Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Ley Creek PCB Dredgings Site
Salina (T), Onondaga County
Site Number 7-34-044

March 1997

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Acting Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Ley Creek PCB Dredgings Inactive Hazardous Waste Site
Salina (T), Onondaga County, New York
Site No. 7-34-044

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Ley Creek PCB Dredgings inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law (ECL). The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Ley Creek PCB Dredgings Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Ley Creek PCB Dredgings Site and the criteria identified for evaluation of alternatives the NYSDEC has selected the excavation and off-site disposal of dredge materials/soils contaminated with polychlorinated biphenyls (PCBs) at concentrations greater than 50 mg/kg and the consolidation and covering of the remaining volume of materials with concentrations exceeding 1 mg/kg at the surface and 10 mg/kg subsurface. The components of the remedy are as follows:

Excavation and removal of dredge material/soils that contain PCBs at concentrations exceeding 50 ppm to a permitted hazardous waste landfill. It is estimated that up to 5000 cubic yards could be excavated from the areas identified.

Consolidation and covering of the remaining PCB contaminated dredge materials where concentrations are less than 50 mg/kg but exceed the remedial level of 1 mg/kg at the surface and 10 mg/kg for subsurface areas. The dredged materials will be removed, at

a minimum, from the first twenty five feet of the floodway area to restore this area to appropriate elevation. After restoration to floodway elevations, any remaining materials above the remedial level remaining in the floodway will be covered with a geomembrane or clay and then twelve inches of soil or the gravel roadway. In areas outside of the floodway, the dredged material to be addressed will be graded and covered with a vegetated soil cover which will consist of twelve (12) inches of soil. The total area that will be covered is approximately 17 acres.

To provide Onondaga County crews access to maintain Ley Creek as a part of the existing drainage district, a gravel access road will be provided adjacent to the southern bank of the Creek to allow for future maintenance and/or dredging. The four existing drainage swales from Factory Avenue will be graded back, covered with the vegetated cover and the flow channel lined with a half pipe or formed concrete spillway where they pass through the area of covered dredge spoils. Access pads and pathways, as well as gates in the fence, will be provided to allow access for maintenance of the County sewer line which is also located in the area to be covered.

Since the remedy will result in dredge materials/soils with elevated levels of PCBs remaining untreated, but covered at the site, a long term monitoring program will be instituted. In addition, yearly reviews will be conducted to allow the effectiveness of the selected remedy to be evaluated and to determine whether the remedy continues to be protective of human health and the environment.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/28/97
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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RECORD OF DECISION

LEY CREEK PCB DREDGINGS SITE

Salina (T), Onondaga County, New York
Site No. 7034-044
March 1997

SECTION 1: SITE LOCATION AND DESCRIPTION

The Ley Creek PCB Dredgings Site is approximately 18 acres in size and is located along the south bank of Ley Creek in the Town of Salina, Onondaga County, New York. A site location map and study area map are included as Figure 1. The Site is bounded by Factory Avenue on the south and Ley Creek to the north. The New York State Thruway is located immediately to the north of Ley Creek. The eastern limit of the site is the General Motors Outfall 003, which is located just west of Townline Road, and the western limit is located approximately 4,000 feet downstream near the Town of Salina Highway Department garage. A fence extends along the south side of the study area approximately 10 feet north of Factory Avenue and to the east and west, however, access along the bank of Ley Creek, which forms the northern site boundary, remains unrestricted.

In the vicinity of the site, Ley Creek is generally less than 15 feet wide and less than 2 feet deep. The dredged materials were generated during channel improvement programs for Ley Creek, conducted by the Onondaga County Department of Drainage and Sanitation from 1970-1983, and for the most part are located on the south bank. The PCB contamination is the result of discharges of contaminated water primarily from the General Motors (GM)-Inland Fisher Guide Plant. Ley Creek drains an area of approximately 30 square miles and is part of the Onondaga County Ley Creek Drainage District. Portions of the cities and towns of Syracuse, North Syracuse, East Syracuse, Cicero, Clay, Dewitt, Manlius, and Salina are located in the Ley Creek drainage basin.

The Ley Creek PCB Dredgings Site is adjacent to the northern boundary of the General Motors; Fisher Guide Site, Site No 7-34-057, and the Syracuse China Site, Site No. 7-34-053 (see Figure 1).

SECTION 2: SITE HISTORY

2.1: Operational/Disposal History

Prior to the early 1970's, the combination of poor channel conditions and large impermeable areas in the Ley Creek watershed resulted in extensive flooding, some of the worst of which was near

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the GM facility in 1969. The formation of the Ley Creek Drainage District and clearing and dredging of the creek channel was initiated following the 1969 flooding event. Dredging of Ley Creek was performed by the Onondaga County Department of Drainage and Sanitation. In 1970, the section of the creek between Route 11 and Seventh North Street was dredged and in 1971 additional portions of the creek between Seventh North Street and Onondaga Lake were dredged. Additional dredging of Ley Creek from Townline Road to Onondaga Lake took place in 1975 and in 1983, the section of the Creek between Town line Road and Route 11 was dredged. Dredged materials generated during these activities were placed along the south bank of the creek or used for land restoration projects. The presence of PCBs in the stream sediments was not identified prior to 1985.

This PRAP addresses only the piles of dredge materials and contaminated soil located on the banks of Ley Creek in the area designated as the site. While the groundwater, surface water and sediments in the Creek were also the subject of sampling during the Ley Creek RI/FS, alternatives for these media will be addressed as part of a comprehensive RI/FS to be undertaken for the adjacent GM; Fisher Guide site.

Remedial History

A Hydrogeologic Investigation Report, dated September 1985, performed pursuant to a SPDES Consent Order with GM, identified the presence of PCBs in the dredged materials at the site. This investigation which included sampling for volatile and semivolatile organic compounds, as well as metals, ruled out these other compounds as contaminants of concern. The major source of the PCBs was believed to be oil used in hydraulic equipment for die casting operations at the GM plant.

1985: A program to evaluate the occurrence and concentration of PCBs in the sediments and water of Ley Creek was completed by GM. Sediment and water were collected at 500 foot intervals along a 4,000 foot length of Ley Creek, which included a 1,000 foot length upstream of the GM Outfall 003. The pattern of PCB occurrence observed in sediments was irregular and this irregularity was attributed to the Ley Creek dredging program conducted from 1970 to 1983.

During this study, fish from Ley Creek were also sampled and analyzed for PCBs Elevated levels of PCBs were identified in the fish tissue.

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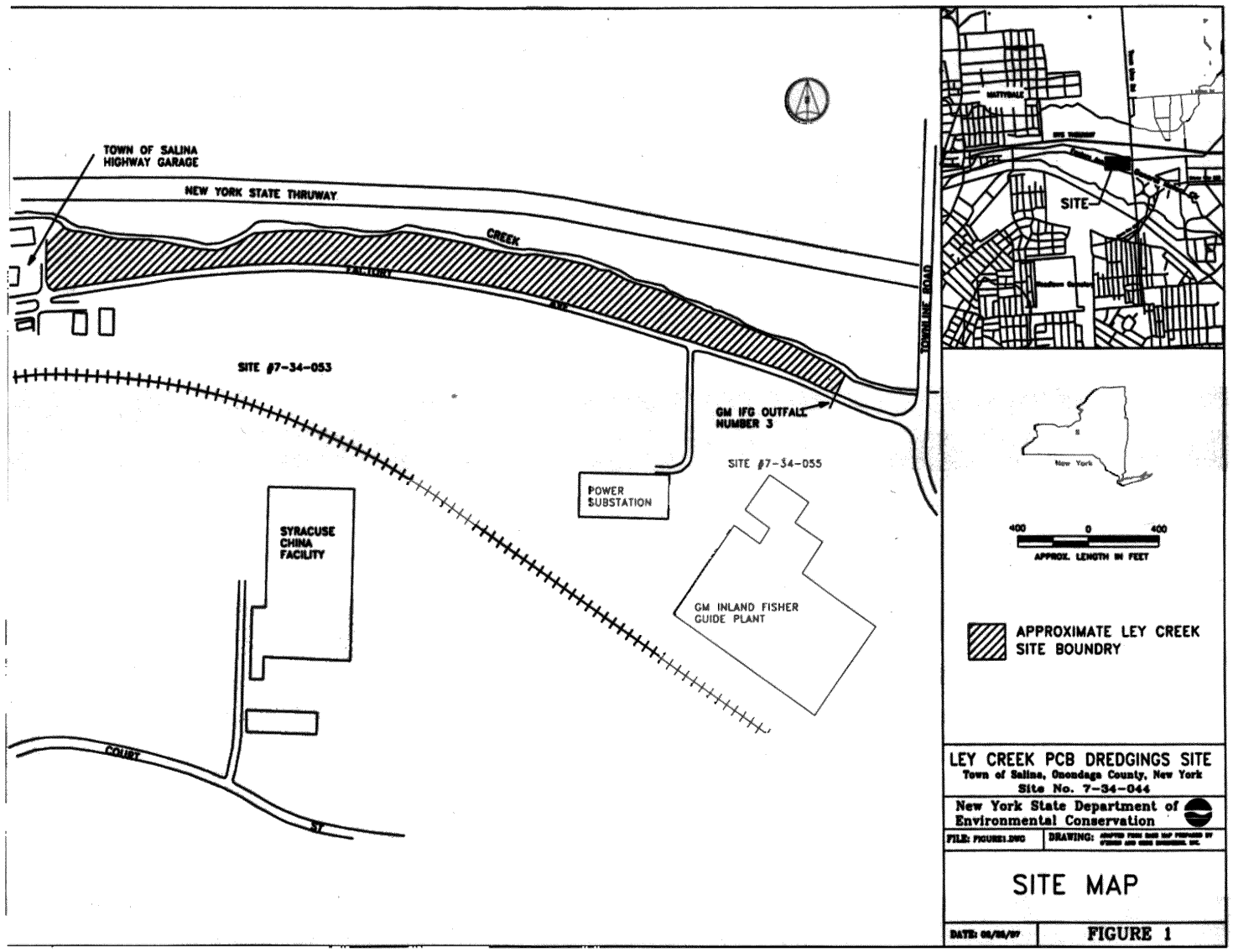
TOWN OF SALINA
HIGHWAY GARAGE
NEW YORK STATE THRUWAY
CREEK
FACTORY
AVE
SITE #7-34-053
GM IFG OUTFALL
NUMBER 3
SITE #7-34-055
POWER
SUBSTATION
SYRACUSE
CHINA
FACILITY
GM INLAND FISHER
GUIDE PLANT
COURT
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APPROX. LENGTH IN FEET
APPROXIMATE LEY CREEK
SITE BOUNDRY
LEY CREEK PCB DREDGINGS SITE
Town of Salina, Onondaga County, New York
Site No. 7-34-044
New York State Department of
Environmental Conservation
FILE: FIGURE1.DWG
DRAWING:
SITE MAP
DATE:
FIGURE 1

Pursuant to a NYSDEC consent order, GM completed an investigation of dredged material/soil and ground water in the area between Factory Avenue and Ley Creek beginning at Townline Road and continuing for 1600 feet downstream. Groundwater flow was determined to be north towards Ley Creek. PCBs were detected in dredged material/soil and ground water samples.

While the investigation was underway, the NYSDEC Division of Environmental Enforcement (DEE), NYSDOH and the Onondaga County Department of Health also sampled offsite areas that had received some of the Creek dredge material as fill. This resulted in an agreement between GM and Onondaga County for a soil removal program in the Meadowbrook Road/Hookway area. The soils were removed by Onondaga County and brought back to the GM Plant for placement in a former treatment lagoon that was subsequently closed under the oversight of the NYSDEC RCRA program.

1989: As a result of the 1987 investigation, NYSDEC determined that a more comprehensive evaluation of the Ley Creek dredged material/soil would be necessary, to define the extent of PCBs along the north and south banks of Ley Creek and to evaluate any impacts to public health and the environment. GM completed a Field Investigation Report (FIR) of the site in 1989 which included sampling of groundwater, dredged material/soil, sediment, and surface water.

1991: Based on the FIR, NYSDEC determined that GM needed to perform a Remedial Investigation/Feasibility Study (RI/FS) at the site to complete the characterization of the areal and vertical extent of contamination present. GM was also required to prepare a habitat based assessment according to NYSDEC guidelines. GM and NYSDEC entered into an Administrative Order on Consent for performance of a RI/FS at the site, effective May 23, 1991.

GM performed an Interim Remedial Measure (IRM) soil removal program under a June 1991 NYSDEC Consent Order. The IRM was conducted to allow the installation of a sewer force main on Factory Ave through an area of identified PCB subsurface soil contamination. This IRM is discussed in more detail in Section 4.2.

1992: The Work Plan for the Ley Creek RI/FS was approved and field work commenced in July 1992.

The RI was completed in accordance with the RI/FS Work Plan. The GM; Fisher Guide site was listed on the Registry of Inactive Hazardous Waste Disposal Sites, as a Class 2 site, in July of 1993.

GM submitted the first draft of the Ley Creek Feasibility Study to the NYSDEC. As a component of the RI/FS, a leachability study was undertaken for the dredge material.

1995: Property owner input was sought in the review of remedial alternatives when multiple site owners, other than the county, were identified.

1996: The Feasibility Study was approved.

SECTION 3: CURRENT STATUS

In response to a determination that the presence of hazardous waste at the Site presents a significant threat to human health and the environment, General Motors has recently completed a Remedial Investigation/Feasibility Study (RI/FS).

3.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site.
The RI was conducted in two phases. The first phase was conducted between July and August of 1992 and the second phase between July and August of 1993. A report entitled "Ley Creek Dredged Material Area, November 1993" has been prepared describing the field activities and findings of the RI in detail.

The RI included the following activities:

- Installation of soil borings and monitoring wells for analysis of soils and groundwater as well as physical properties of soil and hydrogeologic conditions.

- Sampling of the Creek sediments, water and fish.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to NYS Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Ley Creek site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. NYSDEC TAGM 4030 soil cleanup guidelines for the protection of groundwater, background conditions, and risk-based remediation criteria were used as SCGs for soil and the Division of Fish and Wildlife Technical Guidance for Screening Contaminated Sediments is used for surface water sediments.

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI Report. Chemical concentrations are reported in mg/kg (parts per million). For comparison purposes, SCGs are given for each medium.

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Nature of Contamination

As described in the RI Report, many soil, groundwater and sediment samples were collected at the Site to characterize the nature and extent of contamination. Preliminary investigations at the site had narrowed the contaminant of concern to the PCBs which had been released from the GM Plant.

The PCBs were constituents of a hydraulic fluid used at the GM Plant in the operation of their injection molding machines. PCBs are comprised of a number of chemical isomers, which are generally referred to by the trade name "Aroclor" followed by a number which indicates the number of carbon atoms and the percentage of chlorine by weight for that Aroclor. The PCBs found at the Ley Creek Site are primarily Aroclor 1242 and Aroclor 1248.

Extent of Contamination

Table 1 summarizes the extent of PCB contamination in the dredge materials, surface and subsurface soils and compares the data with the proposed remedial action levels (SCGs) for the Site. The following is a summary of the findings of the investigation. As stated previously, the groundwater, sediments and surface water will be addressed as part of the RI/FS for the adjacent General Motors; Fisher Guide Site.

Dredge Materials/Soils

The dredge spoil piles along the south bank of Ley Creek extend for over 4,000 feet. Aroclors 1242 and 1248 have been found to be the major constituents of the PCB contamination at the site. Elevated PCB levels have been identified throughout the dredged materials at the site. The PCB concentrations range from non-detect to 466 mg/kg. An area where elevated concentrations of PCBs were detected also exists along the north bank of Ley Creek, around soil boring B-19.

The dredge piles have been intermixed with the surface and subsurface soils and, as they have been on the banks of the Ley Creek for more than 20 years, are overgrown with vegetation. The volume of materials to be addressed which exceeds the remedial goals of 1 mg/kg at the surface and 10 mg/kg in the subsurface is approximately 110,000 cubic yards.

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Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE	FREQUENCY EXCEEDING SCG	SCG
Dredge Material/Soil	Poly Chlorinated Biphenyls (PCBs)	Aroclor 1242/1248	ND-470 ppm	61/185	1 ppm [1] surface 10 ppm[1] subsurface[2]
Fish Tissue[3]	Poly Chlorinated Biphenyls (PCBs)	Aroclor 1248	110 - 1100 ppb	11 of 11	110 ppb [1,4]
		Aroclor 1260	ND - 700 ppb	4 of 11	110 ppb [1,4]

[1] Total PCBs
[2] Subsurface = greater than 12" deep
[3] Summary of outfall and downstream sampling locations
[4] "Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorous Wildlife"; Newell, et al.; July 1987; NYSDEC

Table 2
Summary of 1993 RI Sampling

Distance from Outfall	# samples >SCG	# samples > 50 ppm	# locations > 50 ppm
0-1000'	36 of 83	11	7
1000-2000'	10 of 19	1	1
2000-3000'	6 of 21	2	1
3000-4000'	7 of 28	0	0

> greater than

As shown by the RI data presented in Table 2, the concentrations and frequency of PCBs identified in the dredge materials and soils at levels exceeding SCGs decreases as the sampling locations move downstream from the outfall. The greatest number of detections exceeding the SCGs occurred in the first two reaches, with the number of locations exceeding 50 ppm significantly higher in the first reach than in any of the others. This is consistent with the location of the outfall/drainage swale area being the primary source of PCBs detected at the site and also

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demonstrates, based on the distribution, that the PCBs are present throughout the area in question at levels requiring remediation.

3.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

GM performed an Interim Remedial Measure (IRM) under a NYSDEC IRM consent order in 1991. The IRM was conducted to allow for the installation of a sanitary sewer force main south of Factory Avenue, which encountered an area of PCB subsurface soil contamination. This contamination was attributed to a filled in drainage swale from the GM Facility prior to the construction of outfall pipe 003. The IRM involved sampling to identify the limits of the PCB contaminated buried swale and once the swale was located, the excavation and off-site disposal of the contaminated soils. Sheet piling was then put in place so that the installation of the 48 inch sanitary sewer force main could proceed.

At the time, this IRM was performed in 1991, the contamination identified was believed to be associated with the Ley Creek Site. However, since then the GM Plant has been listed as a class 2 inactive Hazardous Waste Site, in part due to the migration of the PCBs, some of which were addressed by this IRM. Based on the information generated and the location of the IRM, this contamination will now be addressed as part of the GM; Fisher Guide Site.

3.3 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Soil and dredge materials present at the site exceed the soil cleanup criteria of 1 mg/kg at the surface and 10 mg/kg subsurface (greater than 12 inches in depth), established for PCB contaminated soils (USEPA Guidance on Remedial Actions for Superfund Sites with PCB Contamination, EPA/540G-90/607, August 1990), therefore the NYSDOH has determined that action is necessary to be protective of human health. Completed pathways which are known to or may exist at the site include:

- Dermal contact with, or ingestion of dredge materials/soils by workers maintaining the sewer or power lines and by the public should they enter the site.

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- Inhalation of dust leaving the site.

- Ingestion of fish from Ley Creek in the vicinity of the site. Fish tissue sampling shows the presence of PCBs similar to those at the site in fish from Ley Creek. This may be an indicator that larger species could be contaminated as well.

There is a fish consumption advisory covering Onondaga Lake and its' tributaries. A copy of this advisory is available at the document repositories identified in Section 1 of this PRAP.

3.4 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources, including any impacts to endangered species or protected environments. The following pathways for environmental exposure have been identified:

- Dredge materials/soils and sediments in Ley Creek have been contaminated with PCBs in excess of NYSDEC soil criteria for the protection of groundwater and NYSDEC sediment guidance criteria for identifying potential risk to aquatic life.

- Groundwater beneath the dredge materials/soils contains PCBs in excess of groundwater standards.

- Dredge materials placed in areas of the regulated fresh water wetland along Ley Creek prior to 1975, have impacted the function of the wetland.

- Soils at the surface adjacent to the Creek exceed 1 mg/kg PCBs, which represents a potential continued loading of PCBs to the Creek and sediments by surface runoff or from erosion. These soils also represent a potential exposure pathway to terrestrial wildlife or birds from contacting the soil or eating soil organisms.

- Fish from Ley Creek have been shown to contain the same PCBs in their tissue as found on the site. This results in exposure not only of the fish to the detrimental effects of PCB contamination, but also piscivorous (fish eating) wildlife higher on the food chain, as well.

The dredge material/soils have been determined to represent a threat to the environment as a contributing source of PCBs to the fish, sediments and groundwater in the vicinity of the site. Ecological risk calculations have also indicated that the unremediated PCB-contaminated dredge material/soils at the site may pose an unacceptable risk to terrestrial species and their predators, such as the short-tailed shrew and the red-tailed hawk. The Division of Fish, Wildlife and Marine

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Resources has accepted a site specific surface soil remedial level of 1 mg/kg for PCBs at this site. This decision was based on the expected significant reduction in fish and wildlife exposure; practical limitations (see evaluation of alternatives in Section 6.2); plans for reviews to monitor the effectiveness of the remedy in protecting the environment and future remedial efforts at the adjacent GM; Fisher Guide Plant site.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and the General Motors Corporation entered into Consent Orders for the investigation and an IRM for this site. Upon issuance of the Record of Decision the NYSDEC will approach the PRPs to implement the selected remedy under an Order on Consent.

The following is the chronological enforcement history of this site.

Date	Index No.	Subject of Order
10/30/87	A7-0129-87-09	PCB Invest.
5/23/91	A0239-90-07	RI/FS
6/10/91	S7-0263-91-5	IRM-Sewer

SECTION 5: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Reduce, control, or eliminate the PCB contamination present within the dredge materials/soils on the site.

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- Eliminate the threat to surface waters and sediments by eliminating any future contaminated surface run-off from the contaminated dredge material/soils on site.

- Eliminate a source of PCBs for uptake by fish and other organisms in Ley Creek.

- Eliminate the potential for direct human or animal contact with the contaminated dredge materials/soils on site.

- Prevent, to the extent possible, migration of contaminants into the groundwater

The remedial level chosen to achieve these goals has been determined to be 1 mg/kg for surface soils and 10 mg/kg for the subsurface.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other Federal and State laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Ley Creek site were identified, screened and evaluated in a Feasibility Study. This evaluation is presented in the report entitled "Feasibility Study, Ley Creek PCB Dredged Material Area Site", dated October 1996.

A summary of the detailed analysis follows. As used in the following text, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

6.1: Description of Alternatives

The potential remedies that pass the initial screening are intended to address the contaminated dredge material/soils found at the site. Various sampling efforts have demonstrated that the GM Plant continues to act as a source of PCBs to the groundwater beneath the dredge material and the sediments in Ley Creek. Therefore, remedies for the contaminated groundwater identified in the area and the contaminated sediments found in Ley Creek will be evaluated as part of the RI/FS to be conducted at the GM Plant. The Ley Creek Site, Site No. 7-34-044, will therefore be evaluated along with the GM; Fisher Guide Site, No. 7-34-057.

The Alternatives discussed below were evaluated by the FS for a range of cleanup values. This PRAP, however, will only evaluate the Alternatives which would meet the site remedial goals for PCBs of 1 mg/kg at the surface and 10 mg/kg subsurface, with the exception of the incineration alternative which utilized 25 mg/kg. This allows the PRAP to concentrate on those alternatives which meet the remedial goals and evaluation criteria.

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Alternative 1: No Action, Groundwater Monitoring, Deed Restrictions, Fencing:

Present Worth:	$ 216,000
Capital Cost :	$ 5,500
Annual O&M:	$ 12,000
Time to Implement:	3 months

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment, other than the installation of a fence and deed restrictions to limit future use of the site.

Alternative 2: Twelve (12) Inch Vegetated Soil Cover, Ground Water Monitoring, Deed Restriction, Fencing and Maintenance Access Provisions:

Present Worth:	$ 2,327,000
Capital Cost:	$1 ,665,000
Annual O&M:	$ 41,000
Time To Implement:	6-9 months

Alternative 2 is a containment alternative, which would cover all areas of the site where PCB contamination exists at levels greater than 1 mg/kg at the surface or 10 mg/kg in the subsurface. The cover would consist of soil with a permeability less than or equal to the underlying dredge material and soils and be capable of sustaining vegetation. Alternative 2 would also include deed restrictions (i.e., restrictions on future use and disturbance of the remedial areas), fencing, ground water monitoring and long term maintenance of the cover.

The property comprising the majority of the site is owned by Onondaga County and the remaining area of the site, not owned directly by the County, include County utility easements or rights of way. Access by the County would be required to maintain the existing sanitary sewer which parallels Factory Avenue on the southern portion of the site and to maintain Ley Creek which is a significant feature of the surface drainage district for the surrounding area. To address concerns raised by the County relative to these maintenance responsibilities, the following access provisions would be incorporated into the remedy: (l) Cross culverts directing storm water from Factory Avenue would be lined and pathways provided for access; (2) Sanitary sewer manholes would be modified to match final grades, asphalt work pads would be installed around each and fencing would be modified to provide gates for direct access to the maintenance area; and (3) An access road would be constructed on the south bank of Ley Creek to provide a work area for future creek maintenance activities by the County. The constructed remedy components, including the Onondaga County access provisions, would be routinely inspected and maintained.

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Alternative 3: Dredged Material/Soil Excavation and Offsite Landfill Disposal, Groundwater Monitoring:

Present Worth:	$ 28,860,000
Capital Cost:	$ 28,860,000
Annual O&M:	$ 0
Time To Implement:	6-9 months

Alternative 3 is a removal alternative which would include the excavation and removal of all PCB contaminated dredged materials/soils with surface concentrations greater than 1 mg/kg and sub-surface concentrations of 10 mg/kg for disposal at an off site landfill permitted for the disposal of PCBs. Excavation of approximately 110,000 cubic yards (cyds.) of contaminated material would be required. The excavated areas would be regraded and backfilled as necessary, with clean fill.

Due to the high cost of off-site disposal, the NYSDEC requested and GM evaluated, the feasibility of removing all the PCB dredge materials/soils greater than 50 mg/kg for disposal at a permitted facility as hazardous waste, with disposal of the remaining 91,000 cyds. of material, below 50 mg/kg, on the GM plant site. Disposal was considered possible in two areas of the site, an old landfill and the location of former treatment lagoons, where the Ley Creek material could have been utilized as contouring fill for the closure of these areas. Due to the limited acreage available and overhead transmission line easement restrictions, sufficient area to accept the entire volume was not available at these locations. Approximately 78,000 cyds. of PCB contaminated dredge material/soils would still have required disposal in an off site landfill. Due to the continued need to dispose of a large volume of this material off-site and the still significant cost associated with this disposal, partial disposal of PCB contaminated dredge material/soils on the GM Main Plant property was not considered a feasible option and not developed into a separate alternative.

Alternative 4: Dredged Material/Soil Excavation and Incineration, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions:

Present Worth:	$ 8,760,000
Capital Cost:	$ 7,039,000
Annual O&M :	$ 110,000
Time To Implement	12-18 months

Alternative 4 is a removal and treatment alternative which would consist of the excavation and on-site incineration of the contaminated dredged materials/ soils. PCB contaminated soils greater than 25 mg/kg would be excavated and the PCBs in the material destroyed in a transportable hazardous waste incinerator which would be brought to the site. The area would then be backfilled with the treated soil, or clean topsoil if needed, and graded. Alternative 4 would also include deed restrictions, fencing, ground water monitoring for the remaining area where PCB concentrations

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exceed the 1 and 10 mg/kg remedial levels. The maintenance access provisions detailed in Alternative 2 would also be included and would be routinely inspected and maintained.

Alternative 5: Dredged Material/Soil Excavation, Thermal Desorption Treatment, Replacement, Groundwater Monitoring:

Present Worth:	$ 43,762,000
Capital Cost:	$ 43,762,000
Annual O&M:	$ 0
Time To Implement:	12 months

Alternative 5 is also a removal, treatment and replacement alternative which would require excavation of dredge materials/soils containing PCBs greater than 1 and 10 mg/kg remedial levels. Excavated material would then be treated on-site using the thermal desorption technology. This technology heats the soil, volatilizing the PCBs and removing them from the soil matrix. The PCBs are them condensed and either subject to further treatment onsite or sent to an off site incinerator. Treated dredged material would be backfilled into the excavated areas, as necessary to achieve proper grades for the floodway. Alternative 5 would also include ground water monitoring.

Alternative 6: In-Situ Biological Treatment of Dredged Material/Soil, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions:

Present Worth:	$ 2,761,000
Capital Cost:	$ 486,000
Annual O&M:	$ 449,000
Time to Implement:	Indefinite

Alternative 6 would provide for an in situ treatment alternative, rather than requiring the excavation of the contaminated material. For treatment, the contaminated soils would remain in place while the existing site bacteria would be encouraged to use the PCBs as a food source. Since the time required to achieve the cleanup goals would be several years, at best, Alternative 6 would include deed restrictions, fencing, and monitoring of the in situ biological treatment of dredged material/soil as well as groundwater. The access provisions detailed in Alternative 2 would also be required and would be routinely inspected and maintained.

Alternative 7: Dredged Material/Soil Excavation and Offsite Landfill Disposal ≥50 mg/kg PCBs 12 Inch Vegetated Soil Cover Groundwater Water Monitoring, Fencing and Maintenance Access Provisions:

Present Worth:	$ 6,112,448
Capital Costs:	$ 4,788,582
Annual O&M:	$ 84,309
Time To Implement:	9-12 months

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Alternative 7 is an excavation, disposal and containment alternative. Based upon current estimates, excavation of up to 5000 cubic yards of PCB contaminated dredge material/soils greater than 50 mg/kg would be required. Excavated materials would be transported offsite to a permitted hazardous waste landfill. The excavated areas would be regraded and backfilled, as necessary with the remaining dredge materials.

The remaining dredged materials/soil with concentrations of PCBs exceeding 1 mg/kg surface soils and 10 mg/kg subsurface soils would be covered with a minimum of 12 inches of topsoil. The areas to be covered would total approximately 17 acres. Dredged material/soils would be graded to a minimum of 4 percent grade. Riprap or sheeting would be placed along the creek to minimize erosion.

Alternative 7 would also include deed restrictions to prevent disturbance of the cover, fencing, and ground water monitoring. The maintenance access provisions detailed for Alternative 2 would also be required. The constructed remedy components, including the Onondaga County access provisions, would be routinely inspected and maintained.

Alternative 8: Excavation and Off Site Disposal of Dredged Material /Soil > 50 mg/kg PCBs, Regrading of Material in the Floodway with Low Permeability Cover, 12-inch Vegetated Soil Cover Over the Remaining Material, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions:

Present Worth:	$ 6,671,453
Capital Costs:	$ 5,249,798
Annual O&M:	$ 90,671
Time To Implement:	9-12 months

This alternative would involve the excavation and off site disposal of dredged material/soil containing PCBs at concentrations greater than 50 mg/kg as in Alternative 7. The remaining dredged material/ soils with concentrations greater than 1 mg/kg for surface soils and 10 mg/kg for the subsurface will be handled as follows: (1) Contaminated material will be regraded out of the first 25 feet of the floodway south of Ley Creek, to appropriate elevations, and the entire area within the floodway will be covered with a geomembrane or clay overlain by a twelve (12) inch vegetated soil cover or a gravel access road; (2) Material relocated from the floodway will be consolidated under the cover south of the floodway and north of the existing sewer right of way; and, (3) All remaining areas exceeding the remedial criteria would be covered with a twelve (12) inch vegetated soil cover. The estimated extent of the cover would be 17 acres.

The maintenance access provisions discussed in Alterative 2 would also be included, as would fencing, deed restrictions and groundwater monitoring. The constructed remedy components, including the Onondaga County access provisions, would be routinely inspected and maintained.

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6.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Feasibility Study.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

Alternative 1 would leave hazardous waste levels of PCBs in the surface and subsurface of the dredged material/soil. Accordingly, the no action alternative would not satisfy NYS SCGs.

Alternative 2 would also leave levels of PCBs in the subsurface soils at levels that are a hazardous waste. The vegetative soil cover as proposed in this alternative would not meet SCGs since hazardous waste at concentration greater than 50 mg/kg would be left in a condition that is non-compliant with U.S. Environmental Protection Agency (USEPA) guidance for capping PCB contaminated media and the Toxic Substances Control Act (TSCA).

Alternatives 3, 4, 5, 7 and 8 would all remove PCBs greater than 50 mg/kg, however the 25 mg/kg remedial level used for Alternative 4 would not comply with the Technical and Administrative Guidance Memorandum (TAGM) #4046 level of 1 mg/kg in the surface and 10 mg/kg subsurface (1/10). Alternatives 3,5, 7 and 8 would address all contamination above the TAGM levels.

Alternative 6 would rely on bioremediation to address all contamination leaving the PCBs greater than 50 mg/kg exposed during the process. It is also questionable whether the remedial goals for the site would ever be achieved by a bioremediation process.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

Alternatives 1 and 2 leave behind unacceptable levels of PCBs that are a hazardous waste in the surface and or subsurface of the dredged materials/soils. Therefore, alternatives 1 and 2 are not protective of human health and the environment.

Alternatives 3, 4, 5, 7 and 8 remove and/or treat the hazardous levels of PCBs in the Ley Creek dredging materials/ soils. Contaminated surface soils with concentrations of greater than 1 mg/kg

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and subsurface soils with concentration of 10 mg/kg PCBs would be addressed by only Alternatives 3,5,7 and 8. Alternatives 7 and 8 remove all PCBs at 50 mg/kg. Alternative 8, however, offers a greater degree of environmental protection than Alternative 7 since contaminated materials would be relocated out of the floodway and enhanced erosion control would be provided by the impermeable cover. The incineration of soils under Alternative 4 only addresses contamination down to 25 mg/kg, relying on deed restriction and fencing to address the remaining areas and is not as protective as the other alternatives, while the ability of Alternative 6 to achieve these levels is not proven. Therefore, only Alternatives 3,5, 7 and 8 would be protective of human health and the environment, as stated in Sections 3.3 and 3.4.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. **Short-term Effectiveness.** The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared with the other alternatives.

Alternatives 1, 2 and 6 would not require the movement of any of the contaminated dredging materials/soils. Therefore short term impacts from the material would be minor and limited to the workers engaged in installing the cover. Any potential exposure to construction workers would be mitigated by implementation of the health and safety plan.

Alternatives 3, 4, 5, 7 and 8 all would require excavation of the dredged material/soils that are hazardous waste at concentrations exceeding 50 mg/kg. Alternatives 3, 4, and 5 entail excavation of all contaminated materials at the site. Alternative 3 would result in a significant volume of off site traffic as the material is removed to a permitted facility and Alternatives 4 and 5, in addition to the excavation would require considerable handling and processing at the site before treatment. In addition, Alternative 4 would result in air emissions from the incineration process. These impacts would have to be dealt with by implementing reasonably available control technologies for any resulting air emissions. Alternative 5 would also require similar considerations due to the use of the thermal desorption technology, however, the emission rate and control considerations are significantly lower than for Alternative 4.

Alternatives 7 and 8 would involve much less excavation and off site traffic in that only the hazardous waste would be removed. However, both alternatives would require movement of some volume of the contaminated material around the site during the consolidation efforts. Alternatives 2, 7 and 8 would require increased truck traffic, associated with the delivery of the soil for use in the cover, however, given the remote location and industrial nature of the area, this would not be a significant concern. These alternatives would involve the use of standard protective measures to address any short term impacts from fugitive emissions due to excavation and materials handling. Alternative 6 would have minimal short term impacts since the contaminated material would remain in place with little intrusive activity taking place at the site.

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4. **Long-term Effectiveness and Permanence.**

This criterion evaluates the long-term effectiveness of alternatives after implementation of the response actions. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 would not be effective in the long term since no additional protection would be implemented. Alternatives 3 and 5 would be most protective since all of the contaminated materials present at the site would either be removed or treated. Alternative 4 and 5 offer the greatest permanence since the PCBs would be destroyed in the treatment processes but Alternative 4 would not be as protective for the site since this alternative only addressees contaminated media above 25 mg/kg. Alternative 6 would have questionable long term effectiveness since bioremediation of PCB contaminated material has yet to effectively demonstrate the ability to meet the remedial goals for the site. Alternatives 2 and 7 offer similar levels of protection from identified exposure pathways for the vast majority of the contaminated materials, with Alternative 7 offering slightly greater protection since the contaminated material greater than 50 mg/kg would be removed. Alternative 8, while addressing the same material as Alternative 7, would be more protective in the long term since it would remove material from the most critical area of the floodway and provide for a low permeability component in the cover in the area, as well as significantly reducing the likelihood of erosion of the covered area impacting the Creek or breaching the containment system. Alternative 8 also includes provision for the addition of rip rap or other additional flood protection, as determined necessary during design, to insure the integrity of the remedy.

5. **Reduction of Toxicity, Mobility or Volume.** Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternative 1 would not reduce the toxicity, mobility or volume of the hazardous waste or the contaminated soils present at the Site. Alternative 2 would result in a decrease in the mobility however, it would not address the hazardous waste present at the site so there would be no reduction in toxicity or volume.

Alternatives 3, 4, and 5 would all significantly reduce the mobility, toxicity and volume of the contaminants at the site, however Alternative 4 would be less effective due to the higher action level. Both Alternatives 4 and 5, since they involve treatment which would destroy the PCBs, would be the most effective in achieving a reduction in the toxicity and volume of the contaminant. Alterative 6 would not be expected to be as effective in reducing the mobility, toxicity or volume of the contaminants.

Alternatives 7 and 8 present similar degrees of reduction in toxicity of the wastes present in the dredge spoils at the site, by eliminating the pathways for exposure, and volume by removing the volume of material representing hazardous waste. Both Alternatives 7 and 8 would also reduce

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the mobility of the PCBs in the environment, however, Alternative 8 would result in a greater reduction in mobility than Alternative 7 due to the consolidation of material out of the floodway and the enhanced erosion control provided by the low permeability cover proposed for this alternative.

6. **Implementability**. The technical and administrative feasibility of implementing each alternative is evaluated. Technically, this includes the difficulties associated with the construction, the reliability of the technology, and the ability to monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.

Alternative 1 would be easily implemented from a construction standpoint since the only action involves fencing, however the administrative issue of deed restrictions would likely require some negotiation. Alternative 2 would be fairly easily implemented as the technology for covering the site is readily available.

Alternative 3 would be somewhat more difficult than Alternative 1 and 2 to implement since total excavation of all contaminated soils would be involved, however, these are more logistic concerns as the technology to safely excavate and haul these materials is standard in the industry.

Alternatives 4 and 5 would be the most difficult to implement because they involve treatment of the materials excavated from the site above and beyond what is required for Alternative 3. Alternative 4 which involves incineration, would face the greater level of regulatory and administrative issues than Alternative 5. They would require the most stringent health and safety, monitoring and pollution control equipment of any of the alternatives. These technologies would require greater time and diligence to implement, however both have been utilized successfully in similar instances.

Alternative 6 would be easier to implement than all the other alternatives other than Alternative 1 since this is an in-situ (in-place) technology that encourages naturally occurring bacteria to break down PCBs to an acceptable level. However, a pilot test on the dredge material has demonstrated that existing site conditions are not favorable for enhancing the current limited breakdown of PCBs that are found at the site. This is mainly due to the higher chlorinated Aroclors of the PCB mixture being resistant to breakdown.

Alternatives 7 and 8 would be straightforward and while Alternative 8 would be somewhat more difficult to implement than Alternative 7, due to the greater handling of material and the low permeability cover in the floodway, both rely on standard technologies for covering the site which would be readily available.

7. **Cost**. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness

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can be used as the basis for the final decision. A remedy is cost effective if the cost of the remedy is proportional to its' overall effectiveness. The costs for each alternative are presented in Table 3.

8. **Community Acceptance.** Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. No significant public comments were received at the public meeting, however, extensive written comments were received from General Motors, Onondaga County, Syracuse China/Pfaltzgraff and the New York State Thruway Authority. In general these comments were supportive of the selected remedy, while raising several specific concerns with certain aspects of the project, such as flood protection and possible impacts to the property owners resulting from the remedy. These concerns should either be addressed by the ongoing negotiation between GM and the various property owners or, for the more technical issues, will be addressed during the design of the remedy.

SECTION 7: SUMMARY OF THE PREFERRED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC has selected **Alternative 8: Excavation and Off Site Disposal of Dredged Material /Soil >50 mg/kg PCBs, Regrading of Material in the Floodway with a Low Permeability Cover, 12-inch Vegetated Soil Cover Over the Remaining Material, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions** as the remedy for this site. This selection is based upon this alternative's ability to meet New York State Standards, Criteria and Guidance, be protective of human health and the environment, and offer the best balance of the five remaining evaluation criteria presented in Section 7.

This selection is based upon the evaluation of the eight alternatives developed for this site. Alternative 8 will be protective of human health and the environment, as discussed in Sections 3.3 and 3.4, by removing PCB contamination above hazardous waste levels from the site and consolidating the remaining materials out of the floodway. These remaining contaminated areas, approximately 17 acres, exceeding the remedial goals will be covered with a minimum of a twelve (12) inch vegetated soil cover, with the exception of the areas in the floodway where this cover will consist of a geomembrane or clay layer overlain with the twelve (12 inch vegetated soil cover or the gravel access road. This will prevent exposures to the PCBs below 50 mg/kg which will remain on the site. While Alternatives 3 and 5 would offer greater long term protection, their respective costs would be excessive in comparison to the increased effectiveness and the risk presented by the remaining contamination. Alternative 8 will be effective in the short term, since much of the contaminated material will remain undisturbed. Alternative 8 will also address the volume and toxicity of the most highly contaminated material and reduce the mobility of the remaining contaminants present at the site, however, not to as high a degree as the removal or treatment alternatives. Alternative 8 is significantly lower in cost than the removal and treatment

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alternatives and since it equally satisfies the other criteria, including the threshold criteria, it is the preferred alternative.

The area in which the remedy will be located is a Class 2 freshwater wetland. The original deposition of the PCB dredge material occurred before the September 1, 1975 Article 24 regulation regarding the filling in of wetlands. The consolidation of the contaminated PCB soils will occur in areas that are designated as wetland. However, the NYSDEC Division of Fish, Wildlife and Marine Resources was consulted and has determined that while Alternative 8 will result in the continued loss of several acres of regulated freshwater wetland along the shore of Ley Creek, the potential reduction in PCB contamination to Ley Creek and Onondaga Lake outweighs the loss of wetlands. This will be consistent with the intent of Article 24, Environmental Conservation Law (ECL) Section 663.5 and will comply with Executive Order 11990: Protection of Wetlands.

The preferred remedy also will comply with the Fish and Wildlife Coordination Act, 16 U.S. C. 661, which requires consultation with state and federal wildlife agencies when wetlands/water resources are impacted, the Endangered Species Act, 16 U.S. C. 1531, which requires consultation with the U. S. Fish and Wildlife Service regarding endangered or threatened species and/or their habitat and any substantive requirements of Section 404 of the Clean Water Act for discharge of dredged or fill material in a wetland.

The estimated present worth cost to implement the remedy will be $6,671,453. The cost to construct the remedy is estimated to be $5,249,798. The estimated average annual operation and maintenance cost for 30 years will be $90,671.

The elements of the selected remedy are as follows:

> A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Uncertainties identified during the RI/FS, specifically the identification and characterization of any PCB contamination which may be associated with known or suspected drainage swale(s) which historically conveyed surface runoff from the GM; Fisher Guide Site. This sampling will be conducted as a pre-design activity for this site. The investigation will involve subsurface sampling in the area of the swale encountered during the sewer installation as well as in areas of identified historic swales which may have drained the GM site, to determine the nature and extent of any subsurface PCB contamination, in the area which will be addressed by the remedy. Based upon this sampling, appropriate modifications to the proposed alternative, will be implemented prior to or in conjunction with, the construction of the remedy to avoid the necessity of future disturbance of the remediated site.

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2. Excavation and removal of dredge material/soils that contain PCBs at concentrations exceeding 50 ppm to a permitted hazardous waste landfill. It is estimated that up to 5000 cubic yards could be excavated from the areas identified on Figure 2.

3. Consolidation and covering of the remaining PCB contaminated dredge materials where concentrations are less than 50 mg/kg but exceed the remedial level of 1 mg/kg at the surface and 10 mg/kg for subsurface areas. The dredged materials will be removed, at a minimum, from the first twenty five feet of the floodway area to restore this area to appropriate elevation, with the excavated material consolidated in the area shown on Figure 2. After restoration to floodway elevations, any remaining materials above the remedial level remaining in the floodway will be covered with a geomembrane or clay and then twelve inches of soil or the gravel access road (see Figure 3 and 4). The floodway is the area defined by the Federal Emergency Management Agency August 23,1982 Flood Boundary and Floodway Map for the Town of Salina (Community Panel Number 360591 0007). In areas to be addressed outside of the floodway the dredged material will be graded and covered with a vegetated soil cover which will consist of twelve (12) inches of soil, with a permeability equal to or less than the material to be covered. Figure 5 shows the approximate 17 acre area that will be covered.

4 Dredged material/soils in the vicinity of boring B-19, located on the north bank of Ley Creek (See Figure 2), will be excavated from an area of approximately 6200 square feet to a depth of 3 feet to achieve the remedial levels for the site. The excavated material is expected to be less than 50 ppm and will be consolidated with the rest of the material on the south bank.

5 A hydraulic analysis and floodplain assessment to assure compliance with Executive Order 11988 (Floodplain Management) will be completed during the remedial design for the consolidated capped materials to insure that the material to be left in the floodplain and floodway will not result in any significant change in flood elevations and to ensure that there will not be any adverse impact to the remedy from a 100 or 500 year flood. If necessary, based on this analysis, additional material will be consolidated out of the floodway/flood-plain. Rip rap or other stabilization/flood protection techniques will also be applied as determined necessary during the design, to assure the integrity of the cover during flood events.

6. To provide Onondaga County crews access to maintain Ley Creek as a part of the existing drainage district, a gravel access road will be provided adjacent to the southern bank of the Creek to allow for future maintenance and/or dredging. The four existing drainage swales from Factory Avenue will be graded back, covered with the vegetated cover and the flow channel lined with a half pipe or formed concrete spillway where they pass through the area of covered dredge spoils.

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Gravel access pathways and asphalt working pads will be constructed to allow maintenance crews access to the sewer for routine maintenance activities, without coming into contact with potentially contaminated soil. Gates will be provided in the fence to provide direct access to the above maintenance locations to avoid having to travel over the covered area. During the remedial design consideration will be given to the removal of dredge material from the existing sewer right of way, if additional material will be needed to achieve final cover contours.

7. Access agreements and deed restrictions will have to be negotiated with Onondaga County and other impacted property owners to allow the implementation of the remedy. The deed restrictions will be used to preclude activities which could potentially expose contaminated materials and to insure the integrity of the cover is maintained.

The area where PCBs will remain will be fenced and all gates locked, with keys provided to appropriate Onondaga County agencies. The fence identified for this remedy is intended to limit accesss to the site in order to assure the integrity of the cover system is maintained. However, alternative means of limiting access or activities which could result in damage to the cover (i.e.use of ATVs) may be proposed as part of the design. The agreement negotiated for access to implement the remedy will also have to address the potentially increased costs to Onondaga County which may be associated with sewer repair or installation and future widening of Factory Avenue in the areas where PCBs remain covered at the site.

8. Since the remedy will result in dredge materials/soils with elevated levels of PCBs remaining untreated, but covered at the site, a long term monitoring program will be instituted. In addition, yearly reviews will be conducted to allow the effectiveness of the selected remedy to be evaluated and to determine whether the remedy continues to be protective of human health and the environment. This long term monitoring program will be a component of the operations and maintenance for the site and will be developed in accordance with New York State Standards, Criteria and Guidance.

9 The remedial design would include provision for the completion of a Stage 1A Cultural Resources Survey, and any additional investigations required, to be consistent with the requirements of the National Historic Preservation Act (16 U.S.C. 470).

10. An operation and maintenance program would be implemented to maintain the site and the integrity of the cover.

1 Further evaluation of the groundwater beneath the dredged material, as well as, surface water and sediments in Ley Creek would be included in the scope of work for the RI/FS for the General Motors; Fisher Guide Site.

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SECTION 8: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.
- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.
- In February 1997 a Fact Sheet was sent to the mailing list announcing the availability of the Proposed Remedial Action Plan (PRAP) and the planned public meeting to accept comments on the PRAP.
- On February 7, 1997, a legal notice was published in the Post-Standard and Syracuse Herald-Journal announcing the availability of the PRAP for review and the date of the public meeting.
- On February 26, 1997 the NYSDEC and NYSDOH held a public meeting to explain the State's proposed remedy and accept comments on the PRAP.
- In March 1997 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

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Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
Alternative 1: No Action, Groundwater Monitoring, Deed Restrictions, Fencing	$5,500	$12,000	$ 216,000
Alternative 2: Twelve (12) Inch Vegetated Soil Cover, Ground Water Monitoring, Deed Restriction, Fencing and Maintenance Access Provisions	$1,665,000	$41,000	$2,327,000
Alternative 3: Dredged Material/Soil Excavation and Offsite Landfill Disposal, Groundwater Monitoring	$28,860,000	0	$28,860,000
Alternative 4: Dredged Material/Soil Excavation and Incineration, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions	$7,039,000	$110,000	$8,760,000
Alternative 5: Dredged Material/Soil Excavation, Thermal Desorption Treatment, Replacement, Groundwater Monitoring:	$43,762,000	0	$43,762,000
Alternative 6: In-Situ Biological Treatment of Dredged Material/Soil, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions:	$486,000	$449,000	$2,761,000
Alternative 7: Dredged Material/Soil Excavation and Offsite Landfill Disposal >50 mg/kg PCBs, 12 Inch Vegetated Soil Cover, Groundwater Water Monitoring, Fencing and Maintenance Access Provisions:	$4,788,582	$84,309	$6,112,448
Alternative 8: Excavation and Off Site Disposal of Dredged Material /Soil >50 mg/kg PCBs, Regrading of Material in the Floodway with a Low Permeability Cover, 12-inch Vegetated Soil Cover Over the Remaining Material, Groundwater Monitoring, Deed Restrictions, Fencing and Maintenance Access Provisions:	$5,249,798	$90,671	$6,671,453

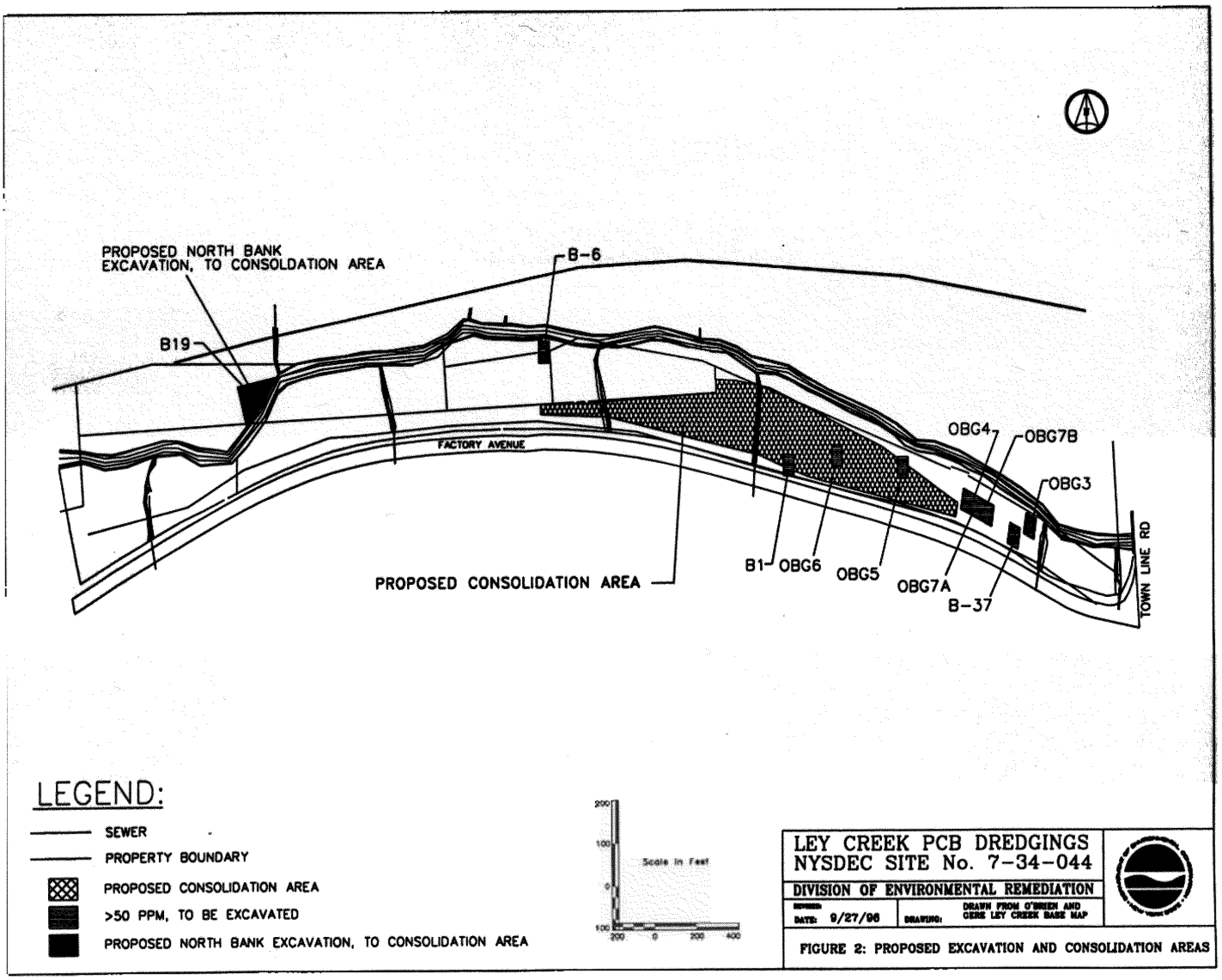
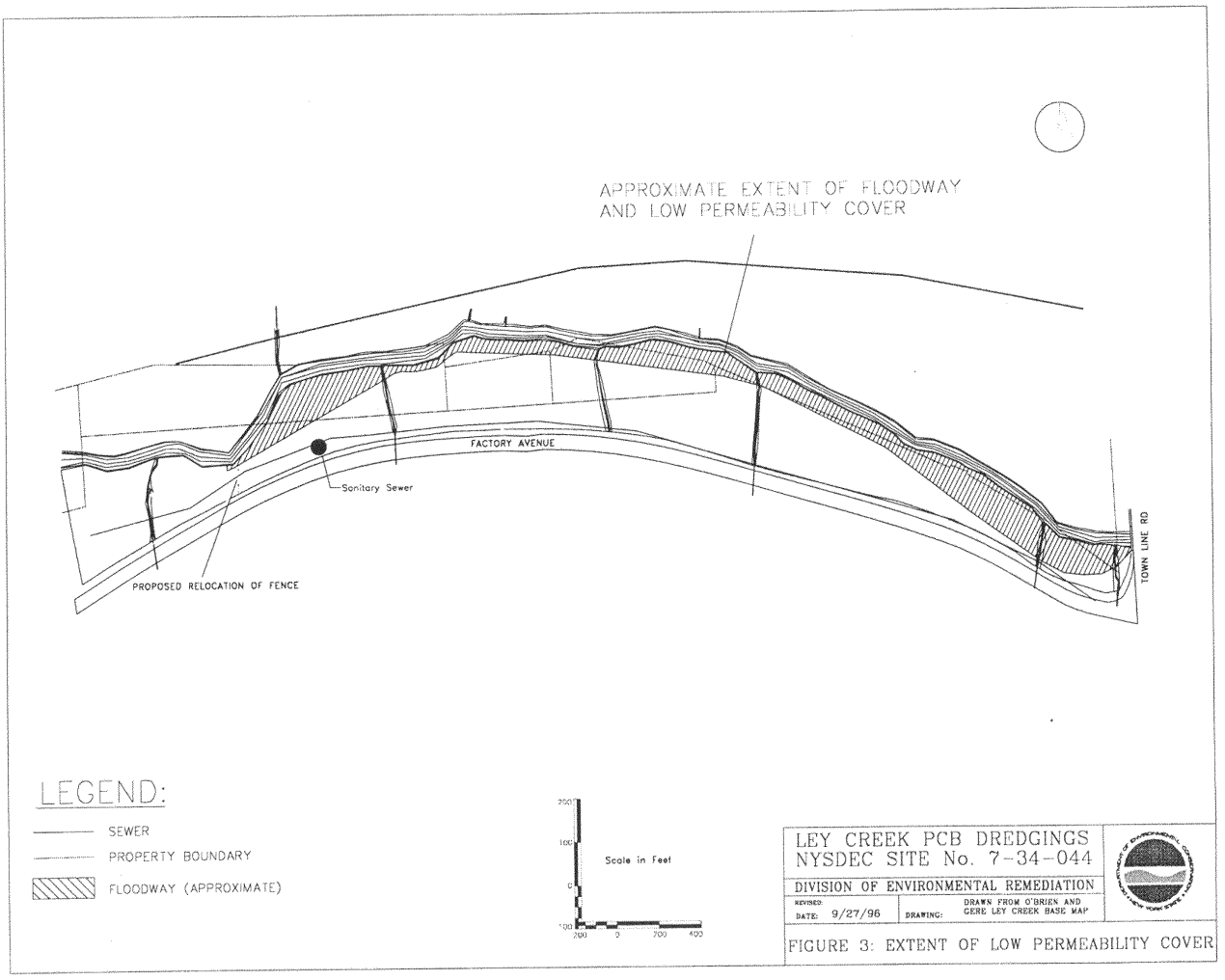
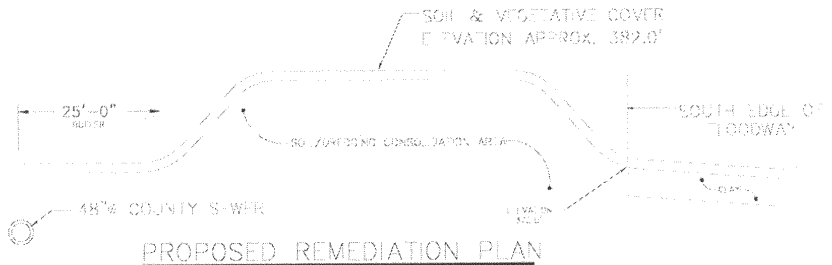
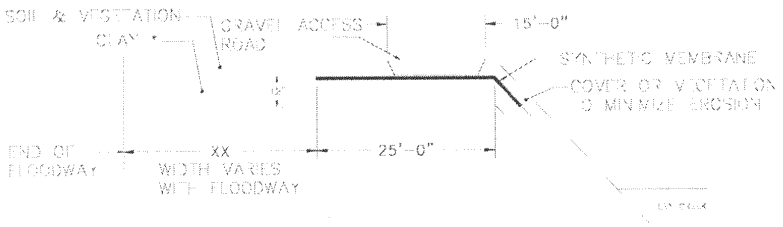


FIGURE 2: PROPOSED EXCAVATION AND CONSOLIDATION AREAS


APPROXIMATE EXTENT OF FLOODWAY
AND LOW PERMEABILITY COVER
FACTORY AVENUE
Sanitary Sewer
PROPOSED RELOCATION OF FENCE
TOWN LINE RD
LEGEND:
SEWER
PROPERTY BOUNDARY
FLOODWAY (APPROXIMATE)
Scale in Feet
200
100
0
100
200
0
200
400
LEY CREEK PCB DREDGINGS
NYSDEC SITE No. 7-34-044
DIVISION OF ENVIRONMENTAL REMEDIATION
REVISED:
DATE: 9/27/96
DRAWING:
DRAWN FROM O'BRIEN AND GERE LEY CREEK BASE MAP
FIGURE 3: EXTENT OF LOW PERMEABILITY COVER



PROPOSED REMEDIATION PLAN
SECTION – CONSOLIDATION AREA
NOT TO SCALE



PROPOSED REMEDIATION PLAN
SECTION – FLOODWAY ALONG SOUTH SIDE OF LEY CREEK
NOT TO SCALE

NOTE:
MATERIALS USED AS PART OF THE LOW PERMEABILITY COVER (SYNTHETIC MEMBRANE & CLAY SHOWN) SHALL BE EVALUATED DURING DESIGN.

LEY CREEK PCB DREDGINGS SITE NYSDEC SITE No. 7-34-044	
DIVISION OF HAZARDOUS WASTE REMEDIATION	
REVISED: DATE: 2/21/96	DRAWING: DRAWN FROM O'BRIEN AND GERE BASE MAP

FIGURE 4: PROPOSED FLOODWAY REMEDIATION PLAN

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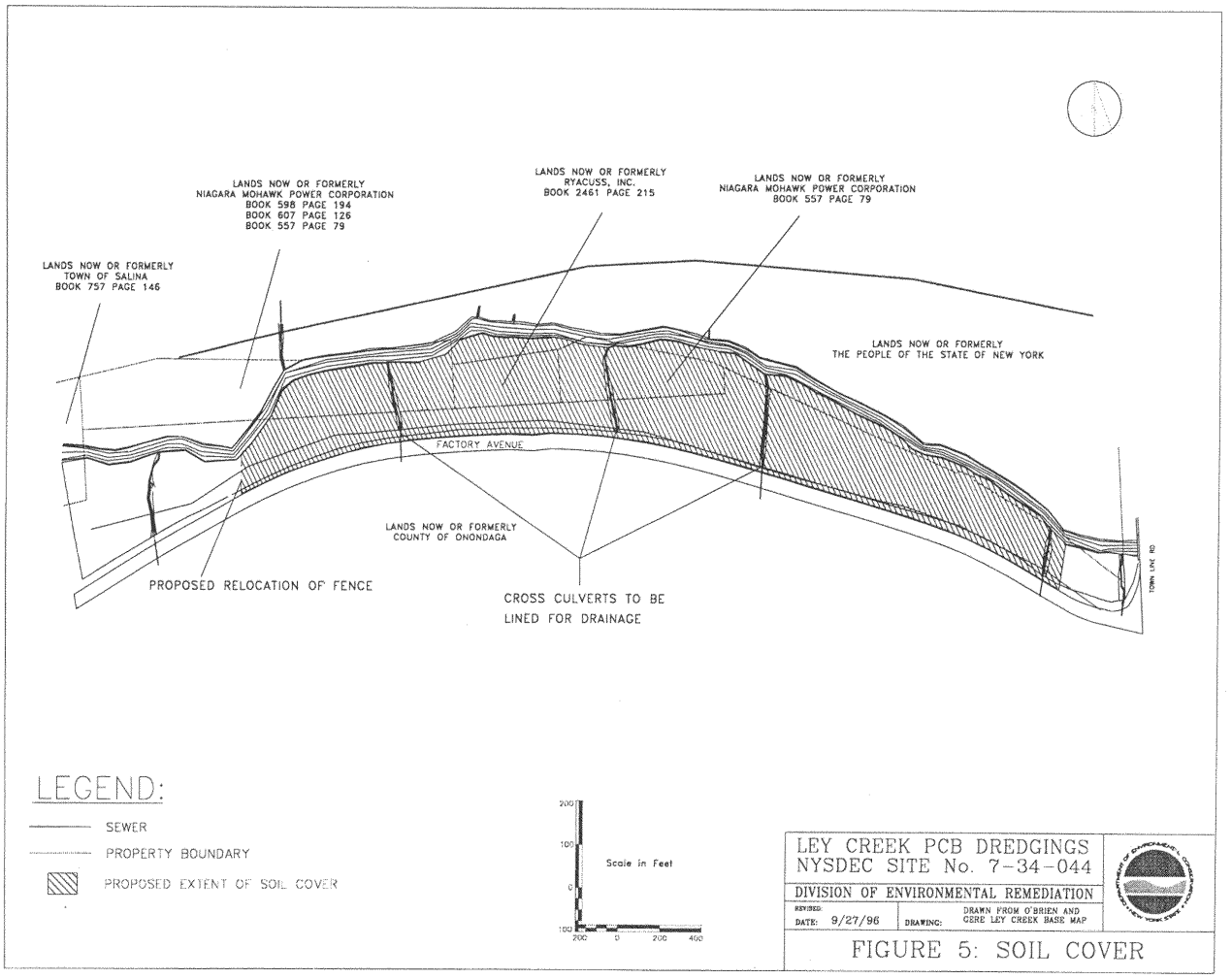
LANDS NOW OR FORMERLY
NIAGARA MOHAWK POWER CORPORATION
BOOK 598 PAGE 194
BOOK 607 PAGE 126
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LANDS NOW OR FORMERLY
RYACUSS, INC.
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TOWN OF SALINA
BOOK 757 PAGE 146
LANDS NOW OR FORMERLY
THE PEOPLE OF THE STATE OF NEW YORK
FACTORY AVENUE
LANDS NOW OR FORMERLY
COUNTY OF ONONDAGA
PROPOSED RELOCATION OF FENCE
CROSS CULVERTS TO BE
LINED FOR DRAINAGE
TOWN LINE RD
LEGEND:
SEWER
PROPERTY BOUNDARY
PROPOSED EXTENT OF SOIL COVER
200
100
0
100
Scale in Feet
200
0
200
400
LEY CREEK PCB DREDGINGS
NYSDEC SITE No. 7-34-044
DIVISION OF ENVIRONMENTAL REMEDIATION
REVISED:
DATE: 9/27/96
DRAWING:
DRAWN FROM O'BRIEN AND GERE LEY CREEK BASE MAP
FIGURE 5: SOIL COVER

Appendix A

RESPONSIVENESS SUMMARY

Ley Creek PCB Dredgings Site
Proposed Remedial Action Plan
Salina(T),Onondaga County
Site No. 7-34-044

The Proposed Remedial Action Plan (PRAP) for the Ley Creek PCB Dredgings Site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 6, 1997. This Plan outlined the preferred remedial measure proposed for the remediation of the poly-chlorinated biphenyls (PCBs) contaminated dredge materials/soils at the Ley Creek Site. The selected remedy is the excavation and off-site disposal of dredge materials/soils contaminated with PCBs at concentrations greater than 50 mg/kg and the consolidation and covering of the remaining volume of materials with concentrations exceeding 1 mg/kg at the surface and 10 mg/kg subsurface.

The release of the PRAP was announced via a February 6, 1997 notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on February 26, 1997 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were received from the General Motors Company, Onondaga County, Syracuse China/Pfaltzgraff and the New York State Thruway Authority.

The public comment period for the PRAP closed on March 10, 1997

This Responsiveness Summary responds to all questions and comments raised at the February 26, 1997 public meeting and to the written comments received.

The following are the comments received, with the NYSDEC's responses

COMMENT 1: What is the class of the site now and what will it be after the remediation?

RESPONSE 1: The site is currently a class 2 which indicates that the site represents a potential threat to human health and/or the environment. Once the remedy is in place, the site will most likely be reclassified as a Class 4 site which

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is a site where remediation has been completed and only continued operation and maintenance of the remedy is required.

COMMENT 2: Would PCB levels in fish be monitored?

RESPONSE 2: Additional fish monitoring will likely be a component of the RI/FS for the GM; Fisher Guide Plant site, which is expected to be initiated in the near future. Based upon the findings of this RI, and the need for any further remediation resulting from the FS, long term monitoring of the fish may be determined necessary. Additional monitoring of the Ley Creek remedy is anticipated, primarily to insure that the integrity of the cap is maintained.

The following comments were included in a letter dated March 10, 1997 received from Mr. William Kochem of General Motors:

COMMENT 3: The Department suggests that pre-design soil sampling be conducted to determine the nature and extent of PCBs in the area of the drainage swales as part of the selected remedy. This language should be deleted in the final ROD, because the investigation has already been done.

As part of the Remedial Investigation, additional soil borings were installed to evaluate (I) if the former drainage ditch swale extended to the north side of Factory Avenue and (ii) if PCBs, which were detected in soils south of Factory Avenue and outside of the interim remedial measure (IRM) work area, extended north of Factory Avenue (see sections 2.06.4, 2.07.4, and Figure 2 of the Remedial Investigation Report ("RI")). The results of the investigation are set forth at section 3.06.2.1 of the RI, and in view of the findings, there is no need for any additional pre-remedial investigation.

RESPONSE 3: The work from the RI, cited above as providing confirmation that the swale was investigated and found not to exist, is considered inadequate to make such a determination. The soil borings identified as having been installed to determine if the swale exists, B-25 to B-29 and B-34 to B-43, do not support this conclusion. Out of the 11 borings in question, only 3 appear to have been to sufficient depth to pass through the dredge spoils and possibly detect the existing swale. Furthermore, no evaluation was presented relating the location and elevation of the high levels of PCB contamination in the soil encountered during the sewer construction, to the location and depth of any of the installed borings. Additional investigations

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designed to identify the drainage swales will continue to be required by the ROD.

COMMENT 4: The following reference in the PRAP should be corrected to insert the language in bold type face: . . . "the entire area within the floodway will be covered with a geomembrane or clay overlain by a twelve (12) inch vegetated soil cover "**or a gravel access road**". The gravel access road is to be installed within the first 15 feet of the floodway.

RESPONSE 4: Agreed, this revision will be incorporated in the Record of Decision (ROD).

COMMENT 5: The hydraulic analysis, which is required as part of Alternative 8, is to confirm that the elevations set within the floodway as part of the remedy do not result in any significant rise in the flood levels in the community, using the February 16, 1982 Federal Emergency Management Agency (FEMA) Flood Insurance Study for the Town of Salina, New York and the August 16, 1982 FEMA Floodway Boundary and Floodway Map as benchmarks (see page 62 of the FS). To the extent the PRAP is requiring further analysis as part of the remedy, it needs to be revised

RESPONSE 5: The hydraulic analysis contemplated by the PRAP, and which will be required by the ROD, is that necessary to comply with Executive Order 11988, which is the basis for the FEMA requirements cited above. Therefore, no revision to this language is considered necessary in the ROD to address this comment, however the floodway elevation has been included to clarify this issue.

COMMENT 6: The soil/dredged material PCB cleanup criteria used by the Department at this site are 1 mg/kg at the surface and 10 mg/kg (subsurface). The source of these criteria is incorrectly listed as the EPA OSWER Guidance on Remedial Actions for Superfund Sites with PCB Contamination, EPA/54OG90/607, August 1990. The correct reference is the Department's TAGM 4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (see pages 58 and 61 of the FS).

RESPONSE 6: The basis for the 1 and 10 ppm cleanup criteria is the OSWER Guidance cited above. The acceptance and use of these concentrations by the NYSDOH as remedial cleanup criteria and their subsequent incorporation into the NYSDEC TAGM 4046 is based on the risk assessment presented

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in Appendix B of this OSWER document. Therefore, the citation of this document in the Section of the PRAP which discusses the Human Exposure Pathways resulting from the site is appropriate and no revision to this language in the ROD is necessary.

COMMENT 7: Table 1 at page 7 of the PRAP lists 110 ppb as a SCG for fish tissue and cites the "Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorous Wildlife" as the supporting authority. The reference should be deleted for two reasons: (1) Impact on surface waters has been deferred to the RI/FS review on the GMIFG Main Plant Site and so this issue is not properly a subject of this PRAP and (2) There is no discussion in the PRAP to support the view that the Niagara River study is a proper SCG for this site as required under 6 NYCRR §375-1.10(c)(1)(ii). It is GM's view that there are differences between the receptors in the Niagara River study and the receptors present in Ley Creek and this will impact the analysis.

RESPONSE 7: The Newell reference is appropriate for use here, for the following reasons: (1) While selection of a remedy for the surface waters and sediments may have been deferred, the assessment of any impacts by site contaminants from the dredge material itself on surface waters and offsite has not been deferred to the Main Plant investigation, specifically the impact of erosion or other migration of the contaminated sediments to the Creek. The fish tissue data collected shows an impact to the environment attributable to the dredge spoils and these results of the investigation are available, relevant and appropriate to share with the public at this time in this document. (2) These environmental criteria were developed for chemicals for which none existed. They were intended to protect piscivorous wildlife not only along the Niagara River, but anywhere in the State, and have been applied as such since their development. The Newell criterion is consistent with, but slightly less conservative than the 0.1 mcg/g in fish set by the International Joint Commission as the objective for protection of fish and wildlife.

COMMENT 8: The eastern limit of the site is described as Townline Road, but the site does not actually extend that far. The eastern terminus of the site is described in the Department's Registry notice as the vicinity of the Fisher Guide discharge point (that is, Outfall 003), rather than all the way down to Townline Road (see page 1 of the RI). A revision reflective of the Registry description should be made.

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RESPONSE 8: The ROD will be modified to conform with the Registry description of the eastern site boundary.

COMMENT 9: The PRAP identifies the source of PCBs as the result of discharges of contaminated water "primarily" from the discharge of wastewater from GM's former Inland Fisher Guide manufacturing facility. Although GM does not deny that PCBs were detected in the discharge from its outfall into Ley Creek, the GM-IFG facility was not the only facility that was permitted to discharge PCBs into Ley Creek or the only potential source of PCBs in the dredgings (see page 3 of the RI). GM also cannot confirm where all the dredgings were taken from Ley Creek or even if there are dredgings taken from other areas within Onondaga County. The text should be revised accordingly.

RESPONSE 9: Based upon the distribution and concentration of PCBs identified in the dredge spoils (ref. Table 2 of the ROD), as well as the Aroclors present, the NYSDEC considers the GM Plant as the primary source of the contamination in question. As such, no change will be made in the ROD language.

COMMENT 10: The PRAP indicates that "ecological risk calculations have also indicated that the PCB-contaminated dredge material/soils at the site may pose an "unacceptable risk to terrestrial species such as the short-tailed shrew and the red tailed hawk" and that this led to the establishment of a 1 mg/kg surface soil standard for PCBs. A quantitative ecological risk assessment was not conducted by GM as part of the RI. Therefore, please provide us with the site-specific quantitative risk assessment that is the basis for the statement in the PRAP.

RESPONSE 10: The risk calculations have been provided to GM and are included in the Administrative Record for this ROD.

COMMENT 11: Has the EPA reviewed and approved the proposed remedial alternative? The remedial review process for this site followed that set forth under New York State's superfund program (Article 27, Title 13 of the Environmental Conservation Law), rather than the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). However, it is our understanding that the Department concurs that the selection of the proposed remedy will be consistent with the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP") as consistency with the

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NCP is also a requirement under the state's superfund program (see 6 NYCRR § 375- 1. 10 (c)).

RESPONSE 11: The USEPA has reviewed the FS and the PRAP and has assured the Department that it finds the selected remedy to be protective of human health and the environment. It is the Department's position, as indicated in the Declaration to this ROD, that the remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

COMMENT 12: Page 5 of the PRAP refers to a previous soil removal program occurring in the "Meadowbrook Road" area. The reference should be corrected to read: "Meadowbrook/Hookway" area.

RESPONSE 12: The ROD has been modified to reflect this comment.

COMMENT 13: At page 14 of the PRAP, it is correctly noted in Alternative 8 that areas outside of the floodway are to be covered with a 12 inch vegetated cover. However, at page 21, there is a tag line to the effect that the soil cover is to have a "permeability equal to or less than the material to be covered." The language on permeability should be deleted. As explained at page 63 of the FS, the objective of the soil cover is to minimize direct contact, rather then to minimize infiltration.

RESPONSE 13: It is acknowledged that the purpose of the cover is primarily to address exposure resulting from direct contact, not to minimize infiltration into the contaminated materials. This requirement, while likely resulting in reduced infiltration, is intended to preclude the situation where a more permeable layer, overlaying a less permeable material, becomes saturated leading to sloughing or other erosion of the cap. Use of a material of a predetermined low permeability is not contemplated by this requirement, the intent is to require a cover material similar in nature (permeability) to that which it will cover. This requirement is intended to insure the structural integrity of the cover particularly in the event of a flood, therefore, this requirement will remain as a performance standard in the ROD.

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The following comments were included in a letter dated March 10, 1997 received from Mr. Robert S. McEwan, Jr. of Nixon Hargraves, Devans and Doyle on behalf of the Pfaltzgraff and Syracuse China Companies:

COMMENT 14: Alternative 8 contemplates, in part, removal and off-site disposal of soil taken from certain "hot spot" areas (Final Feasibility Study, dated October 1996, "Final FS", p 59). However, the "hot spot" areas may not be the only areas of significant PCB contamination.

According to the map entitled Proposed Excavation and Consolidation Areas (Final FS, Figure 10), none of the "hot spot" areas to be excavated appear to be located on the Ryacuss parcel. However, the closest excavation point seems to be less than 200 feet away (Id.). The maps containing the soil boring locations included with the appendices of the Remedial Investigation Report ("RI") and the Final FS do not delineate the boundary of the Ryacuss parcel making it difficult to determine soil boring locations in relation to the Ryacuss property boundary.

It is possible that either or both soil borings designated as B7 and BB lie within the Ryacuss property boundary (Final FS, Figure 2).

Because there is no pattern of distribution of the PCBs throughout the Study Area and PCBs are present throughout the area in question at levels requiring remediation (see, PRAP, p 8), given the available data it should be assumed for the purposes of remediation that elevated levels of PCBs exist within the soils of the Ryacuss parcel. Even if there are no "hot spots", there is contaminated soil that, if left behind, has the potential to cause health or environmental problems. The soil from the Ryacuss parcel ought to be excavated and removed for off-site disposal.

RESPONSE 14: The location of all soil borings have been reviewed relative to the Ryacuss parcel. After the reviewing the RI data in response to this comment it was identified that the location identified in the Feasibility Study and the PRAP as boring location B-6 was in fact boring location B-6M. The actual location of B-6 is near the northeast corner of the Ryacuss parcel. The correct location of boring B-6 is shown on a revised Figure 2 in the ROD.

The selected remedy provides for the removal of all areas of contaminated dredge spoils and soils where PCB concentrations have been identified in excess of 50 ppm, which is the level of PCBs which defines a substance as a hazardous waste. Based upon the above, there is now one location on the

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Ryacuss parcel, Boring B-6, where sampling identified levels of PCBs in excess of 50 ppm. This area will be excavated to remove this material, however, PCBs will remain on the balance of the parcel at concentrations less than 50 ppm. The soil cover, included in the selected remedy, will cover the entire parcel, mitigating any identified human health and environmental exposures, which may result from the contaminants remaining at the site. While the selected remedy will be protective of human health and the environment Syracuse China/Pfaltzgraff, as the property owner, is free to attempt to negotiate with GM other reasonable considerations as a condition of access to their property.

COMMENT 15: According to the Final FS, there is one monitoring well on the Ryacuss parcel. However, given the way that the well location map is presented, it is not possible to determine from that map which monitoring well it is. Based upon an estimated location, it may be MW 12 or MW 13 (Final FS, Figure 5). Data from MW 12 and MW 13 indicate the presence of PCBs above the *NYS Class* GA groundwater standard of 0.1 ug/l

RESPONSE 15: Based upon the review of the mapping, MW 12 is located on the Ryacuss property. Based upon the results of the RI, the groundwater beneath the property is contaminated above groundwater standards, as indicated by this comment. As stated in the PRAP and ROD, the groundwater contamination is believed to be related not just to the Ley Creek site, but also is influenced by the GM; Fisher Guide site, therefore further action to address the groundwater has been deferred to the RI/FS for this site.

COMMENT 16: The basis for the decision to defer the remediation of groundwater contamination appears to lie in the fact that there is a hydraulic connection in the groundwater under the Study Area and the upgradient groundwater underlying the Main Plant site (Final FS, p 22). The extent of that hydraulic connection is not discussed.

RESPONSE 16: As stated in the PRAP and ROD, it is anticipated that additional groundwater investigations will be carried out as part of the RI/FS for the General Motors: Fisher Guide Site. The extent of the hydraulic connection of the groundwater and any associated contamination at the GM; Fisher Guide site to Ley Creek and this site has yet to be fully defined. For this reason, a groundwater remedy was not identified for the Ley Creek PCB Dredgings site by this ROD.

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COMMENT 17: It may be possible to install a groundwater trench in a manner to sever the hydraulic connection between the Main Plant site and the Study Area to intercept PCB laden groundwater and prevent its continuing discharge into Ley Creek. If a groundwater trench were deemed appropriate, it could be installed as an Interim Remedial Measure (see, TAGM HWR-92-4042 and TAGM HWR-92-4048) pending the final remedial plan for the Main Plant site.

One of the remedial goals set forth in the PRAP is to eliminate the threat to surface waters by eliminating contaminated surface run-off (PRAP, p 10). The threat to surface waters may be further reduced by the installation of a groundwater trench.

RESPONSE 17: Such a collection trench may be a potential remedy to be evaluated by the FS for the Plant site, or as a possible IRM as suggested, once a better understanding of the area-wide groundwater system and the nature and extent of any contamination has been gained by the investigations to be conducted during the GM Site RI.

COMMENT 18: The PRAP does not indicate the appropriate elevations to which the dredgings will be placed. This issue was addressed in a letter prepared by General Motors' counsel dated August 30, 1995. In that letter a portion of the remedial plan is described as the moving and regrading of the dredgings away from the " ... first 25 feet of floodway south of Ley Creek to create elevations of 370 feet or less ... ".

We assume that the term "floodway", as it is used in the Final FS, means that portion of the 100 year flood plain as identified on the 1982 Federal Emergency Management Agency Flood Boundary and Floodway Map provided as Exhibit C of the Final FS. The floodway appears to be an estimate of some sort (Final FS, Figure 8 which shows the "approximate floodway" 11 ... plotted from 1982 [FEMAI flood boundary and floodway map").

RESPONSE 18: The ROD has been revised to reference the floodway area as defined by the above referenced FEMA mapping. A specified elevation is not generated in the definition of the map of the floodway, as is the case when defining the 100 and 500 year flood events The assumption regarding the term floodway is correct and the area in question is as defined on the map.

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COMMENT 19: A remedial alternative that proposes to re-grade only the first 25 feet of the floodway to remove PCB contaminated soil contemplates leaving the balance of the PCB contaminated soil, even soil located within the floodway, in place. There is no explanation in the Final FS or the PRAP regarding what measures will be taken, if any, to prevent flooding of the Study Area. Apart from the referenced language regarding erosion controls, the Final FS does not include any flood control measures. In fact the large mounds of soil that presently exist along the southern banks of Ley Creek will be leveled and graded. Without flood control measures in place, the potential exists for flooding to carry contaminants downstream, even those overlain with impermeable materials such as clay or a geomembrane cover. No provision appears to have been made to prevent the influence of flood waters upon the Study Area.

RESPONSE 19: As stated in this comment, there are no measures proposed by the ROD to prevent flooding of the site. There are however several measures to insure the structural integrity of the components of the remedy against the effects of flooding. Alternative 8 was developed in recognition of this need, including the provision for the use of a low permeability cover in areas of the floodway, to enhance the protection and stabilization of the cover. In addition, the gravel roadway will serve a dual function by providing increased protection to the first fifteen feet of the cover along the creek bank. Also, the requirement for comparable soil permeability between the cover and the material being covered, is also intended to mitigate any deleterious impacts of saturation during flooding on the cover. The remedy as described in the FS also provides for the use of rip rap of the creek channel as determined necessary during design and this has been noted in the ROD. Finally, the long term operation, maintenance and monitoring program required by the ROD will include inspections and repairs to the cover, as well as the required review of the effectiveness of the remedy and its protectiveness of human health and the environment.

COMMENT 20 : Section 6 NYCRR 373-2.2(j) provides that hazardous waste storage facilities that are located in the 100 year flood plain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste unless the owner or operator can demonstrate that procedures are in effect that allow removal of the hazardous wastes before flood waters can reach the facility. For existing waste sites the owner or operator must demonstrate that there will be no adverse effects on human health or the environment if a washout occurs.

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No such demonstration is contained in the Final FS. The referenced provisions of Part 373 should be adopted as guidance for the remediation of the Site and the Site operator should make the required demonstration. In absence of a demonstration that there will be no adverse effects on human health or the environment in the event of a washout, the contaminated soil should be removed from the flood plain or flood control measures should be put in place. One of the stated goals of this remedial program is to eliminate the threat to surface waters and sediments by eliminating any future contaminated surface run-off from the dredge soils on site (PRAP, p 10). There is nothing contained in the Final FS that indicates that Alternate 8 will fulfill that goal, particularly in the event that flooding occurs.

RESPONSE 20: This site is an inactive hazardous waste disposal site and therefore not directly subject to the requirements of Part 373. As a result of the selected remedy's requirement that all PCBs in excess of 50 ppm be removed from the site, no hazardous waste will remain which is subject to regulation. Although the Part 373 demonstration is not applicable for this remedy, the substantive requirements of Part 373 will be considered in the course of the design of the remedy. Section 7.2-4 of the PRAP addressed the selected remedy's compliance with the remedial goal cited in this comment. This Section of the ROD has been modified to reflect the rip rap and other flood proofing provisions discussed in Response 20.

COMMENT 21: We are unable to determine whether the institutional control that is proposed would have any impact upon Syracuse China facility operations. Any type of control that is imposed within the Study Area must be examined so that it does not impact operations of facilities located outside of the Study Area.

RESPONSE 21: Based on the historic lack of any activity by Syracuse China at the Ruckuses parcel, it is not anticipated that there should be any impact upon operations at the Syracuse China facility. No land use controls associated with the remedy are anticipated beyond the immediate site boundary (Study Area), which is defined in Section 1 of the ROD.

COMMENT 22: An innocent landowner should not be subject to institutional controls and face further liability as a result of a remedial plan that calls for leaving contaminated soil in place in a potential flood prone area. An appropriate remediation of the Ryacuss parcel (which is approximately 1.3 acres in size)

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could be undertaken without much additional cost. Given the location of the site and the USEPA regulations that have been referenced or identified as guidance for this project, excavation soil from the Ryacuss parcel for disposal off site or consolidation elsewhere on the site is warranted.

RESPONSE 22: The State considers the selected remedy to be protective of human health and the environment for the entire 17 acre site. While it may be technically feasible to remove the material from the 1.3 acre parcel in question, taken in the context of the entire site and the need for a site wide remedy, there is no remedial justification to alter the selected remedy, as suggested. Future liability concerns of a landowner are not a factor in determining the feasibility of a proposed remedy. The property owner is however free to raise such considerations with the PRP during the negotiations for access to this parcel to implement the remedy.

COMMENT 23: The Final FS concluded that the PCB-contaminated soil in the Study Area would lead to insignificant exposure to certain forms of wildlife and that a remedial action objective for the dredged materials based on risk reduction is not warranted (Final FS, p 14). This finding appears to be based, at least in part, upon "the infrequent study area use by terrestrial wildlife,, (id.).

However, NYSDEC notes that this area is an "island of wildlife habitat" and "that the resident wildlife are concentrated within the area, spending the majority of their feeding activity here" (Final FS, Exhibit E). NYSDEC believes that some of species identified at risk include raccoon, mink and hawk (id). Other species upon which these animals would prey, and are typically found in the cover type identified in the Study Area, would include mice, shrews, reptiles and amphibians (RI, Exhibit D).

Many of these smaller species would likely (1) burrow into the contaminated PCB dredge piles and (2) feed on invertebrates that utilize the dredge piles as a habitat. Given the variety of species found in the Study Area, and the findings in the Fish and Wildlife Impact Analysis that provide that dredged material/soil, surface water, sediment, and food chain pathways are complete" (Final FS, p 12), risk to the referenced species should have been quantified. As a consequence, the Final FS incorrectly asserts that a remedial action objective for the dredged materials based on risk reduction is not warranted. Such a risk analysis ought to be performed and, if appropriate to the findings of the risk analysis, a remedial action objective should be developed and implemented.

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RESPONSE 23: The NYSDEC agrees with the above and a remedial goal to address this concern was included as the fourth bullet in Section 4.4 of the PRAP and is now in Section 3.4 of the ROD. An analysis has been performed which included some of the species identified in this comment, specifically the red tailed hawk and shrew. This assessment, which identified a risk to these terrestrial species, is included in the Administrative Record for this ROD.

COMMENT 24: The Final FS notes that detectable PCB concentrations measured in sediments at the Study Area during the RI "exceed wildlife residue criteria for PCBs" (Final FS, p 20). However, the Final FS does not address contamination in these wetlands. A remedial investigation of these wetlands should be conducted and if PCBs are detected and exceed wildlife residue criteria for PCBs a remedial plan should be developed and implemented as a part of the final PRAP.

RESPONSE 24: Dredged sediments were deposited in an area of designated wetland, prior to the September 1, 1975 Article 24 regulations governing the filling of wetlands. It has been determined that due to the prior placement of this material and the overall benefit to the environment derived from this project, removal of the material would not be required and consolidation of additional material in this area was considered appropriate. This decision, which was documented in the PRAP and in the third paragraph of Section 7 of the ROD, is based on the Division of Fish and Wildlife memo dated December 6,1995, which has been included in the Administrative Record.

COMMENT 25: In an attempt to minimize the contamination of Ley Creek surface water, sediments, and aquatic wildlife, the site owner presented to the Department a hazard evaluation. This hazard evaluation purports to quantify the risk to the great blue heron resulting from exposure to PCBs found in Ley Creek surface water, sediments and fish (Id.). The great blue heron was chosen as a representative species of the area. The results of that evaluation are presented in the Final FS at Appendix D.

We note that the great blue heron study limited its scope of review to a diet of fish, even though the bird includes other small invertebrates and mammals, such as those that would live in or adjacent to the dredge piles and dredged spoil wetlands, as its source of food. These other sources of food have been demonstrated to bioaccumulate PCBs to harmful levels. According to Exhibit E of the Final FS, past studies show fish and

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amphibians from Ley Creek have body burdens of PCBs up to 5 ppm or higher which significantly exceed fish flesh criteria.

In addition, we question the value of the great blue heron study given (1) that toxicity data for the great blue heron was taken from a different species and (2) other species appear to be more representative of the Study Area (Final FS, Exhibit E). Department comments indicate that the great blue heron should" ... not be considered as a representative species in ... response to contaminant problems" (Id.).

RESPONSE 25: The PRP's specific HQ calculations for the great blue heron have not been validated by the Department, however, the unremediated site constitutes a significant risk to fish and wildlife, and therefore will be remediated. Future assessment of the area as part of the GM; Fisher Guide site RI/FS, and remediated dredge spoil site impacts to surface water, sediments and biota, especially those of Ley Creek, will be evaluated by DEC and EPA risk evaluators as soon as data are available. Appropriate follow up actions will then be taken to alleviate significant remaining impacts, if any.

COMMENT 26: It appears that the Final FS suggests that the results of the hazard evaluation allow departure from the standards set forth in the Sediment Criteria (Final FS p 20). Please note that Pfaltzgraff and Syracuse China continue to question whether the Sediment Criteria is appropriate guidance setting soil cleanup standards, however, the contaminated material in question for this Study Area is sediment from an open water body - precisely the medium for which the sediment criteria was designed. By way of contrast, NYSDEC rejected arguments that the wetland soils located adjacent to the Syracuse China landfill were not "sediments" as defined in scientific literature but were soils. The Department insisted that *Cleanup Criteria for Aquatic Sediments* (NYSDEC 1993) be applied to the establishment of cleanup levels for those wetland soils.

RESPONSE 26: Sediment criteria for this project are not being applied since the soils in question are located in upland areas and not in inundated or low areas, as was the case for the referenced site.

COMMENT 27: The dredged soils are now piled adjacent to Ley Creek and within what appears to be a 100 year flood plain. The chances for erosion or flooding to wash this material into the creek is realistic. This possibility of flooding

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should be as much an environmental concern as the concern of the Department toward the soils in the wetland adjacent to the Syracuse China landfill where the Sediment Criteria were applied.

RESPONSE 27: The concern relative to the migration of contaminants from the soil piles into Ley Creek is documented in the PRAP as a remedial goal and was a major concern in the development of the selected remedy. The soils in this case are being relocated away from the Creek and covered to address this concern. In the case of the Syracuse China site, the contaminated sediments to be removed are present in the wetland. They will be removed and placed in an upland area on the landfill, where they will be covered. In addition, an area of the landfill where material was placed in the wetland after September 1, 1975 is being removed from the wetland. A significant portion of the landfill material which was placed prior to this time, however, will be allowed to remain in place, the material removed from the wetlands consolidated in the area and then the area will be covered, similar to what will occur in the Ley Creek remedy in question.

COMMENT 28: To complete the remediation of the Syracuse China Landfill, contaminated soil must be removed from a low quality wetland (Syracuse China ROD, § 7). In contrast, the Final FS recommends that soil contaminated with PCBs be left in place within a wetland and the flood plain of a creek that leads to Onondaga Lake, a very sensitive ecosystem. The Department should apply the Sediment Criteria consistently.

RESPONSE 28: The appropriate application of the Sediment Criteria, applied on a case specific basis, is how the Department ensures consistency. The relevant issue analyzed in this case was how the remedy selected best accomplished the goal of protecting human health and the environment, by removal or containment, not the application of the sediment criteria. At Ley Creek, all of the material in question is located out of areas regularly inundated, while this is not the case for the Syracuse China site.

The following comments were included in a letter dated March 7, 1997 received from Mr. David Coburn, Director of the Office of the Environment for Onondaga County:

COMMENT 29: The County has previously submitted comments to the DEC relative to the Ley Creek Site. We are incorporating by reference all previously submitted comments.

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RESPONSE 29: During the development of the PRAP two letters commenting on various issues associated with the project were received from Onondaga County by the Department. The first, a September 25, 1996 letter from County Executive Nicholas J. Pirro and the second, a September 30,1996 letter from David Coburn, the Director of the Onondaga County Office of the Environment. The majority of the issues raised by these letters have either already been addressed in the final version of the PRAP or are the subject of ongoing negotiations (see comment 31) between the County and GM. Therefore, no additional response has been provided to these comments. Those County concerns not previously, or in the process of being addressed by the ongoing negotiations, have been responded to below.

COMMENT 30: The County is negotiating a contract with GM whereby the County will seek transfer of the property, plus defense and indemnification from GM relative to the PCBs. The County is also seeking, through the contract negotiation, to address other issues raised in our previous comments concerning the County's ability to carry out ongoing work at the site. We hope that the negotiations will be successful, but additional issues still need to be resolved.

If an agreement is successfully negotiated, the transfer of the property must still receive County Legislative approval. There is no guarantee that the Legislature will approve such a measure.

RESPONSE 30: The NYSDEC delayed issuance of the PRAP from October 1996 until February 1997 at the County's request, in order to allow time for the County and GM to begin discussions relative to the County concerns detailed in the letters discussed in Response 30. Based upon the apparent success of the ongoing negotiations, which typically NYSDEC would view as a post-ROD activity, the decision was made to proceed with remedy selection for the site, so that the remediation could proceed in a timely manner. Given the progress made to date, the NYSDEC is confident that the necessary agreements can and will be completed to allow the remedy to be implemented.

The following comments are from the Onondaga County September 25 and 30, 1996 letters discussed in Comment 30 above:

COMMENT 31: The PRAP is misleading in that it fails to notify the public that it (the public) may bear the financial burdens associated with the long term

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management, care and possible corrective action costs associated with a hazardous waste management unit created as a result of the proposed remedy.

RESPONSE 31: The PRAP is not misleading since it is not intended that the public bear any costs associated with the selected remedy. The PRP, General Motors, will be implementing the remedy and responsible for the operation and long term management of the site. The PRAP and ROD also identify the need for the PRP to bear any "potentially increased costs to Onondaga County which may be associated with sewer repair or installation and future widening of Factory Avenue in areas where PCBs remain covered at the site." It is the State's understanding that this indemnification is part of the ongoing discussions between the County and GM, referenced above.

COMMENT 32: The PRAP should also state that the site is a subsite of the Onondaga Lake NPL, and that future releases from the site will further contaminate Onondaga Lake.

RESPONSE 32: No discussion of sub-site status was considered appropriate at this time. The selected remedy for this site does address future migration of PCBs from the dredge material/ soil at the site to Ley Creek and Onondaga Lake and the impacts to surface water and the sediments will be the subject of the GM; Fisher Guide site RI/FS, as discussed in several of the preceding comments.

COMMENT 33: The PRAP implies that the actual extent and locations of the PCB contamination at the site has been well characterized and is known. As the County has stated in previous correspondence with the State, the site has been poorly characterized and it is likely that unsampled areas comprised of soils with high concentrations of PCBs will be left on the site under the proposed remedy.

RESPONSE 33: The NYSDEC considers the site to have been adequately characterized to allow the remedy to proceed. The ROD also provides for additional sampling, notably where swales have been identified as possible historic migration pathways for PCBs from the Plant area, prior to the implementation of the remedy.

COMMENT 34: The PRAP implies in the section dealing with human exposure pathways (page 9) that there would only be incidental contact by workers

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"maintaining" facilities on the site in the future. The County is already on the record with its concern about the potential for extensive exposure to workers in the not unlikely event the buried trunk sewer needs to be repaired or replaced.

RESPONSE 34: Provisions are included in the remedy to mitigate any exposure to County workers from contact with the soils, which will remain at the site, during the course of routine maintenance of the utilities present at the site. These are detailed in Section 7, item 6 of the ROD. In addition the NYSDEC is aware that the ongoing negotiations with GM are developing operation and maintenance plans to ensure that proper health and safety plans and contingencies are in place so there should be no adverse impacts to County or contractor workers in the event repairs or replacement of the sewer should be necessary.

COMMENT 35: The PRAP declares that the removal of all soils contaminated with PCB concentrations of less than 50 ppm to the main plant site is not feasible because there is insufficient room for the volume of material that would require relocation. The State limited this evaluation of the main plant site to the "former landfill" and two small treatment lagoons. Based on the limited capacity of these small areas, the alternative was rejected. The PRAP does not explain why other, more extensive space on the main plant site was not considered for this material, and the County will not accept rejection of this alternative until this approach is satisfactorily evaluated.

RESPONSE 35: In proposing this as an alternative to be considered for disposal, the NYSDEC limited possible locations at the main plant for the Ley Creek material to those where the disposal would not interfere with the need to complete the remedial investigation or where remediation may be needed to address another problem. It was not considered appropriate to place this material in an uncontaminated area of the site. This limited the area available to those areas which had previously been characterized by investigations as contaminated and where placement of this material could serve as contouring fill for a final closure. Needless to say, the area available was rather limited and this was further constrained by the presence of high tension power lines which limited the allowable height.

COMMENT 36: The PRAP fails to include the future cost of RCRA compliance for any of the alternatives noted. These can be substantial.

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RESPONSE 36: Since the PCBs over 50 ppm are being removed, there will be no need for RCRA compliance since no RCRA regulated waste will remain at the site.

COMMENT 37: The proposed remedy in the PRAP indicates that as much of the contaminated dredge materials/soils "as possible" will be removed from the existing sewer easement (page 19). This language commits GM to nothing and is at the heart of the County's concerns about future worker exposures and future costs associated with maintenance, repair and/or replacement of the Ley Creek Trunk Sewer.

RESPONSE 37: This language is intended to highlight that if possible more of the contaminated material than identified by the FS may be able to be removed and consolidated on the site out of the sewer easement. It is unlikely that all or even a significant portion will in fact be addressed due to the limited area available. As indicated in previous responses, future costs and a mechanism for dealing with the eventual repair of the sewer line are part of the ongoing negotiations between GM and the County for access to the property. The ROD clearly identifies this expectation.

COMMENT 38: "Cost" is identified as a criterion for evaluating alternatives in the PRAP (page 17). The draft PRAP states, "Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision." It remains the County's position that the proposed remedy does not meet the requirements for a final PRAP, and therefore this should be considered an interim PRAP. Further, the State has limited consideration of costs in the draft PRAP to its impacts on the generator, GM. The PRAP does not discuss or consider the impact of the proposed PRAP on the County and its taxpayers. It appears that the State has opted to minimize the cost to the generator (GM) at the expense of the taxpaying public, who according to the proposed PRAP will remain the owner of a hazardous waste management unit in perpetuity. The draft PRAP is misleading because the general public will not recognize the burden being placed on them with the proposed remedy.

RESPONSE 38: The PRAP, and now the ROD, recognized the potential for this impact and stated that the remedy would have to address potential increased costs to the County that may result from the material being left on County property. This is also discussed in Response 32 above.

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The following comments were received from the New York State Thruway Authority:

COMMENT 39: It should be noted that Factory Avenue is located just south of the proposed site location. For obvious highway safety reasons, access should be gained to the site using this road instead of the Thruway.

RESPONSE 39: With the exception of the small area located on the north bank of Ley Creek, designated as the B-19 area, it is not expected that access will be required to the Thruway property north of the Creek. To remediate the B-19 area, however, it most likely will be necessary to enter this area from the Thruway right of way. This will be a limited action and of short duration and it is recognized that all applicable Thruway rules and regulations to protect the users of the highway, as well as the roadway and infrastructure will have to be complied with by the remedial contractors.

COMMENT 40: The Syracuse Division will need to know GM's and their contractor's plans for any work on Thruway property in advance of remediation. GM and DEC should be told that any work on Thruway property will require an approved work permit from the Syracuse Division. Traffic control will need to be incorporated into the design if plans affect the Thruway traffic flow patterns in any way.

RESPONSE 40: The need for any permits will be brought to GM's attention and the Thruway Authority will be consulted during the design of the remedy.

COMMENT 41: Have the necessary endorsements been received from the Corps of Engineers and other DEC programmatic areas?

RESPONSE 41: All necessary Federal and State reviews, permits, etc. will be obtained prior to the implementation of the remedy.

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Appendix B

ADMINISTRATIVE RECORD

for the
Record of Decision

Ley Creek PCB Dredgings Site
Salina(T),Onondaga County
Site No. 7-34-044

The following documents constitute the Administrative Record for the Ley Creek PCB Dredgings Inactive Hazardous Waste Disposal Site Record of Decision.

Documents

Oil and PCB Sampling and Analyses of Portions of Ley Creek, EDI Engineering and Science (EDI), September 1985

Hydrogeological Investigation, EDI, September 1985

Hydrogeologic Investigation of Fill Area Along Ley Creek, O'Brien and Gere (OBG), April 1987

Field Investigation Report: Ley Creek Dredged Material Area, OBG, July 1989

Remedial Investigation Report: Ley Creek Dredged Material Area, OBG, September 1993

Feasibility Study Final Report: Ley Creek Dredged Materia Area Site, OBG, October 1996

NYSDEC Proposed Remedial Action Plan, February 1997

Correspondence

Fish and Wildlife Issues

Memorandum dated April 11, 1990 from Jack Cooper, NYSDEC Division of Fish and Wildlife (DFW) to Steven Scharf, NYSDEC Division of Hazardous Waste Remediation (DHWR), Re: Ley Creek Site

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Inter-Office Memo (handwritten) dated March 5, 1993 from Jack Cooper, DFW to Bob Schick, DHWR, Re: Ley Creek Site

Memorandum dated August 16, 1994 from Jack Cooper, DFW to Steve Scharf, DHWR, Re: Ley Creek Fish and Wildlife Impact Analysis September 1993

Memorandum dated December 6, 1995, from Emmy Thomee, DFW to Steve Scharf, DHWR, Re: GM Proposal for Remediation of Ley Creek PCB Dredgings

Memorandum dated January 30, 1997 from Gina Ferreira, U.S. Environmental Protection Agency (USEPA), ERRD, PSB, Technical Support Team to Alison Hess, USEPA Remedial Project Manager, ERRD, SPB, Sediments Projects/Caribbean Team, Re: Hazard Quotient Calculations for Terrestrial Wildlife at the Ley Creek PCB Dredgings Site

Health Issues

Letter dated January 13, 1994, from Ron Heerkens of the New York State Department of Health (NYSDOH) to Robert Schick of the NYSDEC, DHWR

Letter dated April 8, 1994, from Ron Heerkens of the NYSDOH to Robert Schick of the NYSDEC, DHWR

Letter dated February 21, 1995, from Ron Heerkens of the NYSDOH to Steven Scharf of the NYSDEC, DHWR

Notice of Deferral of Groundwater and Sediment Remedy for the Ley Creek Site

Letter dated January 14, 1994, from Robert Schick of the NYSDEC, DHWR to William Kochem, General Motors - Inland Fisher Guide Division

PRAP Comments

Letter dated March 7, 1997, from David Coburn, of the Onondaga County, Office of the Environment to Robert Schick of the NYSDEC, Division of Environmental Remediation (DER). Included by reference in this letter were the following:

> Letter dated September 25, 1996, from Nicholas Pirro, Onondaga County Executive to Robert Davies of the NYSDEC Division of Environmental Enforcement (DEE)

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- Letter dated September 30, 1996, from David Coburn, of the Onondaga County Office of the Environment, to Robert Davies of the NYSDEC, DEE

Letter dated March 10, 1997 from William Kochem of General Motors to Robert Schick of the NYSDEC, DER

Letter dated March 10, 1997 from Robert S. McEwen, Jr. of Nixon, Hargraves, Devans and Doyle, on behalf of the Syracuse China and Pfaltzgraff Companies, to Robert Schick of the NYSDEC, DER

An undated and unsigned fax from the New York State Thruway Authority received by the NYSDEC on March 12, 1997

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