

EIGHTEENMILE CREEK PCB SOURCE TRACKDOWN PROJECT

PROJECT NARRATIVE

JULY 2005

1. Project Objective

The purpose of this trackdown project is to further evaluate contamination in Eighteenmile Creek sediments. The specific objectives of this investigation are to:

- review all historical sampling data available to identify potential Polychlorinated Biphenyl (PCB) sources and future sampling locations of interest, utilizing Geographic Information System (GIS) technology to accurately depict the data spatially.
- further evaluate the nature and extent (horizontally & vertically) of PCB, arsenic, copper, chromium, lead, zinc and mercury contamination in Eighteenmile Creek sediment in an attempt to determine the source or sources of these contaminants.
- Assist and make progress towards the de-listing of Eighteenmile Creek as an Area of Concern.

Polychlorinated Biphenyls (PCBs) contaminate the sediments of Eighteenmile Creek and its Area of Concern. PCBs are factors in restrictions on fish and wildlife consumption, bird and animal deformities or reproductive problems and degradation of benthos. A surface sediment sample taken in the 1994 Olcott Harbor Sediment Sampling from the Area of Concern contained PCBs at a concentration greater than the NYS Department of Environmental Conservation guidance for screening of contaminated sediments. Ten of fifteen fish flesh samples from the creek contained PCBs at levels above the FDA action level of 2.0 mg/kg.¹

Sources and potential sources of PCBs to Eighteenmile Creek have been identified as industrial and municipal wastewater discharges, combined sewer overflows, inactive hazardous waste sites, the NY Barge Canal discharge, contaminated sediments already present in the creek and an unknown source between Olcott Street and North Transit Road.² Extensive progress has been made by monitoring discharges and updating SPDES permits for industrial and municipal wastewater dischargers and de-listing inactive hazardous waste sites. The NYS Department of Environmental Conservation (NYSDEC) conducted a sediment study in the area of the unknown source of PCB's located between Olcott St. and North Transit Rd. in April of 2005. It is anticipated that the results from this study will supplement the work completed by the NYDEC and further lead to defining this unknown source of contamination.

2. Expected Benefits/Results

Eighteenmile Creek, located in the heart of Niagara County is surrounded by 6 highly residential townships. Many citizens own creek-front property from the start of its headwaters in the Town of Lockport to its discharge to Lake Ontario in Olcott, NY. The creek is used extensively for fishing, boating and recreation. The projected sampling location is primarily in a residential neighborhood. It is suspected that sediment contamination in this area has impacted residential properties adjacent to the creek.

Currently supported by numerous stakeholders, the Niagara County Soil & Water Conservation District, U.S. Army Corps of Engineers and Niagara County is in the preliminary stages of developing a Comprehensive Watershed

Management Plan for Eighteenmile Creek. It is apparent that the creeks recovery and management will be undermined by the continuing influence of unknown contaminant sources and the creek's contaminated sediments.

Clarifying the source or sources of continuing PCB contamination in Eighteenmile Creek will greatly enhance the Environmental Protection Agency's (EPA) and the NYS Department of Environmental Conservation's (NYSDEC) ability to eliminate these contaminants and their impacts on the residential properties adjacent to the creek, the Eighteenmile Creek Area of Concern and Lake Ontario. Reducing contamination in the Eighteenmile Creek watershed will directly:

- support regional Eighteenmile Creek watershed and Area of Concern restoration efforts.
- reduce the risk to human health and the environment.
- restore Eighteenmile Creek's beneficial uses by improving sediment quality, restoring the health of benthic communities, fish and wildlife, and improving the potential for human consumption of fish.

The project will provide outputs that include a GIS map of known PCB data and identified potential sources, 80 PCB screening samples at a detection limit of 0.25 mg/kg and 36 sediment core samples to a depth of 3 feet. The project will also produce 1 report that will publish the results of the research, conclusions and final recommendations. Intermediate outcomes accomplished through the completion of this project would include the identification of unknown sources of PCBs contaminating Eighteenmile Creek sediments and identifying the extent of PCB contamination in these sediments. This would contribute to an end outcome of making advances to the RAP by completing a preliminary step necessary to make improvements in overall water quality, habitat and the health of fish and wildlife and to make progress towards the de-listing of the Area of Concern.

3. Approach

A) The Niagara County Soil & Water Conservation District proposes to conduct trackdown related sampling to further evaluate the sources of Polychlorinated Biphenyl (PCB) contamination in Eighteenmile Creek sediments downstream of the Clinton St. Dam.

A Quality Assurance Project Plan will be developed and provided to USEPA - GLNPO prior to conducting any sampling. Sampling efforts will commence after GLNPO's review and acceptance of the Plan.

The proposal has two main tasks:

1. Review of Historical Data

A detailed GIS map and database of the source area will be developed. All sources of existing data will be collected and subject to quality overview. The data will be entered into the GIS database and where possible sampling locations will be geo-referenced. Meta data files will be created for each data source to indicate pertinent quality information. The costing for this effort assumes that there will be some support from the US Army Corps of Engineers - Buffalo District in helping to develop this effort.

Potential PCB sources in the area will be investigated and identified on the GIS map. A final map depicting known PCB data and identified potential sources will be created. The map will be used to identify, and later map, key sampling locations.

2. Conduct Source Trackdown related sampling in Eighteenmile Creek through sediment analysis.

The project applicant proposes to conduct sediment core sampling in Eighteenmile Creek from the Clinton St. Dam to a location downstream that is deemed sufficient at the completion of a preliminary screening round. Sampling will be conducted in the general area of the former Flintokote Plant Site. Based on the review of historical data, some additional samples may be collected farther downstream of the Clinton St. Dam area.

The sampling effort will quantify upstream-downstream differences in total concentrations at an 18 inch depth using a small coring device. The samples will be collected between October and April, depending upon the project start date and weather influences. Collection will be conducted around potential sources and at defined intervals along the route. Samples will be screened for PCBs using a modified laboratory screening procedure or immunoassay test kit. This modified procedure is being employed to defray the substantial costs associated with PCB sampling and analyses. A total of 80 samples will be collected for PCB screening at a detection limit of 0.25 mg/Kg. Some of these samples may be collected in the Eighteenmile Creek bed downstream of the sampling site if additional source data is needed and suggested at the completion of the NYSDEC Eighteenmile Creek sediment investigation, conducted in April 2005.

PCB screening sample results will be analyzed within 72 hours. The screening results will be used to determine locations for sediment core samples. A total of 12 sediment core samples (3 foot) are planned approximately every 500 feet. Sediment cores will be analyzed for low level PCBs, select metals and total organic carbon (TOC). PCBs will be analyzed at 1 foot intervals and metals and TOC will be analyzed as a composite of all 3 feet. Metals will include the following: arsenic, chromium, copper, lead, zinc, and mercury.

Acceleration or deceleration of these work activities is dependent upon the project start date. Weather is a crucial factor in determining when the sampling may be completed on time. It is anticipated that sampling will commence prior to inclement weather/snowfall with a project start date of October 1, 2005. A delayed project start date may decelerate sampling activities but by no means, shall delay the proposed project end date of September 2006. Also, the projected number of samples to be collected is based upon estimates collected well in advance of the projects scheduled sampling window. Fluctuations in sampling analysis costs may require the project applicant to increase or decrease the amount of samples collected to accurately fit available project funding.

B) The Niagara County Soil & Water Conservation District offices are located on the Niagara County Fairgrounds in the Town of Lockport, NY. The District offices are housed with the offices of the U.S.D.A. Natural Resources Conservation Service, U.S.D.A. Farm Service Agency and Cornell Cooperative Extension. The district office has at its disposal, 7 computers with GIS software, a conference room for all planning activities and a community center to address the public and the Eighteenmile Creek Remedial Advisory Committee.

C) The Niagara County Soil & Water Conservation District is proposing to donate a non-federal match as well as the use of its facilities, to complete the proposed project. The non-federal match is to be utilized in the categories of salaries, supplies and travel. Although no non-federal matching funds will be donated to the project, the US. Army Corps of Engineers will assist in completing the project objectives.

D) Project milestones are scheduled to include:

- Project Start _____ 10/1/2005
- Meeting w/ Contractor _____ 10/2005
- Historical Data Analysis _____ 10/2005
- GIS Mapping of Historical Data _____ 10/2005
- PCB Screening Round _____ 11/2005
- PCB Screening Results Mapping _____ 11/2005

● Sediment Core Sampling_____	11/2006
● Preparation of Semi-annual Report_____	4/2006
● Sediment Core Results Mapping_____	4/2006
● Data Analysis_____	6/2006
● Creation of Project Document_____	7/2006
● Preparation of Final Report _____	8/2006
● Project End_____	9/2006

E) A review of the historical data and creation of GIS maps to accurately depict the data spatially, will be carried out by the project applicant, with assistance of the U.S. Army Corps of Engineers and the Environmental Consulting firm contracted to complete the sampling effort. Under direct supervision of the project applicant, source trackdown related sampling in Eighteenmile Creek sediments will be carried out by the environmental consulting firm contracted to complete this work. The contracted consultant and the project applicant will work together in designing the sampling matrix and the QAPP that is required by the U.S. E.P.A. prior to any sampling activities. Also, with input from the NYSDEC, the contracted consultant and the project applicant will determine if additional sampling is required in the Eighteenmile Creek streambed downstream of the project site.

F) To complete the review of historical data, all existing sediment sample and core sample data collected between 1994 and 2005 will be evaluated against a database of known PCB data to determine if gaps exist in the previously collected data. Potential sample locations will be identified and selected to supplement and complement the existing data.

To complete the TCL PCB screening sampling in Eighteenmile Creek sediments, USEPA Method SW 8082 Modified will be used with a small coring device. Utilizing direct-push technology, sediment core samples will be collected using USEPA Method 8082. Analysis of arsenic, chromium, copper, lead and mercury in the core samples will be conducted using USEPA Method SW 6010B/7471A. Total Organic Carbon (TOC) will be analyzed in the sediment core samples using analytical Method 9060/Lloyd-Kahn. Percent of Solids in sediment core samples will be investigated using analytical Method ASTM D2216. Four field duplicate samples will be collected during the PCB screening investigation and percent of solids investigation to document the integrity of the samples taken.

The NCSWCD will communicate and meet (if necessary) monthly with the contracted professionals that will be retained to complete the proposed research. The NCSWCD will also expect electronic monthly progress reports, documenting any progress or activity with the proposed research. RAP management will also be onsite during sampling and monitoring activities (when feasible) to assure and document that timely progress is being made towards the overall project outputs and outcomes.

A semi-annual progress report shall be submitted to GLNPO, depicting the work that has been accomplished, Object Class Category changes, corrective actions, projected new work, percent completion of scheduled work, percent of budgeted amounts spent, and any changes required during the project period. A final report shall also be submitted that will summarize the project and its outputs, analyze compiled data and draw conclusions and recommendations for future work.

4. Project Information

The types of data planned to be collected, as well as the analytical methods to be used are summarized below in Table 1.

A total of 80 PCB screening samples will be collected using a modified lab screening procedure or immunoassay test kit. 4 field duplicate samples will be collected to document analytical sampling integrity of the results. Screening

samples will quantify a total concentration of PCB's at a depth of 18 inches. All screening samples will also be analyzed for percent solids.

A total of 36 sediment core samples will be collected to a depth of 3 feet. PCB's will be analyzed at 1 foot intervals. All sediment core samples will also be analyzed for percent solids. A smaller subset (12) of the core samples taken will be analyzed for arsenic, chromium, copper, lead and mercury as a composite of all 3 feet. A second subset (12) of the core samples collected will be analyzed for Total Organic Carbon (TOC) as a composite of all 3 feet.

The results of all sediment data collected will be evaluated against the New York State Technical Guidance for Screening Contaminated Sediments to determine whether sediments can be removed from the environment and its ultimate fate after removal.

Table 1							
Sampling & Chemical Analysis Summary Table							
Eighteenmile Creek PCB Source Trackdown							
Lockport, NY							
Analysis	Method #	# of Field Samples	Field Duplicates	Trip Blanks	Rinsate Blanks	MS/MSD	Total # of Samples
Sediment Sampling							
TCL PCBs-Screening	SW 8082 Mod	80	4			4	84
TCL PCBs	SW 8082	36	0			0	36
TAL As, Cu, Cr, Pb, Zn, and Hg only	SW 6010B/7471A	12	0			0	12
Total Organic Carbon (TOC)	Lloyd-Kahn	12	0			0	12
Percent Solids	ASTM D2216	116	4			4	120

5. Quality Assurance Requirement

With assistance from environmental consultants contracted to complete the necessary sampling identified in the project workplan, the project applicant proposes to develop and implement quality assurance practices sufficient to produce data of known quality, adequate to meet the projects objectives and to minimize the loss of data due to out-of-control conditions or malfunctions. Once funded, the project applicant intends to submit a Quality Assurance Plan to the USEPA Region 2 Quality Assurance Manager prior to any sampling activity.

¹ NYS Department of Environmental Conservation, Eighteenmile Creek Remedial Action Plan (Albany: 1997) 4-15

² NYSDEC, Remedial Action Plan 5-20