



Department of Environmental Conservation



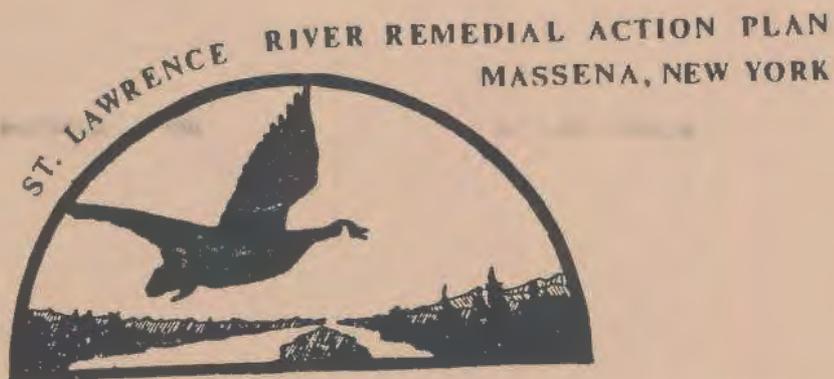
Division of Water



St. Lawrence River at Massena Remedial Action Plan

1992 Update

August 1992



New York State Department of Environmental Conservation
MARIO M. CUOMO, Governor THOMAS C. JORLING, Commissioner

**ST. LAWRENCE RIVER
AT MASSENA**

REMEDIAL ACTION PLAN

1992 UPDATE

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New York State Department of Environmental Conservation
Division of Water
50 Wolf Road
Albany, New York 12233-3501

The St. Lawrence River at Massena Remedial Action Plan, 1992 Update, was prepared by the New York State Department of Environmental Conservation in cooperation with the Massena Remedial Advisory Committee. Advisory Committee members are listed in Chapter 5.

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CHAPTER 1

INTRODUCTION

The International Joint Commission (IJC) has identified 43 Areas of Concern in the Great Lakes drainage basin where pollutants are impairing beneficial uses of a waterbody. The St. Lawrence River near Massena/Cornwall is one of these Areas of Concern.

New York State, the other Great Lakes states and the Province of Ontario, are preparing and implementing Remedial Action Plans (RAPs) for the remediation of the problems in these Areas of Concern under the requirements of the United States-Canada Great Lakes Water Quality Agreement (GLWQA). A RAP embodies an aquatic ecosystem approach to restoring and protecting the biota and water quality in the Area of Concern. Correction of these problems in the Massena/Cornwall Area of Concern will contribute to overall improvement of environmental conditions in the river and in the Great Lakes system.

As a first step in preparing the Massena RAP, the New York State Department of Environmental Conservation (NYSDEC) formed a Citizens' Advisory Committee (CAC) that included residents of the St. Lawrence River Basin, industry representatives, union officials, outdoor sports enthusiasts, environmentalists, research scientists and local government representatives. NYSDEC staff and the Citizens' Advisory Committee worked together to develop the Massena RAP.

Development of RAPs is a three stage process. The Stage I Massena RAP was completed in November, 1990. It describes the environmental problems and impaired uses of the Area of Concern, the pollutants causing impairments of uses, and the sources of those pollutants.

The Stage II RAP was completed in August, 1991. It describes a remedial strategy, recommends remedial actions, makes specific remedial commitments and describes methods for monitoring remedial progress in the AOC. The remedial strategy aims to restore the water quality within the St. Lawrence River Massena area, and to eliminate adverse impacts to downstream areas.

Following the completion of the Stage II RAP, a Remedial Advisory Committee (RAC) was formed to assist NYSDEC in the remediation process. Much like its predecessor (the CAC), the RAC is representative of concerned groups within the community that have an interest in the St. Lawrence River Area of Concern. In addition to RAC members, agencies at all levels of government will be asked to participate and provide input to RAP implementation as needed.

To track the implementation of the RAP, NYSDEC will issue an annual RAP update to show remedial progress and make new commitments as needed. This is the first annual update for the St. Lawrence River at Massena RAP.

Thus, the RAP will be a continuing process for remediating known problems and to carry out investigations needed to further identify water quality impairments and their causes. NYSDEC will use the RAP as a basis for deciding on remedial priorities, to seek support from funding agencies and to commit to specific remedial actions.

Finally, when monitoring results indicate the beneficial uses of the Area of Concern have been restored, a Stage III RAP, documenting the restoration is to be submitted to the International Joint Commission.

Details of water quality impairments and potential sources discussed in Stage I will not be repeated here. For detailed evidence of impairments and sources the reader is referred to the Stage I RAP. In Stage II, current remedial and control programs are evaluated, and remedial recommendations and commitments are developed in response to the problems and sources identified in Stage I. For details, please refer to Stage II. Both of these documents (Stages I & II) are available from NYSDEC, Division of Water, 50 Wolf Road, Albany, New York, 12233-3501.

A summary the major completed remedial actions related to the Area of Concern since the U.S. committed to RAP development in 1985 is shown in Table 1-1. There are numerous other remedial actions in progress throughout the basin documented in other locations in this update.

TABLE 1-1 - REMEDIAL PROGRESS HIGHLIGHTS

This table shows the summary of major completed remedial actions related to the St. Lawrence River at Massena Area of Concern since the U.S. government committed to RAP development in 1985.

<u>Date</u>	<u>Action</u>
General:	
1985	U.S. government commits to RAP development
12/87	Massena Citizens' Advisory Committee (CAC) formed
11/90	Stage I RAP completed.
8/91	Stage II RAP completed.
11/91	Remedial Advisory Committee replaces CAC for implementation activities.
4/92	International Monitoring Workshop held in Massena, NY.
ALCOA Hazardous Waste Sites:	
1/85	NYSDEC enters into consent order with ALCOA to investigate and remediate all hazardous and industrial waste areas at the facility.
8/87	ALCOA completes Remedial Investigation report (volumes I & II).
3/89	Supplemental Remedial Investigation report completed.
Fall 89	A leachate collection system is installed at the general refuse landfill as an interim remedial measure to intercept contaminant migration to the East Marsh.
Fall 90	Contaminated sediment is excavated and shipped off-site from the West Marsh (8,000 cubic yards) and the first four hundred feet of the unnamed tributary stream bed (1,500 cubic yards) at a cost of \$7 million.
10/90	Due to the complex nature of the remedial project, a new revised consent order is issued to guide the remaining investigations, the remedial design, implementation, etc.
11/90	Feasibility Study finalized for nine ALCOA plant site areas.
12/90	The General Refuse Landfill ceases to receive waste and an interim cap is installed.
2/91	ALCOA completes feasibility study for the remaining plant sites.
3/91	NYSDEC issues a Record of Decision (ROD) to document specified remedial alternatives to be implemented at eight of the ALCOA plant sites. The remedy includes a combination

of contaminant removal, treatment and containment at an estimated cost of \$46-52 million.

1/92 NYSDEC issues a second ROD for the remaining six sites on the ALCOA property. The remedy includes leachate collection, groundwater treatment, and removal and treatment of soils and sediments at an estimated cost of \$90-127 million.

General Motors Hazardous Waste Sites:

4/85 EPA and General Motors enter into a consent order for a Remedial Investigation/Feasibility Study.

5/86 General Motors submits draft Remedial Investigation report to EPA.

Summer 87/88 General Motors implements interim remedial measures including the closing, grading and temporary capping of the industrial landfill.

5/88 General Motors submits phase II Remedial Investigation report to EPA.

11/89 General Motors submits draft feasibility study report to EPA.

12/90 EPA issues Record of Decision (ROD) for first operable unit that includes sediment, soil and sludge excavation and treatment, as well as groundwater recovery and treatment. The estimated cost for completion of the remedy is \$78 million.

3/92 EPA issues ROD for second operable unit which includes a mix of treatment and containment of contaminated soil at an estimated cost of \$33-47 million.

4/92 EPA issues unilateral administrative order compelling implementation of the first operable unit remedial actions.

Reynolds Metals Hazardous Waste Sites:

9/87 NYSDEC enters into a consent order with Reynolds to develop and implement a facility wide remedial program.

1988 Interim remedial measures include removal of contaminated sediments and capping north yard drainage ditch (outfall 004). Other highly contaminated areas were capped and fenced.

1989 Interim remedial measures include completion of contaminated sediment removal, capping and ditch relocation for outfall 004. Outfall 002 is diverted to a treated system that includes carbon adsorption.

7/90 Remedial Investigation report completed.

1990 Approximately 2,875 cubic yards of contaminated material is excavated from the 002 outfall ditch and disposed.

2/91 Construction completed to permanently divert outfall 004 to a activated carbon treatment system. Also, a shallow groundwater collection system installation is completed.

8/91 Feasibility study report completed.

1/92 NYSDEC issues Record of Decision for remedial action at the Reynolds facility. The remedy includes: removal and/or treatment of contaminated soils and sediments; upgrade of groundwater, surface water, and leachate collection and treatment systems. The estimated remedial costs for the selected remedy is \$37 million (\$16 million has been spent on interim remedial measures at this facility).

Industrial Discharges:

Fall 85 General Motors completes installation of carbon adsorption unit for some stormwater discharges (GM has had carbon treatment on process discharge since 1981).

7/88 Reynolds adds carbon adsorption treatment to one of its outfalls.

2/89 NYSDEC issues draft SPDES permit modifications to ALCOA, General Motors, and Reynolds Metals, requiring PCB limits of nondetectible at the Method 608 detection limit of 0.065 ug/L. This limit was subsequently challenged.

2/91 Installation of the North Yard treatment system at Reynolds Metals

6/91 ALCOA adds carbon adsorption to one outfall.

7/91 ALCOA required to pay \$7.5 million in criminal fines and civil penalties to New York State: \$3.75 million penalty for SPDES permit wastewater discharge violations, and \$3.75 million criminal fine for illegal storage, shipping and disposal of hazardous waste.

8/91 ALCOA enters into a consent order with NYSDEC that outlines actions to reduce PCB discharge from the facility. This settles the 2/89 SPDES permit action (see above).

12/91 Installation of a dry scrubber (to replace a wet system) for air pollution control and other water reduction actions, reduces wastewater discharges from the ALCOA facility from 12 to 6 MGD.

3/92 ALCOA installs carbon treatment on a second outfall.

3/92 Reynolds Metals agrees to a consent order that includes nondetectible levels of PCB in discharges, bioaccumulation monitoring and continued site remediation. This settles the 2/89 SPDES permit action (see above).

Bottom Sediments:

9/89 EPA issues separate unilateral administrative orders to both ALCOA and Reynolds, which require investigation and remediation of contaminated sediments in the Area of Concern.

Nonpoint Sources:

1/90 NYSDEC completes Nonpoint Source (NPS) Program.

6/90 NYSDEC completes NPS assessment report for all counties in the basin.

6/90 NYSSWCC & NYSDEC complete "Guidelines for Establishing Water Quality Strategies".

4/91 NYSDEC completes a Best Management Practices manual for agricultural NPS control.

4/92 NYSDEC completes Best Management Practices catalog for agricultural sources.

Natural Resource Damages:

9/90 New York State completes a pre-assessment screen to summarize potentially impacted natural resources in the Massena Area of Concern.

2/92 The St. Lawrence Environmental Trustee Council (consisting of government representatives from New York State, the St. Regis Mohawk Nation and the U.S. Federal government) hires a consultant to prepare a Natural Resource Damages Assessment Plan for the Massena area.

CHAPTER 2

RAP PROGRESS

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This chapter gives an overview of accomplishments made toward implementation of the recommendations of the St. Lawrence River at Massena Remedial Action Plan since the Stage II report was published in August 1991. These accomplishments are summarized at the end of this chapter in Table 2-1. Major accomplishments and new RAP initiatives are discussed below. Public Participation is discussed separately in Chapter 5.

HAZARDOUS WASTE SITES

ALCOA Plant Site Remediation

As was documented in the Stage II Remedial Action Plan (August, 1991), NYSDEC issued a Record of Decision (ROD) in March 1991 for eight of the fourteen areas of concern identified on the ALCOA property. Many years of extensive investigation culminated in this ROD, which presented the selected remedial actions to be implemented in these eight areas at a total estimated cost of \$46-52 million. Selected remedial remedies include removing contaminated waste and sludges, treating severely contaminated materials on-site and disposing of materials on-site in a secure landfill, and containing potlining waste in place or in the landfill. Please refer to Appendix B of Stage II for more details.

On September 30, 1991, NYSDEC issued a Proposed Remedial Action Plan (PRAP) for the six remaining sites on the ALCOA property. These sites are the Waste Lubricating Oil Lagoon, General Refuse Landfill, Landfill Annex, the Sanitary and 60 Acre Lagoons and the East Marsh. Comments were solicited on this plan and a public hearing was held on October, 24, 1991. Following review of the public comments, the Department issued a Record of Decision (ROD) for all of the remaining ALCOA waste sites on January 22, 1992. Remediation will include removal and treatment of soils contaminated

with PCBs and other hazardous wastes, leachate collection and treatment of groundwater. A summary of this ROD is shown in Appendix A.

Under a previously existing consent order, ALCOA has agreed to remediate all fourteen hazardous waste sites on its 3,500 acre plant site at an estimated cost exceeding \$127 million. Therefore, implementation of both RODs is underway as design work is ongoing. ALCOA submitted initial detailed design documents to NYSDEC in October 1991. In addition, a NYSDEC on-site monitor was assigned to the ALCOA plant in February 1992, to oversee site remedial activities.

General Motors Site Remediation

As documented in the Stage II RAP, EPA issued a Record of Decision (ROD) for the first operable unit at the General Motors facility in December 1990. The first operable unit includes treating of contaminated river sediments and on-site sludges, soil and groundwater.

On March 31, 1992, EPA issued a ROD for the second operable unit which includes the east disposal area and the industrial landfill at the site (see appendix C). These two RODs encompass the selected remedial actions for all contaminated areas associated with the General Motors facility.

The two Records of Decision issued by EPA require General Motors to clean up its hazardous waste sites, including contaminated sediments in the St. Lawrence and Raquette Rivers at an estimated cost exceeding \$120 million. The remedial design is now in progress for operable unit 1 under the authority of an EPA unilateral administrative order. See chapter 4 for the implementation schedule.

Human Health Risk Assessment

A three part health risk assessment for the area has been performed in conjunction with the consent decree for General Motors. General Motors has provided \$620,000 to fund part of this investigation with NYSDEC providing the remainder. The Health Risk Assessment was designed to study the major potential pathways of exposure of human populations in this region (and in particular, residents of the Mohawk Nation at Akwesasne) to PCB's and a limited number of other potentially toxic parameters in the food chain. The study examines three principle routes of exposure through consumption of fish, wildlife and human breast milk.

1. "Chemical Contaminants in Fish from the St. Lawrence River Drainage on Lands of the Mohawk Nation at Akwesasne and Near the General Motors Corporation/Central Foundry Division Massena, New York Plant" - This project included sampling from twelve general locations within the Area of Concern. Field work began in May 1988, a draft report was released in May 1990 and

finalized in October 1990.

2. "Chemical Contaminants in Wildlife from the Mohawk Nation at Akwesasne and the Vicinity of the General Motors Corporation/Central Foundry Division Massena, New York Plant" - Field work began in August 1987, a draft report was released in August 1991 and the report is scheduled to be finalized by September 1992.

3. "Chemical Contaminants in the Milk of Mohawk Woman from Akwesasne" - This study was conducted by the New York State Department of Health and the Mohawk Nation at Akwesasne. It investigated the levels of PCB, DDE, mirex and hexachlorobenzene in the milk of Akwesasne women. Field work began in September 1987, a draft report was released in May 1992 and is scheduled to be finalized by September 1992.

These three studies are evaluated by the New York State Health Department in a summary risk assessment report that is scheduled to be released in draft form by October 1992 and is scheduled to be finalized by December 1992. This report does an assessment on the major potential pathways of human exposure to PCBs and related compounds in the food chain at Akwesasne.

Reynolds Metals Plant Site Remediation

Following many years of extensive investigation (see table 1-1), NYSDEC issued a Proposed Remedial Action Plan (PRAP) for all sites on the Reynolds property on September 30, 1991. Comments were solicited on this plan and a public hearing was held on October, 23, 1991. Following review of the public comments, the Department issued a Record of Decision (ROD) summarizing the selected remedial alternatives for all Reynolds Metals waste sites on January 22, 1992.

Remediation will include the removal and treatment or off-site disposal of soils contaminated with PCBs and other hazardous wastes; upgrading existing systems to collect and treat groundwater, surface water and leachate; and removal and disposal of contaminated sediment from the adjacent wetland. These measures will result in the treatment of PCB contaminated soils where feasible. Other contaminated soils and waste will be contained on-site to prevent further migration. A summary of this ROD is shown in Appendix B.

Negotiations are currently ongoing between Reynolds and NYSDEC for a remedial design/remedial action consent order to implement this ROD.

Under such an order Reynolds would remediate hazardous waste sites on its property at a ROD estimated cost of \$37 million. The company has spent \$16 million over the last three years cleaning up PCB contamination at its plant site on an interim basis.

Phase II Investigations

All required phase I investigations (existing data accumulation and assessment) of hazardous waste sites determined to be potential sources of pollutants to the Area of Concern have been completed in the St. Lawrence basin. Phase II field investigations, to obtain additional data for site assessments, have also been completed in the last year at the Bombay Landfill (February 1992) and the Malone Landfill (March 1992).

Historical information (phase I) has indicated that there may be hazardous waste disposed at each of these landfills. However, the monitoring wells installed during the phase II investigation have not shown evidence of contamination. Therefore, further action on these sites will be deferred.

New Remedial Program Regulation

The State Environmental Regulation Review Board has approved the regulation (6NYCRR Part 375) that governs the work of the hazardous waste remedial program. Among other things, this new regulation defines a significant threat to the environment; states the remedial program's goal of restoring a site to pre-disposal conditions to the extent feasible and authorized by law; speeds up the hearings process to shorten the time it takes to resolve difficult cases; addresses new use of sites; and increases public participation activities.

The remedial program has always been guided by a public participation policy that fosters involvement at inactive hazardous waste sites. By putting this policy into regulation, NYSDEC confirms its commitment to bring the public into the process to help formulate better remedial decisions. The regulation increases the requirements for public participation, such as requiring that a citizen participation plan be developed for every site as it enters the remedial investigation/feasibility study stage. Previously, this was a requirement of state-funded site investigations and cleanups only.

DISCHARGES

ALCOA Discharges

A consent order agreement between ALCOA, NYSDEC, the St. Regis Mohawk Nation, Atlantic States Legal Foundation and Great Lakes United was executed on August 15, 1991. The agreement outlines actions to reduce the discharge of PCBs from the ALCOA facility. This agreement settles ALCOA's legal challenge to NYSDEC's 1989 proposed permit modification. The additional parties noted above were subsequently granted full party status in the proceeding.

ALCOA agreed to install carbon filtration to remove PCBs on two outfalls (now

complete). The company has also agreed to perform bioaccumulation monitoring to show the effect of its discharge on fish and other aquatic life in the receiving waters and will perform congener specific testing on the discharges to assemble a data base. This agreement is not the final solution to the PCB discharge problem from the ALCOA facility, but is considered to be a starting point for a long-term solution.

All parties have agreed the ultimate goal is to achieve a PCB discharge that is nondetectible. The parties have also agreed the current approved methodology for PCB testing is 65 parts per trillion (ppt) and new testing methodology and treatment technology may result in a lower limit of detection and ultimately a non-detectible discharge. However, the parties recognize that under current law and regulation, the company may establish outfall specific method detection limits that may be higher than 65 ppt due to the unique nature of the specific effluent.

Under the terms of this agreement, ALCOA must collect samples twice a week from each of its outfalls. Method Detection Limits are established between 125 - 250 ppt depending on the aroclor and/or the outfall, with most limits being either 125 ppt or 175 ppt. Interim effluent limits established in the consent order are: 300 ppt for outfalls 002 & 003, and 750 ppt for outfalls 001, 004, 006 (006 is an internal discharge to 001). These interim effluent limits are in effect until December 31, 1992.

Setting discharge limitations does not provide authorization for the company to discharge PCBs in any quantity. Rather, PCB discharges above the limits indicated in the order may result in enforcement actions being taken by NYSDEC. The Department is currently in the process of determining final effluent limitations based on its professional interpretations of all relevant data, with special emphasis on the data collected during the term of this order. The proposed limits will be released for public review in the form of a draft SPDES permit in conformance with relevant laws and regulations.

The order also requires construction of carbon column treatment systems at two of ALCOA's outfalls. As documented in the Stage II report, ALCOA completed construction of a carbon treatment system to outfall 004 in June 1991. Construction of carbon treatment system at outfall 006 (an internal discharge point) was completed in March 1992.

ALCOA Wastewater Reduction

In December 1991 ALCOA completed construction of a dry scrubber system to replace the wet system for air pollution control. This action reduced the plant's process wastewater flow and also is likely to lead to lower air emissions from the facility. Testing to confirm air emissions is underway. Construction of the dry scrubber system coupled with other water reduction efforts has reduced plant wastewater flow from 12 mgd to 6 mgd. In addition, Alcoa has plans to further reduce wastewater discharges through reduction/reuse to less than 1 MGD.

Reynolds Metals Discharges

In March 1992, Reynolds Metal Company agreed to settle a 1988 case brought by Atlantic States Legal Foundation and joined by the New York State Attorney Generals Office and NYSDEC, charging the company with unpermitted discharges of PCB to the St. Lawrence River. The consent decree also settles a 1989 permit modification proceeding.

NYSDEC originally sought to reduce Reynold's discharge of PCBs through modification of the company's SPDES permit (a draft permit was issued in February 1989) which among other things modified the acceptable PCB limit to non-detectable (65 ppt). The company subsequently requested a hearing on the matter to challenge the permit modification.

The order calls for the lowest PCB discharge limits possible (nondetect), intensified discharge sampling of all eleven discharges (including congener specific analysis), bioaccumulation monitoring to determine discharge effects on aquatic life, and continued remediation at the site.

All parties have agreed the ultimate goal is to achieve a PCB discharge that is nondetectible. The parties have also agreed the current approved methodology for PCB testing is 65 parts per trillion (ppt) and new testing methodology and treatment technology may result in a lower limit of detection and ultimately a non-detectible discharge. However, the parties recognize that under current law and regulation, the company may establish outfall specific method detection limits that may be higher than 65 ppt due to the unique nature of the specific effluent.

Under the terms of this agreement, Reynolds must collect samples twice a week from each of its outfalls. Method Detection Limits (MDLs) are established at 65 ppt until and unless Reynolds receives approval for alternate MDLs depending on the outcome of an MDL study. Treatment optimization studies may be required when an outfall is detected at a level greater than its MDL.

Interim effluent limits established in the consent order are: 150 ppt for outfalls 001 & 002, 125 ppt for outfall 003, 250 ppt for outfall 005 and 400 ppt for outfall 006. These interim effluent limits are in effect until March 31, 1992. Effluent limits will be established for new stormwater outfalls 007 - 011 after review of sampling currently underway.

Setting discharge limitations does not provide authorization for the company to discharge PCBs in any quantity. Rather, PCB discharges above the limits indicated in the order may result in enforcement actions being taken by NYSDEC. The Department is currently in the process of determining final effluent limitations based on its professional interpretations of all relevant data, with special emphasis on the data collected during

the term of this order. The proposed limits will be released for public review in the form of a draft SPDES permit in conformance with relevant laws and regulations.

In addition, the company has agreed to pay \$420,000 for penalties and projects including:

- \$245,000 to NYSDEC with \$70,000 designated for monitoring Reynolds compliance with the consent decree.
- \$120,000 to the Mohawk Nation at Akwesasne to develop a pilot aquaculture project and to monitor water quality.
- \$30,000 to SUNY Research Center in Oswego to further ongoing studies on the effects of PCB contamination.
- \$25,000 to the American Clean Water Project for biological studies in the St. Lawrence between Ogdensburg and Massena.

Revised Water Quality Standards and Guidance Values

The New York State Water Quality Regulations for Surface and Groundwaters (6 NYCRR Parts 700-705) have been revised effective September 1, 1991. Changes included revision or addition of the following standards:

Ammonia	Copper
Benzene	Nitrioltriactic acid
Cadmium	Radium 226
Chloroform	Total residual chlorine

In addition, NYSDEC has revised or added guidance values for:

4-chlorobenzotrifluoride	niacinamide
3,4-dichlorobenzotrifluoride	PCBs
dichloropropane	2,3,6-trichlorotoluene
dinoseb	2,4,5-trichlorotoluene
Dechlorane Plus	terbufos
dichlorotoluenes	zinc

These new standards and guidance values will be used in department programs including writing permits for all dischargers (industrial and municipal).

Water Quality Enhancement and Protection Policy

NYSDEC conducted a public workshop in April, 1991 to discuss a draft proposal for a proposed Water Quality Enhancement and Protection Policy (WQEPP). Since that time, NYSDEC has continued to develop and discuss this three part policy:

1. Discharge Restriction Categories

Goal: Protects sensitive waters that cannot assimilate the effects of general discharges or discharges of specified substances.

The discharge restriction categories are proposed as overlays to the existing water body classification system as amendments to 6 NYCRR 703. There was extensive public dialogue on this issue last summer and fall through mailings to interested parties, workshops, and presentations to a variety of groups. After receiving a considerable number of comments, NYSDEC circulated draft regulations to interested members of a working group. NYSDEC has now completed a revised set of regulations and a responsiveness summary, which reviews the comments received since last April and how they have been resolved. A final round of informal discussions was held around the state in February 1992. Following review of comments from the February discussions, the Department will begin the formal rulemaking process.

2. Antidegradation

Goal: Maintains the high quality of waters that are cleaner than standards require.

Under the auspices of the Great Lakes Initiative, the eight Great Lakes States and the USEPA have been creating review procedures to evaluate the effect of proposed new and expanded discharges on water quality. These procedures will serve as guidance to the eight states in developing their own antidegradation programs. The Initiative's guidance has been submitted by USEPA to other federal agencies for review prior to publication. The Great Lakes Critical Programs Act of 1990 requires the eight states to adopt antidegradation procedures for the Great Lakes basin that are consistent with EPA guidance. Once this guidance is published by USEPA, NYSDEC expects to use it as a starting point for public discussion on the antidegradation portion of the WQEPP.

3. Substance Bans

Goal: Protects all waters from specific toxic substances.

This part of the WQEPP will be the last to be developed. NYSDEC feels there is a need for this and is investigating its authority to ban substances as well as how such bans would be structured. Several activities are underway that may provide direction for

further development:

- Discussions among the Great Lakes States and Canada focusing on "virtual elimination" of persistent toxic substances.
- The reauthorization of the Clean Water Act.
- An EPA proposal under TSCA to quantify the ecological threat from specific chemicals.

BOTTOM SEDIMENTS

ALCOA 106 Order

As documented in the Stage II RAP, ALCOA will remediate PCB contaminated sediments in the Grasse River under a USEPA Administrative Order.

ALCOA conducted River & Sediment Investigation (RSI) field work with NYSDEC oversight (which included splitting samples) in August/September 1991. This extensive investigation of the Grasse River included the examination of ambient water, sediment, and aquatic biota quality. The company submitted a draft investigation report to EPA in February 1992. EPA subsequently provided joint EPA/NYSDEC/St. Regis comments on this report to ALCOA in July 1992.

Reynolds 106 Order

Reynolds Metals is under a Federal Administrative Order to remediate contaminated sediments in the St. Lawrence and Raquette Rivers. The company conducted an extensive investigation of sediment and water quality in these rivers in the fall of 1990. A draft report was developed by January 1991 and subsequently revised by August 1991. Ecological data collection (biota) was conducted in Fall 1991 in order to complete a comprehensive human health and environmental risk assessment. Reynolds has submitted an analysis of alternatives report (March 1992) which is currently under review.

NONPOINT SOURCES

Agriculture Best Management Practices

A manual entitled: "Controlling Agriculture Nonpoint Source Pollution in New York State: A Guide to the Selection of Best Management Practices to Improve and Protect Water Quality" was completed by NYSDEC in 1991. The manual provides technical

guidance and references on many practices believed to be effective in treating agricultural nonpoint source pollution problems in New York State.

The guidance manual is designed to assist in the selection of appropriate management practices to reduce or prevent water quality problems caused by agricultural nonpoint source pollution. Voluntary adoption of these practices is encouraged not only within the St. Lawrence River basin, but throughout New York State. Several agencies are responsible for implementing these practices by providing technical assistance as well as cost sharing dollars to farmers, who voluntarily install practices. Implementing agencies include County Soil and Water Conservation Districts, the Soil Conservation Service (SCS), Extension Services, and the Agricultural Stabilization and Conservation Service (ASCS).

Local Planning and Participation

An agricultural section to the Best Management Practices Catalog was completed in April 1992 and urban stormwater runoff and construction sections are currently under development. Additional guidance documents will be developed to help local officials understand the origin of nonpoint source discharges in their communities and what can be done to reduce or eliminate these discharges.

NYSDEC has the lead in developing this Best Management Practices Catalog which will contain one page summaries of best management practices for different categories of nonpoint sources. An interagency management practices task force is actually developing the catalog. There are separate sub-committees for each source section. For example, there are 40 members on the agricultural nonpoint source management practices subcommittee.

Stormwater Management

Two NYSDEC Technical and Operational Guideline Series (TOGS) on stormwater management have been sent to local government officials as part of the nonpoint source program implementation:

- Stormwater Management Guidelines for New Development (April 1990, TOGS 5.1.8)
- Erosion and Sediment Control Guidelines for New Development (April 1991, TOGS 5.1.10)

A guidance manual entitled "Reducing the impacts of stormwater runoff from new development" was completed by NYSDEC in April 1992. This manual will be used by NYSDEC to assist communities in dealing with this problem. The manual is intended to provide local planning officials, building inspectors, developers and consultants with guidance on reducing flooding and water quality impacts from new development through

stormwater management and erosion and sediment control. This document includes a model stormwater and erosion control ordinance that may be adopted by local communities.

AIR TOXICS

Reynolds Metals air emission permit (Certificate to Operate) was renewed for two years in August 1991. This permit includes provisions to conduct an emissions identification, trackdown, elimination/minimization program for all contaminants other than fluorides. Fluorides is not included in this effort because stack testing associated with the permit renewal showed fluoride emissions complying with Part 209 standards. Reynolds conducted emissions identification sampling in May and June 1992. A report on this sampling will be completed by the fall and necessary actions will be subsequently determined.

The NYSDEC Division of Air Resources continues to conduct ambient air sampling in the Massena Area of Concern with the Trace Atmospheric Gas Analyzer (TAGA) Mobile Laboratory. The TAGA has visited Massena annually since 1988 to determine ambient air quality that has been impacted by industrial emissions or hazardous waste remediation. This information is used to assist in management decisions in the Massena area.

POLLUTION PREVENTION

Hazardous Waste Reduction and Air/Water Toxic Chemical Reduction Plans

NYSDEC is developing a regulatory driven multi-media toxic reduction program which will involve the coordinated efforts of the Divisions of Air, Water, and Hazardous Substances Regulation. Facilities holding air, water and hazardous waste permits and certain generators of hazardous waste are required to reduce the generation of hazardous waste and of toxic chemicals that are to be discharged, disposed or emitted to the environment, to the extent technically feasible and economically practicable. State regulations require plans to be submitted for hazardous waste reduction. Regulations are under development (Part 378) for air toxics reduction and water toxics reduction (direct dischargers and POTW's receiving toxics). Reduction plans are required to be developed according to a schedule based upon the amount of toxics discharged, emitted or generated, with the larger facilities required to develop plans earliest. The plans

must include an assessment of how such wastes are generated and handled in the facility and an identification and evaluation of changes that would reduce or eliminate those wastes.

Facilities will be required to submit reduction plans based on the following schedules:

Hazardous Waste (generated)

- > 1,000 tons - July 1991
- > 500 tons - July 1992
- > 50 tons - July 1993
- > 25 tons - July 1996

Air Toxics (fugitive and stack emissions combined)

- > 330,000 lbs/yr - July 1992
- > 130,000 lbs/yr - July 1993
- > 80,000 lbs/yr - July 1994
- > 60,000 lbs/yr - July 1995
- > 40,000 lbs/yr - July 1996

Water Toxics (Discharged by a facility or received by a POTW)

- > 100,000 Lbs/yr - July 1992
- > 70,000 lbs/yr - July 1993
- > 25,000 lbs/yr - July 1994
- > 15,000 lbs/yr - July 1995
- > 12,000 lbs/yr - July 1996

This multi-media pollution prevention initiative will require industries throughout the basin to examine how they use toxic chemicals. By exploring opportunities for substitution, industries may discover more efficient ways to use resources. Reduction in the use of toxics should lead to a corresponding reduction in toxic discharges within the basin. Ultimately, the loading of toxic substances draining to the Area of Concern and the St. Lawrence River should decrease. Thus, preventing pollution at the source can have an additive effect across the basin and benefit the Area of Concern.

Hazardous Waste Reduction Plans

Facilities generating greater than 25 tons of hazardous waste per year are required to submit hazardous waste reduction plans between 1991 and 1996 under a phase-in schedule (see above). ALCOA submitted a hazardous waste reduction plan in 1991 as required.

Multi-media inspection checklist

NYSDEC Staff from the Divisions of Hazardous Substance Regulation, Air Resources, Water, Construction Management and Solid waste are developing a checklist that will be instrumental in the facility inspection process and provide a useful tool by which multi-media concerns can be identified by a single inspector.

Training

NYSDEC staff and others attended a training course in March 1992 on pollution prevention. The course on the fundamentals of pollution prevention was conducted by an USEPA consultant. It was designed to aid RAP teams in the integration of pollution prevention into Remedial Action Plans in New York State.

Toxic Release Inventory

New York's 1990 Toxic Release Inventory (TRI) Report which was released in October 1991 shows substantial progress in New York's efforts to reduce the discharge of toxic chemicals to air, water and land. The TRI report, which includes data received by NYSDEC as of August 1991, contains the types and amounts of chemicals reported to have been released from industrial sites in calendar year 1990. Highlights of the report include:

- Reported releases in 1990 totalled 110.1 million pounds, 16 percent less than releases reported for 1989 and 42 percent less than 1988.
- Facilities in New York have already nearly achieved (47% reduction) the U.S. EPA's nationwide goal of cutting in half by 1995 the amounts of 17 groups of toxic chemicals released or discharged.
- Releases to air (fugitive and stack) amounted to 65 million pounds, 15 percent less than the totals reported for 1989. These emissions continued to account for almost 95 percent of the reported releases to the environment.

INVESTIGATIONS

Fish Tumor Investigation

The Stage I RAP concluded that fish tumors or other deformities are likely within the Massena Area of Concern. However, no definitive statement about impairment could be made because the necessary studies have not been conducted. Therefore, the Stage II

RAP recommended a study to confirm or deny the presence of neoplastic and pre-neoplastic liver tumors in area bullheads and suckers.

NYSDEC has requested federal funding to complete a fish tumor investigation in the Massena area. If funding is approved, the investigation will be conducted in cooperation with Cornell University. Cornell currently has a contract with NYSDEC to do tumor related work.

NEW YORK STATE COASTAL PROGRAM

Governors Task Force on Coastal Resources

"Now and for the Future: A Vision for New York's Coast - Recommendations of the Governors task force on Coastal Resources" was completed in November 1991. This document makes recommendations to protect, restore and enhance New York's coastal areas (including the Great Lakes coast). The document makes recommendations on such issues as water quality, habitats, fisheries, public access, public awareness, economic development, natural forces, population shifts, etc. It also contains an implementation plan. Copies of the document may be obtained from the Office of the Lieutenant Governor, Albany, NY 12224 (518) 474-4623.

NATURAL RESOURCE DAMAGES CLAIM

New York State is pursuing a natural resource claim to recover damages from ALCOA, General Motors and Reynolds Metals, for injury to area natural resources. Natural resources include land, fish, wildlife, biota, air, ground and surface waters owned, managed and controlled by, or appertaining to the State of New York. Recovered funds may be used to restore, replace or acquire the equivalent to the injured resource.

A trust fund has been established, with contributions from the three potentially responsible parties, to be used to procure a consultant to develop a Natural Resources Assessment Plan. This plan will identify what additional data and information needs to be gathered and the associated data gathering methods to be used in order to determine and quantify the extent of injuries and assess the monetary value (damages) of these injuries. The St. Lawrence Environmental Trustee Council comprised of representatives of New York State, the St. Regis Mohawk Nation, United States Department of Commerce (National Oceanic and Atmospheric Administration), and the U.S. Department of the Interior (U.S. Fish and Wildlife Service) hired the firm of RCG/Hagler, Bailly, Inc. in February 1992 to prepare the natural resource damages Assessment Plan for the Massena area.

ENVIRONMENTAL MONITORING

An international workshop to explore the development of a cooperative environmental monitoring program in the Massena/Cornwall area, was held on April 29-30, 1992 in Massena. Participants included representatives of NYSDEC, EPA, the St. Regis Nation, the Mohawks at Akwesasne, Environment Canada, Ontario MOE, Quebec MOE, the Centre Saint-Laurent, and citizen representatives from both the Massena and the Cornwall Remedial Action Plan Advisory Committees.

This workshop was a multi-media effort addressing air, biota and water. It was used as a forum to exchange information and ideas, and resulted in recommendations for the future of environmental monitoring in this area. The jurisdictions may endorse some of these recommendations, which could be used to focus current monitoring programs to be more responsive to the needs identified for the Area of Concern.

A contractor hired by EPA is compiling the information and recommendations resulting from the workshop into a report for use by the various jurisdictions.

Other highlights include:

- Data gaps were identified, some of which the jurisdictions may be able to pursue in the short term.
- EPA hazardous waste remediation personnel agreed to establish a committee to have input into the development of a short-term remedial monitoring plan related to the clean-up of area sediments. This will assure that each government's monitoring concerns are considered in plan development.
- Canada is investigating long-term transboundary monitoring on the St. Lawrence based on Niagara River Toxics Management Plan protocol.
- NYSDEC proposed the development of a methodology for jointly summarizing and interpreting the data collected by all of the various governments and disseminating this information to the public in a periodic report. The St. Regis Mohawk Nation supported such an effort.

CLEAN UP POLICY AND GUIDELINES

In October 1991 NYSDEC published a draft document entitled "Cleanup Policy and Guidelines". This document does not establish standards that are to be met for all remedial activities, rather it discusses policy, guidelines and general procedures to

determine the clean-up level where remediation is to be undertaken. Overall goals for NYSDEC remedial programs are established and guidance is given on how site conditions, existing state and federal statutory requirements, technical feasibility and cost-effectiveness will be taken into consideration in determining appropriate remedial action. Appendices are included that contain clean-up criteria for air, water, soil, and aquatic sediments.

The clean-up goal outlined in this draft document is to restore a site to pre-release conditions or meet environmental media standards and criteria, which ever is more stringent. Reaching the goal may be limited by the requirement that it must also be technically and economically feasible to achieve.

The draft document also identifies a process to ensure consistency in selecting the appropriate remedy and clean-up level. The key factors to be used in making this determination are the effectiveness and feasibility of the technical solutions available, overall cost and cost effectiveness of the remedies under consideration.

Five public workshops to solicit input were held around the state in January 1992. NYSDEC received substantial public comments, which it is using to revise the first draft. After completing a second draft and receiving additional public input, NYSDEC will finalize this document to provide policy guidance for a uniform approach to site clean-ups and consistent guidelines for the selection of remedial measures.

RAP FINANCING

EPA's Great Lake National Program Office has contracted with Apogee Research Inc. to prepare a financial resources guide for New York State RAPs. This document will serve as a guide to New York RAP coordinators and advisory committees as to the existing and potential sources for financing RAP implementation.

The guide will place special emphasis on financing options for remedial activities related to habitat restoration, contaminated sediments, agricultural and urban nonpoint source related projects, and water quality monitoring. Work on this guidebook began in spring 1992 and a draft document is expected for review this summer. However, these options will have limited application in the Massena area since remedial actions are primarily being funded by responsible parties.

TABLE 2-1

St. Lawrence River at Massena Remedial Action Plan
Summary of 1991/92 Accomplishments

<u>Objective</u>	<u>Target Completion Date (1991 RAP)</u>	<u>Responsible Agency</u>	<u>Status</u>	<u>New Projected Completion Date</u>
A. Hazardous Waste Sites				
1. High clean-up priority to top ten sites	Ongoing	NYSDEC	Ongoing	
2. Conduct Phase II Investigations:				
• Malone Landfill	Fall 1991	NYSDEC	COMPLETE	
• Bombay Landfill	Fall 1991	NYSDEC	COMPLETE	
3. Conduct RI/FS:				
• ALCOA	March 1991	NYSDEC	COMPLETE	
• Reynolds	June 1991	NYSDEC	COMPLETE	
• River sediments		EPA	In Progress	October 1993
• N. Lawrence Oil Dump	September 1991	NYSDEC	In Progress	December 1992
4. Conduct Remedial Design:				
• York Oil	June 1991	EPA	In Progress	September 1994
• General Motors		EPA	In Progress	December 1993
• ALCOA	1992/93	NYSDEC	In Progress	1993-1997
B. Industrial Discharges				
1. SPDES Permits				
a) Continue to lower allowable discharges	Ongoing	NYSDEC	Ongoing	
b) ALCOA treatment and reduction	1991-93	NYSDEC	In Progress	December 1992
c) Reynolds source control/mitigation	1991	NYSDEC	In Progress	March 1993
2. Develop BAT Guidelines	1992-95	EPA	In Progress	
3. Reclassification Hearing	Spring 1992	NYSDEC	Planned	Winter 1992
4. Develop Antidegradation Policy	In Progress	NYSDEC	In progress	See Chapter 4
5. Monitor and renew industrial permits	Ongoing	NYSDEC	Ongoing	

<u>Objective</u>	<u>Target Completion Date (1991 RAP)</u>	<u>Responsible Agency</u>	<u>Status</u>	<u>New Projected Completion Date</u>
C. Municipal Discharges				
1. Municipal System Remediation	August 1992	Local Govern.	In Progress	August 1993
2. Monitor and renew municipal permits	Ongoing	NYSDEC	Ongoing	
D. Bottom Sediments				
1. Complete ALCOA area investigation	1992	EPA	COMPLETE-Phase I Phase II pending	
2. Complete Reynolds area investigation	1992	EPA	COMPLETE	
3. Complete General Motors Area Investigation	Complete	EPA	COMPLETE	
4. Develop sediment criteria	1991-1993	EPA	In Progress	December 1993
E. Nonpoint Sources				
1. Update priority water problem list	April 1991	NYSDEC	COMPLETE	
2. a) Develop NPS catalog				
-Agriculture	July 1991	NYSDEC	COMPLETE	
-urban/stormwater runoff	October 1991	NYSDEC	In Progress	September 1992
b) Develop agricultural BMP manual	April 1991	NYSDEC	COMPLETE	
F. Air Toxics				
1. Reduce Hydrogen Fluoride emissions	December 1992	NYSDEC		
2. Remediation Air Monitoring	Ongoing	NYSDEC/EPA	Ongoing	
G. Pollution Prevention				
1. Annual Conference	Ongoing	NYSDEC	Ongoing	
2. Company Recognition	Ongoing	NYSDEC	Ongoing	
3. Hazardous Waste Reduction Plans	1991-96	NYSDEC	91-COMPLETE	1992-96
4. Toxic Reduction Implementation Plans	January 1992	NYSDEC	In Progress	December 1992
Regulations				
5. Pollution Prevention	1992-95	EPA	Ongoing	
6. Pollution Prevention Plan for the Great Lakes	1992-95	EPA	Ongoing	

<u>Objective</u>	<u>Target Completion Date (1991 RAP)</u>	<u>Responsible Agency</u>	<u>Status</u>	<u>New Projected Completion Date</u>
H. Investigations	Unknown	NYSDEC/EPA		
1. Fish and Wildlife Populations				
2. Fish Tumors		NYSDEC	Planned	December 1993
3. Bird & animal deformity/reproduction				
4. Benthos				
5. Phytoplankton/zooplankton				
6. Transboundary Impacts				
I. Natural Resource Damages Claim				
1. Procure Consultant for Assessment Plan	Summer 1992	NYSDEC	COMPLETE	

CHAPTER 3

LOCAL INITIATIVES

This chapter is reserved to discuss local initiatives in the Massena Area of Concern. It has been developed by members of the Remedial Advisory Committee.

St. Lawrence Aquarium and Ecological Center Inc.

The Remedial Advisory Committee and its precursor the Citizens Advisory Committee have unanimously supported plans for the development and construction of the St. Lawrence Aquarium and Ecological Center at Robinson Bay on the St. Lawrence River in the town of Massena. To assist in supporting the aquarium, which is within the Massena Area of Concern, the Remedial Advisory Committee (RAC) has devoted the most recent issue of the RAP newsletter to the aquarium.

The St. Lawrence Aquarium and Ecological Center Inc., a public not-for-profit corporation, evolved as the idea of Dr. Donald M. Osterberg, noted freshwater biologist at Potsdam College of the State University of New York. The project generated immediate and broad interest resulting in economic feasibility and siting analyses conducted by the Bland Roos Company of Virginia. With positive results in hand from the Bland Roos study, two more major milestones were accomplished soon afterwards with completion of a funding feasibility study and the development of the concept plan by the Bios Company of Seattle Washington. During the summer of 1991, an archaeological survey (required by the state) was conducted on the portion of the 150 acre site intended for construction, and revealed no real barriers to development. The land, made available by the Saint Lawrence Seaway Development Corporation and the New York Power Authority, is located on the south channel of the St. Lawrence River at Robinson Bay.

Following the archaeological survey, a contract was signed with Northern Architects of Burlington, Vermont. This contract resulted in the completion of a topographic survey, soils analysis, foundation considerations, waste disposal recommendations, confirmation of building costs, summary of permitting procedures, and a recommended site plan. The positive results (particularly from the soils analysis) confirm the site's suitability for the proposed development.

Verbal commitments of support for construction and expressions of project interest have been received from Senator Daniel Patrick Moynihan's Committee on the Environment and others including the National Oceanic and Atmospheric Administration, the U.S. Fish & Wildlife Service, Ducks Unlimited, Inc., and a number of other foundations including Kodak, Mandeville, and ALCOA. Dr. William C. Merwin, President, State University College at Potsdam, has recently become more involved in the Center's

advancement and is working to bring the project to completion.

Aquaculture Project

The Akwesasne Task Force on the Environment (ATFE) agreed to purchase a twelve meter diameter fish cage from Trident Inc. to raise 10,000 Rainbow Trout and 500 Coho Salmon that ATFE purchased from Hitchembrooke Farm.

The purpose of the Aquaculture Project is to raise clean fish in the St. Lawrence River that can be sold to residents and restaurants in the local community. The big sea cage will be constructed, anchored in the St. Lawrence River and completed by mid October 1992. The ATFE will experiment on keeping some fish in the cage over the winter season and harvest the rest to purchase more fish and feed for the following spring season.

Waterfront Revitalization Plan

The Town of Massena has considered the development of a Waterfront Revitalization Plan, but the funding for this project is unsure at this time.

Massena Towne Center

Development of the proposed Massena Towne Center is underway. Earthwork is nearing completion, and the initial building for Walmart will begin soon. The developers have faced substantial permit complications relating in part to the location adjacent to the Grasse River. Through a cooperative effort, plans to avoid potential impacts on the river have been reached. While not firm or formalized at this date, these plans include municipal provision of water and wastewater services.

CHAPTER 4

1992/93 COMMITMENTS

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A remedial strategy was outlined in the Stage II RAP (NYSDEC, August 1991). The strategy includes some recommendations that will require funding in excess of what is currently available. Therefore, commitments are based on current availability of funds and existing programs for remedial actions. Further remedial actions will proceed on an incremental basis as information from investigations and the necessary funding becomes available.

Although all of the recommendations in the strategy are considered to be important, certain remedial elements are considered to be critical for achieving the goals and objectives of this RAP. These critical elements, such as hazardous waste site remediation, are reflected in the current commitments of this chapter.

The New York State Department of Environmental Conservation will provide the general coordination for the implementation of the remedial strategy. However, the participation of other agencies and groups at the federal, state, and local level will be required.

An overview of commitments describing objectives, anticipated completion dates, and responsible agencies is shown in Table 4-1. A more detailed description of the RAP remedial recommendations and the 1992-93 commitments is described in the following text. Each commitment contains the next step which shows the subsequent action needed to fulfill the overall remedial strategy. For more details on the remedial strategy, please refer to the Stage II Remedial Action Plan (NYSDEC, August 1991).

HAZARDOUS WASTE SITES

The clean-up of the major industrial hazardous waste sites in the Massena area is proceeding. Records of Decisions have been issued with a total projected clean-up cost of \$250 million.

1. High Priority Clean-ups

Recommendation 1 - high priority for clean-up should be given to the twelve hazardous waste sites thought to be likely sources of contaminants to the Area of Concern.

The twelve sites thought to be a likely source to the Area of Concern are:

ALCOA (9 sites)
General Motors
Reynolds Metals
St. Lawrence-Grasse River Sediments

The NYSDEC has modified its priority ranking system for hazardous waste site remedial actions (investigation and clean-up). This new system will assist in directing remedial resources to the most serious sites. The new ranking system contains a number of priority conditions including preference given to sites identified as a component of a RAP.

Completion Date: Ongoing
Responsible Agency: NYSDEC

Next step: To complete the hazardous waste site investigations and remedial actions outlined below.

2. Remedial Investigation/Feasibility Studies

Remedial investigations/feasibility studies will be conducted to determine the full extent of contamination and to assess alternative remedial measures. Such studies are being conducted at the following sites:

a. St. Lawrence-Grasse-Raquette Rivers

On September 28 1989, EPA in cooperation with NYSDEC issued separate unilateral administrative orders to both ALCOA and Reynolds requiring investigation and remediation of contaminated sediments in the St. Lawrence-Grasse-Raquette Rivers. These orders were authorized under Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980.

An investigation and remedial alternative analysis process similar to an RI/FS is underway for each of the ALCOA and Reynolds "study areas" (page 3-9, Stage II), as defined by their respective orders. The current status of each of these investigations is as follows:

- Reynolds has completed field work and submitted draft river sampling reports. A draft analysis of alternatives report was submitted in March 1992. The entire investigative process including choosing alternatives is scheduled to be completed by April 1993.
- ALCOA has completed river water, biota and sediment sample collection and submitted a draft investigation report. The entire process including choosing remedial alternatives is expected to be completed by October 1993.

b. North Lawrence Oil Dump

A two phase state-funded RI/FS is currently underway. The first phase has been completed and the second phase is scheduled for completion by December 1992.

c. Sealand Restoration

A Record of Decision has been signed for the removal of on-site contaminants. A total of 1442 drums and 7097 tons of soil have been removed from the property and disposed at an approved facility. The disposal cell has been backfilled and capped and the facility is currently being monitored. A separate Federal RI/FS is currently being conducted to evaluate off-site contamination. This investigation is scheduled to be completed by July 1993.

Completion date: Varies - see dates above

Responsible agencies: EPA and NYSDEC

Next step: Following the required remedial investigation/feasibility studies, site remedial measures can be designed.

d. Mineral Processing

This company (now defunct) cut up old machinery for scrap. Some of this machinery contained PCBs which subsequently contaminated the site. A two-year state funded RI/FS is scheduled to begin in January 1993.

3. Remedial Design

The remedial alternative chosen and described in a Record of Decision must undergo a design phase in order to tailor the remedial concept to the specific site parameters. Remedial designs are being developed for:

a. ALCOA

There are nine New York State listed inactive hazardous waste sites on the ALCOA property which include at least fourteen separate land-based disposal areas requiring remediation (for more detailed information on each site, please refer to appendix B of the Stage I RAP). A 1985 Consent Order with NYSDEC was the regulatory mechanism for remediation at this facility until a more comprehensive Consent Order was signed in November 1990. Under terms of the new Order ALCOA must conduct a comprehensive investigative and remedial program and must maintain any required treatment and monitoring systems as specified by NYSDEC. The remedial investigations and feasibility studies have been completed for all of the ALCOA sites.

A feasibility study for eight contaminated areas was completed in November 1990. NYSDEC issued a Record of Decision (ROD) for the chosen remedial alternatives in these areas in March 1991 (see Appendix B of Stage II). The estimated cost of the recommended remedial measures for the eight ALCOA sites, including long-term treatment and monitoring is \$46-52 million. Engineering design for these areas began in June 1991. Initial remedial construction is expected to begin during the 1992 construction season at spent potlining site I. Construction at this site is scheduled to be completed by December 1993.

Feasibility studies for the remaining areas (landfill & annex, lagoons, groundwater remediation) were completed in early 1991. NYSDEC completed a PRAP for these areas in September 1991. Following public review NYSDEC issued a Record of Decision (ROD) for all remaining sites in January 1992 (see Appendix A). The estimated cost for implementing this second ROD is \$90-128 million.

Remedial design is underway for all areas and will be completed according to the following schedule:

Spent Potlining Pile A - Spring 1993
General Refuse Landfill - Spring 1993
Dennison Road - Spring 1993
Primary Lagoon - Spring 1993

Oily Waste Landfill - spring 1993
Unnamed Tributary - spring 1993
East Marsh - Spring 1994
Soluable Oil Lagoon - Spring 1995
Waste Lubricating Oil Lagoons - Spring 1997
60-acre Lagoon - Spring 1997
Sanitary Lagoon - Spring 1997

Interim remedial measures have been used as much as possible to reduce or eliminate major contaminant pathways.

b. General Motors

This is a National Priority List site (EPA) which includes the industrial facility and the surrounding area including the St. Lawrence and Raquette Rivers. The RI/FS has been completed and an EPA Record of Decision (ROD) for the chosen remedial alternatives was issued on December 1990 for operable unit #1 (see Appendix A, Stage II). Operable unit #1 includes all contaminated areas with the exception of the Industrial Landfill and East Disposal Area. The present worth of this ROD is \$78 million. Recent activities and planned actions include:

- EPA issued a unilateral administrative order for implementation of Operable Unit #1 on April 6, 1992. GM accepted this order on May 13, 1992.
- GM has commenced remedial design for areas included in the 1990 ROD (Operable Unit #1) and will submit a design workplan by September 1992. Design activities will be completed by December 1993.
- Remedial construction activities will begin in October 1992 (IRMs for outfall 002 and East Disposal Area runoff).
- EPA issued the ROD describing the chosen remedial alternatives for the Landfill and East Disposal Area (Operable Unit #2) in March 1992. The present worth of this second ROD is \$31-45 million. Remedial design is scheduled to begin in February 1993.
- New York State in cooperation with the Mohawk Nation at Akwesasne will complete the three-part health risk assessment which includes three individual investigations on the principle routes of exposure: fish, wildlife and human breast milk - December 1992. This area-wide assessment resulted from Consent Order negotiations and is being funded by General Motors (80%) and NYSDEC (20%).

c. Reynolds Metals

A 1987 Consent Order with the NYSDEC required an RI/FS to be completed. This investigation has been completed and a proposed Remedial Action Plan (PRAP) was released for public review in September 1991. NYSDEC issued a Record of Decision (ROD) for the chosen remedial alternatives in January 1992. This ROD calls for remediation of the property at a cost of \$37 million. Negotiations are currently underway between Reynolds and NYSDEC for a remedial design/remedial action consent order to implement the ROD.

Interim remedial measures (IRMs) have been used as much as possible to reduce or eliminate major contaminate pathways. An IRM was implemented in 1988/89 which consisted of the removal of contaminated soils and appurtenances from, and reconstruction of a stormwater drainage swale. A recent IRM in the summer of 1990 removed contaminated soils from a former permitted wastewater outfall. Additional measures have been taken to reduce leachate migration from the Industrial Landfill and Black Mud Pond. A stormwater/groundwater treatment unit has also been installed in the North Yard area. Reynolds has spent approximately \$16 million on IRM to date.

d. York Oil

The EPA Record of Decision for on-site remediation at this federal NPL site is pump and treat and destruction of oils by incineration, and solidification of contaminated soils. A remedial design for this site will be completed by September 1994. A potentially responsible party funded RI/FS for off-site remediation is presently in progress and is scheduled for completion in September 1994.

Completion date: Varies - see a and b above
Responsible Agency: EPA

Next step: Following the design phase, the remedial measures will be implemented and the site will be monitored to assure the chosen remedial measures are effective.

INDUSTRIAL DISCHARGES

1. SPDES Permits

Recommendation 3 - Continue to lower allowable discharges in SPDES permits (especially for RAP critical pollutants: PCBs, heavy metals, PAHs) by incorporating changes in legal authority, improved analytical detection limits (thereby allowing more extensive use of water quality based limits), more stringent technology based limits and/or more stringent water quality standards whenever technically and economically feasible as pollution control technologies and/or waste reduction techniques improve.

- a) The NYSDEC is committed to continue to lower allowable discharges whenever feasible and has established a new detection limit for PCBs (0.065 ug/l). ALCOA, General Motors and Reynolds Metals have submitted Method Detection Limit Studies of their wastewater effluent in attempts to justify higher limits.
- b) ALCOA - has agreed to a consent order (8/91) that outlines actions to reduce PCB discharge from its facility (see Chapter 2). The order settles ALCOA's legal challenge to NYSDEC's proposed permit modification and includes requirements for the installation of carbon treatment on two outfalls (complete), reduction in wastewater discharge to 6 MGD (complete), performance of congener specific analysis and bioaccumulation monitoring. The order also determines method detection limits and interim effluent limits to remain in effect until December 31, 1992. During the term of this order, the Department is determining final effluent limitations based on the professional interpretation of all relevant data, with special emphasis on data collected under the authority of the order.
- c) Reynolds - has agreed to a consent order (3/92) that outlines actions to reduce PCB discharge from its facility (see Chapter 2). The order settles Reynolds legal challenge to NYSDEC's proposed permit modification and includes requirements for source trackdown, continued remediation, performance of congener specific analysis and bioaccumulation monitoring. This order also determines method detection limits and interim effluent limits to remain in effect until March 31, 1993. During the term of this order, NYSDEC will determine final effluent limitations based on professional interpretation of all relevant data, with special emphasis on data collected under authority of the order.

Completion date: ALCOA - December 1992
Reynolds -- March 1993
Responsible agency: NYSDEC

Next step: Incorporate revised PCB limit into SPDES permits when regulatory authority is finalized.

2. Best Available Technology

Recommendation 4 - Best Available Technology (BAT) guidelines for industrial facilities should continue to be developed and periodically updated.

Wastewater treatment guidelines for the Best Available Technology that is economically achievable (BAT) are developed as the minimum enforceable level of pollution control for various industrial categories. EPA is scheduled to promulgate new BAT effluent guidelines on the following schedule:

- Pesticides Chemicals Manufacturing subcategory (1992)
- Offshore Oil and Gas Extraction Category (1992)
- Pesticides Chemicals Formulating/Packaging subcategory (1994)
- Hazardous Waste Treatment Facilities Category (1995)
- Machinery Manufacturing and Rebuilding Category (1995)
- Coastal Oil and Gas Extraction Category (1995)

Revised BAT effluent guidelines are scheduled to be promulgated as follows:

- Organic Chemicals, Plastics and Synthetic Fibers Category (1993)
- Pharmaceutical Manufacturing Category (1994)
- Pulp, Paper and Paperboard Category (1995)

Completion date: Varies - see above dates.
Responsible agency: EPA

Next step: Industrial permits will be modified to reflect the new guidelines as they become available.

3. Reclassification

Recommendation 5 - The reclassification of the St. Lawrence River from "A" to "A-Special" (International Boundary Water) should be pursued in accordance with State regulations.

A regulatory impact statement which evaluates the effects of reclassification on permits, waste treatment requirements, etc. is being prepared for all proposed stream reclassifications in the St. Lawrence River basin. Other legal preparation is ongoing and will culminate in a public hearing(s).

Completion Date: Fall 1992
Responsible Agency: NYSDEC

Next Step: Hold public hearing(s) on proposed reclassifications in the St. Lawrence River drainage basin in winter 92/93.

4. Water Quality Enhancement and Protection Policy

Recommendation 6 - Develop and implement a water quality enhancement and protection policy that is consistent with the Great Lakes Water Quality Agreement.

NYSDEC is developing this policy for New York State which will include discharge restriction categories, antidegradation and substance bans (see Chapter 2). In addition, NYSDEC, Great Lakes States, and EPA (Regions II & V) are participating in the Great Lakes Water Quality Initiative to develop an antidegradation policy for the entire Great Lakes basin.

Completion date: NYSDEC Discharge Restriction Regs - Fall 1992
EPA Antidegradation Guidance - Fall 1992
Substance Ban Proposals - Unknown
Responsible agency: NYSDEC

Next step: After development of EPA antidegradation guidance, NYSDEC will use it as a starting point for the second phase (antidegradation) of the Water Quality Enhancement and Protection Policy. Following the development of this policy, it will be implemented not only in the St. Lawrence River drainage basin, but also across the entire State.

5. Industrial Wastewater Discharge Permit Monitoring and Renewal

The NYSDEC monitors industrial discharges to assure compliance with permit limits by reviewing self-monitoring reports from dischargers, inspecting facilities, and independently sampling effluent to verify the validity of self-monitoring data. Significant violations of permit conditions results in measures to ensure compliance (such as technical assistance) or enforcement for chronic or uncooperative violators.

Completion date: Ongoing
Responsible agency: NYSDEC

Next step: Discharge permits are renewed using a strategy that establishes priority for permit review based on the environmental benefit that will be gained by modifying the permit.

MUNICIPAL DISCHARGES

1. Municipal System Remediation

Recommendation 7 - Implement upgrades and remediation of municipal systems as needed to eliminate combined sewer overflows to the maximum extent.

Remedial actions are being implemented throughout the St. Lawrence River drainage basin, where appropriate, under the authority of existing SPDES permits and consent orders:

a) **Clayton**

Currently under Consent Order to develop and implement a Municipal Compliance Plan (MCP) to correct SPDES permit violations. The MCP was approved on January 17, 1991 and requires an expansion of the wastewater treatment plant. Plant expansion construction activities are scheduled to be completed in August 1993.

b) **Ogdensburg**

Currently under Consent Order (10/12/90) to correct deficiencies. A facility evaluation by NYSDEC Operations and Assistance Section was required by the order. This evaluation recommended several operational changes which have since been implemented by the facility. The one recommendation remaining to be implemented (relocation of the effluent sampler) will be completed by October 1992.

A revised SPDES permit was effective for this facility on November 1, 1991. This permit has incorporated the NYSDEC guidance for Combined Sewer Overflows (page 2-16, Stage II) and requires a sewer system optimization report. The sewer system optimization report is required to be submitted to NYSDEC by November 1, 1992. The permittee is also required to establish a monitoring and maintenance program for the combined sewer system by May 1992.

c) **Massena**

The SPDES permit issued in August 1990 has incorporated the NYSDEC guidance for combined sewer overflows (page 2-16, Stage II). Failure to meet these requirements will necessitate corrective action.

d) **Gouverneur**

The SPDES permit issued in August 1990 has incorporated the NYSDEC guidance for combined sewer overflows (page 2-16, Stage II). Failure to meet these requirements will necessitate corrective action.

Completion date: Varies - see above dates
Responsible agency: Local Governments

Next step: Monitoring of the sewer systems and local ambient water quality will be needed following the implementation of combined sewer overflow remedial measures. This will assure the remedial measures are effective.

2. Municipal Discharge permit monitoring and renewal

The NYSDEC monitors municipal discharges to assure compliance with permits by reviewing self-monitoring reports from dischargers, inspecting facilities and independently sampling effluent to verify the self monitoring data. Significant violations of permit conditions results in measures to ensure compliance (such as technical assistance) or enforcement for chronic or uncooperative violators.

Completion date: Ongoing
Responsible agency: NYSDEC

Next step: Discharge permits are renewed using a strategy that establishes priority for permit review based on the environmental benefit that will be gained by modifying the permit.

BOTTOM SEDIMENTS

1. Sediment Remediation

Recommendation 8 - Final remediation of upstream sediment sources should be completed before downstream sources, unless it can be demonstrated that recontamination of the downstream sediments will not occur. However, immediate interim action on downstream sources (when necessary) should not be delayed.

Sediment remediation in the vicinity of the General Motors plant is being completed as part of the overall site clean-up (see the hazardous waste section). By issuing Administrative Orders to ALCOA and Reynolds Metals, EPA is acting under CERCLA

authority to direct remediation of the major upstream contaminated river sediment areas. Both facilities have completed investigative field work and are currently evaluating remedial alternatives (see hazardous waste section). The alternative selection process is scheduled to be completed in April 1993 for Reynolds and October 1993 for ALCOA. Remediation techniques and/or engineering methods that will minimize downstream movement of contaminants must be used.

Completion date: Alternative Selection - April/October 1993
Responsible agency: EPA

Next step: Following remediation of the sediments, environmental monitoring will be needed to assure the clean-up has been effective.

2. Sediment Criteria Development

Recommendation 2: Criteria for the evaluation of contaminated sediments must be completed as soon as possible.

The NYSDEC Division of Fish & Wildlife has developed sediment criteria for a number of contaminants (including PCBs). These criteria are included in the NYSDEC publication entitled "Clean-up policy and guidelines". This publication was released in draft form for public review in October 1991. A second draft was released in 1992 and the document is scheduled to be finalized by Fall 1992.

The Federal Environmental Protection Agency has been working for several years on developing and validating tests and associated acceptance criteria that would allow decisions to be made relative to the likely environmental impacts of contaminated sediments. This work will conclude with a report on recommended tests and criteria for 6-8 metal contaminants.

Completion date: December 1993
Responsible agency: EPA

Next step: When a criteria methodology has been developed, it may be applied to sediments within the St. Lawrence River drainage basin to determine the need for or extent of sediment remediation.

3. Assessment and Remediation of Contaminated Sediments (ARCS)

The ARCS program is a five year study and demonstration program being conducted in five Great Lakes Areas of Concern including New York's Buffalo River. The program will include risk/hazard assessments, modeling, treatability studies, concept planning for full scale remediation and planning for pilot (field) scale sediment treatability studies.

Completion date: December 1993
Responsible agency: EPA

Next step: The guidance documents and case studies generated by this project may be used to assist in the evaluation of contaminated sediments and technologies in the Massena Area of Concern.

NONPOINT SOURCES

1. Nonpoint Source Management Program

Recommendation 10 - Implement New York State's Nonpoint Source Management Program (including its recommended control measures), with special emphasis given to problem areas identified in the NYSDEC Soil and Water Conservation District assessment reports.

The NYSDEC has a nonpoint management program in place and in June 1990 completed a nonpoint assessment report for every county within the state. These documents, which were produced in cooperation with the county districts and the State Soil and Water Conservation Committee, were used to update the Priority Water Problem (PWP) list (completed in September 1991 for surface water segments). The PWP is used to establish priority for funding to address water quality pollution problems in New York State. In addition to the specific activities outlined below NYSDEC and the nonpoint source coordinating committee (consists of representatives from 15 federal, state and local agencies) will be coordinating the implementation of initiatives outlined in the Nonpoint Source Management Program.

Completion date: March 1994
Responsible agency: NYSDEC

Next step: Refer to NPS Management Program

2. Education and training

Recommendation 11 - Increase educational and training opportunities for local land owners and governments to learn best management practices that will decrease the environmental problems associated with agricultural runoff and other types of nonpoint source pollution. This should be a cooperative federal, state and local effort directed toward areas within the basin having identified nonpoint source problems.

A Best Management Practices Catalog is being developed which will contain one page summaries of best management practices for all categories of nonpoint sources. It will be produced one source category at a time. An agriculture section has been completed. An urban/stormwater runoff section and a construction section will both be completed by September 1992. Sections dealing with other source categories will be developed in the future, but exact deadlines have not been established.

Completion date: Varies - see above dates.
Responsible agency: NYSDEC

Next step: Publicize and distribute these manuals to support agencies and assist in the application of best management practices in the basin.

AIR TOXICS

Recommendation 12 - Reduce hydrogen fluoride emissions from facilities in the Area of Concern to assure all standards (forage grass and ambient air) are met.

Reynolds stack testing in 1991 showed no violations of hydrogen fluoride standards. Therefore, the facilities certificate to operate was renewed in August 1991. This permit requires an identification, trackdown and elimination/minimization program for all contaminants other than fluorides. Reynolds conducted stack testing under this program in May/June 1992 and will produce a final report by September 1992.

In addition, Reynolds is preparing a fugitive emissions plan which will outline best management practices to control fugitive emissions. This plan will be completed by September 1992 and provisions of the plan may become special permit conditions when the facility's permit is renewed in August 1993.

ALCOA will likely be required to take similar actions in its permit renewal following expiration in December 1992.

Completion Date: See above dates
Responsible Agency: NYSDEC

Next Step: Assure appropriate actions are executed to meet all required air quality standards.

Recommendation 13 - Hazardous waste remedial efforts must include measures to monitor and mitigate (when necessary) air transport of contaminants during clean-up.

Hazardous waste site health and safety plans often include monitoring to assure worker safety. However, such workers are often protected from chemical hazards by appropriate equipment. Monitoring at site borders must assure off-site protection to the public and the environment during remediation.

Completion Date: Ongoing
Responsible Agency: EPA/NYSDEC

Next Step: Assure plans are properly implemented during site remedial efforts.

POLLUTION PREVENTION

Recommendation 14 - Pollution prevention practices should be incorporated at all sources to the St. Lawrence River drainage basin to the maximum extent practicable.

1. Annual Conference

NYSDEC cosponsors an annual hazardous waste reduction conference in Albany, where participants can learn about techniques for reducing and recycling hazardous wastes.

Completion date: Ongoing
Responsible Agency: NYSDEC

2. Company Recognition

NYSDEC is publishing a series of success stories to recognize companies that have achieved significant reduction of hazardous wastes.

Completion date: Ongoing
Responsible Agency: NYSDEC

3. Hazardous Waste Reduction Plans

The Hazardous Waste Reduction and RCRA Conformity Law specifies a phased schedule for submittal of hazardous waste reduction plans:

- Generators of more than 1,000 tons by July 1991 (completed - ALCOA)
- Generators of more than 500 tons by July 1992
- Generators of more than 50 tons by July 1993
- Generators of more than 25 tons by July 1996

Waste reduction plans must consider technically and economically practicable waste reduction alternatives. The law allows industries to choose their waste reduction approaches, but requires that the approach chosen actually result in progress. NYSDEC will report by January 1993, on the possibility of requiring plans from smaller quantity generators.

Completion date: See above dates
Responsible agency: NYSDEC

Next Step: State law requires the prepared plans be approved by NYSDEC and implemented by each generator. Generators must also monitor reduction effectiveness and submit annual reports describing progress. Any company failing to comply risks losing certification as a hazardous waste generator.

4. Toxic Reduction Implementation Plans

Regulations are currently being developed (part 378) that will require the submission of these plans from certain facilities holding air or water discharge permits during a five year phase-in schedule. Reductions in discharge to all media will be required.

Completion date: December 1992
Responsible Agency: NYSDEC

Next Step: Following promulgation of the regulations, affected companies must develop the plans over a five year period. Failure to develop or implement the plans may lead to revocation of environmental discharge permits.

5. Pollution Prevention Strategy

A voluntary federal initiative is underway to reduce the industrial discharge of the following toxic chemicals: benzene, cadmium, carbon tetrachloride, chloroform, chromium, cyanide, dichloromethane, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, nickel, tetrachloroethylene, toluene, 1,1,1-trichlorethane, trichloroethylene, xylene.

Completion date: 33% reduction goal - December 1992
50% reduction goal - December 1995
Responsible Agency: EPA

Next Step: To expand this prevention strategy beyond industry to include other sectors of society: farming, energy consumption, transportation, municipalities, municipal waste disposal, etc.

6. Pollution Prevention Action Plan for the Great Lakes

This federal action plan is designed to compliment the federal pollution prevention strategy (see #5 above) and efforts underway at the state level. It will target specific geographic locations and key pollutants such as the 17 toxics identified in the national strategy and others of specific importance to the Great Lakes (as identified in lake management plans, RAPs, etc.). Although participation in this plan will be voluntary, it will include technical assistance, research and regulatory efforts.

Completion date: 33% reduction goal - December 1992
50% reduction goal - December 1995
Responsible Agency: EPA

Next Step: Begin implementation of this plan.

INVESTIGATIONS

Recommendation 15 - Complete the six investigations needed to complete the assessment of beneficial use impairments in the Area of Concern.

Efforts are underway to obtain funding for these investigations, which are described on pages 3-17 to 3-21 of the Stage II RAP (NYSDEC, August 1991).

1. Fish Tumor Investigation

NYSDEC is currently seeking a federal grant for fiscal year 92/93 to complete a fish tumor investigation in the Massena area. If funding is approved, the investigation would be conducted in cooperation with Cornell University because Cornell currently has a contract with NYSDEC to do tumor related work.

2. Young-of-the-Year Fish Study

NYSDEC Division of Fish & Wildlife requested federal funding for a Young-of-the-Year (YOY) fish chemical contamination study for New York's portion of the Great Lakes basin. YOY fish species with a limited home range can provide an indication of local and recent source of environmental chemical contamination. If funded this study will include sample collection in the Massena Area of Concern.

Completion date: December 1993 (proposed)
Responsible agency: NYSDEC

Next Step: Determine contaminant sources if necessary.

Completion date: Unknown
Responsible agency: NYSDEC

Next Step: Begin additional remedial efforts, if investigation results warrant such action.

NEW YORK STATE COASTAL PROGRAM

This program includes the Local Waterfront Revitalization Program, consistency between federal and state actions and coastal policies and projects to implement specific coastal policies.

1. Local Waterfront Revitalization Program

- a) Program plans have been developed and approved by the New York Secretary of State for the following St. Lawrence River communities:

Village of Cape Vincent
Village of Clayton
Town of Morristown
Village of Morristown
City of Ogdensburg
Town of Waddington
Village of Waddington

- b) The Town of Clayton has a draft waterfront plan that is under review. This plan should be finalized by December 1992.
- c) As part of a land settlement the New York Power Authority is offering funds for communities to prepare waterfront plans. This includes the Town of Massena.

2. Significant Fish and Wildlife Habitat

Approximately forty St. Lawrence River habitats are being evaluated for designation as significant. Two of these habitats (Moses Saunders tail waters and NE Long Sault Islands) are within the boundaries of the Massena Area of Concern. These areas are scheduled to be designated by New York State (after public hearings in late November) by Spring 1993

Completion Date: See Above
Responsible Agency: Department of State

Next Step: Implement the various waterfront plans and policies.

NATURAL RESOURCE DAMAGES CLAIM

New York State is pursuing a natural resource claim to recover damages from General Motors, ALCOA and Reynolds for injury to natural resources. Recovered damages will be used for the restoration, rehabilitation and/or replacement of the injured resources (including governments costs of assessing the injury). A preassessment screen which summarizes potentially impacted natural resources in the Massena area has been completed. A consultant has been procured to develop an assessment plan.

Completion date: December 1993
Responsible agency: St. Lawrence Environmental Trustee Council

Next step: Injury determination field work will begin by spring 1994.

TABLE 4-1

**St. Lawrence River Remedial Action Plan
Summary of 1992/93 Commitments**

<u>Objective</u>	<u>Completion Date</u>	<u>Responsible Agency</u>
A. Hazardous Waste Sites		
1. High clean-up priority to top ten sites	Ongoing	NYSDEC
2. Conduct RI/FS:		
a) River sediments		EPA
ALCOA	October 1993	
Reynolds	April 1993	
b) N. Lawrence Oil Dump	December 1992	NYSDEC
c) Sealand Restoration	July 1993	EPA
d) Mineral Processing	January 1995	NYSDEC
3. Conduct Remedial Design:	Sept. 1991	
a) ALCOA		NYSDEC
6 sites (see text)	Spring 1993	
East Marsh	Spring 1994	
Soluble oil lagoons	Spring 1995	
Other lagoons	Spring 1997	
b) General Motors	December 1993	EPA
c) Reynolds Metals	1993	NYSDEC
d) York Oil	September 1994	EPA
4. Remedial Construction		
ALCOA Potliner Site I	December 1993	NYSDEC
B. Industrial Discharges		
1. SPDES Permits		
a) Continue to lower allowable discharges	Ongoing	NYSDEC
b) ALCOA treatment & reduction	December 1992	NYSDEC
c) Reynolds source control/mitigation	March 1993	NYSDEC
2. Develop BAT Guidelines	1992-1995	EPA
3. Reclassification Regulatory Impact Statement	Fall 1992	NYSDEC
4. Develop Antidegradation Policy	In progress	NYSDEC
a) Finalize discharge restriction regs	Fall 1992	NYSDEC
b) Antidegradation guidance	Fall 1992	EPA
c) Substance ban proposals	Unknown	NYSDEC/EPA
5. Monitor and renew industrial permits	Ongoing	NYSDEC
C. Municipal Discharges		
1. Municipal System Remediation		Local governments
a) Clayton plant expansion	August 1993	
b) Ogdensburg sewer optimization report	November 1992	
2. Monitor and renew municipal permits	Ongoing	NYSDEC
D. Bottom Sediments		
1. Complete ALCOA remedial selection	October 1993	EPA
2. Complete Reynolds remedial selection	April 1993	EPA
3. Develop sediment criteria	December 1993	EPA
4. ARCS	December 1993	EPA
5. Remediate identified sediment areas		EPA
E. Nonpoint Sources		
1. Implement nonpoint source mgmt program	March 1994	NYSDEC
2. Education & training		
a) BMP catalog		NYSDEC
- Agriculture	April 1992	NYSDEC
- urban/stormwater	September 1992	NYSDEC
- construction	September 1992	NYSDEC

F. Air Toxics			
1. Reduce emissions			NYSDEC
a) Reynolds plan	September 1992		
b) ALCOA permit renewal	December 1992		
2. Remediation air monitoring	Ongoing		NYSDEC
G. Pollution Prevention			
1. Annual Conference	Ongoing		NYSDEC
2. Company Recognition	Ongoing		NYSDEC
3. Hazardous Waste Reduction Plans	1991-96		NYSDEC
4. Toxic Reduction Implementation Plan Regulations	December 1992		NYSDEC
5. Pollution Prevention			
6. Pollution Prevention Plan for the Great Lakes	1992-95		EPA
	1992-95		EPA
H. Investigations			
1. Fish & wildlife populations			
2. Fish Tumor	December 1993		NYSDEC
3. Bird & animal deformity/reproduction			
4. Benthos			
5. Phytoplankton/zooplankton			
6. Transboundary impacts			
I. New York State Coastal Program			
1. Clayton LWRP	December 1992		NYSDOS
2. Designation of Significant Habitat areas	Spring 1993		NYSDOS
J. Natural Resource Damages Claim			
1. Prepare assessment plan	December 1993		St. Law Env. Trustee Council

Chapter 5 Public Participation

Continuing the Commitment to Public Involvement

While the Massena RAP Stage I and Stage II documents were being written, the DEC was advised by the Massena RAP Citizen Advisory Committee (CAC). After the documents were completed and submitted to the IJC, the CAC was disbanded. They had served for three and one-half years.

DEC continues its commitment to public participation and public outreach for the Massena RAP during implementation. A eleven-member Remedial Advisory Committee has been appointed to provide advice throughout implementation of the RAP's recommendations. Because full implementation of the RAP is expected to take many years, the committee members are appointed for two year terms.

Selecting Individuals for the Remedial Advisory Committee

In its public involvement guidelines, EPA suggests four categories around which to base membership in advisory committees. DEC used these categories and added a fifth to guide its choice of members for the Remedial Advisory Committee (RAC):

- Public and Environmental Interests
- Economically Affected Interest
- Government Interests
- Individuals at Large
- Academic Community

Within the categories, DEC wanted to include representatives from organizations that could be active in the actual implementation of RAP recommendations (e.g. local industry).

In August 1991, DEC sent a questionnaire to interested individuals and organizations in the Massena community. The questionnaire described DEC's intention to appoint the RAC and asked for nominations the agency could consider. Members of the disbanded CAC, local government officials, people who had been involved the development stages of the RAP and county level agencies like Soil and Water Conservation Districts, Cooperative Extension and County Health Departments nominated 19 individuals. After compiling the list of names, staff met and selected a group to appoint to the committee. The current members of the RAC are listed at the end of this chapter.

The RAC had its first meeting on January 9, 1992. The RAC charge was discussed and then finalized based on comments received from the committee (see charge at end of chapter). The members of the RAC are enthusiastic about RAP implementation and

about getting information out to the community so that implementation will be supported.

Developing Public Outreach Activities

At this writing, the RAC has only been in existence for a few short months. They have begun to discuss public outreach activities they could implement to get the word out about the RAP and to build community support for the RAP. Some of the ideas they are investigating/working on include:

- Updating the slide show that was written and used during Stage I and Stage II of the RAP development process.
- Preparing a newsletter that describes the planned Aquarium and Ecological Center (an initiative with broad regional support that is focused on research and community education about water quality and ecological and environmental considerations) and RAP status. (see Chapter 3)
- Taking the RAP display to sportsmens shows and festivals.

Other Public Particiaption Activities

The RAC also feels it is important to remain aware of the public participation opportunities associated with the remediation programs occuring at the inactive hazardous waste sites in the AOC. Much of the work that will accomplish RAP objectives will happen through the hazardous waste remediation program. Members of the RAC review and comment on the plans for the sites based on their knowledge of RAP objectives and recommendations.

International Communication

Canadian officials and citizens are developing a RAP for the Cornwall AOC, across the St. Lawrence River from Massena. Throughout Stage I and Stage II, New York has kept in contact with the environmental agencies of Federal Canada, Ontario, Quebec and the Mohawks at Akwesasne. A process for producing joint statements about goals and problems was agreed upon and used during Stage I and II. This process will be extended into the implmentation stage of the RAPs. A joint international monitoring conference was held in April 1992 (see Chapter 2).

Keeping Up On the RAP

If you would like to receive minutes, newsletters and announcements about the Massena RAP send your name and address to:

NYSDEC Division of Water
Public Participation Section
50 Wolf Road
Albany, NY 12233-3501

Remedial Advisory Committee Members

Dave Arquette	St. Regis Mohawk Tribe
Luke Dailey	League of Women Voters
John Feeley	St. Lawrence Aquarium and Ecological Center & Massena Village Trustee
R. Shawn Grey	Massena Chamber of Commerce
Stacy Hammill	St. Lawrence County Environmental Management Council
Robin McClellan	Northern Consulting
Ron McDougall	UAW Local 465
Doug Premo	GM Powertrain
Camilla Smith	Great Lakes United
Thomas Al Theis	Clarkson University
Keith Zimmerman	St. Lawrence County Solid Waste Development Authority

Massena Remedial Advisory Committee Charge
January 13, 1992

The Massena Remedial Advisory Committee (RAC) will advise the Department of Environmental Conservation during implementation of the Massena Remedial Action Plan.

Specifically the RAC will:

1. Advise the Department in developing priorities for RAP implementation activities;
2. Advise the Department in the preparation of the Annual RAP Report;
3. Assist the Department in building a constituency for implementation of RAP recommendations;
4. Review and comment on current environmental initiatives and issues that affect RAP implementation;
5. Assist in developing a list of implementation activities that require funding and seeking funding opportunities;
6. Advise the Department on social and economic impacts of RAP implementation;
7. Assist the Department in developing a strategy for monitoring RAP implementation.

DEC is seeking the advice of interested persons who wish to participate in the process. Therefore, it is not necessary for the RAC to take formal positions or vote on issues. The committee can come to a consensus whenever it feels it is appropriate. DEC encourages committee members to offer differing viewpoints on issues and possible areas of compromise or solutions if they become apparent in the course of discussions.

Members will be appointed for a two year term. The DEC will meet with the RAC quarterly.

APPENDIX A

Record of Decision Aluminum Company of America (ALCOA) Massena Operations Massena, New York

This appendix contains a summary of the Record of Decision (ROD) for the second "operable unit" at the ALCOA site (issued January 22, 1992). A summary of the ROD for the first operable unit is contained in Appendix B of the Stage II Remedial Action Plan. Both RODs in their entirety are available in local repositories such as the Massena Public Library and are also available upon request from the lead regulatory agency (NYSDEC).

RECORD OF DECISION

for

**THE ALUMINUM COMPANY OF AMERICA
MASSENA OPERATIONS
MASSENA, NEW YORK**

prepared by

**THE NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION - REGION 6
WATERTOWN, NEW YORK**

JANUARY 1992

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

The Aluminum Company of America (ALCOA)
Massena Operations
Massena, New York

Operable Units/Areas of Concern:

Waste Lubricating Oil Lagoon - 645005, Unit 2
General Refuse Landfill - 645002, Unit 1
Landfill Annex - 645002, Unit 2
Sanitary Lagoon - 645005, Unit 5
60 Acre Lagoon - 645005, Unit 4
East Marsh - 645020
Overburden Groundwater
Bedrock Aquifer

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedial actions for the above-listed ALCOA sites developed in accordance with the New York State Environmental Conservation Law (ECL) and the Commissioner's Organization and Delegation Memorandum 89-05. It is consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC Section 9601, et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Section IX of this record lists the documents that comprise the Administrative Record for the ALCOA sites. The documents in the Administrative Record are the basis for the selected remedial actions.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response actions selected in this ROD, present a current or potential threat to public health, welfare and the environment.

DESCRIPTION OF THE SELECTED REMEDIES

WASTE LUBRICATING OIL LAGOON

All of the solidified waste and visibly contaminated soil will be excavated. This will be followed by confirmatory sampling to determine if clean-up goals have been met. If the goals have not been met, then further remedial actions will be evaluated in accordance with the June 3, 1991 Preliminary Engineering Plan (PEP, Appendix A). The Department will determine which of these remedial actions provides adequate protection to public health and the environment.

The excavated material will be treated via solvent extraction to remove the PCBs and other contaminants. The concentrated waste stream which results from the treatment process will be sent off-site for incineration, while the residual soils will be placed in the on-site vault. If treatability studies indicate that solvent extraction cannot meet treatment standards, or another technology appears more viable, then an amendment to the Record of Decision will be considered.

GENERAL REFUSE LANDFILL

The existing cover will be upgraded to conform to the requirements of a RCRA hazardous waste cap. As a minimum, this includes:

- a low-permeability soil barrier placed over the waste to minimize the migration of precipitation into the landfill;
- a drainage layer installed above the soil barrier to promote the diversion of infiltrating precipitation away from the waste; and
- a topsoil/vegetation layer that is resistant to erosion and, in conjunction with the drainage layer, protects the soil barrier from frost action and root penetration.

Areas or parts of the present interim cover may be utilized as the low-permeability soil barrier if it can be demonstrated through field efforts that the material satisfies the design criteria for a hazardous waste landfill cover.

A slurry wall will be constructed to the north, northeast, and west of the site to direct groundwater flow away from the area, and a passive venting system will be installed to reduce the concentrations of VOCs below the cap. The VOCs will be captured by carbon filters placed on the vents. Additionally, the leachate collection system will continue in operation. To insure the effectiveness of this system, a concrete sewer line running beneath the landfill to the East Marsh will be partially removed, and the section remaining will be plugged. Since hazardous waste will remain in place, the effectiveness of this alternative will have to be reviewed within 5 years after completion.

LANDFILL ANNEX

All of the visible drums located along the southern periphery of the site will be excavated. Any visibly stained soil in the vicinity of the drums, as well as additional drums unearthed during this work, will also be excavated. All of the excavated materials will then be characterized and managed in accordance with applicable regulations. Following excavation, the area will be backfilled with clean fill, and the entire site fitted with a RCRA cap. As a minimum, this includes:

- a low-permeability soil barrier placed over the waste to minimize the migration of precipitation into the landfill;
- a drainage layer installed above the soil barrier to promote the diversion of infiltrating precipitation away from the waste; and
- a topsoil/vegetation layer that is resistant to erosion and, in conjunction with the drainage layer, protects the soil barrier from frost action and root penetration.

Passive vents containing carbon traps will be installed to mitigate the accumulation of VOCs beneath the cap.

A slurry wall will be constructed around the entire perimeter of the site to direct groundwater flow away from the area, and to stop the migration of leachate into the West Marsh. The leachate will be directed into a collection system installed inside the slurry wall along the entire southern edge of the site.

SANITARY LAGOON

Due to the nature of contaminated sludge present at this site, ALCOA will be given an opportunity to pursue in situ treatment technologies, such as bioremediation. The following remedial program has been developed to address this issue, as well as insure that short and long-term protection to public health and the environment will be provided.

ALCOA will have until December 31, 1994 to complete research on in situ processes in order to determine what concentration of PCBs in the sludge can be effectively treated to a level of 25 ppm or less, or permanently immobilized. At the same time, ALCOA will identify and evaluate ex situ technologies that are capable of permanently treating the PCB contamination which cannot be reduced to the 25 ppm level or permanently immobilized via in situ means. The in situ and ex situ technologies will have to comply with both USEPA and Department criteria for the permanent treatment of industrial sludges. By December 31, 1994, ALCOA will recommend technologies for full-scale development. The Department will subsequently select technologies to be implemented.

By April 1, 1997, ALCOA will complete any additional testing necessary, as well as obtain all the required permits and/or approvals, in order to have the selected technologies implementable.

ALCOA will develop a work plan which discusses in detail the steps that will be taken to achieve the required milestones. This will include a proposal for regularly-scheduled meetings with the Department, and the submittal of periodic progress reports. If at any time prior to December 31, 1994 ALCOA determines that in situ remediation fails to meet the performance criteria specified above, ALCOA will immediately notify the Department and pursue ex situ treatment technologies in accordance with the above schedule.

During the 5 year technology evaluation and selection process, ALCOA will institute the following interim actions:

- A plan, as approved by the Department, will be developed, and implemented by the end of 1992, to eliminate, or discourage to the greatest extent practical, the use of the lagoon by waterfowl.
- A surface water discharge monitoring and control program will be put in place by the end of 1992 to meet all applicable discharge limits. ALCOA may use controls such as isolation of highly contaminated sludges and/or sediment in the lagoon, or treatment of effluents, to meet discharge limits imposed by the Department at the end of 1992.

Implementation of the approved treatment processes must commence by April 1, 1997, and continue until remediation goals have been obtained, in a time frame acceptable to the Department. The material designated for ex situ treatment, or in situ treated sludges that do not obtain remediation goals, must be excavated and treated via the selected ex situ process to meet USEPA and Department criteria for treatment of industrial sludges. The ex situ treatment residuals must then be placed in the on-site vault.

Following completion of the in situ treatment process, all in situ treatment residuals and untreated material with PCB concentrations above 1 ppm must be solidified as needed and encapsulated within the lagoon to insure that PCBs do not reenter surface water or the environment. This will include placement of the solidified/encapsulated material above 10 ppm PCBs that is not permanently immobilized on a clay liner to elevate it above the water table. However, contaminated sediment below 10 ppm PCBs may be encapsulated in place if the lagoon is to be converted to an upland area.

In addition to the requirements set forth in this document, ALCOA must also satisfy all of the USEPA TSCA regulations governing this remedial program in effect at the time of implementation.

60 ACRE LAGOON

Due to the volume and nature of contaminated sludge present at this site, ALCOA will be given an opportunity to pursue in situ treatment technologies, such as bioremediation. The following remedial program has been developed between ALCOA and the Department to address this issue, as well as insure that short and long-term protection to public health and the environment will be provided.

ALCOA will have until December 31, 1994 to complete research on in situ processes in order to determine what concentration of PCBs in the sludge can be effectively treated to a level of 50 ppm or less, or permanently immobilized. At the same time, ALCOA will identify and evaluate ex situ technologies that are capable of permanently treating the PCB contamination which cannot be reduced to the 50 ppm level or permanently immobilized via in situ means. The in situ and ex situ technologies will have to comply with both USEPA and Department criteria for the permanent treatment of industrial sludge. By December 31, 1994, ALCOA will recommend to the Department, technologies for full-scale development. The Department will subsequently select technologies to be implemented by ALCOA.

By April 1, 1997, ALCOA will complete any additional testing necessary, as well as obtain all the required permits and/or approvals, in order to have the selected technologies

implementable.

ALCOA will develop a work plan which discusses in detail the steps that will be taken to achieve the required milestones. This will include a proposal for regularly-scheduled meetings with the Department, and the submittal of periodic progress reports. If at any time prior to December 31, 1994, ALCOA determines that in situ remediation fails to meet the performance criteria specified above, ALCOA will immediately notify the Department and pursue ex situ treatment technologies in accordance with the above schedule.

During the 5 year technology evaluation and selection process, ALCOA will institute the following interim actions:

- A plan, as approved by the Department, will be developed, and implemented by the end of 1992, to eliminate, or discourage to the greatest extent practical, the use of the lagoon by waterfowl.
- A surface water discharge monitoring and control program will be put in place by the end of 1992 to meet all applicable discharge limits. ALCOA may use controls such as isolation of highly contaminated sludges and/or sediment in the lagoon, or treatment of effluents, to meet discharge limits imposed by the Department at the end of 1992.

Implementation of the approved treatment processes must commence by April 1, 1997, and continue until remediation goals have been obtained, in a time frame acceptable to the Department. The material designated for ex situ treatment, or in situ treated sludges that do not obtain remediation goals, must be excavated and treated via the selected ex situ process to meet USEPA and Department criteria for treatment of industrial sludges. The ex situ treatment residuals must then be placed in the on-site vault.

Following completion of the in situ treatment process, all in situ treatment residuals and untreated material with PCB concentrations above 1 ppm must be solidified as needed and encapsulated within the lagoon to insure that PCBs do not reenter surface water or the environment. This will include placement of the solidified/encapsulated material above 10 ppm PCBs that is not permanently immobilized on a clay liner to elevate it above the water table. However, contaminated sediment below 10 ppm PCBs may be encapsulated in place if the lagoon is to be converted to an upland area.

In addition to the requirements set forth in this document, ALCOA must also satisfy all of the USEPA TSCA regulations governing this remedial program in effect at the time of implementation.

EAST MARSH

Initially, the marsh will be dewatered, then all of the sediments and contaminated soil with PCB concentrations above 10 ppm will be excavated. Confirmatory sampling will be performed to determine if this clean-up goal has been met. If the goals have not been met, then further remedial actions will be evaluated in accordance with the PEP (Appendix A). The Department will determine which of these remedial actions provides adequate protection to public health and the environment.

Following excavation, the contaminated material will be solidified and placed in the on-site vault. A drainage system will be installed within the excavation, and the area will be backfilled and capped.

WETLANDS RESTORATION

Restoration and/or mitigation of the wetlands destroyed as a result of ALCOA's activities will be the subject of a study, acceptable to the Department to determine the scope of applicable alternatives consistent with applicable State laws, regulations, policy and guidance and any amendments or changes thereto. The study will thoroughly consider impacted wetlands restoration and/or mitigation. It is the Department's policy that wetlands restoration is the first priority and preferred course of action. In the event that impacted wetlands restoration and/or mitigation is determined not to be technically feasible, the study shall analyze and evaluate alternatives regarding off-site mitigation, enhancement, wetlands creation, land acquisition or on-site restoration and/or mitigation combined with off-site measures. The goal of the study will be to assess these measures as components of a program that, when implemented, will fully restore the wetlands values and benefits diminished, harmed, lost or destroyed as a result of the contamination and remediation of the impacted wetlands. Upon the Department's approval of the study, the Department will advise ALCOA of the appropriate course of action for restoration and/or mitigation of the wetlands.

OVERBURDEN GROUNDWATER

In accordance with the Department's FS I ROD, all wastes and visibly contaminated soils at the Oily Waste Landfill, Spent Potlining Pile A, Primary Lagoon, and Dennison Road sites will be excavated. If soil cleanup goals are achieved, a groundwater monitoring system will be established to evaluate the remedies, effectiveness in accordance with the PEP (Appendix A). If cleanup goals are not met, then further remedial actions will be evaluated in accordance with the PEP (Appendix A). This will include the evaluation of a leachate and shallow groundwater recovery system.

The Department will determine which of the remedial actions provides adequate protection to public health and the environment. In the event groundwater recovery and treatment is selected, the system's configuration will be based upon the results of pilot scale tests conducted at the sites following excavation. Groundwater monitoring will also be established to assess the effectiveness of the recovery system.

As indicated in the Department's FS I ROD, Spent Potlining Pile I will be contained in-place by upgrading the cap so that it conforms to the cap requirements for an approved hazardous waste facility. As also required by the FS I ROD, a deeper leachate collection system will be installed outside of the existing system and the two systems will be enclosed by a soil-bentonite slurry wall keyed into the underlying silt and clay layer. These measures are necessary to prevent any further contaminant releases from the site itself. Due to the site's proximity to the North Ditch, the South Ditch and Robinson Creek, additional remedial measures are necessary to cease the discharge of downgradient contaminated groundwater to these surface drainages. This will be accomplished either through the use of a groundwater recovery trench system or through the use of several downgradient recovery wells. The initial phase of the extraction system will be installed and pilot tested upon completion of the FS I remedial activities. Based on the pilot testing results, the remainder of the system will be designed and constructed, and full scale operation will commence. An additional slurry wall may be installed outside the recovery system to prevent the flow of surface water into the system from the North and South Ditches during periods when water levels are low. A groundwater monitoring network will also be established to assess the effectiveness of the remedial actions.

Pursuant to the March 1991 ROD and this document, the Soluble Oil Lagoon and Waste Lubricating Oil Lagoon will be excavated and treated via solvent extraction or other suitable technology. The treatment residuals will be placed in the on-site vault, and the area will be backfilled and capped. The groundwater management strategy proposed for this area also addresses the Sanitary Lagoon. If clean up goals are met, a groundwater monitoring system will be established to evaluate the ability of the remedial actions to prevent further contaminant migration into the groundwater. If clean up goals are not met, then further remedial actions will be evaluated in accordance with the PEP (Appendix A). This will include the evaluation of a leachate and shallow groundwater recovery system(s). The Department will determine which of the remedial actions provides adequate protection to public health, the environment, and natural resources. In the event groundwater recovery and treatment is selected, the system's configuration will be based upon the results of pilot scale tests conducted at the sites following excavation. A groundwater monitoring network will also be established to assess the effectiveness of the recovery system. ALCOA's consultant has indicated that a buried outwash

channel may exist in the area south of the Soluble Oil Lagoon. If one is present, it could behave as a preferential pathway for the migration of contaminants away from the area. Therefore, as part of remedial design, ALCOA will be required to perform a subsurface investigative program in this area to determine if such a pathway exists. If it does, the remedial design will need to incorporate a means for preventing further contaminant migration in this area.

ALCOA's consultant has indicated that shallow contaminated groundwater at the east end of the 60 Acre Lagoon leaks through a berm and may discharge to shallow groundwater and/or surface water. This is supported by available sampling data which indicates that the shallow groundwater downgradient of the berm is contaminated. If cleanup goals are met following completion of the remedial program described earlier in this section, then a groundwater monitoring system will be established to evaluate the ability of the remedial actions to prevent further contaminant migration into the groundwater. If cleanup goals are not met, then further remedial actions will be evaluated in accordance with the PEP (Appendix A). This will include the evaluation of a leachate and shallow groundwater recovery system. The Department will determine which of the remedial actions provides adequate protection to public health, the environment, and natural resources. In the event groundwater recovery and treatment is selected, the system's configuration will be based upon the results of pilot scale tests conducted at the sites following remedial activities. A monitoring well network will also be established to assess the effectiveness of the recovery system.

BEDROCK AQUIFER

ALCOA will perform a detailed evaluation of the feasibility of providing public water to the Dennison Road residents. This will include the development of a preliminary design which is sufficient in scope to allow the timely installation of a water supply in the event future monitoring results warrant such action. In the event a public water supply cannot be furnished, ALCOA will undertake the field testing necessary to fully evaluate the feasibility of creating a hydraulic barrier in the bedrock aquifer in the area to the west of Dennison Road. Based on the Department's review of the field testing program and the results of groundwater monitoring in this area, ALCOA may be required to design and install such a system to prevent the future migration of contaminants toward Dennison Road.

ALCOA will implement an intensive groundwater monitoring program which will involve the quarterly collection of samples from the residential wells and from new and existing monitoring wells. As part of this program, "early detection" monitoring wells will be installed in the area upgradient of the residential wells along Dennison Road and Horton Road. The purpose of the program is to provide a means to determine if contaminant levels are increasing in the residential wells and in the area upgradient of the residences. In order to ensure timely review of the results, ALCOA will be required to provide the analytical sampling data to the residents and the NYSDEC and NYSDOH within seven weeks of the sampling event. If the State's review of the results indicates a trend of increasing contaminant levels at or upgradient of the residences, the NYSDEC and NYSDOH will make a determination as to the need for ALCOA to take appropriate action (i.e. the extension of a public water supply, or the creation of a hydraulic barrier in the bedrock aquifer) to remedy the situation.

REMEDIAL COSTS

The estimated capital costs associated with implementation of the selected remedies, excluding groundwater recovery and treatment, are between \$80.8 and \$116.8 million, and the annual O&M costs are approximately \$.29 to \$.35 million. A range of capital costs has been specified due to the uncertainties associated with the performance of in situ biotreatment.

The estimated capital cost associated with installation of the Department's preferred groundwater recovery and treatment systems is \$9.06 million to \$10.26 million. An annual O&M cost of approximately \$.41 million to \$.90 million would also be incurred.

DECLARATION

The selected remedies are designed to be protective of human health and the environment, and to comply with applicable State Environmental Quality Standards and the Commissioner's Organization and Delegation Memorandum 89-05. These remedies satisfy the Department's preference for treatment of hazardous waste to reduce its toxicity, mobility, and/or volume.

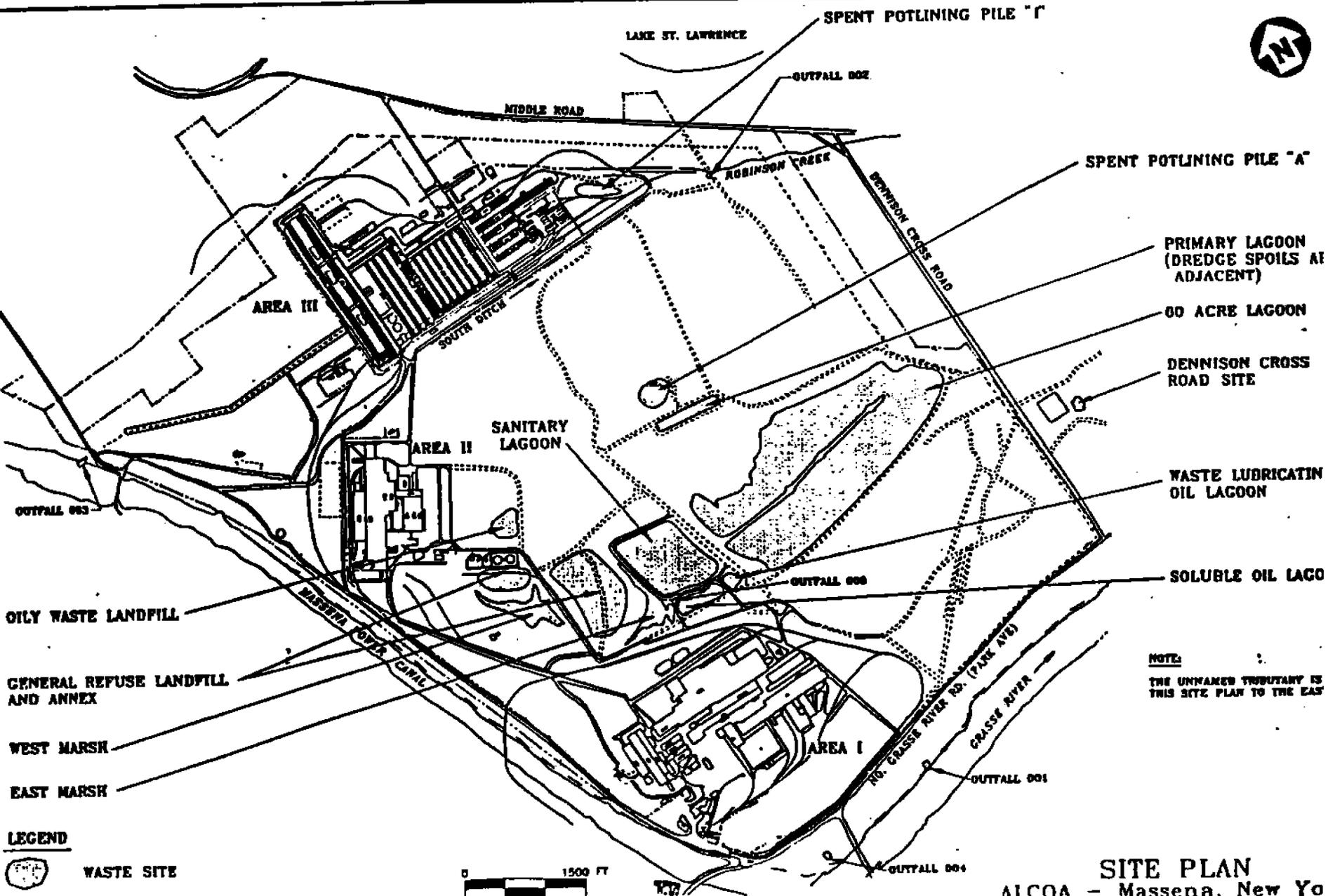
1/22/92
DATE

Ed Sullivan
EDWARD G. SULLIVAN
DEPUTY COMMISSIONER
OFFICE OF HAZ. WASTE REMEDIATION
NYS DEPT. ENVIRONMENTAL CONS.

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APPENDIX B

Record of Decision Reynolds Metals Company St. Lawrence Reduction Plant Massena, New York

This appendix contains a summary of the Record of Decision (ROD) for the Reynolds Metals site which was issued on January 22, 1992. The entire ROD is available in local repositories such as the Massena Public Library and is also available upon request from the lead regulatory agency (NYSDEC).

RECORD OF DECISION

for

**REYNOLDS METALS COMPANY
ST. LAWRENCE REDUCTION PLANT
MASSENA, NEW YORK
NYSDEC SITE NO: 6-45-009**

PREPARED BY:

**NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
REGION 6, WATERTOWN, NEW YORK**

JANUARY 1992

DECLARATION FOR RECORD OF DECISION
REYNOLDS METALS COMPANY

SITE NAME AND LOCATION

Reynolds Metals Company (RMC)
St. Lawrence Reduction Plant
Massena, New York
NYSDEC Site No. 6-45-009

Operable Units and Areas of Concern:

1. Black Mud Pond
2. Landfill/Former Potliner Storage Area
3. Wetlands
4. Potliner Storage Pad
5. North Yard
6. Miscellaneous Areas

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedial action for the above listed RMC site developed in accordance with the New York State Environmental Conservation Law (ECL), and the Commissioner's Organization and Delegation (O&D) Memorandum 89-05. It is consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERLA), 42 USL Section 9601, et. seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Section VIII of this ROD lists the documents that comprise the Administrative Record for the RMC site. The documents in the Administrative Record are the basis for the selected remedial action.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response actions selected in this ROD, present a current or potential threat to public health, welfare, and the environment.

DESCRIPTION OF THE SELECTED REMEDIES

1. BLACK MUD POND

All wastes within the Black Mud Pond, and the soils beneath contaminated by the wastes, will be dewatered and capped in-place. The cap will conform to the requirements for an approved hazardous waste disposal facility. As part of remedial design,

additional borings will be drilled through the site to precisely define the thickness of waste and vertical extent of soil contamination, and monitoring wells will be installed in the underlying soils. Following capping, groundwater levels will be measured monthly to monitor the effectiveness of capping. If the monitoring data indicate to the Department that the water table has not been lowered below the contaminated soil and waste as the result of capping, the installation and operation of a perimeter groundwater collection trench system will be required and the collected groundwater will be treated. A long term groundwater monitoring program will be implemented to monitor both the vertical migration and the horizontal migration of contaminants in the vicinity of the pond.

All surface water runoff from the pond, as well as areas from the rail yard to the east of the pond will be monitored for contaminant migration in the drainageways to the south and east of the Pond. If surface water discharge does not meet effluent limits, additional remedial actions will be performed to address any impacts to human health and the environment.

If required, all groundwater and surface water collected will be treated at RMC's existing Granular Activated Carbon (GAC) treatment system prior to discharge. The capacity and effectiveness of the GAC system will be evaluated and approved by the Department. If necessary, a pretreatment system will be installed. Discharge requirements will conform with current SPDES permit conditions.

2. LANDFILL/FORMER POTLINER STORAGE AREA

A new and upgraded groundwater and leachate recovery system will be installed, which will be keyed into highly impermeable material below the landfill, and all collected contaminated water will be treated. Collected groundwater will be treated at the North Yard GAC System. The capacity and effectiveness of the GAC System will be evaluated, and approved by the Department. If necessary a pre-treatment system will be installed. A hazardous waste landfill cap will be installed over the entire area to contain the waste in-place and significantly reduce infiltration of precipitation and subsequent leachate generation.

Before the installation of the landfill cap, low level contaminated soils (less than 25 ppm PCBs) from the Wetlands, Potliner Storage Pad and the Miscellaneous Areas, may be consolidated in the Landfill and Former Potliner Storage Area.

Declaration for the RMC Record of Decision

Surface water controls will be installed to reduce the amount of surface water run-on entering the site and to control the erosional effects of surface water running off the site. A comprehensive Operation and Maintenance Plan will be developed to monitor the landfill conditions and to monitor the peripheral conditions to ensure that off-site migration does not occur.

3. WETLANDS

The remedial action entails the dewatering of the currently identified impacted area of the Wetlands and excavating the soils in the impacted area and the adjacent drainageways. The excavated material will be placed in the Former Potliner Storage Area for management under a RCRA cap and leachate collection system.

Restoration and/or mitigation of the Wetlands destroyed or impacted as a result of RMC's activities will be the subject of a further study, acceptable to the Department, to determine the scope of applicable alternatives consistent with applicable State laws, regulations, policy and guidance and any amendments or changes thereto. The study will thoroughly identify additional impacts to the Wetlands, if any, and consider impacted Wetlands restoration and/or mitigation. It is the Department's policy that wetland restoration is the first priority and preferred course of action. In the event that Wetlands restoration and/or mitigation is determined not to be technically feasible, the study shall analyze and evaluate alternatives regarding off-site mitigation, enhancement, wetlands creation, land acquisition or on-site restoration and/or mitigation combined with off-site measures. The goal of the study will be to assess these measures as components of a program that, when implemented, will fully restore the Wetlands values and benefits diminished, harmed, lost or destroyed as a result of the contamination of the impacted Wetlands. Upon the Department's approval of the study, the Department will advise RMC of the appropriate course of action for remediation of the Wetlands.

4. POTLINER STORAGE PAD

All contaminated soils and sediments at the Potliner Storage Pad and adjacent drainage ditches will be excavated. The soils/sediments will be removed to achieve clean-up goals and will be transported to the Former Potliner Storage Area for disposal under the Landfill cap. Once the excavation is completed in the ditches, they will be backfilled with crushed stone. The excavated area surrounding the Potliner Pad will be backfilled and paved and the Potliner pad may be rehabilitated.

Declaration for the RMC Record of Decision

5. NORTH YARD

All the soils in the North Yard contaminated with 25 ppm PCBs or above will be excavated. The soils will be treated in an on-site treatment unit and the treated residuals will be used as backfill. The use of the treated residuals may include utilization at the Black Mud Pond as the foundation for the construction of the cap, and fill for site grading prior to final restoration. Once excavation is complete, the remaining area where PCB contamination exceeds 10 ppm in soils will be graded and capped to provide proper drainage, and reduce infiltration and migration of contaminants. The existing surface water and shallow groundwater collection system will be modified and enhanced and/or a new surface water and shallow groundwater collection and treatment system will be installed and long term monitoring of surface water and groundwater will be performed. The capacity and effectiveness of the North Yard GAC system will be evaluated and approved by the Department. If necessary, a pretreatment system will be installed. Discharge requirements will conform with current SPDES permit conditions.

The on-site treatment technology evaluated in the Feasibility Study is the infrared thermal treatment system. However, this does not preclude further evaluation and consideration of alternate treatment technologies, including solvent extraction, prior to the implementation of the remedial action at the North Yard. RMC may submit additional treatability studies, during the remedial design phase, for additional alternate treatment technologies not already addressed in the Revised Final Feasibility Study.

6. MISCELLANEOUS AREAS

The area(s) of concern identified as the Miscellaneous Areas include the following sites around the RMC facility:

1. Rectifier Yard
2. Soil Stockpile
3. West Ditch Outfall
4. Area North of Haverstock Road
5. SPDES Point Discharge 004 Outfall (Now designated 006 by the DOW)
6. SPDES Point Discharge 002 Diversion Area (Now designated 005 by the DOW)

Declaration for the RMC Record of Decision

The remedial action entails the excavation of soils and sediments with PCB concentrations exceeding the clean-up goals established for the Miscellaneous Areas. The excavated areas will be backfilled, graded and seeded. Once restoration is completed, the surface water from each area will be monitored to determine the adequacy of the remediation and to insure that ARARs have been met concerning surface water discharge standards. In the case of the surface water drainage monitoring for the Rectifier Yard, the point of compliance of surface water discharge standards will be at the point of entering the Wetlands.

All soils with PCB contamination above the clean-up goal from the area north of Haverstock Road and from the Rectifier Yard drainage ditch will be excavated immediately. Excavated soils contaminated with PCBs at 50 ppm or greater will be shipped off-site to an USEPA approved PCB landfill. Lower level contaminated soils may be stored pending the start-up of the treatment unit.

All other soils in the Miscellaneous Areas contaminated with PCBs will be treated in accordance with the treatment threshold (25 ppm PCBs or greater) or disposed in the Landfill/Former Potliner Storage area prior to capping (soils containing less than 25 ppm PCBs).

PREVIOUSLY COMPLETED INTERIM REMEDIAL MEASURES (IRMs)

For those IRMs already completed at the facility, an Engineering Report, subject to the approval of the Department, will be required which addresses the effectiveness of each IRM. The report will expand on the information presented in the Revised Final Feasibility Study and include, in detail, an evaluation of the IRMs relative to clean-up goals and environmental quality standards.

REMEDIATION COST

The estimated cost for site-wide remediation is as follows:

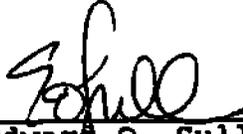
Total Capital Cost:	\$36,650,000
Total O&M Cost:	<u>\$12,990,000</u>
Total Present Worth Cost:	\$49,640,000

Declaration for the RMC Record of Decision

DECLARATION

The selected remedies are designed to be protective of human health and the environment and to comply with applicable State Environmental Quality Standards. The remedies were selected in accordance with the Commissioner's O&D Memorandum 89-05 for remediation of hazardous waste disposal sites. These remedies satisfy the Department's preference for treatment of hazardous waste to reduce the toxicity, mobility or volume of hazardous substances, pollutants or contaminants as the principal goal.

1/22/92
Date



Edward O. Sullivan
Deputy Commissioner
Office of Hazardous Waste Remediation
NYSDEC

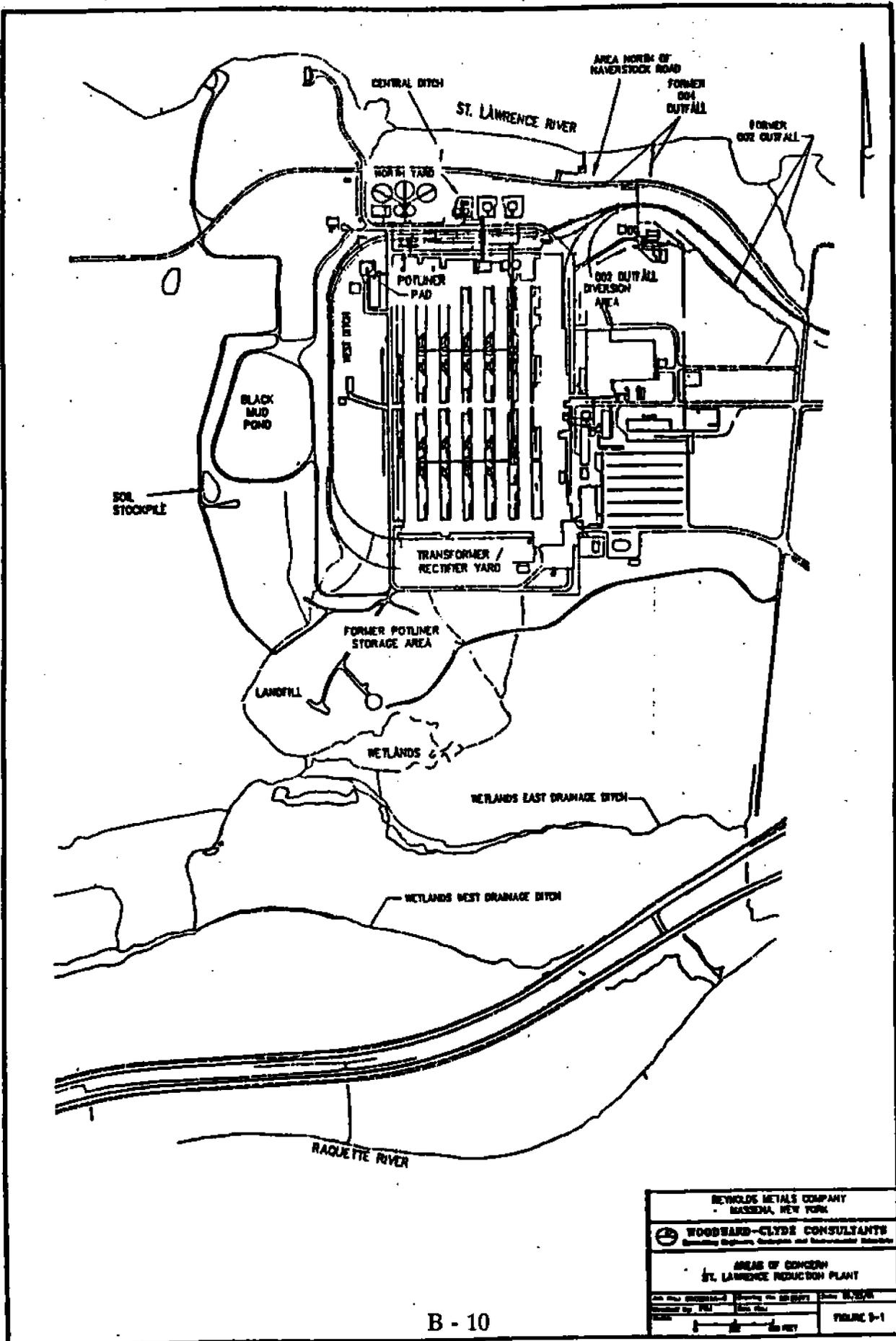
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APPENDIX C - TABLE AND FIGURES DOCUMENTING SCREENING
PROCESS



REYNOLDS METALS COMPANY - BASSENA, NEW YORK		
WOODWARD-CLYDE CONSULTANTS <small>Consulting Engineers, Geologists and Environmental Scientists</small>		
AREAS OF CONCERN ST. LAWRENCE INDUCTION PLANT		
DATE THIS DOCUMENT PREPARED BY: 11/87	REVISED BY: 11/87	SCALE: AS SHOWN
		FIGURE D-1

APPENDIX C

Record of Decision General Motors Corporation Central Foundry Division Site Massena, New York

This appendix contains a summary of the Record of Decision (ROD) for the second "operable unit" at the General Motors site (issued March 31, 1992). A summary of the ROD for the first operable unit is contained in Appendix A of the Stage II Remedial Action Plan. Both RODs in their entirety are available in local repositories such as the Massena Public Library and are also available upon request from the lead regulatory agency (EPA).

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

General Motors Corporation - Central Foundry Division Site
Massena, St. Lawrence County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the second operable unit for the General Motors - Central Foundry Division Superfund Site, in Massena, New York, which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendment and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document summarizes the factual and legal basis for selecting the second operable unit remedy for this Site.

The New York State Department of Environmental Conservation has not concurred on the selected remedy. The information supporting this remedial action decision is contained in the Administrative Record for this Site, the index of which is appended to this document.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances at or from this Site, if not addressed by implementing the response action selected in this Record of Decision, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

This action or "operable unit" is the second of two operable units that were planned for the Site. The first operable unit Record of Decision, dated December 17, 1990, addressed the threats resulting from the majority of the areas of the Site including: contaminated sediments and soils in the St. Lawrence and Raquette Rivers, Turtle Creek, and associated riverbanks and wetlands (the St. Lawrence River System); runoff from the East Disposal Area; contaminated sludges, soil, and debris in the North Disposal Area, in and around the four Industrial Lagoons, and in other areas on General Motors' (G.M.) property; contaminated soil on the St. Regis Mohawk Reservation; and contaminated groundwater associated with the Site.

This second operable unit Record of Decision addresses the remaining areas of the Site by utilizing a mixed treatment/containment remedy in the East Disposal Area and

containment of the Industrial Landfill at the Site. The combination of this second operable unit Record of Decision and the December 17, 1990 first operable unit Record of Decision comprise a comprehensive remedy for the Site.

The major components of the second operable unit selected remedy include:

- Excavation of soil containing polychlorinated biphenyls (PCBs) at concentrations at or above 500 parts per million, all sludge, and all visibly oily soil from the East Disposal Area at the Site;

- Consolidation and in-place containment of less contaminated soils (containing PCBs at concentrations above 10 ppm and below 500 ppm) in the East Disposal Area and control of groundwater migration from the East Disposal Area through the use of a composite cap and a slurry wall. (The slurry wall is contingent on the results of additional groundwater testing to be conducted during design. See page 41 of the ROD Decision Summary.);

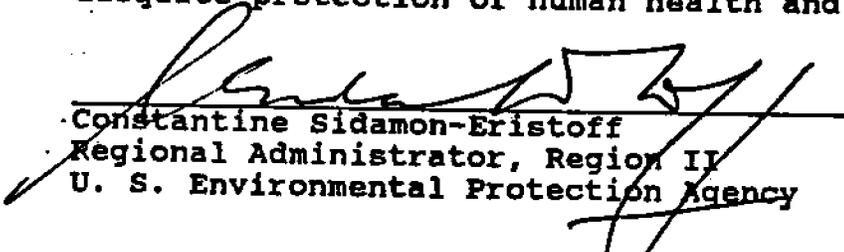
- Recontouring, regrading, and containment of contaminated material in the Industrial Landfill and control of groundwater migration from the Industrial Landfill through the use of a composite cap and slurry wall (The slurry wall is contingent on the results of additional groundwater testing to be conducted during design.);

- Treatment of excavated material from the East Disposal Area by either biological treatment (or another innovative treatment technology which has been demonstrated to achieve Site treatment goals) or thermal destruction to be determined by the U. S. Environmental Protection Agency (EPA) following first operable unit treatability testing. Treatability testing was previously selected as part of the first operable unit Record of Decision and EPA will base its decision on the results of that testing. Treatment residuals will be disposed on-site. (During first operable unit treatability testing, other innovative PCB treatment technologies will be tested concurrently with biological treatment so that EPA will have additional information in the event that biological treatment proves to be unsatisfactory for treatment of any Site material.) EPA will select the treatment technologies to be employed, in consultation with NYSDEC and the St. Regis Mohawk Tribe.

DECLARATION

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action (or provides grounds for invoking a waiver of these requirements), and is cost effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable and satisfies the statutory preference for remedies which employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will result in hazardous substances remaining on-site above health-based levels in the Industrial Landfill and East Disposal Area, a review will be conducted within at least five years after commencement of remedial action and every five years thereafter to ensure that the remedy continues to provide adequate protection of human health and the environment.


Constantine Sidamon-Eristoff
Regional Administrator, Region II
U. S. Environmental Protection Agency

2/3/92
Date

ROD FACT SHEET

SITE

Name: General Motors - Central Foundry Division (second operable unit)
Location: Massena, St. Lawrence County, New York
HRS Score: Group 5
NPL Rank: 350
EPA Contact: Lisa Carson, (212) 264-6857

ROD

Date Signed: 3/31/92

Remedy: Excavation and treatment of sludge, visibly oily soil, and highly contaminated soil in the East Disposal Area; in-place containment of less contaminated soils and control of groundwater in the East Disposal Area through the use of a composite cap and a slurry wall, and; recontouring and regrading followed by containment of contaminated material and groundwater control in the Industrial Landfill through the use of a composite cap and slurry wall.

Capital Cost: \$ 28,000,000 - \$ 42,000,000 (Costs will depend on the type of treatment technology used at the Site. Costs range from \$ 28 million for solidification to \$ 42 million for incineration.)

O & M/Year: \$ 567,000 (years 1 and 2); \$200,000 (year 3 - 30)

Present Worth: \$ 31,000,000 - 45,000,000

LEAD

Potentially Responsible Party

Main PRP: General Motors Corporation

WASTE

Type: PCBs

Media: Sediments, soil, sludges, and groundwater

Origin: On-site disposal of PCBs used in hydraulic fluids

Est. Quantity: Approximately 598,000 cubic yards of PCB contaminated material addressed in this ROD

DECISION SUMMARY

**GENERAL MOTORS - CENTRAL FOUNDRY DIVISION SITE
MASSENA, NEW YORK**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

NEW YORK

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