DECLARATION STATEMENT - RECORD OF DECISION

Dewey Loeffel Inactive Hazardous Waste Disposal Site
Operable Unit 3
Towns of Nassau and Schodack, Rensselaer County, New York
Site No. 442006

January 2002

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Operable Unit 3 of the Dewey Loeffel class 2 inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law. The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

Operable Unit 3, which is the subject of this Record of Decision, consists of several areas which were contaminated with PCB as a result of the surface flow of contaminants from the Loeffel disposal site prior to its encapsulation in 1983-84.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Dewey Loeffel inactive hazardous waste site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing 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 significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for Operable Unit 3 of the Dewey Loeffel site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Alternative D, Removal of contaminated sediments in Tributary T11A of the Valatie Kill and in Area 28 of the Valatie Kill, with Monitored Natural Attenuation for Nassau Lake and the remainder of the Valatie Kill.

The components of the remedy are as follows:

- implementation of the Mead Road Pond IRM;

- removal of contaminated sediments from Tributary T11A of the Valatie Kill;
- removal of PCB contaminated sediments from Area 28 of the Valatie Kill;
- monitored natural attenuation of the Valatie Kill and Nassau Lake;
- implementation of an inspection and maintenance plan for the Nassau Lake dam; and
- implementation of a long-term monitoring plan to determine if the remedy meets the remedial goals for the site.

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.

Jan. 3, 2002
Date

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

TABLE OF CONTENTS

SECTION			PAGE
1:	Summary of the Record of Decision		1
2:	Site Location and Description		2
3:	Site History		4
	3.1	Operational/Disposal History	4
	3.2	Remedial History	6
4:	Current Status		7
	4.1	Summary of Remedial Investigation	9
	4.2	Interim Remedial Measures	13
	4.3	Summary of Human Exposure Pathways	14
	4.4	Summary of Environmental Exposure Pathways	14
5:	Enforcement Status		15
6:	Summary of the Remediation Goals		16
7:	Summary of the Evaluation of Alternatives		16
	7.1	Description of Remedial Alternatives	17
	7.2	Evaluation of Remedial Alternatives	30
8:	Summary of the Selected Remedy		38
	8.1	Northwest Drainage Ditch, Low-lying Area, and Mead Road Pond Area	38
	8.2	T11A, the Valatie Kill, and Nassau Lake	38
9:	Highlights of Community Participation		42

Figures

- Site Location Map ..... Fig. 1
- Location Map for Northwest Drainage Ditch, Low-lying Area and Mead Road Pond ..... Fig. 2
- Graph of PCB concentrations in Fish - Nassau Lake ..... Fig. 3
- Graph of PCB concentrations in Fish - Nassau Lake ..... Fig. 4
- Graph of PCB concentrations in Fish in T11A in 1996 ..... Fig. 5
- Graph of PCB concentrations in Fish in the Valatie Kill 1979-97 .. Fig. 6

Tables - Table 1A: Nature and Extent of Contamination
Table 1B: PCB Mass identified in Operable Unit 3
Table 2: Remedial Alternative Costs
Table 3: Preliminary Cost Estimate for Remediation of T11A and the Valatie Kill

Appendices - Appendix A: Responsiveness Summary
- Appendix B: Administrative Record

RECORD OF DECISION

Dewey Loeffel Site
Operable Unit 3
Towns of Nassau and Schodack, Rensselaer County
Site No. 4-42-006
January 2002

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at Operable Unit 3 of the Dewey Loeffel class 2 inactive hazardous waste disposal site (Site). As more fully described in Sections 3 and 4 of this document, the use of the site from 1952 to 1968 by the Loeffel Waste Oil Removal and Service Company as a private scavenger service and disposal facility for waste materials and later as a waste oil transfer station resulted in the disposal of a number of hazardous wastes, including solvents, waste oils, PCBs, scrap materials, sludges, and solids at the site. Some of these hazardous wastes were released or have migrated from the site to surrounding areas, including the Northwest Drainage Ditch, the Low-Lying Area, Mead Road Pond, the Mead Road Pond Spoil Banks, Tributary 11 A ("T11A") of the Valatie Kill, the Valatie Kill, and Nassau Lake.

These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- significant environmental damage associated with the releases of PCB from the site to the surface waters of the state;
- The releases of PCBs materially contribute to the need to recommend that human consumption of fish from Nassau Lake and the Valatie Kill be limited.
- The presence of hazardous waste in Operable Unit 3 of the Dewey Loeffel site has significantly increased the risk to the public health due to the consumption of fish from Nassau Lake and the Valatie Kill.

In order to restore Operable Unit 3 of the Dewey Loeffel site to pre-disposal conditions to the extent feasible and authorized by law, but at a minimum to eliminate or mitigate the significant

threats to the public health and/or the environment that the hazardous waste disposed at the site has caused, the following remedy was selected:

Completion of the Interim Remedial Measure to remove PCB contaminated soils and sediments from Mead Road Pond, the spoil banks adjacent to Mead Road Pond, the Low-Lying Area, and the Northwest Drainage Ditch; removal of PCB contaminated sediments in T11A; removal of PCB contaminated sediments in Area 28 of the Valatie Kill; appropriate site restoration activities in areas disturbed by the remedial activities; implementation of a long-term monitoring program; performance of remedy reviews to determine if the remedial goals are being met, and an inspection program to ensure that the dam which impounds Nassau Lake continues to do so, with the appropriate dam maintenance work as needed.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site, in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Dewey Loeffel site is a 19.6 acre inactive hazardous waste disposal site located in the Town of Nassau in southern Rensselaer County, New York (Figure 1). The Village of Nassau, New York is approximately four miles to the southwest.

Operable Unit 3, which is the subject of this Record of Decision, consists of several areas which were contaminated with PCB as a result of the surface flow of contaminants from the Loeffel disposal site prior to its encapsulation in 1983-84. These areas are:

-the Northwest Drainage Ditch, which was the primary surficial drainage from the Loeffel disposal site to the northwest. It extends along the north side of Mead Road to the west, where it enters Mead Road Pond;

-the Low-Lying Area, which is a small wetland area that received runoff from the Northwest Drainage Ditch during times of high flow;

-Mead Road Pond, which is a small impoundment approximately 200 yards west of the western end of the Loeffel disposal site that received drainage from the disposal site;

-the Mead Road Pond Spoil Banks, which consist of soil/sediment that was removed from Mead Road Pond in the past, and are located on the slope to the south of Mead Road Pond along Mead Road;

-Tributary 11 A ("T11A") of the Valatie Kill, a small stream formed by the discharge from Mead Road Pond which leads approximately 1700 feet to the Valatie Kill (the actual map designation is T10, but is referenced in the site reports as T11A);

–the Valatie Kill, a stream which extends from north of China Hill Road (upgradient of the site) south past the confluence of T11A a distance of approximately 2.7 miles into Nassau Lake;

-Nassau Lake, a small (173 acre) man-made lake which was formed as an impoundment of the Valatie Kill.

The remedial action designated by NYSDEC as Operable Unit 1 was the implementation of the cap and slurry wall encapsulation remedy for the disposal site which was implemented in1983-84. For Operable Unit 2 (the disposal site and the associated groundwater contamination) NYSDEC has determined that an upgraded water management system must be installed at the disposal site, as well as the groundwater recovery and treatment program for the bedrock groundwater contamination beneath, and to the south of, the disposal site. (See the "Record of Decision, Dewey Loeffel Site, Operable Unit 2, Town of Nassau, Rensselaer County, Site Number 4-42-006", January 2001 for a description of this remedy.)

The Dewey Loeffel disposal site is located in a low area between two wooded hills with peak elevations of 876 and 778 feet above mean sea level (MSL). Topography in the area generally slopes downward from east to west. Elevations in the immediate vicinity of the site range from approximately 610 to 660 feet above MSL.

Current surface drainage on the Dewey Loeffel disposal site is controlled by a series of drainage swales built into the vegetated landfill cap and side drainage around the edge of the landfill cap. From the disposal site, surface water flows into tributaries and streams which are part of the Nassau Lake drainage basin, a subpart of the Valatie Kill drainage basin.

The majority of surface water drains from the Loeffel site to the northwest (the "Northwest Drainage System") toward Mead Road Pond (see Figure 1). Water exiting Mead Road Pond flows via a small stream, the T11A tributary, which in turn flows into the Valatie Kill. The Valatie Kill flows in a south westerly direction to Nassau Lake, approximately 2.7 miles downstream. Surface water flowing to the southeast (the "Southeast Drainage System") from the Loeffel Site flows to a low-lying area and to a small unnamed tributary (undesignated by New York State) and then into Valley Stream. Valley Stream flows through Smith Pond and discharges to Nassau Lake. The Southeast Drainage System was not significantly impacted by hazardous wastes from the site, based upon the results of sediment and biota sampling.

Surface waters are described in detail in the "Loeffel Site Environs Feasibility Study (FS) Report: Surface Water, Sediment, and Biota" (BBL 1997a) and previously completed Loeffel Site environs Remedial Investigation (RI) documents (BBL, 1993, 1995, and 1997b).

SECTION 3: SITE HISTORY

3.1 Operational/Disposal History

The Loeffel site was used from 1952 to 1968 by the Loeffel Waste Oil Removal and Service Company as a private scavenger service and disposal facility for waste materials and later as a waste oil transfer station. The disposal and oil transfer site facilities consisted of a lower (1 acre) and upper (5 acres) lagoon in the western and central portion of the site, a 25 by 150 foot, 6 foot deep oil pit in the east central part of the site, four above-ground oil storage tanks (30,000 gallons each), and a drum disposal area located in the southern and eastern portions of the site (O'Brien & Gere), 1981). Miscellaneous drums, construction debris, and junk automobiles were also present along the southeastern end of the site (O'Brien & Gere, 1981).

During disposal operations, hazardous waste materials were reportedly collected in 55 gallon drums and transported to the site. The contents of reusable drums were dumped either into the oil pit or into the upper lagoon. Unusable drums were dumped either on the perimeter of the upper lagoon or in the drum burial area. Drums were later covered with soil. The pit was used to store and separate recyclable oily wastes. The non-recyclable contents were pumped into the lagoon or onto the ground surface. Waste materials were reportedly also burned during facility operations.

NYSDEC has estimated that a total of 37,530 tons of waste materials were transported from General Electric (GE) manufacturing facilities to the Loeffel Waste Oil Removal and Service Company facility. NYSDEC has estimated that 8,790 tons of waste materials were deposited at the site from other industrial sources, including Bendix Corporation (now a part of Honeywell) and Schenectady Chemicals, Inc. (now Schenectady International) (O'Brien & Gere, 1981). The waste materials disposed at the site included solvents, waste oils, PCBs, scrap materials, sludges, and solids.

In 1966, the State of New York initiated legal action against the Loeffel Waste Oil Removal and Service Company, leading to a 1968 New York State Supreme Court Order and Judgment against the company to stop discharges from the disposal facility and to perform remedial activities. In October 1970, the Loeffel Waste Oil Removal and Service Company retained an engineering firm, C.T. Male and Associates, to develop remedial measures for the Loeffel waste disposal facility. Remedial actions consisted of covering and grading the drum disposal area, oil pit, and lagoon with soil, and construction of a system of drainage channels around the facility to control surface water runoff entering the disposal facility area. These remedial measures were completed in 1974. Fill material was reportedly excavated from a borrow pit southwest of the disposal

facility. The Loeffel Waste Oil Removal and Service Company reportedly continued to use the Site from 1974 to 1980 as a transfer station for waste oils utilizing the four 30,000 gallon above-ground storage tanks. According to Mr. Dewey Loeffel, these waste oils were transported to the facility from operations owned by a number of industrial companies and other entities.

On September 23, 1980, GE entered into an agreement with the NYSDEC, known as the Seven Sites Agreement (Agreement). The Agreement required GE, among other things, to perform field investigations to determine the conditions at the Loeffel Site and the nature and extent of hazardous wastes. Following these field investigations, GE submitted an engineering report, which included the data collected during the field investigations, identified alternative remedial programs, and recommended a remedial program from these alternatives. The report also included provisions for (1) maintenance and monitoring of the remediated site, (2) collection, treatment and disposal of any leachate generated at the remediated site, where appropriate, and, (3) the physical security of the remediated site (NYSDEC, 1980). Following approval of the final site remediation plan by NYSDEC, GE was required to pay NYSDEC $2.33 million, representing its estimated share of the costs of implementing the construction elements of the remedial program and the costs of operating, maintaining, and monitoring the site.

The engineering report prepared by O'Brien & Gere Engineers, Inc. (O'Brien & Gere) on behalf of GE recommended an in-place containment alternative consisting of a low permeability cap with vegetative cover, surface water drainage swales, and a perimeter cutoff wall constructed to till or bedrock (O'Brien & Gere, 1981). During the design phase, it was determined that the cut-off wall should be extended to the bedrock and that a leachate collection system should be installed. The final remedial plans and specifications were submitted to NYSDEC in January 1983 for its subsequent use (O'Brien & Gere, 1983). Approximately 500 surface drums were removed from the eastern end of the site in preparation for the remedial program. The four 30,000 gallon above-ground storage tanks were also removed that year [Camp, Dresser and McKee (CDM), 1985].

The NYSDEC approved remedy was constructed from September 1983 to November 1984. In October 1985, a final site inspection was conducted. Since the final inspection, operation, maintenance, and monitoring activities have been the responsibility of NYSDEC.

In 1989, the State of New York brought suit against GE in the U.S. District Court for the Northern District of New York seeking to hold GE liable for cleanup costs and natural resource damages relating to impacts of hazardous substances that had migrated from the disposal site prior to construction of the cap and slurry wall. Subsequently, an RI Work Plan, a Sampling and Analysis Plan, and a Health and Safety Plan were developed on GE's behalf by BBL and submitted for NYSDEC review (BBL, 1992). NYSDEC approved these in July 1992. On September 23, 1992, GE and the State of New York entered into a Judicial Stipulation, under which GE agreed to conduct a Remedial Investigation (RI) in accordance with the approved work

plan. GE also agreed to conduct a Feasibility Study (FS) to assess potential remedial alternatives.

3.2 Remedial History

1974 - Remedial actions consisting of covering and grading the drum disposal area, oil pit and lagoon and construction of a system of drainage ditches were completed.

1982 - CECOS International, Inc. removed approximately 500 surface drums from the eastern portion of the site. The four 30,000 gallon above-ground tanks were also removed.

1984 - Construction of the containment system at the site is completed. The containment system consists of a slurry wall, a clay cap, and a leachate collection system. This remedial effort is referred to as Operable Unit 1.

The slurry wall is a trench, excavated from land surface down into unweathered bedrock, which was backfilled with a mixture of the excavated soil and bentonite clay. The slurry wall has a hydraulic conductivity which is significantly lower than the surrounding soils, which impedes groundwater flow into and out of the disposal site.

The clay cap was constructed over the entire disposal site, and ranges from 4.5 to 6 feet in thickness. The cap is designed to impede the recharge of rainfall and snowmelt into the disposal site.

The leachate collection system consists of a series of drainage pipes which were installed in the western third of the disposal site before the site was graded and capped. The pipes drain to a collection tank. Periodically, leachate is removed from the tank by a state contractor for appropriate off-site disposal.

The remedial action designated by NYSDEC as Operable Unit 1 was the implementation of the cap and slurry wall encapsulation remedy for the disposal site which was implemented in1983-84. For Operable Unit 2 (the disposal site and the associated groundwater contamination) NYSDEC has determined that an upgraded water management system must be installed at the disposal site, as well as the groundwater recovery and treatment program for the bedrock groundwater contamination beneath, and to the south of, the disposal site. A Record of Decision was issued in January 2001 which identified Disposal Site Hydraulic Containment with Downgradient Recovery and Treatment as the selected remedies for Operable Unit 2.

SECTION 4: CURRENT STATUS

In response to a determination that the disposal of hazardous waste at the site presents a significant threat to human health and the environment, GE has completed a Remedial Investigation and Feasibility Study (RI/FS).

The Commissioner may find that hazardous waste disposed at the site constitutes a significant threat to the environment if, after reviewing the available evidence and considering the factors the Commissioner deems relevant set forth in 6 NYCRR 375-1.4(b), the Commissioner determines that the hazardous waste disposed at the site or coming from the site results in, or is reasonably foreseeable to result in,

- a bioaccumulation of contaminants in flora or fauna to a level that causes, or that materially contributes to, significant adverse ecotoxicological effects in flora or fauna or leads, or materially contributes, to the need to recommend that human consumption be limited (6 NYCRR 375-1.4[a][1][iii]);

- a determination by NYSDOH or by the Agency for Toxic Substances and Disease Registry, where the site is near private residences, recreational facilities, public buildings or property, school facilities, places of work or worship, or other areas where individuals or water supplies may be present, that the presence of hazardous waste on a site poses a significantly increased risk to the public health (6 NYCRR 375-1.4[a][1][vi]);

- significant environmental damage (6 NYCRR 375-1.4[a][2]).

In making a finding as to whether a significant threat to the environment exists, the Commissioner may take into account any or all of the following matters, as may be appropriate under the circumstances of the particular situation:

(1) the duration, areal extent, or magnitude of severity of the environmental damage that may result from a release of hazardous waste (6 NYCRR 375-1.4[b][1]);

(2) type, mobility, toxicity, quantity, bioaccumulation, and persistence of hazardous waste present at the site (6 NYCRR 375-1.4[b][2]);

(3) manner of disposal of the hazardous waste (6 NYCRR 375-1.4[b][3]);

(4) nature of soils and bedrock at and near the site (6 NYCRR 375-1.4[b][4]);

(5) groundwater hydrology at and near the site (6 NYCRR 375-1.4[b][5]);

(6) location, nature, and size of surface waters at and near the site (6 NYCRR 375-1.4[b][6]);

(7) levels of contaminants in groundwater, surface water, air, and soils at and near the site and areas known to be directly affected or contaminated by waste from the site, including, but not limited to, contravention of: ambient surface water standards set forth in Part 701 or 702 of this Title; ambient groundwater standards set forth in Part 703 of this Title; drinking water standards set forth in Subpart 5-1 and Part 170 of Title 10 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR 375-1.4[b][7]);

(8) proximity of the site to private residences, recreational facilities, public buildings or property, school facilities, places of work or worship, and other areas where individuals may be present (6 NYCRR 375-1.4[b][8]);

(9) the extent to which hazardous waste and/or hazardous waste constituents have migrated or are reasonably anticipated to migrate from the site (6 NYCRR 375-1.4[b][9]);

(10) the proximity of the site to areas of critical environmental concern (as, wetlands or aquifers) (6 NYCRR 375-1.4[b][10]);

(11) the potential for wildlife or aquatic life exposure that could cause an increase in morbidity or mortality of same (6 NYCRR 375-1.4[b][11]);

(12) the integrity of the mechanism, if any, that may be containing the hazardous waste to assess the probability of a release of the hazardous waste into the environment (6 NYCRR 375-1.4[b][12]); and

(13) the climatic and weather conditions at and in the vicinity of the site (6 NYCRR 375-1.4[b][13]).

(For a more detailed discussion respecting NYSDEC's "significant threat" determinations and the rationale for NYSDEC's use of the above, and other, factors, in its decision making, see the Draft Regulatory Impact Statement for 6 NYCRR Part 375, dated April 1991, at pages 19 to 25; and the Hearing Report, Responsiveness Summary, and Revision to the Draft Regulatory Impact Statement for 6 NYCRR Part 375, dated March 1992, at pages II-7 to II-19.)

The bases for the determination that the site poses a significant threat to human health and the environment are founded on the following:

The hazardous wastes present contribute to or result in:

- contravention of the surface water standard for PCBs which was promulgated to protect humans who may consume fish (for concentrations of contaminants in surface water at the site, see Table 1);

- contravention of the surface water standard for PCBs promulgated to protect pisciverous wildlife (for concentrations of contaminants in surface water at the site, see Table 1);

- a bioaccumulation of contaminants in flora or fauna to a level that causes, or that materially contributes to, significant adverse ecotoxicological effects in flora or fauna or leads, or materially contributes, to the need to recommend that human consumption be limited (for concentrations of contaminants in fish, see Table 1).

- the potential for direct contact with PCB contaminated soil in the vicinity of Mead Road Pond.

The determination of significant threat associated with Operable Unit 3 of the Dewey Loeffel site is therefore based primarily on the significant environmental damage associated with impacts of PCBs released to the surface water system downgradient of the site, upon the need to recommend that human consumption of fish be limited due to releases of PCB to the surface water system downgradient of the site, and upon the significantly increased risk to public health.

4.1 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. GE conducted the RI under NYSDEC oversight in four phases. Reports were submitted to New York State by GE in 1993, 1995, and 1997.

The RI included the following activities:

- collection and analysis of surface water samples in the vicinity of the disposal site (including the Northwest Drainage Ditch, the Low-Lying Area and Mead Road Pond), in T11A, in the Valatie Kill, and in Nassau Lake; see Figure 2 for a map showing the locations of the Northwest Drainage Ditch, the Low-lying Area and Mead Road Pond;

- collection and analysis of sediment and biota samples in the southeast drainage.

- collection and analysis of sediment samples in the vicinity of the disposal site, in T11A, in the Valatie Kill, and in Nassau Lake;

- collection and analysis of soil samples in the vicinity of the disposal site, including from the spoil banks adjacent to Mead Road Pond;

- performance of sediment survey programs to determine sediment thickness in various locations between the disposal site and Nassau Lake;

- collection and analysis of suspended sediment samples from Nassau Lake;

- collection of geotechnical data in Nassau Lake;
- collection of biota samples in the surface water system between the disposal site and Nassau Lake, and in Nassau Lake;
- collection of air samples for PCB in the vicinity of Nassau Lake;
- collection of soil samples from flood prone areas in the vicinity of Nassau Lake.

To determine which media (surface water, sediment, etc.) contain contamination at levels of concern, the RI analytical data were compared to environmental Standards, Criteria, and Guidance (SCGs). Surface water SCGs identified for Operable Unit 3 of the Dewey Loeffel site are based on NYSDEC Ambient Water Quality Standards and Guidance Values. NYSDEC soil cleanup guidelines for the protection of groundwater (TAGM 4046), and background conditions were used as SCGs for soil.

Based on the results of the remedial investigation in relation to the SCGs and potential public health and environmental exposure routes, additional remediation work is required to supplement the previous remedial actions taken at the site. More complete information can be found in the Remedial Investigation (RI) reports for the site.

For results of chemical analyses of sediment, soil and water, see Table 1. Soil chemical concentrations are reported in parts per million (ppm). Concentrations in water are reported in parts per trillion (ppt). For comparison purposes, SCGs are given for each medium as appropriate.

4.1.1 Nature of Contamination

Operable Unit 3

Operable Unit 3 of the Dewey Loeffel site is contaminated with PCBs which were released from the disposal site prior to the its encapsulation.

As described in the RI Report, numerous biota, sediment, soil and surface water samples were collected at the site to characterize the nature and extent of contamination.

Soil samples were collected from the spoil banks in the vicinity of Mead Road Pond, and from near-shore areas along the Valatie Kill. Surface water and sediment samples were collected from the Northwest Drainage Ditch, Low-lying Area, Mead Road Pond, the spoil banks adjacent to Mead Road Pond, in T11A of the Valatie Kill, in and adjacent to the Valatie Kill between the

T11A confluence and Nassau Lake, and at Nassau Lake. Fish samples were collected from T11A, the Valatie Kill, and Nassau Lake.

The investigations confirmed that the Loeffel disposal site was the original source of PCB found in the surface water system leading away from the site. The disposal site is no longer acting as a source of PCB to the surface water system. The remaining sources of PCB to the surface waters and biota in the system are the sediments in the Northwest Drainage Ditch, Mead Road Pond, T11A, the Valatie Kill, and in Nassau Lake. The soils adjacent to Mead Road Pond (the spoil banks) also are sources of PCB to the surface water system.

The transport of PCB through the surface water system between the disposal site and Nassau Lake is driven primarily by suspended sediment migration during high flow events. Concentrations of PCB in surface water in the Valatie Kill are typically below 82 parts per trillion, and below the detection limit of 22 parts per trillion in Nassau Lake.

Air sampling done at locations immediately adjacent to the shoreline of Nassau Lake did not contain detectable concentrations of PCB.

It does not appear that PCB is migrating in the Valatie Kill downstream of Nassau Lake, based upon water samples taken at the lake outlet.

The PCB concentrations in fish obtained from fish sampling since 1979 do not indicate any significant pattern of increase or decrease over time in Nassau Lake. PCB concentrations vary significantly over time, with both increases and decreases from one sampling event to the next. PCB concentrations in yellow perch and largemouth bass from the mid-1990s are similar to the PCB concentrations in these species in the late 1970's and early 1980's.

The Southeast Drainage has not been significantly impacted by releases of PCB from the site, based upon biological samples collected from that area.

4.1.2 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in the soil and groundwater and compares the data with the applicable SCGs. The following are the media which were investigated and a summary of the findings of the investigation.

Soil/Sediment

The PCB contamination in soil exists primarily in the vicinity of the Mead Road Pond spoil banks, where sediments from Mead Road Pond were deposited in the past.

The PCB contamination in sediment extends from the area immediately adjacent to the disposal site, through Mead Road Pond, T11A and the Valatie Kill into Nassau Lake.

Soil and sediment samples were collected from the Northwest Drainage Ditch adjacent to the disposal site, in the Low-lying Area, in Mead Road Pond, in T11A, in the Valatie Kill, and in Nassau Lake. In general, the PCB concentrations were highest in the areas near Mead Road Pond, and declined with distance downstream. The PCB concentrations in the Northwest Drainage Ditch ranged from 0.24 to 34 ppm; in the low-lying area from 0.94 to 2.3 ppm; in Mead Road Pond from 0.12 to 170 ppm; in T11A from 0.2 to 71 ppm (averaging 21.1 ppm); in the Valatie Kill (except for Area 28) from non-detect to 8.3 ppm (averaging 1.67 ppm); in Area 28 from non-detect to 40 ppm (averaging 9.13); and in Nassau Lake from non-detect to 9.6 ppm, (averaging 2.3 ppm). PCB concentrations found in sediment samples in the Southeast Drainage ranged from non-detect to 1.4 ppm (averaging 0.54 ppm). PCB concentrations found in twenty five soil samples taken in flood-prone areas around Nassau Lake ranged from non-detect to 2.2 parts per million.

Table 1A contains a summary of the soil/sediment PCB data. Table 1B presents a breakdown of the percentage of the total PCB mass in Operable Unit 3 by each impacted area.

Surface Water

Surface water samples were collected from the Northwest Drainage Ditch, the Low-lying Area, Mead Road Pond, T11A, the Valatie Kill, and Nassau Lake. All of the samples were analyzed for PCBs.

The PCB contamination in surface water extends in the surface water system from the area immediately adjacent to the disposal site (the Low-lying Area, Northwest Drainage), through Mead Road Pond, T11A and the Valatie Kill into Nassau Lake.

In general, the PCB concentrations were highest in Mead Road Pond, and declined with distance downstream. The PCB concentrations in Mead Road Pond ranged from 71 to 260 parts per trillion; in the Northwest Drainage Ditch from non-detect to 82 parts per trillion; in the Low-lying Area all samples were non-detect; in the Valatie Kill the PCB concentrations ranged from non-detect (ND) at the detection limit of 22 parts per trillion to 82 parts per trillion; and in Nassau Lake none of the samples had a detectable concentration of PCB in water at 22 parts per trillion.

See Table 1 for a summary of the surface water PCB data and a list of the surface water standards for PCB.

Fish

Fish samples have been collected and analyzed for PCB since 1979, and has included at various times Nassau Lake, the Valatie Kill, T11A, and several other nearby locations in the drainage basin.

The overall geographic distribution of PCB in fish closely resembles the distribution of PCB in the sediments and surface water. The highest concentrations of PCB in fish are found in the areas with the highest sediment concentrations.

There is no consistent pattern of increase or decrease in fish PCB concentrations in Nassau Lake. Figures 3 and 4 show the PCB concentrations in fish from Nassau Lake since 1979. Figure 5 shows the PCB concentrations in fish from T11A in 1996, and Figure 6 shows the PCB concentrations in fish in the Valatie Kill at Mead Road (downstream of T11A) from 1979 to 1997.

In the southeast drainage, PCB concentrations in fish ranged from 0.024 to 0.07 ppm.

Air

A total of twelve air samples were obtained from three locations in the immediate vicinity of the Nassau Lake shoreline, and three samples were obtained from a reference location at Burden Lake. No detectable concentrations of PCB were found, at a detection limit of 0.004 micrograms per cubic meter.

4.2 Interim Remedial Measures

Interim Remedial Measures (IRMs) are discrete sets of activities to address both emergency and non-emergency site conditions, which can be undertaken without extensive investigation or evaluation, to prevent, mitigate, or remedy environmental damage attributable to a site.

NYSDEC has recently overseen GE's implementation of an IRM in the spring and summer of 2001 which included removal of contaminated soils and sediments in the surface water drainage system near the Dewey Loeffel disposal site and Mead Road Pond.

The IRM activities began in May 2001, and were substantially completed by November 2001. A total of 4900 cubic yards of soils and sediments were removed and disposed in properly permitted offsite disposal facilities. This area will be monitored during the site long-term monitoring program to ensure that the IRM was successful in meeting the remedial goals for the site. The reported cost of the IRM was $2 Million.

See Figure 2 for a map showing the IRM area.

4.3 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. A more detailed discussion of the health risks related to the disposal site and associated groundwater contamination can be found in Section 7 of the RI Report.

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.

Completed pathways which exist at the site include:

- Incidental Ingestion, Inhalation, and Dermal Contact: This route of exposure is completed. For areas in the vicinity of the disposal site (Northwest Drainage Ditch, Mead Road Pond and spoil banks, and in T11A) there may be unacceptable dermal contact exposures to persons who frequent these areas. For the vicinity of the Valatie Kill and Nassau Lake, this route of exposure is completed, but there is minimal risk due to low exposure concentrations. This limited exposure does not warrant any advisory against residential or recreational use of the Valatie Kill or Nassau Lake.

- Direct Ingestion: This route of exposure is completed. People who consume fish from T11A, the Valatie Kill, or Nassau Lake would be exposed to unacceptable levels of PCB.

4.4 Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures presented by the site.

Initial source conditions for exposure of PCBs (primarily of the more highly chlorinated forms as found in Aroclor 1260) to biota (fish and invertebrates) are associated with the northwest drainage area leading into Mead Road Pond and into Tributary 11A. Water concentrations are elevated, presumably reflecting the relatively high sediment/soil concentrations. Since this type of PCB is more highly bioaccumulable than less chlorinated forms, the subsequent levels found in the biota are greatly enhanced. As distance from the source increases, concentrations in various media including fish decrease through the Valatie Kill and into Nassau Lake. There may be a strong seasonal aspect to the fish data with higher concentrations observed in the spring indicating the potential for a water driven transport mechanism during periods of high flow such as spring runoff. Since fish and other biota respond to changes in exposure regimes in a short period of time, observed concentrations are highly variable through the years.

SECTION 5: ENFORCEMENT STATUS

The following is a chronology of the enforcement actions related to the Loeffel site.

In an agreement between GE and NYSDEC signed on September 24, 1980, and covering seven inactive hazardous waste disposal sites in northeastern New York State ("Seven Site Agreement"), among other things, GE committed to: (1) perform a field investigation at and around the Loeffel Site to determine the areal and vertical extent of contamination; (2) prepare an engineering report summarizing all data developed in the course of the field investigation and then recommending a remedial program; and (3) present a preliminary plan and schedule for implementation of the remedial program, and provide an estimate of the cost of such implementation.

GE subsequently hired a consulting engineering firm to conduct an investigation and prepare the various reports required by the Seven Site Agreement. After NYSDEC approved GE's final plan for implementation of a remedial program, GE paid NYSDEC $2.33 million towards remedial construction, monitoring and maintenance of the site, and obtained a qualified release from further legal liability. The State collected approximately $550,000 from two other entities whose wastes were disposed of at the site: Bendix Corporation, and Schenectady Chemicals, Inc. The total amount spent by NYSDEC for the initial cap and slurry wall installation remedy was $2,553,387.

In exchange for preparing the required reports and paying NYSDEC, GE was provided a release from any "claim, demand, remedy, or action whatsoever" against GE which NYSDEC may have "relating to or arising from GE's disposal of waste at the Loeffel site". However, the consent order included a "reservation of rights" clause which preserved NYSDEC's rights to sue GE with regard to off-site impacts, as follows:

> Nothing herein shall be construed as barring, diminishing, adjudicating, and in any way affecting... [NYSDEC's] right to bring any action of any kind with respect to areas or resources that may have been affected as a result of the release or migration of hazardous waste from such sites.

In 1989, relying on the above-referenced reservation of rights, the State filed suit against GE under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S. C. 9601 *et seq.*, as amended (the federal Superfund law), and State common law, based on the State's determination that PCBs and other wastes had migrated from the Loeffel Site prior to its encapsulation. The lawsuit seeks a court order requiring GE to (1) investigate the nature and extent of contamination, propose a remedy and then implement the final cleanup plan selected by the State; (2) reimburse the State for its costs; and (3) pay the State for damages to natural resources (e.g. fish, wildlife, surface and groundwater) that remain injured after remediation, as

well as for temporary losses of resource use before all site remediation and restoration is completed.

In 1992, the parties entered into a stipulation approved in federal court obligating GE to: (1) conduct an expansive investigation of the extent of contamination in the drainage ways leading away from the Loeffel Landfill; and then (2) recommend a remedial program. See Section 3.1 for a discussion of GE's implementation of those obligations.

The State will also pursue a Natural Resources Damages claim for injuries to State trust resources, both for past injuries and for residual injuries which may exist after remediation.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR 375-1.10. The overall remedial goal is to restore the site to pre-disposal conditions, to the extent feasible and authorized by law. At a minimum, the selected remedy must eliminate, or mitigate to the extent practicable through the proper application of scientific and engineering principles, all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site.

The goals selected for this site, in conformity with applicable Standards, Criteria, and Guidance (SCGs), are:

- Eliminate, to the extent practicable, unacceptable human health exposures to PCBs present in soils/sediments in the surface water system downgradient of the site.
- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to the waters of the state.
- Eliminate, to the extent practicable, unacceptable human exposures to PCBs related to potential human consumption of fish and other wildlife, and eliminate to the extent practicable the need to recommend that human consumption of wildlife be limited.
- Eliminate, to the extent practicable, unacceptable wildlife exposures to PCBs related to consumption of contaminated biota by pisciverous (fish eating) wildlife.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial

alternatives for the Operable Unit 3 of the Dewey Loeffel site were identified, screened, and evaluated in a Feasibility Study and addendum. These evaluations are presented in the report entitled "Loeffel Site Environs, Feasibility Study Report: Nassau Lake Drainage Basin", BBL, May 1998", and Loeffel Site Environs, Revised Feasibility Study Report: Nassau Lake Drainage Basin", BBL, June 1999.

Six areas which have been impacted by past releases of PCB from the Dewey Loeffel disposal site (Northwest Drainage Ditch, or NWDD; Low-lying Area, or LLA; Mead Road Pond area, or MRP; Tributary T11A of the Valatie Kill, or T11A; the Valatie Kill, or VK; and Nassau Lake, or NL) were treated separately for the development and evaluation of alternatives in the Feasibility Study documents.

7.1 Description of Alternatives

The evaluation of remedial alternatives in this ROD will be presented in two sections. The first section will be the evaluation of remedial alternatives for NWDD, LLA, and MRP. The second section will be the evaluation of remedial alternatives for T11A, VK and NL.

7.1.1 Description of Alternatives for Northwest Drainage Ditch, Low-lying Area, and Mead Road Pond Area

Some of the areas impacted by past releases of PCB from the Dewey Loeffel disposal site (NWDD, LLA, and MRP) have been the subject of an Interim Remedial Measure (IRM) by GE, performed between May 2001 and November 2001. The IRM consisted of the removal of PCB contaminated soils and sediments in the following areas (see Figure 2) and quantities:

-Mead Road Pond, including inlet, outlet, and spoil banks (3550 cubic yards removed)
-Northwest Drainage Ditch (1100 cubic yards removed)
-Low-lying Area (250 cubic yards removed)

The total volume of soils and sediments removed was 4900 cubic yards, with a total mass of 9600 tons. NYSDEC estimates that the removals in the vicinity of Mead Road Pond resulted in the removal of approximately 165 pounds of PCB; the removals in the Northwest Drainage Ditch resulted in the removal of approximately 46 pounds of PCB; and the removals in the Low-lying Area resulted in the removal of approximately 3 pounds of PCB. This amount of PCB removed represented approximately 44.7 percent of the PCB mass in Operable Unit 3.

The removals of soils and sediments was accomplished by excavation in the dry after diversion of the impacted drainage ways. The removed soils and sediments were disposed in appropriate, permitted off-site disposal facilities.

Monitoring was performed during the work to ensure that releases of contaminants are minimized, and to protect both site workers and the public. Any waters generated in the project were treated prior to discharge. Air monitoring was conducted during the project in accordance with NYSDEC guidance to determine when the appropriate dust control measures will be undertaken. The reported cost of the IRM was $2 Million.

7.1.2 Description of Alternatives for T11A, Valatie Kill, and Nassau Lake

After consideration of the various remedial alternatives that were developed and evaluated in the Feasibility Study prepared by GE for T11A, VK, and NL, the NYSDEC has developed for evaluation, in this document, seven combinations of these remedial alternatives developed and evaluated in the Feasibility Study. These comprehensive remedial scenarios are described below, and are denoted Alternatives A through G.

Combinations of alternatives which would have involved active remediation in downstream areas without upstream remediation were not considered, as they would have poor long-term effectiveness due to recontamination of the remediated area from continuing PCB sources upstream in the surface water system.

Each of these remedial alternatives is presented and evaluated with the assumption that the IRM (described above in section 7.1.1) will be completed according to the approved work plan, and result in the complete removal of all soils and sediments which exceed 1 ppm of PCBs in the areas addressed by the IRM. However, if the results of the work do not meet these goals of the IRM, then NYSDEC will conduct (or request that GE conduct) a revised evaluation of remedial alternatives for the areas to be addressed by the IRM and may propose a revised remedy for these areas.

For those alternatives below which would result in untreated hazardous waste constituents remaining at the site, a post remedial monitoring program and remedial reviews would be conducted to determine if the remedy is protective of human health and the environment and meets the goals of the selected remedy.

Components of the monitoring program will be designed to determine, in a statistically significant manner, if the advisories related to human consumption of fish contaminated with PCBs can be lifted or reduced. If after remedy implementation the advisories can not be lifted or reduced within a reasonable period of time, (likely three to five years), then an evaluation will be conducted to determine whether or not there are additional feasible remedial actions which will allow for the advisories to be lifted or reduced.

In a similar manner, the remedial review will also evaluate whether the other goals of the remedial program have been met, and whether or not there are feasible remedial actions which will result in the other remedial goals being met.

In order to determine which additional remedial actions would be implemented if the goals of this remedy are not met, a Feasibility Study would be performed in accordance with applicable guidance. Selection of the appropriate additional remedial actions would follow the NYSDEC remedy selection process, including public comment.

Remedial Alternatives for T11A, the Valatie Kill, and Nassau Lake

Alternative A

No Action

Alternative A serves as a baseline for evaluation of the other action-related remedial alternatives in the detailed evaluation. Alternative A would not involve the implementation of any active remedial responses.

Present Worth:	$0
Capital Cost:	$0
Annual O&M:	$0
Time to Implement	n/a

Alternative B

No Further Action (Natural Attenuation and Monitoring)

Alternative B would not involve the implementation of any active remedial responses. Natural processes alone would be relied upon to attenuate the impacts of contaminants in the surface water and sediment. These natural processes, in T11A and the Valatie Kill, could include the mixing of clean sediments from upstream unimpacted areas; in Nassau Lake, these processes could include the slow burial of higher contaminated sediments with relatively cleaner sediments from upstream. The degree of improvement due to these natural processes is directly related to the degree of upstream source control, as the most important factor in this improvement is the PCB concentration in the sediments coming into the Valatie Kill and into Nassau Lake.

The monitoring program which would be implemented would include gathering the following data: annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake; annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake; annual suspended sediment sampling in Nassau Lake; and surface water sampling, especially during high flow events, in T11A, in the Valatie Kill, and in Nassau Lake. This monitoring program would be designed to measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media.

Institutional controls that would be in place under this alternative would include advisories against consumption of fish from the impacted portion of the Valatie Kill and from Nassau Lake, and an inspection program to ensure that the dam which impounds Nassau Lake will continue to do so for the foreseeable future. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

Present Worth*:	$986,000
Capital Cost	$0
Annual O&M (monitoring):	$100,000 for 5 years; $50,000 thereafter
Time to Implement	n/a

*The present worth calculation is used to present costs over time in today's dollars.

Alternative C:

Partial Removal and Partial Armoring of T11A, with Monitored Natural Attenuation for the Valatie Kill and Nassau Lake

This alternative targets the removal of sediments within two sections of Tributary T11A where samples containing PCB concentrations at or greater than 50 ppm were taken. Within these areas, sediments would be excavated across the entire width of the tributary to a depth of about 2 feet, which, based on current data, encompasses the depth of PCB containing material in these areas. In all, approximately 150 cy of sediments would be excavated, stabilized (as necessary), and transported off site for ultimate disposal at an appropriately permitted facility. Based upon data collected during the RI, the maximum PCB concentration observed in materials that would remain in Tributary T11A following implementation of this alternative would be 35 ppm.

Access to the removal areas would be from the MRP outlet and from the top of the ridge above T11A, and, given the difficult terrain, would require the use of specialized excavation equipment (e.g., vacuum-assisted removal equipment) capable of lifting the fine grained sediments in these areas. Prior to material removal, construction of a temporary access road on the ridge would be necessary, and construction of an access road would require placement of a geotextile and gravel, and clearing of trees and vegetation along the top of the ravine. To minimize the potential for downstream migration of materials being displaced from the excavation areas, removal of targeted materials would be conducted under dry or low-flow conditions. Although flow is predominantly intermittent, appropriate flow diversion and erosion control measures would be put in place, as necessary.

Following sediment removal, excavated areas would be backfilled with clean soil to within approximately 6 inches of the existing grade. To prevent erosion of the new bed materials, appropriately sized erosion control stones would be placed over the clean soils to approximate

the existing grade of Tributary T11A. At the completion of work, the temporary access road would be removed and the area restored.

No active remedial responses would be included in this alternative for the Valatie Kill or Nassau Lake. Natural processes would be relied upon to attenuate the impacts of contaminants in the surface water and sediment after the remedial work in T11A. These natural processes, in the Valatie Kill, could include the mixing of clean sediments from upstream unimpacted areas; in Nassau Lake, these processes could include the slow burial of higher contaminated sediments with relatively cleaner sediments from upstream. The degree of improvement due to these natural processes is directly related to the degree of upstream source control, as the most important factor in this improvement is the PCB concentration in the sediments coming into the Valatie Kill and into Nassau Lake.

The monitoring program which would be implemented would include gathering the following data: annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake; annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake; annual suspended sediment sampling in Nassau Lake; and surface water sampling, especially during high flow events, in T11A, in the Valatie Kill, and in Nassau Lake. This monitoring program would be designed to measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media.

Institutional controls that would be in place under this alternative would include advisories against consumption of fish from the impacted portion of the Valatie Kill and from Nassau Lake, and an inspection program to ensure that the dam which impounds Nassau Lake will continue to do so for as long as it is necessary, to contain the PCB contaminated sediments in Nassau Lake. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

Present Worth:	$1,376,000
Capital Cost:	$390,000
Annual O&M (monitoring):	$100,000 for 5 years; $50,000 thereafter
Time to Implement	1 year

Alternative D:

Removal of contaminated sediments in T11A and removal of contaminated sediments in Area 28 of the Valatie Kill, with Monitored Natural Attenuation for the remainder of the Valatie Kill and Nassau Lake

This alternative would include the removal of all fine-grained PCB contaminated sediments in T11A using the techniques described in Alternative C, along with the removal of contaminated sediments in one portion of the Valatie Kill. This would abate T11A as a potential source of

PCB which could compromise the natural attenuation processes within the Valatie Kill and Nassau Lake.

The remedial activities in the Valatie Kill would be the removal of specific soils and the section of stream bed containing the highest concentrations of PCBs in the Valatie Kill. This removal would entail the excavation and off-site disposal of approximately 2,500 cy of soils and sediments from the streambed from the former impoundment at Area 28, a designated wetland. Within the specified removal areas, soils and the streambed would be mechanically excavated to depths ranging from 1 to 3 feet to achieve a concentration of 1 ppm PCB. Before removal activities, standing water within the proposed excavation areas would be removed (as necessary), treated on site, and discharged back into the Valatie Kill downstream of the excavation. To minimize the potential for downstream migration of materials being displaced from the excavation areas, removal of the contaminated sediments in Area 28 would be conducted under low-flow conditions. Appropriate flow diversion and erosion control measures would be put in place, as necessary. Additionally, some vegetative clearing would be performed to facilitate removal activities.

Restoration within the active portions of the Valatie Kill channel would consist of backfilling the excavation areas with clean soils followed by the placement of appropriately sized erosion control stone (e.g., cobbles). All other areas would be restored with a combination of clean soils, topsoil, and seed/tree plantings, as appropriate.

An estimated 38.3 pounds of PCB would be removed as a result of the sediment removals from T11A and Area 28 under this alternative; combined with the IRM activities, this alternative would result in the removal of approximately 52 % of the PCB mass in Operable Unit 3.

Natural processes would be relied upon to attenuate the impacts of remaining contaminants in the surface water and sediment after the remedial work in T11A and at Area 28 of the Valatie Kill. These natural processes, in the portion of the Valatie Kill outside of Area 28, could include the mixing of clean sediments from upstream unimpacted areas; in Nassau Lake, these processes could include the slow burial of higher contaminated sediments with relatively cleaner sediments from upstream. The degree of improvement due to these natural processes is directly related to the degree of upstream source control, as the most important factor in this improvement is the PCB concentration in the sediments coming into the Valatie Kill and into Nassau Lake.

The monitoring program which would be implemented would include gathering the following data: annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake; annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake; annual suspended sediment sampling in Nassau Lake; and surface water sampling, especially during high flow events, in T11A, in the Valatie Kill, and in Nassau Lake. This monitoring program would be designed to measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media.

Institutional controls that would be in place under this alternative would include advisories against consumption of fish from the impacted portion of the Valatie Kill and from Nassau Lake, and an inspection program to ensure that the dam which impounds Nassau Lake will continue to do so for as long as it is necessary, to contain the PCB contaminated sediments in Nassau Lake. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

Present Worth:	$2,856,000
Capital Cost:	$1,870,000
Annual O&M (monitoring):	$100,000 for 5 years; $50,000 thereafter
Time to Implement	1 year

Alternative E:

Removal of contaminated sediments in T11A and the Valatie Kill, with Monitored Natural Attenuation for Nassau Lake

This alternative would include the removal of contaminated sediments in T11A using the techniques described in Alternative C, along with the total removal of contaminated sediments in the Valatie Kill.

Under this alternative, approximately 1 foot of material would be removed from in-stream areas of the VK between the Tributary T11A confluence and Nassau Lake. Given the relatively low water depths throughout most of the VK, the use of barge-mounted dredging methods (e.g., mechanical clamshells or hydraulic dredges) is not possible. Mechanical excavation in-the-dry would be the only method that could effectively remove materials. Since the relevant portion of the VK is nearly 2.7 miles, excavation of materials (approximately 35,000 cy) would be conducted in stages from upstream to downstream. Removal operations would be initiated by hydraulically isolating specific areas with sheet piling or other hydraulic isolation measures. Standing water would be removed from these areas, treated, and returned to the VK downstream. Sediments would be mechanically excavated and transported to a nearby staging area using conventional construction equipment (e.g., backhoes and trucks). The destabilized sediments/soils remaining in the excavation would be capped or armored to mitigate erosion and transport of sediment and residual PCBs from the excavation. To accommodate sediment removal operations along the length of the VK, access agreements would be required from affected property owners; extensive areas of vegetation adjacent to the VK would be cleared and grubbed; and multiple staging areas and temporary access roads would have to be constructed.

An estimated 45.3 pounds of PCB would be removed as a result of the sediment removals from T11A and the Valatie Kill under this alternative; combined with the IRM activities, this alternative would result in the removal of approximately 54 % of the PCB mass in Operable Unit 3.

Natural processes would be relied upon to attenuate the impacts of contaminants in the surface water and sediment after the remedial work in T11A and the Valatie Kill. These natural processes in Nassau Lake could include the slow burial of higher contaminated sediments with relatively cleaner sediments from upstream. The degree of improvement due to these natural processes is directly related to the degree of upstream source control, as the most important factor in this improvement is the PCB concentration in the sediments coming into Nassau Lake.

The monitoring program which would be implemented would include gathering the following data: annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake; annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake; annual suspended sediment sampling in Nassau Lake; and surface water sampling, especially during high flow events, in T11A, in the Valatie Kill, and in Nassau Lake. This monitoring program would be designed to measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media..

Institutional controls that would be in place under this alternative would include advisories against consumption of fish from the impacted portion of the Valatie Kill and from Nassau Lake, and an inspection program to ensure that the dam which impounds Nassau Lake will continue to do so for as long as it is necessary, to contain the PCB contaminated sediments in Nassau Lake. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

Present Worth:	$8,207,000
Capital Cost:	$7,221,000
Annual O&M (monitoring):	$100,000 for 5 years; $50,000 thereafter
Time to Implement	1 year

Alternative F:

Removal of contaminated sediments in T11A, the Valatie Kill, and Nassau Lake

This alternative would include the removal of contaminated sediments in T11A and the Valatie Kill as described in Alternative E, along with the removal of contaminated sediments from Nassau Lake.

Alternative F includes removal of PCB-containing materials from NL and natural recovery with institutional controls and monitoring. To address PCB-containing materials in NL, two subalternatives were assessed as follows:

- Subalternative F1 involves the hydraulic dredging of approximately 560,000 cy (assumes 2 feet depth of removal) of sediment from NL; and
- Subalternative F2 involves the mechanical dredging of approximately 560,000 cy of sediment from NL.

Subalternative F1

Under Subalternative F1, sediments in NL would be removed by hydraulic dredging, by the use of a barge and cutterhead dredge. Dredging would be preceded by operations that would remove debris from the area. The cutterhead applies mechanical force to the sediment to dislodge the sediments so they can be pumped. A dredging rate of approximately 2,000 gpm is assumed. At this dredging production rate, two 10-to 12-inch cutterhead dredges would be used, each pumping at 1,000 gpm. Based on the operating depth of the dredge, approximately 75 percent of the lake bottom sediments could be removed through this method. An additional 15 percent could be removed through mechanical dredging, but approximately 10 percent of the lake bottom sediments would potentially remain, as the barge may not be able to reach the sediments. During remedial design, an evaluation would be made to determine if specialized dredging equipment or techniques were available that would allow for the removal of the remaining 10 percent of lake bottom.

To minimize sediment migration to other areas during dredging, each area would be bounded by a physical barrier such as silt curtains.

Temporary pipelines would be used to transport the dredged sediment/water slurry to a shore-base location for processing. Processing would include dewatering the slurry at a staging area near the lake and disposing of the sediments off site at an appropriately permitted facility. Water generated from the dewatering operations would be collected, treated on site, and discharged back into NL.

Based on the sediment settling data presented in the RI, water generated by sediment dewatering would contain a solids concentration of approximately 1 gram per liter (g/L). Consequently, the water would be treated by filtration (i.e., sand filter) and activated carbon before discharge back into NL. The solids captured in the filtration system would be collected during filter cleaning operations (e.g., back washing) and pumped to the dewatering system, if necessary.

The total area required for a dewatering facility is approximately 10 acres. Finding a suitable site in the mostly developed area around Nassau Lake may be difficult.

At a rate of 2,000 gpm with 10 percent solids, the time required to remove the 560,000 cy of sediment would be approximately seven years, including two years for design. Two years of lead time may be necessary to acquire land and to design and construct the dewatering facilities.

Dewatered material would be loaded onto dump trucks for transport to an appropriately permitted facility. Assuming a reduction of the in-situ volume of 560,000 cy by 50 percent due to dewatering, the volume of dewatered material to be disposed of is approximately 280,000 cy (or 600,000 tons at a density of 2.2 tons/cy). As there is a weight limit of 10 tons on the roads

around NL, at best, a 2-ton truck would be able to transport no more than 8 tons per trip. Therefore, over the duration of the project, a minimum of approximately 75,000 truckloads of sediment would be transported through the area.

Subalternative F2

Under Subalternative F2, sediments in NL would be removed by mechanical dredging. Specifically, the following activities would take place: The mechanical dredging process for NL would require a crane, equipped with a 5-cy environmental clamshell bucket, stationed on a work barge to remove sediments and place them onto a delivery barge. The delivery barge would have the capability to transport approximately 200 cy.

As was the case under Subalternative F1, approximately 10 percent of the lake bottom would remain because the barge would potentially not be able to reach the shallowest 1 foot of the lake. During remedial design, an evaluation would be made to determine if specialized dredging equipment or techniques were available that would allow for the removal of the remaining 10 percent of lake bottom.

Dredged sediments would be transported by barge to the loading dock, where they transferred for disposal at an appropriately permitted facility off-site.

It is anticipated that the time frame for implementing mechanical dredging would be similar to that of hydraulic dredging, resulting in similar transport, staging, and sediment placement/dewatering scenarios. It should be noted that Subalternative F2 would not require a large primary settling lagoon, as in Subalternative F1. The primary settling would occur in the barge over several days, requiring the docking of up to eight barges concurrently during settling and before pumping the settled material to the dewatering facility or low-lying area. The dewatering facility or low-lying area could be located at the same places described under Subalternative F1. As is the case with Subalternative F1, with a 50 percent reduction in volume due to settling and dewatering, approximately 75,000 truckloads would be transported through the area.

An estimated 292 pounds of PCB would be removed as a result of the sediment removals from T11A (28.5 pounds), the Valatie Kill (16.8), and Nassau Lake (238 pounds)under these (F1 and F2) alternatives; combined with the IRM activities, this alternative would result in the removal of all available PCB mass in Operable Unit 3.

The monitoring program which would be implemented would include gathering the following data: annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake; annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake; annual suspended sediment sampling in Nassau Lake; and surface water sampling, especially during high flow events, in T11A, in the Valatie Kill, and in Nassau Lake. This monitoring program would be designed to

measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media.

Institutional controls that would be in place under this alternative would include advisories against consumption of fish from the impacted portion of the Valatie Kill and from Nassau Lake, until the advisories can be lifted after remediation.

Subalternative F1:	
Present Worth Cost:	$172,617,000
Capital Cost:	$172,400,000
Annual O&M (monitoring):	$100,000
Time to Implement	up to 7 years

Subalternative F2:	
Present Worth Cost:	$147,274,000
Capital Cost:	$147,057,000
Annual O&M (monitoring):	$100,000
Time to Implement	up to 7 years

Alternative G:

Removal of contaminated sediments in T11A and the Valatie Kill, with Capping of Nassau Lake sediments

This alternative would include the removal of contaminated sediments in the T11A and the Valatie Kill as described in Alternative E, with capping of the sediments in Nassau Lake.

Alternative G includes in-place containment of NL sediments with institutional controls and monitoring and natural recovery. The objective of isolating PCB-containing materials in-place is to enhance the natural recovery of fish and reduce the time over which the site-specific fish consumption advisory needs to remain in place. Two subalternatives, both designed to reduce surficial PCB levels and hence PCB levels in fish, were considered:

- Subalternative G1 involves the placement of a "thin cap" over NL sediments constructed by particle broadcasting, an approach more aptly described as enhanced natural recovery; and
- Subalternative G2 involves the construction of an approximately 20-inch-thick engineered cap.

In developing Alternative G, factors such as transportation and material staging limitations, rate of cover placement, and time to implement the process were considered. Transportation of the

geologic material would require truck travel to and from the stone quarry along Nassau/Averill Road to Gilmore-Colloton Park (or travel from another material source a greater distance away). Material would be staged at Gilmore-Colloton Park before being loaded onto a barge that would transport the material to the construction area, which would cover approximately 40,000 square feet at any one time. At the construction area, a crane stationed on a work barge would disperse the material into the lake and cover the bottom.

Subalternative G1

Under Subalternative G1, enhanced natural recovery would involve the addition of fine particles such as a silty sand to the water column and subsequent particle settling to form a layer with a design thickness of 2 inches. The design provides for some degree of biological isolation, although not complete isolation. Physical process activities of fish and burrowing organisms could still result in mixing of cap materials with sediments and resulting exposure to PCBs.

Since placement of the silty sand via particle broadcasting is not precise, it is assumed that 6 inches of capping material would be placed to achieve a minimum of a 2-inch cap thickness over the lake. This alterative would result in a permanent 2 to 6 inch reduction in water depth over most of the lake.

Particles of silty sand would be broadcast at, or near, the water surface from a barge and allowed to settle to the lake bottom. This clean material would cover and, to a certain extent, mix with the surface sediments to reduce surficial PCB concentrations, and would provide for the continued long-term reduction of surficial PCB concentrations through natural deposition. During particle broadcasting, a typical barge (e.g., 45 feet by 90 feet) would travel back and forth from the loading dock to the work area to allow adequate coverage of the lake bottom. A second barge would be located on site for the purpose of backup and reloading so that the particle broadcasting operation would occur continuously in the lake. Installation of the cap would be difficult in shallow areas of the lake near the shore, as the barge may not be able to reach these areas, or the cap installation would result in complete displacement of the water column, creating new dry land.

Particle broadcasting within the entire lake would be completed within three years once the necessary equipment is selected and mobilized. Approximately 140,000 cy of material would be placed at a rate of about 400 cy per day. One year may be required to get access to property and construct the staging area.

Subalternative G2

Subalternative G2, an engineered cap, involves the placement of layers of various geologic materials (e.g., clean silt, sand, gravel) over in-situ sediment. This would result in at least 565,000 cy (850,000 tons, assuming a density of 1.5 tons/cy) of geologic materials (sand and

gravel) placed in a nominal 2-foot layer over the 173-acre lake. Engineered caps are designed to isolate PCB-containing materials and reduce PCB bioavailability. They are more specifically designed to protect against chemical migration as well as to isolate burrowing organisms from PCB-containing sediment or cap material. EPA (1995) guidance on engineered capping indicates that a cap thickness of 20 inches assures restriction of direct contact of biota with the PCB-containing sediment, as well as the protection of surface water from chemical migration. The guidance also indicates that site-specific design analyses could show that thinner designs or composite designs may also achieve the design objectives. To achieve this 20-inch nominal layer thickness, approximately 24 inches of material would be placed on the lake bottom. This alterative would result in a permanent 20 inch reduction in water depth over most of the lake.

Subalternative G2, the engineered cap would include transport of materials by more than 100,000 two-ton truck trips with a maximum 8-ton load, given the 10-ton weight limit on Village of Nassau roads, and a staging area of 10 acres.

The placement of the capping material would be performed by a crane equipped with a clamshell stationed on a work barge. The crane would reach over to the material contained in the delivery barge, pick the material up, and transfer it to the lake bottom. The anticipated rate of material placement would be approximately 335 to 500 cy per day for this type of operation. However, the barges would be unable to reach the shallowest 1 foot of the lake, so approximately 10 percent of the lake bottom would remain uncovered by the capping material.

Cap materials, which would actually be specified in a final design, are currently assumed to be a sandy soil.

Considering a construction season of 180 days per year, such a project would take approximately eight years to complete.

An estimated 45.3 pounds of PCB would be removed as a result of the sediment removals from T11A and the Valatie Kill under this alternative; combined with the IRM activities, this alternative would result in the removal of approximately 54 % of the PCB mass in Operable Unit 3. An additional 238 pounds of PCB would be capped in Nassau Lake, representing 46 % of the PCB mass in Operable Unit 3.

The monitoring program which would be implemented would include gathering the following data: annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake; annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake; annual suspended sediment sampling in Nassau Lake; and surface water sampling, especially during high flow events, in T11A, in the Valatie Kill, and in Nassau Lake. This monitoring program would be designed to measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media.

Institutional controls that would be in place under this alternative would include advisories against consumption of fish from the impacted portion of the Valatie Kill and from Nassau Lake, and an inspection program to ensure that the dam which impounds Nassau Lake will continue to do so for the foreseeable future. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

Subalternative G1:	
Present Worth:	$20,576,000
Present Worth Capitol Costs:	$18,171,000
Present Worth O & M:	$986,000
Time to Implement:	up to 3 years
Subalternative G2:	
Present Worth:	$51,019,000
Present Worth Capitol Costs:	$38,206,000
Present Worth O & M:	$986,000
Time to Implement:	up to 8 years

7.2 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 presented below.

7.2.1. 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 A
This alternative would not meet SCGs for the foreseeable future. There would be no remedial work done to address the ongoing violations of SCGs.

Alternative B
This alternative would not meet SCGs for the foreseeable future. There would be no remedial work done to address the ongoing violations of SCGs.

Alternative C
This alternative would not meet SCGs for the foreseeable future. The remaining contaminated sediments in T11A and the Valatie Kill would continue to act as sources of PCB to the surface water system.

Alternative D
This alternative would reduce or eliminate in the T11A and Area 28 sediments as an ongoing source of PCB resulting in violations of SCGs, as the contaminated sediments in T11A and Area 28 would be removed. The remaining sediments in the Valatie Kill and Nassau Lake would continue to act as sources of PCB.

Alternative E
This alternative would reduce or eliminate the T11A and Valatie Kill sediments as an ongoing source of PCB resulting in violations of SCGs, as the contaminated sediments in T11A and the Valatie Kill would be removed. The remaining sediments in Nassau Lake would continue to act as sources of PCB.

Alternative F
This alternative would reduce or eliminate the T11A, Valatie Kill and Nassau Lake sediments as an ongoing source of PCB resulting in violations of SCGs, as the contaminated sediments in T11A, the Valatie Kill and Nassau Lake would be removed.

Alternative G
This alternative would reduce or eliminate the T11A, Valatie Kill and Nassau Lake sediments as an ongoing source of PCB resulting in violations of SCGs, as the contaminated sediments in T11A and the Valatie Kill would be removed, and the sediments in Nassau Lake capped.

7.2.2. 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.

Alternative A
This alternative would not be protective of human health and the environment. No remedial work would be done. An advisory against human consumption of fish from the impacted areas would be required for the foreseeable future.

Alternative B
This alternative would not be protective of human health and the environment. No remedial work would be done. An advisory against human consumption of fish from the impacted areas would be required for the foreseeable future.

Alternative C
This alternative would not be protective of human health and the environment. No remedial work would be done. An advisory against human consumption of fish from the impacted areas would be required for the foreseeable future.

Alternative D
This alternative would be protective for T11A, as the contaminants would be completely removed. This alternative may be protective in the Valatie Kill or Nassau Lake, as the upstream removals, combined with natural attenuation, may result in the remedy being protective.

Alternative E
This alternative would be protective for T11A and the Valatie Kill, as the contaminants would be completely removed. This alternative may be protective in Nassau Lake as the upstream removals, combined with natural attenuation, may result in the remedy being protective..

Alternative F
This alternative would be protective for T11A, the Valatie Kill, and Nassau Lake as the contaminants would be completely removed.

Alternative G
This alternative would be protective for T11A, the Valatie Kill, and Nassau Lake as the contaminants would be completely removed (in T11A and the Valatie Kill) and made partially (with particle broadcasting) or completely (with an engineered cap) unavailable to the environment in Nassau Lake.

7.2.3. 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/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternative A
This alternative has high short-term effectiveness, as no remedial work would be required.

Alternative B
This alternative has high short-term effectiveness, as no remedial work would be required.

Alternative C
This alternative has good short-term effectiveness. Work to access the T11A area would be required, but restoration of the area can be done effectively. There would be low adverse community impacts, and some low risks to workers. A limited amount of additional truck traffic would be required, due to the removals and armoring in T11A.

Alternative D
This alternative has good short-term effectiveness. Work to access the T11A area and Area 28 on the Valatie Kill would be required, but restoration of the areas can be done effectively. There would be low adverse community impacts, or risks to workers. A greater, but still moderate

amount of additional truck traffic would be required, due to the removals in T11A and Area 28 of the Valatie Kill . There would be some low risks to workers.

Alternative E
This alternative has good short-term effectiveness. Work to access the T11A area and the Valatie Kill would be required, but restoration of the areas can be done effectively. There would be moderate adverse community impacts, as some of the work along the Valatie Kill would be in the vicinity of homes. Additional truck traffic would be greater than for alternatives A through D, due to the removals in T11A and in the Valatie Kill. There would be some low risks to workers.

Alternative F
This alternative has moderate short-term effectiveness. Work to access the T11A area and the Valatie Kill would be required, but restoration of the areas can be done effectively. There would be some community impacts, as some of the work along the Valatie Kill and in Nassau Lake would be in the vicinity of homes. Additional truck traffic would be significantly greater than for alternatives A through E, due to the removals in Nassau Lake. There would be some low risks to workers. The recreational use of Nassau Lake would likely be significantly reduced during remedy implementation. The duration of the remedial work would be longest for the total removal alternatives.

Alternative G
This alternative has moderate to low short-term effectiveness. Work to access the T11A area and the Valatie Kill would be required, but restoration of the areas can be done effectively. There would be some community impacts, as as some of the work along the Valatie Kill and in Nassau Lake would be in the vicinity of homes. Additional truck traffic would be greater than for alternatives A through E, due to the transport of capping materials for Nassau Lake. There would be some low risks to workers. The magnitude of impacts in the vicinity of Nassau Lake would be greater, as the impacts on nearby residents and on recreational use of the lake would be the same, and the time to implement the remedy would be greater than for alternatives A through E.

7.2.4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. 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 A
This alternative would have poor long-term effectiveness. The remaining risks would be the same as at the present time, and there would be no controls on these risks.

Alternative B
This alternative would have poor long-term effectiveness. The remaining risk would be the same as at the present time, and the only controls on this risk would be the advisory against consumption of contaminated fish, and the monitoring of water, sediment and biota. These effectiveness of these controls would be directly related to how well the public follows the advisories against consuming fish from the Valatie Kill and Nassau Lake.

Alternative C
This alternative would have poor long-term effectiveness. There would be some risk reduction in the vicinity of T11A as some areas would no longer be a source of exposure to contaminants. The remaining risk related to the Valatie Kill and Nassau Lake will less than before remedial work; however, the remaining sources of PCB exposure may continue to pose unacceptable risk to people and animals that eat fish The remaining risk would be the same as at the present time in the Valatie Kill and Nassau Lake. The only controls on this risk would be the advisory against consumption of contaminated fish, and the monitoring of water, sediment and biota. These effectiveness of these controls would be directly related to how well the public follows the advisories against consuming fish from the Valatie Kill and Nassau Lake.

Alternative D
This alternative would have high long-term effectiveness for T11A. T11A would no longer be a source of exposure to contaminants. Area 28 in the Valatie Kill would no longer be a source of exposure to contaminants.

The long-term effectiveness of this alternative is uncertain for the rest of the Valatie Kill, and Nassau Lake, as it is difficult to accurately predict future PCB concentrations in sediment and fish in the Valatie Kill and Nassau Lake.

The remaining risk related to the Valatie Kill and Nassau Lake will less than before remedial work; however, the remaining sources of PCB exposure may continue to pose unacceptable risk to people and animals that eat fish. The control on this risk would be the advisory against consumption of contaminated fish, and the monitoring of water, sediment and biota. These effectiveness of these controls would be directly related to how well the public follows the advisories against consuming fish from the Valatie Kill and Nassau Lake.

Alternative E
This alternative would have moderate long-term effectiveness. T11A and the Valatie Kill would no longer be sources of exposure to contaminants.

The long-term effectiveness of this alternative is uncertain for Nassau Lake, as it is difficult to accurately predict future PCB concentrations in sediment and fish in Nassau Lake.

The remaining risk related to contaminants in Nassau Lake will be less than before remedial work; however, this remaining source of PCB exposure may continue to pose unacceptable risk to people and animals that eat fish. The control on this risk would be the advisory against consumption of contaminated fish, and the monitoring of water, sediment and biota. These effectiveness of these controls would be directly related to how well the public follows the advisories against consuming fish from Nassau Lake.

Alternative F
This alternative would have high long-term effectiveness. T11A, the Valatie Kill and Nassau Lake would no longer be a source of exposure to contaminants.

Alternative G
This alternative could have high long-term effectiveness for T11A and the Valatie Kill, which would no longer be sources of exposure to contaminants.

The long-term effectiveness of the capping of sediments in Nassau Lake would be good, as it would likely reduce (in the case of particle broadcasting) or eliminate (in the case of an engineered cap) these sediments as a source of exposure to contaminants. The long-term effectiveness of particle broadcasting is uncertain, as this technology is not well established. However, the cap would require substantial monitoring and maintenance to ensure that scour or boat traffic would not damage the cap. Also, there would likely be restrictions on boat use in the lake, both to protect the cap and because there would be large areas of the lake which would no longer have sufficient water depth to allow for boating.

7.2.5. 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 A
This alternative would not reduce the toxicity, mobility, or volume of wastes at the site.

Alternative B
This alternative would not reduce the toxicity, mobility, or volume of wastes at the site.

Alternative C
This alternative would result in a small reduction in the volume and mobility of the contaminated sediments in the portions of T11A that would be removed and landfilled.

Alternative D
This alternative would result in the reduction in the volume and mobility of the contaminated sediments in T11A and in Area 28 of the Valatie Kill that would be removed and landfilled.

Alternative E
This alternative would result in the reduction in the volume and mobility of the contaminated sediments in T11A and in the Valatie Kill, as more sediment would be removed and landfilled.

Alternative F
This alternative would result in the largest reduction in the volume and mobility of the contaminated sediments that would be removed and landfilled.

Alternative G
This alternative would result in the same reduction in the volume and mobility of the contaminated sediments that would be removed and landfilled in T11A and the Valatie Kill, and would reduce the mobility of the PCB contaminated sediments in Nassau Lake.

7.2.6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

Alternative A
This alternative has the highest implementability, as no work would be done.

Alternative B
This alternative has high Implementability, as no remedial work would be done. Monitoring is technically implementable. Personnel and materials are available. There would be little difficulty associated with approvals or access.

Alternative C
This alternative is implementable. Some work would be necessary to physically access T11A. Personnel and materials are available. Monitoring is technically implementable. It is anticipated that there will be little difficulty associated with approvals or access, but private property would need to be accessed.

Alternative D
This alternative is implementable. Some work would be necessary to physically access the length of T11A, and Area 28 of the Valatie Kill. Personnel and materials are available. Monitoring is technically implementable. It is anticipated that there will be little difficulty associated with approvals or access, but private property would need to be accessed

Alternative E
This alternative is implementable. Some work would be necessary to physically access T11A and the length of the Valatie Kill. Personnel and materials are available. Monitoring is

technically implementable. It is anticipated that there will be moderate difficulty associated with approvals or access, as additional private property would need to be accessed.

Alternative F
This alternative is implementable. Some work would be necessary to physically access T11A and the length of the Valatie Kill, as well as Nassau Lake. Personnel and materials are available. Monitoring is technically implementable. It is anticipated that there will be greater difficulty associated with approvals and access than for alternatives A through E, as additional private property would need to be accessed

Alternative G
The engineered cap sub-alternative for Nassau Lake has low Implementability. It is anticipated that there will be greater difficulty associated with approvals and access than for alternatives A through E, as additional private property would need to be accessed

The installation of a twenty-inch thick cap over the sediments in Nassau Lake would significantly reduce the water depth in much of the lake. It would be difficult to get approvals including Army Corps of Engineers permits.

The particle broadcasting cap sub-alternative is implementable, but this technology is not well established. . Personnel and materials are available. Monitoring is technically implementable. It is anticipated that there will be moderate difficulty associated with approvals or access, as additional private property would need to be accessed.

The Implementability of the T11A and Valatie Kill portions of this alternative would be the same as for alternatives E and F.

7.2.7. 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 can be used as the basis for the final decision. The costs for each alternative are presented in Table 2 and Table 3.

7.2.8. 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.

Public comments were received that were both supportive and opposed to the selected remedy. In general, public comments centered on the idea that the elements of the selected remedy were important to accomplish, but that the selected remedy was not perceived to be of sufficient scope to address the public's concerns.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Section 8.1

Northwest Drainage Ditch, Low-lying Area, and Mead Road Pond Area

The selected remedy for Northwest Drainage Ditch, Low-lying Area, and Mead Road Pond Area will, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at the site. The State believes that the remediation that will be in place, which is described in Section 7.1.1, would accomplish this objective provided that it will be completed according to the approved work plan, and result in the complete removal of all soils and sediments which exceed 1 ppm of PCBs in the areas addressed by the IRM.

Based on the results of the investigations and the IRMs that will have been performed at Northwest Drainage Ditch, Low-lying Area, and Mead Road Pond Area, the NYSDEC has selected No Further Action as the preferred remedial alternative for Northwest Drainage Ditch, Low-lying Area, and Mead Road Pond Area. If the IRM does not result in meeting the remediation goals for the site, then NYSDEC will conduct a revised evaluation of remedial alternatives for these areas and propose a revised remedy for these areas.

Section 8.2

T11A, the Valatie Kill, and Nassau Lake

For T11A, the Valatie Kill and Nassau Lake, based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC has selected Alternative D, removal of contaminated sediments in T11A and removal of contaminated sediments in Area 28 of the Valatie Kill, with monitored natural attenuation for the remainder of the Valatie Kill and Nassau Lake.

The basis for selecting Alternative D is:

-The areas in the vicinity of the site which will be addressed under the IRM will meet the remedial goals for the site once the IRM is completed.

-the selected remedy will result in T11A meeting the remedial goals for the site.

-the selected remedy will result in the elimination of the largest reservoir of contaminants in the Valatie Kill, at Area 28, which contains approximately 58 % of the PCB mass in the Valatie Kill.

-implementation of Alternative D may be sufficient to meet the remedial goals for the site in the entire Valatie Kill and Nassau Lake. (It is difficult to accurately predict future PCB concentrations in sediment and fish in the Valatie Kill and Nassau Lake after implementation of the upstream source control measures.)

-natural attenuation will aid in reducing PCB concentrations beyond the reductions which will result from the removals in the IRM area, in T11A, and in Area 28 in the Valatie Kill. The degree of improvement due to these natural processes is directly related to the degree of contaminated sediment removal upstream, as the most important factor in this improvement is the PCB concentration in the sediments entering the impacted portions of the Valatie Kill, and Nassau Lake.

-the selected remedy allows for consideration of future remedial work in Operable Unit 3 if the remedial goals for the site are not met. The monitoring in the selected remedy will be used to evaluate the efficacy of the remediation.

Alternative D will meet SCGs to the extent practicable and be protective of human health and the environment. Alternative D has good short-term effectiveness, reduces the mobility and volume of contaminants, is implementable, and is cost-effective.

Alternative D will have good long-term effectiveness for T11A, and may have good long-term effectiveness for the Valatie Kill and Nassau Lake.

Alternatives A, B, and C are not protective of human health and the environment, and will not comply with SCGs.

Alternatives E, F, and G may not be necessary to achieve the remedial goals for the site and therefore may not be cost effective.

The annual monitoring program, along with the institutional controls and reviews of the remedy will determine if additional remedial work will be appropriate and necessary to meet the remedial goals for the site.

Alternatives F and G would result in significant loss of use of the lake for recreational purposes, and would involve major disruption for lake residents.

Alternative E would result in the removal of an additional 7 pounds of PCB (1.4 % of the total), but would cost significantly more ($8.2 million versus $2.85 million); as such, Alternative E may not be cost effective.

Alternative G2 would have significant negative impacts due to the installation of the engineered cap in Nassau Lake, and may not be implementable due to access and regulatory issues.

The estimated present worth cost to implement the selected remedy is $2,856,000. The cost to construct the remedy is estimated to be $1,870,000, and the estimated present worth operation and maintenance (monitoring) cost is $986,000.

The elements of the selected remedy are as follows:

1. 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. Any uncertainties identified during the RI/FS would be resolved.

2. The NYSDEC approved Interim Remedial Measure (to remove contaminated soils and sediments from Mead Road Pond, the spoil banks adjacent to Mead Road Pond, the Low-lying Area, and the Northwest Drainage Ditch) will be completed.

3. The PCB contaminated sediments in T11A will be removed mechanically and disposed in a properly permitted facility off-site.

4. The PCB contaminated sediments in Area 28 of the Valatie Kill will be mechanically removed and disposed in a properly permitted facility off-site.

5. Appropriate site restoration activities will be done in the areas disturbed by the removals in T11A and the Valatie Kill.

6. Natural processes will be ongoing which may aid in the decrease of PCB concentrations in surface sediment and fish.

7. Since the remedy results in untreated hazardous waste constituents remaining in Operable Unit 3 of the Dewey Loeffel site, a long term monitoring program will be continued. Elements of the monitoring program include:

    - annual biota sampling in T11A, in the Valatie Kill, and in Nassau Lake, along with reference locations;
    - annual surficial sediment sampling in T11A, in the Valatie Kill and in Nassau Lake;
    - annual suspended sediment sampling in Nassau Lake;
    - surface water sampling, especially during high flow events, in the vicinity of the disposal site, in T11A, in the Valatie Kill, and in Nassau Lake.

This monitoring program will be designed to measure the concentrations of PCB in the various media (biota, sediment, water), and to determine what the long-term trends in the PCB concentrations are in these various media.

This program will allow the effectiveness of the remedy to be monitored and would be a component of the operation and maintenance for the site.

8. Institutional controls, although not considered active remedies, are still important in the consideration of site impacts. Therefore, use of fish consumption advisories against consumption of fish from the impacted portion of the Valatie Kill and Nassau Lake are included in the overall selected remedial approach.

9. An inspection program will be established to ensure that the dam which impounds Nassau Lake will continue to do so for as long as it is necessary to contain the PCB contaminated sediments in Nassau Lake. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

10. Remedial reviews will be conducted to determine if the remedy is protective of human health and the environment and meets the goals of the selected remedy.

    The monitoring program will be designed to determine, in a statistically significant manner, if the advisories related to human consumption of fish contaminated with PCBs can be lifted or reduced. If after five years the advisories can not be lifted or reduced, then an evaluation will be performed to determine whether or not there are additional feasible remedial actions which will allow for the advisories to be lifted or reduced.

    In a similar manner, the remedial review will also evaluate whether the other goals of the remedial program have been met, and whether or not there are feasible remedial actions which will result in the other remedial goals being met.

    In order to determine which additional remedial actions would be considered if the goals of this remedy are not met, a Feasibility Study would be performed in accordance with applicable guidance. Selection of the appropriate additional remedial actions would follow the NYSDEC remedy selection process, including public comment.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation 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 at Nassau Public Library and at the NYSDEC Central Office.

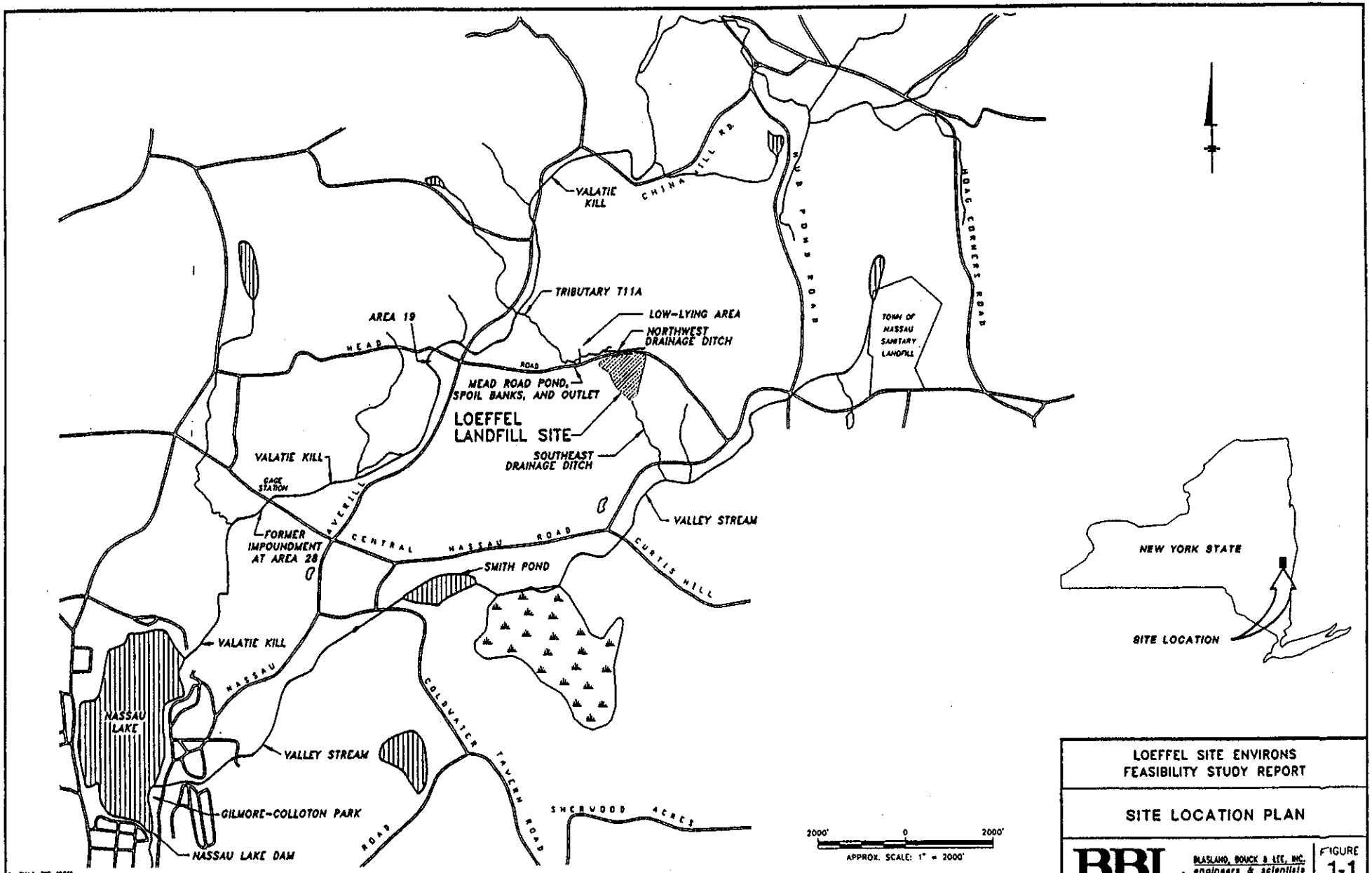
- A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.

- Public meetings were held at the St. Mary's Parish Hall in Nassau on April 19, 2001 and June 12, 2001 to present information on the site, remedial alternatives, and the proposed remedial alternative.

- The New York State Department of Health (NYSDOH) established, in June 2001, a working group to meet regularly with members of the public, local groups, and local government representatives to address health concerns. This process is ongoing, and includes exchanges of information as well as the initiation of health studies to be done by NYSDOH.

- In October 2001, a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Figure 1: Site Location Map



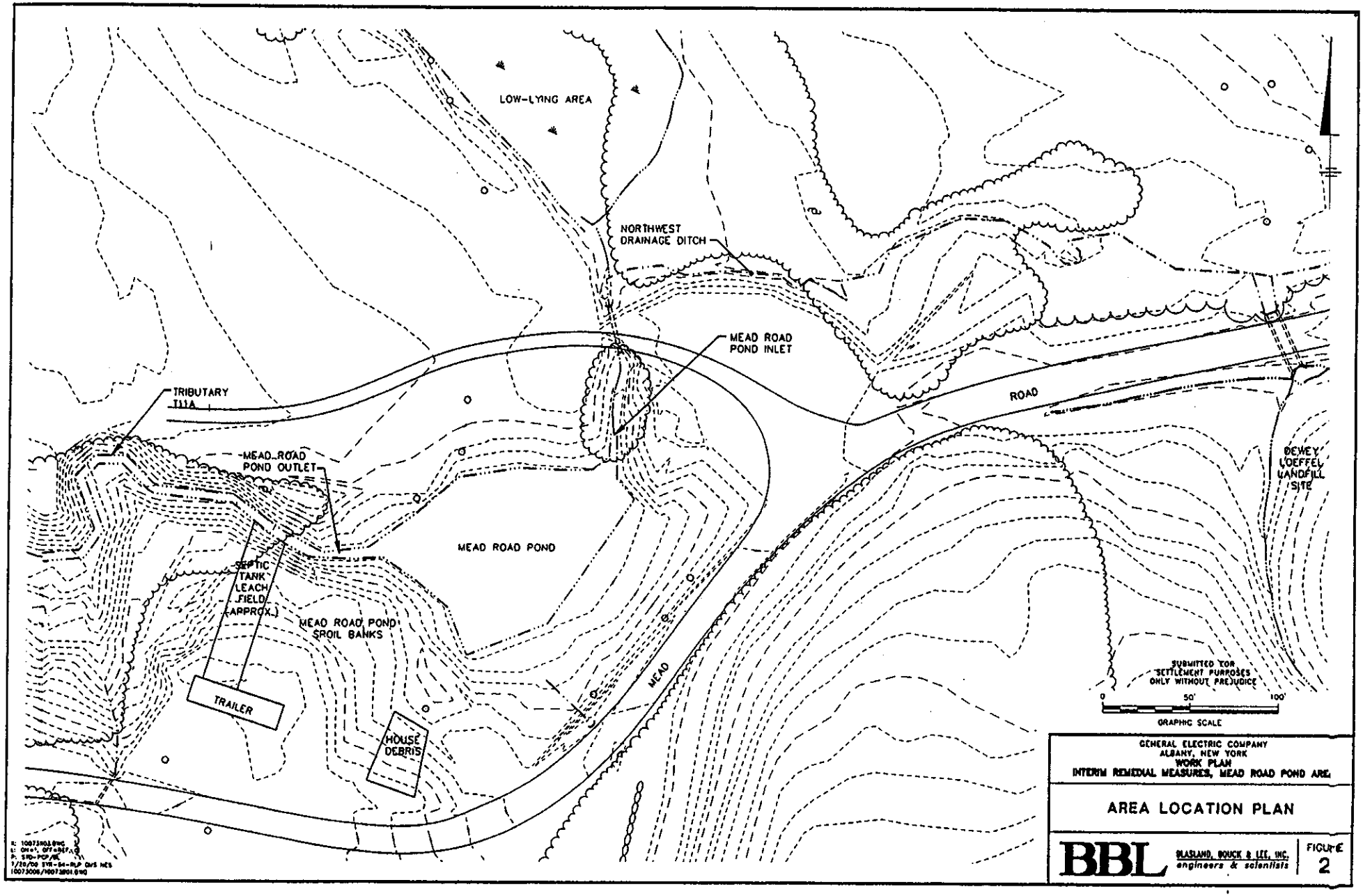
LOEFFEL SITE ENVIRONS
FEASIBILITY STUDY REPORT

SITE LOCATION PLAN

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 1-1

Figure 2: Location map for Northwest Drainage Ditch, Low-Lying Area, and Mead Road Pond



GENERAL ELECTRIC COMPANY
ALBANY, NEW YORK
WORK PLAN
INTERIM REMEDIAL MEASURES, MEAD ROAD POND ARE.

AREA LOCATION PLAN

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 2

Figure 3: PCB Concentrations in Fish - Nassau Lake

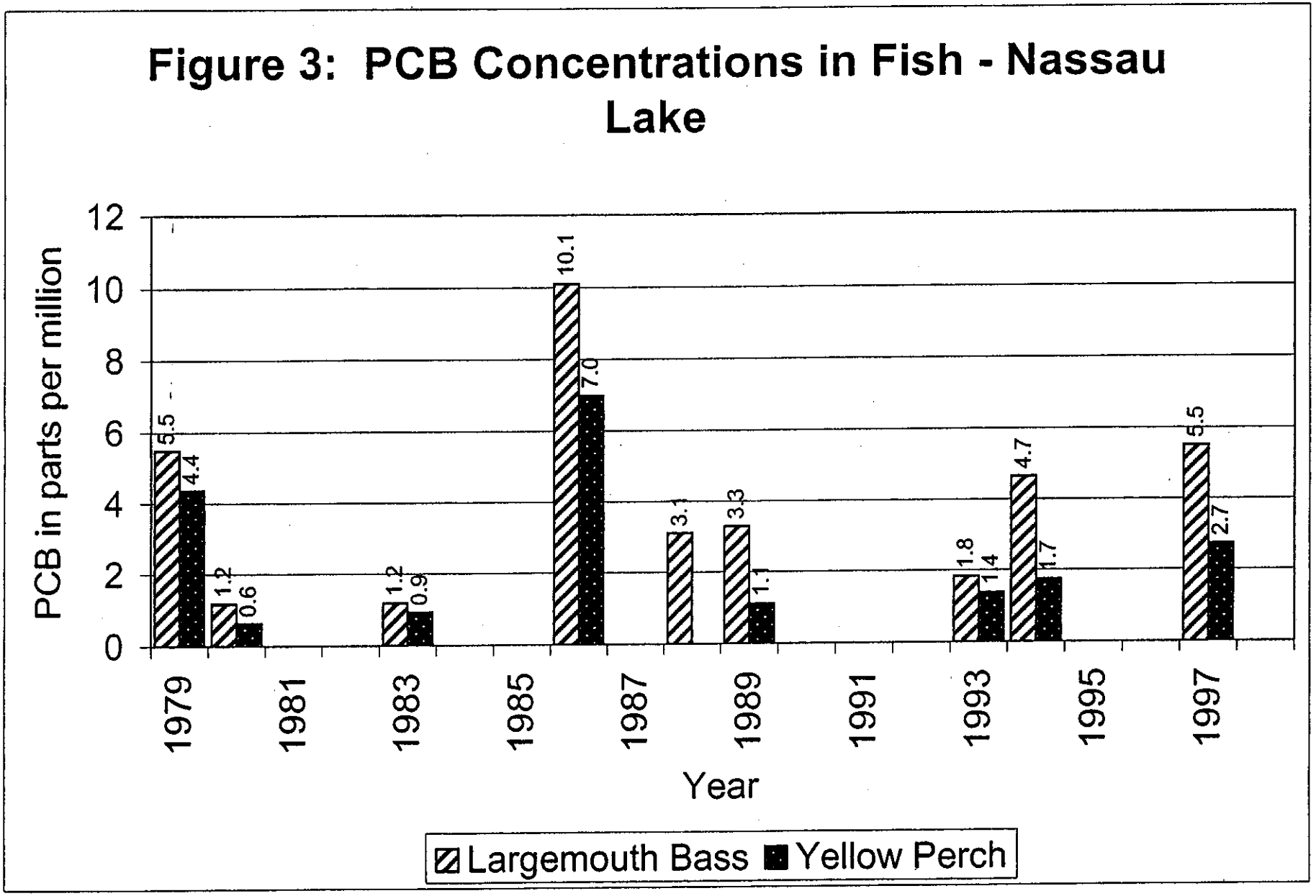


Figure 4: PCB Concentrations in Fish - Nassau Lake

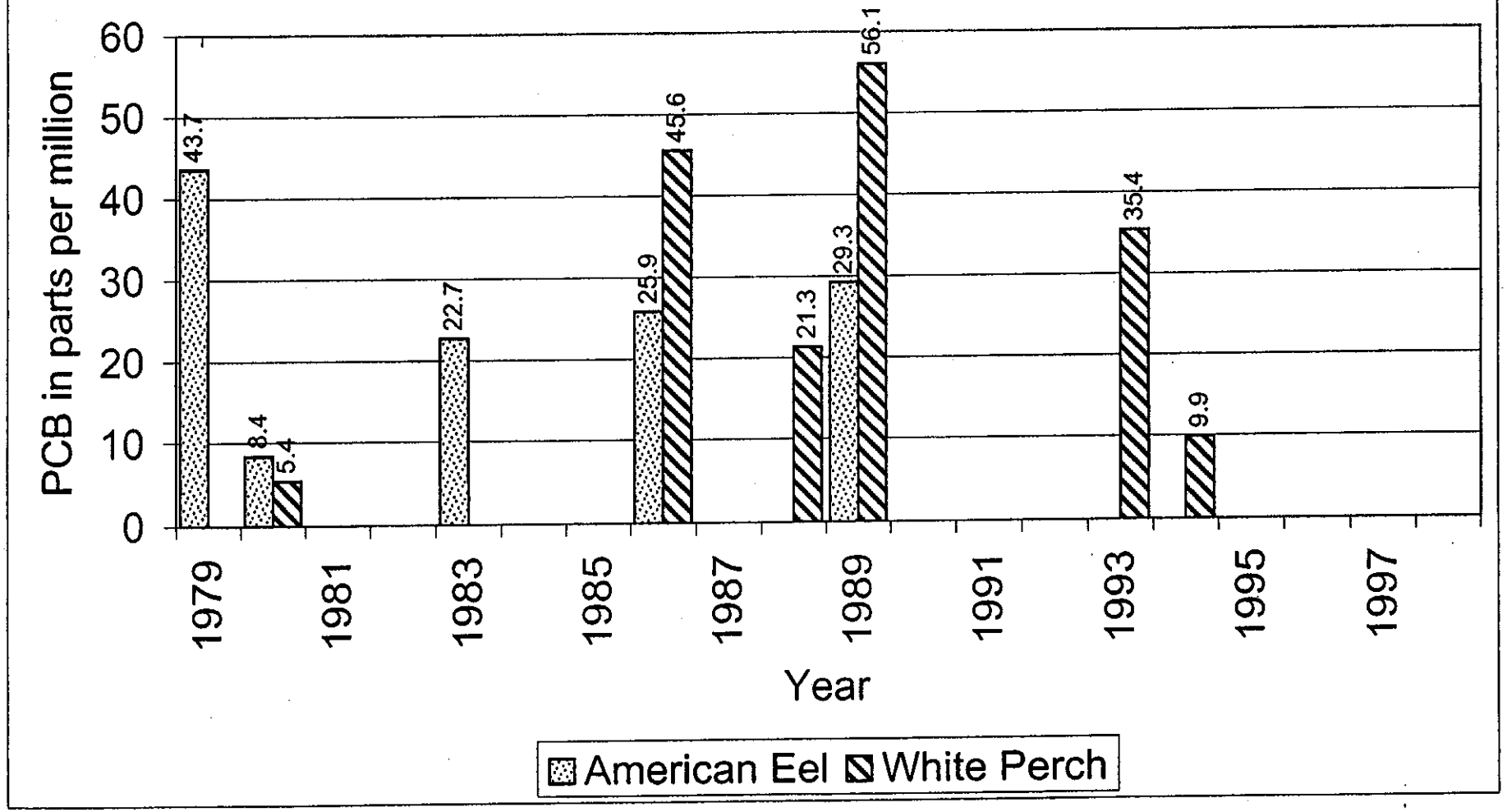


Figure 5: PCB Concentrations in Fish in T11A in 1996

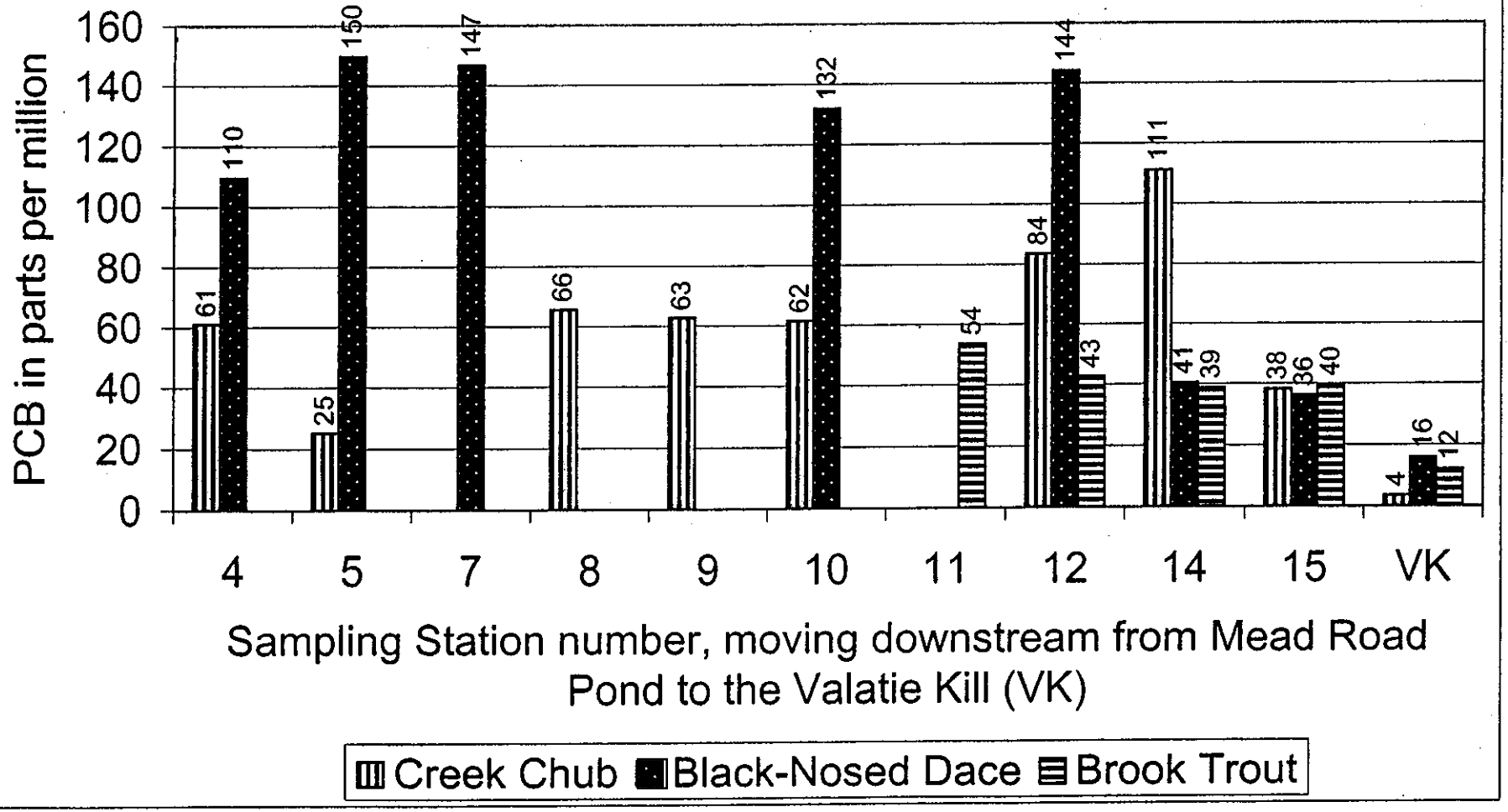


Figure 6: PCB concentrations over time in fish in the Valatie Kill at Mead Road 1979-97

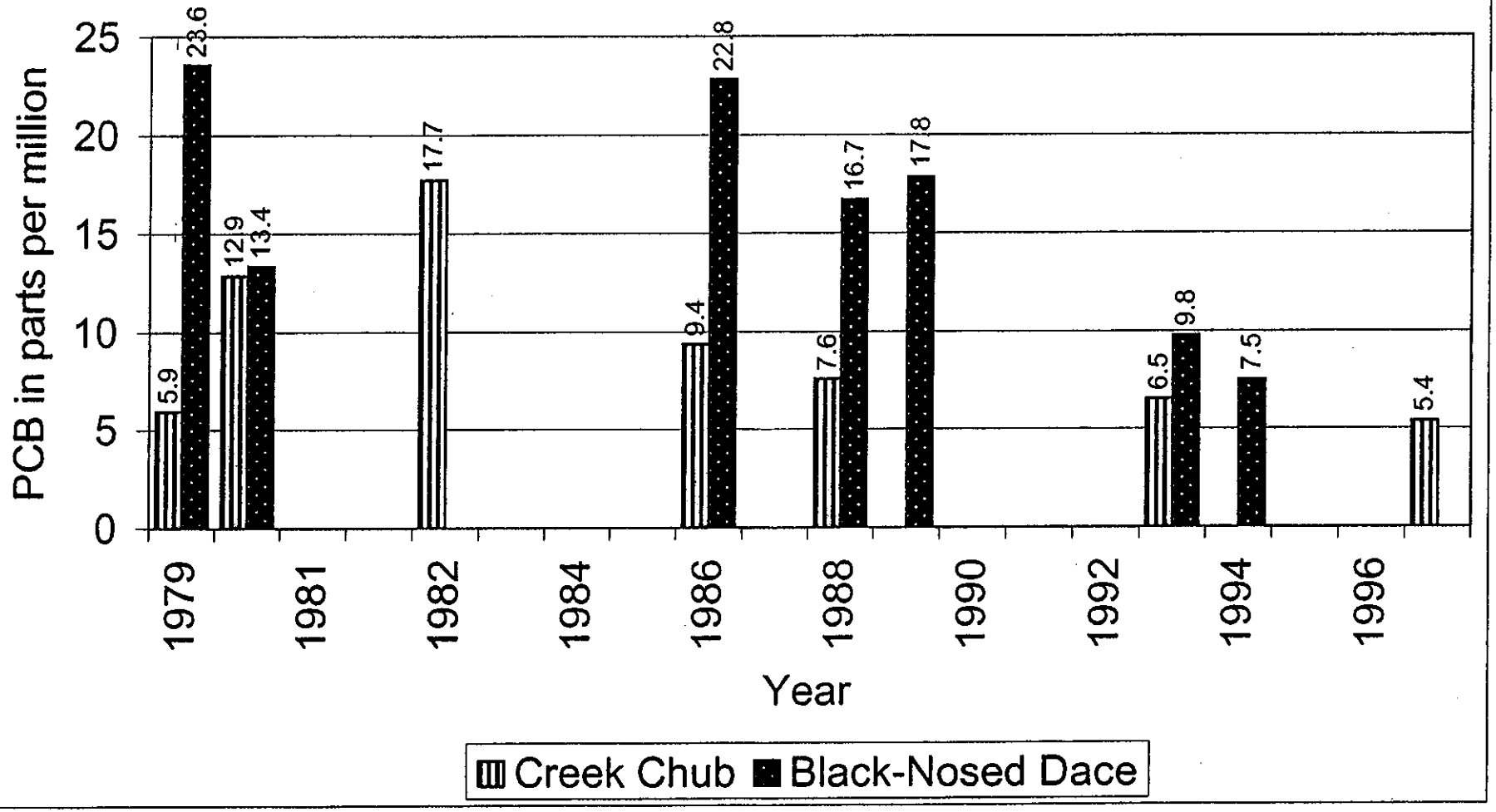


Table 1A

Nature and Extent of Contamination

MEDIA	LOCATION	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppt for water, ppm for soil; micrograms per cubic meter for air)	SCG (ppt for water*, ppm for soils / sediments; micrograms per cubic meter for air)
Surface Water	Northwest Drainage Ditch	PCB	Non-detect (ND) to 82	0.001
Surface Water	Low-Lying Area	PCB	ND	0.001
Surface Water	Mead Road Pond	PCB	71 to 260	0.001
Surface Water	T11A	PCB	110	0.001
Surface Water	Valatie Kill	PCB	ND to 82	0.001
Surface Water	Nassau Lake	PCB	ND	0.001
Soil/Sediment	Southeast Drainage	PCB	ND to 1.4	1
Soil/Sediment	Northwest Drainage Ditch	PCB	0.24 to 34	1
Soil/Sediment	Low-Lying Area	PCB	0.94 to 2.3	1
Soil/Sediment	Mead Road Pond	PCB	0.12 to 170	1
Soil/Sediment	T11A	PCB	0.2 to 71	1
Soil/Sediment	Valatie Kill	PCB	ND to 8.3	1
Soil/Sediment	Area 28	PCB	ND to 40	1
Soil/Sediment	Nassau Lake	PCB	ND to 9.6	1
Air	Nassau Lake	PCB	ND**	0.002
Soil/Sediment	Flood-prone areas	PCB	ND to 2.2	1

*There are three New York State surface water standards for PCB. They are:
The H(WS) standard, promulgated to protect sources of human water supply; 90 parts per trillion
The "W" standard, promulgated to protect pisciverous wildlife; 0.12 parts per trillion
The H(FC) standard, promulgated to protect people who consume fish; 0.001 parts per trillion

**The detection limit for the air PCB analyses was 0.004 micrograms per cubic meter.

Table 1B: PCB mass identified in Operable Unit 3, Dewey Loeffel Site

Location	PCB mass in pounds	Percentage of total mass
Northwest Drainage Ditch	46	9.0 %
Low-lying Area	3	0.6 %
Mead Road Pond Spoil Banks	167.7	32.8 %
Mead Road Pond	7.2	1.4 %
Mead Road Pond Outlet	4.6	0.9 %
T11A	28.5	5.6 %
Area 28 in the Valatie Kill	9.8	1.9 %
Valatie Kill (outside Area 28)	7.0	1.4 %
Nassau Lake	238.2	46.5 %
Totals	512*	100 %

*Represents approximately 43 gallons of pure PCB oil.

Table 2: Costs of Remedial Alternatives

Alternative	Capital Cost	30 Year O&M Present Worth	Capital Cost + Present Worth O&M Cost
A) No Action	n/a	n/a	n/a
B) No Further Action	n/a	$986,000	$986,000
C) Partial removal and partial armoring of T11A, with monitored natural attenuation for the Valatie Kill and Nassau Lake	$390,000	$986,000	$1,376,000
D) Removal of contaminated sediments in T11A and removal of contaminated sediments in Area 28 of the Valatie Kill, with monitored natural attenuation for the rest of the Valatie Kill and Nassau Lake	$1,870,000	$986,000	$2,856,000
E) Removal of contaminated sediments in T11A and the Valatie Kill, with monitored natural attenuation for the rest of the Valatie Kill and Nassau Lake	$7,221,000	$986,000	$8,207,000
F) Removal of contaminated sediments in T11A and the Valatie Kill, and Nassau Lake	F1) $172,400,000 F2) $147,057,000	F1) $217,000 F2) $217,000	F1) $172,617,000 F2) $147,274,000
G) Removal of contaminated sediments in T11A and the Valatie Kill, and capping in Nassau Lake	G1) $18,171,000 G2) $38,215,000	G1) $986,000 G2) $986,000	G1) $19,157,000 G2) $39,201,000

Table 3
Preliminary Cost Estimates for Remediation of Tributary T11A and the Valatie Kill

PRELIMINARY COST ESTIMATE
REMEDIATION OF TRIBUTARY T11A
Total Removal of Contaminated Sediments in T11A
Loeffel Site Environs

Remedial Component	Quality	Units	Unit Cost	Item Cost	Comments
1. Mobilization/Demobilization	1	Lump Sum	50,000	50,000	
2. Access Area Development	1	Lump Sum	50,000	50,000	Includes cost for land clearing, preparation of equipment staging/handling area, and temporary access roads.
3. Site Preparation/Erosion Control	1	Lump Sum	25,000	25,000	Includes site clearing, silt containment system, and erosion control measures.
4. Temporary Flow Diversion	1	Lump Sum	20,000	20,000	Includes temporary measures to reroute active portions of Tributary T11A during remediation.
5. Removal (TSCA Sediment)	150	Cubic Yard	80	12,000	Includes cost for excavating, placing in staging area and loading (depth of excavation = 2 ft.).
6. Material Stabilization (TSCA)					
a. Stabilization Agent	45	Ton	60	2,700	Assumes 20 % additive by weight.
b. Material Handling	180	Cubic Yard	5	900	Assumes mechanical addition of stabilization agent, then loading onto trucks.
7. Disposal (TSCA)	270	Ton	145	39,150	Assumes 1 cy = 1.5 Tons
8. Removal (Non- TSCA Sediments)	525	Cubic Yard	35	18,375	Includes cost for excavating, placing in staging area and loading (depth of excavation = 2 ft.). Assumes 50% over excavation volume.
9. Material Stabilization (Non-TSCA)					
a. Stabilization Agent	160	Ton	60	9,600	Assumes 20% additive by weight. Assumes 1 cy =1.5 tons

Remedial Component	Quality	Units	Unit Cost	Item Cost	Comments
10. Disposal (Non-TSCA)	945	Ton	75	70,875	Includes transportation Cost.
11. Restoration of Access Areas	1	Lump Sum	15,000	15,000	Costs for restoring areas affected by construction activities.
12. Tributary T11A Restoration a. Tree Plantings	50	Tree	300	15,000	
13. Construction Oversight	6	Week	10,000	60,000	
SUBTOTAL 15% Engineering 30% Contingency TOTAL				391,750 58,765 117,525 568,040	
ROUNDED TOTAL COST				**569,000**	

Notes/Assumptions:

See applicable references from FS

PRELIMINARY COST ESTIMATE
Remediation of Valatie Kill
Total Removal of Contaminated Sediments in Valatie Kill
(T11A to Nassau Lake)
Loeffel Site Environs

Remedial Component	Quantity	Units	Unit Cost	Item Cost	Comments
1. Mobilization/Demobilization	1	Lump Sum	125,000	125,000	
2. Access Area Development	1	Lump Sum	50,000	50,000	Includes cost for land clearing, preparation of equipment staging/handling area.
3. Temporary Access Roads	1480	Cubic Yards	15	22,200	Assumes 4000 feet long, 20 feet wide, 6 inch deep in gravel.
4. Site Preparation/Erosion Control	26	Each	10,000	260,000	Includes site clearing, silt containment system, and erosion control measures.
5. River Cell Containment Measures	26	Each	20,000	520,000	Includes portable methods to isolate individual sections of the river prior to excavation.
6. Dewatering	26	Each	30,000	780,000	Includes costs for dewatering isolated river cells prior to excavation.
7. Water treatment	12	Mo.	50,000	600,000	Assumes 2 construction seasons at 6 mo. Each
8. Removal	3000	Cubic Yards	35	105,000	Includes cost for excavating, placing in staging area and loading.

Remedial Component	Quantity	Units	Unit Cost	Item Cost	Comments
9. Material Stabilization a. Stabilization Agent b. Material Handling	900 3000	Ton Cubic Yard	60 6	54,000 18,000	Assumes 20% additive by weight; yes type. Assumes mechanical addition of stabilization agent, then loading onto trucks.
10. Disposal (Non-TSCA)	5400	Ton	75	405,000	
11. Restoration a. Rip-rap b. hydroseeding	3000 2500	Ton Square Feet	20 0.05	60,000 1250	9 inches thick
12. Restoration of Access Areas	26	Each	10,000	260,000	Costs for restoring areas affected by construction activities.
13. Capital construction cost to remediate Area 28	1	LS	806,900	806,900	per FS (VK2)
14. Construction Oversight	52	Weeks	10,000	520,000	
SUBTOTAL 15% Engineering 30% Contingency				4,587,350 688,100 1,376,200	
TOTAL				6,651,650	
ROUNDED TOTAL COST				**6,652,000**	

Notes/Assumptions:

See applicable references in FS

APPENDIX A

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

Dewey Loeffel site
Operable Unit 3
Town of Nassau, Rensselaer County
Site No. 442006

The Proposed Remedial Action Plan (PRAP) for the Dewey Loeffel Site was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on April 1, 2001. This Plan outlined the preferred remedial measure proposed for the remediation of the areas impacted by past releases of PCBs from the Dewey Loeffel disposal site. The preferred remedy is Alternative D, removal of contaminated sediments in T11A and removal of contaminated sediments in Area 28 of the Valatie Kill, with monitored natural attenuation for Nassau Lake and the remainder of the Valatie Kill.

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

Two public meetings were held, the first on April 19, 2001 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as discussions of the proposed remedy. Based on significant public concern regarding the preferred remedial alternative voiced at the first public meting, a second public meeting was held on June 12, 2001, following a second notification to the mailing list. Both public meetings provided an opportunity for citizens to discuss their concerns, ask questions, and comment on the proposed remedy. The majority of the opponents of the preferred alternative do not oppose the remedial work proposed, but believe that it is inadequate. The opponents of the preferred alternative expressed their preference for complete removal of contaminated sediments in the entire length of the affected drainage way from the site to, and including, the bottom of Nassau Lake. Written comments were received from: General Electric Company, Rensselaer County Environmental Management Council, Town of Nassau, Columbia High School students, Sierra Club, Nassau Union of Concerned Citizens, Inc., Nassau Lake Park Improvement Association, Rensselaer County Coalition of Municipalities, Rensselaer County Legislature, Kinderhook Lake Corporation, St. Luke's Lutheran Church/Emanuel Lutheran Church, United Neighbors Concerned About GE & Dewey Loeffel Dump (Co-authored by 7 environmental groups), seven local residents (Rusch, Tolczer, Lichak, Rosseau, Kahnle, Dunn and Herr) and approximately 1100 post cards.

These comments have become part of the Administrative Record for this site. The public comment period, which was originally scheduled for April 1, 2001 through May 1, 2001 was extended twice, and closed on July 5, 2001. This Responsiveness Summary responds to all questions and comments raised at the public meetings and to the written comments received.

Public Meeting for the Dewey Loeffel Landfill Site - April 19, 2001

The questions and answers from the first public meeting are listed below. Where the answer given at the public meeting is supplemented for this responsiveness summary, the additional response is in [brackets].

1. Will the Interim Remedial Measures (IRMs) become the final measure?

   As long as the remedial cleanup goals are met, then the Interim Remedial Measure will become part of the final remedy. These IRMs represent the maximum cleanups which will be done in these particular areas.

2. Have you projected what remedial goals would be monitored?

   One of the major goals of the remediation is to lift the fish consumption advisories in the tributaries and the lake. Other goals are elimination of human exposure to PCB soils and sediments, releases of contaminants to surface water and to eliminate exposure to pisciverous (fish eating) wildlife.

3. What about monitoring of the surface impoundment?

   That could be part of the monitoring plan, which has not yet been drafted.

4. Do you know how long the fish advisory will be in place?

   Not exactly. Usually a drop in PCB concentrations in the fish are expected after a cleanup. The monitoring data would be provided to the Department of Health (DOH), and changes in the advisory would be considered. Aroclor 1260 is more bioaccumulative than other PCBs.

5. Do you find any other site related chemicals in the lake water?

   No. In addition to PCBs, the lake has been tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and heavy metals. None have been detected in the water.

6. Are the PCBs in the lake contributing to the contamination of the fish?

   It is difficult to determine the exact contributions of the lake sediments versus the sediments in the tributaries. The relative contribution from the sediments in the lake is suspected to be less than the hot spots in the tributaries. Thus, the decision to remove the higher sources of contamination in the tributaries is the proposed remedy. After that remedial action has been taken, monitoring of the fish will determine whether additional

removals (lake sediments) will be necessary.

7. If the lake is not contributing to the contamination, will the tributaries add contamination to the fish?

   As stated above, the relative contribution of the lake sediments is unknown. The tributaries do, at the present time, act as sources of PCB to fish by continuing to add PCB mass to the surface sediments of the lake. Once the remedial work is completed in the tributaries, then the tributaries are no longer expected to act as significant sources of PCB to the fish in the lake.

8. If the top of the sediments are 5 parts per million (ppm), and five inches deeper in the sediments is 0 ppm, then why not mix the sediments to homogenize them so that the average concentration is less than 1 ppm, the cleanup standard?

   The Department did not consider this option because it would not result in a reduction in the overall level of contamination within the lake and likely would not result in the long-term decrease in the PCB concentrations in the fish.

9. Did the Department consider sediment traps at the mouth of the tributaries in order to prevent the contaminated sediments from the tributaries from entering the lake?

   Sediment traps only catch the sand in the moving sediment. The sand is usually cleaner than the accompanying silt and fines that the PCBs cling to. Thus, if the sand was removed the mass of PCBs entering the lake would not change significantly. Sediment traps are also a construction and maintenance issue.

10. Isn't the Valatie Kill pretty narrow when it meets the lake? Wouldn't this be easier to install a sediment trap?

    The Valatie Kill is very narrow, and acts like a sluice when it enters the lake. This keeps the fines suspended in the water column, and does not allow the sediments to drop out. A sediment trap works best where the tributary becomes wide and deep, thus stilling the water and allowing the fines to settle out to the river bed.

11. It was mentioned at the last meeting that there were "hot spots" in the lake. Why are they not mentioned at this meeting?

    If "hot spots" were mentioned at the last meeting, that was a mischaracterization. There are no hot spots in the lake. The higher concentrations are found in the tributaries, T11A and the Valatie Kill, and not in the lake. The lake concentrations average around 2 ppm to 3 ppm, with the highest single detection being 9.5 ppm. A duplicate sample was taken at that location and found to be 7.5 ppm.

12. Are the concentrations in the lake uniformly distributed?

No. The northern part of the lake ranges between 3 ppm and 4 ppm. The southern part of the lake typically averages 1.5 ppm. This is due to the grain size difference of sediments in the lake.

13. If dredging of the lake were to occur, would there need to be a ten acre dewatering site?

It would probably take that amount of space to fit all of the processes needed to dewater the dredge spoils, including the treatment plant to clean the water resulting from the dewatering of the spoils, a staging area to store the dried sediment, and a loading area for the trucks to haul the dewatered dredge spoils off-site. Finding such a large parcel along the lake was briefly studied during the Feasibility Study. If such a site were needed, the location would be selected during the design phase of the remedy.

14. If the sediments were capped, would it be correct that no navigational dredging could occur?

Yes. The two alternatives to cap the sediments in the lake would not allow navigational dredging. Any digging of the lake bottom would breach the cover of the cap and expose the sediments once again. The lake is not that deep to begin with (2 to 3 feet in most areas, and 12 feet in the channel) and making the lake shallower could further induce weed and algae growth.

15. Please discuss the community impacts of the proposed remediation.

The major impacts to the community would be the common construction issues, noise and an increase in traffic. The noise from the excavating equipment will occur during the working day, and there will be a small increase in traffic from the trucks hauling the contaminated soil off-site.

16. The dam is a concern to the residents. How are you going to make sure that the dam stays intact?

The dam was recently inspected by experts within the Dam Safety Bureau of the DEC. Further monitoring of the dam will occur as part of the remedial plan. An inspection program will be established to ensure that the dam which impounds Nassau Lake is structurally sound, to contain the PCB contaminated sediments. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

17. Is 1 ppm the cleanup goal for sediment?

Yes.

18. Discuss the natural attenuation process, dilution and burial.

The natural attenuation processes will allow for long-term reductions of PCB concentrations in fish in both Nassau Lake and the Valatie Kill by resulting in lower PCB concentrations in the sediments which are available to the ecosystem. The sediments that will enter the lake after the remedy is completed will be cleaner than before, because significant sources of PCBs in the system will be removed. The average PCB concentration in the sediments available to the ecosystem will be lower, resulting in lower PCB concentrations in the ecosystem.

19. Are you just going to clean the stream and not the lake?

At this present time, yes. We proposed to remediate the stream and monitor the effect of the remedy on the lake.

20. There have to be toxins in the streams.

One of the reasons that there is contamination in the Valatie Kill is because of the high concentrations of PCBs in the tributary T11A.

21. If you're leaving part of the sediment in the streams, then what about the natural sediment traps, such as beaver dams?

The beaver dams near Area 28, south of the old man-made dam, have been observed and assessed. The proposed remedial plan would reduce sediment in the stream that could otherwise accumulate.

22. Is the goal for decay less than 5 years?

After implementation of the remedy, the Department will be collecting fish to monitor the effectiveness of the remedy. It has been observed, at other sites, that there is a response by the fish to changes in conditions, whether it is an increase or decrease in PCB concentrations. This monitoring will determine whether the remedial action was effective in reducing the PCB levels in the fish, or whether more action will be required.

[As stated in the PRAP and in the text of the ROD, the Department expects that implementation of the selected remedy will result in a significant decrease in PCB concentrations measured in fish in T11A, the Valatie Kill and Nassau Lake.]

23. Have the PCB levels in the fish decreased compared to levels in the past?

There has been no significant decline. PCBs are a highly bioaccumulative material, and the fish have the PCBs in their fatty tissue. As shown in Figure 5 (in the PRAP and

ROD), the highest concentrations of PCBs are in T11A (approximately 400 ppm). The PCBs recharge into the streams from T11A during flood events, thus continuing PCB exposure to the fish.

24. What monitoring will be performed during the remediation?

Once the excavation begins, monitoring of the site will include air monitoring to protect the workers within the excavation area. Outside of the excavation area, especially within the downwind locations, air monitoring will be conducted to protect the surrounding community. If these monitoring locations signal releases above the allowable levels, then the work will stop until the conditions improve. Necessary changes in the construction activities will also be made, such as dust suppression. [It should be noted that impacts are not expected. In addition, the real-time monitoring program is designed to identify potential off-site impacts before they occur.]

25. Will we be notified when these work stoppages will occur?

Yes.

[This comment was from neighbors of the Dewey Loeffel Site. No work stoppages were necessary during implementation of the IRM in the summer of 2001. However, if necessary, the notification would have been door to door.]

26. The total PCB removal is down to 1 ppm. Why not have the removal down to Non-Detect? This "total" removal is not really total.

The cleanup goal for PCB-contaminated sediments is 1 ppm. The excavation activities may remove sediments with lower concentrations than 1 ppm, but the cleanup level is the goal for sites in New York. The goal has been set and the fish will be monitored to determine whether the fish advisory can be lifted or not.

27. What is the time frame for this remediation? Doesn't this seem like a piecemeal operation?

This remedy, if it is finalized, will be designed this year. It is expected that the remediation will start next year. It should be completed within one construction season. The remediation will be monitored for effectiveness, and further remediation would be considered if the selected remedy does not reduce the levels in the fish and the fish consumption advisory is still in place.

28. Given the nature of Aroclor 1260 being more highly bioaccumulative, did the Department consider a different cleanup value besides 1 ppm?

No.

29. Is 1 ppm protective enough?

The long-term monitoring will determine whether 1 ppm is protective enough to reduce fish PCB concentrations.

30. Seeing that the project is going to continue for at least a few more years, what are the institutional controls that will be used at this site?

The institutional controls are set up for the protection of health by alerting people so as to minimize human exposure to the contamination. The fish advisory is an institutional control that is currently in place cautioning people not to eat the fish. This fish advisory is listed in the handbook given to anybody that receives a fishing license. As such, institutional controls are not considered active remediation but are simply a tool to reduce human exposure until the problem is corrected.

31. Are there signs up at the site telling people of this site?

The Department has put up signs at the site several times over the past ten years. Signs were most recently posted in January 2001.

32. We need GE to go educate the public about fish advisories. They have already educated us all about dredging. We also need the DEC to set up a public outreach program. People don't know the basics. I want to see a toll-free hotline, TV and radio advertisements, billboards, presentations to schools, and newspaper advertisements. I want the DOH to set up a public education program about PCBs and not to eat the fish. There seems to be a conspiracy of silence here.

The State is currently working with local groups to address some of these issues.

33. Who has done the testing?

A combination of parties have done the testing. The DEC and DOH have both done an extensive amount of testing. GE has done a lot of testing as well.

34. Doesn't it seem like a conflict of interests when the polluter is testing the pollution?

GE has had contractors doing the testing. The samples are analyzed by an independent third party, and there is Quality Assurance/Quality Control (QA/QC) documentation of the laboratory analysis to check the validity of the sample data. The State also takes independent compliance samples to confirm sample validity.

35. When do you expect the construction to occur?

The IRM will be completed this year. The final remedy could be conducted as soon as next year.

36. What is the funding for this remediation?

The funding will be determined when GE is contacted about the selected remedy. If GE decides to conduct the cleanup themselves, then they will pay for it. If GE declines to conduct the cleanup, then the State would do the cleanup and pursue GE at a later date to recover the cleanup costs.

37. How long will that take?

It would take longer if GE decides not to take on the cleanup.

[As noted in the ROD, the estimated time to implement the remedy is one year. A portion of the work was done as an IRM in 2001.]

38. What is the reasoning behind selecting Alternative D?

The proposed remedy is expected to meet the remedial goals, and be protective of public health and the environment, and not require further remedial action. If remedial goals are not met, we are prepared to take further action.

39. We want the page of the handbook that discusses fishing advisories to be colored conspicuously so that it gains the attention of anyone who receives a fishing license.

Comment noted.

40. Why didn't you guys go door-to-door about this meeting?

We mailed over 200 notices to individual addresses on the mailing list, including news media. A press release was also made.

41. Why should we believe you are actually going to test the fish? What have you done for the site in the past ten years?

The Remedial Investigation (RI) was conducted at the site and surrounding study area. The RI represents hundreds of tests conducted on fish and affected media. Another major item was the increase in leachate pumping from the landfill. [Also, the IRM was conducted on the Northwest Drainage Ditch, Low-lying Area and the Mead Road Pond Area.]

42. Your guidelines say that returning the site to pre-disposal conditions is the preferred action, but the dump waste will be left behind. What about the 70 foot crack in the landfill? Is that how water from the landfill got into the bedrock?

There is not a 70-foot wide crack in the landfill. The landfill is set in the local soil, and it is unlined. The bedrock underneath the soil is shale. There are fractures in bedrock, and some areas have more fractures that others. There is a zone 10 to 20 feet wide where there are more fractures. This was due to the formation of the bedrock over 400 million years ago. There are solvents, such as trichloroethene (TCE) that have migrated from the landfill into the groundwater, and into these fractures. TCE has been detected in homeowner wells, so GE installed filters on these wells. The landfill and off-site impacted groundwater was addressed by a separate remedial action plan issued January 2001.

43. How do you lower the water in the landfill in order to control the groundwater flow?

The installation of French drains will reduce the level of water within the landfill. This is work that will be done under the Operable Unit 2 Record of Decision.

44. Wasn't the original remedy supposed to control the groundwater? Why didn't it?

Yes, the original remedy was supposed to do this. This remedy needs to be updated to include leachate controls.

45. What is the sediment cleanup value?

There is no standard or regulation for PCB contaminated sediment. There is, however, a guidance that recommends the total PCB concentration to be less than 1 ppm. The concentrations of PCB in the fish will be observed to determine the effectiveness of the cleanup.

46. Did you check sediments and biota downstream?

It has been a few years, but samples were taken downstream to and including Kinderhook Lake. [Fish samples were taken in the Valatie Kill downstream of Nassau Lake, and in Kinderhook Lake, in 2001.]

47. It seems that GE's ads show the remedial plan for the Hudson Falls plant site is an effective way to treat the PCBs. Why not have GE do a demonstration project here?

The proposed technology for the Hudson Falls plant site is not applicable to this site.

48. GE's ads try to influence people's decision not to dredge.

GE's ads are not part of the 7 selection criteria.

49. Have there been any studies on wildlife around the lake?

There have been no systematic focused studies on wildlife around the lake. There are some non-fish data, but these are extremely limited and non-conclusive.

50. Ward Stone said that he talked about owls a while ago.

The status of this is unknown. [We are familiar with the results of an owl that was analyzed by the DEC wildlife pathology unit, in the early 1980s, prior to capping of the Dewey Loeffel site. We have no knowledge of any more recent analysis of owls in the area around the site. If more information becomes available, it will be made available to the public.]

51. Is there going to be another meeting on this site before the Record of Decision?

No meeting is planned right now.

52. We would like to have another meeting on this site before the Record of Decision.

That request will be presented to the Division Director and considered by the Department.

53. Have the sediment samples in the tributaries been collected in the same location over time? Wouldn't it be a good idea to do that?

Generally, samples are taken at pre-established locations. However, the sediment moves with high flow events, such as floods or flash floods. Therefore, the sediment that is in one particular location one day could be gone the next.

54. What are the health effects of the contaminants of this site?

The likelihood of a person experiencing an effect from PCBs is directly related to the degree of exposure. Consumption of contaminated fish is the only significant route of exposure to PCBs in Nassau Lake. For this reason there has been an advisory since 1980. Because the concentration of PCBs in the lake is so low and exposure to lake bottom sediment is limited, we do not expect contact with water sediment to cause measurable health effects.

55. We want the Public Comment Period to be extended.

That request will be presented to the Division Director and considered by the Department.

56. What else is being done with the affected water wells?

There has been extensive testing of the wells. The monitoring continues on a quarterly basis performed by GE's consultant, and is submitted for review by the State.

57. Why can't you create a questionnaire asking people about their health and whether or not they fish in the lake and in the tributaries? This should also state information about the site.

Such health studies typically compare disease rate of the study group with that of the general population. This type of approach requires a large population with significant exposure in order to be statistically valid. A health study in a sparsely populated rural area such as the Town of Nassau is not expected to yield any meaningful information, especially without widespread significant exposure. This has been a persistent question however and monthly meetings are being held with Town officials and citizen groups to determine how to best address these concerns.

58. There are three different ways to be exposed to PCBs: inhalation, ingestion, and absorption. I think blood sampling should be performed for people near the site.

Living near the Loeffel site does not necessarily translate to measurable exposure to PCBs. As a part of our investigation of the site, potential exposure is assessed whenever new data are collected. In the areas where people may come in contact with PCBs from the site, the concentration is very low and we do not expect to see a measurable effect. Because of the concerns expressed, however, the DOH has been meeting with Town officials and representatives of citizen groups to determine a way to address this concern

59. What other biota were sampled? Wasn't there a snapping turtle sampled?

There was a snapping turtle that was sampled, and it had a PCB concentration of 1200 ppm.

60. The cost of this remedial plan is only worth 2 CEO's salaries for one year. I think GE should pay for this cleanup.

Comment noted.

61. What about our comments tonight? How will our comments be noted?

All of the questions asked tonight are being collected, and we will provide written responses within the Responsiveness Summary of the Record of Decision. This

Responsiveness Summary also responds to any questions or comments that are submitted to the Department by phone, letter, email, or in-person visits during the comment period.

62. Can we see the Responsiveness Summary before the final decision is made?

Typically that is not the procedure. [The responsiveness summary is part of this Record of Decision.]

63. I think that there has been a poor performance done by the DEC and GE over the past 17 years.

Comment noted.

64. The issue of blood sampling needs to be addressed by the DOH. The DOH mentioned other sites where PCBs were in residential backyards, and the residents did not show PCB concentrations in their blood above the typical range of concentrations.

The State is currently working with local interest groups to resolve this issue.

65. Have the other sites (within the GE seven sites agreement) received more waste than Loeffel?

I would need to check the Registry to answer that question. The 7 sites were all very different, some were municipal landfills that accepted more volume, some were multiple user sites.

66. I think that there needs to be more advertising for the next public meeting, if there is one. I believe that there should be newspaper advertisements three to four weeks ahead of time.

We would notify the news media, TV, radio, and newspapers and send out meeting notices to all interested parties as we did for this meeting.

67. I think that a proposed construction project this size should not be handled by the DEC, but the Department of Transportation (DOT). The DOT handles road projects all of the time, and they know how to handle traffic.

Comment noted.

68. Why do you think GE sent its waste 40-miles away from its plant sites? They know the stuff was bad back in the 1950's. Even though they might not have known exactly how bad it was, WE have to deal with the waste everyday. This is unfair.

Comment noted.

69. Kids do not get fishing licenses, only sportsmen do. Therefore, children will not know that the fish should not be consumed. There needs to be an education program in the schools to educate our children about the fish advisory and PCB contamination in Nassau Lake.

Comment noted. [See response LR3-5, below.]

Comments from the Rensselaer County Environmental Management Council (RCEMC) April 17, 2001 (RCEMC-1)

Comment RCEMC-1-1:

The PRAP is not protective enough of public health and the environment.

Response RCEMC-1-1:

The Department believes that the selected remedy is protective of human health and the environment. The most significant sources of PCB to the surface water system will be eliminated. The monitoring program will determine if the remedial goals are met; if they are not, the selected remedy will result in such additional remedial measures as are necessary and appropriate to meet the remedial goals and abate any significant threats to human health and/or the environment.

Comment RCEMC-1-2:

Removal of contaminated sediments from Nassau Lake should not be ruled out and a more realistic assessment of this remediation should be undertaken.

Response RCEMC-1-2:

If the remedial goals set in the PRAP are not met, options to conduct additional remediation would be selected. Cost estimates to remove Lake sediments were generated from best available sources and alternatives. For cost comparative analyses, these estimates reflect accurate and defensible costs. The removal of contaminated sediments has not been ruled out, but rather deferred until it can be determined if such removal may be necessary and appropriate to meet the remedial goals and abate any significant threats to human health and/or the environment.

Comment RCEMC-1-3:

The PRAP does not elaborate on the need to deepen Nassau Lake in the future.

Response RCEMC-1-3:

Active remediation of Nassau Lake sediments is not proposed and would not be considered unless the remedial goals set forth in the OU3 ROD are not met. Deepening of Nassau Lake for any purpose beyond protection of human health and the environment would not be considered as part of the hazardous waste remedial program.

Comment RCEMC-1-4:

The dam separating Nassau Lake from the Lower Valatie Kill and Kinderhook Lake must be inspected, repaired and reinforced.

Response RCEMC-1-4:

An inspection program would be established to ensure that the dam which impounds Nassau Lake will do so for as long as it is necessary to contain the PCB contaminated sediments in Nassau Lake. If the dam is found to be deficient, then work will be done as appropriate to maintain the dam.

Comment RCEMC-1-5:

RCEMC recommends the following:

- remove all contaminated sediments from the drainage basin above Nassau Lake.
- following remediation of the entire water way, the inflow to Nassau Lake should be monitored to conclude no further contamination is washing into Nassau Lake.
- following remediation of upstream sources, a plan to rid Nassau Lake of the contaminated sediments should then be implemented.

Response RCEMC-1-5:

The vast majority of PCB mass (96 percent) in the surface water system upstream of the Lake will be removed as a result of the selected remedy. The remaining sediments in the Valatie Kill will not compromise the recovery of Nassau Lake. The remediation of Nassau Lake sediments may not be necessary to meet the remedial goals for the site, but would be considered if the remedial goals are not met.

Comment RCEMC-2-1:

Originally extended comment period still too short, need to extend until July 1, 2001 at a minimum.

Response RCEMC-2-1:

The public comment period was extended until July 5, 2001 with a second public meeting conducted June 12, 2001.

Comment RCEMC-2-2:

We support a remedial plan that will clean the waterway from Dewey Loeffel Landfill to Nassau Lake to a level and extent where there is little to no possibility that PCB's can further impact Nassau Lake.

Response RCEMC-2-2:

The Department believes that the selected remedy will remediate the waterways to a level and extent which will meet the remedial goals for the site. If not, then the selected remedy includes evaluation and implementation of additional remedial work to meet the remedial goals.

Comment RCEMC-2-3:

A voluntary program to check blood levels of PCBs in residents living around Nassau Lake is recommended.

Response RCEMC-2-3:

The New York State Department of Health (NYSDOH) is working with interested residents and town officials to address potential health issues including blood testing. A process has been established and is ongoing.

Comments from Rensselaer County Environmental Management Council (RCEMC) June 5, 2001 (RCEMC-3)

Comment RCEMC-3-1:

The Department's preferred alternative does not adequately protect public health, the environment, or the health of wildlife and aquatic resources in and around the Nassau Lake environs.

Response RCEMC-3-1:

The Department's preferred alternative, along with the completed IRM is expected to:

- meet remedial goals for the IRM area
- meet remedial goals for T11A area
- eliminate the largest reservoir of contaminants in the Valatie Kill (Area 28), which contains 58% of the PCB mass in the kill
- likely be sufficient to meet the remedial goals for the site in the entire kill and lake.
- likely further reduce PCB concentrations beyond the physical removal of sedimentation by the natural attenuation processes.
- allow for consideration of future remedial work in the watershed.
- likely meet SCGs to the extent practicable and be protective of human heath and the environment
- provide an implementable, cost effective remedy that has good short-term and long-term effectiveness, and reduces the mobility and volume of contaminants.

Comment RCEMC-3-2:

Point 1 - The Department's preferred alternative does not eliminate the possibility that Nassau lake will continue to be impacted by PCB loading in the future.

Response RCEMC-3-2:

The Department's preferred alternative does not eliminate future loading of PCB to Nassau Lake. However, complete elimination is not attainable due to the widespread distribution of PCB in the environment from a variety of sources. Monitoring of the anticipated PCB reductions will ultimately conclude whether the preferred alternative is effective. The Department anticipates that goals will be met.

Comment RCEMC-3-3:

Recommendation #1 - The cleanup of the Upper Valatie Kill and its tributaries draining into Nassau Lake should be to a standard of "Non-Detect" levels.

Response RCEMC-3-3:

Cleanup of the kill and tributary T11A to non-detect levels is not implementable without significant short and long term impact, may not be cost effective and may not be needed. See comment RCEMC-3-1.

Comment RCEMC-3-4:

Point #2 - The levels in the sediments, water column, and fish in Nassau Lake need to be monitored for a three year period after the drainage basin has been cleaned.

Response RCEMC-3-4:

The effected water sediment and biota will be monitored for as long as necessary. An intensive comprehensive monitoring plan will be implemented to assess the short-term (3 to 5 year) remedial effectiveness, to determine if the remedial goals are met or if additional remedial measures should be considered and implemented.

Comment RCEMC-3-5:

Recommendation #2 - Implement a 3-year monitoring program to measure the level of PCBs in fish, wildlife, and the sediments in Nassau Lake after the drainage basin has been cleaned to "non-detect" levels.

Response RCEMC-3-5:

See Response RCEMC-3-3 and 4.

Comment RCEMC-3-6:

Point #3 - The discussion in the PRAP about cleanup of Nassau Lake is not conclusive, complete or clear.

Response RCEMC-3-6:

Upgradient source controls together with natural attenuation is the current cleanup for Nassau Lake. The concern that monitoring of the Nassau Lake dam be comprehensive is noted, and the Department will develop the plan in the design phase.

Comment RCEMC-3-7:

Point #5 - It is possible that during and after remediation of the drainage basin, fugitive contaminated sediments may be washed into Nassau Lake.

Response RCEMC-3-7:

Yes. However, the Department anticipates that future loading of PCBs to Nassau Lake can and will be reduced to a level sufficient to meet the remedial goals.

Comment RCEMC-3-8:

The PRAP should incorporate the construction and maintenance of a baffled sediment trap to be built near the confluence of the Upper Valatie Kill and Nassau Lake.

Response RCEMC-3-8:

The Department believes that construction and maintenance of a sediment trap in the location suggested would be not be effective. In order to trap the fine grained sediments (those which carry the PCB), the trap would have to be very large in order to have sufficient retention time and low velocities necessary to settle out silts and clays. Construction of such a structure would result in significant long-term or permanent loss of habitat in the lower Valatie Kill. Such a structure is, in the Department's view, not necessary to achieve the remedial goals for the site as well.

Comment RCEMC-3-9:

Point #6 -The NYS Department of Health maintains that only those residents who eat fish and are being exposed to PCB contamination.

Response RCEMC-3-9:

No. NYSDOH has not made this claim. NYSDOH has advised that fish consumption, representing a completed health effect pathway, is the most significant health risk associated with the PCB contamination in Operable Unit 3. Available data and risk calculations have concluded that dermal contact and airborne inhalation of PCB are not significantly elevated at this site. Air monitoring tests were conducted using standard protocols at optimum ambient temperatures, and the results were non-detect. Air monitoring of the site will be considered for the long-term monitoring program.

Comment RCEMC-3-10:

Recommendation #6 - A voluntary program should be made available to residents living within 1 mile of Nassau Lake which would enable them to determine the level of PCBs in their blood.

Response RCEMC-3-10:

RCEMC is an active participant in the NYSDOH working group to establish and resolve health concerns for this project. Measurement of blood PCB levels is one of the tools being evaluated by NYSDOH and concerned public groups.

Comment RCEMC-3-11:

Point #7 - Although there is a "no-eat" advisory for fish caught from Nassau lake,

residents report that people are still keeping fish taken from the lake.

Response RCEMC-3-11:

NYSDOH and NYSDEC are working with local groups to increase public knowledge of the advisories and risks related to consuming Nassau Lake fish. This effort will continue.

Comment RCEMC-3-12:

Recommendation #7 - A public education and outreach program should be funded and/or undertaken in and around Nassau Lake informing anglers that fish should not be eaten.

Response-3-12:

See response to comment RCEMC-2-3 above.

Comments from Town of Nassau (TN)
May 12, 2001

Comment TN-1:

Has there been a final determination that there is no more leakage of PCB's from the site itself?

Response TN-1:

Based upon the monitoring data available, the Department has concluded that the disposal site no longer acts as a continuing source of PCBs to the surface water system. PCB discharge to groundwater has not been a historic or current issue. However, the landfill is the source of the volatile organic contaminant groundwater plume which will be remediated under the selected remedy for Operable Unit #2 of the Dewey Loeffel site. The monitoring program for the landfill will continue to measure any impacts of the disposal site on the surrounding environment.

Comment TN-2:

The Town of Nassau does not feel that the proposal is sufficient in addressing the health, welfare, and environment safety of those residing in the area of and those affected by the Loeffel site.

Response TN-2:

Successful implementation of the proposed remedy would result in attainment of remedial goals which are protective of human health and the environment. As stated in the

PRAP and ROD, if the goals are not met then more aggressive action in the Lake would be evaluated. In order to determine if additional remedial work will be necessary in the Lake, the selected remedy needs to be implemented to abate the sources of PCB further upstream in the surface water system.

Comment TN-3:

The PRAP does not propose the removal of contamination from all of the Valatie Kill. If all of the Valatie Kill were included at this time in this PRAP the only contamination remaining would be the lake. As a result, the ability to establish an accurate monitoring program to evaluate the natural attenuation of Nassau Lake would be substantially improved.

Response TN-3:

Removal of all contaminated sediment from the Valatie Kill, as the Town proposes, may not be necessary to achieve the remedial goals for the site. The contaminated sediment that will remain behind after implementation of the proposed remedy represents only about two percent of the total PCB mass in the surface water system and would likely not represent a significant ongoing source of PCBs. However, remediation of these contaminated sediments may be appropriate in the future if the rates of improvement in PCB concentrations in Nassau Lake are not acceptable and additional work becomes necessary. The presence of low-level PCB contaminated sediments in the Valatie Kill will not compromise the monitoring program for the site.

Comment TN-4:

The design for the PRAP should provide a "silt trap" at the end of the Valatie Kill to collect any sediment from the Valatie Kill before it discharges into Nassau Lake. This would retard further contamination of the Lake.

Response TN-4:

See the response to comment RCEMC-3-8, above.

Comment TN-5:

The Town feels that contamination should, at the very least, be removed from the entire Valatie Kill as well as the Lake itself.

Response TN-5:

See response TN-3.

Comment TN-6:

The PRAP does not indicate when the inspection of the Nassau Lake Dam will be done. Will the inspection be done now? Will all required repair and restoration be included in the scope of the work for this PRAP? What is the scope of work for these inspections? Will it include a competent underwater assessment of the dam and its structure?

Response TN-6:

Inspections of the dam are currently conducted by the Department on a periodic basis. The inspections of the dam will become part of the remedy. Any other work required to ensure that the dam continues to impound Nassau Lake would also be done as part of the remedial program for this site. The inspections will be designed to include those elements which are necessary to evaluate the integrity of the dam. More specific inspection, monitoring and maintenance plans for the dam will be developed during the design phase of the project.

Comment TN-7:

DEC should provide a detailed breakdown of the "Preliminary Cost Estimates" for "each" of the stated estimates for capping the Lake and/or removal of all contaminants in the sediment and is very limited in detail for the complete removal of contaminants from the site itself.

Response TN-7:

The preliminary cost estimates presented in the FS as well as those generated by State staff represent that level of detail in cost and quantity as needed to compare potential remedial options.

Comment TN-8:

While the Town welcomes an extended comment period it is hoped that if an extension is granted it will not be used as a reason to delay, for another year, putting the remediation plan into action.

Response TN-8:

The public review process is an integral and essential component of the remedial program in New York State. In the case of the Dewey Loeffel site OU#3 PRAP, the comment period was extended 60 days and the public was also afforded a second public meeting during the extended comment period. The Department does not believe that extending the comment period will adversely impact the schedule for remedy implementation.

General Comments from GE
July 3, 2001
General Comment GE-1:

The remedy review protocol should consist of an evaluation of the rate of recovery of PCB levels in fish.

Response GE-1:

Although the remedial review protocol has not yet been established, fish flesh PCB-concentration recovery rates will be a part of that protocol.

General Comment GE-2:

Characterization of the risks to human health and the environment should be based on site-specific analyses.

Response GE-2:

Risk is characterized based on site-specific media-specific and receptor-specific analyses.

General Comment GE-3:

The evidence supporting the proposed remedy for the Valatie Kill should be explicitly stated in the ROD.

Response GE-3:

The primary basis for the remedial work in the Valatie Kill is to prevent the higher concentration PCB contaminated sediments in Area 28, which contain the most significant potential source of PCB to Nassau Lake in the Valatie Kill, from entering Nassau Lake and downstream sections of the Valatie Kill and compromising the natural attenuation processes.

General Comment GE-4:

The proposed "total" removal of contaminated sediments in T11A is technically infeasible and will cause unwarranted adverse impacts.

Response GE-4:

Virtually all fine-grained sediment samples from T11A exhibit unacceptable PCB

concentrations and, therefore, are slated for removal. The Department has concluded that removal of all fine-grained sediments from T11A is not infeasible and the benefits outweigh the adverse impacts.

The amount and location of fine-grained PCB contaminated sediments to be removed from T11A will be specified in remedial design, and will be based upon PCB concentration, sediment grain size, and potential for scour and erosion to mobilize the sediment downstream into the Valatie Kill and/or Nassau Lake. The Department expects that the scope of removal in T11A will be such that no PCB contaminated sediments will be left behind after remedy implementation which will give rise to significant threats to human health and/or the environment, or compromise the natural attenuation processes in the rest of the surface water system.

General Comment GE-5:

The substantial evidence supporting the proposed natural attenuation remedy for Nassau Lake should be more fully set forth in the ROD.

Response GE-5:

The Department believes that the discussion in the ROD (in the description of alternatives in Section 7, and in the summary of the selected remedy in Section 8) is sufficient. The processes responsible for the natural attenuation are described, and the expected benefits are defined.

General Comment GE-6:

The PRAP concludes any benefit is disproportionate to cost, further, remedy selection for Nassau Lake is deferred pending achievement of remedial goals.

Response GE-6:

Comment noted.

General Comment GE-7:

The details of the proposed remedy monitoring program should be developed during the remedial design program and should focus on the rate of recovery in fish.

Response GE-7:

The State intends to develop the monitoring program during the design phase and it will focus on biota impacts.

Specific Comments from GE
July 3, 2001

1. Comment: The construction portion of the Mead Road Pond IRM is anticipated to last four months, not six months, stated on page 20 of the PRAP.

   Response: Comment noted.

2. Comment: The estimated cost for the Mead Road Pond Area IRM are not included in the proposed remedy costs presented on page 25, Table 2, and elsewhere, and should be presented in the ROD.

   Response: The costs presented in the ROD will be revised to reflect the costs of the Mead Road Pond IRM, which were not made available to the Department prior to PRAP development.

3. Comment: The goals of the Mead Road area IRM, as described in the NYSDEC-approved Revised Work Plan, were not to remove "all soils and sediments which exceed 1 part per million."

   Response: Comment noted.

4. (No item 4 in comment document.)

5. Comment: The PRAP incorrectly overstates certain levels of risk to human health regarding dermal contact to persons who frequent these (IRM & T11A) areas.

Response: The ROD accurately describes, in Section 4.3, the completed exposure pathways at the site, and does not "overstate levels of risk." No "levels of risk" are cited.

Comments from Local Residents:

Local Resident 1 (March 28, 2001)

Comment LR1-1:

We are not satisfied with the cleanup plan. Previous attempts at cleanup have been inadequate. We urge you to support complete cleanup of Dewey Loeffel along with the Valatie Kill and Nassau Lake.

Response LR1-1:

The remedy selected in the Operable Unit 2 Record of Decision (January, 2001) will abate releases from the disposal site. The selected remedy in this Record of Decision should meet the remedial goals for the site; if not, additional remedial work will be evaluated and implemented to meet the remedial goals.

Local Resident 2: (April 24, 2001 E-mail)

The public notification of the meeting (first) and documentation distribution were not adequate. I would make the following suggestions.

Comment LR2-1:

Extend the public comment period by at least 60 days.

Response LR2-1:

The public comment period has been extended until July 5, 2001.

Comment LR2-2:

Schedule another meeting.

Response LR2-2:

A second public meeting has been scheduled for June 12, 2001.

Comment LR2-3:

Advertise the meeting at least three weeks prior to the event in the Times Union (Rensselaer section), The Troy Record, The Independent, The Advertiser, and The Chatham Courier. Put a notification in two to three times per week in each of these papers, up until the time of the meeting. In this notification, give a good explanation of what the remediation is and what the meeting will be about.

Response LR2-3:

Local news media including the print media are notified of meeting dates and content.

Comment LR2-4:

DEC/DOH has had several meetings over the past years about the dump issue. Take the sign up lists for those meetings and send a letter out to those individuals at least two weeks prior to the meeting.

Response LR2-4:

The Citizen Participation Plan for this site includes a mailing list of interested parties. The list is updated prior to each mailing to include any new interested parties who have attended meetings or contacted us to be included on the list. A specific mailing event was used to announce the first meeting and the second meeting. Approximately 200 envelopes were mailed.

Comment LR2-5:

Provide the PRAP and summary to people that want them. In your newspaper notification and letters to individuals, as them "if you would like the PRAP and/or the summary document please call us at 1-800-999-9999, and we will send this information to you. This should be a real person and not an answering machine. Put at least the PRAP summary on a website and mention what the website is in your newspaper notifications and individual letters.

Response LR2-5:

Copies of the PRAP and/or the summary document are available upon request for anyone interested; they are also copied and distributed at the public meetings along with other pertinent information. Posting of the PRAP and other pertinent site-specific information on a website is a good suggestion, it is however, a major task as it should address all sites.

Comment LR2-6 and LR2-7:

Provide individuals time to respond and ask questions. Respond in writing to all individuals, letters and questions. DEC should write a summary document about the meetings, and letters, to be published in the paper and mailed to all attendees.

Response LR2-6 and LR2-7:

We extended the comment period twice and conducted two public meetings to provide opportunity for the public to comment on the PRAP. Responses to comments are included in the Responsiveness Summary.

Local Resident 3 (May 28, 2001)
Comment LR3-1:

The remedy falls short, PCBs are left behind.

Response LR3-1:

The selected remedy will remove 52% of the PCBs in the surface water system , only another 2% would be removed by remediation of the entire Valatie Kill. Currently, no PCB

removal in the Lake is proposed, however, future monitoring may result in additional PCB removal. The selected remedy is to remove PCBs and measure effects of that remedy. Additional PCBs would be removed if needed and appropriate to achieve the remedial goals. The Department expects that these efforts will meet the remedial goals.

Comment LR3-2:

PCBs were used as dust control on dirt roads, testing needs to be done.

Response LR3-2:

In 1988, prior to the State's lawsuit against GE, testing of other potential sources of PCB to Nassau Lake was conducted. Water column sampling in the Valatie Kill at each tributary was done as was core sampling of dirt roads generally in front of homes and at intersections where road oiling was known to have taken place. None of the approximately two dozen representative PCB core samples from the dirt roads contained elevated PCB concentrations. The 1988 sampling events concluded that the PCBs entering Nassau Lake originated at the Loeffel Site. No other source areas were identified.

Comment LR3-3:

The dump (Loeffel Site) burned, air borne particulate testing should be done.

Response LR3-3:

Due to the knowledge of a fire at the site in 1966, the State specifically tested for persistent organic chemicals that could be generated from PCB and heat and distributed via wind blown particulate. The by-product would expect to accumulate in fish and biota. Therefore fish were analyzed and found to contain some levels of dioxins and dibenzofurans. The PCB issue, however, was considered to be more problematic.

Comment LR3-4:

I was breast fed and have eaten local fish, and small and large game prior to knowledge of this contamination. Will this affect my health?

Response LR3-4:

Without specific information about the PCB levels in breast milk, fish and game and estimates of food consumption, we cannot estimate an individual's past dietary exposures or whether they were near or above background levels for the general population. Moreover, even if we did measure an individual's body burden and found that they were near or slightly above background levels, it would be difficult to determine whether the PCBs have affected or would

affect their health. Establishing a link between an exposure to a chemical and health effects generally requires a large amount of epidemiological data on people highly exposed to a compound.

Many studies have found that PCBs and other environmental contaminants are found in the breast milk of almost all women. Nevertheless, many health agencies encourage women to breast feed their infants because of the known health benefits of breast-feeding outweigh the potential health risks from background levels of environmental contaminants in breast milk.

Consumption of fish and game also might contribute to a person's overall exposure to PCBs. The degree of exposure would be directly related to the concentrations in the fish and game and the amount of fish/game consumed. Consumption of fish from Nassau Lake or the Valatie Kill would most likely represent a higher level of exposure than consumption of game, including ducks. That is why the NYSDOH has and continues to advise people not to eat fish from Nassau Lake or the Valatie Kill. Moreover, limited sampling in the early stages of the project showed that large and small game that live and feed in upland areas did not have PCB levels higher than background.

DOH is holding monthly meetings with the Town officials and citizens groups to address the issue of health effects and to determine a way to evaluate the relative risk to area residents.

Comment LR3-5:

Fish consumption warnings on fish licenses is not enough, kid don't need licenses. DOH needs to develop an outreach program to better warn receivers.

Response LR3-5:

On an annual basis, the NYSDEC and NYSDOH distribute the Chemicals in Sportfish and Game Advisory to all licensed anglers and hunters. The Chemicals in Sportfish and Game Advisory is also posted on the New York State Department of Health website. Currently the NYSDOH and NYSDEC are working with local groups and local governments to increase public knowledge of this issue. One outcome of this collaboration was the creation of a Nassau Lake Fish Advisory Flier that was distributed to 3,313 homes in the communities surrounding Nassau Lake. The posting of signs and other outreach activities are being considered by this group as possible additional ways to promote awareness of the Nassau Lake fish advisory.

Comment LR3-6:

Property values have diminished, who makes up for the stigma and consequent financial losses?

Response LR3-6:

The remedy selection criteria established for the remedial program in New York do not include property value losses due to stigma. Individuals or groups who believe that they have suffered losses from the hazardous waste disposal can seek redress through other means.

Comment LR3-7:

The area has experienced an "economic backslide", there should be marinas, bait shops, food establishments, ice cream stands, taverns, a beach and day-use area at the Lake.

Response LR3-7:

The Lake shoreline is either privately owned or controlled by the Lake Association. Any commercial establishments would be up to the Association.

Comment LR3-8:

We deserve a plan that eliminates the health risks in the area, a plan to bring property values in line with toxic waste free communities and a plan to restore community and economic growth.

Response LR3-8:

The selected remedy should abate the significant threats to human health and the environment associated with the PCB contamination of the surface water system. As we have discussed, the health issue is associated with fish consumption. Dermal contact with soil and sediment, together with recreational water use of the waterways, do not pose a significant health risk. Surface water quality is, in fact, within drinking water standards for PCBs, although it is not known to be used as a residential water source. We believe the best way to restore community and economic growth including raising property value is to implement the selected remedy.

Comment LR3-9:

I believe the proposed plan is driven by economics.

Response LR3-9:

Cost, and cost-effectiveness, are one of the criteria that must be considered during remedy selection. The remedy selection criteria listed in 6 NYCRR Part 375 are: overall protection of human health and/or the environment, compliance with standards, criteria and guidance, short term effectiveness, long term effectiveness, reduction in toxicity, mobility and volume through treatment, feasibility (including implementability and cost-effectiveness), and community acceptance.

Comment LR3-10:

Get GE to pay.

Response LR3-10:

The responsible party will be offered the opportunity to implement, or participate in, the design and implementation of the selected remedy. If this opportunity is declined, then the State will implement the remedy and pursue cost recovery from the responsible party.

Comment LR3-11:

The State should compel GE to remove the dump.

Response LR3-11:

The State has selected (ROD-January 2001) a remedy to enhance leachate and groundwater treatment and management for the landfill and adjacent impacted areas. The project will proceed to design and construction including monitoring activities to assess the effectiveness of the remedy. The implementation of the disposal site and groundwater remedy should prevent future releases of contaminants from the disposal site.

Local Resident 4 (May 30, 2001)
Comment LR4-1:

I urge the Department to do a complete cleanup of Nassau Lake, the Valatie Kill and the tributaries to a level of 1 ppm or better. 1260 PCB essentially biodegrades to a certain point, natural attenuation does not adequately protect the health and safety of the community. It is not clear that PCBs in air are not as harmful as those ingested.

Response LR4-1:

The selected remedy will remove 52% of the PCBs in the surface water system; only another 2% would be removed by remediation of the entire Valatie Kill. Currently, no PCB removal in the Lake is proposed. The selected remedy is to remove PCBs from the IRM areas, T11A and Area 28 in the Valatie Kill and to then measure the effects of the remedy. Additional PCBs would be removed if needed and appropriate to achieve the remedial goals. The Department expects that the selected remedy will meet the remedial goals.

Air monitoring was done along the shoreline of Nassau Lake in early September of 1997 in response to concerns that PCBs will readily volatilize from drying sediment. Sampling was done by a G.E. consultant in accordance with an approved work plan which was reviewed by NYSDEC, NYSDOH, the Nassau Lake Association, the Rensselaer County EMC and the

Citizens Environmental Coalition. This work was done during summer months when the warm weather would promote volatility. The results of the sampling showed no detection of PCBs at a detection limit of 4 nanograms/cubic meters (less than 1 part per trillion.) This is consistent with our experience near other PCB contaminated waterways in that we have not seen significant elevation of air levels of PCBs above background. This suggests that although volatilization from drying sediment is one way in which PCBs can get into air it does not happened at a rate that measurably increases the ambient air level in that area.

Comment LR4-2:

I want the Department to cleanup the Valatie Kill and tributaries now, fully monitor after cleanup to assure no new PCBs are leaking from the landfill and assess best science for the lake.

Response LR4-2:

The selected remedy includes the removal of PCB contaminated sediments from the areas in the vicinity of the disposal site, from T11A, and from the one area on the Valatie Kill which contains most of the PCB in the Kill. Following this remedial work, the monitoring plan will assess the affect of the removals in the Valatie Kill system and, at that time, allow the state to differentiate between the drainage system PCB contribution to the fish from the contribution out of Lake sediments. With most of the PCB removed from the Valatie Kill system, a significant decline in fish PCB concentrations is expected.

Comment LR4-3:

I urge the Department to post signs on the Lake and do a complete job educating people to ingest the fish from Nassau Lake.

Response LR4-3:

On an annual basis, the NYSDEC and NYSDOH distribute the Chemicals in Sportfish and Game Advisory to all licensed anglers and hunters. The Chemicals in Sportfish and Game Advisory is also posted on the New York State Department of Health website. Currently the NYSDOH and NYSDEC are working with local groups and local governments to increase public knowledge of this issue. One outcome of this collaboration was the creation of a Nassau Lake Fish Advisory Flier that was distributed to 3,313 homes in the communities surrounding Nassau Lake. The posting of signs and other outreach activities are being considered by this group as possible additional ways to promote awareness of the Nassau Lake fish advisory.

Comment LR4-4:

I am most disturbed that no action has been taken to stop the volatiles from leaking to the groundwater from the site.

Response LR4-4:

The site containment enhancements and groundwater remedial plan is the subject of the Record of Decision issued in January 2001. The remedy selected in that ROD includes construction and operation of an expanded leachate collection and treatment system at the disposal site, as well as construction and operation of a bedrock groundwater recovery system south of the site. Much action has and continues to occur at the site and adjacent impacted properties. Leachate removal from the landfill continues as aggressively as possible with the planned enhancements. Groundwater monitoring has occurred on a semiannual basis and will continue perpetually. Surrounding residential water supply wells are also monitored and filtered where impacted. The design phase of this project is expected to begin this Fall/Winter.

Comment LR4-5:

Complete removal of waste in the landfill is recommended.

Response LR4-5:

See response LR-3-11, above.

Local Resident 5 (May 31, 2001)
Comment LR5-1:

Posted signs are needed indicating fish advisory together with an outreach program to target realtors, building inspectors, schools, day care providers and even breast feeding mothers groups.

Response LR5-1:

On an annual basis, the NYSDEC and NYSDOH distribute the Chemicals in Sportfish and Game Advisory to all licensed anglers and hunters. The Chemicals in Sportfish and Game Advisory is also posted on the New York State Department of Health website. Currently the NYSDOH and NYSDEC are working with local groups and local governments to increase public knowledge of this issue. One outcome of this collaboration was the creation of a Nassau Lake Fish Advisory Flier that was distributed to 3,313 homes in the communities surrounding Nassau Lake. The posting of signs and other outreach activities are being considered by this group as possible additional ways to promote awareness of the Nassau Lake fish advisory.

Comment LR5-2:

Is there a health risk to our preschool aged children playing in Nassau Lake?

Response LR 5-2:

Recently, the New York State Department of Health has undertaken a reevaluation of the question of recreational use of Nassau Lake. This evaluation considered some recent studies done in areas where potential exposure is similar to that of people who may be exposed to PCBs at Nassau Lake. People may take in PCBs if they are exposed to low levels in sediment or soil. However, we do not believe that the possible exposures or any associated health risks at Nassau Lake are at levels to warrant a recommendation that people should be prevented from recreational contact with lake sediment or shoreline soil (see Attachment 1 for basis). Much larger exposures to PCBs are possible if people eat fish from the Lake. Thus, we continue to recommend that no one eat any fish from the Lake.

One method of evaluating exposures and health risks is to use information about PCB levels in the sediment, soil, water, and air around Nassau Lake and information about how people may be exposed to these media. This method suggests that PCB exposures (except for eating fish) at Nassau Lake are likely to be small and unlikely to cause detectable health effects. Supporting documentation for this can be found in the Attachment 1 to this responsiveness summary.

Another way of evaluating possible exposures, and by inference health risks, from PCBs at Nassau Lake is to review studies of people who could have been exposed to PCBs in situations similar to those at Nassau Lake. Studies that measured both PCB levels in people's blood serum and PCB levels in sediment or soil are particularly useful. People in these studies were compared with people not similarly exposed to see if PCBs from the sediment or soil got into their bodies. These studies (see Attachment 1, particularly Tables 1 and 2) did not consistently detect elevated serum PCB levels. The PCB levels in soil and sediment in these studies were generally higher than levels near Nassau Lake. Thus, these findings suggest that it may be difficult to detect an increase in PCB serum levels due to exposure to PCBs from Nassau Lake sediment and soil.

Both methods of evaluation suggest that exposure to PCBs in soil or sediment at Nassau Lake is likely to be small and people are unlikely to experience any detectable health effects that can be associated with the exposures. However, we can not rule out that people may have some, although difficult to detect, increase in PCB body burdens. For some time, we have been evaluating possible exposures to PCBs from the sediment and soil around Nassau Lake. Our current analysis incorporates much of the new information gathered since we began our evaluation, and we will continue to update our analysis, as new information becomes available. Consistent with past statements, our evaluations and the environmental data do not warrant a recommendation that people be prevented from using the lake for recreational purposes. We continue to remind everyone that no one should eat any fish from the lake.

Comment LR5-2:

Landfill leakage to groundwater was identified by well sampling conducted by the homeowner, the State's monitoring system did not work.

Response LR5-2:

Although the well water test by the private homeowner did reveal groundwater contamination in the supply well first, it was coincidental with tests concurrently being done by Ge under State supervision. The monitoring plan did identify the problem nearer the source the site and would have identified the contaminants in the homeowner well at the next semi-annual sampling event.

Comment LR5-3:

It is irresponsible to propose that GE or their contractor conduct monitoring.

Response LR5-3:

All samples gathered by the GE consultant are analyzed by NYSDEC approved contract laboratories with appropriate quality assurance and quality control (QA/QC). An independent QA/QC evaluation is performed prior to submission to the State for review. The State conducts QA/QC to conclude that the data is acceptable. During sampling events, the State obtains "split samples" from representative locations and analyzes them as another verification method. The State believes the data generated are representative and defensible.

Comment LR5-4:

We are concerned about the timetable and the lack of clear goals. Time specific action levels need to be identified now and included in the decision document.

Response LR5-4:

The timetable to conduct monitoring of 2-3 years is a conservative period, however, fish need to be assessed seasonably, at best, with enough data to observe trends and draw valid conclusions. Sediment transport will be monitored concurrently to assess sediment loading and that impact on the fish. The description in the selected remedy describes what the monitoring will be; a detailed plan will be generated during the design phase.

Comment LR5-5:

We do not think that the DEC has fully investigated all treatment options for on-site wastes.

Response LR5-5:

The commenter is directed to the Record of Decision for Operable Unit 2, January, 2001 which describes the remedial alternatives evaluated for the disposal site.

Comments from Nassau Union of Concerned Citizens, Inc. (NUCC)
May 29, 2001
Comment NUCC-1:

NUCC recommends complete cleanup of PCBs from the Valatie Kill watershed.

Response NUCC-1:

See the response to comment RCEMC 1-5, above.

Comment NUCC-2:

If monitoring of PCBs in Nassau Lake and the Valatie Kill drop and remain negligible then the State assertion would be supported.

Response NUCC-2:

Comment noted.

Comment NUCC-3:

The PCBs should be dredged from Nassau Lake, since the (lack of) removal of these chemicals will unfairly compound the inevitable navigational dredging of Nassau Lake. [The comment refers to a recommendation that PCBs be dredged from Nassau Lake as part of the remedial program. If they are not, there is a concern that the presence of PCBs in lake sediments in the future will complicate a possible future dredging of the lake to increase water depths and improve recreational boating opportunities.]

Response NUCC-3:

Individuals or groups who believe that they have suffered losses from the hazardous waste disposal can seek redress through other means.

Comment NUCC-4:

Monitoring of the dump site and the upper Valatie Kill should continue indefinitely.

Response NUCC-4:

The monitoring of the site and related areas will continue for as long as it is necessary to determine if the remedial goals for the site are met and if the remedy is protective of human

health and the environment.

Comments from Sierra Club (SC) May 29, 2001
Comment SC-1:

We support Alternative F, cleanup sediments contaminated with PCBs from Nassau lake, the Valatie Kill and a tributary leading into the Kill.

Response SC-1:

Comment noted.

Comment SC-2:

We advocate a plan to completely remove the contaminated toxic wastes from the landfill and ship them to approved landfills.

Response SC-2:

The OU2 Record of Decision to address the landfill was issued in January 2001. In response to a comment on the OU2 PRAP, alternatives for the removal, treatment and disposal of all waste from the landfill were developed and evaluated. In addition to being cost prohibitive, potential worker exposure and environmental risk associated with the physical removal of the waste were considered to negatively impact the implementability of these alternatives. They were not considered further. See Attachment 1 to the OU2 ROD Responsiveness Summary for further information.

Comment SC-3:

Still needed are studies of the incidences of nearby residents disease associated with PCBs and other toxic substances deposited in the landfill.

Response SC-3:

The New York State Department of Health is currently working with concerned parties to address their health concerns.

Comments from Nassau Lake Park Improvement Association (NLPIA) (June 16, 2001)
Comment NLPIA-1

The only action that will assure no health or environmental impact resulting from the PCB's and other contaminants in the Dewey Loeffel Site and surrounding environs is the

complete removal of all contaminants from all affected areas including the landfill and all offsite impacted areas.

Response NLPIA-1:

The remedy selected in the Operable Unit 2 Record of Decision (January, 2001) will abate releases from the disposal site, and is protective of human health and the environment. The selected remedy in this Record of Decision is expected to meet the remedial goals for the site; if not, additional remedial work will be evaluated and implemented to meet the remedial goals.

Comment NLPIA -2:

Alternative E, with more aggressive sediment removal in the Valatie Kill should be implemented now, this would further reduce any question or source locations if goals are not met. This would save time.

Response NLPIA-2:

The Department believes that the monitoring plan will generate data which will allow the Department to distinguish the effect of PCB inputs from the Valatie Kill verses the PCB loading in the lake.

Comment NLPIA-3:

Higher PCB concentration in the mouth of the Valatie Kill and in the cover areas should be removed.

Response NLPIA-3:

As documented in the RI, there is no high concentration of PCB in the mouth of the Valatie Kill. The single "higher" PCB concentration in the cove (9 ppm) would not prompt removal of sediment in the entire cove.

Comment NLPIA-4:

It is imperative that a comprehensive and well discussed monitoring program be implemented to establish baseline PCB levels in fish, water, and sediments to assess future changes in leading to allow for accurate assessment of the success of the selected remedy.

Response NLPIA-4:

The Department will develop such a program during the design phase of the project.

Comment NLPIA -5:

The phrase "to the extent practicable" as it relates to remedial goals should be removed.

Response NLPIA -5:

The remedial goals established in the Record of Decision were developed to meet the goals of the remedial program in New York State as established in State laws and regulations. Feasibility is one of the criteria that must be taken into account in the remedy selection process.

Comment NLPIA -6:

The Association would like to be notified when any actions are taken at the dam.

Response NLPIA -6:

The State will notify NLPIA of any inspections and/or repairs to the dam.

Local Resident 6 (July 5, 2001)
Comment LR6-1:

The PRAP is not sufficient to protect humans and wild life.

Response LR6-2:

The selected remedy in this Record of Decision is protective of human health and the environment and is expected meet the remedial goals for the site.

Comment LR6-2:

The volatilization of Aroclor 1260 is a significant environmental hazard; Air Sampling conducted by GE is not acceptable.

Response LR6-2:

The cycling of PCBs through volatilization and redeposition from areas of high levels may be a significant contribution to the overall background levels. Capping of the Loeffel site in 1984 addressed this concern and this ROD requires further removal of near site sediment in the Mead Road Pond area. Nassau Lake, however, contains much lower concentrations and this mechanism is not expected to cause a localized increase in ambient levels. This was demonstrated by the air sampling near the lake in 1997. Also, soil sampling throughout the

remedial investigation did not show higher than normal levels outside of the source area or the drainage way.

Comment LR6-3:

Children will continue to be exposed to excessive levels of PCBs in their diets unless further action is taken to prevent PCBs from entering the ecosystem.

Response LR6–3:

Over the past two decades much effort has been put into removing sources of PCBs from the ecosystem in general. For this reason, dietary sources of PCBs have been greatly reduced nationwide and body burdens of the general population have decreased.. The 1984 remediation of the Loeffel Landfill and the implementation of this Record of Decision will contribute to that effort. Post remediation monitoring will be done to determine if there is a need for additional work. We are concerned about dietary exposure to PCBs from eating fish from Nassau Lake or the Valatie Kill, and we have consistently and publicly recommended that no one eat fish from these waters, especially children and women of child bearing age.

Comment LR6-4:

Aroclor 1260 is considered a probable human carcinogen, with substantial evidence in laboratory animals. The National Cancer Institute cancer mapping data indicates Rensselaer County males are 5th of 58 counties in liver cancer mortality, 6th of 58 counties in colon cancer mortality and 9th of 58 counties in liver, biliary tract and gall bladder cancer mortality.

Response LR6-4:

This comment relates to the entire Rensselaer County population and is not specific to the Dewey Loeffel Site. The NYSDOH will follow up with the commenter directly to discuss this comment.

Local Resident 7 (June 26, 2001)

Comment LR 7-1

I was not notified of the meeting, there is a total lack of notification. I suggest a mass mailing.

Response LR 7-1

In addition to articles in the local papers, the Department sent out approximately 200 notifications by mail. Your name has been added to the mailing list, as have all those interested

people who have sent in responses, comments and/or attended a public meeting.

Comment LR 7-2

Nothing short of a full clean-up is needed to reduce peoples concerns and fears. Any exposure to residents of the community is unacceptable.

Response LR 7-2

The remedy selected in the Operable Unit 2 Record of Decision (January, 2001) will abate releases from the disposal site. The selected remedy in this Record of Decision is expected to meet the remedial goals for the site.

Comments from Rensselaer County Coalition of Municipalities (RCCM) June 27, 2001

Comment RCCM-1:

The remedial goals should not be conditioned on being practicable. The goal should be to eliminate environmental conditions and to prevent them from reoccurring without reference to ambiguity and confusion introduced through the concept of practicability.

Response RCCM-1:

The remedial goals established in the Record of Decision were developed to meet the goals of the remedial program in New York State as established in State laws and regulations. Feasibility is one of the criteria that must be taken into account in the remedy selection process.

Comment RCCM-2:

The Department should first implement Alternative E, a complete clean-up of T11A, the Mead Road Site and the Valatie Kill. Secondly, the Department should implement Alternative F. complete dredging and remediation of Nassau Lake.

Response RCCM-2:

The selected remedy in this Record of Decision is expected to meet the remedial goals for the site. Long-term monitoring is included as a component of the remedy. An evaluation of the data collected during monitoring will determine if additional remedial work is necessary.

Comments from Rensselaer County Legislature (RCL) July 2001.

Comment RCL-1:

The responsible parties should consider the complete removal of toxic materials from Mead Road (Site) and Nassau Lake (Environs) and employ appropriate means to allow for the removal of such materials.

Response RCL-1:

See the response to RCEMC-3-1, above.

Local Resident 8 (June 27, 2001)
Comment LR 8-1:

The proposed plan is comprehensive, but does not go far enough. Removal of contaminated sediments from the remainder of the Valatie Kill and Nassau Lake is needed.

Response LR8-1:

The selected remedy in this Record of Decision should meet the remedial goals for the site. See the response to RCCM-2.

Comment LR8-2:

Contaminated sediments in the Valatie Kill will continue to move and load Nassau Lake.

Response LR8-2:

Nearly all of the mass of PCB will be removed from the Valatie Kill under the selected remedy.

Comment LR8-3:

Leaving contaminants in the Lake is more troublesome. If all upstream sources are removed, existing lake sediments will likely be covered by clean sediment resulting in goals being met. The risk that dam failure would then redistribute buried sediment remains and responsibility of dam maintenance is privately funded.

Response LR8-3:

An integral component of the Natural Attenuation process is the reduction of source(s) and addition of clean vs. contaminated sediment. The monitoring program for the project will include an extensive dam inspection and maintenance component.

Comment LR8-4:

Future dredging of Nassau Lake for deepening and water quality improvement may be necessary. Contamination will make this effort much more costly.

Response LR8-4:

Individuals or groups who believe that they have suffered losses from the hazardous waste disposal can seek redress through other means.

Comment LR8-5:

I suggest an additional remedial goal to be "Eliminate unacceptable PCB related restrictions, impairments, or costs associated with use, management, and enjoyment of natural resources including Nassau Lake".

Response LR8-5:

As stated in Section 6 of the ROD, the Department's goal in selecting a remedy under the remedial program is to eliminate, or mitigate to the extent practicable through the proper application of scientific and engineering principles, all significant threats to the public health and to the environment presented by the hazardous waste disposed at the site.

Comments from Kinderhook Lake Corporation (KLC) June 30, 2001

Comment KLC-1:

We support your current and proposed programs to reduce the level of contamination in the upper Valatie Kill and your proposal to inspect and repair the Nassau dam.

Response KLC-1:

Comment noted.

Local Resident 9 (July 2, 2001)

Comment LR9-1:

We urge you to require GE to make a full clean-up of Nassau Lake, the Valatie Kill, and the areas surrounding these waters.

Response LR9-1:

The selected remedy in this Record of Decision should meet the remedial goals for the

site; if not, additional remedial work will be evaluated and implemented to meet the remedial goals.

Comment LR9-2:

It seems to us that the GE/Loeffel dump site is as contaminated an area as was Love Canal, where a full clean-up was mandated.

Response LR9-2:

There is no comparison between the Love Canal and Loeffel sites. The mixture and magnitude of chemicals at each site mandate a remedial plan to address specific criteria. However, at each site, an in-place containment remedy was selected.

Comments from St. Luke's Lutheran Churches and Emanuel Lutheran (Churches) July 2, 2001

Comment Churches-1:

I encourage you to heed the warnings of the concerned citizens of UNCAGED, charge GE with whatever would be a necessary bill for the total cleanup and removal of contaminated sediments.

Response Churches-1:

The responsible party will be offered the opportunity to implement, or participate in, the design and implementation of the selected remedy. If this opportunity is declined, then the State will implement the remedy and pursue cost recovery from the responsible party.

The selected remedy in this Record of Decision is expected to meet the remedial goals for the site; if not, additional remedial work will be evaluated and implemented to meet the remedial goals.

Comments from United Neighbors Concerned About GE & Dewey Loeffel Dump (UNCAGED) July 5, 2001
Comment UNCAGED-1:

We strongly support Alternative F, to require GE to fund a total clean-up to "pre-disposal" conditions.

Response UNCAGED-1:

The selected remedy in this Record of Decision is expected to meet the remedial goals for

the site; if not, additional remedial work will be evaluated and implemented to meet the remedial goals.

Comments UNCAGED-2:

Expand the remedial goals to include the following: Eliminate all PCBs and VOCs related restrictions, impairments, or costs associated with use, management, and enjoyment of natural resources, including, Nassau Lake.

Response UNCAGED-2:

See the response to comment LR8-4, above.

Comment UNCAGED-3:

The DEC should establish a Public Outreach Program to advise people of the fish contamination and dump hazards.

Response UNCAGED-3:

On an annual basis, the NYSDEC and NYSDOH distribute the Chemicals in Sportfish and Game Advisory to all licensed anglers and hunters. The Chemicals in Sportfish and Game Advisory is also posted on the New York State Department of Health website. Currently the NYSDOH and NYSDEC are working with local groups and local governments to increase public knowledge of this issue. One outcome of this collaboration was the creation of a Nassau Lake Fish Advisory Flier that was distributed to 3,313 homes in the communities surrounding Nassau Lake. The posting of signs and other outreach activities are being considered by this group as possible additional ways to promote awareness of the Nassau Lake fish advisory. This program will also be utilized to provide information to the public on the groundwater contaminant plume related to the disposal site.

Comment UNCAGED-4:

The DOH should establish a Public Education Program to advise people about the health effects of PCBs, VOCs and the other toxic chemicals in the environment, through fact sheets, newspaper ads, billboards and public presentations.

Response UNCAGED-4:

The New York State Department of Health is currently working with concerned parties to address their health concerns, including the issues raised in this comment.

Comment UNCAGED-5:

The DEC, DOH and the Attorney General's office should revise the Community Participation Plan for the GE/Dewey Loeffel dump to ensure people are fully informed and involved in decisions at the site.

Response UNCAGED-5:

The State agencies have met with private interest groups, public and have sent fact sheets discussions the site issues as they evolved. Public participation has been solicited at each milestone of the project.

Comment UNCAGED-6:

Polluters should pay (GE).

Response UNCAGED-6:

The state Attorney General is actively pursuing the financial liability aspects of the proposed remedial actions together with costs to fund other elements associated with the site with GE.

Comment UNCAGED-7:

State superfund monies (when the program is refinanced) should be utilized in a timely manner for the cleanup if GE and other polluters refuse to pay up-front.

Response UNCAGED- 7:

State superfund money is expected to be used to finance the project to the extent necessary. Cost recovery is required and will be pursued.

Public Meeting for the Dewey Loeffel Landfill Site - June 12, 2001

1. I rented a home on Mead Road and no one told me about the hazardous waste site next door.

   You should have been informed out of common courtesy, although it is our understanding that real estate law requires owners to inform prospective buyers only, not renters.

   [Comment noted. In any event, the law in this state is not so settled as to obligate a landlord to disclose to a prospective tenant his or her knowledge that the property to be leased is located next door to a hazardous waste site.]

2. What is in the hazardous waste site?

   The wastes in the site are primarily liquid industrial solvents, which were disposed of in either a bulk or drummed manner. Resins and PCBs are also present.

3. Someone said there are some really nasty chemicals there.

   Yes, industrial solvents (like dry cleaning fluids) have in fact migrated from the landfill. The groundwater contamination migrating from the site was the subject of a separate but parallel remedial effort. The Record of Decision addressing the landfill and groundwater was issued last January.

4. (When the RI was conducted) did you sample high enough on the stream bed to include the 100 year flood events?

   Yes, during the RI we sampled in the stream, in over bank and in flood-prone areas.

5. Will there be noise pollution to construct and operate the water management equipment at the landfill?

   Yes, in the short term there will be noise from heavy equipment, including backhoes, bulldozers, well rigs, tampers, trucks, etc. Long term, the noise will be negligible.

6. Who will pay for O&M cost?

   The State expects to ask GE to pay for OU2 and OU3 O&M costs. If GE refuses, the State will pay if funding is available.

7. I heard there is no State Superfund money left.

   Current State Superfund money has been completely "obligated" and is no longer available to fund this project. However, the Department expects that the State Legislature will pass the Governor's proposed Superfund reform and refinance bill, which will once again provide funds for Superfund projects.

8. The State should require GE to fund a total cleanup of the landfill and the Lake.

   There are many issues here; first, needed upgrades to the landfill are currently planned as is cleanup of off-site groundwater. These activities will require the installation of a water treatment system. The leachate and groundwater issues (OU2) were previously addressed and the Record of Decision issued in January 2001. This meeting is to present the plan for remediation of widespread PCB contamination in the surface drainage from the site to the Lake. The State proposed a "build-and-measure" approach starting with sediment

removal where PCB has accumulated in the surface drainage system. Once the affected sediment is removed, we will monitor the fish and allow natural attenuation of the lake to determine if remedial goals are met. We have not concluded that additional work is not necessary; we will know that only after monitoring of the fish is completed in 3 to 5 years. If more work (remedial) is needed, we are committed to do what is needed to meet the remedial goals. The State has proposed a remedy which:

- meets the remedial goals for near-site areas (IRM, T11A, and Area 28)
- results in the removal of over half of the PCB mass in the entire system
- may be sufficient to meet the remedial goals in the entire Valatie Kill and Nassau Lake
- allows for consideration of future remedial work.

We (the State) contend that the remedial plan would meet the goals - eliminate to the extent practicable the need to post fish eating restrictions. If the goals are met then the plan will have good long-term effectiveness, have complied with SCG's, and will be protective of human health and/or the environment.

9. Who and how will Mead Road be maintained during construction and O&M ?

The contractor will be required to maintain the road in compliance with Town/Village requirements. O&M will likely be conducted by a different state contractor and the onus of road repair would be placed on him. [If the contractor's operations damage the roadway, then the maintenance would be the contractor's responsibility.]

10. Was China Hill Road ever sampled?

Yes, in the late 1980's as part of site assessment, the State conducted sampling on peripheral roads looking for past locations where road oil (containing PCB's) may have occurred. No PCB was found in the road samples. Also, all tributaries to the Valatie Kill up to and beyond (upstream) the site were sampled.

11. Have you tested for dioxin around the landfill?

Yes, samples were obtained for dioxin analysis from fish and biota near the site. Concentrations of dioxin were detected but deemed insignificantly low.

12. I have a 2 year old son on Nassau Lake, is there a health risk? How do PCB

concentrations in Nassau Lake compare to those in the Hudson River?

There is always a health risk, but it is not considered statistically significant. The DOH has assessed the PCB concentrations in the Lake sediments and has concluded that the Lake is safe for all recreational purposes. The concentrations of PCB in Lake sediment are significantly smaller than those in the Hudson. However, Aroclor 1260 is predominant in the lake system and is much more environmentally persistent and significant than the PCB mixtures found in the River. Aroclor 1260 bioaccumulates more readily in the fish. The fish concentrations are comparable in both systems.

13. How long before construction would start?

Construction is currently underway near the site at the IRM - down to and including Mead Road Pond and outlet. Next, the State needs after remedy selection, to request that GE to fund design and then construction. If GE declines, then the State will need to encumber State Superfund money. This will take some time, either way. However, "design" is not difficult, it is conceivable construction could begin next year.

14. Which residential wells are sampled and how often?

There are three properties with contaminated wells. These water supplies were provided with carbon filters and are sampled quarterly. An additional eight wells adjacent to the contaminant plume are not affected but sampled semi-annually with another fourteen residential wells sampled annually. In addition to the residential wells, there are monitoring wells appropriately placed so that we can monitor any changes in the plume. Additional information including a map can be found in the work plan for residential well sampling which is in the repository at the Nassau Library. Attached is a map (Attachment 2) of those wells plus others that have been sampled over the years of our involvement with this project.

15. How will PCBs be removed from the stream and won't some be released to downstream?

PCBs will be removed as fine soil particles, mechanically. They will be dug out. Precautions to divert water in the stream and catch any mobilized soil will be taken to minimize or eliminate resuspension of sediment. This is a design issue to be addressed and approved prior to construction.

16. The proposed plan for the landfill utilizes the existing cap, which has not worked. Why do you expect it will later?

The existing cap at the landfill does a good job shedding water, rain and snow, as it was designed to do. The enhanced landfill containment will provide an inward gradient of

groundwater using a pump and treat system. The system will be designed so that groundwater outside the landfill wants to migrate into the landfill (for withdrawal and treatment) rather than contaminated groundwater (leachate) leaving the landfill as it does now.

17. One alternative is to "completely remove" PCB contaminated sediment in the Valatie Kill, why not do that?

This alternative was evaluated. Although not tremendously more costly, and with the benefit that some additional PCB mass would be removed, it is not otherwise more effective than the alternative proposed.

18. What caused fish kills this spring in Nassau Lake?

There have been reports of many dead/dying fish in Nassau Lake. We know the site contaminants are not lethal to the fish, it is a cause not related to the Loeffel site. Possibly lack of dissolved oxygen in the water due to weed growth, or spawning stress. The lake is eutrophic and based on its depth to surface water ratio, will remain a vulnerable environment for fish.

19. I don't think the PRAP is good enough! Take the site contaminants from the site and drainage way away! Make GE pay!

Comment noted. [See also the response to comment LR7-2, above.]

20. I don't understand how this plan will help Nassau Lake.

The proposed plan is designed to meet remedial goals to include unrestricted consumption of Nassau Lake fish.

21. Are levels (PCB) in the lake (fish) the same now as when sampled last?

Yes, the PCB levels in fish fat have remained virtually unchanged since we started monitoring them in the 1970s. Again, we expect a near immediate response in fish fat PCB concentrations as soon as this remedial plan is implemented.

22. State has never kept its promise, why should we believe you now?

First, we have been actively and aggressively pumping leachate from the site in attempt to curtail leakage. We have studied a complex system to conclude why and where PCB was transported. Finally we are here (again) following our previous proposal for OU2 (groundwater) to present a good remedial plan to address PCBs in the watershed.

23. I heard there have been toxic dump studies that show higher rates of cancer of people that live near them (DOH - Dr. Carpenter studies)

[At the meeting, the New York State Department of Health (NYSDOH) representative indicated that we were not familiar with the study. After the meeting, NYS DOH contacted Dr. Carpenter to find out if he has carried out such a study. Dr. Carpenter responded that he had not conducted a study of rates of cancer in people living near hazardous waste sites. However, he did mention that he has been studying the incidence of endocrine disease among New York residents who live within 15 miles of three different rivers in Erie and Niagara County and some of his coworkers have looked at PCBs and thyroid function in adolescents of the Mohawk Nation at Akwesasne. For further information regarding these studies, residents may contact the NYSDOH at (518) 402-7890. Dr. David Carpenter may be reached at the SUNY School of Public Health at (518) 525-2660.]

24. This site should all be cleaned to 1 ppm ; its all about money - why won't the State make GE spend the money?

For this site, the effect of spending more money is a disproportionate benefit. The object is to fit the remedy to the remedial goals which we have done. The state is obligated to pursue funding by GE and/or recovery of funds from GE under superfund.

25. Why haven't you done a health study?

We (DOH) are working with local interest groups to address their health concern issues.

26. The State should demand full cleanup and make GE pay. The residents should be compensated too.

The remedial program is designed to benefit "the people". Returning the Lake to a useful recreational fishery without consumption restrictions would benefit the public in general. The stigma of the site, its location and impact on surrounding community should diminish with time following successful implementation of the remedial plan.

27. The State and GE have done very little to address this site and its consequences.

The State (and GE) have done a tremendous amount of work at this site beginning with studies following the 7-site agreement in 1980. In 1980 we approved the source containment remedy for the site and implemented the plan in 1983 and 1984. We placed a clay wall into bedrock around the site and covered it with an impermeable cap. Long term monitoring efforts began in 1986 by the State and was taken over by our private consultants in the late 80s. Leachate withdrawal has been intensive in the past 5 or 6

years. The State sued GE in 1989 to conduct off-site investigations which resulted in our remedy selection for enhanced leachate management within the landfill and a pump and treat alternative to address contaminated groundwater outside the landfill. That remedial plan was finalized in January (2001). Concurrent with that effort is the plan we propose tonight to address PCB contamination in the watershed. Leachate pumping and removal continues and a major IRM PCB contaminated soil removal effort is being done as we speak. This is a very complex site which has taken many years to understand through investigations and studies. We are now ready to propose a viable plan.

28. If we can devise different remedial goals and send them to you, would they be considered?

Yes, as long as they are defensible and are consistent with rules and regulations.

29. Is this proposal based on technical merit, or is it political?

There are no political ramifications to this proposal. It stands as the best technical choice to meet the remedial goals.

30. Leaving half the PCBs behind is unacceptable.

Comment noted. As stated earlier [see comment 8 above] the State expects the remedy to meet the remedial goals for the site.

31. Is the State (Attorney General) suing GE?

The State sued GE in 1989 to investigate the extent of contamination and then implement a remedy approved by the State. Who, the State or GE, will pay for this cleanup has not been resolved. The State will request GE to fund the efforts and hopefully they will. If GE refuses or declines to pay, the State will proceed with its lawsuit against GE, seeking a court order requiring the company to implement the cleanup selected by DEC. In the interim, the project will move forward.

32. I want complete cleanup now! Why wait 10 years to see if more needs to be done? Its unacceptable.

The build-and-measure approach is a good viable solution, the only proposal to conclude which inputs are indeed the most critical - PCBs in the stream or PCBs in the lake. Our proposal will address this issue and paves the way to do more if needed. We may need to do a complete removal, we may not. We need to monitor the effect of the action against the remedial goal.

33. I still think the remedy is totally a cost issue.

Comment noted.

34. Is the maintenance of Nassau Lake dam part of the proposal?

Yes, the integrity of the dam is critical to the successful implementation of this project. Catastrophic failure of the dam is unacceptable. The State, Dam Safety Group regularly inspects the dam. They have reported deficiencies but conclude failure is not imminent. GE has retained Stetson-Harza Engineers, I believe, to conduct an inspection and make recommendations for rehabilitation and/or replacement.

35. What was the process to select the remedy at the landfill?

There was an RI/FS conducted in the early 1980s, an Engineering Report prepared by O'Brien and Gere Engineers for GE which concluded in-place encapsulation was an appropriate remedy. As an "early" containment selection, the Department underestimated the importance and magnitude of leachate generation. In January (2001), a Record of Decision was issued addressing landfill enhancements to negate escape of contaminated groundwater to the surrounding area.

36. If we leave the PCBs in the Lake won't we always experience health effects?

The primary health risk associated with the PCBs in the watershed is the consumption of PCB-contaminated fish. The lake water and sediments do not present health concern from a recreational standpoint. [See Response LR5-2 as well.]

37. UNCAGED would like to meet with your supervisor, who would that be (the person who ultimately recommends and approves the proposed plan)?

Michael J. O'Toole is the Division Director, call or e-mail us and we can put you in touch with his secretary. [The Division of Environmental Remediation offices are at 625 Broadway, 12th Floor, Albany, NY 12233]

ATTACHMENT 1

to the

RESPONSIVENESS SUMMARY

NASSAU LAKE EXPOSURE ASSESSMENT AND HEALTH RISK INFORMATION

This exposure assessment identifies completed exposure pathways associated with Nassau Lake. An exposure pathway is the process by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source; (2) environmental media and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population. Environmental media and transport mechanisms "carry" contaminants from the source to points where people are or may be exposed. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, dermal absorption). The receptor population is the person or people who are, or may be, exposed.

1. Estimating Possible PCB Exposures at Nassau Lake

Exposure Routes

People could be exposed to PCBs around Nassau Lake in several ways. People could eat PCB-contaminated fish. People, especially children, might incidentally ingest sediment or soil containing PCBs through hand-to-mouth contact. PCBs could be absorbed through skin that is in contact with PCB-containing sediment or soil while wading or playing. PCBs from the sediment or soil could possibly evaporate into the air and people could breathe them in as a vapor. If the sediment or soil becomes airborne, people could possibly breathe in small particles containing PCBs. If PCBs were in the water, people could take in some PCBs by swallowing some lake water during playing or swimming or absorbing some PCBs through the skin. Although all of these exposures could occur in theory, some are more likely than others.

Exposures from Sediment and Soil

Samples of the sediment and soil at Nassau Lake have been analyzed for PCBs. The levels of PCBs in sediment range from less than 0.08 parts per million (ppm) to 9 ppm. The average PCB level in these samples of the lake's sediment is 2.3 ppm. The average for the sediment in the northern end of the lake is higher (3.1 ppm) than for the southern end (1.6 ppm). Soil samples were taken from five properties, at flood-prone areas at the edge of the lake, and the PCB levels ranged from less than 0.018 ppm to 2.2 ppm. The highest average in any one property was 1.4 ppm. For the other properties, PCB levels averaged 0.23 ppm, 0.05 ppm, 0.04 ppm and non-detect. The PCB levels in the sediment are fairly consistent throughout the lake and the soil levels are, for the most part, lower. We've used the average sediment level of 3 ppm to evaluate exposures and risks. Using this value is likely to overestimate, rather than underestimate, exposures and risks.

People can be exposed to PCBs in contaminated sediment or soil by incidentally eating some soil or sediment or by absorbing PCBs through the skin. We estimated the

average daily amount of PCBs that a six-year-old child would take into the body if he or she were exposed to sediment or soil containing 3 ppm of PCBs. Using procedures outlined by the U. S. Environmental Protection Agency (EPA) and the exposure assumptions shown in Table 3, the amounts would be about 0.008 micrograms of PCBs per kilogram of body weight (mcg/kg) through incidental ingestion and 0.003 mcg/kg through the skin. We also evaluated the health risks associated with these amounts. These intakes are about 500 times less than those that have caused health effects in animals (see figure).

One factor that is important in this evaluation is that the amount of soil-bound PCBs absorbed through the skin and into the body is relatively low, particularly compared to absorption after ingestion. Studies in animals and humans consistently show that about 90% or more of ingested PCBs (not bound to soil) are absorbed into the body (ATSDR, 1998). A study with rats suggests that the percent absorption of soil-bound PCBs when ingested is 70 - 90% (Fries et al., 1989). In contrast, an estimate of the percent absorption of soil-bound PCBs (as Aroclor 1242 or Aroclor 1254) applied to monkey skin is about 14% (Wester et al., 1993).

Exposures from Air

People could breathe in PCBs that evaporate into the air or that are on small airborne sediment or soil particles. General Electric (GE) measured air for PCBs at Nassau Lake at three locations on the shore during the summer of 1997. By taking the samples in the summer, GE increased the likelihood of finding PCBs in the air. No PCBs were detected in the air (detection limit of 0.004 micrograms per cubic meter of air). These results are not surprising because PCBs, especially the Aroclor 1260 at Nassau Lake, do not readily evaporate. Also, we would not expect people to breathe in many small soil particles because the sediment/soil is likely to be damp and small particles are not likely to be produced. Given these data and conditions at Nassau Lake, inhalation exposure is unlikely to be important.

Exposures from Water

With one exception, PCBs have not been detected in the water at Nassau Lake. The detection limit for PCBs was 0.022 micrograms per liter (mcg/L). One sample of lake water taken on November 18, 1993, during heavy runoff contained 0.053 mcg/L. This is below the drinking water standard of 0.5 mcg/L. Given these data, we believe that exposure to PCBs while swimming in the water is unlikely to be important.

Uncertainties

This assessment evaluates data to determine the potential for PCBs to cause health effects in people living at Nassau Lake. Uncertainties are inherent in any exposure or risk assessment. In this assessment, uncertainties are associated with the data on PCB levels in sediment, soil, air and water; some of the assumptions used to estimate exposure; the toxicological data on PCBs; and the human exposure studies. In

preparing this assessment, we used what we consider to be the best available scientific data and likely overestimated, rather than underestimated, exposures.

2. PCB Levels in People Living Near PCB-Contaminated Sediment or Soil

Many studies have measured PCB levels in the blood serum of people potentially exposed to PCBs. Some studies were of people who were exposed because of specific activities, such as their occupation. Other studies looked at people living near contaminated areas. The studies show that certain types of activities increase PCB levels in serum above serum PCB levels in the general population. These activities include working with PCBs, eating contaminated food (e.g., fish), playing with contaminated electrical parts, living on a farm with contaminated silos, or living with someone who was exposed at work (ATSDR, 1998). A few studies examined PCB levels in serum of people who lived near sites with sediment or soil containing PCBs (see Tables 1 and 2). The soil or sediment PCB levels at these sites are, for the most part, much higher than the PCB levels at Nassau Lake. At all sites, the PCB levels in the people's serum were not above levels in the general population, except for those people who engaged in the activities listed previously (e.g., eating PCB-contaminated fish). At one site (Housatonic River Area in Table 2), serum PCBs levels in people engaged in activities associated with soil/sediment exposure (yard work, gardening, canoeing) were similar to those of people who did not engage in such activities.

These studies have limitations and cannot be considered definitive. Only a small number of people were in the studies and only two studies included children (Yaffe and Reeder, 1989, and one study in Stehr-Green et al., 1988).

Table 1. Summary of Biomonitoring Data on Populations Living Near PCB-Contaminated Sites (Adapted from Stehr-Green et al., 1988).

Site	Maximum On-Site Soil (ppm)	Maximum Off-Site Soil (ppm)	Blood Serum PCB Levels in People with Highest Exposure Potential*		
			Number of People	Geometric mean (ppb)**	Percent Below 20 ppb**
Sites with No Evidence of Increased Human Serum PCB Levels***					
Sebastian, AR	no data	133,000	20	5.8	100
Wayne, GA	3,436	149	4	5.1	100
Norfork, MA	220,000	3	89	4.1	100
Ashtabula, OH	no data	0.1	57	4.1	100
Allegheny PA	32,000	1,106	9	2.7	100
Chester, PA	36,000	6,400	22	5.3	95
Pickens, SC	no data	130	27	2.6	96
Marion, WV	22,226	205	24	5.0	96
Monroe, IN (3 sites)#	333,000	3,500	51	9.0#	90#
Sites with Evidence of Increased Human Serum PCB Levels					
New Bedford (Newport) MA##	99,000	no data	42	13##	79##

* People with the greatest reported frequency and duration of activities that might lead to contact with contaminated areas; data for non-workers only except for Sebastian, Pickens, and Marion.

** At the time of the studies, most people without occupational exposure had serum PCB levels in the low ppb range with median levels between 5 - 7 ppb and 95% of the levels were below 20 ppb (5% were 20 ppb or above).

*** Sites where ATSDR (Stehr-Green et al., 1988) did not find a statistically significant increased proportion of non-occupationally exposed people with serum PCB levels substantially above background levels (i.e., the proportion of people with serum PCB levels 20 ppb or above was not significantly different from the expected proportion of 5%).

\# ATSDR (Stehr-Green et al., 1986) could not trace elevated levels in people to any specific environmental (non-occupational) route of exposure (including contact with contaminated soil/sediments) with the possible exception of people who reportedly salvaged metal from discarded electrical equipment; 10% of the people had levels 20 ppb or above which is not significantly ($p = 0.12$) different from the proportion expected (5%); ATSDR recommended additional studies to find out sources of exposure.

People who ate large amounts of locally-caught seafood had higher PCB levels than people who did not eat seafood. Thus, the primary source of environmental exposure was determined to be the consumption of contaminated seafood (Telles, 1982; see Table 2 for follow-up study); 21% of the people had levels 20 ppb or above which is significantly ($p < 0.05$) different from the expected proportion of 5%).

Table 2. Conclusions Regarding Human Blood Serum PCB Levels in Populations Living Near PCB-Contaminated Sites in Massachusetts and Canada.

Study	Environmental Contamination	Study Conclusion
Housatonic River Area PCB Exposure Assessment (MDPH, 1997)	**Sediment** (108 samples; 0-0.5 inches in depth; over 4 miles of the most heavily contaminated river areas): Five areas (means) = 20, 20, 30, 15, 3.1 ppm **Soil** (987 samples; all depths, floodplain soil sampling of same river areas as above): Five areas (means) = 12, 22, 22, 2.4, 0.5 ppm	Serum levels of individuals with highest potential for exposure to PCBs from daily activities in and around area were generally within the background range for non-occupationally exposed US populations; occupational exposures increased significantly serum levels; other activities (including eating fish, gardening, other yard work, canoeing) did not increase significantly serum levels
Greater New Bedford PCB Health Effects (MDPH, 1987; Miller et al., 1991)	Hot-spot sediment contamination levels were >200,000 ppm. Mean seafood levels = 131 ppm. Eels were as high as 730 ppm, and lobsters were as high as 68 ppm	The proportion of elevated serum PCBs in the sample of residents was found to be typical of non-occupationally exposed urban populations in the US; eating locally-caught seafood increased serum levels
Norwood Public Exposure Assessment Program (MDPH, 1991)	Initial surface soil samples (before remediation) were as high as 110,000 – 220,000 ppm. Off-site soil samples near 3 residences were 0.1 ppm, 0.1 ppm, and 1.6 ppm	Serum levels found in the Norwood population were well within the normal range of the typical non-occupationally exposed US population
Soil Contamination in Toronto (Yaffe and Reeder, 1989); study area within 500 meters of a plant that had used PCBs	**Soil Levels** / **Study Area** / **Control Area** No. samples: 23 / 20 No. < 0.1 ppm: 7 / 15 No. > 0.25 ppm: 5 / 2 Max: 2.7 ppm / 0.35 ppm GM*: 0.19 ppm / 0.12 ppm *geometric means significantly ($p < 0.2$) different	30 children from study area and 21 children from uncontaminated area similar in age and sex distribution and similar in exposure potentials (including via breastmilk, fish consumption, soil contact, and parental occupation) showed similar serum levels of PCBs, and all levels were comparable to those of other children with no known PCB exposure except the American diet

Table 3. Assumptions for Estimating Exposure to PCBs in Nassau Lake Soil and Sediment.

Parameter	Value
Dermal Exposure Assumptions	
Exposure frequency	5 days per week; 4 months per year (mid-May through mid-September)
Area of exposed skin	lower legs, feet, forearms and hands (2841 square centimeters)
Soil-to-skin adherence factor	0.2 milligrams of soil or sediment per square centimeter of skin
Fraction of PCBs dermally absorbed from soil/sediment	0.14 (14 percent)
Average body weight of 6-year old child	22.6 kilograms
Ingestion Exposure Assumptions	
Exposure frequency for ingestion of outdoor soil/sediment	5 days per week; 4 months per year (mid-May through mid-September)
Exposure frequency for ingestion of outdoor soil/sediment tracked indoors	365 days per year
Amount of outdoor soil/sediment ingested	80 milligrams per day
Amount of indoor soil/sediment ingested	40 milligrams per day
Fraction of PCBs absorbed from ingested soil/sediment	1 (100 percent)
Average body weight of 6-year old child	22.6 kilograms

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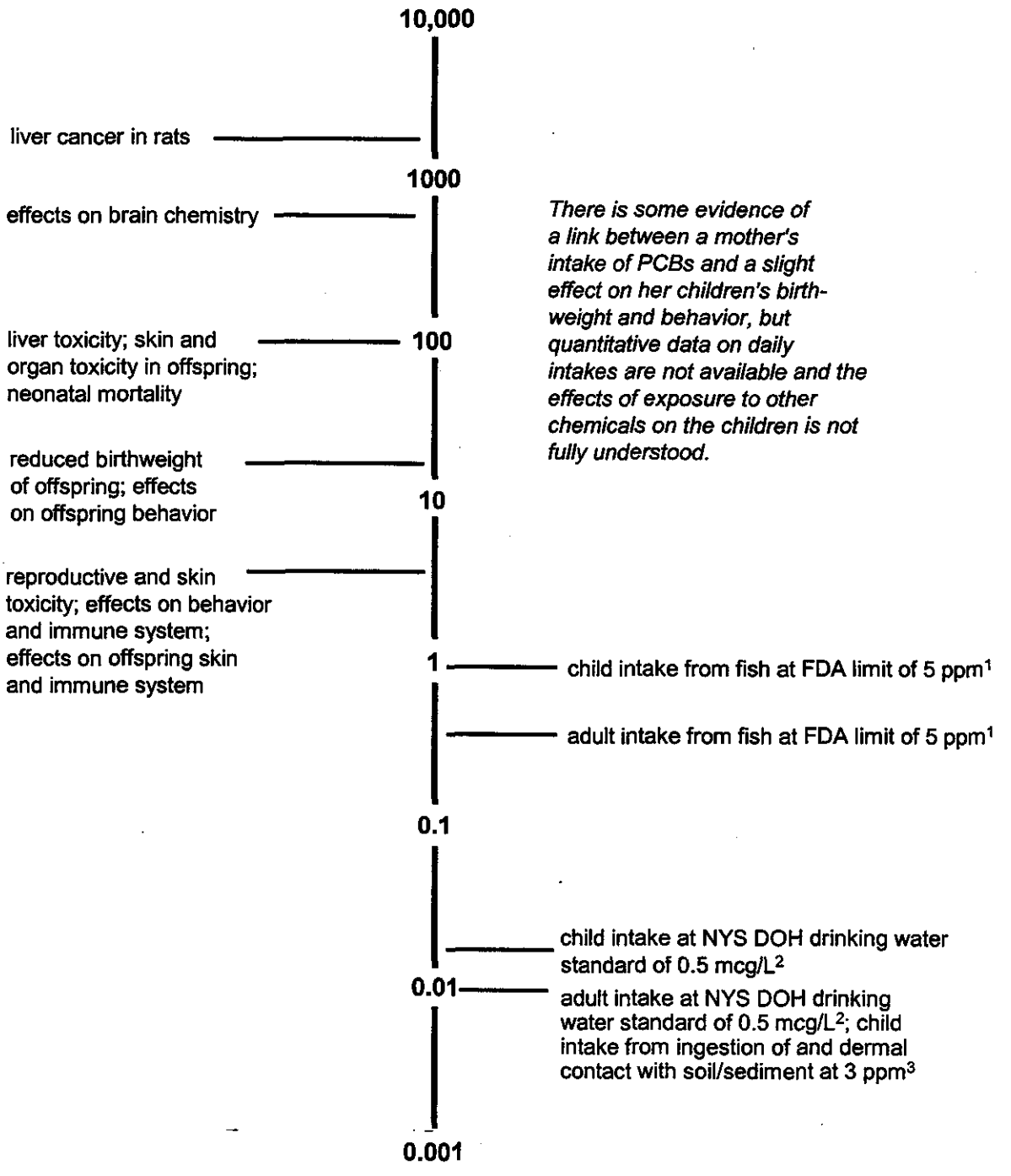
Comparison of PCB Intakes Causing Heath Effects in Animals to Estimated PCB Human Intakes.

Long-term Exposure
(greater than 14 days)



* These effects are listed at the lowest level at which they were first observed. They may also be seen at higher levels.

**Micrograms of PCBs per kilogram body weight per day (mcg/kg/day).

[1] PPM is parts per million. Intake based on 70-kg adult eating 0.5 pound of fish per month and 22.6-kg child eating 0.3 pound of fish per month. The PCB concentration in fish (5 ppm) is based on data for largemouth bass collected from Nassau Lake in 1997.

[2] Intake based on 70-kg adult drinking 2 liters of water per day and 22.6-kg child drinking 1 liter of water per day at 0.5 micrograms PCBs per liter of water (0.5 mcg/L).

[3] See Table 3 for exposure assumptions.

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ATTACHMENT 2

to the

RESPONSIVENESS SUMMARY

APPENDIX B

ADMINISTRATIVE RECORD

Dewey Loeffel Site
Loeffel Environs
Operable Unit 03

Appendix B - Administrative Record Document List

Blasland, Bouck & Lee, Inc., 1992. Remedial Work Plan, Loeffel Site Environs. Prepared for the General Electric Company, Revised July 1992.

Blasland, Bouck & Lee, Inc. 1992. Sampling and Analysis Plan Blasland, Bouck & Lee, Inc., 1992. Health and Safety Plan

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