



Division of Environmental Remediation

Record of Decision
C&D Power Systems (C&D Batteries) Site
Town of Deerpark, Orange County
Site Number 3-36-001
Operable Unit No. 1

March 2002

DECLARATION STATEMENT - RECORD OF DECISION

C&D Power Systems (C&D Batteries) Inactive Hazardous Waste Disposal Site Town of Deerpark, Orange County, New York Site No. 3-36-001 Operable Unit No. 1

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the C&D Power Systems (C&D Batteries) 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).

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the C&D Power Systems (C&D Batteries) inactive hazardous waste disposal site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents presented 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 the C&D Power Systems (C&D Batteries) and the criteria identified for evaluation of alternatives, the NYSDEC has selected excavation and disposal of the top six to eight feet of the contaminated lagoon soil and ex-situ stabilization of the remaining contaminated unsaturated lagoon soil. The components of the remedy are as follows:

- The excavation and removal of lagoon soil to a depth of up to 8 feet from the bottom of the lagoon;

- Placement of several feet of clean fill in the lagoon excavation to provide a buffer between the treated waste and the fluctuating groundwater table, replacement of stabilized soils (treated wastes) back into the lagoon excavation, backfill with clean fill to the existing grade of the surrounding areas, and placement of a geomembrane liner/asphalt cover;
- Semi-annual sampling of on-site monitoring wells will be conducted as part of a long-term monitoring program to monitor the effectiveness of the on-site stabilization;
- Deed restrictions will be recorded in the chain of title of the property to restrict the future use of the former lagoon area to industrial use only, mandate the maintenance of the geomembrane liner/asphalt cap, and require notification to the NYSDEC when excavation of the capped area is planned;
- Annual certification by the property owner that the site is in compliance with the institutional controls outlined in this ROD.

New York State Department of Health Acceptance


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

Declaration

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

3/27/2002

Date



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

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C&D Facility from Route 209 Entrance



Site Location: Huguenot, Orange
County, New York

RECORD OF DECISION

**C&D Power Systems (C&D Batteries) Site
Town of Deerpark, Orange County
Site No. 3-36-001
Operable Unit No. 1
March 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 (NYSDOH) has selected this remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the C&D Power Systems (C&D Batteries) Class 2, inactive hazardous waste disposal site. The site has been divided into two operable units. This Record of Decision (ROD) addresses on-site soil contamination in the unsaturated (vadose) zone that has been designated as Operable Unit No.1 (OU1). A separate ROD for Operable Unit No. 2 (OU2), which addresses the on-site and off-site groundwater contamination, and off-site stream sediment and surface water contamination, will be issued at a later date. OU2 has been designated for further environmental investigation and study and is more fully described in Section 3.2. As described in Sections 3 and 4 of this document, past waste management practices resulted in the disposal of a number of hazardous wastes, including polychlorinated biphenyls (PCBs), barium, cadmium, fluoride, and lead at the site, some of which have migrated from the site to surrounding areas, including the private potable water supply well; contaminants may also have impacted sediment and surface water of an adjacent stream. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

- C a significant threat to human health associated with the contamination of the soil at the site, and the potential risk of exposure to the contaminants by direct contact and ingestion.
- C a significant environmental threat associated with the migration of contaminants to the groundwater and wildlife exposure to site soils.

In order to restore the C&D Power Systems (C&D Batteries) inactive hazardous waste disposal 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:

- C excavation and disposal of the top six to eight feet (21 feet to 23 feet bgs) of the contaminated lagoon soil and ex-situ stabilization of the remaining contaminated lagoon soil.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for OU1, 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 C&D Power Systems (C&D Batteries) site (NYSDEC ID No. 3-36-001) is located at C&D Technologies, Inc., Route 209, Town of Deerpark, Orange County, New York. The site is approximately 4,000 ft north of the junction of US Route 209 and County Route 80 and approximately 4 miles northeast of the City of Port Jervis. The facility, located in the Neversink River Valley, is bordered on the west by Route 209, on the south by the Town of Deerpark Town Hall, and on the north and east by a tributary to the Neversink River. The site is approximately 10 acres in size. A location map and a site map are included as Figures 1 and 2, respectively.

OU1, which is the subject of this ROD, addresses on-site soil contamination in the unsaturated zone. An operable unit represents a portion of the site which, for technical or administrative reasons, is addressed separately to eliminate or mitigate a release, threat of release, or exposure pathway resulting from the site contamination. OU2 addresses the on-site and off-site groundwater contamination and off-site stream sediment and surface water contamination. Saturated soil contamination will be addressed as on-site groundwater contamination under OU2. A separate PRAP and ROD will be prepared for OU2 at a later date.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

From the year 1959 until at least 1968, the site was used by Empire Tube Corporation (ETC) for the manufacture of black and white television picture tubes. In the manufacturing process, fifteen percent (15%) hydrofluoric acid was used to remove carbon, potassium silicate, phosphorous and barium from the picture tubes. Wastewater containing hydrofluoric acid was disposed of by ETC in an on-site lagoon of approximately 150 ft diameter and a depth of about 15 ft. During 1964, the NYSDOH inspected ETC's waste disposal system and found elevated levels of fluoride. In 1966, a complaint was filed by NYSDOH regarding discharge of industrial wastes into the waters of the State of New York. C&D, a manufacturer of industrial lead batteries, primarily used in forklifts, purchased the facility and began operations in the mid-1970s. C&D discharged non-contact cooling water into the lagoon until approximately 1982, which resulted in the accumulation of one to two feet of water in the lagoon. It should be noted that since the cessation of the lagoon operations, there has been no standing water in the former lagoon. Over the years, C&D has changed its name from C&D Batteries to C&D Charter Power Systems, Inc., and finally to C&D Technologies, Inc.

3.2: Remedial History

1981 - NYSDEC directed C&D to conduct soil sampling in the lagoon.

1982 - In connection with C&D's interest in expanding the plant building over the former lagoon, C&D conducted a groundwater study around the lagoon.

1983 - The site was classified as 2a in the New York State Registry of Inactive Hazardous Waste Disposal Sites (the Registry) due to the elevated fluoride levels in groundwater downgradient of the former lagoon and soil in the former lagoon. Class 2a is a temporary classification assigned when there is inadequate and/or insufficient data to allow inclusion of the site in any of the other Registry classifications.

1984 - C&D entered into an Order on Consent with NYSDEC for a groundwater monitoring program.

1988 - A Phase II investigation was conducted and results indicated that the site was not a threat to the environment. However, no analysis for fluoride in either the groundwater or the soil was performed.

1990 - NYSDEC conducted additional groundwater monitoring and found fluoride levels more than ten times above background levels, exceeding the New York Class GA groundwater standard for fluoride. Subsequently the site was reclassified to Class 2, which is defined as a site that presents a significant threat to human health and/or the environment and requires action.

1991 - NYSDEC notified C&D that a Remedial Investigation/Feasibility Study (RI/FS) was required.

1999 - C&D entered into an Order on Consent with the NYSDEC to conduct a RI/FS. Field work for the remedial investigation commenced in August of 1999.

A more complete description of the site history and industrial facilities has been provided in the Remedial Investigation Report of May 2001.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste, C&D has recently conducted a Remedial Investigation/Feasibility Study (RI/FS).

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.

The OU1 RI was conducted from July 1999 to December 2001. A report titled Remedial Investigation Report of May 2001 by C&D Technologies, Inc. has been prepared which describes the field activities and findings of the RI in detail. In the early stages of the RI, there were three analytes of concern: barium, fluoride and lead. In addition to the analytes of concern, selected soil samples were analyzed for the full suite of contaminants. These soil samples revealed elevated levels of cadmium and PCBs. Therefore, additional soil sampling to define the vertical and horizontal extent of these contaminants was performed also.

The RI included the following activities:

- Collection of two background surface soil samples;
- Performance of six subsurface soil borings to a maximum depth of 17 feet (32 feet bgs) within the former lagoon with analysis of soil samples for PCBs and cadmium to further evaluate the vertical extent of the soil contamination;
- Gamma scintillation counting on the lagoon surface soils to determine the level of barium radiation;
- Excavation of ten test pits to a maximum depth of 12 feet (27 feet bgs) within the former lagoon with analysis of soil samples to further evaluate the vertical extent of the soil contamination;
- Toxicity Characteristic Leaching Procedure (TCLP) analysis of seven selected soil samples to determine the leachable concentrations of hazardous waste at depth on site;
- Collection of ten surface soil samples within the former lagoon with analysis for PCBs and cadmium to further evaluate the horizontal extent of the soil contamination;
- Redevelopment of the seven existing groundwater monitoring wells from the Phase II Investigation and sampling to provide data for an analysis of groundwater contamination and hydrogeologic conditions;
- In-situ hydraulic conductivity testing of monitoring wells to provide data for an analysis of groundwater and hydrogeologic conditions;
- Collection of four sediment samples from the adjacent tributary to the Neversink River with analysis for barium, fluoride and lead.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the RI analytical data was compared to the NYSDEC's standards, criteria, and guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the C&D site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and human health exposure scenarios.

In addition, site specific soil background concentration levels can be considered for certain classes of contaminants. Guidance values for evaluating contamination in sediments are provided by the NYSDEC “Technical Guidance for Screening Contaminated Sediments”.

The RI results, when compared to the SCGs and potential public health and environmental exposure routes, indicate that certain media and areas of the site require remediation. These are summarized below. Detailed information can be found in the RI Report.

Contaminant concentrations in water are reported in parts per billion (ppb), and in soil and sediment in parts per million (ppm). For comparison purposes, where available, SCGs are provided for each medium.

4.1.1: Site Geology and Hydrogeology

The C&D facility is located in the Valley and Ridge Physiographic Province. This province is characterized by the presence of folded Paleozoic sedimentary rocks that include sandstone, shale, and limestone. The long axis of the folds generally trend northeast-southwest, resulting in distinct parallel ridges oriented in this direction. The Neversink Valley is part of a large trough developed over soluble limestone.

The facility and surrounding area is underlain by glacially deposited sand and gravel that gets coarser with depth. The irregular thickness of the deposit ranges from less than 10 feet to approximately 150 feet. This unit is an unconsolidated principal aquifer with wells yielding approximately 10 to 100 gallons per minute. Depth to groundwater is approximately 29 feet below ground surface (bgs). Groundwater flows southeast towards the unnamed tributary to the Neversink River which lies east of the site.

4.1.2: Nature of Contamination

As described in the RI report, many soil, groundwater and sediment samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants which exceed SCGs are inorganics (metals), and polychlorinated biphenyls (PCBs). The inorganic contaminants of concern are barium, cadmium, fluoride, and lead. The organic contaminants of concern are PCBs as Aroclor 1254.

4.1.3: Extent of Contamination

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

Soil

During the RI, soil samples collected from the former lagoon were taken at the surface and at various depths down to the groundwater table, which is approximately 14 feet below the lagoon soil surface (29 feet bgs). Ten test pits (TP) were dug to a depth of 12 ft (27 feet bgs), from which a total of 53 soil

samples were taken, and analyzed for barium, fluoride, and lead. Barium concentrations in the lagoon soil ranged from 121 to 7,710 ppm at the 4 feet level, while background samples exhibited concentrations at 16 ppm or less. Barium concentrations did not decrease substantially with depth, for at TP-8 (12 ft level), barium was detected at 3,150 ppm. Fluoride levels were comparatively lower, ranging from nondetect (ND) to 327 ppm at the surface. Lead concentrations increased with depth in test pits TP-1,4,6, and 10 but at others, concentrations were highest at the surface. Overall, lead contamination ranged from 8.4 to 13,000 ppm, with the highest contamination in TP-4. Background levels for lead were determined to be 13 ppm or less. Two samples, TP-4 (10' interval) and TP-9 (0' interval), were analyzed for the full suite of TCL/TAL parameters. This analysis revealed cadmium and PCB contamination, specifically Aroclor 1254, along with elevated levels of chromium, copper, mercury, silver and zinc. For more information, please refer to Table 1.

In order to better define the horizontal extent of the PCB and cadmium contamination, 10 surficial soil samples were collected from the former lagoon. Analysis yielded cadmium concentrations from 32.5 to 46,200 ppm and Aroclor 1254 from 34 to 1,100 ppm.

Based on this sampling, 6 sub-surface soil borings, with split-spoon analysis, were undertaken to better define the vertical extent of the PCB contamination. The borings were advanced to approximately 14 feet (29 feet bgs) to the groundwater table with split-spoon samples taken every 2 feet. PCBs ranged from ND to 580 ppm, with the highest concentration at the 3-5' interval. At the water table, concentrations of cadmium ranged from 1.2 to 1,340 ppm while lead concentrations ranged from 11.4 to 377 ppm. For more information, please refer to Table 1.

Selected soil samples from depths greater than 6 feet were analyzed for leachable concentrations of cadmium and lead via TCLP, which is a process that determines whether a soil is a characteristic hazardous waste. Four out of the seven TCLP samples failed for cadmium with the greatest exceedence at 12 feet in TP-8 with a value of 4.07 milligrams per liter (mg/L), which is above the standard of 1 mg/L. One of the seven failed for lead TCLP at a depth of 10 feet in TP-4 with a value of 5.46 mg/L, which is above the standard of 5 mg/L.

Sediments

Four stream sediment samples were collected and analyzed for barium, fluoride and lead during the remedial investigation. Of the three analytes, only lead has established sediment criteria: a lowest effect level (LEL) of 31 ppm and a severe effect level (SEL) of 110 ppm. Three out of four samples exceeded the lead LEL, and one of which exceeded the SEL at 195 ppm. Barium was detected in all of the samples with the highest detection in SED-4 at 90.1 ppm while fluoride was detected in two of the four sediment samples with the highest detection in SED-3 at 53.9 ppm. However, analysis for PCBs and cadmium was not conducted but will be performed under OU2.

Groundwater

Groundwater samples were taken and analyzed during the remedial investigation. Fluoride was detected in four of the five downgradient monitoring wells at concentrations that were significantly above the applicable SCGs (NYSDEC groundwater standard). The maximum fluoride concentration found was 10,900 ppb in MW-7 which is significantly above the SCG of 1,500 ppb. Although PCBs were detected in two downgradient monitoring wells, only one well, MW-6, detected a PCB concentration of 0.24 ppb which is above the SCG of 0.09 ppb. Lead was detected above SCGs in one well, MW-6, at 29.4 ppb, in an unfiltered sample. However, the filtered sample did not detect lead at all.

One private well downgradient of the site, which is the only known downgradient private water supply, was found to be impacted with fluoride at 3.85 ppb which is above the NYSDOH drinking standard of 2.2 ppb. Two subsequent samplings found no contamination above the drinking water standards. Water quality in this private potable well will continue to be monitored by Orange County.

On-site and off-site groundwater, including the water quality of this private potable well, will be further investigated and addressed under OU2.

Surface Water

Surface water samples of the unnamed tributary to the Neversink River adjacent to the site were not taken during the remedial investigation. However, the results of the remedial investigation indicate the possibility of surface water contamination, and such sampling will be addressed in a supplemental investigation under OU2.

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 can be found in Section 1.5 of the RI report.

An exposure pathway is the means by which an individual may come in 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.

Pathways which are known to or may exist at the site include:

- Inhalation of contaminated dusts
- Direct contact (incidental ingestion and dermal contact) with contaminated surface and subsurface soils

Due to the restricted access of the area through fencing of the C&D property and the lagoon itself, there is presently little possibility of exposure to contamination by ingestion of soil. Short-term exposure to contaminants in the soils is a concern for workers involved in construction activities that involve disturbance of site soils. Dust inhalation and ingestion of soil particles are the primary routes of potential exposure for construction workers.

4.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The potential pathway for environmental exposure and/or ecological risks includes the impacts of contaminants to the groundwater and wildlife exposure to surface and subsurface soils in the former lagoon.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are owners or users of the site who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers. C&D Technologies, Inc., and its predecessors C&D Batteries and C&D Charter Power Systems, Inc., as well as Avnet, Inc., and its predecessor Empire Tube Corp, are currently identified as PRPs for this site

The NYSDEC and C&D Technologies Inc. entered into an Order on Consent on July 19, 1999. The Order obligates C&D Technologies Inc. to implement a RI/FS. Upon issuance of the Record of Decision the NYSDEC will approach PRPs to implement the selected remedy under a separate Order on Consent.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all SCGs and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Eliminate, to the extent practicable, exposures to contaminants present within the soils on site.
- Eliminate, to the extent practicable, further release of contaminants to the groundwater.
- Eliminate, to the extent practicable, the exposure of wildlife to levels of inorganic compounds and PCBs above standards/guidance values.

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 C&D site were identified, screened and evaluated in the report entitled Feasibility Study Report Operable Unit-1 of November 2001 for C&D Technologies, Inc.

This operable unit addresses on-site soil contamination in the unsaturated zone. On-site soil contamination in the saturated zone will be addressed as on-site groundwater. On-site groundwater, off-site groundwater and off-site stream sediment and surface water have been designated for further environmental investigation, study, and evaluation under OU2.

A summary of the detailed analysis follows. As presented below, the “Time to Implement” reflects only the time required to construct and operate the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties.

All soil remedial alternatives that include the disposal of PCB contaminated waste will comply with the Enforcement Directive titled Land Disposal Restrictions Phase IV Supplemental Rule which temporarily defers a portion of the LDR rules that apply to PCBs.

7.1: Description of Remedial Alternatives

The potential remedies are intended to address the contaminated soils in the unsaturated zone at the site and to prevent the ingestion of contaminated groundwater from the downgradient potable supply well. The present worth costs include the operations and maintenance (O&M) costs. For comparative purposes, a time frame of 30 years was used to develop the O&M costs.

No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. Under the No Action alternative, the site is allowed to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Present Worth:	\$ 0
Capital Cost:	\$ 0
Annual O&M:	\$ 0
Time to Implement	0

Alternative 1: Excavate And Off-Site Transportation And Disposal

To mitigate the source of contamination, lagoon soils would be excavated to a depth of approximately 14 feet (29 feet bgs). This would remove the surface and subsurface vadose zone soils contaminated with PCBs, metals and fluoride above the SCGs.

The top five feet of the lagoon soils (approximately 1813 cubic yards (cy)), is expected to have PCB concentrations greater than 50 ppm and cadmium concentrations significantly above standards. This material would be transported to a Resource Conservation and Recovery Act (RCRA) permitted facility approved to take Toxic Substances and Control Act (TSCA) hazardous waste. The waste would be treated for cadmium toxicity hazardous waste characteristics and, ultimately, disposed. The remaining nine feet of lagoon soils (approximately) is expected to have PCB concentrations less than 50 ppm. These soils would be excavated, transported off-site and disposed of at a RCRA permitted facility for treatment and disposal of cadmium toxicity characteristic hazardous waste.

Excavation would be discontinued at the groundwater table and, therefore, it is anticipated that minimal dewatering would be necessary. However, any water collected during excavation would be treated as necessary with either an on-site waste water treatment system or at an off-site treatment facility.

The excavated area would then be backfilled with clean fill (approximately 11,000 cy) to the existing grade of the surrounding areas. Monitoring of the groundwater would be performed for an estimated five years to ensure that no residual source of groundwater contamination in the unsaturated zone would be left on site.

Present Worth:	\$2,936,000
Capital Cost:	\$2,918,000
Annual O&M:	\$0
Time to Implement	10 weeks

Alternative 2: Partial Excavation (Top Foot), Disposal, Geomembrane Liner/Asphalt Cap, Institutional Controls, and Long-Term Monitoring

To remove the most highly contaminated PCB and cadmium contaminated soils, the first foot (16 feet bgs) of the lagoon soils (approximately 363 cy) would be excavated and disposed of at an off-site TSCA/RCRA permitted facility. Excavation would be above the groundwater table and, therefore, minimal dewatering would be necessary. The excavated area would be backfilled with clean fill. A geomembrane liner/asphalt cap would be constructed to the existing grade to prevent precipitation infiltration and migration of the contaminants down to the groundwater table. Because contaminated soils would be left untreated on-site, institutional controls would be implemented which would include deed restrictions to be recorded in the chain of title of the property to restrict the future use of the former lagoon area to industrial use only, mandate the maintenance of the cap, and require notification to the NYSDEC when excavation of the capped area is planned. Because un-treated hazardous waste would be left on-site

under the geomembrane liner/asphalt cap, a long-term groundwater monitoring program would necessary.

Present Worth:	\$ 709,000
Capital Cost:	\$ 646,000
Annual O&M:	\$ 4,100
Time to Implement	8 weeks

Alternative 3: Partial Excavation (Top 3 to 4 Feet), Disposal, Geomembrane Liner/Asphalt Cap, Institutional Controls, and Long-Term Monitoring

To remove the majority of the high PCB and cadmium contaminated soils, the first three to four feet of the lagoon soils (18 feet to 19 feet bgs) would be excavated and disposed of at an off-site TSCA/RCRA permitted facility. Excavation would be discontinued significantly above the groundwater table and, therefore, minimal dewatering would be necessary. The excavated area would then be backfilled with clean fill. A geomembrane liner/asphalt cap would be constructed to the existing grade to prevent precipitation infiltration and migration of the contaminants down to the groundwater table. Because contaminated soils would be left untreated on-site, institutional controls would be implemented which would include deed restrictions to be recorded in the chain of title of the property to restrict the future use of the former lagoon area to industrial use only, mandate the maintenance of the asphalt cap, and require notification to the NYSDEC when excavation of the capped area is planned. Because un-treated hazardous waste would be left on-site under the geomembrane liner/asphalt cap, a long-term groundwater monitoring program would be necessary.

Present Worth:	\$ 1,133,000
Capital Cost:	\$ 1,070,000
Annual O&M:	\$ 4,100
Time to Implement	8 weeks

Alternative 4: Excavate (Top 6 to 8 Feet), Disposal, Stabilization, Geomembrane Liner/Asphalt Cap, Institutional Controls, and Long-Term Monitoring

In this alternative, the first six to eight feet of the lagoon soils (21 to 23 feet bgs) would be excavated and disposed of at an off-site TSCA/RCRA permitted facility. The remaining lagoon soils would then be excavated to a depth of 14 feet (29 feet bgs) or groundwater table, whichever is encountered first, and stabilized on-site with trisodium phosphate to transform the metal constituents into insoluble metal phosphate compounds. Several feet of clean fill would be placed in the lagoon excavation to provide a buffer between the fluctuations in the groundwater table and the treated soil that would subsequently be placed back into the lagoon. The excavated area would be backfilled with clean fill to the existing grade of the surrounding areas and a geomembrane liner/asphalt cap would be installed over the area to prevent precipitation infiltration.

Bench scale and pilot scale treatability studies would be required to determine the dosing rate and long-term effectiveness of the trisodium phosphate technology on the site specific soils. If trisodium phosphate

does not prove to be effective, a more conventional stabilizing agent such as fly ash or lime kiln dust may be chosen for use.

Institutional controls would be implemented, which would include deed restrictions to be recorded in the chain of title of the property to restrict the future use of the former lagoon area to industrial use only, mandate the maintenance of the asphalt cap, and require notification of the NYSDEC when excavation of the capped area is planned to ensure that the ex-situ stabilized soils that were placed below the cap remain undisturbed. In addition, a long-term groundwater monitoring program would also be conducted.

Present Worth:	\$2,360,000
Capital Cost:	\$2,297,000
Annual O&M:	\$4,100
Time to Implement	12 weeks

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 included in the Feasibility Study.

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

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

The relevant SCGs for soil at the C&D site are the NYSDEC recommended soil cleanup objectives (RSCO). These values are defined in TAGM 4046 and are determined based on direct human exposures, the protection of groundwater and background levels. Groundwater protection is necessary to protect human health via consumption of the affected aquifer and to protect the surface water quality of the tributary to the Neversink River. Other applicable criteria are regulations promulgated under the Clean Water Act, RCRA and TSCA.

The No Action Alternative would not meet the standards and guidance values for soil cleanup and therefore would not be expected to achieve groundwater and surface water quality standards.

Alternative 1 would meet the NYSDEC soil cleanup objectives and the TSCA cleanup standards for PCB cleanups. Alternative 2 would leave untreated soil on site which would neither meet the SCGs nor the TSCA standards for PCB cleanups. Alternative 3 would not meet the applicable SCGs but it would meet the TSCA standards for PCB cleanups. These two alternatives, Alternative 2 and Alternative 3 would remove soil most heavily contaminated with cadmium, fluoride and PCBs, however it would leave

subsurface soils that are well above the applicable SCGs. Alternative 4, which calls for the excavation of the top six to eight feet of the lagoons soils and the ex-situ stabilization, as discussed in Section 7.1, of the remaining unsaturated soils, does not leave any untreated soils left on-site and therefore would meet the SCGs.

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The No Action Alternative would provide no additional protection of public health or the environment. The remaining alternatives would effectively prevent direct human contact with contaminated soils. However, these alternatives differ in the degree of environmental protection they provide.

Alternatives 2 and 3 would prevent rain infiltration with the geomembrane liner/asphalt cap but would leave significant amounts of untreated hazardous waste on site. Alternative 4, Partial Excavation and Ex-situ Stabilization, would ensure that the soil contaminants are sufficiently immobile, providing a greater degree of environmental protection. Because excavation and off-site disposal (Alternative 1) would eliminate all sources of contamination in the vadose zone, Alternative 1 provides the greatest degree of overall environmental protection. However, none of the soil alternatives would address the soil contamination in the saturated zone, which will be addressed as part of the on-site groundwater under OU2.

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

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

The No Action Alternative would have no short term impact on human health and the environment. Each of the alternatives involve some excavation, each varying in depth. The alternatives with the least amount of short term impacts would be Alternatives 2 and 3, due to a relatively smaller amount of soil that would be excavated and the shorter duration of construction. Alternatives 1 and 4 would have a greater amount of short term impact due to the larger amount of soil to be excavated and the longer construction duration.

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.

The No Action Alternative would provide no long term effectiveness in providing environmental or human health protection.

Alternatives 1 and 4 provide the most long-term effectiveness by eliminating or minimizing long-term residual risks since all the overburden soils with concentrations above the SCGs would be either permanently removed and transported off site for disposal or undergo the stabilization process as described in Section 7.1. Alternatives 2 and 3 would provide a lesser degree of long-term effectiveness. The potential for direct contact would be decreased but a potential source of groundwater contamination would be left on site.

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.

The No Action Alternative would not reduce the mobility, toxicity, or volume of contaminated soil because the contaminants would remain in the ground and would continue to leach into the groundwater.

Alternative 1, Excavation and Disposal, provides the greatest reduction in contaminant volume, toxicity and mobility by excavating contaminated soil for off-site treatment and disposal. Alternatives 2 and 3 would reduce the toxicity and volume of the contaminated material, but significant quantities of untreated contaminant concentrations would be left on site. However, Alternatives 2 and 3 would reduce the mobility by reducing precipitation infiltration with the geomembrane liner/asphalt cap. Alternative 4, which calls for the off-site treatment and disposal of the top six to eight feet of soils (21 to 23 feet bgs), and stabilization of soils at eight to fourteen feet depth would effectively reduce the mobility of contamination.

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.

The No Action Alternative would be the most readily implementable since no construction or operation is necessary.

Each of the other alternatives calls for and varies in the degree of excavation of contaminated soil. Alternative 2, which calls for the least amount of excavation (only the top foot of the lagoon), would be the most implementable. Alternative 3 involves the excavation of the first three to four feet of the lagoon and would provide a high degree of implementability. Alternative 1 involves the excavation and disposal of all the contaminated material and would be implementable. Alternative 4, would require excavation and ex-situ stabilization along with bench scale and pilot scale treatability studies to determine the effectiveness of the stabilizing agent trisodium phosphate. Therefore Alternative 4 would be more difficult to implement.

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.

The No Action Alternative would require no additional capital cost, or operation and maintenance cost. Alternative 1, Excavation and Disposal, is the highest cost alternative under consideration. Alternative 2, (Excavation of Top Foot) would require a relatively low cost to implement. Alternative 3, (Excavation of Top Three to Four Feet), has a somewhat higher cost than Alternative 2 associated with the additional contaminated soils to be excavated for off-site treatment and disposal. Alternative 4, Ex-situ Stabilization, would have a higher cost than Alternatives 2 or 3 to implement but would be more cost effective than Alternative 1.

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 in Appendix A presents the public comments received and the Department's responses to the concerns raised.

At the public meeting, several people asked for clarification on the proposed remedy. Also, several written comments were received, including three letters encouraging the Department to select Alternative 1, complete excavation and disposal of on-site contaminated soil, over the proposed remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 4 (Partial Excavation and Ex-situ Stabilization) as the remedy for OU1 of this site. Alternative 4, Partial Excavation And Ex-situ Stabilization, includes the excavation and removal of the most highly contaminated soils of the lagoon soils to a depth of 6 to 8 feet (21 to 23 feet bgs) and ex-situ stabilization of the soils from a depth of 6 to 8 feet (21 to 23 feet bgs), down to 14 feet (29 feet bgs) or to the groundwater table, to address the metal and PCB soil contamination at the source area.

The remedy selection is based on the greater degree of environmental protection, permanence, long-term effectiveness, cost effectiveness and reduction of mobility that partial excavation and ex-situ stabilization would provide. Although partial excavation and ex-situ stabilization will be more difficult to implement, require a bench scale and pilot study program and will create increased short-term exposure risks, these criteria are offset by the greater overall protection of public health and the environment, long-term effectiveness and cost effectiveness. In summary, Alternative 4 appears to be a protective and cost-effective alternative.

The selected remedy is the preferred remedy for this site and compared favorably to the other alternatives.

The No Action Alternative will provide no environmental protection and is not expected to attain SCGs.

Alternatives 2 and 3 will provide some environmental protection, but will not attain SCGs. Although Alternative 1, Excavation and Disposal, provides the greatest environmental protection, it is also the most costly alternative.

The estimated present worth cost to implement the selected remedy is \$2,360,000. The cost to construct the remedy is estimated to be \$2,297,000 and the estimated average annual operation and maintenance cost for 30 years is \$4,100.

The elements of the selected remedy are as follows:

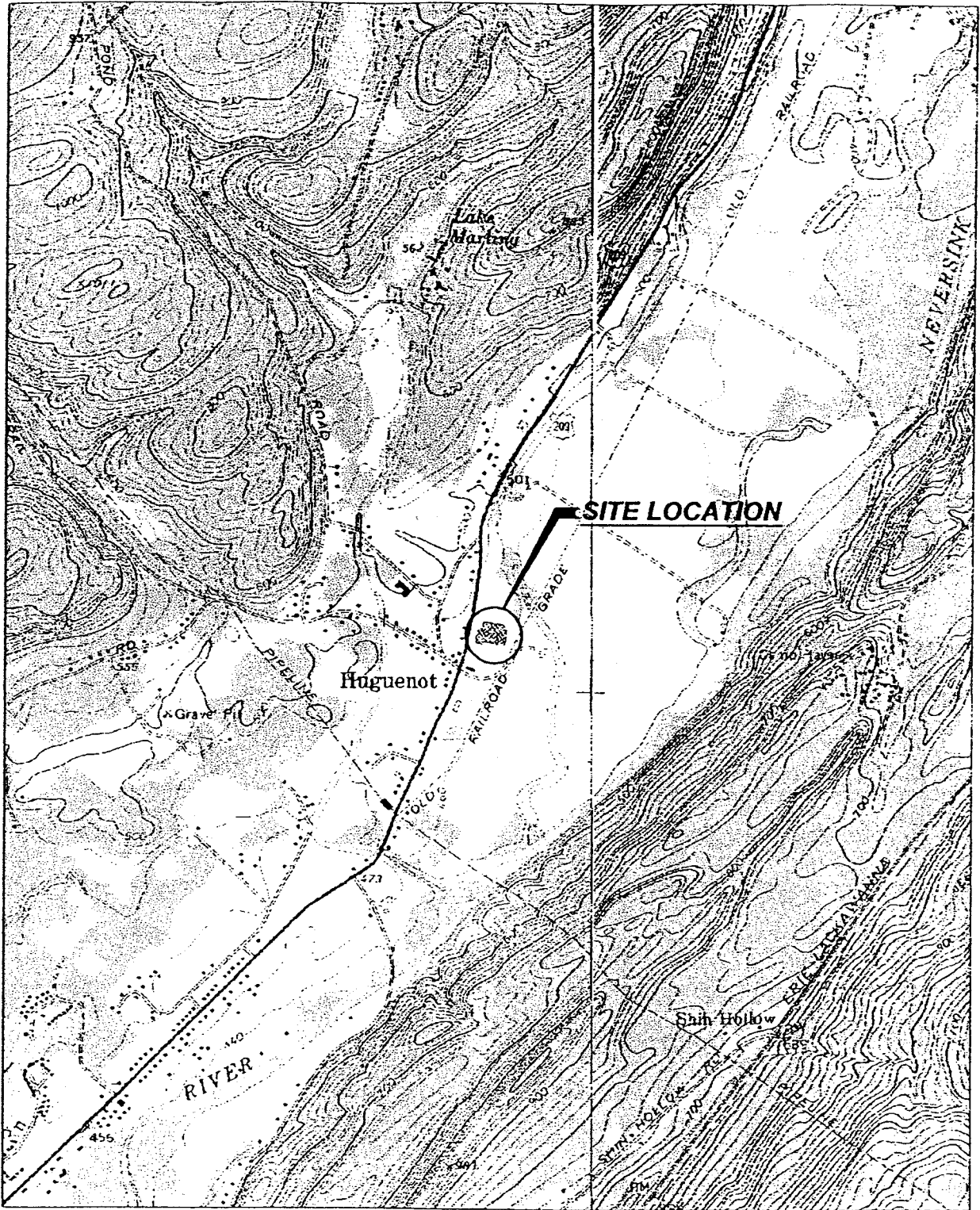
1. A remedial design program including bench scale and pilot study programs, to provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program;
2. Excavation of lagoon soil to a depth of six to eight feet (21 to 23 feet bgs), and transported to an off-site TSCA/RCRA disposal facility for treatment and disposal. Excavation of remaining unsaturated lagoon soil to a depth of 14 feet (29 feet bgs) or groundwater table, whichever is encountered first, and on-site stabilization. Placement of several feet of clean fill in the lagoon excavation to provide a buffer from the fluctuations in the groundwater. Replacement of stabilized soils back into the lagoon excavation, backfill with clean fill to the existing grade of the surrounding areas, and geomembrane liner/asphalt cover;
3. Semi-annual sampling of on-site monitoring wells will be conducted as a part of a long-term monitoring program to monitor the effectiveness of the on-site stabilization;
4. Institutional controls in the form of deed restrictions to be recorded in the chain of title of the property to restrict the future use of the former lagoon area to industrial use only, mandate the maintenance of the cap, and require notification to the NYSDEC when excavation of the capped area is planned; and
5. Annual certification by the property owner to the NYSDEC that the site is in compliance with the institutional controls outlined in this PRAP.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation and feasibility study 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.
- A site mailing list was established which included nearby property owners, local political officials, local media, local environmental groups and other interested parties.
- Fact sheets were included as part of the public notification mailings.

- The Proposed Remedial Action Plan (PRAP), which is the basis for this ROD, was discussed at the March 7, 2002 public meeting.
- In March, 2002 a Responsiveness Summary, included as Appendix A of this ROD, was prepared to address the comments received during the public comment period (February 16, 2002 to March 17, 2002) for the PRAP.



MAP REFERENCE:
 PORT JERVIS NORTH & OTISVILLE
 USGS QUAD MAPPING

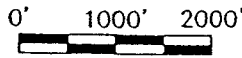


FIGURE 1

**DELAWARE
 ENGINEERING, P.C.**

28 Madison Avenue Extension
 Albany, New York 12203

Phone 518-452-1290
 FAX 518-452-1335

SITE LOCATION MAP

C & D TECHNOLOGIES
 NYS ROUTE 209
 HUGUENOT, NEW YORK

MAY 26, 00

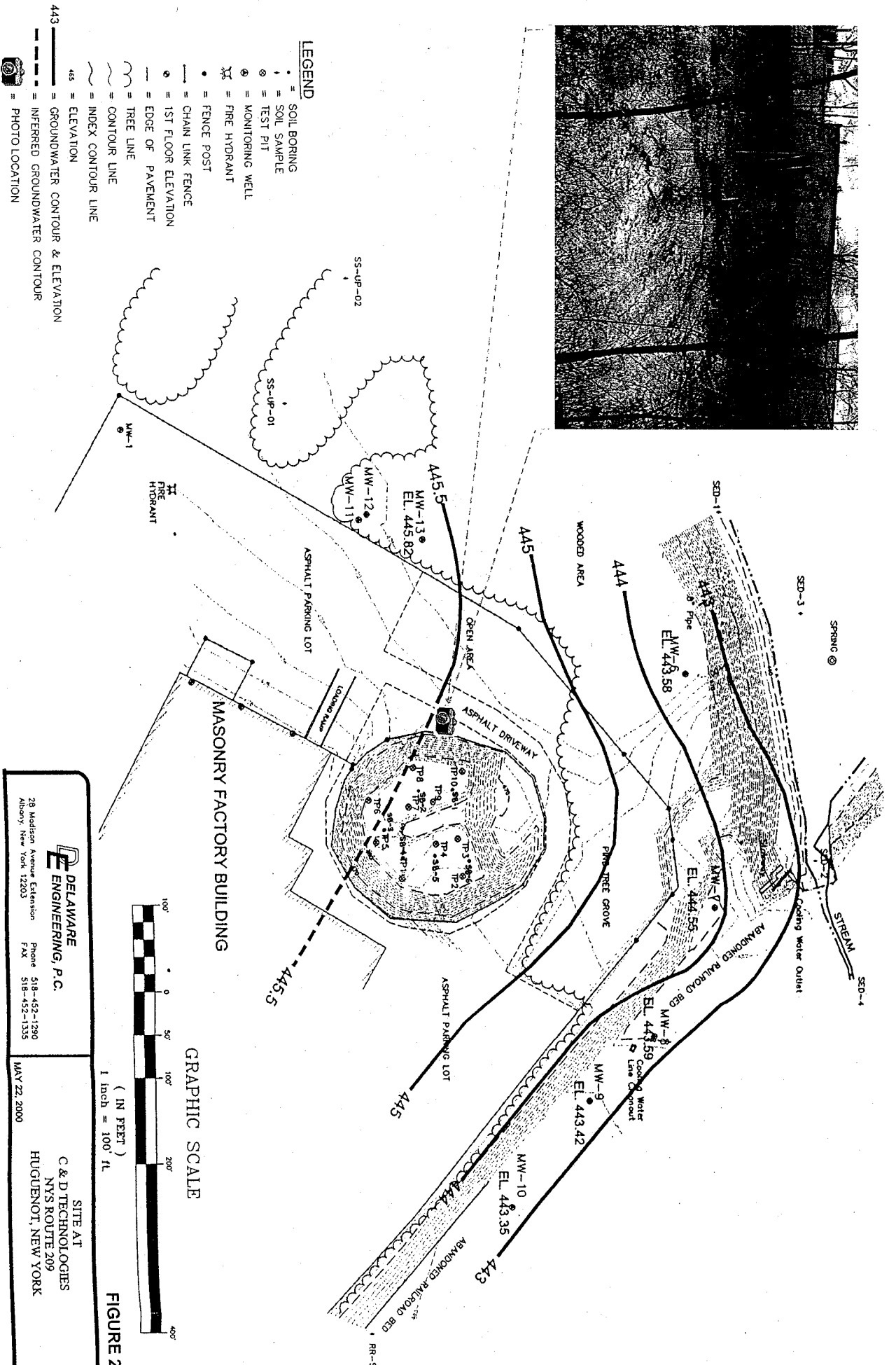


Table 1
Nature and Extent of Contamination
Dates of Sampling: August 1999, September 1999, January 2000 and March 2000

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE	FREQUENCY of EXCEEDING SCGs	SCG
Soils (ppm)	Inorganic Compounds	Barium	128 to 7,710	48 of 53	300
		Cadmium	1.2 to 46,200	24 of 24	1/10
		Chromium	180 to 230	2 of 2	10/50
		Copper	184 to 304	2 of 2	25
		Lead	8.4 to 13,000	38 of 59	305
		Mercury	0.18 to 1.60	2 of 2	0.1
		Silver	1.3 to 14.4	2 of 2	0.1
		Zinc	3,250 to 106,000	2 of 2	20
		Polychlorinated Biphenyls (PCBs)	Aroclor 1254	ND (1) to 1,100	26 of 37
Sediment (ppm)	Inorganic Compounds	Barium	15.6 to 90.1	NA	NA
		Fluoride	17.74 to 53.9	NA	NA
		Lead	10.6 to 195	3 of 5	31 (LEL)
		Lead	10.6 to 195	1 of 5	110(SEL)
Groundwater (ppb)	Inorganic Compounds	Fluoride	ND (.001) to 10,800	11 of 17	1,500
		Lead	ND (3.0) to 29.4	1 of 18	25
		Polychlorinated Biphenyls (PCBs)	Aroclor 1254	ND (.050) to 0.24	1 of 10

LEL - Lower Effects Level (NYSDEC Guidance Value)

SEL - Severe Effects Level (NYSDEC Guidance Value)

NA - Not Available

ND - Non-detect

* Sediment was sampled on September 1999 only

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
No Action	\$0	\$0	\$0
Alternative 1 - Excavation and Disposal	\$2,918,000	\$0	\$2,936,000
Alternative 2 - Partial Excavation (Top Foot), Disposal, Geomembrane Liner/Asphalt Cap, Institutional Controls, and Long-Term Monitoring	\$646,000	\$4,100	\$709,000
Alternative 3 - Partial Excavation (Top 3 to 4 Feet), Disposal, Geomembrane Liner/Asphalt Cap, Institutional Controls, and Long-Term Monitoring	\$1,070,000	\$4,100	\$1,133,000
Alternative 4 - Excavate (Top 6 to 8 Feet), Disposal, Ex-Situ Stabilization, Geomembrane Liner/Asphalt Cap, Institutional Controls, and Long-Term Monitoring	\$2,297,000	\$4,100	\$2,360,000

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

**C&D Power Systems (C&D Batteries)
Proposed Remedial Action Plan
Town of Deerpark, Orange County
Site No. 3-36-001
Operable Unit No. 1**

The Proposed Remedial Action Plan (PRAP) for the C&D Power Systems (C&D Batteries) site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 14, 2002. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil at the C&D Power Systems (C&D Batteries) site. The preferred remedy is excavation and disposal of the top six to eight feet of the contaminated lagoon soils and ex-situ stabilization of the remaining contaminated lagoon soils.

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

A public meeting was held on March 7, 2002 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were also received during the public comment period. The public comment period for the PRAP ended on March 17, 2002.

This Responsiveness Summary responds to all questions and comments raised at the March 7, 2002 public meeting and to the written comments received.

The following are the comments received at the public meeting, with the NYSDEC's responses:

COMMENT 1:

How deep is the impacted well 500 feet away on Swartwout Road?

RESPONSE 1:

The depth of the well was not determined during the Remedial Investigation. However, when the NYSDEC representatives visited with the former residents of the home on February 7, 2000, the former owner recalled that the well was between 180 and 220 feet deep.

COMMENT 2:

Does the water table rise in fluctuation to the bottom of the lagoon?

RESPONSE 2:

Yes, during the Spring months, the water table rises and comes in contact with the subsurface lagoon soils at approximately 14 feet below the lagoon surface.

COMMENT 3:

Where is the clay layer that prevents the groundwater from going deeper?

RESPONSE 3:

During the on-site investigation, only overburden soils were encountered to a depth of 50 feet below ground surface. The depth to bedrock or a less permeable layer is undetermined.

COMMENT 4:

How do you know where else to look for contaminated groundwater; why did you stop at 500 feet from the source area?

RESPONSE 4:

Based on previous site investigations, it is known that the direction of groundwater flow is in the southeast direction, towards the unnamed tributary to the Neversink River and the Neversink River itself. During the investigation it was discovered that there was one private potable well downgradient of the site between the source and the unnamed tributary to the Neversink River. This well was sampled as part of the Remedial Investigation. Based on the results of the sampling, it was determined that groundwater, both on-site and off-site, should be further investigated under Operable Unit No. 2

COMMENT 5:

A person living about 2 miles away from the site requested that their well be tested as part of this investigation.

RESPONSE 5:

Representatives from the New York State Department of Health stated at the March 7, 2002 public meeting that they will have the well sampled.

COMMENT 6:

There is a playground adjacent to this site with a water fountain, has that well been tested?

RESPONSE 6:

No, the playground was recently constructed and the well has not been sampled yet. Representatives from the New York State Department of Health stated at the March 7, 2002 public meeting that they will have that well sampled.

COMMENT 7:

There are on-site showering facilities for the employees at C&D, has that water been tested?

RESPONSE 7:

No, the C&D facility well was not sampled. Representatives from the New York State Department of Health stated at the March 7, 2002 public meeting that they will have that well sampled.

COMMENT 8:

What is the amount of fluoride that occurs naturally in water in this area?

RESPONSE 8:

The background fluoride levels in groundwater was not investigated under Operable Unit No. 1. According to the Draft Toxicological Profile for Fluorides by the U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry dated September 2001, “the fluoride content of groundwater generally ranges from 20 to 1,500 µg/L,”(µg/L equals parts per billion (ppb)), or 0.02 to 1.5 mg/L.

COMMENT 9:

What was the level of fluoride detected in the one private well; how long ago did it happen; is the water being treated; does the resident know about the fluoride levels in his well?

RESPONSE 9:

The Remedial Investigation sampling results from the March 2000 sampling event revealed a fluoride level of 3.85 mg/L, which exceeds the New York State Department of Health drinking water standard of 2.2 mg/L. Since the Remedial Investigation, the well has subsequently been sampled twice and each time fluoride levels did not exceed the drinking water standards. The water is currently not being treated, but it is being monitored by Orange County as the owner of the property. The resident of the downgradient home was contacted by a representative of the New York State Department of Health and informed of the sampling results.

COMMENT 10:

What is the depth of the deepest well tested and what was the depth of the monitoring well when groundwater was encountered?

RESPONSE 10:

The depth of the deepest monitoring well tested is 50.0 feet and the depth to groundwater in that well is 32.8 feet.

COMMENT 11:

Does the Neversink aquifer extend to underneath the lagoon contamination and if so, has the aquifer been impacted by this site?

RESPONSE 11:

The C&D Power Systems (C&D Batteries) site is located in an area classified by the NYSDEC as a “principle aquifer area.” While the NYSDEC does not give a formal name to principle aquifer areas, various commentors have stated that the site may be above an aquifer named locally as the Neversink Aquifer and

the Ellenville Aquifer. The groundwater beneath the site has been impacted by the contamination at the site and the extent of groundwater impacts will be further investigated and analyzed under Operable Unit No. 2.

COMMENT 12:

We are approaching trout season, are there any health concerns about eating trout that have wintered over in the nearby stream?

RESPONSE 12:

No, according to the Draft Toxicological Profile for Fluorides by the U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry dated September 2001, food chain “bioaccumulation is generally in skeletal tissue and therefore, it is unlikely that fluoride will biomagnify up the food chain.”

COMMENT 13:

On the east side of C&D, there is an old railroad bridge, where there is some type of outfall pipe. What is coming out of it, where does it go and is it the source of the tributary?

RESPONSE 13:

The outfall is the C&D facility’s non-contact cooling water discharge pipe. Non-contact cooling water is discharged into the unnamed tributary to the Neversink River. There is a State Pollution Discharge Elimination System (SPDES) permit for this outfall pipe which requires monthly sampling of the effluent. The source of the tributary is a spring located further upstream from the outfall pipe.

COMMENT 14:

Is anything being done to police the air quality of the emissions coming out of the stacks?

RESPONSE 14:

Air quality is handled through the NYSDEC Division of Air Resources. The commentors expressing concerns with air quality were asked to provide their names and phone numbers so that a representative from the Division of Air Resources could contact them to answer questions regarding air quality. Several names and phone numbers were collected at the March 7, 2002 public meeting. Robert Stanton, the NYSDEC Regional Air Pollution Control Engineer, (845) 256-3048, has contacted those commentors to discuss their air quality concerns.

COMMENT 15:

Are they still producing chemical waste at the site, and if so, how do we know that the contamination isn’t continuing?

RESPONSE 15:

Hazardous waste management is handled through the NYSDEC, Division of Solid and Hazardous Materials. The commentor was asked to provide their name and phone number so that a representative from the Division of Solid and Hazardous Materials could contact them to answer questions regarding waste management. One name and phone number was collected at the March 7, 2002 public meeting. Thomas J.

Killeen, the NYSDEC Regional Hazardous Materials Engineer, (845) 256-3136, has contacted the commentor to discuss their hazardous waste management concerns.

COMMENT 16:

Why are you not just excavating all the contaminated soil for off-site disposal?

Several written comments expressed similar concerns requesting that Alternative 1 (complete excavation and disposal) be selected instead of Alternative 4 (partial excavation and ex-situ stabilization). These concerns were included in: a petition letter containing 14 signatures dated March 13, 2002; a letter dated March 10, 2002 from Frances Hodson; a letter dated March 13, 2002 from Margaret J. Peill; a letter dated March 16, 2002 from Salvatore Russo; and a letter dated March 16, 2002 from Phillip Chase.

A letter dated March 10, 2002 received from Orange County Legislator Wayne A. Decker, expressed concern about the Remedial Action Plan due to its location on the Neversink Aquifer. Consequently, the Remedial Action Plan should not cut any corners or compromise the most thorough cleanup that is technically possible.

RESPONSE 16:

While Alternative 1, which calls for the complete excavation and disposal of contaminated lagoon soil, may provide for a better long-term effectiveness of the remedy, this increased confidence would come at a significantly higher cost. The selected remedy (Alternative 4) is protective of public health and the environment, and is cost effective. Proper maintenance and monitoring of site conditions after implementing the selected remedy (Alternative 4) will ensure the long-term effectiveness of this remedial alternative.

COMMENT 17:

How can you do a balance type evaluation without knowing the extent of groundwater contamination?

RESPONSE 17:

The lagoon soils are the source of the groundwater contamination. The first step in addressing the groundwater contamination is to remediate the source area.

COMMENT 18:

How will the chemical stabilizer work?

RESPONSE 18:

Chemical stabilization, with the use of trisodium phosphate, would transform the metal constituents into insoluble metal phosphate compounds. This would effectively render the metal contaminants immobile.

COMMENT 19:

How long will it take to implement the remedy?

RESPONSE 19:

Once the Record of Decision is issued, the Department will approach Potentially Responsible Parties (PRPs) for this site, to enter into an Order on Consent for implementation of the design and construction of the remedy.

Once the Order is signed, the design phase will begin which is estimated to take about six months. The actual construction is estimated to take 12 weeks.

COMMENT 20:

What is the cost of the proposed remedy versus removing all of the contaminated soil?

RESPONSE 20:

The cost of Alternative 1, which is complete excavation and disposal, was estimated at \$2.9 million. Alternative 4, the selected alternative, was estimated to cost \$2.3 million. Therefore the estimated cost difference is \$600,000.

COMMENT 21:

What do you do to clean the soil?

RESPONSE 21:

The contaminated soil that will be left on-site will be treated with a chemical stabilizer that will render the contaminants immobile. The contaminants will not be “cleaned” but will be treated so that they will not leach into the groundwater.

COMMENT 22:

Who absorbs the cost for the remedy and what if they cannot or will not pay?

RESPONSE 22:

Once the Record of Decision is issued, the Department will approach Potentially Responsible Parties (PRPs) for this site, to enter into an Order on Consent for implementation of the design and construction of the remedy. If the PRPs do not enter into an Order on Consent with the NYSDEC, then the NYSDEC will use Superfund money to fund the design and construction of the remedy. The NYSDEC would refer the site to the New York State Attorney General to recover the costs expended for the remedy from PRPs.

COMMENT 23:

Has the soil stabilization process been used elsewhere; have any problems been encountered with it; how do we know it will be effective over a long period of time?

RESPONSE 23:

Soil stabilization is a proven technology that has been used as a hazardous waste remediation treatment at several sites in New York State and numerous sites throughout the US. Pilot and treatability studies will be performed in the design stage to determine the effectiveness of the proposed soil stabilizing agent, trisodium phosphate. If the proposed stabilizing agent does not prove to be effective on site specific soils, a more conventional method will be chosen, such as fly ash or lime kiln dust. In addition, a long-term monitoring program would be implemented to monitor the effectiveness of the on-site stabilization.

COMMENT 24:

Will there be a continued discharge to the lagoon that will just re-contaminate the soil?

RESPONSE 24:

No, the former lagoon has been inactive and has not been used to receive wastewater since 1982. The purpose of the proposed remedy is to remediate the soil contamination. Part of the remedy is to backfill the former lagoon with clean fill to the existing grades of the surrounding areas, and place an asphalt cover on top to prevent infiltration of precipitation. Therefore, the former lagoon will no longer exist after the remedy is constructed and the area where the former lagoon existed will resemble a flat asphalt parking lot.

COMMENT 25:

Will there be long-term monitoring?

RESPONSE 25:

Yes, part of the remedy includes the implementation of a long-term groundwater monitoring program to monitor the effectiveness of the on-site stabilization along with deed restrictions mandating the maintenance of the asphalt cap.

COMMENT 26:

Since the state was aware of the discharges in the 1960's, why has it taken 20 years to address this?

RESPONSE 26:

Although there have been documented concerns with the discharge of waste into the lagoon since the 1960's, the state and national Superfund programs to address this type of pollution were not developed until the 1980's. Since that time, significant efforts have been made to develop a list of all sites requiring investigation and to perform necessary remediation. Unfortunately, resources are not available to address every site immediately, and efforts to get private parties to implement necessary actions can take time. In the time since C&D Technologies Inc. agreed to fund a thorough investigation of this site, every effort has been made to complete the investigation as rapidly as possible.

COMMENT 27:

The asphalt cap you recommend may stop the rain from percolating down into the treated soil, but what about the effect of groundwater coming up into the treated soil during the high water events?

RESPONSE 27:

Part of the selected remedy includes placing several feet of clean fill in the lagoon excavation prior to placing the treated soils back into the lagoon excavation to provide a buffer from the fluctuations in the groundwater.

COMMENT 28:

Will you communicate to us with what you find or do in the future?

RESPONSE 28:

Yes, an important aspect of hazardous waste remediation is public participation. In order to keep the public informed, fact sheets are mailed on a regular basis, especially when there is a milestone that is reached in the process, such as at the PRAP and ROD stage. After the remedy is selected and the ROD is signed, the NYSDEC will place the ROD in the local document repositories and issue a fact sheet mailing titled "Notice of

ROD Availability”, which briefly describes the selected remedy and advises the public that the ROD is available for review, to the people on the contact list. Further fact sheets will be mailed for this site during the “design” phase of OU1 and as OU2 continues to the PRAP stage.

COMMENT 29:

Can town officials find out where the wastes are being taken to?

RESPONSE 29:

The location of the receiving permitted disposal facility for the excavated soils will be determined in the design phase. The location will be documented and it will become part of the administrative record.

COMMENT 30:

A comment was expressed that if the cost to remediate an inactive hazardous waste site was excessive, then no one would be willing to pay for the cleanup.

RESPONSE 30:

Cost is one of the seven evaluation criteria used to determine the appropriate remedy for an inactive hazardous waste disposal site.

COMMENT 31:

Many years ago, C&D was charged with having excess lead going out of an outfall pipe and despite a court ruling, it took two years to correct the problem.

RESPONSE 31:

Comment noted. The effluent discharge of the non-contact cooling water pipe is required to be sampled monthly.

A letter dated March 10, 2002 was received from Orange County Legislator Wayne A. Decker which included the following comment:

COMMENT 32:

Concern was expressed with the plan to have a protective cover that will require maintenance and care indefinitely because, despite deed restrictions and the requirement for maintenance, in the long term it may be difficult to monitor and enforce. What if the current plant was to close and the property was unused or abandoned by an owner? Will the DEC be in the position to monitor and enforce the provisions of the plan in twenty, thirty or fifty years?

RESPONSE 32:

There are many waste disposal sites within New York State that require long term operation, maintenance and monitoring. The NYSDEC would monitor and enforce the provisions of the deed restrictions at this site over the long term.

A letter dated March 13, 2002 was received from Henry J. Holley which included the following comments:

COMMENT 33:

Concern was expressed requesting additional testing of the site's adjacent drainage area and that immediate action should be taken to alleviate the contamination of soil and waters.

RESPONSE 33:

Potential off-site contamination will be further investigated under Operable Unit No. 2. This will include sampling of the off-site surface waters and sediment of the unnamed tributary to the Neversink River along with surface soil sampling at the outlet of the lagoon overflow pipe. In addition, on-site and off-site groundwater will be further investigated under Operable Unit No. 2. The NYSDEC will strive to remediate the contamination associated with the C&D Power Systems (C&D Batteries) site as rapidly as possible.

A letter dated March 15, 2002 was received from Seth D. Cooley which included the following comments:

COMMENT 34:

NYSDEC should make no change to the description in Section 1 of the PRAP, regarding Empire Tube Corporation being the source of the hazardous substances detected in site samples, as the record supports the description and does not support any other description.

RESPONSE 34:

There have been two site owners who utilized the on-site lagoon during its operational period (approximately 1964 to 1982). The Department is aware of the on-going litigation regarding liability for the contamination at the site. Since the court will decide the issue of liability, the Department will defer to the court's decision. The wording of Section 1 of the ROD is modified accordingly.

COMMENT 35:

Section 1 includes conclusory statements that a significant threat to the public health and/or the environment is posed by the contamination of soil and/or ground water at the site, but no basis is given for these conclusions. More specifically, Section 1 describes the alleged significant threat to human health as being associated with "potential risk of exposure to the contaminants by direct contact and ingestion." However, this potential risk has been and is being effectively addressed by fencing around the former lagoon and restricted access to and perimeter fencing around the C&D property. This fact is acknowledged on p. 9, Section 4.3 of the PRAP.

RESPONSE 35:

Although the site and the lagoon itself is currently fenced, the potential risk of on-site hazardous waste contaminants coming into contact with humans via direct contact or ingestion still exists.

COMMENT 36:

Section 1 describes the alleged significant threat to the environment as being "associated with the impacts of contaminants to the groundwater and wildlife exposure to site soils." However, DEC has found that "for on-site groundwater, fluoride was found to be the only significant contaminant of concern" (DEC February 2002 Fact Sheet), and no explanation has been provided as to how this on-site fluoride contamination poses a significant threat to the environment.

RESPONSE 36:

The statement in Section 1 of the PRAP states that “Past disposal activities have resulted in the following significant threats to the public health and/or the environment ...a significant environmental threat associated with the impacts of contaminants to the groundwater and wildlife exposure to site soils.” On-site groundwater has found to be impacted with fluoride contamination as high as 10.9 ppm in on-site monitoring wells, which is almost ten times the NYSDEC groundwater standard of 1.5 ppm for fluoride. This a contravention of NYS groundwater standards. Also, PCBs were found in excess of groundwater standards in one on-site monitoring well and have been detected in another on-site monitoring well. Contravention of groundwater standards is a threat to the environment and natural resources.

COMMENT 37:

To the extent that the potential for offsite migration of the fluoride contamination might be perceived to pose a significant threat, the record demonstrates that the only off-site receptor is the former Swartwout private well. Fluoride is the only contaminant that has been found in this well on any occasion of sampling and on only one occasion did the concentration of fluoride exceed the NYSDOH drinking water standard. On that single occasion, the concentration of fluoride exceeded the standard by only one and a half parts per million (1.5 ppm) and it did not exceed the federal drinking water standard. Because the disposal of hydrofluoric acid by Empire Tube Corporation occurred decades ago, yet over the course of those decades the migration to the nearby Swartwout well (located downgradient from the former lagoon) has been *de minimis*, it is empirically evident that significant offsite migration of fluoride contamination is not a concern.

RESPONSE 37:

The private potable water supply located downgradient of the site is the only known impacted private well at this time. On-site and off-site groundwater has been deemed to require further investigation and will therefore be investigated and analyzed more fully under OU2. It has been documented that contamination released at the C&D site has migrated off-site. As long as groundwater levels of fluoride as high as 10.9 ppm exist on-site, there is a potential for significant off-site migration of fluoride contamination.

COMMENT 38:

To the extent that a threat to the environment is perceived to be associated with wildlife exposure to surface and subsurface soils, this perceived threat has not been demonstrated or documented. The former lagoon is heavily vegetated.

RESPONSE 38:

Surface soils of the lagoon were found to be contaminated with PCBs as high as 1,100 ppm, which is significantly above the NYS standard for surface soils of 1 ppm and contaminated with cadmium as high as 46,200 ppm, which is significantly above the cleanup guidance value of 1.0 ppm. Surface soils were found to contain fluoride levels as high as 327 ppm. Subsurface soils were found to be contaminated with lead as high as 13,000 ppm and barium as high as 7,710 ppm. These elevated levels are known to present a threat to the wildlife that inhabit these soils.

COMMENT 39:

Section 3.1 should be conformed to Section 1 by making reference to barium, cadmium, lead and PCBs as being included, along with fluoride, among the substances contained in the wastewater disposed by Empire Tube Corporation in the former lagoon.

RESPONSE 39:

As noted in Response 34, the Department will defer to the court's decision in the on-going litigation with respect to liability. There is no inconsistency between Section 3.1 and Section 1 as modified.

COMMENT 40:

The succession of name changes in C&D's history is from C&D Batteries to C&D Charter Power Systems, Inc. to C&D Technologies, Inc. The succession is incorrectly stated in Section 3.1 of the PRAP.

RESPONSE 40:

Comment noted, the wording is changed in the ROD accordingly.

COMMENT 41:

In Section 5 of the PRAP, NYSDEC mistakenly fails to identify Avnet, Inc. as a potential responsible party (PRP). Under the New York Inactive Hazardous Waste Disposal Sites Act, PRPs expressly include "any person responsible for the disposal of hazardous wastes." (See § 27-1313). Empire Tube Corporation was a former owner/operator of the facility directly responsible for the disposal of waste NYSDEC has concluded are contaminants of concern at the site. Avnet, Inc. is the successor of merger with Empire Tube Corporation. In the RI/FS Order on Consent, NYSDEC identified Avnet, Inc. as the successor of the Empire Tube Corporation. NYSDEC should do likewise in the PRAP, and expressly identify Avnet, Inc. as a PRP. The PRAP should also include in the discussion of enforcement status history the fact the NYSDEC negotiated with Avnet, Inc. as with C&D, to enter into the RI/FS Order on Consent, but that Avnet, Inc. declined to sign. The PRAP should also state that NYSDEC will approach Avnet, Inc. regarding implementation of the selected remedy.

RESPONSE 41:

The information included in the enforcement status in Section 5 is intended to provide a brief outline of significant activities. It is not intended to present a complete listing of all enforcement efforts undertaken by the Department with respect to the site. However, Section 5 is modified to list all PRPs currently known to the Department.

COMMENT 42:

The description of the deed restriction should be modified to make it clear that the deed restriction will apply only to the area covered by the cap.

RESPONSE 42:

Comment noted, the wording in the ROD is changed to refine the area subject to restriction.

COMMENT 43:

The description of the requirement to maintain the asphalt cap, and to notify NYSDEC when excavation is planned, should be modified to make it clear that disturbance of the stabilized soils will be permitted in connection

with construction activities on the site so long as the disturbance does not chemically alter or affect the stabilized materials and either the disturbed portion of the cap is restored or a building or building extension is constructed in place of the disturbed portion of the map.

RESPONSE 43:

The notification requirement will allow the NYSDEC to ensure that specific actions taken near and within the area of the cap and the treated soil will not negatively impact the remedy in place. Blanket acceptance of certain types of construction activities (i.e. building construction) at this point is not appropriate.

COMMENT 44:

The description of Alternative 4 should be expanded to clarify that with respect to the treatment of soils for metal constituents, the performance criteria for the TCLP extraction of the stabilized soils should be the Toxicity Characteristic (TC) regulatory levels. Use of the TCLP to determine if the stabilized soils would exhibit cadmium, lead and barium concentrations above the New York State groundwater standards would not be appropriate.

RESPONSE 44:

After review of the wording of Alternative 4, it is not clear what portion of this text is raising concern. Toxicity Characteristic (TC) regulatory levels are hazardous waste classification levels and groundwater standards are used to determine protectiveness of human health and the environment. The goal of treating the waste is to prevent any additional groundwater contamination. Specific performance criteria of the remedy will be determined in the design phase.

COMMENT 45:

Subsection 1 (Compliance with New York State Standards, Criteria, and Guidance (SCGs)), Subsection 2 (Protection of Human Health and the Environment), Subsection 4 (Long-term Effectiveness and Permanence) and Subsection 5 (Reduction of Toxicity, Mobility or Volume) of Section 7.2 should be revised so as to be consistent with the description of Alternative 4 in Section 7.1. Specifically, the description of Alternative 4 in Section 7.1 correctly states that stabilization will transform the metal constituents into insoluble metal phosphate compounds. In contrast, Subsections 1,2,4, and 5 of Section 7.2 could mistakenly be read to imply that stabilization is intended to treat residual concentrations of non-metals as well as metals. It should be made clear that during bench scale studies, treatability studies, and in-field stabilization work, there will be no performance standards or criteria for stabilization with regard to non-metals.

RESPONSE 45:

Language in Subsections 1, 2, 4, and 5 of Section 7.2 has been checked and modified as necessary.

A letter dated March 16, 2002 was received from Salvatore Russo which included the following comments:

COMMENT 46:

Additional testing should be taken immediately and Alternative No. 1 should be selected.

RESPONSE 46:

Please refer to Response 16.

A letter dated March 15, 2002 was received from Marc Godick which included the following comments:

COMMENT 47:

On page 1 of the PRAP, sentence beginning on line 22 states "As described in Sections 3 and 4 of this document, the Empire Tube Corporation's (ETC's) past waste management practices resulted in the disposal of a number of hazardous wastes, including polychlorinated biphenyls (PCBs), barium, cadmium, fluoride, and lead at the site..." This statement is inaccurate. While there were wastes detected during the Remedial Investigation, neither the Remedial Investigation or Feasibility Study Reports suggest that cadmium, lead, or PCBs are attributable to ETC's former operations. Therefore, we would request that the NYSDEC modify this statement to indicate that the source of the cadmium, lead, and PCBs has not been identified. As you are aware, C&D has been operating at the Site since 1973. There has not been an investigation into the current or former operators use of hazardous materials or hazardous waste disposal practices. Accordingly, we would suggest that the NYSDEC make a more general statement that the contaminants of concern at the site are PCBs, barium, cadmium, fluoride, and lead, but not indicate that these contaminants are necessarily attributable to the operations of either C&D or ETC.

RESPONSE 47:

Comment noted, the wording of the ROD is modified accordingly.

COMMENT 48:

In Section 4, the depth of soils within the former lagoon is not relative to the surrounding grade, but rather to the bottom of the lagoon, which is approximately fifteen (15) feet below grade. The NYSDEC should consider providing alternative depths in feet below grade (in parentheses), which would help the public better understand the actual contaminated interval for soils and that any remedy selected by NYSDEC would address soils relatively close to the water table and not soils close to the surface.

RESPONSE 48:

Comment noted, to avoid confusion the NYSDEC chose to make the excavation point of reference as the top of the lagoon or the lagoon surface.

COMMENT 49:

Disagreement was expressed with NYSDEC's selection of Alternative 4 as the best alternative for OU-1 and it was requested that the NYSDEC reconsider the selection of Alternative 3 as the appropriate remedy for OU-1. Detailed support for the requested change was provided. Alternative 3 is the cost effective remedy for the site.

RESPONSE 49:

Alternative 3 would leave consequential amounts of hazardous waste on-site untreated. It does not meet New York State's cleanup standards, criteria and guidance and does not appear to achieve the best balance of the criteria used during comparative analysis of possible remedial alternatives.

COMMENT 50:

Concern was expressed requesting that only comments received from the public which are relevant to the PRAP for OU-1 be considered when making a final determination for remedy selection. For example, comments were mentioned which were related to compliance issues at the C&D plant. In addition, other comments suggested

sampling of other areas significantly beyond the area of the site. These issues should be addressed as part of OU-2.

RESPONSE 50:

All comments received during the public comment period, which includes comments received at the public meeting held at the Deerpark Town Hall on March 7, 2002 are considered and responses to those comments are provided in this Responsiveness Summary.

A letter dated March 15, 2002 was received from Frances Hodson which included the following comments:

COMMENT 51:

Concern was expressed regarding that the proposed remedy would require the site to be zoned industrial. Would that affect adjacent properties?

RESPONSE 51:

Not to the NYSDEC's knowledge. Only the area of the former lagoon will be restricted to industrial use as a result of this remedy.

COMMENT 52:

Who is going to pay for this, especially since the Superfund remains unfunded?

RESPONSE 52:

Although the NYSDEC expects the current financing issues regarding the Superfund will be resolved, the PRP will be approached to implement the remedy (refer to Response 22).

A letter dated March 14, 2002 was received from Fred Weissman which included the following comments:

COMMENT 53:

The proposed cleanup plan seems to be one that would be effective and correct the situation. I encourage that the proposed remedy be approved and implemented. It seems reasonable that the cost of this project be shared by both the former property owners, Empire Tube Corporation and C&D Technologies, Inc.

RESPONSE 53:

Comment noted.

APPENDIX B

Administrative Record

Administrative Record

C&D Power Systems (C&D Batteries) Site
Site No. 3-36-001
Operable Unit No. 1

1. Order on Consent Index #W3-0726-97-11
July, 1999
- 2.. Remedial Investigation/ Feasibility Study Work Plan, C&D Facility (Site No. 3-36-001)
Earth Tech, April 1999
3. Remedial Investigation Report, C&D Power Systems (C&D Batteries) Site No. 336001
Delaware Engineering, March 2001
4. Feasibility Study Report, C&D Power Systems (C&D Batteries) Site No. 336001
Delaware Engineering, December 2001
5. Proposed Remedial Action Plan, C&D Power Systems (C&D Batteries)
Operable Unit No. 1, February 2002