

**Preliminary Close Out Report
Yaworski Lagoon Superfund Site
Canterbury, Connecticut**

September 2000



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I. INTRODUCTION

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency (EPA) has completed all construction activities for the Yaworski Lagoon Superfund Site ("the Site") in accordance with *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-09A-P). EPA and the Connecticut Department of Environmental Protection (CT DEP) conducted a final inspection of the Site on August 23, 2000 and determined that the potentially responsible parties' (PRP) contractors and EPA contractors have constructed the remedy in accordance with remedial design (RD) plans and specifications and no further construction is required by the Consent Decree. EPA and the State have initiated activities necessary to achieve performance standards and Site completion.

II. SUMMARY OF SITE CONDITIONS

Background

The Yaworski Lagoon Superfund Site ("the Site") is located on approximately five acres of land in Canterbury Township, Windham County. The Site is located within a meander bend of the Quinebaug River between Route 169 and Packer Road. It measures approximately 700 feet by 300 feet. From 1950 to 1973, industrial wastes including solvents, paints, textile dyes, acids, resins, and various other debris were dumped into the lagoon. Flammable waste was periodically burned at the Site until 1965 when the Connecticut Department of Health ordered a halt to on-site burning of waste. The combined efforts of local residents, and state and local officials led to the end of all dumping at the Site in 1973.

In 1976, CT DEP directed the Site owner, James Yaworski, Sr., to assess the environmental hazard posed by the Site. Mr. Yaworski was required to install monitoring wells adjacent to the lagoon, which detected contaminated groundwater. In 1980, CT DEP ordered Mr. Yaworski to employ a professional engineering firm to conduct an environmental study of the property. The firm concluded that most of the contaminants had migrated from the abandoned lagoon and recommended capping the area. In response to an order by CT DEP in 1982, Mr. Yaworski covered the Site with paper, rags, rubble and soil.

After a fire occurred at the Site in 1982, EPA decided that additional information was needed about the Site to better assess the potential threat to human health and the environment. EPA proposed the Site to the National Priorities List ("NPL") on December 30, 1982 (47 FR 58476) and added it to the final list on September 8, 1983 (48 FR 40658).

The initial Remedial Investigation ("RI"), completed in April 1986, concluded that several areas needed further study before a cleanup decision could be made. A Supplemental RI and Feasibility Study were completed in 1987 and 1988. The lagoon was found to contain approximately 65,000 cubic yards of highly contaminated sludge, a mixture of water, dirt, volatile organic compounds (VOCs), semi-VOCs, and heavy metals. Organic compounds included 2-butanone, toluene, total xylenes, and bis(2-ethylhexyl)phthalate. Heavy metals included arsenic, chromium, lead and mercury. Further, the sludge was covered by an additional 60,000 cubic yards of contaminated debris, consisting of dirt, rags, trash, and construction materials, and saturated with contaminated water perched above the sludge.

A municipal solid waste landfill, the Packer Road (Yaworski) Landfill, is located near the lagoon, but is not part of the Superfund Site. The landfill accepted solid waste until early 1995 at which time it was temporarily closed. The landfill is regulated under State authority.

Remedial Construction Activities

On September 29, 1988, the Regional Administrator signed a Record of Decision ("ROD"), for which the State of Connecticut concurred. An initial Consent Decree ("CD") was entered in the United States District Court, District of Connecticut on February 26, 1990 (see "Enforcement History"). The selected remedy for the Site included:

- construction of a permanent, multi-layer cap over the lagoon, including reinforcement of the earthen dike surrounding the lagoon;
- establishing Alternate Concentration Limits (ACLs) as the groundwater protection standard for the Site;
- restriction of groundwater use both within the meander bend of the river and on three properties located across the river from the Site; and
- compliance monitoring of groundwater, surface water, and sediment for 30 years.

An ACL establishes a numerical limit on the amount of contamination that can exist in groundwater at the point of compliance ("POC") without endangering human health and the environment where receptors are potentially exposed. In the event ACLs are exceeded, or if certain other conditions are not met, the ROD provides for the development of a corrective action contingency plan, to include the installation and operation of a groundwater extraction and treatment system or other necessary action required. The other conditions that must be maintained, and restored if necessary, are outlined in the ROD and the CD as follows:

- 1) ACLs shall not be exceeded at the POC monitoring wells located immediately adjacent to the lagoon, well clusters "B," "C," and "G" (see Attachment A).
- 2) At the point of exposure (the Quinebaug River), the concentration of hazardous constituents shall not pose a risk to human health and the environment.

- 3) The Quinebaug River shall be maintained as a hydraulic barrier to contaminated groundwater (that is, preventing contamination from crossing to the opposite side of the river). This condition is measured by ensuring Maximum Contaminant Levels ("MCLs") are not exceeded across the river from the lagoon.
- 4) The Quinebaug River shall not be adversely impacted by the discharge of contaminants into it.

EPA approved the PRP's lagoon closure plan on May 3, 1990. The PRPs awarded the contract on June 5, 1990 and construction began shortly thereafter on the lagoon cap and dike. Most construction was completed by late 1990. The PRPs submitted a construction documentation report in March 1991 outlining remaining items: establish a vegetative cover, repair erosion and regrade an area on the lagoon surface, fill holes beneath the chain link fence, and fill several small depressions at the base of the gabion wall. EPA and the State conducted a final inspection on November 25, 1991, and EPA approved the final Remedial Construction Report for the lagoon cap and dike on March 31, 1992.

EPA approved the Post Closure Work Plan for the lagoon cap on April 8, 1991. Monthly inspections and ongoing maintenance were performed by PRP contractors and employees from 1992 through December of 1996. In December 1996, the Site changed from PRP-lead to Fund-lead (see "Enforcement History"), and as part of that decision, it was determined that the cap portion of the remedy was essentially in the Operation and Maintenance (O&M) phase. CT DEP agreed to take over 100% of this work, and has been performing all maintenance activities since March 1997, including monthly inspections of the cap and fence, mowing the Site approximately twice per year or as needed, tree and brush removal, repairs to the fence and cap, and re-seeding as needed. EPA and CT DEP conducted a final Site-wide inspection on August 23, 2000 and confirmed that there was no need for additional work or construction for the lagoon cap beyond these ongoing O&M activities.

The second portion of the remedy consists of establishing ACLs as the groundwater protection standard and monitoring groundwater, surface water, and sediment for 30 years. EPA disapproved the PRP's first ACL Demonstration Report submitted in May 1990. Lack of adequate groundwater characterization required the installation of additional monitoring wells in 1990 and 1991. An initial groundwater sampling round was conducted in March 1991 to determine which compounds would be included on the ACL list. During discussions with the PRPs, EPA decided that another round of groundwater data was necessary to update Site conditions, and the PRPs collected another round of data in October 1992. EPA contractors provided split sampling for each round.

After multiple submittals and extensive discussions, EPA, CT DEP and the PRPs finalized the methodology by which ACLs would be set at the Site for a specific set of compounds. It was determined that two years of monitoring data would be collected, and the PRPs would conduct a statistical analysis to determine the appropriate ACLs.

Data collected during October 1992, however, indicated an MCL exceedance for benzene across the river from the lagoon at monitoring well "Ni." The Consent Decree condition requiring the Quinebaug River act as a hydraulic barrier to contaminated groundwater flow was not being met, as evidenced by the MCL exceedance across the river. EPA technical and legal staff evaluated the benzene MCL exceedance along with all other Site conditions and determined that the levels did not pose an imminent threat, and did not warrant a change in the remedy outlined in the 1988 ROD. The potential exposure to the benzene exceedance exists through ingestion of groundwater only, and there are no known drinking water wells immediately downgradient of the benzene exceedance. EPA determined in February 1993 that MCLs on the other side of the River were indeed being exceeded for benzene and that the River was not being maintained as a hydraulic barrier. As a result, the PRPs began implementing a Corrective Action Program as outlined in the 1988 ROD and 1990 Consent Decree.

Soon after the PRPs began implementing a Corrective Action program, they submitted a revised ACL Demonstration Plan (March 1993), and began quarterly compliance monitoring to start collecting data to set ACLs, and to ensure protection of human health and the environment. The PRPs conducted human health and ecological risk assessments as part of the ACL determination, and these assessments generated Protective Concentration Limits ("PCLs") for surface water, sediments, and pore water. Exceedances of PCLs for any specific contaminant at any one location triggers an evaluation of this contaminant in the surrounding area to determine if the contaminants are Site-related. (To date, although there have been individual PCL exceedances in all media, EPA evaluations determined in all cases that remedial action was not warranted.)

In early 1993, pursuant to the Corrective Action Work Plan, the PRPs submitted work plans for Pre-Design activities to confirm that the benzene exceedance was Site-related, investigate the nature and extent of the exceedance, and determine what measures, if any, were necessary to prevent plume migration beyond well "Ni" and restore groundwater across the river to below MCLs. None of the PRP work plans were finalized due to numerous changes in the status of the PRPs (see "Enforcement History"). While the PRPs also updated the ACL Demonstration Report in 1995 and 1996, the report was not finalized before all PRPs defaulted from the Site.

Quarterly monitoring confirmed that the benzene continued to be exceeded at well "Ni" at levels ranging from 8 parts per billion (ppb) to 23 ppb. The MCL for benzene is 5 ppb. In December of 1996, EPA and the State of Connecticut took over all work at the Site, and EPA's contractor Metcalf & Eddy (M&E) took over all Site-wide compliance monitoring at that time.

In 1998, M&E began working on Pre-Design activities as part of the Corrective Action Program. Field investigations, consisting largely of the collection and analysis of groundwater samples from temporary small diameter wells at 41 locations, were completed in September 1998. Additional hydraulic conductivity testing and supplementary groundwater sampling and analysis of monitoring wells were also conducted, as well as groundwater modeling. The data strongly suggests that there are two volatile organic compound plumes, one from the lagoon and the other from the Packer Road Landfill which is not part of the Superfund Site. The relative proportions

of various compounds differ between the two plumes, and data also indicates that the plumes are separate and distinct in the area investigated. Although both plumes appear to have migrated beneath the river, data suggest that the extent of both plumes is currently only a short distance beyond the river. CT DEP was alerted of the presence of the plume that appears to be emanating from the State-regulated Landfill.

To address the benzene exceedance, the Corrective Action study evaluated several remedial alternatives, including in-situ oxygen enhancement, in-well air stripping, containment walls, pump-and-treat technologies, and monitored natural attenuation, among others, as methods to reduce benzene concentrations in groundwater to or below the MCL of 5 ppb. A preliminary evaluation of natural attenuation of the lagoon VOC plume indicated that biodegradation is most likely playing a significant role in natural attenuation processes at the Site, and that current subsurface conditions are favorable to continued attenuation. The estimated time frame for benzene concentrations to decrease to the MCL at the impacted well is approximately 8 to 10 years based on current conditions.

Given the above, monitored natural attenuation was selected as the best corrective action to address the benzene exceedance. EPA determined that an engineered remedy to reduce benzene concentrations in the area of well "Ni" is unwarranted for several reasons:

- the expected decrease in contamination by natural attenuation in approximately 8 to 10 years;
- the limited migration of the plume beyond the currently impacted well;
- the absence of drinking water wells in the vicinity of the plume;
- the apparent stability of Site conditions based on over 8 years of monitoring results;
- the technical difficulty of implementing alternative engineered measures for limited expected success;
- no other contaminants have been detected across the river above the MCL; and
- the planned restriction on groundwater use in the area to prevent off-site pumping from further affecting movement of the contaminants.

Installation of additional monitoring wells is not required. If there is a statistically significant increase in concentrations at well clusters across the river from the Site, additional monitoring wells will be considered for installation downgradient of the affected wells. Based on all historical monitoring data, however, this is not expected to occur.

EPA, in conjunction with CT DEP, approved the final Pre-Design Engineering Report on December 30, 1999. The groundwater monitoring program was modified as of calendar year 2000 to include measurements to determine changes in the configuration of the lagoon plume, and ongoing evaluation of the effectiveness of natural attenuation. EPA issued a fact sheet in April 2000 explaining its choice of natural attenuation as the corrective action measure to address the benzene exceedance. This is consistent with the 1988 ROD which provides for additional contingency remedies as necessary (including groundwater pump and treat) if conditions arise,

however, the use of another contingency remedy beyond the ongoing natural attenuation is not expected at the Site.

In 1999, EPA also conducted human health and ecological risk screening evaluations based on surface water and sediment data collected from the Quinebaug River since 1993. EPA found that contact with river water and sediments poses an insignificant health risk to humans. The screening level ecological risk assessment concludes that there are now fewer Site-related contaminants that could be contributing towards any potential risk (to date, none of the levels found have warranted remedial action). The monitoring program for surface water and sediments was tailored to monitor for these specific compounds as of calendar year 2000.

On December 30, 1999, as a result of the Pre-Design work and risk screening evaluations, EPA was able to approve the Final ACL Demonstration Report, formalizing the methodology by which ACLs will be set. M&E conducted statistical analysis with data collected during the Fall 1992 monitoring round, as well as data collected since March 1993 in the first 28 quarters of compliance monitoring. An ACL was established for three POC well clusters, each having a shallow, intermediate, and deep well, for 31 different contaminants, totaling 279 individual ACLs. Each ACL establishes a numerical limit on the amount of contamination that can exist in groundwater at the point of compliance (POC wells adjacent to the lagoon) without endangering human health and the environment where receptors are potentially exposed. Receptors at this Site can be exposed where contamination emanating from the lagoon reaches the Quinebaug River (measured by PCLs in surface water, sediment, and pore water).

The bulk of the 279 total ACLs were statistically calculated using available POC well detections. In some cases, contaminants at a particular location were not detected or detected at levels lower than the established MCL. In such cases, the ACL was set at the MCL; this is an extremely conservative measure, however, and future exceedances of these particular ACLs will require careful review to determine whether the contaminant is expected to reach the river at levels above the PCLs. In other cases, contaminants at a particular location were not detected, or detected at levels lower than the current method quantitation/detection limit. When this happened for contaminants with no established MCL, the ACL was set at five times the current method quantitation/detection limit.

Five times the current method quantitation/detection limit was selected as a reasonable buffer level above the current detection limit to minimize false positive exceedances without being excessively high (i.e., none of the ACL values calculated in this way exceed PCLs set for pore water at the river). A factor of five is generally used by EPA when assessing blank contamination during data validation (any positive sample value within five times of the concentration of a blank contaminant is considered suspect due to the potential variability of the reported results).

EPA approved the final ACLs on September 18, 2000. The groundwater monitoring program was tailored to include ensuring that ACLs are not exceeded at these POC well locations, and

EPA will immediately evaluate any future ACL exceedance. Further, all ACLs will be re-evaluated every five years. Approval of ACLs effectively constitutes the completion of Remedial Action (RA) construction at this Site, and the start of a one-year Operational & Functional period, following which a Long-Term Response Action ("LTRA") period begins. LTRA lasts for 10 years, unless the benzene exceedance attenuates sooner. EPA currently plans to continue compliance monitoring through LTRA until the year 2011. The State of Connecticut will be responsible for Site-wide O&M at that time, including further monitoring as necessary.

The last component of the remedy is institutional controls. Restrictions prohibiting any groundwater use are in place on the property within the meander bend of the river, as well as restriction of any land use that might interfere with the remedy.

Groundwater use will be prohibited within 100 feet outside of the river to the north, west and south, and production wells greater than 50 gallons per minute are prohibited within 1500 feet downgradient of the Site. These restrictions affect three non-PRP landowners living across the river from the lagoon. Although monitoring wells were installed on the three properties neighboring the Site, and compliance monitoring has taken place since March 1993, the landowners and PRPs did not reach a formal agreement for 30 years of access and groundwater use restrictions. EPA ultimately arranged for the U.S. Army Corps of Engineers to perform appraisals on all three properties; these appraisals were finalized in June 1996, and later revised in January 1999. To date, two of the three landowners have accepted the appraised values, and EPA received approval from Headquarters to directly pay the landowners for access and groundwater use restrictions. EPA worked with CT DEP to draft formal easements for the properties pursuant to Connecticut's Environmental Land Use Restrictions regulations, and is currently working on assembling a formal notification package for public comment. Discussions with the third landowner are ongoing, and if the appraised value is not accepted, EPA will consider other enforcement options, including initiating a takings process.

No activities were conducted using removal authority at this Site.

No reuse is currently planned for the Site, due to the waste-in-place remedy and institutional controls prohibiting future use of groundwater, or any land use that might interfere with the remedy.

Enforcement History

EPA entered into an initial 1990 Consent Decree with 11 Settling Defendants: Pervel Industries, Inc. ("Pervel"), generator of over 90% of the waste disposed in the lagoon; three settling parties that can collectively be referred to as the Yaworskis, owner/operators of the lagoon; five small generators, who collectively disposed of less than 3% of the waste in the lagoon; and two companies which are now bankrupt or defunct. The Consent Decree designated Pervel as

responsible for performance of all work, and provided that the remaining parties would be liable for the work should Pervel become unable to perform.

Pervel's consultant, ENSR Consulting and Engineering ("ENSR"), began performing most of the requirements, including developing ACLs and all corrective action requirements. Pervel also financed construction of the lagoon cap in 1990 to 1991. The Yaworskis' consultant, Fuss & O'Neill, Inc., began performing the required compliance monitoring and related work in March 1993.

In late October 1993, after ENSR had submitted a number of draft Work Plans for Pre-Design activities related to the benzene exceedance, Pervel notified EPA that it was financially unable to perform the remaining work at the Site and ENSR subsequently ceased ongoing Site work. In accordance with the Consent Decree, EPA notified the remaining parties (the five small generators and the Yaworskis) that Pervel was unable to perform and that they were responsible for performing the remainder of the work at the Site.

Subsequently, EPA and the five low volume generators entered into an agreement resolving their liabilities under the 1990 CD for the remaining work at the Site, for payment of a sum certain. That agreement, memorialized in a (de minimis) Consent Agreement, was entered in court in July 1996, and resulted in a financial settlement of \$310,903 (plus interest) which was placed in a Site-specific Special Account.

The Yaworskis' contractor continued to conduct quarterly compliance monitoring after Pervel ceased Site work. EPA negotiated an agreement with the Yaworskis, finalized September 1995 and filed in court October 1995, in which the Yaworskis agreed to finalize the ACL Demonstration Report and calculate final ACLs, conduct Pre-Design investigations, and continue quarterly compliance monitoring until Pre-Design investigations were complete. Through a side agreement among the PRPs, ENSR submitted revisions to the ACL Demonstration Plan in 1995 and 1996. The Yaworskis' contractor developed a work plan for Pre-Design investigations in 1996, but this work plan was never finalized; in October of 1996, the Yaworskis notified EPA that they could no longer continue financing any cleanup activities at the Site and all PRP Site work ended.

EPA formally notified the Yaworskis and the other Settling Defendants in December 1996 of Fund takeover of all Site work, except for Operations and Maintenance of the lagoon cap, which the State of Connecticut agreed to perform.

On December 2, 1996, the United States filed a complaint against Pervel and its parent company, the Bemis Company ("Bemis"). After protracted litigation, the parties entered into mediation and achieved a settlement resulting in a final cash-out figure of three million dollars (\$3,000,000), to be placed in a Site-specific Special Account to be used, as necessary, for future response action at or near the Site. The Consent Decree formalizing this settlement was entered in court on August 11, 2000.

On April 7, 1999, the United States filed a complaint against the owners/operators of the Site ("the Yaworskis"). In October 1999, the United States entered into mediation with a judge of the Connecticut Superior Court and various parties regarding (a) the U.S. lawsuit regarding the Superfund Site, (b) litigation brought by the State of Connecticut relating to the Yaworski Lagoon Superfund Site and the adjacent Yaworski-owned and Connecticut-regulated Packer Road Landfill, (c) a suit brought by a citizen's group, Peoples Rights in a Clean Environment ("PRICE"), relating to the State-regulated landfill, and (d) back taxes owed to Connecticut, and other remaining obligations of the Yaworskis. The U.S., Connecticut, PRICE, the Yaworskis, and various Yaworski-related entities achieved global settlement of all suits through mediation. The United States' ability-to-pay-based settlement with the Yaworskis and Yaworski-related entities in the amount of \$1,425,000 will also be placed in a Site-specific Special Account to be used for future response action at or near the Site. The Consent Decree formalizing this settlement was lodged in court on August 2, 2000, and a notice initiating public comments was published on August 15, 2000 (65 FR 49837).

The settlement amount received by the State of Connecticut will allow the State to take the lead on implementing clean-up of the nearby solid waste landfill.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL

EPA and the State reviewed the remedial action contract and construction for compliance with quality assurance and quality control (QA/QC) protocols. Construction activities at the Site were determined to be consistent with the ROD, the scope of work in the Consent Decree, all final design plans, reports, and specifications (including all approved updates), and all statements of work issued to EPA's Remedial Action Contractor.

Final lagoon cap designs contained construction quality assurance programs to verify that the work met the ROD and design requirements. EPA staff and its oversight contractor, as well as CT DEP staff, performed oversight of all construction activities and design of monitoring programs and the ACLs.

All sampling was implemented using EPA, CT DEP, or other standard practices, and all performance data was regularly reviewed by EPA, EPA's oversight contractor, and CT DEP. Subsequent to EPA Fund-takeover at the Site, all activities undertaken by EPA's Remedial Action Contractor were reviewed and approved by EPA QA staff and found to comply with all EPA and State requirements. All Quality Assurance Project Plans utilized at the Site by PRP and EPA contractors incorporated EPA and State QA/QC procedures and protocol.

All construction and performance data to date are acceptable and no additional construction activities are required by the ROD. All analytical results to date are accurate to the degree

needed to assure satisfactory execution of the remedy. EPA and CT DEP will continue to review all performance data.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

When the Site changed from PRP-lead to Fund-lead in December 1996, the State agreed that, although there are no separate operable units at the Site, the lagoon cap portion of the remedy had essentially been in O&M for some time. The State agreed to take over 100% of the lagoon cap O&M, and has been performing all required activities since March 1997. This activity will be ongoing.

The following additional activities remain for the Site:

TASK	ESTIMATED COMPLETION DATE	RESPONSIBLE ORGANIZATION
Natural Attenuation/Site-wide Operational & Functional START	9/30/2000	EPA/State determination
Formalize Institutional Controls for non-PRP Properties (for two landowners that accepted EPA offers only)	9/30/2001	EPA/State
Formalize Institutional Controls for third non-PRP landowner via takings (if necessary)	9/30/2001	EPA/DOJ/Army Corps of Engineers
Natural Attenuation Operational & Functional COMPLETE and START of Long-Term Response	9/30/2001	EPA/State determination, EPA-lead
Interim RA Report	9/30/2001	EPA
Five-Year Review (second)	9/30/2003	EPA
Long-Term Response COMPLETE	9/30/2011	EPA/State determination

Final RA Report	9/30/2011	EPA
Site-Wide O&M START	9/30/2001	State
Final Close Out Report	2023	State/EPA determination. EPA report
Deletion from National Priorities List	2023	EPA/State

V. SUMMARY OF REMEDIATION COSTS

The 1988 ROD estimated the total cost of the remedy at \$2,976,000, including total capital costs of \$2,259,300 and a total O&M present worth of \$716,600. The PRPs were not initially required to report on their expenditures.

During the period from February 1990 to October 1993, Pervel was the lead PRP performing the work. The CD capped oversight at \$225,000 until RD/RA construction was completed, and the PRPs reached that cap with payments made in August 1992. When Pervel notified EPA in October 1993 that it was unable to continue performing work, their parent company, Bemis, provided EPA with copies of invoices and checks proving that they had expended the full amount of a \$4,000,000 financial guarantee. This amount included lagoon cap construction costs, and costs to develop all required work plans, including the ACL Demonstration Plan. This amount did not include the costs of quarterly monitoring and lagoon cap O&M since March 1993, which was paid for by the Yaworskis.

The Yaworskis continued to pay for quarterly monitoring and lagoon cap O&M after October 1993, until they also ceased performing/financing work in October of 1996. While the Yaworskis' exact costs during this period are unknown, their contractor had previously provided certain 1994 invoices during EPA's development of a de minimis-type settlement for the five low-volume generators. These invoices indicate that the lagoon cap O&M cost between \$3000 - \$4000 per year, and the cost of monitoring and all associated laboratory work, data validation, and reporting, totaled almost \$400,000 per year.

The Site has been Fund-lead since December 1996. The total budget for the EPA contractor's performance of compliance monitoring from March 1997 through the July 2001 monitoring event, as well as development of ACLs, is \$2,646,233, which includes all start up contract costs (work plan development, etc.). The total cost for the EPA contractor's performance of the Pre-Design Investigation related to the benzene exceedance is \$630,493. EPA's direct/indirect costs are not included in these estimates.

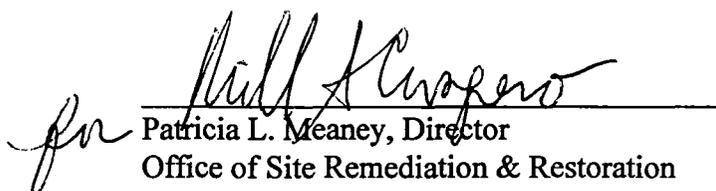
These costs also do not include O&M of the lagoon cap, for which the State took over all responsibilities at the time the Site went Fund-lead.

At the time of writing, EPA is expecting to receive two separate settlement payments in the next few months (as outlined in "Enforcement History"), \$3 million (plus interest) to settle U.S. v. Bemis/Pervel, and \$1,425,000 (plus interest) to settle U.S. v. Yaworski, Inc., *et. al.* Both payments will be placed in a Site-Specific Special Account, along with the \$310,903 (plus interest) already received for the de minimis type settlement. It is EPA's intent to use the Special Account funds to pay for ongoing compliance monitoring and any other required future work at the Site.

VI. FIVE-YEAR REVIEW

Hazardous substances will remain at the Site above levels that allow unlimited use and unrestricted exposure after the completion of the remedial action. Pursuant to CERCLA section 121(c) and as provided in the current guidance on Five Year Reviews: OSWER Directive 9355.7-02, *Structure and Components of Five-Year Reviews*, May 23, 1991, OSWER Directive 9355.702A, *Supplemental Five-Year Review Guidance*, July 26, 1994, and the *Second Supplemental Five-Year Review Guidance*, December 21, 1995, EPA must conduct a statutory five-year review.

The first five year review was completed September 29, 1998, and EPA certified that the remedy selected for this site remains protective of human health and the environment. (A statutory five-year review should be completed within five years of the initiation of the first remedial action, which in this case is 1990. This review was delayed, however, due to budgetary shortfalls in fiscal year 1996, as well as very significant changes in the status of Settling Defendants.) The second five year review is expected to be completed by September 30, 2003. Subsequent five year reviews will occur every five years thereafter.


Patricia L. Meaney, Director
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9-20-2000
Date

VII. Bibliography

Record of Decision

Yaworski Lagoon Site, Canterbury Township, Connecticut

September 29, 1988

Consent Decree,

Civil Action No.'s N-89-615(JAC) and H-89-870 (JAC)

Yaworski Lagoon Superfund Site

February 26, 1990

Construction Documentation Report, Lagoon Closure, Volumes I and II.

GZA GeoEnvironmental, Inc. (on behalf of Pervel Industries, Inc.)

March 1991.

Remedial Design/Remedial Action Work Plan, Volumes I and II

(includes Post Closure Plan and Corrective Action Plan)

ENSR Consulting and Engineering (on behalf of Pervel Industries, Inc.)

March 1991

Final Remedial Construction Report Approval

EPA

March 31, 1992

Split Sampling Report for the October, 1992 Sampling Round

Metcalf & Eddy

February 1993

Stipulation and Order

October 20, 1995

Consent Agreement to Resolve Claims for Enforcement of 1990 Consent Decree,

Civil Action No.'s N-89-615(JAC) and H-89-870 (JAC)

Yaworski Lagoon Superfund Site

July 18, 1996

Five-Year Review Report, Type 1a

September 29, 1998

Timing of Remedial Design, Remedial Action, Long-Term RA and O&M.

EPA Memo

August 12, 1999

Final Pre-Design Engineering Report
Metcalf & Eddy.
December 1999

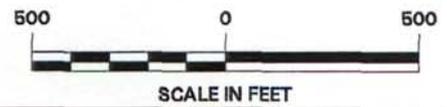
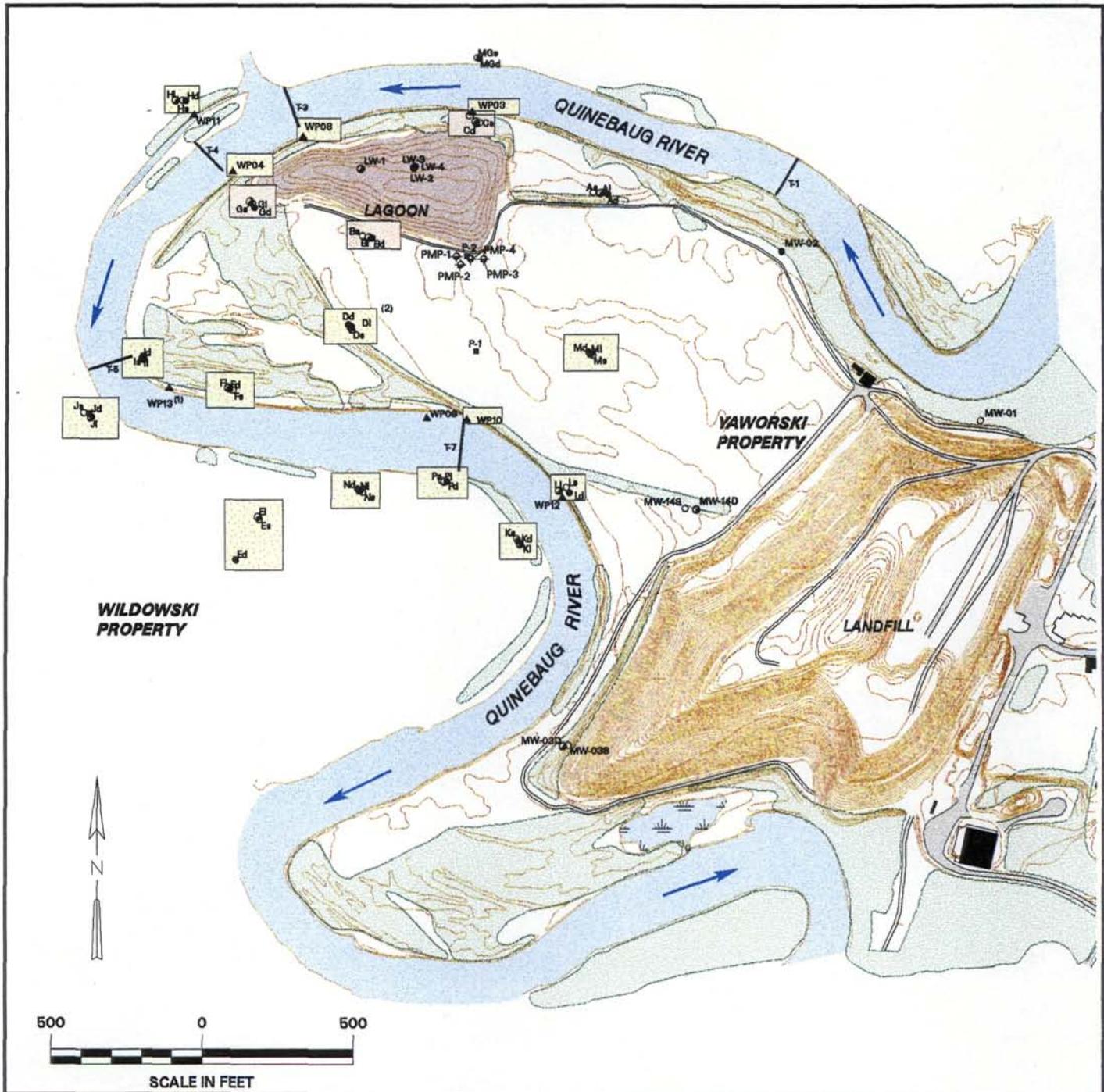
Final Alternate Concentration Limit (ACL) Demonstration Report, Volumes I and II
ENSR Consulting and Engineering
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March 1993, updated by revisions of November 1995 and November 1996, approved December
1999.

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Monitored Natural Attenuation Sampling.
Metcalf & Eddy.
June 2000.

Final Statistical Derivation of Alternate Concentration Limits (ACLs)
Metcalf & Eddy.
July 2000

Consent Decree,
Civil Action No. 3:99cv626 (PCD)
U.S. v. Yaworski, Inc., *et. al.*
Yaworski Lagoon Superfund Site
Lodged August 2, 2000.

Consent Decree,
Civil Action No. 3:96-CV-2420 (AVC)
U.S. v. Bemis Company, Inc. and Pervel Industries, Inc.
Yaworski Lagoon Superfund Site
August 11, 2000.



LEGEND

- | | | | |
|--------------------|--|---|--|
| ○ _{As} | Monitoring Well - Shallow Flow Zone | ■ | Sampling Locations for Compliance Monitoring Rounds (CMRs) |
| ○ _{Al} | Monitoring Well - Intermediate Flow Zone | ■ | Point of Compliance Wells |
| ● _{Ad} | Monitoring Well - Deep Flow Zone | ■ | Wooded Areas |
| ■ _{p-1} | Piezometer | ← | River Flow Direction |
| ▲ _{WP03} | Well Point | | |
| ◆ _{PMP-1} | Product Monitoring Point | | |
| — _{T-1} | River Transect (Sediment) | | |

NOTES:
 (1) Approximate Location.
 (2) Well De is not sampled during CMRs.

**ATTACHMENT A.
GROUNDWATER SAMPLING
LOCATIONS**

**YAWORSKI LAGOON
SUPERFUND SITE
CANTERBURY, CONNECTICUT**

/u6/yaworski/atta