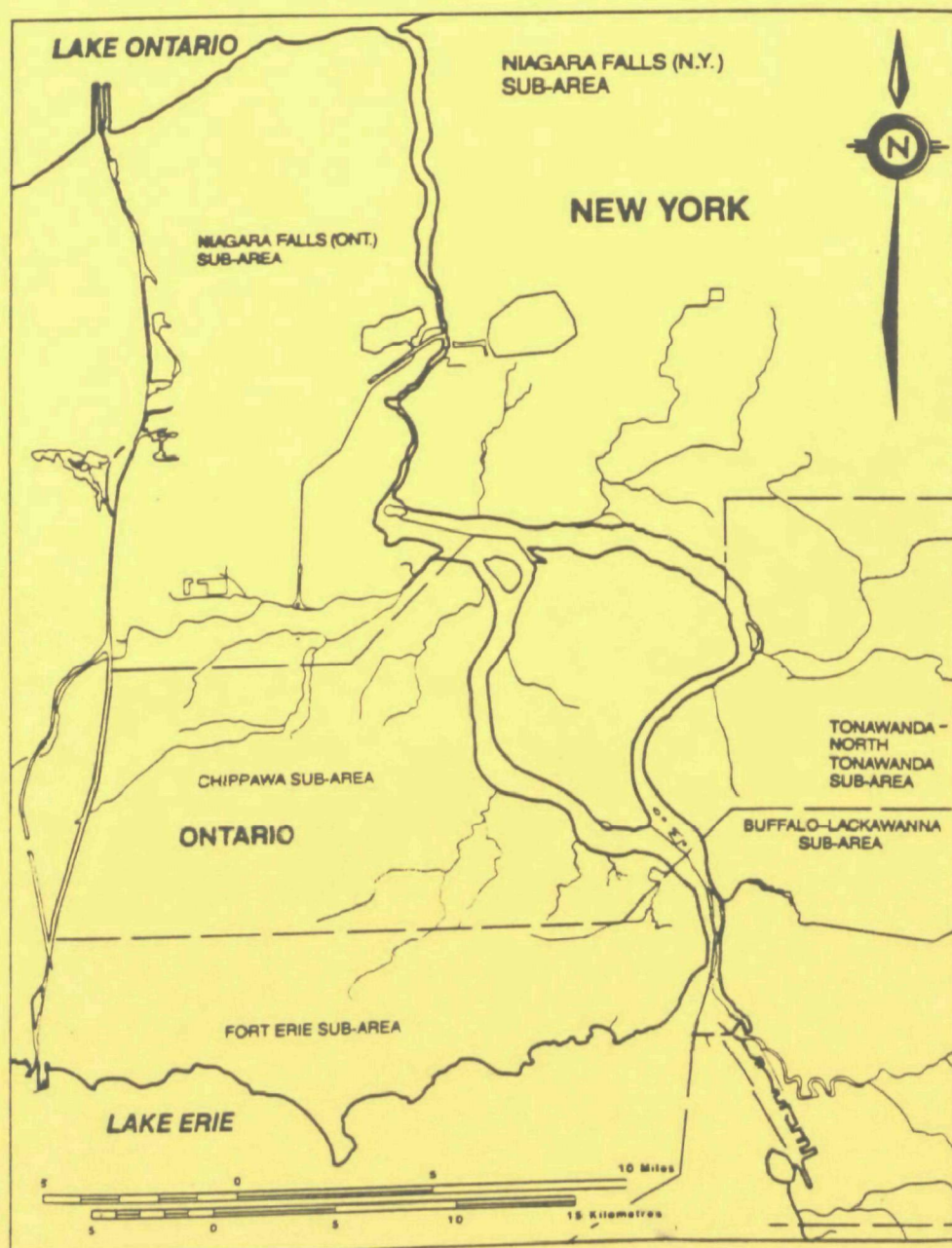


# NIAGARA RIVER ACTION PLAN



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NIAGARA RIVER ACTION PLAN

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# U.S. ENVIRONMENTAL PROTECTION AGENCY

## NIAGARA RIVER ACTION PLAN

MAY, 1986

### INTRODUCTION

The 37-mile Niagara River, flowing northward from Lake Erie to Lake Ontario and forming the international boundary between the U.S. and Canada, is a major source of water for industry, for municipalities and for power generation. The quality of its waters has a significant impact on the quality of Lake Ontario. The Niagara Frontier is a significant center of population, industry and tourism. The Niagara area has therefore long been a focus of major concern and commitment for U.S. environmental agencies at both the state and federal levels.

This commitment is reflected first in the massive investment made by all levels of government in municipal wastewater collection and treatment. Under the Federal Clean Water Act, passed in 1972, EPA has provided over \$550 million to build these systems, and New York State and local governments have contributed a like amount. As a result, all the U.S. municipalities that discharge into the Niagara River have operating secondary treatment plants. These include advanced designs at Amherst, North Tonawanda and Niagara Falls to account for heavy industrial flows. The Niagara Falls plant has recently come back into full operation, thanks to special EPA funding of \$14 million, and is removing an additional 350 lb./day of priority pollutants from the river.

Also under the Clean Water Act, EPA and the New York State Department of Environmental Conservation (NYSDEC) have issued discharge permits that limit the flow of pollutants from all significant industrial and municipal point sources. The first round of these permits concentrated on "conventional" pollutants (oil and grease, solids, BOD, etc.). Over recent years the permits have all been revised in a second round to concentrate more on the elimination of chemical discharge, and are under review once more to see what additional limits might still be needed. The permit program is backed up by an annual inspection and enforcement schedule. All six municipalities (Buffalo, Tonawanda, Amherst, North Tonawanda, Niagara County, City of Niagara Falls) along the Niagara have prepared and begun to enforce industrial pretreatment programs designed to reduce the discharge of chemicals by industries directly into municipal systems.

EPA has approved all six programs over the past year.

As a result of these point source programs, most indicators show a marked decline in environmental contamination in the Niagara Frontier over the past decade. Where environmental or public health standards exist or are proposed, they are being met.

However, increased sophistication in analytical techniques, coupled with problems like those at Love Canal, has produced awareness and concern over low levels of toxic chemical contamination. To respond to these concerns, EPA and NYSDEC have developed a multifaceted program directed at toxics. Point sources are addressed through the Clean Water Act programs described above. Nonpoint sources are addressed through the Resource Conservation and Recovery Act (RCRA), which regulates existing hazardous waste operations, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA, or Superfund), which covers the investigation and control of abandoned sites, and the Clean Water Act, which regulates nonpoint sources of wastewater pollution.

Under RCRA, twenty existing active hazardous waste operations on the Niagara Frontier have been brought under interim regulation. They are now all in various stages of the final permit or closure process.

Under CERCLA, EPA and NYSDEC are using a combination of federal, state and industry resources to investigate abandoned sites and carry out cleanup or control measures. All 61 sites of concern listed in the NRTC Report, have been or are being investigated, and remedial work is underway at several. EPA allocated \$1.2 million to NYSDEC for site investigations in Fiscal 1985, which was matched by more than \$1.5 million in state funds. In addition, EPA allocated about \$600,000 per year in direct contract funds for site investigations in Fiscal 83, 84 and 85.

At four major sites in Niagara Falls (Love Canal, Hyde Park, S-Area and 102nd St.), EPA obligated over \$20 million from Superfund in Fiscal 1985; the agency anticipates obligating over \$10 million in Fiscal 86 and over \$8 million in Fiscal 87 to these four sites alone, assuming reauthorization of CERCLA. Groundwater hydrogeological work being carried out by EPA contractors at Niagara sites is estimated at \$16 million. Private party cleanups underway under Federal Court Consent Agreements are expected to cost over \$50 million each at Hyde Park and S-Area.

In summary, EPA, NYSDEC and local governments have invested over \$1 billion to date in ongoing environmental programs along the Niagara Frontier. These programs constitute a comprehensive, integrated, ongoing commitment that still totals in the tens

of millions of dollars per year. Both EPA and NYSDEC are committed to carry on these programs until the environment, public health and international waterways are protected to the full extent required by law and international agreement.

The Niagara River Toxics Committee report, issued in November, 1984, identified gaps in our knowledge of the contamination in the river, and the effectiveness of control programs. EPA identified several new initiatives to fill in these gaps, in cooperation with NYSDEC. These initiatives were announced in May of 1985. The initiatives, coupled with the ongoing programs discussed above, constitute EPA's Action Plan for the Niagara River. In May of 1985, EPA also published specific responses to the NRTC Report's 24 recommendations. (see Table I).

It is worthwhile to compare the Niagara Action Plan with the Five-Year strategy outlined in 1985 by the Great Lakes National Program Office. GLNPO presented a five-stage strategy for dealing with environmental problems in the Great Lakes. The work done so far by the NRTC in its report and recommendations, coupled with the workplans prepared by EPA Region 2 and NYSDEC in response, correspond to the first three stages of the GLNPO strategy -- that is, the identification of problems, the assessment/characterization of these problems, and the proposal of solutions.

The next several years will be devoted to the remaining two stages -- implementation of solutions and installing a monitoring/feedback loop for measuring progress.

#### THE ACTION PLAN

The Niagara River Action Plan consists of the several major programs EPA has already ongoing under the Clean Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act, combined with a number of specific new initiatives to respond to gaps identified in the report of the Niagara River Toxics Committee (NRTC).

EPA's plan is complementary to and supportive of the Niagara plan being carried out by the New York State Department of Environmental Conservation (NYSDEC). NYSDEC is the lead agency for carrying out most environmental programs, both state, and also federal (under delegations from EPA), on the Niagara Frontier. Similarly, some work initiatives involving monitoring, research, and development require close cooperation with our counterpart Canadian agencies.

Table II summarizes the Plan.

## ACTION PLAN GOALS

The EPA Action Plan is designed to:

- ensure continued progress in the identification, control, and reduction of point source discharges of toxics into the Niagara River;
- ensure continued identification, investigation and control of nonpoint discharges of toxics into the Niagara River;
- improve current and future understanding of the ambient levels of toxics in the Niagara River and its environs, and to assess accurately the risks posed by those levels;
- enhance communication and cooperation among U.S. and Canadian agencies charged with protecting the environment along the Niagara.
- combine the four preceding objectives into a coordinated plan for achieving specific reductions in toxic chemical loadings to the Niagara River within specified timetables in accordance with U.S. laws and standards for protecting public health and the environment and with U.S. obligations under the Great Lakes Water Quality Agreement.

## ACTION PLAN COMPONENTS

### Point Source Control

The NRTC identified nine major U.S. point source dischargers, both industrial and municipal. Their combined discharge of EPA priority pollutants, based on 1982 data, was estimated as 2488 lb/day. Based on upgradings, control programs and shutdowns, that total has already been reduced. Table III provides a narrative status report on these nine major facilities.

EPA's program for dealing with point sources of pollutants consists of the following components (many of which are joint EPA/DEC responsibilities):

- ° SPDES Permits -- NYSDEC and EPA have reviewed State Pollutant Discharge Elimination System permits for all major industrial dischargers, and DEC has reissued them with stricter controls on the discharge of toxics. During FY 86, EPA is working with DEC to carry out enhanced compliance inspections at selected dischargers.

- ° Industrial Pretreatment Program -- EPA and NYSDEC have reviewed and EPA has approved local industrial pretreatment programs for the 6 U.S. municipal treatment plants on the Niagara. Developed under the Clean Water Act, these plans require industries to reduce toxic discharges to municipal sewerage systems. They are being enforced by the municipalities. Table IV is a schedule of implementation and anticipated loading reductions. EPA, working with DEC, has developed a contractor-supported technical assistance program for the municipalities to improve enforcement.
- ° Stormwater Runoff -- During FY 86, EPA is carrying out a project to investigate the contribution of toxics in stormwater runoff from industrial facilities. A contractor will identify potential sites, and EPA's Great Lakes National Program Office (GLNPO) will conduct a site-specific demonstration program. The results of this project will define the need for future control measures.

#### Nonpoint Source Control

Toxic contamination of ground and surface water from nonpoint sources, such as former and existing hazardous waste landfills, is recognized as a significant problem in the Niagara Frontier. Both EPA and DEC have given high priority to the identification and cleanup of inactive sites through the federal and state superfund programs, and to the regulation of operating hazardous waste facilities through the Resource Conservation and Recovery Act and state hazardous waste disposal regulations.

EPA's nonpoint source control program has the following components:

- ° Site Investigation -- The NRTC report identified 61 sites as potential sources of ground or surface water contamination. These sites have been or are being investigated through a joint EPA - NYSDEC site assessment program and, where needed, they are scheduled for remedial work. Table V summarizes the status of these investigations and the timetables for completing them.
- ° Remedial Programs -- Four major sites in Niagara -- Love Canal, Hyde Park, S-Area and 102nd Street -- are in some stage of the investigative/remedial process. Table VI summarizes work on these sites.

- ° Groundwater Hydrogeology -- One problem hampering the characterization and control of nonpoint sources is the complex geology of the Niagara region. To help address this problem, EPA is developing site-specific and areawide groundwater models through its CERCLA contractors and the U.S. Geological Survey.
- ° Active Site Control -- There are twenty hazardous waste management facilities in the Niagara Frontier. EPA has requested Part B permit applications from all of them under RCRA. All are now in various stages of the permit or closure process. Table VII summarizes the status of each of these facilities.

### Monitoring Programs

The NRTC identified the need for specific long-term ambient and point-source monitoring related to toxics in sediments, biota and water. EPA agrees that a comprehensive monitoring program is needed for the purpose of establishing long-term trends in toxic contamination, assessing the effectiveness of control programs, and identifying the need for modifications or additions to those programs.

EPA believes that ambient monitoring is an important area for international cooperation. With respect to point source monitoring, however, EPA and NYDEC have specific regulatory responsibilities under the Clean Water Act and will continue to carry out those responsibilities. For all monitoring programs, EPA believes it is essential for all four involved environmental agencies in the U.S. and Canada (EPA, NYSDEC, Environment Canada, and the Ontario Ministry of the Environment) to agree on mutually acceptable sampling protocols, analytical techniques and data interpretation methods.

EPA's monitoring program is part of a binational effort being explored with Canada which would consist of the following:

- ° Long-Term Ambient Monitoring -- EPA is working with NYSDEC and the Canadian agencies to try to develop mutually acceptable sampling and analytical protocols and methods for interpreting data. Some discussions have already taken place. (Already scheduled is an evaluation by the U.S. agencies of Canadian high-volume water sampling techniques.) It is hoped that these efforts will form the basis for a joint ambient monitoring project that will determine, where possible, how the estimated net contribution of chemicals to the Niagara River varies with time. Trends would be defined by comparing values at the source and mouth of the river.



- ° Point Source Monitoring -- New York DEC, under Clean Water Act delegation, carries on a continuing compliance monitoring program for point sources on the Niagara River. EPA is negotiating with the Canadians to establish a binational effort that would review both NYSDEC's program and Ontario Ministry of the Environment's program.

### Integrated Enforcement

One of EPA's primary missions is the enforcement of national laws to control pollution in its many forms, and thereby protect public health and the environment. The Niagara Area, because of its industrial diversity and the high flow rate of the Niagara River, presents a unique set of pollution regulatory problems, particularly with respect to extremely low levels of toxic chemical contamination. EPA and NYDEC have recognized the need to develop enhanced data management tools and integrated enforcement strategies to help deal with these problems.

- ° Regulatory Coordination -- EPA has put into place an internal management structure to coordinate Niagara enforcement programs across all media lines. Under this system, Region 2's new Niagara Frontier Program Manager, (see page 9), together with designated representatives from each regional program and the Office of Regional Counsel, are continually reviewing source-specific and areawide pollution control programs in the Niagara area to ensure maximum effectiveness and to address potential delays or conflicts in strategies. The region is also coordinating these activities with NYSDEC and with EPA Headquarters.
- ° Automated Data Systems -- Through EPA's Integrated Environmental Management System, computer software packages are being examined which may permit a variety of point source and ambient environmental data to be collected and analyzed together. These programs would allow better identification of potential hotspots and targeting of enforcement activity where necessary.

### Toxic Loading Reductions

The main purpose of EPA's Niagara Action Plan is to reduce the discharge of persistent organic chemicals to the river. Such reductions are not only required by U.S. environmental laws, but also by the Great Lakes Water Quality Agreement. Many of the components of the Action Plan are resulting in such reductions, or have the potential to do so, as indicated in Table II.

Where specific reductions can already be documented or predicted, they are contained in the Tables at the end of this document. It is EPA's intention to continue to improve documentation of reductions and to include this as part of its regular public reporting on the Action Plan.

### Resource Commitment

As described in the Introduction, EPA has maintained a strong commitment of dollars and staff time in the Niagara area for a number of years, with Federal investment in pollution control programs now totalling over \$500 million. This ongoing support for routine environmental programs will continue, primarily through program support grants for NYDEC and the NY Department of Health which, on a statewide basis, total \$20 million for Fiscal Year 1986.

In addition, EPA's regional staff will continue to devote the internal resources required to support this work. It is estimated that direct staff support for Niagara activities totals 41 workyears per year, of which 27 work years are in Region 2 and the balance split among headquarters and other field programs. This is equivalent to approximately \$1.5 million per year, not including indirect costs, laboratory or contract support.

Several of the new initiatives identified in Table II involve additional staff or contract support.

### Communications and Management

EPA recognizes the need for integrated management of its various programs on the Niagara Frontier. The agency also recognizes the need for timely and complete exchange of information with the other agencies and the need to communicate fully with the public on both sides of the border.

The following mechanisms have been established:

- ° Management -- EPA's Region 2 office has the lead responsibility for the agency's Niagara programs. The Regional Administrator has appointed a Niagara Frontier Project Coordinator reporting directly to him and, through him, to the EPA Administrator. The Coordinator is responsible for coordinating Niagara programs within Region 2, with other EPA offices, including the Great Lakes National Program Office and the Office of Research and Development, with New York DEC and with the Canadian agencies.
- ° Communication -- In 1985 EPA Region 2 established an information office in Niagara Falls, New York, to facilitate information exchange with the public and Canadian agencies. Public meetings and press briefings also will be held from time to time in order to convey information about the program, and to elicit comments on our activities.
- ° Progress Reports -- EPA Region 2 will issue periodic status reports on the Niagara Action Plan.

EPA's Niagara River Action Plan should be regarded as a dynamic document. The Agency intends to review and update it at least annually.

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Table V	Status of 61 Potential Nonpoint Sources of Ground or Surface Water Contamination
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TABLE I

EPA's RESPONSE TO THE NIAGARA RIVER TOXICS

COMMITTEE RECOMMENDATIONS

TABLE I -- EPA RESPONSE TO NIAGARA RIVER TOXICS COMMITTEE RECOMMENDATIONS -- MAY, 1985

NRTC RECOMMENDATIONS	EPA POLICY OR PROGRAM	EPA NIAGARA PROGRAM
1. New York should revise permit limits so that the cumulative impact of all discharges will not exceed criteria at the edge of defined mixing zones.	State delegated program. EPA oversees NYSDEC permit program and reviews major permits from the Niagara Frontier area.	LONG TERM WATER MONITORING PROGRAM Point Source 3-7 day surveys. Review Canadian technique for large volume water sampling. (reference program description)  Also addressed through EPA/DEC on-going programs.
2. Ontario should further assess the potential for impact of hazardous contaminants in trace amounts on receiving water and then determine specific needs for further action.	Not applicable - Canadian issue.	Not applicable - Canadian issue.
3. Good housekeeping and routine maintenance, where not in effect in a formalized sense at present should be adopted by all industrial and commercial facilities along the river, including dischargers to a municipal system, to reduce or eliminate inadvertent discharges of toxic substances.	State delegated permit program. EPA oversees NYSDEC program, including EPA review of major permits from Niagara Frontier for inclusion of Best Management Practices (BMP).	PRETREATMENT COMPLIANCE Compliance follow-up on "indirect" dischargers with additional inspection, sampling, enforcement.  Also addressed through EPA/DEC ongoing programs.
4. Point source self-monitoring programs should include a quality control program and a laboratory certification process.	EPA has Discharge Monitoring Report Quality Assurance program which evaluates selected laboratories each year.	Also addressed through laboratory certification program being developed by DEC/DOH with EPA assistance.

NRTC RECOMMENDATIONS	EPA POLICY OR PROGRAM	EPA NIAGARA PROGRAM
5. Restoration of the Niagara Falls Waste Water Treatment Plant carbon filter beds should be completed and the plant brought up to its original design capability as quickly as possible.	The Niagara Falls Waste Water Treatment Plant is now fully operational.	Addressed through EPA/DEC on-going programs.
6. Once a problem site has been identified, the fastest means of clean-up should be adopted. If the site owner's voluntary cooperation cannot be obtained, governmental funds should be used for investigations and remedial actions, and legal action commenced concurrently for cost recovery.	Once a site is identified and placed on the NPL, the fastest means of clean-up is adopted. The process includes an RI/FS, option selection, engineering design, and clean-up. Some Niagara actions started prior to CERCLA, when no other choices were available.	CERCLA/RCRA PROGRAM  Addressed through EPA/DEC on-going programs.
7. The United States should extend the investigation of sub-surface hydrogeology and contaminant migration to all hazardous waste sites within the drainage basin of the Niagara River in New York State.	EPA and NYSDEC work together to investigate hazardous waste sites on an established priority basis.	GROUNDWATER HYDROLOGIC STUDY FOR NIAGARA FALLS Review existing data, identify gaps, develop plan. Implement monitoring and develop models. Write report. Three year phased work schedule.  Also, EPA/DEC have done, or are doing, a full site investigation at all 61 sites listed in the NRTC report.
8. In setting priorities for the clean-up of waste disposal sites, the United States and Canada should take account of the long term effects of low level contamination of Lake Ontario as well as the effects on the area near the disposal site.	EPA has developed a Hazard Ranking System (HRS) to quantify dangerous sites and to establish a priority list for site clean-ups under CERCLA.	CERCLA/RCRA PROGRAM  Also EPA is examining how the HRS could be modified to better address the Niagara River/Lake Ontario problems.

NRTC RECOMMENDATIONS	EPA POLICY OR PROGRAM	EPA NIAGARA PROGRAM
<p>9. The responsible agencies should carry out a detailed site and area investigation program for sites not presently under such investigation. These agencies should implement appropriate remedial action, as determined by such investigations, to preclude contaminant migration to the Niagara River system.</p>	<p>Preliminary assessments have been conducted at all 61 sites in NYS and listed in the NRTC report. One third of the sites have also had either a New York State Phase II investigation or a Remedial Investigation/Feasibility Study (under CERCLA) completed. The remainder have been scheduled for completion this year.</p>	<p>CERCLA/RCRA PROGRAM</p> <p>Addressed through EPA/DEC on-going programs.</p>
<p>10. On-site confinement of hazardous toxic substances requiring continual maintenance, monitoring and appropriate corrective action should not be considered as the final answer for toxic waste disposal. Innovative, more effective techniques must be developed for toxic waste disposal.</p>	<p>The NCP states that remedies must be cost-effective, technically feasible and reliable, and must provide adequate protection for public health, welfare and the environment. All options are evaluated during the final remedial selection process. Innovative technology which provides waste destruction or ultimate treatment will be used when warranted by site conditions.</p>	<p>CERCLA/RCRA PROGRAM</p> <p>Addressed through EPA/DEC on-going programs.</p>
<p>11. A complete picture of the bottom sediment contaminant load in the river should be developed. Concurrent with this, bio-availability and transport studies should be carried out. The findings from these studies should be assessed to determine an appropriate remediation program.</p>	<p>Not applicable.</p>	<p>LONG TERM WATER MONITORING PROGRAM (reference program description)</p> <p>In addition EPA will try to locate funding support for a Fate and Transport Study for Buffalo River and Black Rock Canal.</p> <p>2-3 year program.</p>



NRTC RECOMMENDATIONS	EPA POLICY OR PROGRAM	EPA NIAGARA PROGRAM
12. Responsible Agencies should conduct investigations to determine the extent of chlorinated organics in the bottom sediments in the Fort Erie and Chippawa segments and in water of the Chippawa Channel.	Not applicable - Canadian issue.	Not applicable - Canadian Issue.
13. The Parties to the Great Lakes Water Quality Agreement of 1978 and jurisdictions in the upstream basins should control persistent toxic substances as called for by the Agreement. The IJC should evaluate and compare control programs used by other jurisdictions in the Great Lakes Basin with those proposed for the Niagara River.	International Joint Commission issue.	International Joint Commission issue.
14. The responsible parties should continue the remedial and investigative work underway to eliminate the sources of contamination of the river established in Chapter IV and summarized on pages 11 and 12. Where remedial work has been completed since the Project, monitoring should be conducted to assure that the remedial work has been effective.	These problems are being addressed through ongoing programs either by NYSDEC or EPA. The programs are: RCRA site closures, CERCLA site investigations and clean-ups, and the CWA storm water program.	CERCLA/RCRA PROGRAM  Addressed through EPA/DEC on-going programs.
15. To determine the origin of Group I chemicals, they should be included in source monitoring programs as appropriate.	On-going EPA/DEC source monitoring programs do address many chemicals in Group I.	LONG TERM WATER MONITORING PROGRAM CERCLA/RCRA PROGRAM PRETREATMENT COMPLIANCE (reference program descriptions)

## NRTC RECOMMENDATIONS

## EPA POLICY OR PROGRAM

## EPA NIAGARA PROGRAM

- | NRTC RECOMMENDATIONS   | EPA POLICY OR PROGRAM  | EPA NIAGARA PROGRAM  |
|--|--|--|
| 16. Chemicals in Group I and IIA should be included, as appropriate, in ambient monitoring programs to establish both temporal and spatial trends and to determine their existence in other media.   | On-going EPA/DEC ambient monitoring programs include many of the chemicals in Groups I and IIA.  | LONG TERM WATER MONITORING PROGRAM<br>(reference program descriptions)   |
| 17. All chemicals determined only qualitatively should be included in ambient monitoring programs to confirm their existence or to determine their levels.   | Not addressed.   | LONG TERM WATER MONITORING PROGRAM<br>(reference program description)  |
| 18. Characteristics data should be obtained or developed by the agencies for the chemicals as indicated in Chapter VI. This information should be assembled in order of priority amongst the groups.   | EPA develops a selected number of environmental and health criteria each year. EPA program offices establish priorities.   | DEVELOP ENVIRONMENTAL AND HUMAN HEALTH CRITERIA<br>Review EPA work already done, and now being done. Schedule new assessment documents as required, and as EPA ORD resources permit. Some work to be done through CERCLA Hyde Park case. |
| 19. Environmental and human health criteria should be established by the appropriate agencies and the IJC for the many chemicals for which none exist. Criteria should be developed in order of priority among the groups in this report (i.e., Group I before Group IIA before Group IIB, etc.). Agencies and the IJC should establish uniform criteria for water bodies which are a shared resource. | EPA develops a selected number of environmental and health criteria each year. EPA program offices establish national priorities for selection of criteria and risk assessment documents to be done each year. | DEVELOP ENVIRONMENTAL AND HUMAN HEALTH CRITERIA<br>(reference previous description)  |

## NRTC RECOMMENDATIONS

## EPA POLICY OR PROGRAM

## EPA NIAGARA PROGRAM

- | NRTC RECOMMENDATIONS  | EPA POLICY OR PROGRAM  | EPA NIAGARA PROGRAM   |
|---|--|---|
| 20. The Long Term Monitoring Program should contain a Quality Assurance Program. The overall objectives of the program should be clearly stated and agreement should be reached on analytical laboratory performance criteria, parameters and detection limits.   | All EPA monitoring programs include quality assurance.   | LONG TERM WATER MONITORING PROGRAM<br>Quality Assurance Program is included.<br>(reference program description)   |
| 21. The Committee found that the lack of a common international data base has created mechanical barriers to the prompt completion of its charges.  | A number of computer information systems are available for access. Detailed data on CERCLA sites is available from NYSDEC and EPA.   | CERCLA/RCRA PROGRAM<br><br>Also addressed through EPA/DEC on-going programs.<br><br>Need better access to Canadian data bases.  |
| 22. A binational committee should be identified to coordinate the implementation of the recommendations in this report.   | EPA works through organizations such as the IJC and GLNPO.   | EPA is working together with EC, MOE, and NYSDEC on a newly formed binational committee on the Niagara.   |
| * 23. That the Niagara River be the pilot site for implementing a toxic loading allocation plan based on a mass balance concept and incorporating a progressively reducing ceiling on loading levels, simultaneously leading toward the development of a conceptual allocation plan for toxic contaminants for the whole of Lake Ontario and<br>(continued) | The Niagara River contributes approx. 85 percent of the tributary flow to Lake Ontario. The direct discharges to the Niagara River represent only 20 percent or less of the discharges to the lake. While it has been alleged that the Niagara River is the most significant contamination source to the lake, such has not been documented. In fact,<br>(continued) | EPA is now working with Canadian government agencies and NYSDEC to develop a toxic wasteload allocation plan for the entire Lake Ontario basin, starting with the Niagara River, and later to include Lake Ontario. |

## NRTC RECOMMENDATIONS

## EPA POLICY OR PROGRAM

## EPA NIAGARA PROGRAM

## \* 23. (Continued...)

eventually the whole Great Lakes basin. Consideration should be given in the renewal of the Canada/U.S. Agreement on Great Lakes Water Quality to the development of target loads for toxic substances for each lake, similar to the target loadings for phosphorus in the Supplement to Annex 3.

as of 1978, Canadian discharges represent a little over 50 percent of the discharge flows to the lake. The answer to the toxics problem in Lake Ontario is to undertake an allocation plan for the Lake Ontario basin, including the Niagara River. The Niagara River represents only a small portion of the direct discharges to Lake Ontario.

\* 24. That Annex 1 of the Great Lakes Quality Agreement be updated and expanded by the parties to include at least those chemicals addressed in the allocation plan; that the Parties examine Article 2, Annex 1 of the Agreement, to revise and make progressively more stringent the objectives as currently established, in order to more closely follow the zero discharge philosophy of Annex 12.

The United States through the Clean Water Act and its amendments is dedicated to a policy of zero discharge. To this end the Agency, through its effluent guidelines programs, has been promoting a policy of continued loading reductions towards the ultimate goal of zero discharge. The issue in Recommendation 24 is not one concerning a zero discharge policy, but involves an apparent conflict within the Great Lakes Water Quality Agreement. Specifically, Annex 1 specifies numerical levels of selected persistent contaminants, while Annex 12 specifies a philosophy of zero discharge. This apparent conflict in meaning must be clarified by the parties to the agreement.

Addressed by  
EPA policy statement  
presented in column to  
the left.

TABLE II

NIAGARA RIVER ACTION PLAN

MAJOR COMPONENTS

TABLE II -- NIAGARA RIVER ACTION PLAN -- U.S. ENVIRONMENTAL PROTECTION AGENCY -- MAY, 1986

Point Sources

Goal: Ensure continued progress in the identification, investigation and control of point source discharges of toxics from U.S. sources into the Niagara River

Component	Ongoing	New	Agency(s)	Status/Resources	Toxic Reduction
Second round (toxic-specific) SPDES permits	X		NYSDEC EPA - 2	All majors have been reissued: review underway.	Yes
Industrial Pretreatment Programs	X		EPA - 2 NYSDEC	Plans approved for all six U.S. municipal plants.	Yes
Industrial Pretreatment -- technical assistance to municipalities for enforcement.		X	EPA - 2 EPA - NEIC NYSDEC	Program for all 6 in FY 86. (approx. 2 work-years)	Potential
SPDES permit compliance -- enhanced inspections for selected major dischargers.		X	EPA - 2 EPA - NEIC NYSDEC	Program for FY 86 (resources depend on type of inspection done).	Potential
Investigation of stormwater runoff at selected industrial sites.		X	EPA - GLNPO NYSDEC	Program for FY 86: GLNPO Contractor -- \$60,000.	Potential
Program to quantify loading reductions expected through permit limits.		X	EPA - GLNPO NYSDEC	FY 86 under IJC Areas of Concern program: GLNPO Contractor -- \$25,000.	NA

EPA - 2 = Region 2 Office

EPA - GLNPO = Great Lakes National Program Office

EPA - NEIC = National Enforcement Investigations Center

NYSDEC = New York State Department of Environmental Conservation

IJC = International Joint Commission

TABLE II -- NIAGARA RIVER ACTION PLAN -- U.S. ENVIRONMENTAL PROTECTION AGENCY -- MAY, 1986

Nonpoint Sources

Goal: Ensure continued identification, investigation and control of nonpoint discharges of toxics into the Niagara River.

Component	Ongoing	New	Agency(s)	Status/Resources	Toxic Reduction
Investigation, study and remediation of abandoned hazardous waste sites under Federal Superfund (CERCLA).	X		EPA - 2 EPA - OSWER EPA - OECM NYSDEC	Major ongoing program. See Table VI for status of 61 sites identified by NRTC.	Yes
Develop an areawide groundwater hydrology model -- coordinate with site-specific models (CERCLA).		X	EPA - 2 EPA - OECM USGS NYSDEC	First phase (compile existing data) is scheduled to be started in FY 86.	NA
Bring all 20 active hazardous waste facilities into conformance with Resource Conservation and Recovery Act (RCRA).	X		EPA - 2 NYSDEC	EPA has requested Part B permit applications from all 20; all are in permit or closure process. (Table VII)	Potential
Determine whether leakage is occurring from CECOS facility.		X	EPA - 2	CECOS carrying out ground-groundwater survey. EPA inspected 16 of 17 nearby sites and has begun two-phase sampling.	Potential
National Groundwater Task Force investigation of SCA facility; national program to enhance RCRA enforcement.		X	EPA - OSWER	Sampling completed; analysis and data interpretation underway.	Potential

EPA - 2 = Region 2 Office

EPA - OECM = Office of Enforcement and Compliance Monitoring

EPA - OSWER = Office of Solid Waste and Emergency Response

USGS = U.S. Geological Survey

NYSDEC = New York State Department of Environmental Conservation

TABLE II -- NIAGARA RIVER ACTION PLAN -- U.S. ENVIRONMENTAL PROTECTION AGENCY -- MAY, 1986

Monitoring Programs

Goal: Improve current and future understanding of the ambient levels of toxics in the Niagara River and its environs; assess the risks posed by those levels; ensure interagency/international agreement on data collection, analysis and interpretation methods.

Component	Ongoing	New	Agency(s)	Status/Resources	Toxic Reduction
Establish binational coordination on long-term monitoring activities.	X	X	EPA - 2 EPA - ORD/OW NYSDEC EC MOE	Discussions being held with DEC and Canadian agencies.	NA
Resolve binational differences in sampling protocols, analytical techniques, detection limits and data interpretation.		X	EPA - 2 EPA - ORD/OW NYSDEC EC MOE	Discussions begun in November 1985.	NA
Evaluate Canadian high-volume water sampler for U.S. applications.		X	EPA - GLNPO EPA - 2 EC	Workshop held 8/85; field tests begun 9/85. Work ongoing.	NA
Develop bioaccumulation factors for Niagara River toxics in biota.		X	EPA - OECCM EPA - 2 NYSDEC OCC	Work to begin in FY 86. EPA - \$750,000 NYS - \$250,000 OCC - \$330,000	
Assess Chemicals of Concern identified by Niagara River Toxics Committee Report.	X		EPA - ORD	EPA risk assessment program has completed or is in process of reviewing all Chemicals of Concern.	NA

EPA - 2 = Region 2

EPA - GLNPO = Great Lakes National Program Office

EPA - OECCM = Office of Enforcement and Compliance Monitoring

EPA - ORD = Office of Research and Development

EPA - OW = Office of Water Programs

NYSDEC = NYS Dept. of Environmental Conservation

EC = Environment Canada

MOE = Ontario Ministry of the Environment

OCC = Occidental Chemical Corporation



TABLE II -- NIAGARA RIVER ACTION PLAN -- U.S. ENVIRONMENTAL PROTECTION AGENCY -- MAY, 1986Integrated Enforcement

Goal: Develop enhanced data management tools and integrated enforcement strategies to help deal with the unique pollution control regulatory problems of the Niagara area.

Component	Ongoing	New	Agency(s)	Status/Resources	Toxic Reduction
Cross-media regulatory program coordination within EPA.		X	EPA-2 EPA-OECM	Intermedia network established and coordination now underway.	Potential
Formal enforcement coordination between EPA and NYDEC.	X		EPA-2 EPA-OECM DOJ NYSDEC NYDOL	Major ongoing activity.	Potential
Assemble point source and ambient data banks. Quality assure as required.		X	EPA-2 EPA-OPM NYSDEC	Data to be compiled in FY 86.	NA
Generate computer software packages to assist in identifying potential hot spots and to establish enforcement targets.		X	EPA-2 EPA-OPM	Begin using integrated data system in late FY 86.	Potential

EPA-2 = Region 2  
 EPA-OECM = Office of Enforcement and Compliance Monitoring  
 EPA-OPM = Office of Planning and Management

DOJ = U.S. Department of Justice  
 NYSDEC = NYS Department of Environmental Conservation  
 NYDOL = New York State Department of Law

TABLE III

STATUS OF NINE MAJOR U.S. POINT SOURCE DISCHARGERS

TABLE III -- STATUS OF NINE MAJOR U.S. POINT SOURCE DISCHARGERS

## SUMMARY OF CONTROL MEASURES SINCE 1982

<u>FACILITY (Permit No.)</u>	Reduced Operations	Facility Closure	In-House Controls Instituted	Flow Reduction	New/Upgraded Treatment Facilities	On Compliance Schedule	Permit with Toxic Limitations (date)
Buffalo Sewer Authority WWTP (NY0028410)				x	x	x	10/1/85
Niagara Falls WWTP (NY0026336)					x		11/1/82 <sup>1</sup>
Bethlehem Steel Corp. (NY0001368)	x		x	x	x		7/1/84
Niagara Mohawk Power (NY0001023)			x		x	x	7/1/82
Olin Corp. (NY0001635)			x		x		3/1/83
Spaulding Fibre Corp. (NY0002364)			x		x	x	5/1/84
Town of Tonawanda WWTP (NY0026395)						x	6/1/83
Town of Amherst WWTP <sup>2</sup> (NY0025950)							8/1/85
Donner-Hanna Coke (NY0003310)		x					—

1 - Toxic limits are currently stayed  
by Court.

2 - New secondary treatment plant completed prior to NRTC Report.  
Facility has been in continual compliance with permit limits.

## SUMMARY OF CONTROL MEASURES SINCE 1982

FACILITY (Permit No.)Comments

Buffalo Sewer Authority WWTP  
(NY0028410)

WWTP upgraded in 1982-83 per Consent Order. Sewer repairs and infiltration study to reduce flows are ongoing, as well as, combined sewer overflow study. Facility has been in compliance with permit limits, since end of 1985.

Niagara Falls WWTP  
(NY0026336)

Carbon beds went on-line 8/1/85. Facility is now in compliance with permit limits.

Bethlehem Steel Corp.  
(NY0001368)

Basic steel and coking operations closed in 1983. In-house controls (Best Management Plans, reduced acid dumps, increase use of polymers) instituted. Water recirculation has reduced discharge to approximately 1-2 hours/week. New lime slaker went on-line 1/86, with second unit to be on-line by 5/86.

Niagara Mohawk Power  
(NY0001023)

New WWTP (coal pile runoff and demineralizer wastes) is in start-up phase, expect full operation by mid 1986. In-house controls consisted of piping and plumbing changes. Facility has, for the most part, been in compliance with final permit limits since early in 1986.

Olin Corp.  
(NY0001635)

Carbon beds were installed 7/84. In-house controls include tighter controls to prevent chemical spills/loses. Toxics organic load reduced > 90%.

Spaulding Fibre Corp.  
(NY0002364)

Remedial controls initiated throughout 1983-84. In-house controls included piping changes and tighter process control. Zinc concentration system was upgraded in 1984 and has shown 50% increase in efficiency. Compliance schedule requires additional structural measures to be completed as part of the Best Management Plan by early 1987. Facility in compliance with permit limits since 7/85.

Town of Tonawanda WWTP  
(NY0026395)

A biomonitoring program was submitted on 9/19/85 to the NYSDEC. It is now being reviewed by that agency.

Town of Amherst WWTP  
(NY0025950)

Facility in Compliance with Permit Limits.

Donner-Hanna Coke  
(NY0003310)

Facility shut down. No current discharge.

TABLE IV

IMPLEMENTATION SCHEDULE FOR  
SIX MUNICIPAL PRETREATMENT PROGRAMS

TABLE IV -- PRETREATMENT PROGRAM IMPLEMENTATION SCHEDULE

<u>Program Elements</u>	<u>POTWs</u>					
	<u>Buffalo Sewage Authority</u>	<u>Town of Tonawanda</u>	<u>Town of Amherst</u>	<u>Niagara Co. S.D. No. 1</u>	<u>City of North Tonawanda</u>	<u>City of Niagara Falls</u>
Program Approval Date	9/11/84	2/28/85	9/28/84	9/26/84	7/17/84	5/08/85
SPDES Permit Modified	10/1/85	Draft	7/23/85	Pending	8/23/85	Draft
Total SIUs and (Number of Permits Issued)	145(138)	8(8)	4(1)	4(0)	6(0) <sup>a</sup>	34(34)
Dates for Issuance of all SIU Permits	12/31/85	--	9/1/86	8/31/86	3/31/86	12/3/85
SIUs in Compliance with Fed. & Local Limits	131	8	4	4	b	34
Dates for Compliance by all SIUs	9/30/86	11/20/85	mid-1987		b	--
Program Elements in Place:					c	
- Manpower	x	x	x	x	x	x
- Funding Mechanism	x	x	x	x	x	x
- Enforcement Procedures	x	x	x	x	x	x
- Sampling & Monitoring Procedures	x	x	x	x	x	x
- Computerized (Manual) Data System	x	x	x	x	x	x

SIU - Significant Industrial User  
(needs pretreatment permit).

- a - Two facilities presently shut down.  
b - SIUs currently being rechecked as to status.  
c - Under Consent Order to develop implementation schedule.  
Submitted to DEC 11/20/85 and currently under review.

TABLE V

STATUS OF 61 POTENTIAL NONPOINT SOURCES OF  
GROUND OR SURFACE WATER CONTAMINATION

TABLE V -- STATUS OF 61 POTENTIAL NONPOINT SOURCES OF GROUND OR SURFACE WATER CONTAMINATION

Site Description	Phase 1		Phase 2		AGN	Enforcement			Evaluation for NPL	Remarks
	Start	End	Start	End		Stat. Code	Act. Code	Rem. Prog.		
<u>BUFFALO-LACKAWANNA SUB AREA</u>										
Bethlehem Steel					EPA		CNT			EPA Consent Order signed 8/85 for RCRA closure of facility.
Altift Realty	3/83	11/83	2/85	2/86	DEC	NE	CNT		8/86	
Times Beach	5/83	9/83			DEC					
Mobil Oil Corp.	5/83	9/83	8/85	4/86	DEC	NE	CNT		4/87	PRP doing Phase II,
MacNaughton-Brooks	11/84	6/85	10/85	12/86	DEC				5/87	
Allied Chemical	11/84	6/85	7/86	3/87	DEC	NE	CNT		6/87	
Buffalo Color (3 sites)					DEC	OS	CNT			
Squaw Island	11/85	3/86	7/86	3/87	DEC				6/87	
<u>TONAWANDA-NORTH TONAWANDA SUB AREA</u>										
Allied Chemical	5/83	9/83			DEC	NE	CNT			PRP drafting workplan for remediation.
Tonawanda Coke	3/83	11/83	10/85	12/86	DEC	NE	CNT		5/87	
INS Equipment Corp.	5/83	9/83	2/85	4/86	DEC	NE	CNT		12/86	Field work completed. Draft Phase II received/under review.
Huntley Power Corp.				3/86	DEC	OS	CNT		12/86	Field work completed. Draft Phase II reviewed. Awaiting final report.



Site Description	Phase 1		Phase 2		AGN	Enforcement			Evaluation for NPL	Remarks
	Start	End	Start	End		Stat. Code	Act. Code	Rem. Prog.		
Columbus-McKinnon					DEC					PRP phase I, Phase II completed. Cleanup scheduled to start 7/1/86.
Occidental Chemical, Durez Division (14 sites)					DOL	NE			Evaluated 9/84	<div>RI/FS      Design Invest.</div> <div>End          Start      End</div> <div>1. Sewers      11/85      11/85      2/86</div> <div>2. Panhandle   12/85      3/86      10/86</div> <div>3. Plant Site   10/85      10/85      9/86</div> <div>Scored below cutoff value of 28.5</div>
Gratwick Riverside Park	3/83	11/83	12/84	10/84	DEC	NE	CNT		Evaluated 9/84	Scored below cutoff value of 28.5. Negotiating with PRP for them to remediate.
<u>NIAGARA FALLS, NEW YORK SUB AREA</u>										
Love Canal					EPA DEC				On NPL	See Table VI for status report.
Hyde Park (OCC)					EPA DEC		CRT		On NPL	See Table VI for status report.
S-Area (OCC)					EPA DEC		CRT		On NPL	See Table VI for status report.
102nd St. (OCC)					EPA DEC				On NPL	See Table VI for status report.
102nd St. (Olin)					EPA DEC				On NPL	See Table VI for status report.

Site Description	Phase 1		Phase 2		AGN	Enforcement			Evaluation for NPL	Remarks
	Start	End	Start	End		Stat. Code	Act. Code	Rem. Prog.		
Niagara County Refuse Disposal			2/85	7/86	EPA DEC				10/81	On NPL. Phase II in progress.
Griffon Park					DEC				Evaluated 9/84	Scored below cutoff value of 28.5. Olin and Hooker will do Phase II as part of 102nd Street RI/FS.
Bell Aerospace Textron					DEC	NE	CNT			Surface impoundment shut down. Facility to be closed under RCRA.
Charles Gibson					DOL	OS	CRT			Consent Agreement signed - RI/FS start 5/85 RI/FS end 8/86
Buffalo Avenue					DEC	NE	CNT			PRP doing Phase II. Workplan is under negotiation.
Dupont, Necco Park					EPA	OS	ADM			Groundwater investigation by PRP start 4/85; end 6/87.
Reichold-Varcum Chemical Division					DEC					PRP RI/FS completed. Materials excavated and a drain system installed.
Dupont Plant (6 Sites)					DEC					Site investigations done. IRM's (soil removals) done at 3 sites. DEC supervised RI/FS in progress.
Occidental Chemical Buffalo Ave. Plant (9 sites)					DOL	NE	CRT			
Solvent Chemical	3/83	11/83	2/84	10/84	DOL	NE	CRT			
Olin, Buffalo Ave. Plant Site (3 sites)	3/83	11/83			DEC	NE	CRT			Proposed Consent Order sent to Olin by DEC in 11/85. Presently under negotiation.

LEGEND

Phase I - an initial site investigation to identify and generally characterize potential problems.

Phase II - a follow up site investigation to confirm or disprove the findings in Phase I and, if needed, to provide information required for a Hazardous Ranking System (HRS) score, which assigns priorities for action.

(# sites)- Number of sites in the total count that are in one location, and therefore listed together.

RI/FS - Remedial Investigation, Feasability Study

AGN - Agency

EPA - United States Environmental Protection Agency

DEC - New York State Department of Environmental Conservation

DOL - New York State Department of Law

NPL - National Priorities List

PRP - Potential Responsible Party

CNT - Consent Order

ADM - Administrative Order

CRT - Court Order

NE - Order Under Negotiations

OS - Order Signed

IRM - Initial Remedial Measure

Stat Code - Status Code

Act Code - Type of Action

TABLE VI

STATUS OF FOUR MAJOR SUPERFUND SITES

TABLE VI -- STATUS OF FOUR MAJOR SUPERFUND SITES

## LOVE CANAL

Background

The Love Canal site is in the southeast corner of the city of Niagara Falls approximately one-quarter mile north of the Niagara River. Hooker Chemical and Plastics Corporation (now Occidental Chemical Corporation) disposed of over 21,000 tons of various chemicals (including dioxin contaminated trichlorophenols) into Love Canal between 1942-1952.

The Love Canal property was sold by Hooker in April 1953 to the City of Niagara Falls Board of Education. During the mid 1950's, home construction accelerated in the area, and in 1954 a public school was built on the middle portion of the Canal. Over the next two decades, contaminated leachate came into contact with the surface of the Canal and nearby basement foundations. Contaminants also migrated through sewers to two nearby creeks.

Approximately 850 families have been evacuated from the Emergency Declaration Area (EDA), an area surrounding the Canal which extends 1500 feet from the Canal. Nearly 1050 families were eligible for evacuation. All homes on streets immediately bordering the Canal have been demolished, as has the school. Other homes within the EDA have or are scheduled to be demolished due to deterioration.

In October of 1978, the first phase of the Love Canal Remedial Program was initiated. The objective of the first phase was to contain chemical waste at the site. The program included a tile drain (leachate collection) system, a clay cover over the Canal, and an on-site treatment facility.

Leachate moving through the ground is intercepted and conveyed to a drain pipe. This lowers the level of the water inside the landfill and causes water in the ground outside the Canal itself to flow inward toward the pipes. The system is a barrier that prevents leachate from moving into the groundwater adjacent to the Canal. The leachate collection system and treatment plant began operating in December 1979.

The clay cap acts as an umbrella, preventing rainwater and melting snow from mixing with the toxic and hazardous chemicals underneath. The cap decreases the amount of water entering the landfill; prevents the runoff of contaminated rainfall; prevents human contact with the waste in the dumpsite; and stops atmospheric emissions from the buried chemicals.

### Status

On July 12, 1982, a cooperative agreement between NYSDEC and EPA obligated \$6,995,000 from CERCLA. Amendments have increased the total available CERCLA funding to nearly \$17,000,000. The Cooperative Agreement identified several remedial tasks to be taken in addition to those instituted in October 1978.

In the fall of 1982, sewers leaving the Canal were severed to deter future contaminant flow via these pathways. In 1984, an expanded cap (from 16 to 40 acres) with a synthetic liner was completed.

A long term monitoring/perimeter study began this past fall and is ongoing. Aside from establishing a monitoring system, this program will evaluate the effectiveness of the leachate collection system, and determine the extent of contaminant migration from the Canal.

This study is in three phases. Phase I was conducted this past fall and included the installation of wells and piezometers; and collection of water and soil samples for chemical analyses. Phase II (to be conducted this spring and summer) calls for additional perimeter survey explorations as necessary; collection of water and soil samples; preparation of a report on the findings of the perimeter survey and installation of piezometers in the Canal. Phase III consists mainly of the collection and analysis of groundwater and surface water samples at stations during the first year of the monitoring program.

On May 6, 1985 a Record of Decision (ROD) was signed which approved remediation of dioxin contaminated sewers and creeks in the Emergency Declaration Area (EDA) to prevent further migration of contaminated sediments. The collected sediments will be placed in interim storage at the Canal.

A contractor has been engaged to clean EDA storm and sanitary sewers which drained from the Love Canal site or which might have been contaminated by drainage from the site. The work has begun and should be completed by summer of 1986. Work entails removal of contaminated sediments by hydraulic cleaning, followed by remote television camera inspection to assure that sediments have been removed. The sewer sediments will be dewatered and eventually placed in an interim storage facility.

A contractor is currently being selected to design the creek remedy. Remediation of the creeks is expected to begin in the Spring of 1987 with the construction of the interim storage facility. The removal of contaminated creek sediments is expected to take place during the 1987 construction season. Sediment in Bergholtz Creek will be removed from approximately 150 feet above its confluence with Black Creek downstream to its confluence with Cayuga Creek. Black Creek will be remediated from 98th Street to its confluence with Bergholtz Creek.

A temporary berm is scheduled to be constructed in the 102nd Street outfall delta area to prevent the migration of contaminated sediments. The design and location of this berm will be based upon sediment sampling previously performed by Malcolm Pirnie (1983 EID) and sampling performed this spring for the 102nd Street Landfill remedial investigation. Long term remediation of the delta area will be coordinated with remediation of the 102nd Street Landfill. To date, neither the long term remedial action for the 102nd Street Landfill nor the site's contribution to contamination of the delta area has been established.

Large quantities of wastes will be generated as a result of remedial activities at Love Canal. Most of the wastes generated are likely to be contaminated with 2,3,7,8 TCDD. Since no commercial facility is presently permitted to treat or dispose of dioxin contaminated wastes, these wastes are subject to interim storage at Love Canal. This is consistent with the fact that interim storage is necessary prior to final destruction/disposal.

A final means of destroying/disposing these wastes continues to be investigated. An experimental burn of Love Canal creek sediments originally scheduled to take place in January at EPA's Combustion Research Facility has been postponed until this summer. The experiment should provide an indication of the incinerability of the sediments as well as the degree of contamination (if any) in the effluents generated during their incineration.

The NYSDEC's Plasma Arc was recently transported to Love Canal. Plans call for the Plasma Arc to thermally treat the leachate treatment plant "sludge" currently stored at the site. NYSDEC hopes to conduct test burns with the unit by the end of this calendar year. Unfortunately, this unit can only treat liquid wastes at this point in time.

Selection of a contractor to perform a remedial investigation and feasibility study for the 93rd Street School is also underway. Remediation will be performed in conjunction with and highly dependent upon remediation in the rest of the EDA.

## HYDE PARK LANDFILL

The Hyde Park Landfill is in the Town of Niagara, New York. The Landfill was utilized by Hooker Chemicals & Plastics Corporation (now OCC) as a dump site from 1953 to 1975. During that time, Hooker disposed of approximately 80,000 tons of hazardous materials at the site, including approximately 3,300 tons of 2,4,5-trichlorophenol ("TCP") wastes. TCP wastes are known to contain significant amounts of 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD").

Chemicals migrating from the Landfill exist in two liquid phases - non aqueous phase liquids ("NAPL") and aqueous phase liquids ("APL"). NAPL is a mixture of a wide range of organic chemicals. This mixture is predominately composed of chemicals with relatively low solubility in water and a specific gravity heavier than water. At the Hyde Park Landfill, there is also evidence of a wide range of organic constituents that are either dissolved in or identified in surface water, ground-water, soil, sediment or NAPL.

The Landfill is in a complex hydrogeologic environment. Glacial overburden composed of fine clays, silts, and some sand overlies a carbonate and shale bedrock. Stratigraphically the bedrock is composed of the Lockport Dolomite Formation (approximately 60 feet thick) which is in turn underlain by an approximately 240 foot thickness of rock formations composed of limestone, dolomite, sandstone, siltstone and shale. Below these formations is the Queenstone Shale.

The bedrock is a fractured medium in which the localized ground-water flow is often controlled by the orientation and location of the fractures and joints. The horizontally layered nature of the Lockport, Rochester, and underlying formations imposes additional constraints on ground-water flow. Ground-water movement is both downward and horizontal, from the overburden to the bedrock and through the bedrock to the Niagara River. Some of this ground-water exits the Niagara Gorge Face in the form of ground-water seeps.

EPA filed a lawsuit in 1979 to require OCC to remediate the Hyde Park landfill. After several months of negotiations EPA, the State, and OCC filed a proposed Stipulation and Judgment Approving Settlement Agreement on January 19, 1981 ("Settlement Agreement").

### Status

OCC has been implementing the Settlement Agreement subject to governmental oversight since 1982. The Aquifer Survey was completed during 1982 to 1983, and OCC's proposed Requisite Remedial Technology ("RRT") was submitted to EPA and the State of New York in April and May 1984. This study proposed remedies for all contaminated areas, except there was no proposed source control program and no proposed remedy for certain portions of the contaminated bedrock ground-water.



As required by the Settlement Agreement, EPA and the State responded to OCC's RRT study on September 5, 1984. This response generally determined that OCC had submitted insufficient information to conclude that either source control or remediation of the aforementioned portion of the contaminated bedrock ground-water was not "requisite" within the meaning of the Settlement Agreement. The response also outlined what additional data and requirements would be necessary for each aspect of the proposed RRT.

Since August 1984, EPA, New York State and OCC negotiated details of an acceptable RRT program.

EPA used its in-house expertise in conjunction with independent expert consultants, who worked more than 15,000 hours on the negotiations at an expense of approximately \$1.5 million.

The parties have now agreed on a comprehensive remedial program described in the Stipulation on Requisite Remedial Technology Program. When approved by the Court, the agreement will modify the Hyde Park Settlement Agreement to require OCC to perform a comprehensive remedial program at the site, including areas for which there are no specified remedies in the original Settlement Agreement, in order to make them compatible with the specified RRT remedies and with newly available information.

Specifically, the RRT includes a number of activities to address:

- °Gorge Face seeps;
- °Treatment and monitoring of collected liquids (NAPL & APL);
- °Deep formations study (Irondequoit/Reynales formations);
- °Source Control;
- °Containment and collection of contamination in the overburden and Lockport bedrock;
- °Community monitoring during investigative and remedial activities.

Within 60 days after the RRT Stipulation becomes approved by the Court, OCC must submit a schedule for the entire project for the governments' approval.

OCC has submitted an application for an incineration permit that would allow them to burn Hyde Park wastes contaminated with PCB and TCDD. This application is now being reviewed by EPA and New York State.

## S-AREA SITE

Background

The S-Area Site is an 8-acre landfill owned by Occidental Chemical Corporation where approximately 53,000 tons of organic and inorganic chemicals were disposed of by the site owner from 1947 to 1961. Use of the site for debris disposal ended in 1975. Located east of the site, just across 53rd Street, is the City of Niagara Falls drinking water treatment facility.

After the landfill was closed, Occidental capped the site. At the present time, two lagoons exist on site. These lagoons are for non-hazardous wastewater from plant operations and are operated under State permits. In 1969, during a routine inspection of the city water plant, small amounts of chemicals were found in the intake structures. In 1978, sampling of the intake structures and one of the bedrock intake tunnels revealed chemical contamination. Soil sampling of the plant property also revealed chemical contamination. In 1983, the the City of Niagara Falls Water Authority closed the contaminated bedrock intake tunnel and began utilizing the overburden intake tunnel.

In December 1979, the Department of Justice filed a civil action against Occidental. The legal action began a series of negotiations, which continued until 1984. A Settlement Agreement was signed in January 1984 that allows the Federal and State Governments to establish criteria and oversee clean up activities at both the S-Area Site and the water treatment plant. The Settlement Agreement was approved on April 15, 1985; the effective date of the Agreement was June 14, 1985.

Status

° The Settlement Agreement contains provisions for:

- Surveys and studies program. This requires the drilling of survey wells and borings, to determine the areal and vertical extent of chemical migration from the landfill site in the overburden towards the Niagara River and in the Lockport Formation.
- Containment program. This details the procedures that shall be followed in order to contain and collect chemicals which have migrated from the landfill. The program addresses conditions at the landfill site, a small area to the north of the landfill and the water treatment plant (including intake tunnels).

- Monitoring program. This entails physical and chemical monitoring activities at the landfill site, northern landfill site and the water treatment plant (including intake tunnels).
- Maintenance program. This is designed to insure the proper performance of the remedial systems installed pursuant to the containment and monitoring programs.
- An environmental health/safety plan will be implemented during the construction activities associated with the containment program. The plan is designed to provide appropriate precautions to protect the health of all personnel, residents, and nearby workers and to the environment outside the immediate areas by controlling the airborne dispersion of particulates and volatile organic chemicals.
- Occidental submitted plans, specifications and protocols for the subsurface investigative work that is scheduled to begin in April 1986. The documents have been reviewed by the governmental parties and comments provided to Occidental.

#### PLANNED SCHEDULE

<u>Activity</u>	<u>Activity Period</u>	
	<u>From</u>	<u>To</u>
- Surveys/Studies Phase	November 1985	June 1988
- Containment Systems		
o S-Area Landfill	May 1989	June 1991
o Northern Area	August 1989	March 1990
- Drinking Water Facility		
o Main Plant	May 1990	June 1994
o Intake Tunnel	November 1988	April 1992
- Dioxin strategy plan entails sampling of the entire Buffalo Avenue plant site (excluding S-Area).		
- Construction activities associated with the water treatment plant are to be initiated no later than the beginning of the 4th construction season (1989) after the effective date of the agreement.		

102nd STREET LANDFILL

Background

This site is a 20-acre landfill bordering on the Niagara River, and is owned by Occidental Chemical and Olin Chemicals. An estimated 89,000 tons of chemicals were dumped at this site. These chemicals include tetrachloroethene, trichloroethylene, benzene, arsenic, trichlorophenol, hexachlorocyclohexane(Lindane), chlorobenzenes, and organic phosphates.

On June 26, 1984 Judge John T. Curtin U.S. District Court Western District, State of New York approved the Remedial Investigation (RI) Workplan.

The RI is designed to characterize the nature and extent of the presence of chemicals originating from the site at both onsite and offsite locations. This includes studies of: the surficial soils adjacent to the landfill, the groundwater both on and offsite, the sediment in the Niagara River, and any seeps through the bulkhead boqdering the landfill.

The data and conclusions of the Remedial Investigation will be utilized to perform a Feasability Study (FS) to develop, evaluate and select final remedial action for the site.

Current Status and Schedule

RI field work began in September 1985.

The groundwater study has begun and will be continued for 12 months.

The Niagara River sediment survey, the bulkhead study and the offsite soils investigation will begin in the spring.

The draft RI report is scheduled for compleation by January 1987 at which time the loading to the Niagara River will be estimated.

The FS wll be performed after approval of the RI report. At that time the reduction in the loading to the Niagara River will be estimated.

Design and Implementation of the chosen alternative will take place after review and comment by the public and approval by the agency.

TABLE VII

STATUS OF PERMIT ACTIVITIES FOR  
RCRA HAZARDOUS WASTE FACILITIES

TABLE VII -- STATUS OF PERMIT ACTIVITIES FOR RCRA HAZARDOUS WASTE FACILITIES

The following permit, closure, and post-closure schedules are based on current permit timeframes. NYSDEC is expected to receive final authorization for permitting shortly. The State permitting priorities and schedules may result in delaying some of the permit outputs. In addition, the Region is planning to revise the corrective action timeframes, increasing the amount of time needed to perform a site investigation and remedial investigation. This action will delay the public noticing of some draft permits.

<u>NAME</u>	<u>PART B REQUESTED</u>	<u>PART B SUBMITTAL</u>	<u>DRAFT PERMIT</u>	<u>FINAL PERMIT ACTION</u>	<u>COMMENTS</u>
Olin Corp. - Niagara Falls Plant (2) NYD002123463	2/24/82	8/31/82	4/84	Final Permit issued 4/84	Partial closure of container storage area planned.
Occidental Chemical Corp. Niagara Plant NYD000824482 (3)	9/9/82	3/17/83	1/87		Incinerator facility
Reichhold NYD002103216 (3)	10/29/82	4/29/83			Closure complete 9/30/85
Battery Disposal Technology NYD000632372 (3)	9/9/82	3/17/83	12/6/85	3/86	On-site storage and treatments
Bell Test Center NY4572024624	5/13/83	(1)			Undergoing closure
Frontier Chemical Waste Process, Inc. NYD043815703 (2)	9/9/82	3/17/83	6/87		Commercial facility Part B revisions 12/84, 9/85
Envirotek Ltd. (2)	9/9/82	3/17/83			Complaint for late and incomplete permit application issued 11/85
Buffalo Color Corp. NYD080335052 (4)	11/14/83	5/24/84	2/87		Partial closure planned

<u>NAME</u>	<u>PART B REQUESTED</u>	<u>PART B SUBMITTAL</u>	<u>DRAFT PERMIT</u>	<u>FINAL PERMIT ACTION</u>	<u>COMMENTS</u>
Voelker Analysis, Inc. NYD991291782 (2)	11/19/83	5/23/83	12/86		Commercial storage/treatment facility
Allied Corporation (2)	9/9/82	3/17/83	2/24/84	Final Permit Issued 7/84	
Love Canal Leachate Treatment plant NYD000767657	11/22/82	(1)			Superfund site - needs no permit - but must meet RCRA technical requirements.
SCA Chemical Waste Services (Model City) NYD049836679 (2), (4)	2/14/83	8/12/83	10/87		Commercial disposal facility
CECOS International NYD080336241 (2), (4)	2/14/83	8/16/83	4/87-facility 8/86-SCRF landfill		Commercial disposal facility
Bell Aerospace Textron NYD002106276 (4)	3/29/84	9/28/84	4/87		Undergoing closure - Post Closure Permit Required
Occidental Chemical Corp. Hyde Park NYD980648281 (4)		3/4/83	N/A	N/A	Superfund site - needs no permit - but must meet RCRA technical requirements.
Bethlehem Steel NYD002134880 (4)	3/30/83	(1)			Undergoing closure. Closure/post closure plans submitted 11/85. (requirements for for Post Closure Permit not finalized).

U.S. Airforce - 914th TAG NY0570024273 (2)	12/20/83	6/22/84	9/86	11/86	Storage facility
General Motors Corp. Harrison Radiator Div. NYD002126852 (2)	3/4/85	9/13/85			Undergoing Closure/Post Closure Plans submitted. (Requirements for Post Closure Permit not Finalized.)
Van de Mark Chemical Corp. NYD991290529 (4)					Inactive Landfill undergoing closure. Closure plan submitted 11/85.
FMC Corp. NYD002126845 (4)	5/24/85	11/8/85	7/87		On-site storage and surface impoundment

LEGEND

- (1) Application withdrawn
- (2) Tank, container and/or waste pile facility
- (3) Incinerator facility
- (4) Landfill and/or surface impoundment



## NARRATIVE SUMMARIES FOR RCRA FACILITIES LISTED IN TABLE VII

1. Olin Corporation, Niagara Falls

Final RCRA permit issued 4/84 for on-site treatment and storage. Facility has requested permit modification for closure of permitted units and permitting replacement units.

2. Occidental Chemical Corp. - Niagara Plant

Issues: This facility is applying for a RCRA permit to store and incinerate on-site generated wastes as well as to store and incinerate Superfund-wastes (including PCB's and dioxins) generated at OCC's Hyde Park landfill. The required trial burns are currently prohibited by the facility's State air and solid wastes permits. The reported needed State permit modifications for the trial burns will take approximately one year to complete, assuming that there is no significant public opposition. The Superfund clean-up of Hyde Park will be slowed down by the trial burn delay. This will cause problems for CERCLA in negotiating a final settlement.

Status: The Regional Administrator and State Commissioner have discussed possibilities of expediting State procedures so that the trial burn can occur in the near future. An EPA Public Notice for the trial burn was issued on 12/2/85 and a Public meeting held on 12/3/85. OCC is currently planning for the earliest trial burns to occur in the summer of 1986.

Next Step: A final State decision on the trial burn phase of the program has been made, and OCC has been advised to begin to prepare a draft State Environmental Quality Review (SEQR) to cover the trial burns. EPA Superfund personnel will negotiate with OCC on final scheduling of the Superfund Hyde Park remediation program agreement.

3. Reichold, Niagara Falls

Facility completed closure of storage and treatment units 9/30/85.

4. Battery Disposal Technology

Final RCRA permit was issued in April, 1986 for on-site storage and treatment.

5. Bell Test Center

Issues: Inactive incinerator, storage pad and surface impoundment will be closed. (A Department of Defense site.) The impoundment is not regulated.

Status: Original (2/85) Closure Plan was revised and resubmitted in 4/86.

Next Steps: Closure Plan review to continue.

6. Frontier Chemical Waste Process, Inc.

Issues: This is a large, complex, commercial facility which has been improperly managed and which has contaminated the groundwater.

Status: A revised Part B application was submitted on 9/30/85. A State review of the application was received by EPA on 1/7/86 and is under review. A State order for an expanded groundwater monitoring system designed to assess releases from the plant's operations is being developed. The State has also issued two orders for interim status violations.

Next Steps: Tracking of State enforcement follow-up will be carried out by EPA.

7. Envirotek, Ltd.

Issues: This is a commercial storage/treatment facility which has has a number of interim status violations.

Status: A Complaint was issued by EPA in November 1985 for failure to submit a complete Part B application and other interim status violations. A settlement conference was held in January to discuss the EPA complaint. A settlement could not be reached with the company and an amended complaint was issued in February.

Next Steps: An EPA administrative law hearing will be scheduled on the issue in the summer of 1986. (The facility's interim status violations have also been cited in two State Consent Orders.) A Site Investigation is to be completed in August 1986. A major component of the amended complaint is that Envirotek shall immediately cease operating its hazardous waste management units that treat, store or dispose of hazardous waste.

8. Buffalo Color Corp.

Issues:—The facility's groundwater monitoring system has recently been expanded for the three surface impoundments on site. The Part B application is not complete.

Status: Surface Impoundment No. 3 is inactive and will be closed. The approved groundwater system was activated in November 1985. (This recently expanded groundwater system serves to resolve the 3/84 EPA complaint issued against BCC.)

Next Steps: Enforcement action has been initiated for a late and incomplete Part B. A Preliminary Assessment will be completed by DEC by the end of 2nd Quarter for prior releases, with a Site Investigation completed by the middle of the fourth quarter. (Past releases are suspected.)

9. Voelker Analysis, Inc.

Issues: This is a commercial storage/treatment facility. EPA has taken enforcement action against the company for submittal of an incomplete Part B application.

Status: A review of the facility's revised application is progressing. Some deficiencies still continue.

Next Steps: Voelker is required to submit a revised Part B application in July, 1986.

10. Allied Corporation

Final RCRA permit issued 7/84 for on-site treatment and storage.

11. Love Canal Leachate Treatment Plant

Issues: The facility is operated by the DEC to clean-up the Love Canal Superfund site. Contaminated leachate is treated in an activated carbon system, with effluent being discharged to the Niagara Falls municipal wastewater treatment plant. Hazardous waste sludge is a by-product of this treatment process.

Status: Plasma arc technology is planned to destroy the contaminated sludges that are generated at the facility. Development of the plasma arc reactor has been progressing in Canada under contract to the DEC.

Next Steps: Future testing schedules and plans for installing the Plasma Arc unit at the Love Canal site are being developed.

12. SCA, Inc.

Issues: This is a large, complex, commercial storage/treatment/land disposal facility. The groundwater monitoring system at the site is still not adequate. Past operating performance has been poor, with many penalties assessed, particularly for improper management and disposal of PCB's. Prior releases from solid waste management units have been reported.

Status: An extensive hydrogeologic study (11/84 - 9/85) of the SCA site has been reviewed and approved by DEC and EPA. New well installations have begun. Some 15 of the planned 64 new wells around active units (LF No. 11A, B) have already been installed. The remaining well installations were interrupted due to seasonal weather disruptions, but will be completed by 7/1/86. Once installed, the 64 new wells will undergo an accelerated groundwater sampling program. An EPA Groundwater Task Force inspection report was completed in April, 1986.

Next Steps: An EPA/DEC inspection was conducted in December 1985 to investigate new well construction. Preliminary Assessment work should be completed by DEC within the second quarter of FY 86 while the State's Site Investigation phase is to be done in 7/86. Start up of a RCRA Remedial Investigation for SCA is planned in February, 1987. EPA and DEC are presently reviewing the RCRA Part B application. It is anticipated that a RCRA permit may be issued by December, 1987.

13. CECOS International, Inc.

Issues: This is a large, complex, commercial storage/treatment/land disposal facility. Two EPA orders are requiring CECOS to implement an expanded groundwater monitoring program around landfills No. 1 thru 5. NYSDEC is developing modifications to CECOS' State Solid Waste permit to expand the groundwater monitoring system in other areas of the site. CECOS is planning to construct a new interim status landfill in the center of the site, identified as the Secure Chemical Residue Facility (SCRF). The new SCRF landfill will be double lined with leachate collection above and between the liners.

Status: A revised Part B application was submitted on 9/30/85 for the entire facility. The design of the planned, new Secure Chemical Residue Facility (SCRF) landfill has also recently been revised. This revised design is being reviewed for compliance with the Hazardous and Solid Waste Acts' Minimum Technology Standards. New well installation is progressing per EPA's 3008 & 3013 Orders.

Next Steps: Initial review of the revised design for the new SCRF landfill was completed on 2/14/86, and CECOS has been requested to submit additional information. EPA/DEC inspected well installations in December 1985 and found the well system associated with the active unit (#5) to be in compliance with the Loss of Interim Status requirement. A comprehensive sampling and analysis program for groundwater monitoring has just begun. A preliminary assessment will be completed by EPA in June, 1986. A site investigation will be pursued by CECOS, with a workplan to be developed by June, 1986. A Groundwater Task Force inspection is targeted for the middle of 1986.

14. Bell Aerospace Textron

Issues: Significant groundwater contamination has been detected on-site as a result of releases from, as yet, unknown numerous sources. The only regulated unit, a surface impoundment, was shut down and will be closed.

Status: An expanded groundwater monitoring program is being worked out in final form to investigate the character and extent of the contamination. DEC currently plans to public notice the approved closure plan this summer.

Next Steps: After final closure plan approval, post closure activities will be monitored. Finalization of the groundwater assessment plan should occur shortly. A preliminary Exposure Information Report was submitted by Bell in December 1985. A Preliminary Assessment will be done by DEC in the 2nd quarter of FY 87 and a Site Investigation should be completed in the 3rd quarter.

15. Occidental Chemical Corp. - Hyde Park

Issues: This is a new facility to be constructed for remediation of OCC's Hyde Park Superfund site. Contaminated leachate from the OCC Hyde Park landfill will be stored and treated at this facility with a portion, the non-aqueous phase liquid (NAPL) planned to be incinerated at OCC's Niagara Plant.

Status: Part B application review has progressed to the point where some information, concerning an additional storage tank at the site, remains to be submitted.

Next Steps: Remedial action for this site is dependent on the Superfund Agreement which has been negotiated between EPA and OCC. The Agreement/clean-up will probably not proceed without some preliminary approval of OCC's Niagara plant incinerator as a disposal alternative.

16. Bethlehem Steel Corp.

Issues: BSC is regrading their entire shore front property for the purpose of constructing an industrial park. Three RCRA inactive landfills are located in this area. An adequate groundwater monitoring program has been implemented at the site. However, the closure/post closure plans have not been developed. BSC is seeking an official delisting determination for wastes in two of the landfills.

Status: Under the EPA Consent Order, signed 8/85, BSC submitted a closure/post closure plan on November 23, 1985. An October 1985 groundwater report submitted by BSC, regarding new well installation and accelerated monitoring (from 2/85 thru 8/85), has been reviewed. As a result of this review, EPA is requiring BSC to initiate additional groundwater monitoring. A temporary cover for one landfill will be installed in the summer of 1986 until the delisting determination is made.

Next Steps: Delisting petition as well as the closure/post closure plan are being reviewed by EPA.

17. U.S. Air Force - 914 Tactical, Niagara Falls

Draft RCRA permit due 9/86 for on-site storage and treatment.

18. GMC, Harrison Radiator

Undergoing closure of waste piles. Post closure permit required. Closure plan scheduled for public notice 9/86.

19. Van De Mark Chemical

Inactive landfill undergoing closure. Unit is not subject to post closure permit.

20. FMC Corp.

RCRA permit being developed for on-site container storage and storage surface impoundment. Draft RCRA permit due 7/87.