
Buffalo Plant	Jan 31/75	Jan 31/80	-		8.50 X 10 ⁶
Dresser Transportation	Aug 01/79	Jun 30/81	phenol		2.08 X 10 ⁸

SPDES PERMIT SUMMARIES

MUNICIPAL

Company	FLOW		
	Effective Date	Expiration Date	Organics Reported (1979 AVERAGE) LITERS/DAY
Niagara Co. Sewer Dist. #1	Dec 31/74	Dec 31/79	- 3.38 x 10 ⁷
N.F. Wastewater T.P.	Jan 31/75	Jan 31/80	- 2.723 x 10 ⁸
Lackawana STP	Aug 08/79	Mar 01/84	- 3.06 x 10 ⁷
Tonawanda STP (C)	Jan 31/75	Jun 30/77	- 2.19 x 10 ⁷
Amherst #16 STP	Feb 28/75	Jun 30/77	- 1.05 x 10 ⁸
Tonawanda (T) STP	Jan 31/75	Jan 31/80	- 1.15 x 10 ⁸
Erie Co. Sewage #2	Jan 31/75	Jan 31/80	- 2.15 x 10 ⁷
N. Tonawanda (C) STP	Jul 31/75	Jul 31/80	- 3.83 x 10 ⁷
STP #2 (Grand Island)	Dec 31/75	Jun 30/77	- 3.69 x 10 ⁷
STP #1 (Grand Island)	Dec 31/75	Jun 30/77	- 4.96 x 10 ⁸
Bird Island WTP	Apr 30/75	Apr 30/80	- 6.92 x 10 ⁸
Lewiston STP	Apr 01/78	Apr 01/83	- 7.35 x 10 ⁸
Lewiston (LMSIA) STP	Apr 01/76	Apr 01/81	- 2.18 x 10 ⁷

APPENDIX II

BUFFALO STP

Buffalo's Bird Island wastewater treatment plant is the largest of its kind in N.Y. State designed to treat 180 million gallons per day. The plant was built at a cost of \$180 million dollars (66% Federal Funding) and opened in 1979, in an uncompleted, but operational state. Two more phases of construction are planned to completely finish off the plant.

Since opening day in 1979, the plant has experienced operational difficulties. A number of the problems have been traced back to interference of electronically controlled valves, but the causes of other problems are not fully understood.

The operational problems have resulted in organic contaminant and phosphate levels which are greatly in excess of Federal effluent standards. EPA is concerned that nearly 50% of the treatment plants which it has funded are not in compliance with effluent standards and it is clamping down on the enforcement of its regulations. EPA is therefore, under pressure to prosecute Buffalo, the largest plant in the state, for non-compliance.

Rather than proceeding with the legal action, EPA ordered the Buffalo Sewage Authority to give cause why they should be spared prosecution.

In response to this request, the Authority is now preparing a plan of action which will provide a diagnosis of the plant's operational problems, and suggest remedial action. It is not known when this plan will be completed.

CECOS INTERNATIONAL INC. (Newco)

CECOS International operates a chemical treatment facility and a large secure landfill operation within the City of Niagara Falls, N.Y.

CECOS applied for a State permit to expand an existing secure landfill site at its Pine Avenue/Packard Road facility in Niagara Falls, New York. It also applied for a permit to construct two new secure landfills. The existing site is used to dispose of the following types of chemical wastes: pseudometal compounds, heavy metals and their salts, flammable wastes and toxic organic contaminants, including PCB's.

CECOS also operates a liquid waste treatment facility at the site, with batch discharge of treated wastes to the Niagara Falls New York Sewage Treatment Plant. Batches are monitored for TOC, pH, and TOH (total organic halogen) before discharge.

NYDEC granted permission for the expansion of the existing secure landfill No. 3 with the requirement that all landfilled materials be fixed or solidified. However, it has denied permits for the construction of the two new landfills. To re-apply, the direction of groundwater flow in the area of the proposed landfills must be clarified; air monitoring concerns must be satisfied; additional information for a variance from the Part 360 provision requiring a 10 foot distance between groundwater and the landfill must be provided; and a detailed 10 year plan for development of the Pine Avenue site must also be submitted. The plan must address in detail CECOS's investigation and development of disposal alternatives (such as destruction, detoxification, recovery, reuse and exchange of wastes). It must also include a commitment to heighten management and technology and a demonstration of the financial capability of the firm to fulfill the 10 year plan.

GILL CREEK

Gill Creek flows from its waters at Hyde Park Lake through the properties of Olin Chemical and E.I. DuPont en route to the Niagara River.

Sediment contamination has been detected adjacent to and downstream from both chemical companies.

PCB, chlorinated ethylene and ethane contamination has been linked with DuPont discharges into the Creek. PCB contamination of sediments is understood to be in the percent range.

DuPont submitted a remedial action plan to the DEC for the segment of the creek south of the Olin Property line to the Niagara River. The details of the plan were finalized following negotiations with NYDEC.

The shortage of secure landfill space for the disposal of the dredge spoil has delayed implementations of the plan until late summer of 1981. A projected completion date is November 1981.

The Olin Chemical Corporation has been linked with lindane contamination stemming from its manufacturing activities prior to 1956.

Olin voluntarily consented to a dredging clean-up program of the contaminated sediments adjacent to their property. The program commenced on March 18, 1981 and was completed on April 13th.

HOOKER'S 'S' AREA

The 'S' area disposal site or 'river dump' is located in the Southeast corner of Hooker's Niagara Falls Plant property. The site is approximately 200 yards from the Niagara Falls Water Treatment Plant to the east and a similar distance to the Niagara River to the south.

The water table is approximately four feet below the existing grade, but is subject to fluctuations due to changes in the level of the River.

Hooker acquired the area in 1947 and used it until 1975 as a disposal site, mainly for bulk liquids. About 74,000 Tons of liquids (including chlorobenzenes, phenol tars, C-56, and chloride compounds) were deposited over the life of the site.

The major health and environmental problems associated with the 'S' area are the (a) leaching of wastes to the Niagara River and (b) the impacts of the wastes on the Niagara Falls Water Treatment Plant.

It is thought that leaching to the River occurs because of the porous nature of the fill at the 'S' area, the high water table and fluctuations in the River's level.

The movement of the leachate, toward the Water Treatment Plant is more complex. It is thought that the heavy organic fraction of the leachate flows by gravity along the geological bedding planes to the south under the river where it enters the intake tunnel of the water treatment plant. Tests by the New York State Department of Health indicate that levels of all contaminants present in the treated drinking water fall within acceptable ranges.

Hooker has installed 140 monitoring wells around the site to get a better understanding of the situation.

EPA, DEC and Hooker are currently negotiating a settlement as part of DEC's legal actions. The exact type of remedial action planned is not yet known. However, it is thought that it will likely involve containment of the leachate with an impermeable material and collecting the leachate and treating it. Negotiations are not expected to be complete until late 1981.

HOOKER AND OLIN 102ND STREET SITES

The Hooker owned 102nd Street disposal site is located on Buffalo Avenue in Niagara Falls immediately on the banks of the Niagara River. An adjacent site is owned by the Olin Corporation. Hooker used this site from prior to 1943 until 1971.

The site has had a history of health and environmental problems: prior to the placing of additional soil cover at the site, children were known to handle BHC cake. Fires and explosions were caused by the mixture of phosphorus and chlorate wastes at the site.

Various problems have resulted from the leaking of wastes from the site into the Niagara River and the potential consequent contamination of drinking waters taken from the River. In addition, the overall integrity of the site has been questioned. In 1970, the Army Corps of Engineers issued an order to Hooker to cease operations, cover the sites with clay soil and erect a bulkhead. This closure design was directed in part to control leachate, but the primary thrust of the design was to prevent the wastes from being washed away by the River.

Hooker conducted a hydrogeological and water quality investigation of the site in 1977. NYDEC reviewed the report and requested additional data and information. Monitoring wells have been placed at the site and analysis of samples taken from these wells show contamination. The amount of leachate generation from the Olin site has been estimated to be in the order of 1.4 million gallons per day. Additional remedial work is needed at the sites in order to ensure the protection of the Niagara River from migrating chemicals. In addition, any such program must involve long-term monitoring and maintenance in order to establish the effectiveness and integrity of such a control program.

An agreement will be negotiated with Hooker when negotiations for the Hyde Park and "S" areas are completed. The 102nd Street site is a lower priority because there is less threat to human health in the immediate area.

Negotiations with Olin are expected to follow those on the Hooker owned site.

HYDE PARK

The 15 acre Hyde Park Disposal Site was used by Hooker Chemical between 1953 and 1974 following the closure of their Love Canal disposal site. It is estimated that 80,000 tons of chemicals were deposited over the 21-year life of the site, including at least 264 pounds of tetrachlorodibenzodioxins (TCDD).

Surface drainage from the site follows Bloody Run Creek to the Niagara River. Subsurface water movement occurs through the vertical fractures and horizontal bedding plains of the Lockport Dolomite formation. Waste chemicals buried in the site are in direct contact with this bedrock formation.

The discovery of chemical residues in the sediment of Bloody Run Creek prompted the installation of a leachate collection system in 1972/73. In 1978/79 the leachate collection system was improved, the clay cap renovated and a carbon filter was added to pre-treat the collected leachate before discharge to the Niagara Falls Sewage Treatment Plant. Additionally, three water sampling stations, each consisting of three test wells were installed to monitor groundwater movement.

In 1979 the United States Government filed a legal suit against Hooker Chemical for a permanent injunction which would require Hooker to install monitoring equipment, install grout curtains down to bedrock, clean-up Bloody Run Creek and generally maintain the site in perpetuity.

This legal action became bogged down in the courts, and the two parties sought an out of court settlement. In January, 1981, a detailed agreement was reached between the two parties. However, before the agreement comes into force, it must be ratified by a U.S. Judge who was originally handling the case. The Judge is presently considering this decision.

In early May, two Canadian Public interest groups (Pollution Probe and Operation Clean Niagara) concerned with the impacts of the Hyde Park Site on the Niagara River and Lake Ontario held a press conference to make their viewpoints known. They charged that Hooker's liability for the perpetual care of the site was "appallingly inadequate". Specifically, the groups felt that the appropriateness and viability of the proposed containment technology, and the duration and financial obligation placed on Hooker were not acceptable to the well being of the people of Canada.

The groups pressed the Department of the Environment to intervene in the United States Court to argue for a more acceptable agreement. Instead, Probe and Operation Clean, in attaining amicus curiae (friend of the court) standing in the U.S. District Court, have been offered technical and

scientific support by DOE in preparing their case.

The groups have until June 30 to review the settlement document and submit specific comments to the court. EPS Ontario Region has submitted technical comments on the proposed settlement to the groups for their use.

(See Appendix II for additional information on Pollution Probe, Operation Clean and other citizens' groups concerned with the pollution of the Niagara River.)

LAKE ONTARIO ORDNANCE WORKS (LOOW)

The wartime operation by Army Ordnance of a TNT plant at the LOOW, a 7,500 acre plot located in the Towns of Porter and Lewiston in western New York, eight miles north of Love Canal, resulted in the contamination of part of the plant's surface area and a vast network of underground waste lines with TNT wastes and residues. The land on which the TNT plant once stood was sold to private owners and part of the site is now occupied by SCA which uses it as a landfill and treatment facility for toxic chemical wastes.

A section of the LOOW site was used as a storage and disposal center for radioactive materials and wastes from the Manhattan Project and subsequent atomic research and weapons production programs. Parts of the former LOOW site have been repeatedly surveyed and it is the subject of a federal "remedial action" plan. The precise extent of the contamination on and off the site has yet to be fully determined.

The Assembly Task Force on Toxic Substances in its report released on January 29, 1981, recommended that any new construction and excavation by SCA in the area should be suspended until a definitive determination was made as to the present hazards posed by residual TNT contamination. It recommended that the Department of Defense and the EPA should perform an extensive survey of the on and off-site contamination at the LOOW. The Task Force also recommended that the present use of a portion of the LOOW site (now designated the Niagara Falls Storage Site) for the storage and disposal of radioactive materials and wastes should be discontinued.

Citizens Against Pollution presented demands to state assembly men who were discussing the Task Force report on the U.S. Army's failure to decontaminate the TNT plant at the LOOW. It requested a long-range program be planned until the SCA operation on the site was decontaminated. (See Appendix II for a discussion of Citizens' Groups.)

The SCA Phase II hearing officer had at one time considered re-opening SCA's hearings to consider the Assembly Task Force evidence and determine its significance to SCA. All parties of interest in the SCA hearings, including those in opposition withdrew their objections after the evidence had been considered.

The TNT issue is not an environmental or health problem. The material is virtually insoluble in water, it is subject to biological degradation, and it is further stabilized when saturated with water.

LINDE AIR PRODUCTS COMPANY AND THE HAIST PROPERTY

Shallow underground wells located beneath the Linde Air Products Company site in Tonawanda, N.Y. were used by the U.S. Army's Manhattan Project, in 1944 through 1946, to dispose of over 37 million gallons of radioactively contaminated chemical wastes. The wastes emanated from the first stage of a uranium refining process which Linde operated for the Manhattan Engineering District (MED) at its "Ceramics Plant", under MED's direct supervision. No analysis or monitoring of the Linde wells or of related chemical contamination in the surrounding ground and well water is known to have been conducted.

A second stage of the uranium refining process produced uranium ore sludges, 16 million pounds of which were disposed of at a ten-acre site known as the Haist Property. The property was sold in 1960 to the Ashland Oil Company, which constructed an oil tank farm over the disposal area. A 1976 U.S. Department of Energy (DOE) radiological survey indicated the presence of low level radioactive contamination in the soil which was deemed not to "pose an immediate health hazard" as long as the site's present limited use continued. A later (1978) DOE study concluded that since the site was located in an industrial area of low population density few people were put at risk. DOE also concluded that some form of remedial action may be required at the site.

The Assembly Task Force on Toxic Substances, in its report released on January 29, 1981, recommended that the Departments of Energy and Defense and the EPA should conduct a study of the impact of the disposal of radioactively contaminated chemical wastes in underground wells located on the Linde property.

LOVE CANAL

This 16 acre site is probably the best known in the Niagara area, but it is by no means the most serious in terms of Niagara River contamination. Love Canal developed into more of a local health issue than a broader environmental quality one.

The problem of leachate migration onto the neighbouring properties first became evident in 1976. Construction of a leachate collection system started in November, 1978 and was completed in 1979. The collected leachate is treated with carbon filters and the effluent is discharged to the Niagara Falls STP.

Following months of negotiations, and bitter confrontations in October, 1980, the Federal Government allocated \$20 million to permanently relocate 750 families living in the vicinity of the Canal. Studies of the health effects of the contaminant migration on local residents failed to conclusively link chromosome and neural dysfunctions with the Canal. A definitive study scheduled to begin in April, 1981, was abandoned as a result of funding problems.

In August 1980, Dioxin (TCDD) was detected in a storm sewer directly south of the site and in fish from nearby Black Creek. The extent of the contamination is now being investigated.

NIAGARA FALLS, NEW YORK, SEWAGE TREATMENT PLANT

The City of Niagara Falls, New York owns and operates a wastewater treatment facility designed to process both industrial and domestic wastewater. Since it began operating in December 1977, the plant has experienced serious operational problems involving its carbon adsorption beds. In July, 1978 the beds were completely taken out of service.

A design for the reconstruction of the carbon beds was submitted by Camp Dresser McKee. However, before EPA would commit itself to financial assistance of the project it requested an investigative study of the bed failure and of responsibility for that failure. This study was recently completed by Gore and Storrie of Toronto and submitted to the City of Niagara Falls. Comments are also expected from EPA and NYDEC. A final decision on the report's recommendations is expected shortly.

The carbon beds were originally designed to act as the entire secondary treatment stage. Without the beds, the domestic and industrial wastes carried to the facility are discharged to the Niagara River without the extent of treatment required by the operating permit.

The City permitted industrial contributors to introduce wastewater into the facility in substantial excess of the limitations under the City's Industrial Waste Ordinance. On August 2, 1980, the City and NYDEC signed a consent order which provided that the City would take legal action to enforce compliance with the City's Industrial Waste Ordinance.

The non-compliance of the plant effluent prompted the EPA and DEC to file a complaint against the City of Niagara Falls in the U.S. District Court on May 6, 1981.

The remedy sought is a permanent injunction to prohibit the city from violating the terms of its discharge permit. Judicial relief is also sought to prohibit any new industrial connections, to expediently repair the carbon beds, and to terminate the raw influent by-pass (about 12 million gallons per day of wastewater are discharged directly to the Niagara River, without treatment, due to a miscalculation of expected flows).

The State made an ancillary claim that there had been a violation of the consent order under the Environmental Conservation Law.

Regardless of the court's decision, the plant will not be fully operational for at least two years after the first day of remedial work has begun.

In early May, EPS - Ontario Region conducted a three day sampling program at the invitation of NYDEC. Results are expected shortly.

SCA CHEMICAL WASTE SERVICES INCORPORATED

SCA Chemical Waste Services operates a chemical waste treatment facility at Model City, N.Y. Solid wastes are secure landfilled while liquids undergo various physical/chemical processes in the aqueous treatment plant and subsequently are transferred to facultative ponds prior to discharge.

SCA is regulated under the restrictions of an operating permit issued by the NYDEC. Until March 1979 the company was limited by the permit to a discharge of 400,000 gallons per day into Four Mile Creek (a lake Ontario tributary). The quality of the effluent was also regulated by the permit.

SCA applied to the NYDEC for regulatory approval to build a pipeline from their existing site in the Town of Porter, New York to the Niagara River and to discharge treated chemical wastes into the River. The department considered the application under the EQRA and requested a draft environmental impact statement. Public notice was given on February 21 and 26, 1979 and numerous public objections resulted in public hearings on the proposed project. The hearings were conducted in two phases. The Phase I hearings, held between June 25, 1979 and September 26, 1979, examined the proposed construction of the pipeline and the modification of the existing SPDES permit. The NYDEC decision on Phase I was released on January 14, 1980. The NYDEC approved construction of the SCA pipeline to the river and the SPDES permit was modified, permitting the volume discharged to the river to be increased from 0.1 MGD to 1 MGD. The Town of Porter appealed the DEC decision and the New York State Supreme Court found in favor of SCA. A further appeal to the Appellate Division was also unsuccessful.

The Town of Porter refused to issue a construction permit for the pipeline. An appeal by SCA against the Town's continued refusal to issue construction permits was successful.

The pipeline was constructed and the first discharge was to have taken place in mid-April, 1981. At NYDEC's invitation the Environmental Protection Service (EPS) - Ontario Region sampled the effluent and found it to be within the permit requirements. Amidst a high profile of media coverage and citizen opposition, the pipeline was vandalized before the discharge could be made. The pipeline was repaired and the contents of Facultative Pond #3 were begun to be discharged during the week of June 16th. EPS - Ontario Region once again sampled from the line during discharge,

and were on hand to observe the first use of the pipeline. The Inland Waters Directorate will determine the dispersion/dilution patterns of the discharge.

Numerous diplomatic notes have been forwarded to the United States Government expressing regret that such a discharge would be allowed into the Niagara River given the present operation condition of the Niagara Falls Sewage Treatment Plant. (See Table III and Appendix IV.)

The discharge on June 16th will not resolve the SCA issue as upwards of 100 million gallons of treated effluent remain on the SCA site which does not meet NY State Permit requirements. SCA made an application to the DEC for modification of its State discharge permit which would permit SCA to discharge the contents of ponds which so far have failed to meet permit requirements. The DEC has received an environmental impact statement which is being reviewed.

The Phase II hearings were concerned with the renewal of the SCA's operating permits and the construction of the new secure landfills. The hearings were held between April 1980 and October 1980. Prior to the release of the DEC decision, SCA was presented with a control order on January 9, 1981 that suspended all SCA's permits because it's finally treated wastewaters failed to meet the current effluent limitations. SCA obtained a temporary injunction to stay the order and a hearing was held on January 19, 1981 to hear an application by SCA for a permanent injunction. The DEC suspension of the operating permits was lifted subject to the condition stipulated in the report of the Phase II hearings, released on April 22, 1981. The DEC denied the SCA application for additional secure chemical landfills and the SCA was given 60 days to come up with a plan to improve the ponds which did not meet specifications. SCA was also required to establish a 10 year plan on the operations of the site, including financial and technical plans for alternative methods to the secure chemical landfills.

SCA is presently working on the 10 year plan and it is possible that legislative hearings will be held concerning the plan.

Table II is a summary of SCA's permit modification requests and their present status of resolution.

TABLE II

SCA'S PERMIT MODIFICATION REQUESTS AND THEIR PRESENT STATUS

<u>Permit Modification Requested</u>	<u>Present Status</u>
1. Increase in allowable discharge volume from 1000,000 gal/day to 2,000,000 gal/day to the Niagara River, (N.R.) and from 400,000 gal/day to 1,000,000 gal/day to Four Mile Creek.	Volume permitted to be discharge to the Niagara River increased to 1,000,000 gal/day on Jan. 15/80. (To a maximum of 50 million gal/year). Discharge into Four Mile Creek no longer permitted.
2. Construct pipeline within Town of Porter to carry treated effluents from its site to the Niagara River.	The pipeline was approved on Jan. 14/80. Pipeline was completed and the first discharges began the week of June 16th/81.
3. To allow discharge from additional Facultative Ponds. (Earlier permits allowed discharge from one selected pond.)	Discharge from additional ponds is to be allowed, subject to testing the effluent quality against the 60 parameters specified in the permit before batch discharge.
4. Permits to construct and operate an additional secure land burial facility (SLF #10).	Applications for additional secure landfills denied on April 22/81, but could be approved once SCA submits a 10 year plan for the site which would include consideration of high technology (incineration) options.
5. Permits to construct and operate an addition to existing secure land burial facility (SLF #7).	Expansion of existing SLF #7 approved on April 22/81. Cannot be operated until SPDES permit situation is resolved.
6. Continued operation of the overall facility (general permit renewal).	SCA presented with Control Order on Jan. 9/81 suspending all permits. Hearing officer lifted suspension on Jan. 19/81 but SCA is required to establish a 10 year plan on operations of the site.

TABLE II (Cont'd)

SCA'S PERMIT MODIFICATION REQUESTS AND THEIR PRESENT STATUS

Permit Modification Requested

Present Status

8. Application in 1981 to change effluent quality standards. Requested that existing limits be raised, eliminated or simply monitored for various parameters.

Now under consideration. The Environmental Impact Statement required by NYDEC was submitted in 1981. This document is being reviewed by NYDEC, EPA and EPS. Changes to 30 chemical parameters are under consideration.

ST. DAVID'S DUMP SITE

The St. David's site was used by Cyanamid Canada until 1975 for the disposal of low level cyanide wastes.

The site is situated over an aquifer recharge area from which drinking water is drawn. Subsequently, there has been some concern for the quality of the water in the aquifer. The Ontario Ministry of the Environment has monitored the groundwater for more than 10 years but has never detected an unacceptable cyanide concentration.

Public attention was focused on the site in March, 1981 when a consultant's report found nitrate levels to be three times the province's acceptable level in one of a series of wells which supply local water requirements. However, after mixing in a reservoir, the water meets all provincial water quality parameters.

The consultant's report recommended evaluating the long term effects of the leachate on the well water, minimizing and controlling the leachate movement and finding an alternate water source.

There are no immediate plans for remedial work to mitigate leachate production or movement, but a pipeline is presently under construction which will carry water from St. Catharines to the area. The project is expected to be complete in 1982.

Liability for the site, should a clean up be called for is somewhat uncertain. Cyanamid Canada sold the site to a former employee who lives in New Jersey. If legal action were to occur, this matter would have to be resolved in the courts.

APPENDIX III

CITIZENS' GROUPS

The citizens' groups concerned with the pollution of the Niagara River include the following:

1. Pollution Probe

Pollution Probe, formed in 1969, is a non-profit charitable foundation which, since its inception, has been committed to the improvement of water quality in Ontario lakes and rivers. Its major objectives are to educate the public on environmental matters and to foster public understanding of pollution.

2. Operation Clean

Operation Clean Niagara is a citizens' group based in Niagara-on-the-Lake which was formed in 1979 as a result of the SCA application to build a pipeline. It is the Canadian counterpart of the main American citizens' group. Niagara-on-the-Lake obtains its water supply from the Niagara River, and the group feels that it has a direct interest in ensuring that the water quality of the River is not adversely affected.

3. Canadian Environmental Law Association (CELA)

CELA, founded in 1970, is a non-profit organization of lawyers, scientists, conservationists, planners and lay people, which is dedicated to the enforcement of environmental laws, and their improvement. CELA lawyers provide free legal assistance to those in need of such services, who are affected by environmental problems. Its primary objective is the advancement of public participation in environmental management and planning.

4. Ecumenical Task Force (ETF)

The ETF is a non-profit coalition of various religious denominations in Western New York concerned with the deterioration of the environment. It was involved with the problems in the Love Canal area and provided direct aid and counselling to residents, worked with the State to make relocation easier, and worked on the revitalization of the area. Dr. John Kieffer is the liaison between the State agency and the ETF, and he evaluates EPA reports and helps to determine how the land can best be used. ETF has a scientific and technical board of advisors.

5. Citizens Against Pollution (CAP)

CAP is an offshoot of U.S. Operation Clean. The members of CAP did not agree with the methods that Operation Clean was using and they formed their own group. CAP is a more radical and higher-profile group. It started in the summer of 1980, and made presentations at the Phase II SCA hearings.

These citizens' groups have been involved in many of the actions concerning the pollution of the Niagara River. Pollution Probe, Operation Clean and ETF made presentations at the SCA hearings, which were in opposition to SCA's proposed discharge to the Niagara River.

CELA was retained by Pollution Probe and Operation Clean Niagara to bring a motion to appear as amicus curiae in the Hyde Park Landfill case. Pollution Probe and Operation Clean were concerned that the proposed settlement agreement was in breach of Article I of the Great Lakes Water Quality Agreement of 1978; it did not effectively provide for the isolation of chemicals that might migrate into boundary waters; and it did not contain stringent enough conditions to ensure that international waters would not be contaminated. Pollution Probe and Operation Clean were granted standing in the U.S. Court as amicus curiae. Submissions will be made on July 30, 1981 by Ms. Barbara Morrison, attorney for the ETF. ETF felt that the agreement should not be ratified without material modification, and it prepared written comments. ETF concluded that the proposed settlement terms would not achieve effective isolation of the chemicals in the Hyde Park Landfill from the surrounding environment, and may increase health risks to workers and residents in the surrounding communities, as well as to any segments of the population who use downstream portions of the Niagara River and Lake Ontario.

All of the groups are concerned about the other Hooker disposal sites, including "S" Area and the 102nd Street site.

APPENDIX IV

DIPLOMATIC NOTES CONCERNING POLLUTION
OF THE NIAGARA RIVER

The following is a summary of the diplomatic notes sent to the U.S. government and its responses, after December 1979, concerning the pollution of the Niagara River.

Note of Canadian Embassy - December 14, 1979

The note informed the U.S. government of the text of a motion passed on December 10, 1979 by the House of Commons. The Canadian Government expressed its concern that the SCA company of the U.S. had been dumping thousands of gallons of PCBs and other harmful chemicals into the Niagara River on a daily basis, and it urged the U.S. government to look directly into the matter and take what action was necessary so as to alleviate the potential danger of such a continued disposal method of harmful chemicals.

The note mentioned the IJC's Sixth Annual Report on the Great Lakes Water Quality which specifically referred to the problems experienced in Niagara Falls, New York. The Canadian government was of the view that the present concern about environmental and public health effects of the proposed direct discharges by SCA was symptomatic of a much larger problem of continuing degraded water quality in the Niagara River.

Note of Canadian Embassy - February 15, 1980 (No. 70)

The note referred to the concern of the Canadian government about possible consequences to the health or property of Canadians arising from the present condition of the Niagara Falls Sewage Treatment Plant and when remedial action would be undertaken. There was particular concern about the problems with the carbon filtration system at the plant. Canadian officials were informed by New York State officials that the projected time to complete the repairs to the plant would be at least one year following the granting of the necessary funds. It was noted that this time frame was far

longer than that indicated in the Great Lakes Water Quality Board's 1978 Annual Report to the IJC and that it was dependent upon the granting of the required funds. The Canadian government indicated that it would be grateful if steps could be taken to resolve any administrative or funding difficulties and the necessary repairs to the plant be effected expeditiously. Information about when repairs might be completed and the plant rendered fully operational were requested.

Note of Canadian Embassy - April 15, 1980 (No. 141)

The diplomatic note referred to the failure of the carbon filtration system at the Niagara Falls Sewage Treatment Plant. The continued discharge of effluent and the continued stress to the Niagara River were considered to make even more timely the resolution of the funding difficulties delaying the repair to the filtration system.

Concern was expressed about the action to implement the discharge permit approved for SCA Chemical Waste Services Inc. into the Niagara River at Porter, New York. This would allow a further increase in the total pollutant loading to the river and particularly so when seen against the background of the long term problems of pollutant loadings and the stress to the river through the failure of the Niagara Falls Plant to process the effluent it receives.

The note indicated that the Department of Environment and Ontario Ministry of Environment had reinforced their regular water quality surveillance and monitoring programs with special efforts designed to look at a broader range of parameters for general water quality in the Niagara River. After the data from the programs was examined and analyzed, Canadian officials wanted an opportunity to discuss it with their U.S. counterparts.

The Canadian Government sought assurances from the U.S. Government that in any and all activities permitted on the U.S. side of the river by any U.S. jurisdiction it would respect the obligations undertaken in Article IV of the Boundary Waters Treaty 1909, that boundary waters shall not be polluted on either side to the injury of health or property or the other.

Note of U.S. Department of State - May 21, 1981

The note was a response to the Canadian Embassy's note of April 15, 1980. It stated that the EPA and the New York State Department of Environmental Conservation (NYDEC) had been conducting studies on the water quality situation on the Niagara River and they would continue to study the problem and consult with Canada.

The note addressed the operational problems with the carbon absorption beds at the Niagara Falls Sewage Treatment Plant. The EPA, beginning in December 1979, had been consulting with Niagara Falls officials to develop safeguard measures which would make the plant eligible for federal grants so that rehabilitation work could proceed. An agreement on these measures was expected shortly and the EPA advised that construction could begin within eight months after the agreement. EPA estimated that the actual time necessary to perform the rehabilitation work would be from 12 to 18 months and that half the system could be operational in 12 months.

The Department of State indicated that it was confident that the SCA Company facility was under strict federal and State scrutiny and it complied with all applicable environmental requirements. It was noted that there were statements by a number of Canadian federal and provincial environmental and health officials that provided the SCA plant was operated pursuant to the conditions contained in its permit there would be no injury to health or property in Canada.

The State Department believed that it was to the mutual advantage of both countries that chemical waste be disposed of in an environmentally sound manner and it believed this would be the case with the SCA operations. It also understood that SCA treated wastes from firms located both in the U.S. and Canada.

The State Department assured the Canadian Embassy that the U.S. would respect the obligations undertaken in Article IV of the Boundary Waters Treaty of 1909 "that boundary waters shall not be polluted on either side to the injury of health or property on the other".

Note of Canadian Embassy - November 28, 1980

The Environmental Baseline Report of the Niagara River was discussed in the note. The following data gave rise to concern:

1. Concentrations of total DDT, PCBs, Aldrin/Dieldrin, Endosulfan (Lhdan), Lindane and Cadmium exceeded the specific objectives of the Great Lakes Water Quality Agreement at certain stations in the Lower Niagara River on at least one occasion during 1979.
2. Other synthetic chemicals, for which no specified water quality objectives have been developed, were also detected. Many of the chemicals detected are frequently found in association with incompletely treated waste from industries operating in the vicinity of the Niagara River.

The Canadian government was concerned that serious operational problems were still being experienced at the Niagara Falls Waste Treatment Plant and that agreement did not appear to have been reached between EPA and the Niagara Falls Officials to proceed with rehabilitation of the plant. The Canadian government sought assurances that urgent steps would be taken to resolve any administrative difficulties which might further delay the rehabilitation of the plant.

The Canadian authorities requested further information regarding the operations of SCA Chemical Waste Service Incorporated.

Note of U.S. Department of State - April 17, 1981

The note was a response to the Canadian Embassy's note of November 28, 1980 and subsequent communications concerning water quality problems in the Niagara River, including operation of the SCA plant.

The Department of State stated that it continued to believe it was to the mutual advantage of both the U.S. and Canada that effluents resulting from the treatment of chemical and hazardous wastes be disposed of in an environmentally sound manner.

The Department indicated that SCA intended to discharge treated effluent into the Niagara River, beginning on or about April 27, under permit from New York State. The effluent had been thoroughly tested by the DEC and it satisfied all applicable standards. The most recent tests were carried out the week of March 30. State Officials would be monitoring preparations for the discharge and carrying out continuing tests at SCA during the discharge. EPA Officials

would also participate. The EPA and DEC welcomed the participation of Canadian Officials and scientists in arrangements to monitor the discharge.

The pending judicial and administrative proceedings involving the SCA facility and New York State permits would not affect the limited and controlled discharge planned for April 27. The present permit authorizes SCA to discharge treated effluents into the Niagara River at a rate not to exceed one million gallons per day. SCA has permission to discharge a total of about seven million gallons. The DEC and the EPA assured the State Department that the permit adequately assures protection of the water quality of the Niagara River.

Note of U.S. Department of State - April 30, 1981

The Department of State indicated that it had been advised by the EPA and New York State DEC that a full report, recommending methods of rehabilitation and repair to the Niagara Falls Wastewater Treatment Plant would be completed in May. The Department Officers would consult with the Embassy staff as soon as the report was available.

The Department stated that it intended to continue its efforts to speed the rehabilitation of the Niagara Falls Plant and it would continue to keep the Embassy informed of any developments.

Table III is a summary of the diplomatic notes concerning the pollution of the Niagara River.

TABLE III

DIPLOMATIC NOTES CONCERNING
POLLUTION OF THE NIAGARA RIVER (N.R.)

Notes of Canadian Embassy

Notes of U.S. Dept. of State

Dec. 14/79 House of Commons motion expressing concern about the SCA dumping of PCBs and other harmful chemicals into N.R.

-

Feb. 15/80 Possible consequences from present condition of Niagara Falls Sewage Plant and when remedial action would be undertaken.

-

Apr. 15/80 1) Delay of Repair to carbon Filtration System at the Niagara Falls Plant;

2) Discharge permit approved for SCA facility.

3) Sought assurances from U.S. that U.S. would respect obligations B.W.T. 1909.

May 21/80 1) Expected agreement between EPA and Niagara Falls to develop safeguard measures would make plant eligible for federal grants. EPA advised construction would begin within 8 months after agreement.

2) SCA under strict federal and State scrutiny and it complied with all applicable environmental requirements.

3) Assured Canadian Embassy that U.S. would respect obligations in Art. IV B.W.T. 1909.

TABLE III (Cont'd)

DIPLOMATIC NOTES CONCERNING
POLLUTION OF THE NIAGARA RIVER (N.R.)

Notes of Canadian Embassy

Nov. 28/80 1) Data giving rise to concern in Environmental Baseline Report.

2) Serious operational problems still being experienced at Niagara Falls plant. Sought assurances that administrative difficulties delaying rehabilitation would be resolved.

Notes of U.S. Dept. of State

Apr. 17/81 SCA intended discharge into N.R. beginning April 27. Effluent satisfied DEC standards. Discharge would be monitored by State officials. Pending legal actions involving SCA would not effect discharge. Under present permit SCA can not exceed 1 million gallons/day or a total of 7 million gallons. Assurances by EPA and DEC that water quality adequately protected.

Apr. 30/81 Report recommending methods of rehabilitation and repair to the Niagara Falls Sewage Plant would be completed in May.