



DEC

Division of Water

**Buffalo River Remedial Action Plan
STATUS REPORT**

July 2002



**New York State
Department of Environmental Conservation**

BUFFALO RIVER

REMEDIAL ACTION PLAN

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This Buffalo Remedial Action Plan Status Report was prepared by the New York State Department of Environmental Conservation in cooperation with the Buffalo River Remedial Advisory Committee.

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EXECUTIVE SUMMARY

In November 1989 the Buffalo River Remedial Action Plan (RAP) was issued. A Remedial Advisory Committee (RAC) was formed early in 1990 to assist the DEC in the implementation of the RAP. The RAC is representative of concerned groups within the community that have an interest in the Buffalo River.

The Remedial Action Plan contained initial agency commitments to implement the remedial action strategy. Subsequent commitments and accomplishments were reported in five earlier status reports. This report summarizes the accomplishments through March 2002 and identifies the activity projections for the period beginning April 2002.

Stream Water Quality Monitoring

- A flow activated sampling station was established by DEC on the Buffalo River at Ohio Street. Event related sampling was undertaken during 1991-93. A report on the findings was completed.
- A dissolved oxygen sampling program was undertaken by DEC. The data analysis indicated the need for computer modeling of stream interactions to assess the data relative to dissolved oxygen demand. The computer modeling and analysis activity was completed.

Bottom Sediments

- Requirements for sediment transport model improvements were developed by a contractor for DEC. Funding of the model improvements were deferred as sediment transport modeling of the Buffalo River was undertaken by USEPA under the Assessment and Remediation of Contaminated Sediments (ARCS) program.
- The U.S. Environmental Protection Agency completed a five year Assessment and Remediation of Contaminated Sediments (ARCS) Program related to the control and removal of toxic pollutants in bottom sediments. The evaluation of bottom sediment contamination in the Buffalo River included sediment assessment, risk assessment, identification of pollutant loadings from inactive hazardous waste sites and the application of mass balance modeling to assess remediation options.

- A dredging technology evaluation program was undertaken along the Buffalo River by the U.S. Army Corps of Engineers during 1992-93. The efficiency of several dredging cutter heads was assessed in the evaluation program. A report on the evaluation was completed.
- A study to assess the feasibility of environmental dredging adjacent to the navigation channel of the Buffalo River under Section 312 of the Water Resources Development Act (WRDA) of 1990 as amended by Section 205 of the WRDA of 1996 has been undertaken by the U.S. Army Corps of Engineers but requires additional data and funding for completion. The study will also evaluate the benefits of ecosystem restoration for potential areas along the river.
- Methods for determining sediment criteria are continuing to be developed by USEPA.

Inactive Hazardous Waste Sites

- All Phase I investigations for sites in the Buffalo River basin have been completed.
- All Phase II investigations for sites in the Buffalo River basin have been completed.
- Remedial Investigation/Feasibility Studies are underway at the Donner Hanna Coke and Tiff-Hopkins sites.
- Remedial construction action was completed at Mr. C's Cleaners and is being undertaken at the Lehigh Valley Railroad and Berm Metal sites.
- With the completion of remedial construction at the above sites, remedial action will have been completed at 38 of the 40 sites in the Buffalo River basin.

Municipal & Industrial Wastewater Facilities

- Discharge permit monitoring and renewal activities are ongoing.

Municipal Sewer Systems

- An initial combined sewer system model was developed and verified for the main interceptors of the Buffalo Sewer Authority collection system network. Operational simulations were undertaken and cost estimates of alternatives for overflow reduction/treatment were developed.

- An expanded model including real time operation has been developed and is being utilized by the Buffalo Sewer Authority to maximize utilization of in-system storage and flow conveyance capacity.
- Two New York State Clean Air/Clean Water Bond Act project grants have been awarded to the Buffalo Sewer Authority for the reduction of combined sewer overflow volumes to the Buffalo River through the separation of storm water from the combined sewer systems. One project is complete and the second is under development.

Fish & Wildlife Habitat

- A plan to assess fish and wildlife habitat conditions and improvement potential for the Buffalo River was developed. Funding to initiate habitat assessment was obtained and field work was initiated by DEC during 1991-92. A compilation of existing habitat conditions in the Area of Concern and the immediate upstream watershed was completed during 1992-93. A report on the findings was completed.
- Funding was also provided by the USEPA for faculty and students at the New York State University College at Buffalo to conduct physical mapping, siltation rate evaluations and additional biological surveys within the Area of Concern. A report summarizing these activities was completed.
- With the completion of the Phase I assessment, a determination of additional needs to develop a habitat improvement scheme was prepared by the U.S. Fish and Wildlife Service under an agreement with Erie County and with DEC. A report on this work was completed.
- Habitat improvement plan designs were undertaken under contract by Erie County with the involvement of the City of Buffalo, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and the DEC.
- Three habitat improvement sites have been constructed along the Buffalo River based on the above plans. Development of a fourth habitat improvement site, the Seneca Bluffs Wetland and Aquatic Habitat Restoration site, is underway.
- Remediation of the Buffalo Color waste site by the previous owner, Allied Signal, included fish and wildlife habitat restoration both upland and along the shoreline of the Buffalo River as well as the creation of a four acre pocket park downstream of the site.

CHAPTER I INTRODUCTION

The Buffalo River Remedial Action Plan (RAP) was completed and issued in November 1989. To track implementation of the Remedial Action Plan, DEC has issued a series of status reports to illustrate the progress on remediation by listing accomplishments in the previous reporting periods and describing commitments for the current period. This is the sixth status report which has been issued since the completion of the RAP.

To assist DEC in the remediation process a Remedial Advisory Committee (RAC) was formed early in 1990. The RAC is representative of concerned groups within the community that have an interest in the Buffalo River. The groups include government officials, public interest groups (non-economic), economic interests and private citizens. In addition to RAC members, agencies at all levels of government are asked to participate and provide input in RAP implementation as needed.

DEC and other responsible agencies have been, and are currently carrying out remediation of environmental problems along the Buffalo River. The remedial strategy outlined in the RAP included initial commitments to be undertaken to advance the remediation of the Buffalo River. A summary of the status of these undertakings and an overview of current commitments is presented.

CHAPTER 2 ACCOMPLISHMENTS THROUGH 2002

An overview of accomplishments through 2002 describing the objectives, responsible agency and status is shown in Table 1. A more detailed description follows. Under each accomplishment the "Next step:" heading denotes those actions needed to carry forward the overall RAP strategy.

A. Stream Water Quality Monitoring

1. Flow Activated Sampling Station

Establish a flow activated sampling station on the lower Buffalo River.

DEC established a flow activated sampling station at Ohio Street for sample collection during high flow events. The station was used to collect water samples during high flow periods. Samples were collected for the determination of pesticides, mirex, PCBs, PAHs, hexachlorobenzene and metals. A report on the findings was completed. The data was utilized for comparative evaluation of the ARCS program sediment dynamics and toxics modeling.

2. Dissolved Oxygen Measurements

Conduct dissolved oxygen measurements on the Buffalo River.

DEC made extensive dissolved oxygen measurements under a variety of conditions and at different depths and cross sections. In addition, biochemical oxygen demand measurements were made to determine upstream, bottom sediment, and other sources of oxygen demand. The data analysis indicated the need for detailed computer modeling to assess the conditions associated with dissolved oxygen demand. Computer modeling was undertaken along with model verification to assess dissolved oxygen levels.

B. Bottom Sediments

1. Sediment dynamics modeling

Develop requirements for improvements to a sediment dynamics model that would allow sediment scouring and deposition to be accurately predicted under a wide variety of flow conditions, and for alternative dredging scenarios.

A review and analysis of previous modeling on the Buffalo River was made and requirements for sediment model improvements were developed by a contractor for DEC.

Funding of the model improvements was deferred as sediment dynamics modeling of the Buffalo River was undertaken by the USEPA under the Assessment and Remediation of Contaminated Sediments (ARCS) program. Sediment dynamics modeling was incorporated with toxics modeling in the ARCS program. The modeling included assessment of the alternatives of no action, cessation of navigational dredging and dredging of nearshore areas all with and without current watershed loadings.

The Assessment and Remediation of Contaminated Sediments (ARCS) program provided sediment data necessary for an evaluation of the feasibility of remedial actions. The U.S. Army Corps of Engineers initiated an assessment of the feasibility of environmental dredging and ecosystem restoration under Section 312 of the 1990 Water Resources Development Act (WRDA) as amended by Section 205 of the 1996 WRDA.

2. Criteria Development

Develop methods for determining sediment criteria that have scientific validity.

The USEPA has been developing and validating tests and associated acceptance criteria to allow decisions to be made relative to the likely environmental impacts of contaminated sediments.

Next step: Once a criteria methodology has been developed by EPA, this methodology would be applied to the Buffalo River sediments.

C. Inactive Hazardous Waste Sites

1. Phase I Site Investigations

Conduct Phase I investigations involving existing data accumulation and assessment.

All Phase I studies for the Buffalo River basin have been completed by DEC (Appendix A, Tables A-1 and A-2).

Next step: The conduct of Phase II investigations, which include preliminary field studies to fill data gaps to complete the initial site assessment, are scheduled.

2. Phase II Site Investigations

Conduct Phase II field investigations to fill data gaps to complete initial site assessments.

All Phase II studies for the Buffalo River Basin have been completed by DEC (Appendix A, Tables A-1 and A-2).

Next step: Once Phase II site investigations are complete, the sites are ranked and determinations of need for the conduct of Remedial Investigation/Feasibility Studies (RI/FS) are made. Once an RI/FS is determined to be required, implementation action can be initiated under a DEC Consent Order by the responsible party or directly by DEC in the absence of a known responsible party.

3. Remedial Investigation/Feasibility Studies

Conduct Remedial Investigation/Feasibility Studies to define contaminant pathways and assess alternative remedial measures.

Remedial Investigation/Feasibility Studies have been completed at 38 sites.

Next step: Once Remedial Investigation/Feasibility Studies are complete, site remedial measures are designed.

4. Remedial Design

Conduct Remedial Design

Remedial designs were completed during this report period at the Lehigh Valley Railroad and Mr. C's Cleaners sites.

Next step: Once remedial design is complete remedial construction is undertaken.

5. Remedial Action

Conduct Remedial Action

Remedial actions were undertaken during this report period at the Lehigh Valley Railroad and Bern Metal sites and were completed at Mr. C's Cleaners.

Following completion of remediation the sites are monitored.

D. Municipal and Industrial Wastewater Facilities

Discharge Permit Monitoring and Renewal

Continue discharge permit monitoring to achieve compliance with secondary treatment for municipal discharges and best available technology and best management practices for industrial discharges.

DEC has reviewed self-monitoring reports from dischargers, inspected facilities in operation and independently sampled effluent to check on the validity of self-monitoring data. General compliance with permit requirements has been maintained.

Next step: Each permit is reassessed as part of the ongoing DEC water quality and technology evaluation process.

E. Municipal Sewer Systems

1. Combined Sewer Improvement Projects

Combined sewer improvement projects to reduce the volume of wet weather discharges.

Two New York State Clean Water/Clean Air Bond Act project grants (Phase I and Phase II) have been awarded to the Buffalo Sewer Authority to improve water quality in the Buffalo River. The Phase I project, the Vanderbuilt Sewer Project, which consists of the construction of new storm sewers in the eastern portion of the City of Buffalo has been completed. This project results in the separation of storm water from the combined sewer system in this area. The Phase II project is under development.

2. Combined Sewer System Modeling

Evaluate the combined sewer system to assess its response to various storm events and system operation plans.

The Buffalo Sewer Authority (BSA) completed initial model development and testing to verify the modeled system response. Model adjustment and refinement was completed. Selected simulations were run to assess main interceptor system conditions and alternative operational schemes. Cost estimates of alternatives for overflow reduction/treatment were developed.

An expanded model including real time operation has been developed and is being utilized to assess maximization of in-system storage, potential alternative improvements and operation schemes.

F. Fish and Wildlife Habitat

Habitat Improvement Potential

Develop plan to assess fish and wildlife habitat conditions and improvement potential.

A plan was developed by DEC which specifically identified work to be undertaken to assess existing habitat conditions, both aquatic and terrestrial, along the Buffalo River and to identify potentials for habitat improvement. The work plan was segmented into phases for accomplishment. Funding was obtained and field work was undertaken by DEC to compile data on existing habitat conditions in the Area of Concern and the immediate upstream watershed.

Funds were also provided through the USEPA for faculty and students of the New York State University College at Buffalo to conduct physical mapping, siltation rate evaluations and additional biological surveys relative to the Area of Concern in the Buffalo River.

The preparation of a habitat improvement scheme was undertaken by the U.S. Fish and Wildlife Service under an agreement with Erie County and with DEC.

Funds were provided through the USEPA for the design of habitat improvement projects along the Buffalo River. This design work was undertaken under contract by Erie County with the involvement of the City of Buffalo, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and the DEC.

Three sites were selected for initial implementation and were constructed. The three sites are the Ohio Street Site, the Smith Street Site and the Bailey Avenue Peninsula.

Remediation of the Buffalo Color site, previously owned by Allied Signal, included fish and wildlife habitat restoration both upland and along the Buffalo River shoreline. A four acre pocket park was established by Allied Signal and the City of Buffalo along the river downstream of the site. The remediation included the removal of 44,000 cubic yards of contaminated sediment from the Buffalo River, placement of 42,000 tons of riprap for shoreline protection, nesting and feeding areas for waterfowl, the installation of nine "fish pods" in the river to allow for spawning and protection of fish and the planting of 3,800 pounds of special seed mixture to enhance wildlife habitat.

An assessment of the feasibility of ecosystem restoration at potential sites along the Buffalo River is being undertaken by the U.S. Army Corps of Engineers in conjunction with an assessment of the feasibility of environmental dredging.

TABLE I
BUFFALO RIVER REMEDIAL ACTION PLAN
ACCOMPLISHMENTS THROUGH 2002

<u>Objective</u>	<u>Target Completion Date</u>	<u>Responsible Agency</u>	<u>Status</u>
A. Stream Water Quality Monitoring			
1. Conduct high flow event sampling with flow activated sampling station.	March 1993	DEC	Complete
2. Conduct modeling of dissolved oxygen data	March 1994	DEC	Complete
3. Evaluate modeling of dissolved oxygen data	March 1997	DEC	Complete
B. Bottom Sediments			
1. Conduct sediment dynamics modeling	March 1994	EPA (ARCS)	Complete
2. Evaluation of environmental dredging	October 1999	COE ^{1/}	Ongoing
3. Develop methods for determining sediment criteria		EPA	Ongoing

^{1/} U.S. Army Corps of Engineers

TABLE 1 (Continued)
BUFFALO RIVER REMEDIAL ACTION PLAN
ACCOMPLISHMENTS THROUGH MARCH 2002

<u>Objective</u>	<u>Target Completion Date</u>	<u>Responsible Agency</u>	<u>Status</u>
C. Inactive Hazardous Waste Sites			
1. Conduct Remedial Design		DEC	
<ul style="list-style-type: none"> • Lehigh Valley Railroad • Mr. C's Cleaners 	<p>October 1999</p> <p>August 1999</p>		<p>Complete</p> <p>Complete</p>
2. Conduct Remedial Action		DEC	
<ul style="list-style-type: none"> • Lehigh Valley Railroad • Bern Metal • Mr. C's Cleaners 	<p>October 2000</p> <p>November 2000</p> <p>November 2000</p>		<p>Ongoing</p> <p>Ongoing</p> <p>Complete</p>

TABLE 1 (Continued)
 BUFFALO RIVER REMEDIAL ACTION PLAN
 ACCOMPLISHMENTS THROUGH 2002

<u>Objective</u>	<u>Target Completion Date</u>	<u>Responsible Agency</u>	<u>Status</u>
D. Municipal and Industrial Wastewater Facilities			
1. Continue discharge permit monitoring	Ongoing	DEC	Ongoing
E. Municipal Sewer Systems			
1. Implement combined sewer overflow improvement projects	October 2000	BSA	Ongoing <u>1/</u>
2. Conduct model assessment of conveyance capacity and enhanced in-system storage.	March 2000	BSA	Ongoing <u>2/</u>
F. Fish and Wildlife Habitat			
1. Conduct Phase I assessment of habitat conditions and improvement potential	September 1993	DEC & EPA	Complete
2. Conduct development of habitat improvement scheme	September 1994	Erie Co. & USF&W	Complete
3. Conduct design of habitat improvement sites	March 1996	Erie Co. & EPA	Complete
4. Construct three habitat improvement sites	October 1997	Erie Co., Buffalo & EPA	Complete
5. Construct habitat improvement at Buffalo Color site	October 1998	DEC	Complete
6. Assess the feasibility of ecosystem restoration	October 1999	COE	Ongoing

1/ Phase I project complete, Phase II project under development

2/ Initial assessment complete, continued evaluation ongoing

CHAPTER 3 COMMITMENTS

The following is a description of 2002 commitments describing objectives, time for completion and responsible agency. An overview of agency commitments is shown in Table 2.

A. Stream Water Quality Monitoring

1. Chemical Parameter Measurements

Conduct chemical parameter monitoring to assess water quality of the Buffalo River.

Chemical parameter monitoring has been ongoing and will be continued to assess the water quality of the Buffalo River. The assessment will be based on the adopted water quality standards for the Buffalo River.

Completion date - Ongoing

Responsible agency - DEC

B. Bottom Sediments

1. Evaluation of sediment remedial actions

The U.S. Army Corps of Engineers initiated an assessment of the feasibility of environmental dredging adjacent to the Buffalo River navigation channel under Section 312(a) of the 1990 Water Resources Development Act (WRDA) as amended by Section 205 of the 1996 WRDA. An assessment of the feasibility of ecosystem restoration of potential areas along the Buffalo River is also being evaluated as part of this evaluation under Section 312(b) of the Water Resources Development Act.

Completion date -Ongoing

Responsible agency - USACOE

Next step: Upon completion of the assessment of the feasibility of environmental dredging and ecosystem restoration, funding may be required for implementation.

2. Criteria Development

Develop methods for determining sediment criteria that have scientific validity.

EPA is developing and validating tests and associated acceptance criteria relative to contaminated sediments. This work will be brought to a conclusion with a report on recommended tests and criteria.

Completion date -Ongoing
Responsible agency - USEPA

Next step: Once a criteria methodology has been developed by EPA, this methodology would be applied to the Buffalo River sediments. It would include both the development of site specific criteria, and actual testing of the bottom sediments.

C. Inactive Hazardous Waste Sites

1. Phase I and II Site Investigations

Phase I and II site investigations have been completed for all inactive hazardous waste sites in the Buffalo River basin.

2. Remedial Investigation/Feasibility Studies

Conduct Remedial Investigation/Feasibility Studies to define contaminant pathways and assess alternative remedial measures.

Remedial Investigation/Feasibility Studies are underway at the Donner Hanna Coke and Tiff-Hopkins sites.

Completion date - December 2003
Responsible agency - DEC

Next step: Once Remedial Investigation/Feasibility Studies are complete, site remedial measures are designed.

3. Remedial Action

Conduct Remedial Action

Remedial construction action is being undertaken at the Lehigh Valley Railroad and Bern Metal sites.

Completion date -March 2003
Responsible agency - DEC

Next step: Upon completion of remedial action the sites will be monitored.

With the completion of remedial construction at the above sites remedial action will have been completed at 38 of the 40 sites in the Buffalo River basin.

D. Municipal and Industrial Wastewater Facilities

Discharge Permit Monitoring and Renewal

Continue discharge permit monitoring to achieve compliance with secondary treatment for municipal discharges and best available technology and best management practices for industrial discharges.

DEC reviews self-monitoring reports from discharges, inspects facilities in operation and independently samples effluent to check on the validity of self-monitoring data. Significant violations of permit conditions trigger compliance or enforcement measures.

Completion date - Ongoing
Responsible agency - DEC

Next step: Each permit will be reassessed to meet water quality standards and the technology requirements applicable at the time of renewal.

E. Municipal Sewer Systems

1. Combined Sewer Improvements

Combined sewer improvement projects to reduce the volume of wet weather discharges.

Two New York State Clean Water/Clean Air Bond Act project grants (Phase I and Phase II) have been awarded to the Buffalo Sewer Authority to improve water quality in the Buffalo River through the separation of storm water from the combined sewer system. The Vanderbilt Project, Phase I, has been completed. The Phase II project is under development.

Completion date -December 2003
Responsible agency - BSA

2. Combined Sewer System Operation Modeling

Assess through a detailed combined sewer system model including real time operation modeling maximization of in-system storage and flow conveyance capacity.

The Buffalo Sewer Authority (BSA) is utilizing a combined sewer system operation model to provide continuous system input to assess potential alternative improvements and operation schemes.

Completion date - July 2003
Responsible agency - BSA

Next step: Based on assessment, implement system improvements.

3. Service Area Sewer Systems

Assess inflow and infiltration through the development of sewer system monitoring, operation, maintenance and abatement plans in the Buffalo Sewer Authority service area.

Sewer system monitoring, operation and maintenance plans are being implemented in the Buffalo Sewer Authority service area sewer systems. Abatement plans are being developed and implemented through sewer system evaluation and rehabilitation.

Completion date - Ongoing
Responsible agency - DEC

Next step: Continue system rehabilitation and implementation of monitoring, operation and maintenance plans.

F. Fish and Wildlife Habitat

Habitat Improvement Potential

Implement plan to assess fish and wildlife habitat conditions and improvement potential.

Habitat loss impairs beneficial uses such as fishing and observing wild birds and animals. The combination of dredging and bulkheading on the Buffalo River has substantially reduced fish habitat by eliminating many productive shallow waters and wetlands. A plan was developed by DEC which specifically identified the work to be undertaken to assess the existing habitat conditions.

A compilation of existing habitat conditions in the Area of Concern and the immediate upstream watershed was undertaken by DEC. In addition, with funding provided by USEPA, faculty and students from the New York State University College at Buffalo completed physical mapping, siltation rate evaluations and additional biological surveys relative the Area of Concern.

Upon completion of Phase I of the assessment, a determination of additional needs to develop a habitat improvement scheme was prepared by the U.S. Fish and Wildlife Service under an agreement with Erie County and DEC which lead to site selection for preservation and improvement of habitat.

Funds were provided through the USEPA for the design of habitat improvement projects along the Buffalo River. This design work was undertaken under contract by Erie County with the involvement of the City of Buffalo, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers and the DEC.

Three sites, were selected for implementation and have been constructed. A New York State Environmental Protection Fund grant has been awarded for the construction of a fourth site, the Seneca Bluffs Wetland and Aquatic Habitat Restoration Site.

Remediation of the Buffalo Color waste site by the previous owner, Allied Signal, included fish and wildlife restoration both upland and along the shoreline of the Buffalo River as well as the creation of a four acre pocket park downstream of the site.

An assessment of the feasibility of ecosystem restoration at potential sites along the Buffalo River is being undertaken by the U.S. Army Corps of Engineers in conjunction with an assessment of the feasibility of environmental dredging.

TABLE 2
BUFFALO RIVER REMEDIAL ACTION PLAN
2002 COMMITMENTS

<u>Objective</u>	<u>Target Completion Date</u>	<u>Responsible Agency</u>
A. Stream Water Quality Monitoring		
1. Conduct chemical parameter monitoring	Ongoing	DEC
B. Bottom Sediments		
1. Assess the feasibility of environmental dredging	Ongoing	COE
2. Develop methods for determining sediment criteria	Ongoing	EPA
C. Inactive Hazardous Waste Sites		
1. Conduct Remedial Investigation/Feasibility Studies		DEC
• Donner Hanna Coke	December 2003	
• Tiftt-Hopkins	December 2002	
2. Conduct Remedial Action		DEC
• Lehigh Valley Railroad	December 2002	
• Bern Metal	March 2003	

TABLE 2 (Continued)
BUFFALO RIVER REMEDIAL ACTION PLAN
2002 COMMITMENTS

<u>Objective</u>	<u>Target Completion Date</u>	<u>Responsible Agency</u>
D. Municipal and Industrial Wastewater Facilities		
1. Continue discharge permit monitoring	Ongoing	DEC
E. Municipal Sewer Systems		
1. Implement Phase II combined sewer overflow improvement project	December 2003	BSA ^{1/}
2. Conduct system assessment with combined sewer operation model	July 2003	BSA ^{1/}
3. Continue development and implementation of the monitoring operation, maintenance and abatement plans in BSA service area sewer systems	Ongoing	DEC
F. Fish and Wildlife Habitat		
1. Construct Seneca Bluffs Wetland and Aquatic Habitat Restoration Site	December 2004	DEP ^{3/}
2. Assess the feasibility of ecosystem restoration	Ongoing	COE ^{2/}

^{1/} Buffalo Sewer Authority

^{2/} U.S. Army Corps of Engineers

^{3/} Erie County Department of Environment and Planning

APPENDIX

A. INACTIVE HAZARDOUS WASTE SITE REMEDIATION

INACTIVE HAZARDOUS WASTE SITE REMEDIATION

At the time of preparation of the Remedial Action Plan thirty-two sites were identified in the Buffalo River basin where hazardous wastes may have been deposited. New information obtained as a result of work undertaken during 1999-2002 is summarized and underlined in Table A-1. Site investigation and remediation program progress in the Buffalo River basin is shown in Table A-2.

Eight new sites were identified in the Buffalo River basin since the completion of the RAP. These sites have been added to the above listings.

TABLE A - 1
 REMEDIATION STATUS
 HAZARDOUS WASTE SITES
 BUFFALO RIVER WATERSHED
 AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDIATION STATUS	CONTAMINANT MIGRATION CONCERNS
CAYUGA CREEK				
915093	Town of Marilla	D	Phase I Investigation completed. Phase II Investigating completed. Delisted December 1992.	No hazardous waste confirmed at this site.
915069	Lancaster Reclamation	D	Phase I Investigation completed. Phase II Investigation completed. Delisted February 1991.	Analyses of groundwater indicates the site is impacting groundwater quality. Surface water results do not indicate a significant contamination condition exists.
915082	Stocks Pond	D	Phase I Investigation completed. Phase II Investigation completed. Delisted March 1995.	This site is proximate to Cayuga Creek with slightly elevated levels of metals and phenols.
915064	Dresser Industries	D	Phase I Investigation completed. Phase II Investigation completed. Delisted July 1994.	Potential for contaminant migration is considered to be unlikely due to extremely low levels of contaminants found at site.
915105	Village of Depew Borden Road	D	Phase I Investigation completed. Supplemental sampling completed. Delisted October 1990.	The site contains foundry sands with phenolic based binders. A portion of the site has been excavated. Investigations indicate no hazardous waste present on site.

TABLE A - 1 (Continued)
REMEDICATION STATUS
HAZARDOUS WASTE SITES
BUFFALO RIVER WATERSHED
AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDICATION STATUS	CONTAMINANT MIGRATION CONCERNS
915070	Land Reclamation	4	Phase I Investigation completed. Phase II Investigation completed. Remedial action completed.	Landfill was "capped" which eliminated much of the migration potential.
915129	Old Land Reclamation	3	Phase I Investigation completed. Phase II Investigation completed. Supplemental Phase II Investigation completed.	Soil and leachate sampling indicates the presence of inorganic and organic contaminants. Potential for contaminant movement is limited.
915128	Union Road	4	Phase I Investigation completed. RI/FS completed. Record of Decision issued. Remedial action completed.	Contamination has been contained, sediment has been removed from the creek.
BUFFALO CREEK				
915088	Northern Demolition	D	Phase I Investigation completed. Site delisted in 1989.	Data does not indicate hazardous waste present on site.
CAZENOVIA CREEK				
915062	CID (Chaffee Landfill)	4	Leachate collection system installed.	Data available indicates no contaminant migration.
915130	Hi View Terrace	D	Phase I Investigation completed. USEPA removal action performed.	Data indicated presence of total cyanides in material. Site remediated.

TABLE A-1 (Continued)
 REMEDIATION STATUS
 HAZARDOUS WASTE SITES
 BUFFALO RIVER WATERSHED
 AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDATION STATUS	CONTAMINANT MIGRATION CONCERNS
BUFFALO RIVER				
915039	West Seneca Transfer Station	D	Phase I Investigation completed. Phase II Investigation completed. Delisted December 1992	Data does not indicate hazardous waste present on site.
915036	Madison Wire Indian Church Road	D	Phase I & II Investigations completed. RI/FS completed in 1989. Removal action for drums and liquids completed by EPA. Design of remedial alternative completed. Remedial action completed. Delisted December 1995.	Contaminated soil and sediment were removed as part of the remedial action.
915059	Houghton Park	D	Phase I Investigation completed. Buffalo Urban Renewal Agency Investigated site in 1983. Delisted March 1996.	Analytical data shows contamination of soil and groundwater with heavy metals and phenols. However, no significant contaminant migration indicated.
915021	Eric Lackavanna Railroad	D	Phase I Investigation completed. Site delisted in 1989.	Investigation indicated no hazardous waste disposal on site.
915040	Mobil Oil Corporation	3	Phase I Investigation completed. Phase II Investigation completed.	Investigation indicates petroleum contaminant migration. Remedial actions and further investigations are on-going.
915037	Houdaille - Manzel	D	Negotiations for remediation Consent Order failed. State funded Remedial Investigation/Feasibility Study completed. Delisted March 1994.	Data does not indicate hazardous waste present on site.

TABLE A - 1 (Continued)
 REMEDIATION STATUS
 HAZARDOUS WASTE SITES
 BUFFALO RIVER WATERSHED
 AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDICATION STATUS	CONTAMINANT MIGRATION CONCERNS
915017	Donner Hanna Coke	3	Phase I Investigation completed. Phase II Investigation completed. <u>RI/FS is underway.</u>	Groundwater and surface water is contaminated with organic compounds and heavy metals.
915012 (A, B)	Buffalo Color	2	RI/FS completed. Record of Decision issued. Remedial action completed.	Remediation action has mitigated migration issues.
915012C	Buffalo Color	D	Deep well has been properly closed. Site delisted in 1989.	
915004	Allied Chemical Industrial Chemical Division	D	Phase II investigation completed. Delisted February 1993.	Investigations did not indicate the presence of hazardous waste on site.
915071	Lehigh Valley Railroad	2	Phase II Investigation completed. Supplemental sampling program completed. <u>Remedial action is underway.</u>	Contaminated soil is being removed, monitoring of groundwater continues. <u>Migration potential is limited.</u>
915034	MacNaughton - Brooks	D	Phase II Investigation completed. Delisted March 1991.	Investigations did not indicate the presence of hazardous waste on site.
915041	Mollenberg - Betz	D	Phase I Investigation completed. Supplemental sampling completed. Delisted May 1991.	Investigations did not indicate the presence of hazardous waste on site.

TABLE A - 1 (Continued)
 REMEDIATION STATUS
 HAZARDOUS WASTE SITES
 BUFFALO RIVER WATERSHED
 AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDIATION STATUS	CONTAMINANT MIGRATION CONCERNS
915072	Tift Farm Nature Preserve	5	Phase II investigation completed. Supplemental sampling program completed.	Potential for low level organic and metal contaminant migration limited.
915115	Bengart & Memel	4	Site has been remediated under Consent Order.	PCB contaminated soils have been remediated. Groundwater collection continues.
915126	Clinton - Bailey	D	Phase I investigation completed. Phase II investigation completed. Delisted March 1995.	Data indicates the presence of heavy metals (arsenic) and organic compounds in soil samples at site. Potential for contaminant migration limited. Drum removal completed in 1991.
915113	U.S. Steel - Eastern Div.	D	Phase I investigation complete. Supplemental sampling program completed. Delisted April 1995.	Investigations did not indicate the presence of hazardous waste on site.
915131	Tift - Hopkins Street	2A	Phase I investigation completed. Phase II investigation completed. <u>RI/FES is underway.</u>	Potential for contaminant migration has not been determined.
915133	Ameron	4	Investigation by Ameron has been completed and remedial system is in operation.	Data does not indicate potential for contaminant migration.

TABLE A - 1 (Continued)
 REMEDIATION STATUS
 HAZARDOUS WASTE SITES
 BUFFALO RIVER WATERSHED
 AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDIATION STATUS	CONTAMINANT MIGRATION CONCERNS
ADJACENT TO MOUTH OF BUFFALO RIVER				
915080	Times Beach	D	Phase I Investigation complete. Corps of Engineers had undertaken sampling of surface and groundwater sediment, flora and fauna. Delisted September 1991.	Potential for contaminant movement to Outer Harbor exists.
SITES IDENTIFIED SUBSEQUENT TO RAP COMPLETION				
915146	Niagara Transformer (4)	4	Interim Remedial Measures completed. Remedial Investigation/Feasibility Study completed. Remedial action complete.	PCBs in soil/sediments/surface water found in storm water ditch. Remedial action has partially mitigated migration potential.
915135	Bern Metal Corporation (4)	2	Phase I Investigation complete. USEPA Emergency Removal Action completed. DEC Remedial Investigation/Feasibility Study completed. Remedial Design completed.	Heavy metals known to be present in soils. Potential for contaminant migration limited.
915147	ARO Corporation (1)	4	Remedial Action completed.	Remedial action mitigates migration potential.
915149	Scott Aviation (1)	4	Remedial Investigation/Feasibility Study completed. Remedial Action completed.	Groundwater contamination confirmed. No offsite migration occurring.

TABLE A - 1 (Continued)
 REMEDIATION STATUS
 HAZARDOUS WASTE SITES
 BUFFALO RIVER WATERSHED
 AS OF MARCH 2002

NUMBER	SITE NAME	SITE CODE	REMEDICATION STATUS	CONTAMINANT MIGRATION CONCERNS
915150	ENRX (4)	3	EPA removal action completed. DEC Phase II Investigation completed.	Potential for contaminant migration limited.
915155	Behringer Property (4) (Inson Street)	D	Remedial Action completed. Delisted September 1996.	All contaminated soil removed.
915157	Mr. C's Cleaners (3)	2	Phase II Investigation completed Remedial Investigation/Feasibility Study Completed. Remedial action completed.	Groundwater contamination exists. Potential for contaminant migration confirmed.
915170	Bristol Street (4)	D	Site remediated. Soil removed. Delisted March 1999.	Site contained PCBs in soil. Removal action complete

WATER BODY

- (1) Cayuga Creek
- (2) Buffalo Creek
- (3) Cazenovia Creek
- (4) Buffalo River

TABLE A-1

SITE CODES

Classification 1 - causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or environment -- immediate action required;

Classification 2 - significant threat to the public health or environment -- action required;

Classification 2a - temporary classification assigned to sites for which there is inadequate data to assign them to the other classifications;

Classification 3 - does not present a significant threat to the public health or environment -- action may be deferred;

Classification 4 - site properly closed -- requires continued management;

Classification 5 - site properly closed, no evidence of present or potential adverse impact -- no further action required;

Classification D - site delisted, no hazardous waste present on site.

TABLE A - 2
 INACTIVE HAZARDOUS WASTE SITE
 REMEDIATION PROGRAM PROGRESS
 BUFFALO RIVER BASIN

	Phase I	Phase II	Remedial Investigation Feasibility Study	Remedial Design	Remedial Construction	Remediation Complete or Not Required
CAYUGA CREEK						
Town of Marilla	----->	----->	----->	----->	----->	----->
Lancaster Reclamation	----->	----->	----->	----->	----->	----->
Stocks Pond	----->	----->	----->	----->	----->	----->
Dresser Industries	----->	----->	----->	----->	----->	----->
Village of Depew-	----->	----->	----->	----->	----->	----->
Borden Road	----->	----->	----->	----->	----->	----->
Land Reclamation	----->	----->	----->	----->	----->	----->
Old Land Reclamation	----->	----->	----->	----->	----->	----->
Union Road	----->	----->	----->	----->	----->	----->
BUFFALO CREEK						
Northern Demolition	----->	----->	----->	----->	----->	----->
CAZENOVIA CREEK						
CID	----->	----->	----->	----->	----->	----->
HiView Terrace	----->	----->	----->	----->	----->	----->
BUFFALO RIVER						
W. Seneca Transfer Station	----->	----->	----->	----->	----->	----->
Madison Wire	----->	----->	----->	----->	----->	----->
Houghton Park	----->	----->	----->	----->	----->	----->
Eric Lackawanna RR	----->	----->	----->	----->	----->	----->
Mobil Oil Corp ¹	----->	----->	----->	----->	----->	----->
Houdaille-Manzel	----->	----->	----->	----->	----->	----->
Donner Hanna Coke	----->	----->	----->	----->	----->	----->

TABLE A - 2 (Continued)
 INACTIVE HAZARDOUS WASTE SITE
 REMEDIATION PROGRAM PROGRESS
 BUFFALO RIVER BASIN

	Phase I	Phase II	Remedial Investigation Feasibility Study	Remedial Design	Remedial Construction	Remediation Complete or Not Required
BUFFALO RIVER						
Buffalo Color (2) ^{2/}						
Buffalo Color-Deep Well						
Allied Chemical ^{3/}						
Lehigh Valley RR						
MacNaughton Brooks						
Mollenberg-Betz						
Tiff Farm						
Bengart & Memel						
Clinton - Bailey						
U.S. Steel						
Tiff - Hopkins						
Amcron						
ADJACENT TO MOUTH OF BUFFALO RIVER						
Times Beach						
SITES IDENTIFIED SUBSEQUENT TO RAP COMPLETION						
Niagara Transformer						
Bern Metal						
ARO						
Scott Aviation						
ENRX						
Behringer						
Mr. C's Cleaners						
Bristol Street						

TABLE A-2 (Continued)
INACTIVE HAZARDOUS WASTE SITE
REMEDATION PROGRAM PROGRESS
BUFFALO RIVER BASIN

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- 1/ Company is undertaking a facility-wide assessment under the multi-media pollution prevention program.
2/ Corrective action program in whole or in part under the Resource, Conservation and Recovery Act.
3/ Corrective action program was undertaken in whole or in part under the Resource, Conservation and Recovery Act.
A facility wide assessment is to be undertaken.