

AMENDED RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION

Superfund Records Center
SITE: Picillo Farm
BREAK: 5'4
OTHER: 259365

Site: Picillo Farm, Coventry, Rhode Island



SDMS DocID 259365

DOCUMENTS REVIEWED

I am basing my decision primarily on the following documents describing the analysis of cost-effectiveness of remedial alternatives for the Picillo site:

1. Record-of-Decision for Source Control, Picillo Farm, Coventry, Rhode Island, Deland, Sept. 1985.
2. Remedial Investigation/Feasibility Study, Picillo Hazardous Waste Site, Coventry, Rhode Island, August 1983, prepared by Tighe & Bond/SCI in association with Leggette, Brashears & Graham, Inc. and Ecological Analysts, Inc.
3. Endangerment Assessment and Feasibility Study, Picillo Site, Coventry, Rhode Island, March 1985, prepared by GCA Corporation, GCA/Technology Division, Bedford, Massachusetts.
4. Summary of Remedial Alternative Selection, Sept. 1985.
5. Amendment to the Summary of Remedial Alternative Selection, February, 1987, (attached).
6. State and EPA staff summaries and recommendations.

DESCRIPTION OF SELECTION REMEDY

- ° Disposal of approximately 3500 cubic yards of primarily PCB contaminated soils and disposal of approximately 3000 cubic yards of primarily phenol contaminated soils offsite in a RCRA/TSCA landfill.
- ° Disposal of the samples collected during site investigations.
- ° Implementation of site closure activities.

DECLARATION

Consistent with the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 C.F.R. Part 300), I have determined that at the Picillo Farm site disposal of soils contaminated with

hazardous substances in an off-site RCRA/TSCA landfill and implementation of the associated site closure activities is the cost-effective remedy for the on-site soil contamination and provides adequate protection of public health, welfare, and the environment.

This decision document amends the Record of Decision issued on September 30, 1985. The change in the selected remedy from on-site to off-site disposal of the contaminated soils was necessitated by provisions in the Superfund Amendments and Reauthorization Act of 1986.

The source control remedy will require operation and maintenance activities to ensure its continued effectiveness. These operations and maintenance activities will be considered part of the approved action and eligible for Trust Fund monies for a period of one year from the completion of remedial actions.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

EPA has consulted with the State of Rhode Island concerning the selected source control remedy. Like EPA, the State proposes contaminated soils be disposed of in an off-site RCRA/TSCA landfill.

The recommended remedy will not eliminate the residual groundwater contamination at the site. EPA will conduct a remedial investigation/feasibility study to determine the nature and extent of the contamination and to evaluate cleanup alternatives.

Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial actions.

3/3/87
Date

Richard M. O'Connell
Regional Administrator

AMFNDMENT TO THE
SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
PICILLO FARM SITE

February 1987

Introduction

This Record-of-Decision (ROD) amends the ROD issued on September 30, 1985 by EPA for the source control remedy at the Picillo site located in Coventry, Rhode Island. The remedy selected in the 1985 ROD called for the on-site disposal of PCB and phenol contaminated soils in a RCRA/TSCA landfill and some additional site closure and post-closure activities. The new selected remedy calls for the off-site disposal of the contaminated soils and laboratory samples, together with selected site closure and post-closure activities described below.

The change in the remedy was mandated by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Specifically, section 121(d)(2)(C)(iv) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended by SARA requires EPA to conform the selected remedy at Picillo to Rhode Island's environmental standard that prohibits the landfilling of "extremely hazardous wastes". The soil at Picillo that is contaminated with PCBs at concentrations greater than 50 parts per million (ppm) is considered such an "extremely hazardous waste" under the State standard.

The information developed in the 1985 ROD, except where expressly contradicted, is incorporated within this document. The reader should refer to the 1985 ROD for additional information regarding the site.

Consistency With CERCLA As Amended By SARA

Congress provided very specific language in section 121 of CERCLA as amended by SARA which pertains to the Picillo site. Section 121(d)(2)(C)(iv) states: "Where the remedial action selected by the President does not conform to a State standard and the State has initiated a law suit against the Environmental Protection Agency prior to May 1, 1986, to seek to have the remedial action conform to such standard, the President shall conform the remedial action to the State standard. The State shall assure the availability of an offsite facility for such remedial action".

In this section Congress focused very specifically on the Picillo site. Following issuance of the 1985 ROD and before May 1, 1986, Rhode Island filed suit in an attempt to force EPA to conform the selected remedy for Picillo to the requirements of the Rhode Island Hazardous Waste Management Act, General Laws of Rhode Island, 23-19.1-1 et seq. This State law prohibits the landfilling of "extremely hazardous waste". The State has classified the PCB contaminated soils at Picillo as an "extremely hazardous waste" subject to this landfilling prohibition. The State, therefore, challenged EPA's ROD in which the decision was made to landfill on-site at Picillo the PCB contaminated soil. Congress, in section 121(d)(2)(C)(iv), directed the President to conform the remedial action at Picillo to the State standard.

In addition to section 121(d)(2)(C)(iv), EPA had to determine whether other provisions of section 121 of CERCLA should apply to the remedy at Picillo. Section 121 generally disapproves of

landfilling and favors permanent remedies, and has numerous other provisions governing cleanup standards. If the general provisions of section 121 apply in addition to section 121(d)(2)(C)(iv), then EPA would have to conduct further studies to determine whether alternatives to landfilling would be appropriate either on- or off-site, and if appropriate, which of these alternatives should be selected.

In light of the review of the CERCLA Amendments, EPA has concluded that Congress intended to grant the Agency, in this specific case, the authority to approve an off-site landfilling remedy. The rationale for this decision is set out below.

The legislative history makes clear that section 121(d)(2)(C)(iv) was intended to address the site. The Conference Report provides that clause (iv) "requires the President to conform the remedial action at the Picillo Pig Farm site, Rhode Island, to the State standard." SARA Conference Report, H.R. Rep. No. 962, 99th Cong., 2nd Session (1986) at 246. Similarly, in the October 3, 1986 Senate debates on the Superfund Amendments, Senator Chafee of Rhode Island stated that "[t]his provision was added at my insistence after the State of Rhode Island was forced by EPA to go to court last December in an effort [sic] to get EPA to remove the contaminated dirt [at the Picillo dump site]." Cong. Rec. §14924 (Daily Ed. Oct. 3, 1986). While the legislative history does not indicate that Congress intended a specific remedy for

the site, it does demonstrate that Congress sought to have Rhode Island's requirements for the site, control the remedy.

Moreover, during the remedy selection process conducted for the 1985 ROD, EPA developed and fully evaluated six source control alternatives (these did not include incineration). During the drafting and passage of the statute, only those six alternatives were contemplated as a possible remedy by EPA and the State. Those alternatives are re-evaluated here to ensure that the remedy selected is protective, cost-effective and in conformance with section 121(d)(2)(C)(iv).

In addition to the above factors, there exists a number of fundamental principles of statutory construction which pertain to this matter. First, if possible, it is necessary to give effect to every word and phrase of a statute. Thus, the last section of section 121(d)(2)(C)(iv), which requires the State to secure an off-site facility for the revised remedy, must be implemented.

Further, specific terms in a statute prevail over the more general terms of a statute. EPA believes section 121(d)(2)(C)(iv) reflects Congressional intent as to the remedy at this single, specific site. This section controls, therefore, over the more general provisions of section 121.

Because of the inclusion of the provision directed at Picillo, the remedy at this site is sui generis, i.e., it is applicable only to this remedial action. EPA has interpreted the statute to mean that the Agency has authority to approve of a range of

off-site remedies, including those (such as landfilling) under discussion by the State and the Agency prior to the issuance of the ROD, for which the State will provide facilities, even if other provisions of section 121 are not met.

The selected remedy complies with the State standard because it no longer includes on-site landfilling of the PCB contaminated soils. It also utilizes an off-site facility, which the State has assured it will make available. Therefore, the chosen remedy conforms to the requirements of section 121(d)(2)(C)(iv) of CERCLA.

Alternatives Evaluation

This decision document re-evaluates the alternatives developed in the 1985 ROD for the source control remedy. The six alternatives evaluated in the 1985 ROD and reconsidered here are listed in Table I.

The re-evaluation was conducted to ensure that the remedy selected is protective, cost-effective and in conformance with CERCLA as amended.

Section 121(d)(2)(C)(iv) of CERCLA eliminates alternatives SC-5 and SC-6 from further consideration. These remedies include the on-site landfilling of the PCB contaminated soils. As was discussed, these do not comply with section 121(d)(2)(C)(iv) of CERCLA that requires the selected remedy to conform to the State's standard that prohibits on-site landfilling of the PCB contaminated soils

at Picillo. Alternative SC-5 was the selected remedy in the 1985 ROD.

The No Action alternative is also eliminated from further consideration. As EPA concluded in the 1985 ROD and also concludes here, No Action would not effectively mitigate or minimize damage to and provide adequate protection of human health and welfare and the environment.

Alternative SC-4 is also eliminated from further consideration. This alternative calls for the off-site disposal of the PCB contaminated soils and the disposal of the phenol contaminated soil in a cap-only landfill. As was concluded in the 1985 ROD and also concluded here, this alternative would not effectively mitigate the threat to human health and welfare and the environment.

Alternative SC-3 involves disposing the PCB contaminated soils in an off-site RCRA/TSCA landfill and disposing the phenol contaminated soils in an on-site RCRA landfill. The estimated cost of this alternative is \$2.6 million. EPA considers this alternative to be adequately protective of human health and welfare and the environment.

Alternative SC-2 involves the disposal of the PCB and phenol contaminated soils in an off-site RCRA/TSCA landfill. The estimated cost of this alternative is \$3 million. Since the source of contamination would be removed, this remedy would provide adequate

This alternative is slightly more expensive than alternative SC-3.

Although alternative SC-2 (off-site disposal of both the PCB and phenol contaminated soils) is slightly more expensive than alternative SC-3 (off-site disposal of the PCB soils and on-site disposal of the phenol soils), EPA considers alternative SC-2 to be more cost-effective because of the reasons discussed below.

First, the on-site landfill for the phenol contaminated soils will require the following actions that would not be needed if the soil was landfilled off-site:

1. long-term monitoring and maintenance of the on-site landfill;
2. the potential for future remedial action costs if the on-site landfill fails; and
3. a review of the remedy every five years.

In addition, the construction of an on-site landfill for the phenol contaminated soils would take longer to implement than disposing the soils off-site.

Recommended Alternative

EPA has determined the source control remedy utilizing off-site landfilling of the PCB and phenol contaminated soils in a RCRA/TSCA landfill meets the special statutory requirements for this site, is cost-effective and protective of human health and the environment. This recommended remedy also involves site closure and post-closure activities including: filling, grading and revegetating the site; installing a run-on/run-off control system; installing a

fence; mowing the site if necessary; and providing for future maintenance that may be needed. Additionally, the samples collected during the site investigation and now stored on-site will be disposed along with the contaminated soils. EPA concluded that it is cost-effective to dispose of the samples off-site as there will be no capacity provided on-site as part of this remedy. The State will be consulted before the samples are disposed to ensure they are no longer needed for legal purposes.

The State of Rhode Island has indicated that it concurs with EPA's selected remedy. The State has also agreed to assure the availability of an off-site landfill for the remedy that is in compliance with applicable or relevant and appropriate environmental requirements.

As discussed, the selected remedy complies with federal and state environmental requirements, including the Rhode Island standard that prohibits landfilling soil contaminated with PCBs at concentrations greater than 50 ppm at Picillo.

EPA considered the provisions in section 121 of CERCLA that prefer the selection of permanent remedies. As discussed, the site-specific language in the statute overrides the general directive to implement a permanent remedy, and gives EPA the authority to select off-site landfilling.

Consistency With Other Environmental Laws

The selected remedial action for source control that includes the off-site disposal of the contaminated soils will meet all applicable or relevant and appropriate federal and state requirements if the

remedy is undertaken pursuant to section 104 or 106 of CERCLA.

The land disposal facility that will be used at the time the contaminated soils are disposed will be operating in compliance with sections 3004 and 3005 of the Solid Waste Disposal Act and, where applicable, the Toxic Substances Control Act or other applicable federal law and all applicable state requirements. Additionally, both of the following requirements will be met at the time of disposal:

- (A) The unit at the land disposal facility to which the contaminated soil will be transferred will not be releasing any hazardous waste, or constituent thereof, into the groundwater or surface water or soil.
- (B) All such releases from other units at the land disposal facility will be controlled by a corrective action program approved by EPA under subtitle C of the Solid Waste Disposal Act.

Operation and Maintenance

The operation and maintenance (O&M) activities required are:

1. Periodic inspections of the site.
2. Mowing the site if necessary.
3. Maintenance of any run-on/run-off control systems.
4. Maintenance and periodic replacement of the site fence.

Operation and maintenance activities will be considered part of the approved remedial action and eligible for Trust Fund monies for a period of one year from the completion of the remedial

action.

The State has made a commitment to provide for the operation and maintenance after the first year. Rhode Island's Department of Environmental Management is the State agency responsible for this.

Table I

SOURCE CONTROL ALTERNATIVES

<u>Alternative</u>	<u>Description</u>	<u>Present Worth Cost</u>
SC-1	° No Action	0
SC-2	° Disposal of the PCB and Phenol Soils Off-site in a RCRA/TSCA Landfill	\$3.0 million
SC-3	° Disposal of the PCB Soils Off-site in a RCRA/TSCA Landfill	\$2.6 million
	° Disposal of the Phenol Soils On-site in a RCRA Landfill	
SC-4	° Disposal of the PCB Soils Off-site in a RCRA/TSCA Landfill	\$2.5 million
	° Disposal of the Phenol Soils On-site in a Cap-Only Landfill	
SC-5	° Disposal of the PCB and Phenol Soils On-site in RCRA/TSCA Landfill	\$1.7 million
SC-6	° Disposal of the PCB Soils On-site in a RCRA/TSCA Landfill	\$1.6 million
	° Disposal of the Phenol Soils On-site in a Cap-Only Landfill	

RECORD OF DECISION

REMEDIAL ALTERNATIVE SELECTION

Site: Picillo Farm, Coventry, Rhode Island

DOCUMENTS REVIEWED

I am basing my decision primarily on the following documents describing the analysis of cost-effectiveness of remedial alternatives for the Picillo site:

1. Remedial Investigation/Feasibility Study, Picillo Hazardous Waste Site, Coventry, Rhode Island, August 1983, prepared by Tighe & Bond/SCI in association with Leggette, Brashears & Graham, Inc. and Ecological Analysts, Inc.
2. Endangerment Assessment and Feasibility Study, Picillo Site, Coventry, Rhode Island, March 1985, prepared by GCA Corporation, GCA/Technology Division, Bedford, Massachusetts.
3. Summary of Remedial Alternative Selection.
4. Community Relations Responsiveness Summary.
5. State and EPA staff summaries and recommendations.

DESCRIPTION OF SELECTED REMEDY

° Disposal of approximately 3500 cubic yards of primarily PCB contaminated soils and disposal of approximately 3000 cubic yards of primarily phenol contaminated soils onsite in a RCRA/TSCA landfill.

° Implementation of site closure activities.

DECLARATION

Consistent with the Comprehensive Environmental Response Compensation, and Liability Act of 1980 (CERCLA), and the National Contingency Plan (40 C.F.R. Part 300), I have determined that at the Picillo Farm site disposal of soils contaminated with hazardous substances in an on-site RCRA/TSCA landfill and implementation of the associated site closure activities is the cost-effective remedy for the on-site soil contamination and provides adequate protection of public health, welfare, and the environment.

The source control remedy will require operation and maintenance activities to ensure its continued effectiveness. These operation and maintenance activities will be considered part of the approved action and eligible for Trust Fund monies for a period of one year from the completion of remedial actions.

I have also determined that the action being taken is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

EPA has consulted with the State of Rhode Island concerning the selected source control remedy. Like EPA, the State proposes that the phenol contaminated soils be placed in an on-site RCRA landfill. The State does not concur with EPA's decision that the 3500 yd³ of primarily PCB contaminated soil also be disposed of in an on-site RCRA/TSCA landfill.

The recommended remedy will not eliminate the residual groundwater contamination at the site. EPA will implement a groundwater and surface water monitoring program and will establish risk based standards for the groundwater that are protective of public health, welfare and the environment. Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial actions.

Sept. 30, 1985
Date

Michael R. DeLeon
Regional Administrator

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CLEANUP PLANS FOR PICILLO AND WESTERN SAND & GRAVEL SITES ANNOUNCED

BOSTON -- The U. S. Environmental Protection Agency (EPA) today selected remedies for hazardous waste contamination at the Picillo Farm and the Western Sand & Gravel Superfund sites in Rhode Island.

EPA selected a \$1.1 million remedy for the Picillo site in Coventry. The plan calls for landfilling contaminated soils on site and monitoring groundwater.

The Agency selected a \$1.1 million remedy to control the spread of contamination in soil at the Western Sand & Gravel site in Burrillville. The remedy calls for capping contaminated soils and sludges at the site.

EPA Regional Administrator Michael R. Deland said, "These actions will protect public health and the environment, while providing a cost effective method of cleanup."

The Picillo cleanup plan consists of:

- Placing soils contaminated with phenols and polychlorinated biphenyls (PCBs) in a landfill on site equipped with a double-layer impermeable (waterproof) bottom liner, a leachate collection system, a leak detection system, and covered with a layered impermeable cap. The cap will comply with EPA regulations for hazardous waste landfills under the Resource Conservation and Recovery Act (RCRA).
- Grading and revegetating the site to channel rainwater off site and prevent erosion.

(more)

- ° Fencing the site to limit public access.
- ° Monitoring groundwater around the facility.

If future groundwater monitoring indicates that existing residual groundwater contamination presents a risk to public health or the environment, EPA will undertake necessary additional actions at the Picillo site.

Three piles of contaminated soils were left at the site after previous emergency cleanups, one pile containing PCBs and two piles containing phenols.

EPA and the State of Rhode Island are jointly negotiating with potentially responsible parties to have them undertake the cleanup. If negotiations are unsuccessful, Superfund money may be used to fund the cleanup. EPA may later seek to recover costs from the potentially responsible parties. The Superfund law requires that if Superfund money is used, EPA funds the design and ninety percent of capital costs of construction. The State contributes ten percent of capital costs and is responsible for long-term operation and maintenance of the remedy.

EPA has consulted with the State concerning the cleanup plan. Like EPA, the State proposes that the phenol-contaminated soils be contained on site. However, the State does not concur with EPA's decision to also dispose of PCB-contaminated soil on site because such disposal violates State environmental regulations. EPA cannot use Superfund money to dispose of the PCB-contaminated soil off-site because the site does not meet criteria set under the Superfund law for off-site disposal. However, EPA does agree with the State that off-site disposal of the PCB pile, if done in accordance with EPA's off-site policy, would be equally protective of public health and the environment. The State is exploring other options for off-site disposal of the PCB pile.

Because Congress has not yet reauthorized the Superfund law, which expired September 30, EPA recently announced that all money for design and construction for Superfund site cleanups would be used instead for emergency cleanups and staff salaries. "There is every reason to believe that as soon as Congress acts, the funds that become available will be used for EPA's Picillo Farm project, if negotiations are unsuccessful," Regional Administrator Deland said.

(more)

EPA's Western Sand & Gravel decision was based on studies which evaluated the effectiveness of various remedial alternatives, including capping. The studies determined that because contaminated soil is at least four feet above the groundwater table, groundwater will not spread the contaminants from underneath the capped area and therefore recommended capping as an environmentally sound and cost effective method for remedying soil contamination at the site.

EPA has consulted with the State and they are in agreement with the choice of remedy for the Western Sand & Gravel site.

The cap would meet RCRA standards. In addition, the site will be graded, loamed, vegetated and fenced and groundwater will be monitored to insure adequacy of the cap.

EPA decided in September of 1984 to install a waterline and to gather necessary additional information on soil and groundwater contamination in order to determine the effectiveness of capping the site.

EPA is designing the waterline and finalizing selection of the water supply source.

A separate remedial investigation (RI) and feasibility study (FS) will be conducted to determine the nature and extent of groundwater contamination and to evaluate alternatives for groundwater cleanup.

EPA is negotiating with potentially responsible parties for payment of costs related to the site and performance of remedial action.

A public comment period on the capping proposal was held from August 16 to September 13, 1985.

The twelve acre site was a sand and gravel quarry. From 1975 to 1979, septage and liquid chemical wastes were dumped into unlined lagoons and pits. The wastes infiltrated through the soil and contaminated groundwater.

Drums of hazardous wastes and bulk wastes were illegally dumped in 1977 at the Picillo Farm site, an eight-acre area in Coventry, Rhode Island. In September 1977, an explosion and fire at the site brought the illegal dumping activities to the attention of State and Federal officials. A number of investigations and remedial activities have since been conducted at the site.

From 1983 to 1985, EPA and RI DEM conducted a study of the nature of contamination (remedial investigation) at the Picillo site and possible cleanup options (feasibility study). EPA held a public meeting in April and a public hearing in May to discuss

the results of the studies and cleanup options. A public comment period on the cleanup proposals was held from April 8 to May 15.

EPA's Record of Decision (ROD) for the Picillo site, which explains the cleanup plan and summarizes and responds to public comments on the cleanup options, is available for public review at the Coventry Town Hall/Library and the Rhode Island Department of Environmental Management, 75 Davis Street, 204 Cannon Building, Providence.

A copy of the Western Sand & Gravel ROD is available for review at the Burrillville and Slatersville Town Halls and at the RI DEM in Providence.

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SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

Picillo Farm Site
Coventry, Rhode Island

SITE LOCATION AND DESCRIPTION

The Picillo Farm site is located in Coventry, Rhode Island, approximately 20 miles southwest of Providence and 1 mile southwest of the intersection of Route 102 and Perry Hill Road. The site coordinates are approximately 41° 41' 20" longitude and 71° 42' 45" latitude. The USGS map for the site is the Coventry Center, RI Quadrangle which was published in 1955 and photorevised in 1970.

The Town of Coventry, Rhode Island, based on a 1980 census (Rand McNally, 1980), has a total population of approximately 8,000 people. The site is located in a very rural area with approximately 30 to 40 dwellings within a 1 mile radius.

The disposal site consists of approximately 8.0 acres of cleared land which is surrounded by woodlands and wetlands and slopes to the northwest towards the Unnamed Swamp. A locus map of the site is presented in Figure 1. The Picillo Farm site was listed on the first Superfund National Priority List published in September, 1983.

SITE HISTORY

Drums containing hazardous wastes and bulk wastes were illegally disposed within an 8-acre area of the Picillo Farm over a period of months in 1977. A series of trenches -- the northeast trench, northwest trench, west trench, south trench, and two slit trenches, -- were used for this activity. In September 1977, an explosion and fire at the site brought the dumping activities to the attention of regulatory agencies.

Since September 1977, a number of investigations and remedial activities have been conducted at the site. During the Fall of 1979, the Rhode Island Department of Environmental Management (RI DEM) and the Environmental Protection Agency (EPA) contracted with Mitre Corporation of Bedford, Massachusetts, to study and recommend the best methods of cleanup for the site. Mitre conducted a hydrogeological assessment of the groundwater contamination, assessed the extent of wastes buried onsite and developed alternatives for short-term and long term remedial action. Upon receipt of the Mitre report, RI DEM contracted with Jetline

Corporation of Stoughton, Massachusetts to conduct cleanup activities. Excavation of the northeast trench began in September 1980, with the final barrel count reaching 2,314. The barrels were disposed of in an offsite landfill. Soils from the excavation activities, contaminated with PCB's and other organic contaminants, were stockpiled in the southeast corner of the site and designated the "PCB Pile."

In December 1980, EPA notified RI DEM it would pay for excavation costs of the northwest trench with money from the Clean Water Act 311 Fund. However, due to the unavailability of anticipated funds, RI DEM assumed funding for the excavation in March 1981 and contracted with Peabody Clean Industries. In June 1981, Peabody Clean Industries completed excavating the 4,500 barrels and the contaminated soils buried in the northwest trench. Shortly thereafter, EPA funded \$250,000 for offsite disposal of the barrels and contaminated soils excavated from this trench.

In November of 1981, Ecology and Environment, Inc. (E&E) under contract to EPA, submitted a hydrogeologic report providing additional information on the Picillo site. The following February, EPA entered into a cooperative agreement with the State for a remedial work effort. In April 1982, under this agreement, the State contracted with O.H. Materials of Findlay, Ohio, for the removal of solid wastes. By May 1982, O.H. Materials's excavation of the west trench, south trench, and two slit trenches had resulted in the removal and offsite disposal of 3,300 barrels. Contaminated soils from this excavation were placed in two stockpiles at the south end and near the center of the site. Because of high concentrations of phenols (e.g. 870 ppm) discovered in the soils, these two piles have been designated the first and second phenol piles. (The second phenol pile has also been referred to as the Phase III pile in the Feasibility Study). This effort completed the removal of buried drums at the site as identified in the previous studies conducted by Mitre Corporation. Exploratory excavations were conducted, to confirm Mitre's findings and no additional drums were discovered.

In September 1982, O.H. Materials began land farming the first phenol waste pile and decreased the phenol concentration from approximately 870 ppm to 60 ppm. Pilot studies conducted on the biodegradation of the PCB contaminated soils, using commercially available microbes, proved to be unsuccessful. In February 1983, RI DEM contracted the team of Tighe & Bond/SCI, Leggette, Brashears & Graham, Inc. and Ecological Analysts, Inc. through the cooperative agreement with EPA. They were tasked to perform final field investigative studies and to recommend a cost-effective groundwater discharge, treatment, and recharge system to mitigate contaminated groundwater originating at the site.

EPA, with expert assistance from GCA, reviewed the draft Tighe & Bond report and concluded that more work was required to establish the types, amounts and disposition of wastes which remain at the site. Additionally, EPA concluded that more work was needed to determine the extent of source release and to profile the ground-water/surface water contaminant plume. GCA's findings were submitted in a report to EPA in September 1983. Subsequently, EPA directed GCA to perform an Endangerment Assessment to characterize the type and extent of contaminants found at the Picillo site (both onsite and offsite) and assess their associated hazards. A summary of the report was presented to the public in June, 1984. In July 1984, GCA was tasked by EPA to conduct an engineering feasibility study addressing the threat defined in the Endangerment Assessment. This study was designed to follow recent EPA RI/FS guidance and to respond to EPA policy concerning appropriate responses at hazardous waste sites.

The feasibility study was completed and presented to the public in April 1985. EPA held a public hearing on the RI/FS and closed out the public comment period on May 15, 1985.

CURRENT SITE STATUS

Onsite Contamination - Present site features are illustrated in Figure 2. At this time the site is ungraded and unvegetated with some areas of the site having undergone erosion. There are three contaminated soil piles within the site boundaries -- the PCB, first phenol and second phenol (Phase III) soil stockpiles. A complete list of hazardous substances identified in the three soil piles is presented in Volume III, Appendix B of the Endangerment Assessment and Feasibility Study. The PCB soil stockpile is approximately 3,500 yd³ in volume and is located in the Northeast corner of the site. The pile has been extensively sampled on numerous occasions. The most recent sampling, conducted in February 1984, showed PCB concentrations ranging from "not detected" to 180 ppm (Table 1). Levels of contamination were not uniformly distributed such that the pile could be segregated. Volatile organics are also present in the soils at concentrations in the high ppb range (Table 2). The PCB pile is covered with a thin plastic liner to minimize fugative dust and infiltration; this liner, however, has been badly damaged by the weather. Similarly, a synthetic liner underlying the pile is thought to be ruptured as a result of sampling activities.

The first phenol stockpile is approximately 2,000 yd³ and is located in the north end of the site adjacent to the PCB pile. This stockpile has undergone biological treatment which has reduced phenol concentrations from approximately 870 to 60 ppm. The contaminated soil is uncapped in the land treatment impoundment.

The second phenol (Phase III) pile is a stockpile of contaminated soil excavated from the drum staging area and is uncovered and unlined. The amount of soil present in this phenol pile has been estimated at 1,000 yd³ and is located approximately in the center of the site. These soils are contaminated with relatively low levels of volatile organics and high levels of phenols. Soil samples analyzed for contaminants indicate the presence of tetrachloroethylene (290 ppb), xylene (7080 ppb) and ethylbenzene (455 ppb). Recent sampling by RI DEM indicates the presence of 3430 ppm of phenol and 15,800 ppm of bis (z-ethylhexyl) phthalate.

Offsite Contamination - Ground and surface water samples collected from 1979 to the present indicate that a considerable quantity of pollutants, mainly volatile organic compounds, have been released into the local groundwater and continue to migrate downgradient from the site. Two plumes of contaminated groundwater associated with the Picillo site, have been identified -- the northwest and southwest plumes. Groundwater in the northwest plume discharges to the Unnamed Swamp which empties into Whitford Pond. The southwest plume discharges to Great Cedar Swamp, which discharges to Great Grass Pond. Table 3 is a summary of organic priority pollutant compounds detected in the groundwater. A complete list of hazardous substances identified in the groundwater is presented in Volume III, Appendix C of the Endangerment Assessment and Feasibility Study.

Risk Assessment - As presented in the Endangerment Assessment and Feasibility Study (Volume III, Appendix B and Appendix C), a substantial concentration of hazardous substances remain at or near the area where they were originally located and due to inadequate barriers are continuing to migrate offsite via groundwater contamination. There are four environmental media through which people can potentially come into contact with the aforementioned remaining hazardous wastes at the Picillo site; soils, groundwater, surface water and air.

The major exposure route of concern for people and animals residing near the Picillo site is direct contact with contaminated soils or wastes. Although there is presently a 24-hour guard stationed at the site, this level of security cannot be cost-effectively maintained. Since there are low-level PCB's as well as phenols and volatile organics present in the stockpiles direct contact is an important possible route of exposure, especially for children and animals. Should repeated contact with the PCB pile occur, there is the potential for skin adsorption of PCBs and an increased carcinogenic risk to receptors. Phenols are skin irritants and prolonged and repeated exposure to these soils may result in irritation and cracking of skin. Ingestion of contaminated soils is unlikely because the population that would realistically

have access to the site would consist of teenagers and young adults; hikers, bike riders, etc., who are not likely to ingest soil. However, in the unlikely event that ingestion should occur, concentrations of PCBs and phenols are well above allowable concentrations based on EPA Water Quality Criteria (45 Fr 79318-79379, November 28, 1980).

In addition to the risks associated with direct contact or ingestion of contaminated soils, protecting groundwater as a future water supply is of concern; even though groundwater originating at the site is not presently being used as a drinking water supply. Leachate containing organic chemical contaminants from the three soil stockpiles is expected to be a continued source of groundwater contamination at the site. Table 5 presents data for contaminants present in soils and leachate at the Picillo site. Contaminants present in the ground water at the Picillo site are presented in Table 2. Concentrations of many of the contaminants in the groundwater are above Ambient Water Quality Criteria corresponding to an increased cancer risk to humans of one in one million (45 FR 79318-79379, November 28, 1980).

There is no present risk associated with the ingestion of surface water impacted by contaminants originating at the Picillo site since surface waters in the area are not currently used as potable water supplies. Surface waters in the area that could potentially be used as a water supply include Whitford Pond and Great Grass Pond. Contaminants present at the inlet to Whitford Pond are extremely low (Table 6) and are not expected to pose a risk to its potential use as a water supply considering dilution effects in the Pond. No contamination has been detected in Great Grass Pond or the outlet to Whitford Pond. As has occurred in the past, it is expected that most of the contaminated groundwater will discharge to the swamps which act as an effective hydrological barrier minimizing contaminant migration into Whitford or Great Grass Ponds. Similarly, no risk exists from the possibility that people may come into contact with the waters of Whitford Pond or Great Grass Pond through swimming, boating, fishing (and fish consumption), or other water recreation.

Also, because the maximum concentration of chemicals recorded in the Ponds are extremely low (or not detected) and have low bioconcentration factors, fish are not expected to become contaminated to levels that would pose a risk from ingestion. Thus ingestion of fish from the Pond is not an exposure route of concern (Table 7).

Besides Whitford Pond and Great Grass Pond, the other surface waters in the area include the Unnamed Swamp and Great Cedar Swamp. The potential of harm to nearby residents who come into contact with soils, sediments or water in the swamps must be weighed against the probability of people gaining access to these areas. Aerial photographs of the site show dense vegetation;

investigation teams have also reported difficulty accessing some areas of the swamps. In the unlikely event a child, adult, or dog were to fall into the swamp, exposure would be of short-duration to relatively low levels of chemicals, in most cases lower than 1ppm. Additionally, a person would be expected to bathe as soon as possible after falling into the Swamp. The risk assessment concludes that contact exposure to the low levels of contaminants in the Swamp for short periods of time is not suspected to present health risks. As such, the risk to direct contact exposure with the Swamp is not expected to pose a health threat.

Plant and animal life in the marshes and ponds are at risk of exposure to contaminants leaving the Picillo site via groundwater. Because of low concentration of contaminants in the ponds, however, the effects on aquatic life in the ponds is expected to be minimal. The Unnamed and Great Cedar Swamp habitats have both received contamination from the site and will continue to do so as contaminated groundwater from the site discharges to both swamps. During the highest releases to the swamps, some acute or chronic toxicity to swamp organisms may have occurred (Table 3). As concentrations in the swamp continue to decrease, the impact to the swamp is expected to decrease; the availability of a large amount of similar habitat in the region should allow speedy recolonization and recovery.

People living near the site may also be exposed to contaminants in the air since volatilization of chemicals is expected to occur at a soil:air or water:air interface. Distinct chemical odors are present at the Picillo site and in the Unnamed Swamp. Nearby neighbors have voiced complaints concerning these odors during past clean up activities. However, there is little potential for continued volatilization of chemicals from the waste disposal soils since there is only a limited amount of exposed volatile organics at the site. Volatilization from the groundwater discharge areas in the swamps, however, may be a source of airborne organics under certain meteorologic conditions. This exposure route was evaluated in the Endangerment Assessment and determined not to pose a risk to public health. Air modeling for organics detected in the Unnamed Swamp was performed to predict potential downwind concentrations under worst case conditions (Table 4). Predicted levels corresponded with levels detected in 1982 during excavation of barrels. These values, which are at least three orders of magnitude lower than threshold limit values (TLV) levels set to protect workers, represent worst case conditions which will not be duplicated since contaminant levels in the swamp are continuously decreasing. However, odors may continue to exist thus posing a welfare concern.

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ENFORCEMENT

A number of potentially responsible parties (PRPs) have been identified for the Picillo site. Notice letters were originally sent to ten potentially responsible parties (PRPs) on December 15, 1981, and to an additional twenty PRPs on January 20, 1982. Follow-up notice letters were sent to a number of the PRPs on April 12, 1983 and again on April 17, 1985.

Information requests were sent to different generators on a number of occasions. A total of seventy requests were sent between July 22, 1982, and August 5, 1983.

On Friday, May 3, 1985, EPA met with the potentially responsible parties to begin the negotiating process. The EPA informed the PRPs that it was seeking their comments on the RI/FS and established the following negotiating schedule:

- °May 15, 1985 - public hearing on the RI/FS and close of the public comment period. The State also informed the EPA and PRPs they would state their position on this date.
- °July 15, 1985 - Final day for PRPs to make known their willingness to participate in negotiation. This date begins the 60 day formal negotiating period.
- °September 1, 1985 - completion of the 60 day negotiating period.

Comments were received from the generator PRPs at the May 15, 1985, public hearing. The PRPs generally concur with the offsite remedial analysis in the feasibility study and endorse the offsite alternative of No Action.

The PRPs do not concur with the onsite recommended alternative and feel the hypothetical "realistic worst case" used in developing the feasibility study is unrealistic. They consider the only risk to be from repeated direct contact with the "PCB pile" and that no risk exists from the "phenol piles". Therefore, they recommend the PCB pile be enclosed with a secure fence and possibly capped with an earth cover seeded with thickets, thorns and poison ivy. The PRPs contend the recommended alternative of onsite disposal in a RCRA/TSCA landfill, presented in the feasibility study, is excessive based on the risks that exist at the site. EPA's response to comments received from the PRPs can be found in the attached Responsiveness Summary.

On May 22, 1985, Rhode Island informed EPA of its desire to conduct joint negotiations. EPA and Rhode Island held a meeting with the PRPs on July 19, 1985. Negotiations are presently continuing with the PRPs and the Agency is hopeful that a settlement can be reached that is acceptable to both EPA and the State.

CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

Although onsite remedies implemented under CERCLA are exempt from compliance with other environmental laws, one measure used by EPA in determining whether remedial alternatives at Superfund sites adequately meets the CERCLA test of protecting public health, welfare, or the environment is whether the alternative attains the substantive provisions of other applicable federal public health and environmental standards. In assessing the technical adequacy of each proposed landfill design at the Picillo site the agency has used as guidelines the minimum technology requirements outlined under TSCA and RCRA.*/ Onsite disposal of the contaminated soils in a RCRA/TSCA landfill complies with all federal regulations with one exception. That exception is that the bottom of the landfill liner system would not be at least 50 feet from the historical high watertable, as required by 40 CFR 761.75 (b)(3). It is estimated in the feasibility study that the bottom liner would be approximately 10-15 feet above the seasonably high ground water table. Under 40 CFR 761.75 (c)(4) a waiver from a TSCA landfill requirement can be granted provided the landfill will not present any unreasonable risk of injury to health or the environment from PCBs.

In determining whether the onsite remedy meets the CERCLA test of being adequately protective of the public health, welfare, or the environment, the Agency considered the TSCA fifty foot requirement and has determined the onsite landfill would be adequately protective without this requirement being met. A layered impermeable cap would prevent human contact with wastes

*/ RCRA standards for hazardous waste disposal facilities are listed under 40 CFR Part 264. The requirements a RCRA facility must meet are outlined in 40 CFR 264 Subpart N and the Hazardous and Solid Waste Amendments of 1984 (Section 3004 (0) Minimum Technological Requirements). Alternative SC-2 (offsite disposal of PCB and phenol soils in a RCRA/TSCA Landfill) and alternatives SC-5 (onsite disposal of PCB and phenol soils in a RCRA/TSCA Landfill) are the only alternatives considered to be consistent with these requirements.

and minimize infiltration into the landfill. An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration. Any leachate which may be generated will be collected for proper disposal.

State hazardous waste regulations prohibit the landfilling of "extremely hazardous waste" in the State, unless a variance is granted. Soils with PCB levels in excess of 50 ppm are considered extremely hazardous waste by the State, as a result, compliance with State law would require obtaining a variance before the PCB soils could be landfilled onsite. The State position is they are unwilling to grant such a variance. Similarly, the Town of Coventry has indicated that locating a landfill at the Picillo Farm site would be in violation of a local zoning ordinance. As stated, EPA legally is exempt from other laws' requirements, including State and local laws, in selecting onsite remedies at Superfund sites. EPA has determined that despite these State and local laws an onsite landfill would be adequately protective of public health, welfare and the environment.

ALTERNATIVES EVALUATION

Source Control Remedial Alternatives

Onsite sources of contamination have been divided into two operable units:

- (1) PCB soils
- (2) Phenol soils

As identified in the National Contingency Plan 40 CFR 300.68 (j), the objective of the evaluation of alternatives is to select the "lowest cost alternative that is technologically feasible and reliable and which effectively mitigate and minimizes damage to and provides adequate protection of public health, welfare or the environment."

The following criteria, as set forth in the NCP (40 CFR 300.68 (e)(2)), were assessed in determining appropriate source control remedial action alternatives:

- (i) The extent to which substances pose a danger to public health, welfare or the environment.
- (ii) The extent to which substances have migrated or are contained by either natural or man-made barriers.

(iii) The experiences and approaches used in similar situations by State and Federal agencies and private parties.

(iv) Environmental effects and welfare concerns.

Source Control Alternatives:

<u>Identification</u>	<u>Description</u>	<u>Present Worth Cost</u>
SC-1	◦ No Action	0
SC-2	◦ Disposal of PCB & Phenol Contaminated Soils Offsite in a RCRA/TSCA Landfill	\$2,509,200
	◦ Close Site	
SC-3	◦ Disposal of PCB Contaminated Soils Offsite in a RCRA/TSCA Landfill	\$1,976,000
	◦ Disposal of Phenol Contaminated Soils Onsite in a RCRA Landfill	
	◦ Close Site	
SC-4	◦ Disposal of PCB Contaminated Soils Offsite in a RCRA/TSCA Landfill	\$1,838,700
	◦ Disposal of Phenol Contaminated Soils Onsite in a Cap Only Landfill	
	◦ Close Site	
SC-5	◦ Disposal of PCB and Phenol Contaminated Soils Onsite in a RCRA/TSCA Landfill	\$1,033,000
	◦ Close Site	
SC-6	◦ Disposal of PCB Contaminated Soils Onsite in a RCRA/TSCA Landfill	\$1,013,300
	◦ Disposal of Phenol Contaminated Soils Onsite in a Cap Only Landfill	
	◦ Close Site	

The No Action alternative does not meet the NCP test for cost-effectiveness in that it would not effectively mitigate or minimize damage to and provide adequate protection of public health, welfare or the environment. None of the site specific objectives necessary to protect public health, welfare or the environment, developed from the risk assessment, would be obtained. Humans and animals could have direct contact with the wastes. Offsite migration of the wastes would be possible via groundwater contamination, erosion of contaminated soils, and fugitive air emissions.

Alternative SC-2 involves disposal of PCB and phenol contaminated soils in an offsite RCRA/TSCA landfill. Since the source would essentially be removed, offsite disposal of the contaminated soils would provide adequate protection of public health, welfare and the environment. However, the availability of RCRA/TSCA (Annex II) landfill capacity is limited and offsite disposal would use this valuable capacity without creating new capacity elsewhere. In addition, the present worth costs for onsite disposal in a RCRA/TSCA landfill, which EPA considers equally protective of public health, welfare, and the environment, are approximately 50% of costs associated with alternatives involving offsite disposal. Because alternative SC-2 does not meet any of the three Section 101(24) criteria for offsite remedies, EPA legally may not use the Fund for such an alternative. EPA, however, has no objection to another party disposing of the PCB pile offsite in a RCRA/TSCA landfill.

Alternative SC-3 involves disposing of the PCB contaminated soils in an offsite RCRA/TSCA landfill and disposal of the phenol contaminated soils in an onsite RCRA/TSCA landfill. EPA considers this alternative adequately protective of public health, welfare or the environment. However, since onsite disposal in a RCRA/TSCA landfill (SC-5) is less costly and equally protective of public health, welfare and the environment, the EPA considers it more cost effective than alternative SC-3.

Alternative SC-4 involves disposal of PCB contaminated soils off-site in a RCRA/TSCA landfill and disposal of phenol contaminated soils onsite in a cap only landfill. The proposed cap design is presented in Figure 4. The cap only landfill for the phenol contaminated soils would not meet Federal guidance used to assess the minimum technology requirements necessary to protect public health and the environment (40 CFR 264). Also the cap only landfill would not adequately mitigate the public health, welfare and environmental threats posed by the site as outlined in the risk assessment. In particular, it would not mitigate the threat of contaminants migrating offsite via groundwater without a bottom liner, leachate collection system and leak detection system. If there were a failure in the cap, organic chemicals contaminants could possibly migrate offsite undetected via leachate generation.

Alternative SC-5, which involves onsite disposal of the PCB and phenol contaminated soils in a RCRA/TSCA landfill, will provide adequate protection of public health, welfare and the environment. Construction of the RCRA/TSCA landfill involves well known construction techniques. The technology employed can be implemented in a reasonable time and will have a long useful life. This alternative meets the minimum technology requirement to protect public health and the environment as outlined under TSCA and RCRA. The agency used these requirements as guidelines in assessing whether the proposed landfill design is adequate to protect public health, welfare and the environment. A schematic of a typical RCRA/TSCA landfill is presented in Figure 3. A layered impermeable cap would prevent human contact with wastes and minimize or eliminate infiltration into the landfill. An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration. Any leachate which may be generated will be collected for proper disposal. Without the bottom liner, leachate collection system and leak detection system, if there were a failure in the cap, organic chemical contaminants could possibly migrate offsite undetected via leachate generation.

Alternative SC-6 involves onsite disposal of the PCB contaminated soils in a RCRA/TSCA landfill and onsite disposal of the phenol contaminated soils in a cap only landfill. As with alternative SC-4, a cap only landfill for the phenol contaminated soils does not adequately protect public health, welfare and the environment from offsite migration of contaminants via groundwater. Additionally, this alternative already involves the construction of a RCRA/TSCA landfill onsite for the PCB contaminated soils which is more protective of public health, welfare and the environment. The costs of placing the phenol contaminated soils in this landfill are approximately the same as building a separate cap-only phenol landfill since significant additional excavation would be necessary to prepare the phenol contaminated soils for a cap.

All of the alternatives being considered (excluding no action) would be followed by appropriate site closure and postclosure activities. Closure and post closure activities will include filling, grading, fencing, revegetating and mowing the site. Alternatives involving an onsite landfill would also require installing a runoff/runoff control system, implementing a ground water monitoring program, and performing any necessary repairs to the landfill that may be required. Additionally, all appropriate mitigation measures to minimize airborne contaminants during construction will be implemented.

A number of alternative technologies were considered in the development of the remedial alternatives. These alternatives underwent an initial screening process based on 40 CFR 300.68(h) of the NCP. Alternatives were eliminated if they would not mitigate identified public health or environmental threats, were technically infeasible or would not provide substantially greater public health or environmental benefits compared to less costly alternatives.

Technologies that were considered and excluded from further consideration include solidification of the PCB and phenol waste piles, permeable and impermeable capping of the PCB waste pile, permeable capping of the phenol waste pile, biological treatment of the phenol waste pile, onsite incineration of the PCB and phenol waste piles and offsite incineration of the PCB and phenol waste piles.

Solidification of the waste piles was eliminated for the following reasons: (1) it would not provide no substantially greater public health or environmental benefits compared to less expensive alternatives, (2) the questionable effectiveness of the technology for organic compounds, (3) the 400 percent increase in waste volume and resultant onsite disposal needs, (4) the concern that the solidified mass will degrade and not provide long-term environmental and public health protection.

Both permeable and impermeable capping of the PCB contaminated soils and permeable capping of the phenol contaminated soils were eliminated because they would not effectively mitigate identified public health and the environmental threats determined from the risk assessment. Without a bottom liner leak detection and leachate collection system, contaminants could possibly migrate offsite undetected via leachate generation. These alternatives would not meet minimum technology requirements under RCRA (40 CFR 264 Subpart N and the Hazardous and Solid Waste Amendments of 1984), which were considered in assessing the technical adequacy of the landfill design.

Biological treatment of the phenol contaminated soils was eliminated based on lack of effectiveness. Although biodegradation significantly decreased the concentration of phenol contamination (870 to 60 ppm) in the 2000 yd³ phenol pile, based on the risk assessment it was not effective in rendering the pile non hazardous. Therefore, this alternative is not considered adequately protective under CERCLA.

Initially (July 1984), both onsite and offsite incineration were eliminated for the PCB and phenol soils due to the high cost and environmental problems associated with mobile incineration of the PCB soils. Due to public comments, State comments and technology developments EPA reevaluated incineration as a remedial alternative for the PCB contaminated soils.

The estimated cost associated with offsite incineration of the PCB contaminated soils and landfilling of the remaining phenol contaminated soils are \$8,689,000 (plus an undetermined cost of packaging the soils in 55 gallon drums). EPA has eliminated offsite incineration since it would not provide substantially greater public health or environmental benefits compared to less costly alternatives, particularly considering the relatively low levels of PCBs that are present.

Technology advances since EPA originally considered onsite incineration of the PCB contaminated soils have made this alternative somewhat more attractive than when it was initially eliminated. The EPA has recently completed a test burn for dioxin contaminated soils and achieved six nines efficiency (i.e. 99.9999%). It is doubtful, however, the unit will be available for the Picillo site in the foreseeable future because of prior commitments at other sites. A commercial mobile incinerator has also been located that has successfully incinerated contaminated soils. The operators, however, do not presently hold a TSCA permit, although a test burn for dioxin and PCB contaminated soils is scheduled for the summer of 1985. Although a TSCA permit isn't required to incinerate at a Superfund site, the Agency would use the TSCA requirements as guidance in assuring the incinerator is adequately protective of public health, welfare and the environment. It is known that the incomplete incineration of PCBs can result in such toxic pollutants as dioxin, however, the mobile hazardous waste incineration units are designed to minimize hazardous emissions. The incinerators being considered provide long dwell times and high temperatures. In addition, the units are equipped with extensive pollution control equipment and emission monitoring equipment. Nonetheless, an actual test burn of PCB contaminated soil is necessary to demonstrate that hazardous emissions are not being generated.

There is a great deal of variance in the projected costs for onsite incineration. EPA cost estimates for incineration of just the PCB contaminated soils, onsite landfilling of the phenol soils, and site closure are \$6,585,000. These costs are based on present operating experience of PCB soil incineration allowing for a minimal amount of down time (20%). A more conservative cost estimate based on 50% down time result in an estimate of \$9,615,000. The only lower cost estimate EPA obtained was from a commercial mobile incinerator, which estimated the costs to be \$3,000,000 for the same scenario. However, these costs were not based on actual experience with burning PCB contaminated soils and did not specifically consider down time, therefore, they are not reliable. The commercial incinerator has not completed a test burn for PCB contaminated soils and were basing these estimates on non PCB contaminated soils. The additional cost associated with sustaining a higher burn temperature, as well as the additional fuel required to sustain incineration at all with low level contaminated soils, could result in a significant increase in these costs. As with offsite incineration, EPA has eliminated onsite incineration since it would provide no substantially greater public health, welfare, or the environmental benefits compared to less costly alternatives, particularly considering the relatively low levels of PCBs that are present.

Offsite Response Alternatives Evaluation

The following criteria, as set forth in the NCP (40 CFR 300.68(e)(3)), were assessed in evaluating offsite remedial action alternatives:

- (i) Contribution of the contamination to air, land, or water pollution problem.
- (ii) The extent to which the substances have migrated or are expected to migrate from the area of their original location and whether continued migration may pose a danger to public health, welfare or environment.
- (iii) The extent to which natural or man-made barriers currently contain the hazardous substances and the adequacy of the barriers.
- (iv) The extent to which substances pose a danger to public health, welfare, or the environment.
- (v) Environmental effects and approaches used in similar situations by State and Federal agencies and private parties.
- (vi) Environmental effects and welfare concerns.

Offsite Response Alternatives:

<u>Identification</u>	<u>Description</u>	<u>Present Worth Cost</u>
OS-1	◦ No Action	0
OS-2	◦ Limited Action	\$ 90,000
OS-3	◦ Groundwater Recovery, Treatment, and Discharge	\$3,600,000 - 4,000,000

- As the title implies, the No Action alternative, OS-1 precludes any remedial activity. This alternative would provide no active cleanup of ground and surface water.

Similar to No Action, Limited Action proposes no active cleanup of ground and surface water. It differs from No Action in that additional groundwater wells would be installed and a ground and surface water monitoring program implemented to establish risk based standards for groundwater that are protective of public health, welfare and the environment. This approach is based on groundwater protection requirements under RCRA necessary to

protect public health and the environment (40 CFR 264, Subpart F and the 1984 RCRA Amendments). EPA would use these requirements as guidelines in determining what contaminant levels in the groundwater must be attained to be adequately protective under CERCLA. A final determination on groundwater contamination would be made after these risk based standards are established and assessed.

The third alternative OS-3 involves recovery of ground water, treatment, and subsequent discharge to the Unnamed Swamp. This alternative would be technically difficult to implement since locating the recovery wells or recovery drains in an area of high contamination and high yield would involve a significant amount of exploratory work. This alternative may also have an adverse effect on the wetlands by lowering the levels in the Unnamed Swamp or Great Grass Swamp during groundwater recovery. Frequent monitoring and upgrading of the recovery system may also be required. The ground water treatment system would involve air stripping, vapor recovery, pH adjustment, sand filtration, carbon adsorption, and vacuum filtration of sludges. This treatment system is relatively complex and will require a high level of operation and maintenance, however, it will be highly effective at removing contaminants in the effluent such as acetone, methylene chloride and methyl ethyl ketone (MEK).

A determination regarding the need of implementing this alternative to protect the public health, welfare or environment cannot be made until risk based standards for groundwater are established.

RECOMMENDED ALTERNATIVE

Section 300.68(j) of the National Contingency Plan (NCP)[47 FR 31180, July 16, 1982] states that the appropriate extent of remedy shall be determined by the lead agency's selection of the remedial alternative which the agency determines is cost-effective (i.e. the lowest cost alternative that is technically feasible and reliable and which effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare, or the environment).

EPA has determined the cost effective source control alternative to be SC-5 which involves landfilling the PCB and phenol contaminated soils onsite in a RCRA/TSCA impoundment. The recommended source control alternative also involves site closure and post closure activities including filling, grading, and revegetating the site, installing a runoff/runoff control system, ground water monitoring, mowing, fence installation and any future repairs that may be required. As noted above, this remedy complies with all other environmental laws except the TSCA 50 foot rule, the State's rule against landfilling PCBs within the State (which is

based on the TSCA rule), and the local ordinance prohibiting landfills. EPA has considered the fact that the proposed remedy does not comply with these existing requirements but has determined that, nevertheless, it is adequately protective of public health, welfare and the environment.

The recommended remedy will not eliminate the residual groundwater contamination at the site. In addition to this remedy, however, EPA will implement a groundwater and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment (i.e. limited action). Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future actions.

COMMUNITY RELATIONS

The affected community has a long history of interest and involvement in this site which began shortly after the site was discovered in 1977.

A local citizens group SAVE OUR WATER (SOW) has been actively involved since removal activities began in 1980. Until recently, public opinion of EPA and Rhode Island DEM has been poor with citizen groups charging the two agencies with "dragging their feet by studying the site to death" and concern over the lack of visible action to cleanup the site. Recently, EPA and RI DEM have made extensive attempts to involve the public and this effort has been widely applauded by the public and has regained some community confidence.

Community concerns are focused in two areas:

- (1) Concern that that contaminated soils will be left on-site. The local citizens feel strongly that all the contaminated soil be disposed offsite.
- (2) Concern that contaminated groundwater could ultimately affect the Quidnick Reservoir. Contamination of Quidnick Reservoir is not seen as a possibility even in the absence of remedial action. The citizens still favor the pump and treat offsite (OS-3) remedial alternative.

EFFECT OF SOURCE CONTROL ALTERNATIVES ON WETLANDS

The Picillo Farm disposal site consists of approximately 8.0 acres of cleared land near the top of a glacial deposit. Although the site is not located in wetlands the surrounding lowlands are comprised of wetlands. Assessment of the hydrogeologic data available for the site indicates that contaminated ground water

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15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Picillo Farm site is located in Coventry, Rhode Island, approximately 20 miles southwest of Providence. Drums containing hazardous wastes and bulk wastes were illegally disposed within an 8-acre area of the Picillo Farm over a period of months in 1977. A series of trenches--the northwest trench, northeast trench, west trench, south trench, and two slit trenches--were used for this activity. In September 1977, an explosion and fire at the site brought the dumping activities to the attention of regulatory agencies. Since September 1977, a number of investigations and remedial activities have been conducted at the site. PCBs, organics, and phenols were identified in onsite soil.

The selected remedial action includes: disposal of approximately 3,500 cubic yards of primarily PCB contaminated soils and disposal of approximately 3,000 cubic yards of primarily phenol contaminated soils onsite in a RCRA/TSCA landfill; and implementation of site closure activities. Total capital cost for the selected remedial alternative is estimated to be \$841,600 with O&M costs approximately \$12,120 for the first year, \$25,648 for years 2-4 and \$19,048 for years 5-30 (with the exception of year 16 at \$34,048). The recommended remedy will not eliminate the residual ground water at the site. In addition to this remedy, however, EPA will implement a ground water and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment. If additional remedial actions are determined to be necessary, a record of decision will be prepared.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision Picillo Farm, RI Contaminated Media: soil, gw Key contaminants: PCBs, phenols, VOCs, tetrachloroethylene (TCE), xylene, ethylbenzene		

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Indicate interim final, etc., and if applicable, dates covered.
14. **SPONSORING AGENCY CODE**
Insert appropriate code.
15. **SUPPLEMENTARY NOTES**
Enter information not included elsewhere but useful, such as: Prepared in cooperation with, Translation of, Presented at conference of, To be published in, Supersedes, Supplements, etc.
16. **ABSTRACT**
Include a brief (200 words or less) factual summary of the most significant information contained in the report. If the report contains a significant bibliography or literature survey, mention it here.
17. **KEY WORDS AND DOCUMENT ANALYSIS**
 - (a) **DESCRIPTORS** - Select from the *Thesaurus of Engineering and Scientific Terms* the proper authorized terms that identify the major concept of the research and are sufficiently specific and precise to be used as index entries for cataloging.
 - (b) **IDENTIFIERS AND OPEN-ENDED TERMS** - Use identifiers for project names, code names, equipment designators, etc. Use open-ended terms written in descriptor form for those subjects for which no descriptor exists.
 - (c) **COSATI FIELD GROUP** - Field and group assignments are to be taken from the 1965 COSATI Subject Category List. Since the majority of documents are multidisciplinary in nature, the Primary Field/Group assignment(s) will be specific discipline, area of human endeavor, or type of physical object. The application(s) will be cross-referenced with secondary Field/Group assignments that will follow the primary posting(s).
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PICILLO FARM, RI
September 30, 1985

ROD ABSTRACT

The Picillo Farm site is located in Coventry, Rhode Island, approximately 20 miles southwest of Providence. Drums containing hazardous and bulk wastes were illegally disposed within an 8-acre area of the Picillo Farm in 1977. A series of trenches--the northwest trench, northeast trench, west trench, south trench, and two slit trenches--were used for this activity. In September 1977, an explosion and fire at the site brought the dumping activities to the attention of regulatory agencies. Since that time, a number of investigations and remedial activities have been conducted at the site. PCBs, organics, and phenols were identified in onsite soils.

The selected remedial action for this site includes: disposal of approximately 3,500 cubic yards of primarily PCB contaminated soils and disposal of approximately 3,000 cubic yards of primarily phenol contaminated soils onsite in a RCRA/TSCA landfill; and implementation of site closure activities. Total capital cost for the selected remedial alternative is estimated to be \$841,600 with O&M costs approximately \$12,120 for the first year, \$25,648 for years 2-4 and \$19,048 for years 5-30 (with the exception of year 16 at \$34,048). This recommended alternative will not eliminate the contaminated ground water at the site. However, EPA will implement a ground and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment. If additional remedial actions are determined to be necessary, a Record of Decision will be prepared.

PERFORMANCE STANDARDS OR GOALS: Not specified.

INSTITUTIONAL CONTROLS: N/A

COMMENTS: RCRA/TSCA Onsite Landfill--Contaminated soil will be disposed of in an onsite landfill consisting of an impermeable double bottom liner with a leachate collection and leak detection system that will protect against contaminant migration.

KEYWORDS: Excavation; Ground Water; Ground Water Monitoring; Inorganics; Leachate Collection/Treatment; Onsite Disposal; Organics; PCBs; Phenols; RCRA Landfill Specifications; RCRA Onsite Disposal Requirements; Risk Level; Tetrachloroethylene (PCE); TSCA Onsite Disposal Requirements; VOCs.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region I

DATE: October 3, 1985

SUBJ: Final Record of Decision for the Picillo
Superfund Site.

FROM: John Rendall, Site Manager

TO: Reviewers of the Record of Decision for the Picillo
Superfund Site.

Attached are copies of the press release, Final Record of Decision (ROD), Summary of Remedial Alternative Selection and Responsiveness Summary for the Picillo Superfund Site. Thank you for your support in the development of these documents. Should you have any further questions, please contact me at 223-1942.

Reviewers:

Daniel Coughlin, Chief ME/NH/RI Site Response Section
Ira Leighton, Acting Chief, ME/NH/RI Enforcement Section
Heather Ford, Chief, MA/CT/VT Enforcement Section
David Markell, Office of Regional Counsel
Ken Wenger, ME/NH/RI Enforcement Section
Margaret Leshen, RCRA Compliance
Tony Palermo, Air Division
Beth Hassett, Air Division
Alison Cullen, Water Division
Shirley Ross, EPA Headquarters
Blake Belde, EPA Headquarters

from the site is discharging into the Unnamed Swamp and Great Cedar Swamp. Present and future impacts on surface water and ground water in the swamp are expected to be less than those measured between February 1979 and July 1981 which resulted from bulk dumping practices. Table 8 provides a comparison of the levels of contaminants found in the swamp to available acute and chronic toxicity data.

The Endangerment Assessment for the Picillo site contains a review of relevant site and chemical characteristics that could pose risks to public health, welfare, or the environment, and an evaluation of those risks. Remedial response objectives were developed from this assessment and used to identify source control remedial alternatives. For the purpose of this discussion the pertinent source control remedial response objectives used in selecting the source control alternatives are:

- (1) Remedial actions should preclude the infiltration of soil contaminants into the underlying groundwater.
- (2) A groundwater monitoring program will be implemented which is in conformance with the technical requirements of RCRA Part F-- Ground Water Protection.
- (3) Pursuant to RCRA closure requirements, which were used as guidelines, a hazardous waste landfill facility shall be closed in a manner that "[m]inimizes or eliminates, to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere."

Implementation of the source control alternatives would not take place in or adversely affect a floodplain or wetland. The source control alternative is designed to preclude the offsite migration of contaminants to the wetlands. Closure activities will in part include grading and revegetating the site. As a result, the source control alternative would have the consequence of not impacting the wetlands at all, but rather preventing offsite migration of contaminants to the Unnamed Swamp.

OPERATION and MAINTENANCE

A number of post closure operation and maintenance (O&M) activities will be required at the site. Operation and maintenance activities associated with the source control remedy (OS-5 onsite disposal in a RCRA/TSCA landfill) include mowing, revegetation, annual inspection,

erosion control, drainage maintenance, sample collection and analysis (for groundwater monitoring program), fence replacement and any other necessary repairs. Projected O&M costs are estimated from the FS as follows:

- Year 1: \$12,120/year
- Year 2-4: \$25,648/year
- Year 5-30: \$19,048/year (\$34,048 for year 16)

Well replacement after 15 years will result in an additional cost of \$15,000 during year 16 resulting in an O&M cost of \$34,048 for that year. The total present worth for source control operation and maintenance is estimated at \$191,400.

Operation and Maintenance activities will be considered part of the approved action and eligible for Trust Fund Monies for a period of one year from the completion of remedial actions.

The State has made a conditional commitment to provide the operation and maintenance costs associated with the disposal of the phenol contaminated soils in a onsite RCRA/TSCA landfill after the first year of implementation. The State's funding mechanism is the Hazardous Waste Response Bond Account, and the Rhode Island Department of Environmental Management is the State Agency responsible for O & M.

FUTURE ACTIONS

The recommended remedy will not eliminate the residual groundwater at the site. In addition to this remedy, however, EPA will implement a groundwater and surface water monitoring program and establish risk based standards that are protective of public health, welfare and the environment.

To develop these risk based standards the Agency will use an approach based on the groundwater monitoring and corrective action standard (40 CFR 264, Subpart F and the 1984 RCRA Amendments). The RCRA groundwater regulations require the setting of groundwater protection standards, which are levels that are protective of human health and the environment. Corrective action is required if these levels are exceeded. The groundwater protection standards of RCRA require that certain contamination levels be attained: background levels, maximum contaminant levels (MCL's) or alternate concentration limits (ACL's). ACL's are site specific levels that are demonstrated to be protective of human health and the environment. Using this approach, the Agency will establish risk based standards for the groundwater that are protective of public health, welfare and the environment.

Based on this information, if additional remedial actions are determined to be necessary, a Record of Decision will be prepared for approval of the future remedial actions.

Community Relations Responsiveness Summary
Picillo Farm Site
Coventry, Rhode Island

Introduction

This responsiveness summary for the Picillo Farm Site documents concerns raised during the Superfund remedial planning process and the public comment period on the feasibility study, and how EPA considered and responded to these concerns.

Activities Conducted Prior to the Feasibility Study Comment Period

Before 1981, most community relations activities were conducted informally by the State. Official interaction with the community was conducted through the Town Council and later also with Save Our Water (SOW), formed by area residents in 1980. SOW became the primary group representing concerned citizens and became an important point of contact between the community and involved agencies.

A Community Relations Plan (CRP) was drafted in December 1981 by ICF, Inc., for use during removal actions at the site. This CRP was revised by the State in June 1982 to accompany the cooperative agreement, signed in February 1982. Written and verbal updates on site activities were issued periodically by the State to concerned citizens.

In April 1984, EPA and the State conducted interviews with town officials and several concerned citizens. These interviews were followed by a public meeting, held on May 7, 1984, which was organized by SOW. Approximately 30 citizens attended this meeting. A second public meeting was held by EPA in June 1984 to present the results of the remedial investigation and the initial endangerment assessment. Information obtained from these interviews and public meetings was used by EPA and the State to update the CRP in October 1984. An expanded mailing list of interested parties was developed during the CRP revision.

Concerns Raised Prior to the Feasibility Study Comment Period

The predominant concern voiced by members of the community was over potential health effects to area residents as a result of air emissions, groundwater contamination and general offsite migration of contaminants. Citizens expressed fear that drinking water supplies could become contaminated and that odors emitted from the site were toxic.

A major concern was over the lengthy process of remediating site conditions and a perception from citizens that EPA and the State failed to communicate to the community adequately during remedial activities. The status and fate of soils contaminated with PCBs was of great concern to residents.

Another major concern cited by area residents regarded the future ownership of the site property. Many citizens expressed concern that the Picillo family would retain ownership of the land and use it in the future. Citizens requested that the government -- local, State, or Federal -- take control of the land.

Additional concerns were voiced about the effects of fractured bedrock on groundwater plume migration and the effects of contamination on the unnamed swamp, private wells, the Quidnick Reservoir, the proposed Big River Reservoir Project and nearby cranberry bogs.

Agency Response to Concerns Raised Prior to the Feasibility Study Comment Period

As a result of concerns raised by the community regarding exposure to air emissions, EPA conducted air modeling to determine potential impacts resulting from exposure. EPA examined potential impacts to groundwater, and the feasibility of groundwater treatment. The remedial investigation was revised to examine effects on nearby cranberry bogs and to determine whether the public was coming in contact with site contaminants or drinking polluted groundwater. The endangerment assessment was also expanded to address other risk factors.

Activities Conducted During the Feasibility Study Comment Period

The final RI/FS was released to the public on April 8, 1985. Copies of the report were available at the Coventry Town Hall Library and at the Rhode Island Department of Environmental Management in Providence. A copy of the report was also sent to SOW.

A public meeting was held on April 23, 1985, at the Western Coventry School in Coventry at 7:00 p.m. for the purpose of explaining the RI/FS. Approximately 20 citizens attended the meeting. An eight page fact sheet summarizing the Feasibility Study was distributed at the meeting.

In response to concerns raised at the meeting, EPA agreed to extend the public comment period from May 1, 1985, to May 15, 1985.

A public hearing was held at the Western Coventry School at 7:00 p.m. on May 15, 1985, to officially receive comments from the community. Approximately 25 citizens attended the hearing. Testimony was provided by 1 town official, 1 State official, 9 citizens, and 1 State Representative.

Concerns Raised During the Feasibility Study Comment Period

A summary of all comments received by EPA during the public comment period is provided in the attached pages, along with the corresponding agency response. Comments were received from the community, the State of Rhode Island and the potentially responsible parties (PRPs).

Remaining Concerns

EPA will continue to keep the community apprised of site activities, and informed during design and construction of the selected alternative. Whether ownership of the land will be transferred from the present owner will need to be established. Containment of contaminated soils on site should mitigate any future impacts to groundwater. Future land use of the site and adjoining area could also become a community concern.

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COMMUNITY CONCERN

RESPONSE

1. Onsite Disposal

Generally oppose disposing of PCB and phenol contaminated soils on site. No long-term security; breakdown of landfill could result in contamination of drinking water. It is the Coventry Town Council's policy that all hazardous waste should be removed from the site and stored at a TSCA approved landfill. As long as offsite storage is available, it should be used. Leaving waste onsite will present risk of human contact. Could also affect the proposed Big River Reservoir Project and the Moosup River watershed. Storage of contaminants onsite is unacceptable and illegal. Fractured bedrock at site makes it inappropriate for onsite disposal; site is also close to an earthquake zone; leakage could contaminate groundwater. Should be cheaper to truck contaminants offsite to an existing landfill than to build a new one in Coventry. Rodents could chew through lining of landfill; presents hazard from onsite disposal. Problem has existed for six or seven years; site should have precedence over sites in Massachusetts for the removal and disposal of PCBs off site. Should make Picillo Farm a model of hazardous waste cleanup by removing all contaminated materials from the site. Job started before should be finished now.

Onsite disposal of the PCB pile is expected to be a safe and reliable remedial action for disposal of the PCB and phenol contaminated soils for the following reasons:

- o A layered impermeable cap will prevent human contact with wastes and minimize or eliminate infiltration into the landfill.
- o An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration.
- o *Site closure activities including providing runoff controls, regrading and revegetating the site, and limiting access with a fence will reduce erosion and assure the long term integrity of the landfill.*
- o A long term groundwater monitoring program will be implemented to monitor groundwater quality.

COMMUNITY CONCERN

RESPONSE

1. Onsite Disposal (continued)

Creating a landfill at the Picillo Farm Site is in violation of the Town of Coventry Zoning Ordinance. Creating a landfill for the disposal of PCBs on site would violate TSCA requirements that groundwater be more than 50 feet from landfill. State regulations prohibit the construction of a PCB landfill at the site. A landfill cannot be legally constructed at this site.

- o Any potential damage to landfill liners by burrowing animals or other causes can be prevented by routine inspection and maintenance of the landfill.

The site poses no threat to the proposed Big River Reservoir since the two areas are separated by a major surface water divide. The site also poses no threat to the Moosup River Watershed since the site is far removed from the Moosup River. In addition, a RCRA/TSCA landfill would not be adversely impacted by the presence of fractured bedrock beneath the site.

Under section 101(24) of CERCLA an offsite alternative is a permissible remedy only if the offsite action would accomplish one or more of the following three objectives:

- (a) Is more cost-effective than other remedial actions.
- (b) Will create new capacity to manage hazardous substances in addition to those located at the affected facility.
- (c) Are necessary to protect public health or welfare or the environment from a present or potential risk which may be created by further exposure to the continued presence of the contaminated materials.

COMMUNITY CONCERN

RESPONSE

1. Onsite Disposal (continued)

Because offsite land disposal does not meet any of these three objectives, EPA has determined the cost effective source control alternative to be onsite land disposal of the PCB and phenol contaminated soils. Onsite disposal in a RCRA/TSCA landfill and offsite disposal in a RCRA/TSCA landfill are considered equally protective of public health, welfare, and the environment. However, costs for onsite disposal of PCB contaminated soils in an onsite RCRA/TSCA landfill are approximately 58 percent less than offsite disposal in a permitted RCRA/TSCA landfill. The Agency is aware that the proposed landfill does not meet the 50 foot hydrologic condition listed under 40 CFR 761.75 of TSCA and would be in violation of state and local laws. Legally, EPA is exempt from other laws' requirements in selecting an onsite remedy under CERCLA (i.e., Superfund). Instead, the Agency legally is required to determine whether the onsite remedy meets the CERCLA test of being adequately protective of the public health, welfare or the environment. The EPA in making its determination, considered the TSCA regulations as well as other Federal, State and local laws. With the exception of the hydraulic condition, the proposed landfill design exceeds the PCB landfill

COMMUNITY CONCERN

RESPONSE

1. Onsite Disposal (continued)

requirements listed under TSCA. The Agency has determined that onsite land disposal is the cost effective remedy and meets the CERCLA test of being adequately protective of public health, welfare, and the environment.

A more in depth summary of the rationale for the chosen remedial alternative, as well as why other alternatives were not chosen, can be found in the "Risk Assessment," "Alternatives Evaluation" and "Recommended Alternatives" section of the ROD.

COMMUNITY CONCERN

RESPONSE

2. Treatment of Contaminated Groundwater

Implementation of OS-3, Groundwater Recovery, Treatment, and Discharge, would hasten groundwater cleanup. Groundwater should be treated and cleaned.

Although the proposed recovery and treatment alternative may reduce the amount of contaminated groundwater that discharges to the Unnamed Swamp and bedrock spring, implementation of this alternative is not expected to significantly hasten groundwater cleanup. As stated on p. 8-3 of Volume 2 of the RI/FS, contaminant concentrations are ultimately controlled by source persistence. Due to the potentially widespread distribution of contaminants in the unsaturated zone and the site location near a groundwater divide, residual source removal was considered to be technically and economically infeasible. Under natural conditions of precipitation, flushing, dispersion and decay, plume concentrations will continue to decline as the original mass of contaminants at the source is depleted. A determination will be made on whether corrective measures are necessary for the groundwater once groundwater standards that are protective of public health, welfare, and the environment are established for the site.

COMMUNITY CONCERN

RESPONSE

3. Need for Government Entities to Take Control
or Ownership of Land

Ownership of, or responsibility for the site should be taken by the State or the Federal government. EPA should buy surrounding properties. If Mr. Piciljo regains control of the land, EPA and State will have no control over land use, or could be restricted from having access to the site. Government should buy the property. Town should buy the property.

As a policy, EPA does not take ownership of Superfund sites, but funds cleanup activities. EPA does not expect an access problem to develop. However, the Agency acknowledges the community concerns regarding ownership. The final offsite remedy may require institutional controls over groundwater use. EPA is considering the need for institutional controls, including providing funds to have an acceptable party assume ownership of the site. If additional remedial actions are determined to be necessary, including institutional controls, a Record of Decision will be prepared for approval of future remedial actions.

COMMUNITY CONCERN

RESPONSE

4. Failure of Agencies to Meet Prior Commitments

Citizens expressed the opinion that EPA had informed the Town of Coventry that all hazardous materials at the Picillo Farm would be removed. Some members of the community expressed frustration that the Agency was not upholding this perceived commitment.

The selected remedy outlined in the Record of Decision, constitutes a complete source cleanup within the regulatory guidelines under CERCLA and the NCP. EPA has stated that the site will be completely cleaned up pursuant to CERCLA and the NCP and is still very much committed to this goal.

COMMUNITY CONCERN

RESPONSE

5. Extension of Comment Period

Citing extensive delays tolerated by members of the community, citizens expressed concern that EPA failed to provide adequate time to review the Feasibility Study during the public comment period.

It is EPA policy to allow for a 21 day public comment period on the Feasibility Study. Due to public concern at the April 23, 1985 public meeting, the public comment period was extended one week and the date for the public hearing was moved from May 1, 1985, to May 15, 1985.

COMMUNITY CONCERN

RESPONSE

6. Groundwater Monitoring

Sink wells in 360° circle around site in 1 mile radius and test with most recent equipment for 50 years.

The alternate groundwater monitoring program proposed in this comment is not appropriate for the hydrogeologic setting at the Picillo site. Wells positioned in a one-mile radius from the site would all be situated in different subbasins from the one in which the site is located. Ideally, monitoring wells would be positioned near the disposal area to reflect changes in source release mechanisms.

As part of the source control remedy, a long-term groundwater monitoring program will be implemented to monitor the landfill. Under RCRA guidelines, the landfill would be monitored for 30 years. Also, the Agency will evaluate whether groundwater correction measures are needed. In the interim, a groundwater and surface water monitoring program will be implemented and risk based standards protective of groundwater will be established.

For either monitoring program, arbitrarily setting a time period for sampling and analysis of 50 years would not be necessary.

COMMUNITY CONCERN

RESPONSE

7. Site Security

Rural nature of the area makes site security a concern. EPA cannot assure site security. There is no guarantee of long-term security. No fence is "people proof." Despite risks associated with the swamp, it is not even posted with a warning sign.

The long-term security measures which will be implemented at the site are outlined in the Record of Decision Summary. Long-term security will include fencing the eight acre site. Security fences are typically chain-link fences which have several strands of barbed wire along the top. A fence will be of sufficient height and strength to deter people from climbing over or breaking through the fence. Signs will also be posted along the fence to warn humans of the danger from hazardous waste. Regular inspections will also be conducted by regulatory officials.

COMMUNITY CONCERN

RESPONSE

8. Future Development

If other homes are built, their wells could become contaminated. Nine homes have been built on Route 102 and four homes on Logbridge Road; new wells have been drilled for each home. Could this affect the groundwater situation? If more private wells are installed, groundwater flows could change, contaminating other wells. Future development could deplete groundwater and create reverse flow. Real Estate interests are telling clients everything is cleaned up. The area is critical for future Rhode Island water development, including the proposed Big River Reservoir Project.

If EPA creates a landfill at the site, could this be used as a regional landfill? Could Mr. Picillo regain control of a landfill operation in the community?

Development of new homes near the Picillo site could alter the groundwater flow regime as described in GCA's RI/FS document (April, 1985). However, groundwater withdrawal rates associated with domestic wells along Logbridge Road are typically low and are not expected to significantly alter existing flow patterns near the site. Development along Route 102 is not expected to pose a risk since this area is hydraulically upgradient and at a greater distance from the site than Logbridge Road. The Agency will also continue to monitor groundwater and surface water to detect any changes in groundwater quality. As described in Comment No. 1, the Big River Watershed will not be impacted by the Picillo site.

Regarding the construction of an onsite landfill, CERCLA funds would be used for the disposal of onsite soil contamination only. Therefore, the landfill would only be designed to hold the volume of those contaminated soils. Additionally, as part of the alternative, the landfill would be closed and periodically inspected precluding the disposal of any other wastes within it.

COMMUNITY CONCERN

RESPONSE

9. Health Effects

No health study has been conducted. Can EPA guarantee the community that they have not, or will not, be affected by contaminants on site? Is there the potential for synergistic effects from chemicals at the site? Psychological effects have taken their toll.

EPA does not conduct health studies. Health studies are conducted by the Center for Disease Control (CDC) in Atlanta, Georgia. CDC has reviewed the Risk Assessment, and associated data, for the Picillo site. Their findings to date have been that a health survey is not warranted at this time. There could be synergistic effects associated with combinations of contaminants present at the Picillo site. However, the source control remedy is designed to preclude exposure to the contaminated soil stockpiles.

STATE COMMENTS

RESPONSE

1. Onsite Disposal

State opposes disposal of PCBs onsite because site is located near a swamp, because groundwater is less than 50 feet from the proposed landfill and because the site cannot be secured from public access. As long as off-site storage is available, RIDEM recommends the PCBs be disposed of offsite.

The State of Rhode Island has regulations under the Rhode Island Hazardous Waste Management Act which prohibit the landfilling of extremely hazardous waste in Rhode Island due to the fact that groundwater is within 50 feet of any possible site. Under State law, PCB contaminated soils over 50 ppm are considered extremely hazardous waste. The State is not in a position to grant a variance for this position and, therefore, the landfill cannot be legally built. As a result, the offsite remedy is the cost effective alternative; the onsite remedy is not feasible due to state regulations and should not be considered.

The State does not feel that landfilling of phenol contaminated soils in an onsite RCRA facility poses a hazard to public health or the environment.

EPA acknowledges this State comment and has considered it in the decision-making process. The Agency rationale for choosing onsite disposal in a RCRA/TSCA landfill is outlined in comment #1 of the community concerns.

A more in-depth summary of the rationale for the chosen remedial alternative can be found in the "Consistency With Other Environmental Laws," "Alternatives Evaluation," and "Recommended Alternatives" sections of the ROD summary.

STATE COMMENTS

RESPONSE

2. Treatment of Contaminated Groundwater

Because the RI/FS states that groundwater contamination has reached a maximum level and will decline, the State accepts that the groundwater does not need to be treated. However, the site should remain on the NPL for at least 15 years until natural cleaning is complete, or until the trend of groundwater contamination decline is evident.

Groundwater monitoring should be maintained for 30 years in compliance with RCRA requirements. Alternate concentration limits should be set for samples taken from monitoring wells at the property line; if these limits are exceeded, EPA should determine what mitigative measures should be taken.

EPA acknowledges the State's comment regarding the length of time the site should remain on the NPL. However, determining the number of years the site will remain on the NPL is outside the scope of this ROD.

EPA also acknowledges the State's comments regarding groundwater contamination. EPA will implement a groundwater and surface water monitoring program to enable the Agency to establish risk based standards for groundwater (i.e., alternate concentration limits) that are protective of public health, welfare, and the environment. The compliance points for these "risk based" limits, possible groundwater treatment, and the length of the groundwater monitoring period will be determined once these standards are developed. Based on this information, if additional remedial actions are necessary, a Record of Decision will be prepared for approval of the future remedial action.

STATE COMMENTS

RESPONSE

3. Need for Government Entities to Take Control
or Ownership of Land

The State of Rhode Island does not feel that ownership of the site is needed because the State has access to the land, which is all that is required.

EPA acknowledges State concern over State ownership of the site. As a policy, EPA does not take ownership of Superfund sites, but funds cleanup activities. Controlling groundwater use may require institutional controls, including providing funds to have an acceptable party assume ownership of the site. EPA is considering the need for institutional controls, including providing funds to have an acceptable party assume ownership of the site. If institutional controls are necessary to control groundwater use, a Record of Decision will be prepared for approval of future remedial actions.

STATE COMMENTS

RESPONSE

4. Site Security

Post or restrict those areas where contaminated groundwater may be reaching the surface.

The rural nature of this area will not allow anybody to prevent public access into this area.

The EPA has considered and generally concurs with the State's comment regarding security measures. Long-term security measures which will be implemented as part of the source control remedy include fencing and posting the site.

PRP COMMENTS

RESPONSE

1. Extension of Public Comment Period

Requested and were denied an extension of the comment period to the end of May 1985. Accordingly, PRPs reserve the right to challenge at any later proceeding the RI/FS and its analyses, conclusions, and data base.

It is EPA policy to allow for a 21 day public comment period on the Feasibility Study. Due to public concern at the April 23, 1985 public meeting, the public comment period was extended one week and the date for the public hearing was moved from May 1, 1985, to May 15, 1985.

PRP COMMENTS

RESPONSE

2. Offsite Remedial Alternative

Generator PRPs consider that the concentrations of contaminants released offsite do not present, nor have ever presented, credible risk to human health, welfare, or the environment. Generator PRPs endorse the selection of OS-1 No Action as the Remedial Alternative.

EPA acknowledges this recommendation and has considered it in the decision-making process. Protecting groundwater as a possible future drinking water supply is of concern. Migration of organic chemical contaminants via leachate from the three contaminated soil stockpiles is expected to be a continued source of groundwater contamination at the site. A determination will be made on whether corrective measures are needed for the groundwater once groundwater standards that are protective of public health, welfare, and the environment are established for the site.

PRP COMMENTS

RESPONSE

3. Realistic Worst Case Scenario is Flawed

The "Realistic Worst Case" is seriously flawed. It is not realistic because the assumed 60 soil contacts is not supported and seems extremely unlikely. The maximum PCB soil concentration used was not determined by a USEPA standard published analytical method and, therefore, is not reliable for establishing the dose. If the maximum PCB concentration determined by standard USEPA methods from March 1984 samples is used together with an assumption of only nine total soil contacts, the worst case scenario results in a one in one million cancer risk which, as stated in the RI/FS, is considered an acceptable level. Even if the hypothetical "Realistic Worst Case" scenario is correct, the only risk results from repeated direct contact with a "hot spot."

A screening procedure utilized by the EPA Region I Laboratory to determine the quantity of PCBs in soil at the Picillo Site was utilized for soil samples collected on February 9, 1984. Of the 92 samples analyzed by the screening procedure, random samples were collected and analyzed by the EPA PCB protocol method for sediment/soil analysis for extractable organic compounds from the Revised Draft of Consensus Organics Protocol - 11/30/83 (Latoille, USEPA, 27 March 1984).

The screening method yielded a maximum PCB soil concentration of 180 ug/gm (ppm). When the same sample was analyzed by the protocol method, a level of 123 ug/gm (ppm) was determined. Using the 180 ug/gm value as the conservative maximum concentration is not inappropriate for determining risk. However, even if the protocol value of 123 ug/gm is utilized as the maximum PCB concentration in the Realistic Worst Case Scenario, a risk of 1.1×10^{-5} (instead of 1.5×10^{-5}) is determined. The 1.1 in 100,000 increased cancer risk, exceeds the 10^{-6} risk level by a factor of 11 as opposed to 15. Thus, regardless of whether one assumes 180 ppm or 123 ppm as the maximum PCB contamination, an unacceptable risk is determined to exist.

To develop the Realistic Worst Case Scenario for direct contact with the PCB pile, the

PRP COMMENTS

RESPONSE

3. Realistic Worst Case Scenario is Flawed
(continued)

population which would most likely come into contact with the pile was assumed. Although the site is guarded, it is possible that area residents, especially teenagers, may access the site from access points other than the controlled gate and climb on the PCB pile, or use it for dirt bike riding or other activities. Observations of trespassers, especially teenagers, has been reportedly observed by community residents in the past. It was assumed the age group who would most realistically use the site for these activities would be a young male between the ages of 10 through 16. Therefore, the exposure period was assumed to be six years. 10 soil contacts per year is reasonable in a Realistic Worst Case Scenario due to the nature of the activities expected at the Picillo site and the age group performing them. A one year exposure period with 9 contacts is not reasonable for a realistic worst case since the realistic worst case should be designed to encompass what could occur for the population specified, i.e., to determine the maximum exposure potential for the population of concern.

PRP COMMENTS

RESPONSE

4. Recommended Alternative

Oppose use of RCRA/TSCA facility for disposal of contaminated materials onsite. The PCB pile was created from the spoils of the Northeast Trench. Eighty percent of the materials in the Northeast Trench were uncontained at the time of cleanup in 1980. This indicates that the bulk of the PCBs were released to the environment during and prior to 1980 with no ill-effects to health and safety. RIDEM disposed of the heavily contaminated soil and stockpiled only the slightly contaminated soil. The "Phenol Pile" was successfully treated onsite and does not pose a risk. No more than 25 gallons of PCBs remain in the "PCB Pile." This results in an average concentration of much less than 50 ppm. More than 25 gallons of PCBs were released during dumping and during cleanup, yet the naturally occurring conditions onsite prevented any threat to human health, welfare, and the environment. SC-5, Landfill in RCRA/TSCA Facility, is not justified by the risk presented. There is no legal requirement for these materials to be disposed of in an RCRA/TSCA landfill. The PCB pile is not regulated by TSCA because the average PCB concentration is less than 50 ppm. EPA policy (6-PCB-9) allows compositing of samples, so the average is the appropriate measure of PCB concentration. Data also suggests that natural biodegradation of PCBs is occurring. The generator group is willing to test a sample from the PCB pile to determine if biodegradation is taking place.

EPA acknowledges the PRPs comments regarding onsite disposal in a RCRA/TSCA landfill and has considered them in the decision-making process. The Agency rationale for the selected remedy is outlined in the ROD summary.

A RCRA/TSCA landfill and the associated impermeable cap, leachate collection system, and leak detection system is necessary to adequately protect the public health, welfare, and the environment. A layered impermeable cap would prevent human contact with wastes and minimize or eliminate infiltration into the landfill. An impermeable double bottom liner with a leachate collection system and leak detection system will protect against contaminant migration. Site closure activities include providing runoff/runoff controls, regrading and revegetating the site, and limiting access with a fence. These will reduce erosion and assure the long-term integrity of the landfill.

Simply covering the PCB pile with "thickets, thorns, or poison ivy" will not adequately protect the public health, welfare, and the environment. This proposed remedy only addressed the threat of direct contact with the PCB contaminated wastes.

PRP COMMENTS

RESPONSE

4. Recommended Alternative (continued)

The risk associated with the site could be easily remediated through the elimination of future contact with contaminants. The PCB pile could be covered with earth and seeded with thickets, thorns, or poison ivy to provide an additional degree of security. The primary defect of the RI/FS is the failure to address a security/cover type remedy. The recommended alternative SC-5, RCRA/TSCA Landfill, provides no additional protection from human and animal contact. The only risk to be avoided is a potential health concern arising from repeated direct contact with trespassers; the creation of a RCRA/TSCA landfill is not the appropriate remedy to avoid this risk.

As stated in the RI/FS, there are also risks to public health and the environment through direct contact with the phenol pile. Also, organic chemical contamination in both the PCB and phenol contaminated soil is expected to provide a continued source of contamination to the groundwater, preventing it from being used as a potable water supply. A more in depth explanation of the risks associated with the site is presented in the "Risk Assessment" section of the ROD summary. Even as just a deterrent against direct contact with the PCB contaminated soils, the proposed remedy is severely inadequate. Erosion would quickly reduce the integrity of such a cap and leave the contaminated soils exposed. A properly constructed landfill will require regrading of the site, providing erosion controls, and the use of adequate materials to assure the long-term integrity of the landfill.

The PRPs have also stated that the PCB contaminated soils are not considered a TSCA waste since the average concentration of PCBs is under 50 PPM. Although CERCLA is exempt from other environmental laws, one measure used by EPA in determining whether a remedial alternative at Superfund sites adequately meets the CERCLA test of protecting public health, welfare, and the environment is whether the alternative attains the substantive provisions of other applicable federal public health and environmental standards. The applicable TSCA requirements

PRP COMMENTS

RESPONSE

4. Recommended Alternative (continued)

are listed under 40 CFR 761. TSCA regulates PCB wastes over 50 PPM. The contaminated soils represent a mixture of wastes from bulk dumping activities and leaking drums. These soils cannot be further composited to obtain a PCB value under 50 PPM. Since levels of contamination were not uniformly distributed such that the pile could be segregated, the entire stockpile would be considered a TSCA waste. EPA draft policy 6-PCB-9 addresses the extent of cleanup and does not allow for the compositing of samples to obtain levels under 50 PPM. The draft policy states that improperly disposed of PCBs shall be cleaned up to background levels unless these levels are not practicably attainable using normal cleanup methods.

As stated, EPA has determined that disposing of the PCB and phenol contaminated soils in a RCRA/TSCA landfill is necessary to meet the CERCLA test of being adequately protective of public health, welfare, and the environment.

Regarding the possible biodegradation of PCBs, a pilot study was conducted in 1982 by O.H. Materials using commercially available microbes and proved to be unsuccessful as stated on page 2-4 of the RI/FS.

PRP COMMENTS

RESPONSE

5. Impacts from Construction Activities

The activity of creating a RCRA/TSCA landfill will entail risks to workers by construction activity and the surrounding population by fugitive dust. The RI/FS does not address these risks. These risks, coupled with the destruction of the microorganism habitat, far outweigh any perceived benefit in moving the piles twice and creating a RCRA/TSCA landfill.

Regarding the construction of a RCRA/TSCA landfill, the RI/FS considered the creation of potential adverse effects. It is unlikely that 100 percent efficiency of dust control can be attained with any technology. However, to reduce the risks to workers during remediation, an effective health and safety program would be implemented. In addition, to minimize worker injury and ensure worker safety with the use of heavy equipment, EPA would require that adequate worker safety measures be implemented. Construction of a secure RCRA/TSCA landfill onsite would not present any adverse effects to the microorganism habitat in the nearby swamp ecosystems. Therefore, the implementation of the recommended alternative SC-5 is not expected to result in adverse impacts which cannot be readily controlled, but will result in mitigating the risks posed by the PCB and phenol piles.

TABLE 1. SUMMARY OF SAMPLING ACTIVITIES OF PCB-CONTAMINATED SOILS AT PICILLO SITE

Sampling Date	No. of Samples	Average Concentration, \bar{x}	Standard Deviation, S	Maximum Concentration	No. of Samples >50 ppm	% of Samples >50 ppm	Comments
8/26/80	1	700	----	700	1	100	Composite NE trench ^a
7/13/81	3	54.5	48	91.3	2	67	Tall mound - Phase I ^b
		70.2	45	122	1	33	Shallow mound - Phase III ^b
7/25/81	4	79.3	30	124	4	100	Soil Borings ^c
6/25/82	5	41.1	35	100	1	20	Four quadrants plus composite ^d
7/19/83	5	7.4	3.9	13.2	0	0	Not considered representative according to John Leo RI DEM ^e
2/09/84	92	36.8	31.0	180	15	16	EPA PCB Results ^g
2/09/84	9	33.7	20.2	74.5	1	11	RI DEM Results for 9 composited samples ^f

^aRI DEM sampling reported in Riggs (10/80).

^bFranklin Research Institute sampling reported in Pytlewski (8/81).

^cUS EPA Region I sampling reported in Ecology and Environment Inc. (11/81).

^dO.H. Materials sampling reported in Flatham (1/83).

^eRI DEM sampling reported in Muller (7/83).

^fRI DEM sampling and analysis reported in Hartley (3/84).

^gUS EPA Region I analysis reported in Lattaille (3/84).

TABLE 2. VOLATILE ORGANIC COMPOUND CONTENT IN PCB PILE AT PICILLO SITE^a

Parameter	Average ^b concentration, ppb	Standard ^b deviation, ppb	Maximum concentration, ppb	No. of samples showing greater than detection limit	Percent samples showing greater than detection limit
1,1-dichloroethylene	440	---	440	1	11
1,2-dichloroethane	7,570	7,530	18,500	7	78
1,1,1-trichloroethane	4,550	4,220	8,350	7	78
trichloroethylene	4,000	5,040	13,220	8	89
1,1,2-trichloroethane	890	440	1,500	5	56
tetrachloroethylene	3,980	2,500	6,560	8	89
chlorobenzene	930	370	1,510	7	78
benzene	3,770	1,270	5,490	4	44
toluene	46,250	41,860	132,000	9	100
ethylbenzene	8,030	3,630	11,000	9	100
xylene	49,300	21,400	80,500	9	100

^aBased on RI DEM, results reported in Hartley 1984 for sampling conducted 2/9/84 for nine selected samples of 92 collected.

^bAverage and standard deviation of samples greater than detection limit.

TABLE 3.. ORGANIC POLLUTANTS DETECTED AT THE PICILLO SITE

Category	Compound	Maximum Ground Water Concentration ^a 3/83	Maximum Surface Water Concentration ^b	Surface Water Sampling Date ^b
Volatile	Benzene	250	970	4/79
Aromatic	Toluene	29,800	8,300	3/81
Hydrocarbons	Ethylbenzene	1,190	1,100	3/81
	Xylenes	4,510	56,000	2/79
Chlorinated	Chlorobenzene	140	121	6/82
Volatile	1,2-Dichloroethane	160	ND	----
Organics	1,1,1-Trichloroethane	23,000	4,600	3/81
	1,1-Dichloroethane	710	500	3/81
	1,1,2-Trichloroethane	260	ND	----
	1,1,2,2-Tetrachloroethane	10	ND	----
	Chloroethane	290	1,700	4/80
	Chloroform	2,100	4,200	7/81
	1,1-Dichloroethylene	280	1,408	6/82
	Trans-1,2-Dichloroethylene	480	370	12/80
	Methylene Chloride	4,840	6,000	12/80
	Fluorotrichloromethane	1,930	ND	----
	Tetrachloroethylene	420	810	7/81
Trichloroethylene	5,860	1,600	4/80	
	Carbon Tetrachloride	ND	2,200	4/79

(continued)

TABLE 3 (continued)

Category	Compound	Maximum Ground Water Concentration ^a 3/83	Maximum Surface Water Concentration ^b	Surface Water Sampling Date ^b
Ketones	Acetone	9,080	21,100	3/81
	Methyl Ethyl Ketone	2,920	1,700	3/81
	Methyl Isobutyl Ketone	890	3	6/81
Acid	Phenol	1,800	NS	----
Extractable	2-Nitrophenol	94	NS	----
Organics	2,4-Dimethyl Phenol	680	NS	----
Base/Neutral	Bis(2-Chloroethyl)Ether	53	NS	----
Extractable	1,2-Dichlorobenzene	94	NS	----
Organics	Nitrobenzene	170	NS	----
	Isophorone	260	NS	----
	Naphthalene	11	NS	----
	Bis(2-Ethylhexyl)Phthalate	15	NS	----
Others	Tetrahydrofuran	1720	101	6/82
	PCB-1242 ^c	1.57	NS	----

All values in micrograms per liter (ppb).

ND = Not detected.

NS = Not sampled.

^aReference: Tighe & Bond, 8/83.

^bReference: E & E, 3/83.

^cPCBs detected in well BR-W2.

TABLE 4a. UNNAMED SWAMP AIR EMISSION MODELING RESULTS

Pollutant Category	Compound	Maximum Contaminant Level in		Emission Rate (lb/hr)	Predicted Downwind Ambient Concentration (ug/m ³)
		surface water (ug/l)	air		
Aromatic	Xylenes ^a	56,000		7.64	359
	Benzene ^a	970		0.15	7.2
Hydrocarbons	Toluene ^a	6,000		0.88	41.4
	Ethyl Benzene	930		0.13	6.1
Chlorinated Volatile	Carbon Tetrachloride	2,200		0.25	11.5
	Chlorobenzene	121		0.02	0.9
Organics	1,1,1-trichloroethane ^a	4,400		0.54	24.9
	1,1-dichloroethane	500		0.07	3.3
	Chloroethane	1,700		0.30	---
	Chloroform ^a	4,200		0.54	25.3
	1,1-dichloroethylene	1,408		0.20	9.1
	Methylene chloride ^a	7,700		1.16	54.3
	Tetrachloroethylene	810		0.09	4.1
Ketones	Trichloroethylene ^a	1,600		0.20	9.3
	Methyl ethyl ketone ^a	1,600		0.66	2.9

^aIndicator compounds.

Data averaging times correspond to the length of the monitoring periods, which are outlined in Volume III, Appendix D of the Endangerment Assessment and Feasibility Study.

TABLE 4b. DETECTED AND PREDICTED OFFSITE CONCENTRATIONS OF VOLATILE-ORGANICS

Compound	GCA offsite ^a monitoring 1982		GCA modeling ^b 1984		Odor threshold ^e
	ug/m ^{3c}	ppb ^d	ug/m ^{3d}	ppb ^c	ppb
Benzene	ND-19	ND-5.9	7.2	2.2	160
Carbon tetrachloride	ND	-	11.5	1.8	approx. 9,000
Chlorobenzene	ND	-	0.9	0.2	approx. 90
1,1,1-Trichloroethane	ND	-	24.9	4.5	100,000
Dichloroethanes	ND	-	3.3	0.8	120
Chloroform	ND-13	ND-2.6	25.3	5.1	100,000
Dichloroethylenes	ND	-	9.1	2.3	500
Ethylbenzene	14-140	3.5 -34.5	6.1	1.4	90
Methylene chloride	ND-45	ND-12.6	54.3	15.4	approx. 10,000
Tetrachloroethylene	ND-57	ND-7.7	4.1	0.6	approx. 5,000
Toluene	ND-140	ND-36.4	41.4	10.8	100
Trichloroethylene	ND	-	9.3	1.7	approx. 10,000
Xylenes	ND-540	ND-124.2	358.5	81.3	approx. 3 (o-xylene)
Methyl ethyl ketone	ND-56	ND-19.0	2.9	1.0	approx. 10,000

^aSource: GCA, 1982.

^bDownwind concentrates at 3,000 feet from source, worst case. See Appendix D for modeling details.

^cReported or calculated units.

^dConversion at 760 mm Hg, 0°C.

^eLowest threshold reported, Source: Verschueren, 1983.

^fND = Not detected.

TABLE 5. RECENT DATA FOR CONTAMINANT LEVELS IN SOILS AND LEACHATES AT THE PICILLO SITE

Category	Compound	Average concentration, ppb	Standard deviation, ppb	Maximum concentration, ppb	No. of samples showing greater than detection limit	Source of Samples
Aromatic	Xylenes	49,300	21,400	80,500	9	PCB Pile ^a
Hydrocarbons	Benzene	3,770	1,270	5,490	4	PCB Pile ^a
	Toluene	46,250	41,860	132,000	9	PCB Pile ^a
	Ethyl benzene	8,030	3,630	11,000	9	PCB Pile ^a
	Chlorinated	1,1-dichloroethylene	440	---	440	1
Volatile	1,2-dichloroethane	7,570	7,530	18,500	7	PCB Pile ^a
Organics	Chloroform	3	---	3	1	PCB Pile Leachate ^c
	Methylene chloride	15	---	15	1	PCB Pile Leachate ^c
	Trichloroethylene	4,000	5,040	13,220	8	PCB Pile ^a
	1,1,1-trichloroethane	4,550	4,220	8,350	7	PCB Pile ^a
	1,1,2-trichloroethane	890	440	1,500	5	PCB Pile ^a
	Tetrachloroethylene	3,980	2,500	6,560	8	PCB Pile ^a
	Chlorobenzene	930	370	1,510	7	PCB Pile ^a
Acid	Phenol (total extractables)	57,000	13,400	72,000	4	Phenol Pile ^b
Extractable	4-chloro-3-methyl phenol	1,980	330	2,300	4	Phenol Pile ^b
Organics	2,4-dimethyl phenol	4,680	3,170	9,100	4	Phenol Pile ^b
Extractable	Chlordane	30	---	30	1	Phenol Pile Leachate ^c
Pesticides: PCBs	PCB-Aroclor 1248	36,800	31,000	180,000	90	PCB Pile ^d

^aBased on RI DEM results reported in Hartley (3/84) for sampling conducted 02/09/84.

^bBased on RI DEM results reported in Perrotti (7/83) for sampling conducted 06/17/83.

^cBased on RI DEM results reported in Perrotti (8/83) for sampling conducted 05/03/83.

^dBased on EPA results reported in Lattaille (3/84) for sampling conducted 02/09/84 by RI DEM.

TABLE 6. CONCENTRATIONS OF ORGANICS IN THE UNNAMED SWAMP AND WHITFORD POND

Indicator Compound	Sampling Date	Sampling Location		
		Unnamed Swamp		Whitford Pond
		Center (PF02a)	Upstream of Dam (PF03)	Inlet (IWP)
Xylenes	05/07/80	1,700	ND	NS
	12/09/80	500	ND	NS
	03/25/81	320	ND	NS
	06/03/82	ND	NS	ND
	02/01/83	ND	NS	1.7
	02/09/84	32	7	NS
Toluene	05/07/80	1,400	ND	NS
	12/09/80	2,400	ND	NS
	03/25/81	1,800	ND	NS
	06/03/82	224	NS	ND
	02/01/83	2	NS	1.6
	02/09/84	10	1	NS
Benzene	05/07/80	510	ND	NS
	12/09/80	200	ND	NS
	03/25/81	240	ND	NS
	06/03/82	151	NS	ND
	02/01/83	ND	NS	ND
	02/09/84	66	ND	NS
Chloroform	05/07/80	ND	ND	NS
	12/09/80	ND	ND	NS
	03/25/81	440	3.3	NS
	06/03/82	151	NS	7.4
	02/01/83	ND	NS	2.7
	02/09/84	5	9	NS
Methylene Chloride	05/07/80	3,700	ND	NS
	12/09/80	1,700	ND	NS
	03/25/81	7,700	ND	NS
	06/03/82	70	NS	ND
	02/01/83	ND	NS	2
	02/09/84	14	3	NS

(continued)

TABLE 6 (continued)

Indicator Compound	Sampling Date	Sampling Location		
		Unnamed Swamp		Whitford Pond
		Center (PF02a)	Upstream of Dam (PF03)	Inlet (IWP)
1,1,1-trichloroethane	05/07/80	1,600	ND	NS
	12/09/80	830	ND	NS
	03/25/81	870	20	NS
	06/03/82	276	NS	2.6
	02/01/83	ND	NS	3.8
	02/09/84	962	15	NS
Trichloroethylene	05/07/80	840	ND	NS
	12/09/80	250	ND	NS
	03/25/81	90	1	NS
	06/03/82	ND	NS	ND
	02/01/83	ND	NS	ND
	02/09/84	310	ND	NS
"Total Volatiles"	05/07/80	11,700	ND	NS
	12/09/80	7,390	ND	NS
	03/25/81	12,452	102	NS
	06/03/82	2,634	NS	10
	02/01/83	2	NS	11.8
	02/09/84	3,030	54	NS

NS = Not sampled.

ND = Not detected.

All concentrations in ppb.

Source: E&E, 1983.

TABLE 7. SUMMARY OF STANDARDS AND CRITERIA FOR SUBSTANCES DISCUSSED IN THE TOXICITY PROFILE

Compound	Human 1×10^{-6} cancer risk ^a		Ambient water quality criteria ^b		Acute toxicity level-aquatic organisms ^c	OSHA standard TLV ^d
	Fish and water	Fish only	Fish and water	Fish only		
Benzene	0.66 ppb	40.0 ppb	0.66 ppb ^e	40 ppb ^e	5.3 ppm	10 ppm
Toluene	--	--	14.3 ppm	424 ppm	17.5 ppm	100 ppm
Xylenes	--	--	--	--	>10 ppm ^g	100 ppm
1,1,1-Trichloroethane	--	--	18.4 ppm	1030 ppm	18 ppm	350 ppm
Chloroform	0.19 ppb	15.7 ppb	0.19 ppb ^e	15.7 ppb ^e	28.9 ppm (acute) 1.24 ppm (chronic)	25 ppm
Trichloroethylene	2.7 ppb	80.7 ppb	2.7 ppb ^e	80.7 ppb ^e	45 ppm	100 ppm
Methylene chloride	0.19 ppb	15.7 ppb	0.19 ppb ^e	15.7 ppb ^e	11 ppm	200 ppm
Methyl ethyl ketone	--	--	--	--	>100 ppm ^g	200 ppm
Methyl isobutyl ketone	--	--	--	--	>100 ppm ^g	100 ppm
Acetone	--	--	--	--	>10 ppm ^g	1000 ppm
Phenol	--	--	--	300 ppb ^f	10.20 ppm (acute) 2.56 ppm (chronic)	5 ppm
2,4-Dimethylphenol	--	--	--	400 ppb ^f	2.12 ppm	--

(continued)

TABLE 7.1 (continued)

Compound	Human 1×10^{-6} cancer risk ^a		Ambient water quality criteria ^b		Acute toxicity level-aquatic organisms ^c	OSHA standard TLV ^d
	Fish and water	Fish only	Fish and water	Fish only		
2-Nitrophenol	--	--	-----		230 ppb	----
Cresol	--	--	-----		--	5 ppm
Isophorone	--	--	5.2 ppm	520 ppm	117 ppm	5 ppm
PCBs	0.79 ppt	0.079 ppt	0.79 ppt ^e	0.079 ppt ^e	2 ppb	1 ppm

^aConcentration corresponding to human one in one million increased cancer risk from 1980 Ambient Water Quality Criteria. -- signifies no carcinogenic assessment based on currently available data. Source: Federal Register, November 28, 1980.

^bSource: Federal Register, November 25, 1980. Criteria are based on systemic toxic effects unless otherwise noted. ----- indicates nonpriority pollutant, therefore no criteria formulated.

^cSource: Federal Register, November 28, 1980, unless otherwise noted.

^dSource: Sax, 1981. ---- indicates no TLV.

^eAmbient Water Quality Criteria based on 1×10^{-6} carcinogenic risk level. For 1×10^{-5} level, multiply by 10; for 1×10^{-7} level, divide by 10.

^fOrganoleptic criteria: levels at which taste or odor are imparted to water and/or fish. There is no human health significance given to this level.

^gSource: Verscheuren, 1983.

TABLE 8. COMPARISON OF SWAMP CONTAMINANT LEVELS TO TOXICITY LEVELS

Compound	Highest swamp concentration ^a (ppm)	Current swamp concentration ^a (ppm)	Lowest acute toxicity ^b (ppm)	Lowest chronic toxicity ^b (ppm)
Acetone	21	0.066	5.5	
Benzene	0.97		5.3	
Chloroform	4.2		28.9	1.2
Methyl ethyl ketone	1.7		70	
Methyl isobutyl ketone	0.003		460	
Methylene chloride	6		11	
1,1,1-Trichloroethane	1.6	0.96	18	
Trichloroethylene	0.84	0.31	45	
Toluene	6	0.01	17.5	
Xylenes	56	0.03	1.3	

^aData from Tables 4-5, 4-6.

^bData from EPA Water Quality documents, Federal Register, November 28, 1980, and a search of AQUIRE in July 1984, EPA's computerized data base on toxic substances.

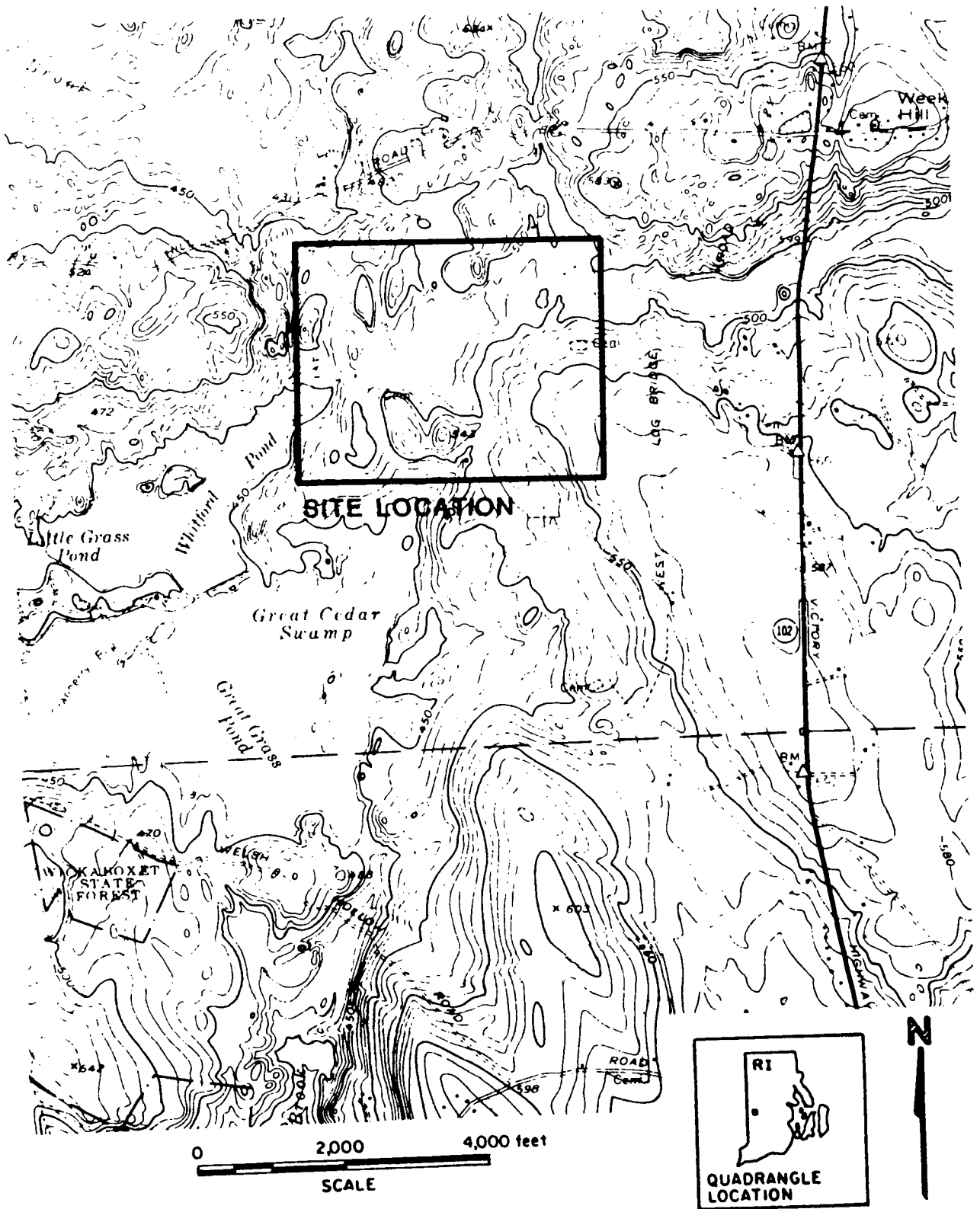


Figure 1. Locus map of the Picillo Farm Site. (Adapted from E & E, 1981).

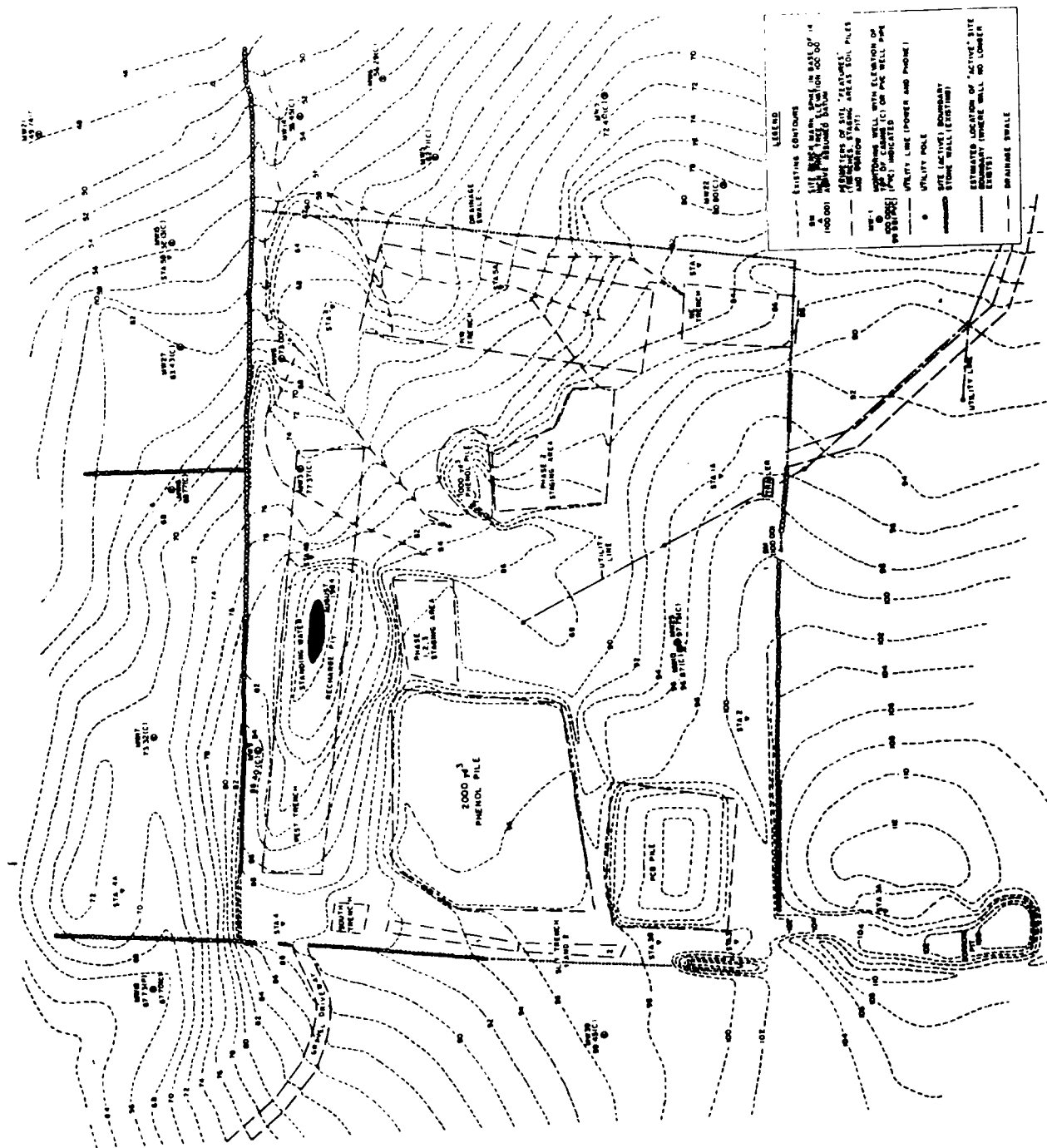


Figure 2 General present site features (Source: Dolce, Spirito & Associates Inc. for RIDEM).

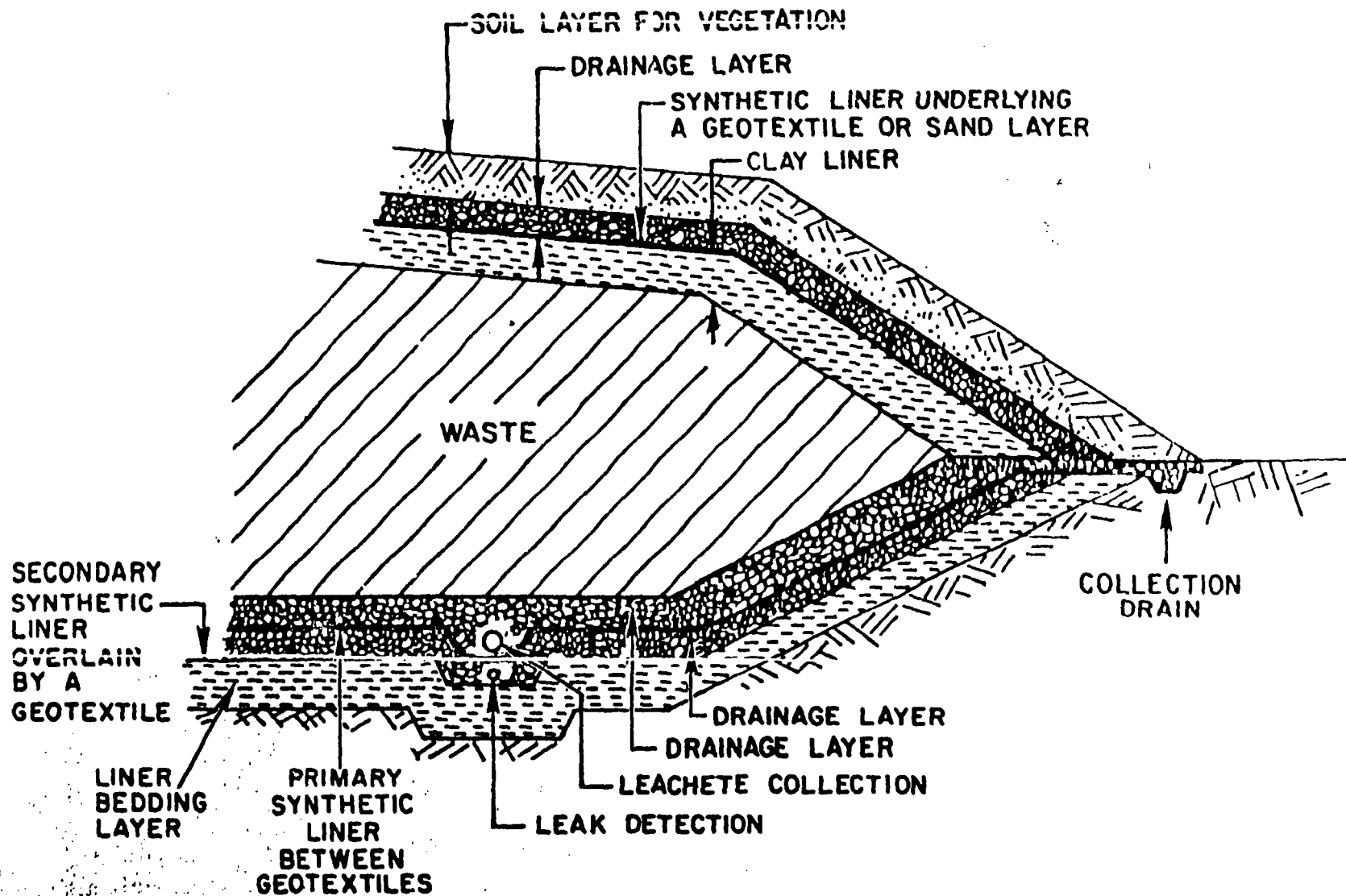


Figure 3 Proposed RCRA designed landfill.

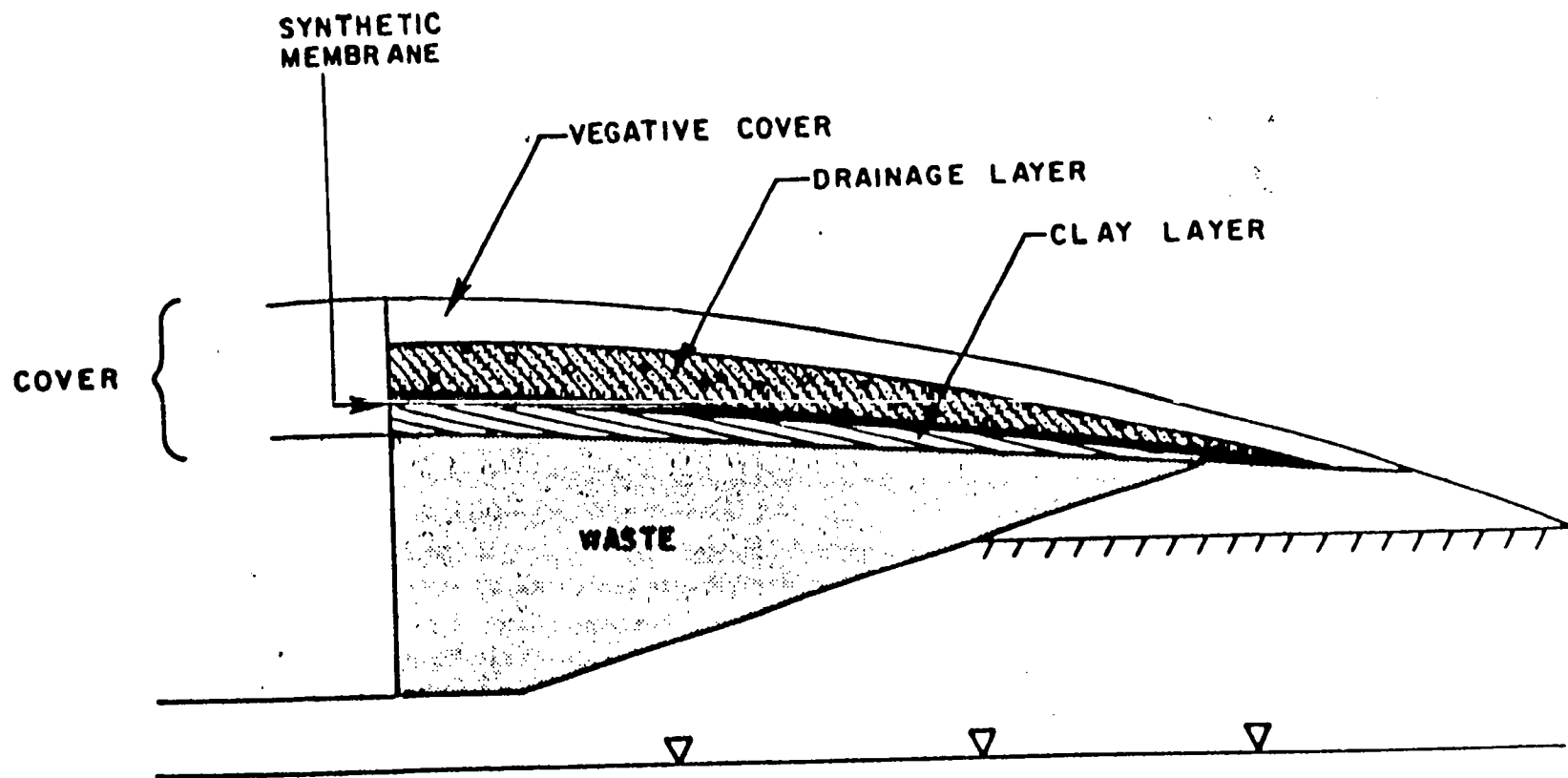


Figure 4 Proposed cap design.

PICILLO COST SHEET FOR SOURCE CONTROL ALTERNATIVES

Alternative SC-2: Disposal of PCB and phenol contaminated soils
offsite in a RCRA/TSCA Landfill

* Direct Capital Costs	
- Offsite disposal (6500 yd ³)	\$1,478,300
- Site closure	222,300
* Indirect Capital Costs (Engineering 9%, Legal and license/ permits 5%, Contingency 25%)	663,300
* Operations and Maintenance, 30 years (present worth)	145,300
	<u>\$2,509,200</u>

Alternative SC-3: Disposal of PCB Contaminated Soils Offsite
in a RCRA/TSCA Landfill

Disposal of Phenol Contaminated Soils
Onsite in RCRA Landfill

* Direct Capital Costs	
- Onsite RCRA landfill of phenol soils	\$212,100
- Offsite disposal of PCB soils (3500 yd ³)	844,500
- Site closure	227,200
* Indirect Capital Costs	500,800
* Operations and Maintenance	191,400
	<u>\$1,976,000</u>

Alternative SC-4: Disposal of PCB Contaminated Soils Offsite
in a RCRA/TSCA Landfill

Disposal of Phenol Contaminated Soils Onsite
in a Cap Only Landfill

* Direct Capital Costs	
- Onsite cap-only landfill of phenol soils (3000 yd ³)	\$ 113,300
- Offsite disposal of PCB soils (3500 yd ³)	844,500
- Site closure	227,200
* Indirect Capital Costs	462,300
* Operations and Maintenance	191,400
	<u>\$1,838,700</u>

Alternative SC-5: Disposal of PCB Contaminated Soils Onsite
in a RCRA/TSCA Landfill

* Direct Capital Costs	
- Onsite RCRA Landfill (6500 yd ³)	\$378,200
- Site closure	227,200
* Indirect Capital Costs	236,200
* Operations and Maintenance	191,400
	<u>\$1,033,000</u>

Alternative SC-6: Disposal of PCB Contaminated Soils Onsite
in a RCRA/TSCA Landfill

Disposal of Phenol Contaminated Soils Onsite
in a Cap Only Landfill

* Direct Capital Costs

- Onsite RCRA Landfill for PCB soils (3500 yd ³)	\$250,800
- Onsite cap-only landfill for phenol soils (3000 yd ³)	113,300
- Site closure	227,200

* Indirect Capital Costs 230,600

* Operations and Maintenance 191,400

\$1,013,300

Picillo Farm
NPL Site Administrative Record
Index

Compiled: September 7, 1990
Updated: January 31, 1991
Updated: June 22, 1993
ROD Signed: September 27, 1993

Prepared for
Region I
Waste Management Division
U.S. Environmental Protection Agency

With Assistance from
AMERICAN MANAGEMENT SYSTEMS, INC.
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Introduction

This document is the Index for the Administrative Record for the September 27, 1993 Record of Decision for the Picillo Farm National Priorities List (NPL) site. Section I of the Index cites site-specific documents and Section II cites guidance documents used by EPA staff in selecting a response action at the site.

The Administrative Record is available for public review by appointment at the EPA Region I Records Center in Boston, Massachusetts (Telephone: 617-573-5729) and at Coventry Public Library, 1672 Flat River Road, Coventry, Rhode Island 02816. *This index also contains confidential documents that are available only for judicial review. Although not expressly listed in this index, all documents contained in the Administrative Record for the September 30, 1985 Record of Decision and the Administrative Record for the March 3, 1987 Record of Decision are incorporated by reference herein, and are expressly made a part of the Administrative Record for the present operable unit.* Questions concerning the Administrative Record should be addressed to the EPA Region I site manager. Additional volumes may be added to this Administrative Record.

The Administrative Record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

Section I
Site-Specific Documents

ADMINISTRATIVE RECORD INDEX

for the

Picillo Farm NPL Site**(ROD Signed: September 27, 1993)**

2.0 Removal Response

2.1 Correspondence

State of Rhode Island Department of Environmental Management

1. Letter from Alicia Good, State of Rhode Island Department of Environmental Management to Richard C. Boynton, EPA Region I (December 6, 1990). Concerning a request that EPA's Environmental Services Division investigate solid waste at the site and the following attachments:
 - A. Letter from Terrence D. Gray, State of Rhode Island Department of Environmental Management to David McIntyre, EPA Region I (November 7, 1990).
 - B. Letter from Terrence D. Gray, State of Rhode Island Department of Environmental Management to Richard A. Haworth, EPA Region I (October 10, 1990).

2.2 Removal Response Reports

1. Letter from Mark J. McDuffee and Heather Lean Kline for Michael Lombardi, Roy F. Weston, Inc. to John M. Carlson, EPA Region I (December 16, 1991). Concerning site history and transmittal of "Addendum to the Removal Program Preliminary Assessment/Site Investigation," Roy F. Weston, Inc. (December 1991).
2. "ATSDR Record of Activity," Agency for Toxic Substances and Disease Registry (November 18, 1991).
3. Letter from Zoe L. Horton and Mark J. McDuffee, Roy F. Weston, Inc. to John M. Carlson, EPA Region I (January 31, 1992). Concerning attached data review and data summary tables.
4. "ATSDR Record of Activity," Agency for Toxic Substances and Disease Registry (February 7, 1992).
5. Memorandum from Steven J. Hanes, Agency for Toxic Substances and Disease Registry to Susanne Simon, EPA Region I (March 30, 1992). Concerning a health consultation at the site.
6. Letter from Cosmo Caterino and Mark J. McDuffee, Roy F. Weston, Inc. to John M. Carlson, EPA Region I (May 6, 1992). Concerning explanation of the attached photographs of the site.
7. "ATSDR Record of Activity," Agency for Toxic Substances and Disease Registry (December 1, 1992).

2.3 Sampling and Analysis Data

1. "Chain of Custody Record," EPA Region I (July 18, 1991)
2. Memorandum from Joseph Montanaro, EPA Region I to Dorothy Girten, EPA Region I (July 26, 1991). Concerning purgeable organic analysis.
3. Memorandum from Suresh Srivastava, Nathan Raines, and Dick Siscanaw, EPA Region I to Dorothy Girten, EPA Region I (August 15, 1991). Concerning gas chromatography-mass spectrometry analysis of extractable organics in aqueous samples.

Additional sampling and analysis data and chain of custody forms related to removal actions at the site may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

3.0 Remedial Investigation (RI)

3.1 Correspondence

Agency for Toxic Substances and Disease Registry

1. "ATSDR Record of Activity," Agency for Toxic Substances and Disease Registry (January 26, 1993).

Arthur D. Little, Inc. (EPA's Contractor)

2. Memorandum from Robert Lambe, Arthur D. Little to Anna F. Krasko, EPA Region I (August 22, 1990). Concerning the disposal of decontamination fluids for the development and presample purging of the groundwater monitoring wells at the site.
3. Memorandum from Robert Lambe, Arthur D. Little, Inc. to Anna F. Krasko, EPA Region I (August 8, 1991). Concerning the seismic refraction survey for the site.
4. Memorandum from Anthony M. Majahad, Arthur D. Little, Inc. to Robert P. O'Neil, Arthur D. Little, Inc. (August 26, 1991). Concerning a visit to the site on August 23, 1991.
5. Memorandum from Richard Waterman, Arthur D. Little, Inc. to D. Langseth, Robert Lambe, A. Wechsler, Arthur D. Little, Inc. (August 26, 1991). Concerning transmittal of the attached "Quality Assurance Project Audit."
6. Memorandum from Robert Lambe, Arthur D. Little, Inc. to Anna F. Krasko, EPA Region I (May 1, 1992). Concerning proposed residential well sampling at the site.

EPA Region I

7. Letter from Richard C. Boynton, EPA Region I to Charles J. Gricus, Town of Coventry (August 3, 1987). Concerning EPA's plans for the study of ground water contamination.
8. Letter from Anna F. Krasko, EPA Region I to June Swallow, State of Rhode Island Department of Health (April 30, 1990). Concerning the results of private well tests conducted by State of Rhode Island Department of Health and the request for those test results.

3.1 Correspondence (cont'd.)

EPA Region I (cont'd.)

9. Letter from Anna F. Krasko, EPA Region I to James Ball, State of Rhode Island Department of Environmental Management (June 13, 1990). Concerning a request for information on any known waste dumps in the vicinity of the site.
10. Letter from Merrill S. Hohman, EPA Region I to Thomas D. Getz, State of Rhode Island Department of Environmental Management (August 16, 1990). Concerning a response to the August 6, 1990 letter regarding EPA's ongoing Remedial Investigation for the site.
11. Memorandum from Richard A. Haworth, EPA Region I to Anna F. Krasko, EPA Region I (September 6, 1990). Concerning the review of the attached sampling results and the determination that the amount, quantity, or concentration of the material does not warrant a federal response.
12. Memorandum from Anna F. Krasko, EPA Region I to Louise A. House, Agency for Toxic Substances and Disease Registry (November 5, 1990). Concerning a brief history of the site and notification that the Agency for Toxic Substances and Disease Registry may have to verify the history of human health problems at the site.
13. Memorandum from Anna F. Krasko, EPA Region I to Louise A. House and Susan Simon, Agency for Toxic Substances and Disease Registry (February 21, 1991). Concerning the suggestion that information letters be sent to those residents concerned with health issues at the site.

The photographs associated with the records cited below as entry number 15 may be reviewed by appointment only at the EPA Region I Records Center in Boston, Massachusetts.

14. Letter from Anna F. Krasko, EPA Region I to James Ball, State of Rhode Island Department of Environmental Management (May 16, 1991). Concerning enclosed photographs documenting potential solid waste and wetlands violations at the site.
15. Letter from Jim Sebastian, EPA Region I to Librarian, Coventry Public Library (July 29, 1991). Concerning transmittal of the Remedial Investigation Work Plan for Phase 1B.

The Meeting Notes and attached records (other than the corresponding "Lists of Attendees") cited below as entries numbered 16 through 19 are withheld as CONFIDENTIAL and are available only for judicial review.

16. Meeting Notes, EPA Region I and PRPs (January 21, 1992) with attached "List of Picillo Farm RI/FS Activities," "List of Attendees," and handwritten meeting notes. Concerning remediation process for the site.
17. Meeting Notes, EPA Region I and PRPs - Technical Meeting No. 1 (March 16, 1992) with attached "List of Attendees." Concerning site remediation.

3.1 Correspondence (cont'd.)

EPA Region I (cont'd.)

18. Meeting Notes, EPA Region I and PRPs- Technical Meeting No. 2 (April 22, 1992) with attached:
 - A. "List of Attendees - Technical Meeting No. 2 with the PRPs," (April 22, 1992).
 - B. "Schedule for the Picillo Farm Site Feasibility Study," Arthur D. Little, Inc.
 - C. "Remedial Technology and Process Option Screening Meeting for Picillo Farms Feasibility Study" (April 20, 1992).
 - D. Meeting Photographs, EPA Region I and PRPs - Technical Meeting No. 2 (April 22, 1992).
19. Meeting Notes, EPA Region I and PRPs Technical Meeting No. 3 (June 11, 1992) with attached list of attendees. Concerning results of Phase 1B and status of remediation.
20. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (June 12, 1992). Concerning transmittal of the Phase 1B Second Quarter Organics Data package.

The Meeting Notes and attached records (other than the corresponding "Lists of Attendees") cited below as entry number 21 is withheld as CONFIDENTIAL and is available only for judicial review.

21. Meeting Notes, EPA Region I and PRPs - Technical Meeting No. 4 - Site Tour (July 24, 1992) with attached tour guide, site maps, and "List of Attendees".
22. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (August 3, 1992). Concerning transmittal of data package containing summary tables and maps for soil boring, monitoring well, and test pit locations.
23. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (October 30, 1992). Concerning transmittal of summary tables of classical data for the second, third, and fourth quarterly sampling events.
24. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (December 8, 1992). Concerning transmittal of the summary tables for the recent residential well sampling.
25. Letter from Anna F. Krasko, EPA Region I to Sandy Dupree, Coventry Public Library (December 16, 1992). Concerning transmittal of the December 9, 1992 "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volumes I-X," Arthur D. Little, Inc. and notification that the Administrative Record will be updated in the summer of 1993.
26. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (December 17, 1992). Concerning transmittal of the December 9, 1992 "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volumes I-X," Arthur D. Little, Inc.
27. Letter from Anna F. Krasko, EPA Region I to James Ball, State of Rhode Island Department of Environmental Management (January 4, 1993). Concerning results of residential well sampling.
28. Memorandum from Anna F. Krasko, EPA Region I to Louise A. House, Agency for Toxic Substances and Disease Registry (January 6, 1993). Concerning request for a health consultation on the results of EPA's September 1992 residential well sampling.

3.1 Correspondence (cont'd.)

EPA Region I (cont'd.)

29. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (April 16, 1993). Concerning transmittal of the April 15, 1993 "Baseline Human Health Risk Assessment," Arthur D. Little, Inc.

Environmental Strategies Corporation (PRPs' Technical Consultant)

30. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (March 11, 1992) with attached proposed meeting agenda and list of attendees. Concerning request for a meeting with EPA to discuss technical information related to the site.
31. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (March 30, 1992) with attached proposed April 22, 1992 meeting agenda and list of attendees. Concerning summary of the March 16, 1992 meeting and scheduling of upcoming April 22, 1992 and May 27, 1992 meetings.
32. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (June 5, 1992) with attached proposed agenda and list of attendees. Concerning the scheduled June 11, 1992 technical meeting and a summary of the April 22, 1992 meeting.
33. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (July 10, 1992). Concerning summary of June 11, 1992 meeting and scheduling of upcoming July 24, 1992 meeting.

State of Rhode Island Department of Environmental Management

34. Letter from Diane L. Badorek, State of Rhode Island Department of Environmental Management to James Finger, Town of Coventry (June 22, 1987). Concerning the extent of groundwater and surface water contamination and noting that further testing at the site will be necessary.
35. Cross-Reference: "Certificate of Analysis," R.I. Analytical (October 11, 1990). Concerning analysis of three samples of drinking water collected from Perry Hill Road and the attached Trip Report on a Visit to the Picillo Farm Site, James Ball, David Sheldon, State of Rhode Island Department of Environmental Management, Anna F. Krasko, EPA Region I and Joe Moorehead (October 2, 1990). [Filed and cited as entry number 3 in 3.2 Sampling and Analysis Data].
36. Letter from Terrence D. Gray, State of Rhode Island Department of Environmental Management to Richard A. Haworth, EPA Region I (October 10, 1990). Concerning the analysis of samples taken from the site and a request that the material be retested for leachable metals and flash point.
37. Letter from Thomas D. Getz, State of Rhode Island Department of Environmental Management to Richard B. Pennington, Coventry Credit Union (April 5, 1990). Concerning a response to the February 26, 1990 letter requesting information about the site.
38. Letter from James Ball, State of Rhode Island Department of Environmental Management to Anna F. Krasko, EPA Region I (July 5, 1990). Concerning response to the June 13, 1990 letter regarding possible waste dumps within a two mile radius of the site.

3.1 Correspondence (cont'd.)

State of Rhode Island Department of Environmental Management (cont'd.)

39. Letter from Thomas D. Getz, State of Rhode Island Department of Environmental Management to Merrill S. Hohman, EPA Region I (August 6, 1990) with attached Trip Report on a Visit to the Picillo Farm Site, Terrence Gray and James Ball, State of Rhode Island Department of Environmental Management and Scot Foster, Arthur D. Little (August 2, 1990). Concerning areas of the site to be addressed in Phase IA of the Remedial Investigation.

Town of Coventry

40. Letter from Charles Gricus, Town of Coventry to Merrill S. Hohman, EPA Region I (June 16, 1987). Concerning possible contamination of the groundwater in the underlying bedrock surrounding the site with the following attachments:
- A. Excerpt from the Site Hydrogeology section of the "Draft - Final Report Endangerment Assessment/Feasibility Study - Volume I," GCA Corporation (March 1985).
 - B. "Experts: Contaminated Water at Picillo Site No Threat to Proposed Housing Developments," Providence Journal - Providence, Rhode Island (May 28, 1987).
 - C. "Picillo Dump Case Called Precedent-Setting," Providence Journal - Providence, Rhode Island (June 7, 1987).
 - D. "Top Court Rules on Compensation for Land Owners."
 - E. "How Property-Rights Ruling Affects Rhode Island," Providence Journal - Providence, Rhode Island (June 14, 1987).

3.2 Sampling and Analysis Data

1. Letter from Ronald G. Lee, State of Rhode Island Department of Health to Anna F. Krasko, EPA Region I (March 29, 1990). Concerning transmittal of the attached "Private Well Survey After July 1, 1988."

The attachment to the record cited as entry number 2 is withheld as CONFIDENTIAL and available only for judicial review.

2. Letter from Ronald G. Lee, State of Rhode Island Department of Health to Anna F. Krasko, EPA Region I (May 15, 1990). Concerning transmittal of the attached printout of test results of private well water samples collected around the site.
3. "Certificate of Analysis," R.I. Analytical (October 11, 1990). Concerning analysis of three samples of drinking water collected from Perry Hill Road and the attached Trip Report on a Visit to the Picillo Farm Site, James Ball, David Sheldon, State of Rhode Island Department of Environmental Management, Anna F. Krasko, EPA Region I and Joe Moorehead (October 2, 1990).
4. Letter from Ronald G. Lee, State of Rhode Island Department of Health to Robert N. Lambe, Arthur D. Little (October 12, 1990). Concerning transmittal of the attached private well test results from samples taken in the summer and fall of 1990.
5. Letter from Jere D. Downing, Ocean Spray Cranberries, Inc. to Anna F. Krasko, EPA Region I (November 19, 1990). Concerning contents and transmittal of the attached information package.

3.2 Sampling and Analysis Data (cont'd.)

6. Memorandum from Robert N. Lambe and Kevin Kuechler, Arthur D. Little, Inc. to Anna F. Krasko, EPA Region I (April 8, 1991). Concerning attached partial field operations plan (FOP) submittal for April 1991 sampling.
7. "Field Sampling Plan for Remedial Planning Activities - Phase IB/II - Remedial Investigation/Feasibility Study," Arthur D. Little, Inc. (July 15, 1991).
8. "Ground Water Monitoring Well Sampling SOP - Revision No. 2," Arthur D. Little, Inc. (October 9, 1991).
9. - "Field Sampling Plan for Ecological Risk Assessment," Arthur D. Little, Inc. (October 15, 1991).

The data associated with the record cited below as entry number 10 is withheld as CONFIDENTIAL and is available only for judicial review.

10. Letter from Ronald G. Lee, State of Rhode Island Department of Health to Anna F. Krasko, EPA Region I (March 17, 1992). Concerning transmittal of printout of private well water test results data.
11. "Amendment I to Field Sampling Plan for Remedial Planning Activities - Revision 1," Arthur D. Little, Inc. (July 10, 1992).

Additional sampling and analysis data and chain of custody forms related to the Remedial Investigation at the site may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

3.4 Interim Deliverables

Reports

1. "Site Management Plan for Remedial Planning Activities - Revision No. 2," Arthur D. Little, Inc. (July 31, 1990).
2. "Health and Safety Project Plan for Remedial Planning Activities - Revision No. 2," Arthur D. Little, Inc. (July 31, 1990).
3. "Quality Assurance Project Plan for Remedial Planning Activities - Revision No. 2," Arthur D. Little, Inc. (July 31, 1990).
4. "Field Sampling Plan for Remedial Planning Activities - Revision No. 2," Arthur D. Little, Inc. (July 31, 1990).
5. Memorandum from Jeff Fortner, Arthur D. Little to Bob Lambe, Arthur D. Little (August 10, 1990). Concerning the attached "Existing Monitoring Well Inventory Report."
6. "Draft Technical Directive Memorandum - Phase IA - Volume I," Arthur D. Little, Inc. (November 28, 1990).
7. "Draft Technical Directive Memorandum - Phase IA - Volume II Appendices," Arthur D. Little, Inc. (November 28, 1990).
8. "Draft Technical Directive Memorandum - Phase IA - Volume III Plates," Arthur D. Little, Inc. (December 12, 1990).
9. "Health and Safety Project Plan for Remedial Planning Activities," Arthur D. Little, Inc. (June 28, 1991).
10. "Site Management Plan for Remedial Planning Activities - Phase IB/II - Remedial Investigation/Feasibility Study," Arthur D. Little, Inc. (July 3, 1991).
11. "Quality Assurance Project Plan," Arthur D. Little, Inc. (July 17, 1991).
12. "Picillo Farm Photo Documentation - May-September, 1991 - Phase IB/II - Field Investigation," Arthur D. Little, Inc. (January 10, 1992).

3.4 Interim Deliverables (cont'd.)

Comments

13. Comments Dated January 9, 1991 from Anna F. Krasko, EPA Region I on the November 28, 1990 "Draft Technical Directive Memorandum - Phase IA - Volumes I and II," Arthur D. Little, Inc. and the December 12, 1990 "Draft Technical Directive Memorandum - Phase IA - Volume III," Arthur D. Little, Inc.

Response to Comments

14. Response Dated February 6, 1991 from Robert N. Lambe and Kevin Kuechler, Arthur D. Little, Inc. to the January 9, 1991 Comments from Anna F. Krasko, EPA Region I on the November 28, 1990 "Draft Technical Directive Memorandum - Phase IA - Volumes I and II," Arthur D. Little, Inc. and the December 12, 1990 "Draft Technical Directive Memorandum - Phase IA - Volume III," Arthur D. Little, Inc.

3.5 Applicable or Relevant and Appropriate Requirements (ARARs)

1. Letter from Anna F. Krasko, EPA Region I to James Ball, State of Rhode Island Department of Environmental Management (July 21, 1992). Concerning request for comments on the Draft Remedial Investigation Report and identification of potential chemical- and location-specific ARARs and TBCs from the state.
2. "Preliminary List of State of Rhode Island ARARs Which May Apply to Remedial Actions at the Site" (September 16, 1992).

3.6 Remedial Investigation (RI) Reports

1. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume I: Sections 1-3," Arthur D. Little, Inc. (December 9, 1992).
2. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume II: Section 4 - Text and Tables," Arthur D. Little, Inc. (December 9, 1992).
3. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume III: Sections 4-7," Arthur D. Little, Inc. (December 9, 1992).
4. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume IV: Appendices A-C," Arthur D. Little, Inc. (December 9, 1992).
5. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume V: Appendices D-H," Arthur D. Little, Inc. (December 9, 1992).
6. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume VI: Appendices I-J," Arthur D. Little, Inc. (December 9, 1992).
7. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume VII: Appendices K-O," Arthur D. Little, Inc. (December 9, 1992).
8. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume VIII: Appendices P-Q," Arthur D. Little, Inc. (December 9, 1992).
9. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume IX: Appendix R," Arthur D. Little, Inc. (December 9, 1992).
10. "Final Report - Remedial Investigation Activities at the Picillo Farm Site - Volume X: Appendices R-S," Arthur D. Little, Inc. (December 9, 1992).
11. "Baseline Human Health Risk Assessment - Volume 1," Arthur D. Little, Inc. (April 15, 1993).
12. "Baseline Human Health Risk Assessment - Volume 2 - Appendices," Arthur D. Little, Inc. (April 15, 1993).

3.6 Remedial Investigation (RI) Reports (cont'd.)

13. "Final Report for Ecological Risk Assessment - Volume 1," Arthur D. Little, Inc. (June 11, 1993).
14. "Final Report for Ecological Risk Assessment - Volume 2 - Appendices," Arthur D. Little, Inc. (June 11, 1993).

3.7 Work Plans and Progress Reports

Reports

1. "Final Work Plan - Remedial Investigation and Feasibility Study - Volume I," EBASCO Services Incorporated (January 1990).
2. "Final Work Plan - Remedial Investigation and Feasibility Study - Volume II Appendices," EBASCO Services Incorporated (January 1990).
3. "Work Plan for Remedial Planning Activities - Revision No. 1," Arthur D. Little, Inc. (June 26, 1990).
4. Letter from Renee Wong, Arthur D. Little to Hilary Kelley, EPA Region I (September 25, 1990). Concerning amendments to the June 26, 1990 "Work Plan for Remedial Planning Activities - Revision No. 1," Arthur D. Little, Inc.

The map associated with the record cited in entry number 5 is oversized and may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

5. "Work Plan for the Ecological Risk Assessment," Arthur D. Little, Inc. (November 12, 1990).
6. "Revised Work Plan for Ecological Risk Assessment," Arthur D. Little, Inc. (February 15, 1991).
7. "Work Plan Amendment No. 3 for RI/FS Activities," Arthur D. Little (June 28, 1991).

3.9 Health Assessments

Reports

1. "Draft Health Assessment for Picillo Farm," U. S. Department of Health and Human Services Agency for Toxic Substances and Disease Registry (ATSDR) (November 2, 1988).

Comments

2. Comments Dated January 11, 1989 from Lynne A. Fratus, EPA Region I on the November 2, 1988 "Draft Health Assessment for Picillo Farm," U.S. Department of Health and Human Services Agency for Toxic Substances and Disease Registry (ATSDR).

4.0 Feasibility Study (FS)

4.1 Correspondence

Agency for Toxic Substances and Disease Registry

1. Letter from Louise A. House, Agency for Toxic Substances and Disease Registry to Anna F. Krasko, EPA Region I (May 13, 1993). Concerning notification that Agency for Toxic Substances and Disease Registry has no plans to update the November 2, 1988 Health Assessment.

EPA Region I

2. "Picillo Farm Site Meeting Attendees - EPA Region I and PRPs - Technical Meeting" (January 21, 1993).
3. Letter from Gregory Dain, EPA Region I to David B. Graham, Howrey & Simon (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (February 5, 1993). Concerning response to the January 21, 1993 proposal for interim remedial measures from Deming E. Sherman, Edwards & Angell (Attorney for American Cyanamid Company and Rohm & Haas Company) and David Graham, Howrey & Simon (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company).
4. "Picillo Farm Site Meeting Attendees - EPA Region I and PRPs - Technical Meeting" (March 9, 1993).
5. "Picillo Farm Site Meeting Attendees - EPA Region I and PRPs - Technical Meeting" (April 29, 1993).
6. Letter from Anna F. Krasko, EPA Region I to William H. Phillips, Environmental Strategies Corporation (June 11, 1993). Concerning transmittal of the June 10, 1993 "Feasibility Study - Volumes I and II," Arthur D. Little, Inc. and the June 10, 1993 "Laboratory-Scale Treatability Studies," Arthur D. Little, Inc.
7. Letter from Anna F. Krasko, EPA Region I to Sandy Dupree, Coventry Public Library (June 14, 1993). Concerning transmittal of the June 10, 1993 "Feasibility Study - Volumes I and II," Arthur D. Little, Inc. and the June 10, 1993 "Laboratory-Scale Treatability Studies," Arthur D. Little, Inc.
8. "Picillo Farm Site Tour Attendees - EPA Region I and PRPs" (July 14, 1993).

Environmental Strategies Corporation (PRPs' Technical Consultant)

9. "Briefing on Conceptual Approach for Performance of an Interim Remedial Measure at the Picillo Site," Environmental Strategies Corporation (January 19, 1993).
10. "Draft Conceptual Approach for Performance of an Interim Remedial Measure at the Picillo Site," Environmental Strategies Corporation (January 19, 1993).
11. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (January 20, 1993). Concerning confirmation of the January 21, 1993 meeting and transmittal of the attached agenda and proposed list of attendees.
12. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (March 3, 1993). Concerning confirmation of the March 9, 1993 meeting and transmittal of the attached agenda and proposed list of attendees.

4.1 Correspondence (cont'd.)

Environmental Strategies Corporation (PRPs' Technical Consultant) (cont'd.)

13. Letter from William H. Phillips, Environmental Strategies Corporation to Anna F. Krasko, EPA Region I (April 26, 1993). Concerning confirmation of April 29, 1993 meeting and the attached agenda and proposed list of attendees.

4.2 Sampling and Analysis Data

Sampling and analysis data and chain of custody forms related to the Feasibility Study at the site may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

4.5 Applicable or Relevant and Appropriate Requirements (ARARs)

1. Letter from Anna F. Krasko, EPA Region I to James Ball, State of Rhode Island Department of Environmental Management (November 18, 1992). Concerning transmittal of the Test Plan for Laboratory-Scale Treatability Studies and a request for identification of potential action-specific ARARs and TBCs at the site.
2. Letter from James Ball, State of Rhode Island Department of Environmental Management to Anna F. Krasko, EPA Region I (January 6, 1993). Concerning the attached list of potential ARARs.

4.6 Feasibility Study (FS) Reports

1. "Report for Feasibility Study - Volume I - Sections 1-5," Arthur D. Little, Inc. (June 10, 1993).
2. "Report for Feasibility Study - Volume II - Appendices," Arthur D. Little, Inc. (June 10, 1993).
3. "Laboratory-Scale Treatability Studies," Arthur D. Little, Inc. (June 10, 1993).

4.9 Proposed Plans for Selected Remedial Action

1. "EPA Proposes Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (June 1993).

5.0 Record of Decision (ROD)

5.1 Correspondence

1. Memorandum from Merrill S. Hohman, EPA Region I to Picillo Administrative Record (July 26, 1993). Concerning proposed cleanup at the site and proper vehicle for transmitting comments.
2. Letter from Teri R. Simon, General Electric Company to Merrill S. Hohman, EPA Region I (August 2, 1993). Concerning transmittal of comments on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
3. Letter from Michael D. Scott, G.A.F. Corporation to Robert Sussman, EPA Headquarters (August 5, 1993). Concerning transmittal of comments on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.

5.1 Correspondence (cont'd.)

4. Memorandum from Louise A. House, Agency for Toxic Substances and Disease Registry to Anna F. Krasko, EPA Region I (August 18, 1993). Concerning public health issues at the site.
5. Letter from Richard C. Boynton, EPA Region I to Terrance Gray, State of Rhode Island Department of Environmental Management (August 19, 1993). Concerning scheduling for the Record of Decision for the site.
6. Memorandum from Meredith Pickering, Town of Coventry to Charles C. Gricus, Town of Coventry (August 1993). Concerning the property which has been built on between February 1986 and August 1993.
7. Letter from Stephen W. Leermakers, Ashland Chemical Company, Michael D. Scott, G.A.F. Corporation, Margaret R. Tribble, American Cyanamid, D. Michael Light, Monsanto Company, Teri R. Simon, General Electric Company, and Ellen S. Friedel, Rohm & Hass Company to Robert M. Sussman, EPA Headquarters (September 10, 1993). Concerning comments on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I and indicating that Region I had agreed to allow "the Companies" to submit additional written comments for inclusion in the Administrative Record.
8. Letter from Willis G. Wang, EPA Region I to David B. Graham, Howrey & Simon (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (September 15, 1993). Concerning the response to the September 10, 1993 letter asserting that Region I had agreed to allow "the Companies" to submit additional written comments for inclusion in the Administrative Record.

5.3 Responsiveness Summaries

1. Cross-Reference: Responsiveness Summary is an attachment to the September 27, 1993 "Record of Decision," EPA Region I [Filed and cited as entry number 1 in 5.4 Record of Decision (ROD)].

The following citations indicate comments received by EPA Region I during the formal comment period:

2. Comments Dated July 1, 1993 from Jim Walley, MRK Incineration, Inc. on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
3. Comments Dated July 13, 1993 from Robert Guastini on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
4. Comments Dated July 13, 1993 from Marion L. Sykes on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
5. Comments Dated July 13, 1993 from Robert W. Haviland, State of Rhode Island Department of Health on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
6. Comments Dated July 20, 1993 from Ken and Susan Thomas on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
7. Comments Dated July 28, 1993 from James Ball, State of Rhode Island Department of Environmental Management on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.

5.3 Responsiveness Summaries (cont'd.)

8. Comments Dated July 28, 1993 from Peter T. Lockwood on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
9. Comments Dated July 29, 1993 from Paul Carroll, Save The Bay on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
10. Comments Dated July 29, 1993 from Teri R. Simon, General Electric Co. on behalf of Ashland Chemical Company, G.A.F. Corporation, Rohm & Hass Company, American Cyanamid Company, and Monsanto Corporation on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I with the following attachments
 - A. Comments Dated July 29, 1993 from Environmental Strategies Corporation on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I.
 - B. Letter Report from Lawrence C. LeBlanc to Deming E. Sherman, Edwards & Angell (Attorney for American Cyanamid Company and Rohm & Haas Company) (July 23, 1993).
11. Comments Dated July 13, 1993 from Deming E. Sherman, Edwards & Angell (Representing the Settling and Non-settling Parties) on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (July 13, 1993).
12. Comments Dated July 13, 1993 from James Ball, State of Rhode Island Department of Environmental Management Public Hearing on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (July 13, 1993).

5.4 Record of Decision (ROD)

1. "Record of Decision," EPA Region I (September 27, 1993).

6.0 Remedial Design (RD)

6.4 Remedial Design Documents

The maps associated with the records cited in Attachments I, J, and K may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

1. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (May 19, 1988). Concerning the transmittal of the following attached final, approved design documents for the removal of the contaminated soil piles:
 - A. "Work Scope - Construction, Transportation, and Disposal Services," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - B. "Technical Specification for Furnishing, Installing, and Operating an Equipment Decontamination Facility," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - C. "Technical Specification for Excavation of Contaminated Materials," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - D. "Technical Specification for Earthwork, Roadwork, and Revegetation," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - E. "Technical Specification for Transportation Services," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - F. "Engineering Documentation Requirements" Form, Bechtel Environmental, Inc. for the Settling Parties (March 31, 1988).
 - G. "Exhibit D - Work Scope for Survey Services," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - H. "Technical Specification for Survey Services," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - I. "Site Remediation Excavation and Grading Plan," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - J. "Site Remediation Excavation and Grading Sections," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
 - K. "Site Remediation Excavation and Grading Plans, Sections and Miscellaneous Details," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).

6.6 Work Plans and Progress Reports

1. "Remedial Design and Implementation Work Plan for the Removal of the Contaminated Soil Piles," Bechtel Environmental, Inc. for the Settling Parties (February 1988).
2. "Work Plan Oversight - Remedial Design & Construction," EBASCO Services Incorporated (February 29, 1988).
3. "Field Operations Plan Oversight - Remedial Design and Construction," EBASCO Services Incorporated (May 1988).
4. "Soil Remediation Plan," State of Rhode Island Department of Environmental Management (June 1988).

7.0 Remedial Action (RA)

7.1 Correspondence

Bechtel Environmental, Inc. (PRPs' Contractor)

1. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (April 8, 1988). Concerning the preliminary listing of disposal facilities and the attached:
 - A. "Potential Soils Disposal Facilities."
 - B. "Potential Liquid Disposal Facilities."
2. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (May 4, 1988). Concerning the request for EPA's approval of the attached list of proposed disposal facilities.
3. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (July 6, 1988). Concerning the request for EPA's approval of the GE incinerator as an acceptable treatment facility for the one drum of PCB-contaminated liquid remaining at the site.
4. Memorandum from Mike Falzone, Bechtel Environmental, Inc. to Mike Wass, Severson Environmental Services, Inc. (July 6, 1988). Concerning the items identified during the July 6, 1988 site inspection to be added to the June 30, 1988 "Project Completion Punchlist," Bechtel Environmental, Inc. for the Settling Parties.
5. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (September 26, 1988). Concerning the seeding of the site and transmittal of the attached "Technical Specification for Earthwork, Roadwork, and Revegetation," Bechtel Environmental, Inc. for the Settling Parties (May 13, 1988).
6. Letter from Jeff T. Pullen, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (September 30, 1988). Concerning a request to delete the soil scarification clause in the May 13, 1988 "Technical Specification for Earthwork, Roadwork, and Revegetation," Bechtel Environmental, Inc. for the Settling Parties.
7. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (October 14, 1988). Concerning the completion of the turf establishment at the site and notification that all activities described in paragraphs 6(1) through 6(6) of the Consent Decree have been completed.
8. Letter from Stephen J. Buckley, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (November 21, 1988). Concerning scheduling of the final site inspection.

EBASCO Services Incorporated (EPA's Contractor)

9. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I and Alicia Good, State of Rhode Island Department of Environmental Management (July 1, 1988). Concerning notification that a final inspection will be conducted on or before July 8, 1988 and the attached:
 - A. Memorandum from S.R. Stoddard, Bechtel Environmental, Inc. to Robert Proudfoot, EBASCO Services Incorporated (June 30, 1988).
 - B. "Project Completion Punchlist."

7.1 Correspondence (cont'd.)

EBASCO Services Incorporated (cont'd.)

The project photographs done by EBASCO Services Incorporated, including the photographs associated with the record cited in entry number 10, may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

10. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (July 27, 1988). Concerning transmittal of photographs numbered 61 through 70.
11. Trip Report on a Visit to the Picillo Site, Edward L. Bolce, EBASCO Services Incorporated, Richard C. Boynton, Lynne A. Fratus, EPA Region I, and Jeff T. Pullen, Bechtel Environmental, Inc. for the Settling Parties (December 7, 1988). Concerning inspection of erosion at the site on November 28, 1988.
12. Letter from Marcia J. Berger, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (May 9, 1989). Concerning transmittal of the attached Trip Report on a Visit to the Picillo Site, Lynne A. Fratus, EPA Region I, Joseph Polselli, State of Rhode Island Department of Environmental Management, Mark L. Allen, Bechtel Environmental, Inc. for the Settling Parties, and Edward L. Bolce, EBASCO Services Incorporated (May 5, 1989).
13. Memorandum from Edward L. Bolce, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (May 15, 1989). Concerning transmittal of the attached northeast wildflower seed mixture for the site.

EPA Region I

14. Letter from Lynne A. Fratus, EPA Region I to Stephen J. Buckley, Bechtel Environmental, Inc. (April 15, 1988). Concerning transmittal of the attached comments on the "95% Design Review."
15. Memorandum from Lynne A. Fratus, EPA Region I to John F. Zipeto, EPA Region I (April 18, 1988). Concerning RCRA-approved disposal facilities.
16. Letter from Richard C. Boynton, EPA Region I to Alicia Good, State of Rhode Island Department of Environmental Management (May 3, 1988). Concerning EPA's plan for testing the remaining soil after the PRPs remove the soil piles.
17. Letter from Richard C. Boynton, EPA Region I to Stephen J. Buckley, Bechtel Environmental, Inc. (May 6, 1988). Concerning EPA approval of the final design specifications for soil removal and requesting a formal proposal indicating which RCRA facilities are qualified to accept the hazardous materials from the site.
18. Telephone Notes Between Lynne A. Fratus, EPA Region I and David Combs, State of Ohio Department of Environmental Protection (May 6, 1988). Concerning the status of CECOS International, Inc. as a hazardous materials treatment facility.
19. Telephone Notes Between Lynne A. Fratus, EPA Region I and Gary Powers, State of Rhode Island Department of the Attorney General (May 6, 1988). Concerning the status of CECOS International, Inc. as a hazardous materials treatment facility.
20. Memorandum from John F. Zipeto, EPA Region I to Lynne A. Fratus, EPA Region I (May 13, 1988). Concerning the listed facilities deemed acceptable to receive hazardous wastes from the site.

7.1 Correspondence (cont'd.)

EPA Region I (cont'd.)

21. Letter from Richard C. Boynton, EPA Region I to Stephen J. Buckley, Bechtel Environmental, Inc. (May 20, 1988). Concerning the listed facilities deemed acceptable to receive hazardous waste from the site.
22. Letter from Richard C. Boynton, EPA Region I to Stephen J. Buckley, Bechtel Environmental, Inc. (July 5, 1988). Concerning EPA approval of the borrow area used for backfilling the site and an outline of closure activities for the areas under the removed soil piles.
23. Memorandum from John F. Zipeto, EPA Region I to Lynne A. Fratus, EPA Region I (July 19, 1988). Concerning EPA approval of the General Electric Co. Incinerator Facility as a hazardous waste disposal facility.
24. Letter from Lynne A. Fratus, EPA Region I to Stephen J. Buckley, Bechtel Environmental, Inc. (July 20, 1988). Concerning EPA approval of the General Electric Co. Incinerator Facility as a hazardous waste disposal facility.
25. Letter from Richard C. Boynton, EPA Region I to Mark L. Allen, Bechtel Environmental, Inc. (September 20, 1988). Concerning EPA's preferred option for the grading and seeding of the areas under the removed soil piles and request for a timetable of the work to be completed.
26. Telephone Notes Between Lynne A. Fratus, EPA Region I and Jeff T. Pullen, Bechtel Environmental, Inc. (September 28, 1988). Concerning seeding procedures at the site.
27. Letter from Lynne A. Fratus, EPA Region I to Mark L. Allen, Bechtel Environmental, Inc. (October 6, 1988). Concerning approval of the change in seeding specifications providing that a healthy vegetative cover is established to prevent erosion at the site.
28. Telephone Notes Between Lynne A. Fratus, EPA Region I and Joseph Polselli, State of Rhode Island Department of Environmental Management (October 31, 1988). Concerning questions raised about removal actions proposed by the State of Rhode Island.
29. Telephone Notes Between Lynne A. Fratus, EPA Region I and Joseph Polselli, State of Rhode Island Department of Environmental Management (October 31, 1988). Concerning additional information on the questions raised about removal actions proposed by the State of Rhode Island.
30. Telephone Notes Between Lynne A. Fratus, EPA Region I and Joseph Polselli, State of Rhode Island Department of Environmental Management (November 3, 1988). Concerning the State of Rhode Island's report for the soil sampling results from under the PCB pile.
31. Telephone Notes Between Lynne A. Fratus, EPA Region I and Mark L. Allen, Bechtel Environmental, Inc. (November 4, 1988). Concerning revegetation at the site.
32. Telephone Notes Between Lynne A. Fratus, EPA Region I and Jeff T. Pullen, Bechtel Environmental, Inc. (November 17, 1988). Concerning the scheduling of the final inspection of the site.
33. Trip Report on a Visit to the Picillo Site, Richard C. Boynton and Lynne A. Fratus, EPA Region I, Edward L. Bolce, EBASCO Services Incorporated, and Jeff T. Pullen, Bechtel Environmental, Inc. for the Settling Parties (January 4, 1989). Concerning the November 28, 1988 evaluation of the seeding conducted by Bechtel Environmental, Inc. for the Settling Parties in October and a conditional approval of the construction of an erosion gully.

7.1 Correspondence (cont'd.)

EPA Region I (cont'd.)

34. Memorandum from Lynne A. Fratus, EPA Region I to Mark L. Allen, Bechtel Environmental, Inc. (May 10, 1989) with attached Trip Report on a Visit to the Picillo Site, Lynne A. Fratus, EPA Region I, Joseph Polselli, State of Rhode Island Department of Environmental Management, Mark L. Allen, Bechtel Environmental, Inc. for the Settling Parties, and Edward L. Bolce, EBASCO Services Incorporated (May 5, 1989). Concerning the recommendation that the seed mix be modified.
35. Letter from Anna F. Krasko, EPA Region I to Mark L. Allen, Bechtel Environmental, Inc. (February 7, 1990). Concerning notification that work performed by the Settling Parties under the Consent Decree has been completed.

State of Rhode Island Department of Environmental Management

36. Letter from Joseph Polselli, State of Rhode Island Department of Environmental Management to John F. Zipeto, EPA Region I (November 14, 1988). Concerning the State of Rhode Island's proposal to excavate PCB contaminated soil and to move it to an EPA-approved disposal facility.
37. Trip Report on a Visit to the Picillo Site, John Leo and Joseph Polselli, State of Rhode Island Department of Environmental Management (March 10, 1989). Concerning soil removal by a local construction company in the vicinity of the houses on Picillo Farm.
38. Letter from Joseph Polselli, State of Rhode Island Department of Environmental Management to Paul DiMasio, PMD Construction (April 4, 1989). Concerning questions about soil removal activities at the site.
39. Letter from Thomas D. Getz, State of Rhode Island Department of Environmental Management to Mark L. Allen, Bechtel Environmental, Inc. (March 26, 1990). Concerning notification that work performed by the Settling Parties under the Consent Decree has been completed.

7.2 Sampling and Analysis Data

Borrow Pit Area

1. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I and Alicia Good, State of Rhode Island Department of Environmental Management (June 17, 1988) with attached sampling maps. Concerning the June 14, 1988 and June 16, 1988 walkover surveys for the Volatile Organic Analysis (VOA) levels in the existing borrow pit area.
2. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I and Alicia Good, State of Rhode Island Department of Environmental Management (June 23, 1988) with attached sampling map. Concerning the June 23, 1988 walkover survey for the Volatile Organic Analysis (VOA) levels in the existing borrow pit area.

7.2 Sampling and Analysis Data (cont'd.)

Large (No. 1) Phenol Pile

3. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (July 15, 1988). Concerning transmittal of the attached soil sample analysis results from the "footprint" area under the large (No. 1) phenol pile.

Small (No. 2) Phenol Pile

4. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (July 21, 1988). Concerning transmittal of the attached soil sample analysis results from the "footprint" area under the small (No. 2) phenol pile.
5. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (August 3, 1988). Concerning transmittal of the attached re-analysis results for soil sample AJ-958, one of the samples taken from the "footprint" area under the small (No. 2) phenol pile.

Polychlorinated Biphenyl (PCB) Pile

6. Letter from Robert F. Weisberg, Analytical Testing Services, Inc. to Michael Farinha, Clean Harbors, Inc. for State of Rhode Island Department of Environmental Management (June 30, 1988). Concerning transmittal of the attached:
 - A. "Picillo Soil Sample Report."
 - B. "Figure I - Sampling Locations of Picillo PCB Pile on 21 June 1988."
 - C. "Figure II - Sampling Results of Picillo PCB Pile on 21 June 1988."
 - D. "Certificate of Analysis," Analytical Testing Services Inc. (June 21, 1988).
 - E. "Sampling Plan," State of Rhode Island Department of Environmental Management (August 1988).
 - F. "Certificate of Analysis - Soil Sampling September 6, 1988 and September 7, 1988 - PCB Pile Area," Environmental Science Services.
7. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (July 1, 1988). Concerning transmittal of the attached soil sample analysis results from the "footprint" area under the PCB pile.
8. "Results of Soil Sampling," Environmental Science Services (October 1988) with Organics Analysis Data Sheets.
9. Memorandum from Joseph Polselli, State of Rhode Island Department of Environmental Management to Lynne A. Fratus, EPA Region I (September 1, 1988). Concerning transmittal of the attached "Revised Work Plan for Soil Sampling at a Location of a Former PCB Pile," Environmental Science Services (August 29, 1988).
10. Letter from Mark L. Allen, Bechtel Environmental, Inc. to Lynne A. Fratus, EPA Region I (May 2, 1989). Concerning results of the attached air monitoring data with a list of the volatile organic compounds reported to be present in the PCB pile.

7.2 Sampling and Analysis Data (cont'd.)

Polychlorinated Biphenyl (PCB) Pile (cont'd.)

11. Sampling Report from Joseph Polselli, State of Rhode Island Department of Environmental Management with attached:
 - A. "Sampling Map."
 - B. "Sampling Plan," State of Rhode Island Department of Environmental Management (August 1988).
 - C. "Quality Assurance Procedures for PCB Analysis of Soils," Environmental Science Services.
 - D. "Waste-Specific Prohibitions - Solvent Wastes," Federal Register Vol. 53, No. 159 (August 17, 1988).

7.5 Remedial Action Documents

The map associated with the record cited in entry number 1 may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

1. "Final Report for the Picillo Farm Superfund Site Remediation Activities," Bechtel Environmental, Inc. for the Settling Parties (January 1989).

7.6 Work Plans and Progress Reports

1. EBASCO Services Incorporated RD/RA Oversight Daily Reports numbered 001 through 031 and dated May 31, 1988 through July 8, 1988.
2. Memorandum from Robert Proudfoot, EBASCO Services Incorporated to Lynne A. Fratus, EPA Region I (June 15, 1988). Concerning transmittal of the two attached field change requests.
3. Letter from David B. Graham, Freedman, Levy, Kroll & Simonds (Attorney for the "Ashland" Settling Parties) to Lynne A. Fratus, EPA Region I and Alicia Good, State of Rhode Island Department of Environmental Management (July 8, 1988). Concerning transmittal of the attached June 1988 progress report.
4. Letter from David B. Graham, Freedman, Levy, Kroll & Simonds (Attorney for the "Ashland" Settling Parties) to Lynne A. Fratus, EPA Region I and Alicia Good, State of Rhode Island Department of Environmental Management (August 5, 1988). Concerning transmittal of the attached July 1988 progress report.

The map associated with the record cited in entry number 5 may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

5. Letter from David B. Graham, Freedman, Levy, Kroll & Simonds (Attorney for the "Ashland" Settling Parties) to Lynne A. Fratus, EPA Region I and Alicia Good, State of Rhode Island Department of Environmental Management (June 5, 1989) with attached "Post Closure Maintenance Plan Checklist" and Trip Report on a Visit to the Picillo Site, Lynne A. Fratus, EPA Region I, Joseph Polselli, State of Rhode Island Department of Environmental Management, Mark L. Allen, Bechtel Environmental, Inc. for the Settling Parties, and Edward L. Bolce, EBASCO Services Incorporated (May 5, 1989). Concerning transmittal of the attached May 1989 progress report.

9.0 State Coordination

9.1 Correspondence

EPA Region I

1. Letter from Anna F. Krasko, EPA Region I to James Ball, State of Rhode Island Department of Environmental Management (September 12, 1990). Concerning the removal of solid waste from the site.
2. Memorandum from Anna F. Krasko, EPA Region I to Susan Kiernan and James Ball, State of Rhode Island Department of Environmental Management (September 18, 1990). Concerning the investigation of an underground storage tank at the site.

State of Rhode Island Department of Environmental Management

3. Memorandum from James Ball, State of Rhode Island Department of Environmental Management to Anna F. Krasko, EPA Region I (March 28, 1991). Concerning the following attachments:
 - A. Letter from Thomas D. Getz, State of Rhode Island Department of Environmental Management to Warren Picillo, Sr.
 - B. "Notice of Violation and Order and Penalty (NOVAP)," State of Rhode Island Department of Environmental Management (March 13, 1991).
 - C. Letter from Thomas D. Getz, State of Rhode Island Department of Environmental Management to Roberta H. Johnson, Coventry Rhode Island Town Hall.
4. Letter from James Ball, State of Rhode Island Department of Environmental Management to Anna F. Krasko, EPA Region I (February 19, 1992). Concerning State of Rhode Island attendance at future EPA-PRP meetings.
5. "Notice of Proposed Change to the Groundwater Classification Map in the Rules and Regulations for Groundwater Quality," State of Rhode Island Department of Environmental Management (May 12, 1993).

10.0 Enforcement

10.8 EPA Consent Decrees

1. Consent Decree, *United States of America v. Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company*, United States District Court for the District of Rhode Island, Civil Action No. 87-0475 and *James E. O'Neil v. Warren V. Picillo Sr., et al.*, United States District Court for the District of Rhode Island, Civil Action No. 83-0787-P (April 14, 1988).
2. Consent Decree, *United States of America v. Daniel Capuano, Jack Capuano, Louise C. Capuano as Administratrix of the Estate of Anthony Capuano, United Sanitation, Inc., Sanitary Landfill, Inc., A. Capuano Brothers, Inc.*, United States District Court for the District of Rhode Island, Civil Action No. 88-0061 and *James E. O'Neil v. Warren V. Picillo Sr., et al.*, United States District Court for the District of Rhode Island, Civil Action No. 83-0787-P (April 22, 1988).
3. Consent Decree, *United States of America v. Hydron Laboratories, Inc.*, United States District Court for the District of Rhode Island, Civil Action No. 88-0517-P and *James E. O'Neil v. Warren V. Picillo Sr., et al.*, United States District Court for the District of Rhode Island, Civil Action No. 83-0787-P (December 13, 1988).

10.8 EPA Consent Decrees (cont'd.)

4. Consent Decree, *James E. O'Neil v. Warren V. Picillo Sr., et al.*, United States District Court for the District of Rhode Island, Civil Action No. 83-0787-P and *United States of America v. Rutgers, The State University of New Jersey*, United States District Court for the District of Rhode Island, Civil Action No. 89-0123 (May 2, 1989).

10.9 Pleadings

1. Complaint, *United States v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565 (October 16, 1989).
2. Answer, *United States v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565P (November 6, 1989).
3. Answers of Plaintiff United States to Defendants' Interrogatories, *United States v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565P (January 29, 1990).
4. Motion of the United States for Partial Summary Judgment, *United States v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565P (March 30, 1990).
5. Memorandum and Order Granting U.S. Motion for Partial Summary Judgment, *United States v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565P (May 31, 1990).
6. Order, *United States of America v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565 P (March 17, 1992) with attached Memorandum and Order, *United States of America v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565 P (March 17, 1992).
7. Amended Final Judgment, *United States of America v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565 P (April 20, 1992).
8. Order, *United States of America v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the District of Rhode Island, Civil Action No. 89-0565 P (July 6, 1992).

11.9 PRP-Specific Correspondence (cont'd.)

10. Letter from James C. Doherty, NL Industries to Kenneth E. Wegner, EPA Region I (November 23, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying NL Industries as a potentially responsible party.
11. Letter from David D. Wilson, Armstrong Cork Company to Kenneth E. Wegner, EPA Region I (January 29, 1988). Concerning a response to the October 27, 1987 letter from EPA identifying Armstrong Cork Company as a potentially responsible party.
12. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (March 28, 1990). Concerning transmittal of the January 1990 "Final Work Plan - Remedial Investigation and Feasibility Study - Volume I," EBASCO Services Incorporated and projected costs and timetable for cleanup at the site.
13. Letter from Julie Taylor, EPA Region I to Lester O. Brown, Anderson, Kill, Olick & Oshinsky (Attorney for Hydron Laboratories) (April 2, 1990). Concerning projected costs and timetable for cleanup at the site.
14. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (December 19, 1990). Concerning current status of site cleanup, the opportunity to conduct or participate in the RI/FS, and transmittal of the November 28, 1990 "Draft Phase 1A Draft Technical Directive Memorandum," Arthur D. Little.
15. Letter from Julie Taylor, EPA Region I to C. Russell Bengston, Carroll, Kelley & Murphy (Attorney for Daniel Capuano, Jack Capuano, the estate of Anthony Capuano, United Sanitation, Inc., A. Capuano Brothers, and Sanitary Landfill, Inc.) (December 19, 1990). Concerning current status of site cleanup and the opportunity to conduct or participate in the RI/FS.
16. Letter from Julie Taylor, EPA Region I to Lester O. Brown, Anderson, Kill, Olick & Oshinsky (Attorney for Hydron Laboratories) (December 19, 1990). Concerning current status of site cleanup and the opportunity to conduct or participate in the RI/FS.
17. Letter from Julie Taylor, EPA Region I to Deming E. Sherman, Edwards & Angell (Attorney for American Cyanamid Company and Rohm & Haas Company) (December 19, 1990). Concerning current status of site cleanup and the opportunity to conduct or participate in the RI/FS.
18. Letter from Deming E. Sherman, Edwards & Angell (Attorney for American Cyanamid Company and Rohm & Haas Company) to Julie Taylor, EPA Region I (January 25, 1991). Concerning the response to EPA's December 19, 1990 letter and notification that American Cyanamid Company and Rohm & Haas Company decline to participate in the RI/FS.
19. Letter from Julie Taylor, EPA Region I to Deming E. Sherman, Edwards & Angell (Attorney for American Cyanamid Company and Rohm & Haas Company) (February 7, 1991). Concerning transmittal of the November 28, 1990 "Draft Phase 1A Draft Technical Directive Memorandum," Arthur D. Little.

11.0 Potentially Responsible Party (PRP)

11.9 PRP-Specific Correspondence

1. Letter from Patricia L. Meaney for Merrill S. Hohman, EPA Region I to the following Addressees (October 27, 1987) concerning notification of potential liability:
 - A. American Hoechst Corp.
 - B. American Standard, Inc.
 - C. Ber Mar Manufacturing Corp.
 - D. E.I. Dupont De Nemours and Company
 - E. Grumman Aerospace Corp.
 - F. Mobay Chemical Corp.
 - G. Schenectady Chemicals, Inc.
 - H. E.R. Squibb & Sons, Inc.
 - I. Transco Products Co.
 - J. Ganes Chemicals, Inc.
 - K. N.L. Industries, Inc.
 - L. Revlon, Inc.
 - M. Pan Chemical Corporation
 - N. Armstrong Cork Co.
 - O. Air Products and Chemicals, Inc.
 - P. Custom Chemical Co., Inc.
 - Q. Patterson - Sargent Division of Textron, Inc.
2. Letter from Charles Gordon, American Standard, Inc. to Kenneth E. Wegner and Susana Cortina, EPA Region I (November 2, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying American Standard, Inc. as a potentially responsible party.
3. Letter from Frederick L. Buehler, Transco Products Corporation to Susana Cortina, EPA Region I (November 4, 1987). Concerning denial that Transco Products Corporation had any of its waste material delivered to the site.
4. Letter from Spencer J. Nunley, Mobay Corporation to Kenneth E. Wegner, EPA Region I (November 11, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying Mobay Corporation as a potentially responsible party.
5. Letter from Robert M. Stokes, American Hoechst Corporation to Kenneth E. Wegner, EPA Region I (November 12, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying American Hoechst Corporation as a potentially responsible party.
6. Letter from Robert C. Hertzberg, Robert G. Garofalo (Attorney for Pan Chemical Corporation) to Kenneth E. Wegner, EPA Region I (November 12, 1987). Concerning the identification of Pan Chemical Corporation as a potentially responsible party.
7. Letter from William P. Willig, Higgins, Roberts, Beyerl & Coan (Attorney for Schenectady Chemicals, Inc.) to Kenneth E. Wegner, EPA Region I (November 16, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying Schenectady Chemicals, Inc. as a potentially responsible party.
8. Letter from Arthur J. Gibson, Grumman Corporation to Kenneth E. Wegner, EPA Region I (November 19, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying Grumman Corporation as a potentially responsible party.
9. Letter from Seth A. Davis, Revlon, Inc. to Kenneth E. Wegner, EPA Region I (November 20, 1987). Concerning a response to the October 27, 1987 letter from EPA identifying Revlon as a potentially responsible party.

11.9 PRP-Specific Correspondence (cont'd.)

20. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (June 12, 1991). Concerning transmittal of the February 15, 1991 "Revised Work Plan for Ecological Risk Assessment," Arthur D. Little, Inc. and the attached Response Dated March 29, 1991 from Phillip Rury, Arthur D. Little, Inc. on the March 7, 1991 Comments from Anna F. Krasko, EPA Region I on the "Revised Work Plan for Ecological Risk Assessment," Arthur D. Little, Inc.
21. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (July 10, 1991). Concerning transmittal of the June 28, 1991 "Work Plan Amendment No. 3 for RI/FS Activities," Arthur D. Little.
22. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (July 30, 1991). Concerning transmittal of the July 29, 1991 Press Release entitled "EPA Begins Next Phase of Investigation at Picillo Farm Superfund Site," EPA Region I.
23. Letter from David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) to Richard C. Boynton, EPA Region I (December 18, 1991). Concerning discussion of PRP offer to undertake Feasibility Study for the site.
24. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) (January 31, 1992). Concerning followup to December 18, 1991 letter and January 21, 1992 meeting regarding the Remedial Investigation and Feasibility Study for the site.
25. Letter from David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) to Julie Taylor, EPA Region I (February 26, 1992). Concerning response to EPA's January 31, 1992 letter.
26. Letter from Julie Taylor, EPA Region I to David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) and Deming E. Sherman, Edwards & Angell (Attorney for American Cyanamid Company and Rohm & Haas Company) (March 11, 1992). Concerning scheduled meeting with Environmental Strategies Corporation.
27. Letter from David B. Graham, Kaye, Scholer, Fierman, Hays & Handler (Attorney for Ashland Chemical Company, G.A.F. Corporation, General Electric Company, and Monsanto Company) to Julie Taylor, EPA Region I (March 13, 1992). Concerning a response to EPA's March 11, 1992 letter.
28. Letter from Gregory Dain, EPA Region I to Lester O. Brown, Anderson, Kill, Olick & Oshinsky (Attorney for Hydron Laboratories) (August 19, 1992). Concerning offer to Hydron Laboratories, Inc. to participate in Picillo Farm RI/FS technical discussions.
29. Letter from Lester O. Brown, Anderson, Kill, Olick & Oshinsky (Attorney for Hydron Laboratories) to Gregory Dain, EPA Region I (August 28, 1992). Concerning Hydron Laboratories' decision not to participate in the RI/FS process.

11.9 PRP-Specific Correspondence (cont'd.)

30. Letter from Gregory Dain, EPA Region I to Lester O. Brown, Anderson, Kill, Olick & Oshinsky (Attorney for Hydron Laboratories) (October 22, 1992). Concerning notification that it would be in Hydron Laboratories' interest to participate in the RI/FS process.
31. Letter from Merrill S. Hohman, EPA Region I to the following (March 8, 1993) concerning notice of potential liability, demand for reimbursement of costs, request voluntary participation in undertaking the remaining cleanup activities at the site:
 - A. Ashland Chemical Co.
 - B. General Electric Company
 - C. G.A.F. Corporation
 - D. Monsanto Company
 - E. American Cyanamid Company
 - F. Rohm & Haas Company
 - G. Hydron Laboratories
 - H. Morton International, Inc.
 - I. Warren V. Picillo, Sr.
 - J. Selina Picillo
 - K. Cathy Sampaio
 - L. Jack Capuano
 - M. Daniel J. Capuano, Jr.
 - N. United Sanitation, Inc.
 - O. Sanitary Landfill, Inc.
 - P. A. Capuano Brothers, Inc.
 - Q. Chambers Waste Systems of Rhode Island, Inc.

11.14 Title Searches

The records cited below as entry number 1 is withheld as CONFIDENTIAL and is available only for judicial review.

1. "Final Title Search Report," Alliance Technologies Corporation (September 1990).

13.0 Community Relations

13.1 Correspondence

1. Cross-Reference: Letter from Charles J. Gricus, Town of Coventry to Merrill S. Hohman, EPA Region I (June 16, 1987). Concerning possible contamination of the groundwater in the underlying bedrock surrounding the site [Filed and cited as entry number 40 in 3.1 Correspondence].
2. Cross-Reference: Letter from Richard C. Boynton, EPA Region I to Charles Gricus, Town of Coventry (August 3, 1987). Concerning EPA's plans for the study of ground water contamination. [Filed and cited as entry number 7 in 3.1 Correspondence].
3. Letter from Richard C. Boynton, EPA Region I to James Finger, Town of Coventry (May 17, 1988). Concerning the May 11, 1988 press release for the proposed removal activities.
4. Letter from Richard C. Boynton, EPA Region I to James Finger, Town of Coventry (December 19, 1988). Concerning the estimated commencement date for the Remedial Investigation/Feasibility Study.

13.1 Correspondence (cont'd.)

5. Letter from Julie Taylor, EPA Region I to Charles T. Rennick Jr. and Francis Frobel, Town of Coventry (October 20, 1989). Concerning notification that the lawsuit *United States of America v. American Cyanamid Company and Rohm & Haas Company*, United States District Court for the State of Rhode Island, Civil Action No. 89-0565 (October 16, 1989) has been filed regarding the site.
6. Letter from Anna F. Krasko, EPA Region I to Ann Marie Supinski, Century 21 (March 13, 1990). Concerning an update of site activities and transmittal of the March 3, 1987 Record of Decision.
7. Letter from Charles J. Gricus, Town of Coventry to Julie Belaga, EPA Region I (June 26, 1990). Concerning the request for a time schedule of proposed activities at the site and the following attachments:
 - A. Decision, *George Dupont v. Horace Chettle et al.*, State of Rhode Island Superior, Court Civil Action No. 88-229 (May 24, 1989).
 - B. Judgment, *George Dupont v. Horace Chettle et al.*, State of Rhode Island Superior Court, Court Civil Action No. 88-229 (May 24, 1989).
8. Letter from Jim Sebastian, EPA Region I to Robert Gaustini, Save Our Water (July 11, 1990). Concerning the transmittal of information on technical assistance grants.
9. Letter from Julie Belaga, EPA Region I to Charles J. Gricus, Town of Coventry (July 26, 1990). Concerning an update of activities and future plans for the site.
10. Letter from Anna F. Krasko, EPA Region I to Sandy Dupree, Town of Coventry Public Library (September 6, 1990). Concerning thanks to the library for serving as the field repository for the Administrative Record.
11. Letter from Mary H. Grealish, EPA Region I to Robert Guastini, Save Our Water (September 14, 1990). Concerning the Superfund Technical Assistance Grant program.
12. "Sign-up Sheet - Public Open House" (February 12, 1991).
13. Letter from Anna F. Krasko, EPA Region I to Sandy Dupree, Town of Coventry Public Library (June 29, 1993). Concerning transmittal of additional documents for the Administrative Record and the attached supplemental index.

13.2 Community Relations Plans

1. "Community Relations Plan for Remedial Activities - Revision No. 2," Arthur D. Little, Inc. (September 7, 1990).

13.3 News Clippings/Press Releases

1. "Environmental News," EPA Region I (March 5, 1987). Concerning the announcement of EPA's decision to dispose of contaminated soils off-site in a licensed, secure hazardous waste landfill.
2. "Environmental News," EPA Region I (September 24, 1987). Concerning the announcement that EPA and the State of Rhode Island reached a settlement under a Consent Decree which calls for four companies to pay \$100,000 and to dispose of 6,000 yards of contaminated soil.
3. "Environmental News," EPA Region I (September 29, 1987). Concerning the announcement of a public meeting on October 15, 1987 to discuss the settlement under the Consent Decree.
4. "Environmental News," EPA Region I (May 11, 1988). Concerning the announcement that contaminated soil piles will be removed to an off-site licensed hazardous waste facility beginning May 16, 1988.

13.3 News Clippings/Press Releases

5. "Environmental News," EPA Region I (June 7, 1988). Concerning the announcement that the removal of contaminated soil has begun and that excavation may be completed in less than the fourteen weeks as originally planned.
6. "Environmental News," EPA Region I (May 22, 1990). Concerning the announcement that EPA Region I will begin the Groundwater Remedial Investigation and Feasibility Study at the site.
7. "Environmental News," EPA Region I (June 13, 1990). Concerning the announcement that American Cyanamid Company and Rohm & Haas Company were found liable by the Federal District Court of Rhode Island for generating hazardous substances that were illegally disposed of at the site.
8. "EPA Begins Next Phase of Investigation at Picillo Farm Superfund Site," EPA Region I (July 29, 1991).
9. "EPA Wins Multimillion Dollar Judgment for Rhode Island Superfund Site," EPA Region I (April 16, 1992).
10. "Risk Assessment Completed for Picillo Farm Superfund Site," EPA Region I (April 20, 1993).
11. "EPA Meeting to Discuss Proposed Cleanup Plan for Picillo Farm Superfund Site," EPA Region I (June 15, 1993).
12. Public Notice: "The United States Environmental Protection Agency Announces Proposed Cleanup Alternatives for the Picillo Farm Superfund Site," *Kent Country Daily Times* - West Warwick, RI (June 22, 1993).
13. Public Notice: "The United States Environmental Protection Agency Announces Proposed Cleanup Alternatives for the Picillo Farm Superfund Site," *Providence Journal Bulletin* - Providence, RI (June 25, 1993).

13.4 Public Meetings

1. Meeting Summary, Public Meeting on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (June 29, 1993).
2. Sign-In Sheet, Public Meeting on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (June 29, 1993).
3. Transcript, Public Hearing on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (July 13, 1993).
4. Sign-In Sheet, Public Hearing on the June 1993 "Proposed Cleanup Plan for the Picillo Farm Superfund Site," EPA Region I (July 13, 1993).

13.5 Fact Sheets

1. "Superfund Program Information Update," EPA Region I (May 1988).
2. "First Phase of Ground Water Investigation Complete," EPA Region I (January 1991).
3. "Superfund Program Fact Sheet," EPA Region I (November 1992).
4. "Informational Fact Sheet," State of Rhode Island Department of Environmental Management (July 13, 1993).

13.6 Mailing Lists

The records cited below as entry number 1 through 4 are withheld as CONFIDENTIAL and are available only for judicial review.

1. "Mailing List" (February 1991).
2. "Mailing List" (July 1991).
3. "Mailing List" (April 13, 1993).
4. "Mailing List" (June 15, 1993).

14.0 Congressional Relations

14.1 Correspondence

1. Letter from Ronald Machtley, Member of the U.S. House of Representatives to Julie Belaga, EPA Region I (July 5, 1990). Concerning a response to an inquiry of proposed activities and completion dates at the site.
2. Letter from Patricia L. Meaney for Julie Belaga, EPA Region I to Ronald Machtley, Member of the U.S. House of Representatives (August 2, 1990). Concerning the response to the July 5, 1990 Letter.
3. Letter from Ronald Machtley, Member of the U.S. House of Representatives to Julie Belaga, EPA Region I (March 9, 1991). Concerning a request for update of activities at the site.
4. Letter from Julie Belaga, EPA Region I to Ronald Machtley, Member of the U.S. House of Representatives (March 29, 1991). Concerning an update of activities at the site.
5. Letter from John H. Chafee, Member of the U.S. Senate to Julie Belaga, EPA Region I (August 20, 1992). Concerning a request for update of activities at the site.
6. Letter from Julie Belaga, EPA Region I to John H. Chafee, Member of the U.S. Senate (September 11, 1992). Concerning an update of activities at the site.

16.0 Natural Resource Trustee

16.1 Correspondence

1. Letter from C. Carrick Brooke-Davidson, United States Department of Justice Land and Natural Resource Division to David B. Graham, Freedman, Ley, Kroll & Simonds (Attorney for the "Ashland" Settling Parties) and Paul J. Lambert, Bingham, Dana & Gould (Attorney for the "Ashland" Settling Parties) (July 10, 1987) with the attached Letter from Katherine A. Pease, United States Department of Commerce National Oceanic and Atmospheric Administration to C. Carrick Brooke-Davidson, United States Department of Justice Land and Natural Resource Division (July 9, 1987). Concerning United States Department of Commerce National Oceanic and Atmospheric Administration's decision not to grant settling parties a release from liability at that time.
2. Letter from Kenneth Finkelstein, United States Department of Commerce National Oceanic and Atmospheric Administration to Lynne A. Fratus, EPA Region I (June 1, 1988). Concerning United States Department of Commerce National Oceanic and Atmospheric Administration concern of the impact of PCBs and other contaminants on wetlands and rivers.
3. Letter from Merrill S. Hohman, EPA Region I to William Patterson, Department of the Interior (September 2, 1992). Concerning notification of potential damages to natural resources at the site.

16.1 Correspondence (cont'd.)

4. Letter from Merrill S. Hohman, EPA Region I to John Lindsay, National Oceanic and Atmospheric Administration (September 2, 1992). Concerning notification of potential damages to natural resources at the site.

16.3 Natural Resource Trustee Release

1. Letter from Ralph W. Tarr, United States Department of the Interior Office of The Solicitor to Roger J. Marzulla, United States Department of Justice Land and Natural Resource Division (September 10, 1987). Concerning the authorization of the Department of Justice Land and Natural Resource Division to act on behalf of the Department of the Interior Office of The Solicitor in the negotiation and eventual settlement of the Picillo case.

16.4 Trustee Notification Form and Selection Guide

1. Letter from Linda M. Murphy for Merrill S. Hohman, EPA Region I to Kenneth Finkelstein, United States Department of Commerce National Oceanic and Atmospheric Administration (May 26, 1988) with attached "Trustee Notification Form" and "Guide to Trustee Selection." Concerning notification of potential natural resources damages.

16.5 Technical Issue Papers

1. "Superfund Natural Resource Survey - Findings of Fact," United States Department of Commerce National Oceanic and Atmospheric Administration (September 26, 1988) (The Summary Report Section of the Report is Withheld as CONFIDENTIAL).

17.0 Site Management Records

17.2 Access Records

1. Letter from Merrill S. Hohman, EPA Region I to Addressees (June 18, 1990) with attached "List of Addressees for the Access Letter - Picillo Ground Water RI/FS." Concerning a request by EPA that permission be given by the Addressees for EPA, its agents, contractors, and other authorized representatives to have access to property surrounding the site.

17.4 Site Photographs/Maps

The record cited in entry number 1 is oversized and may be reviewed, by appointment only, at the EPA Region I Records Center in Boston, Massachusetts.

1. "Site Analysis," Environmental Photographic Interpretation Center (EPIC) Environmental Monitoring Systems Laboratory (June 1989).

17.5 Site Descriptions/Chronologies

1. "Five Year Review - Source Control Remedy," EPA Region I (May 1993).

Section II
Guidance Documents

GUIDANCE DOCUMENTS

EPA guidance documents may be reviewed at the EPA Region I Records Center in Boston, Massachusetts.

1. "PCB Spill Cleanup Policy" (40 CFR Part 761), Federal Registrar Volume 52, Number 63, Thursday, April 2, 1987.
2. Letter from Lee M. Thomas to James J. Florio, Chairman, Subcommittee on Consumer Protection and Competitiveness, Committee on Energy and Commerce, U.S. House of Representatives, May 21, 1987 (discussing EPA's implementation of the Superfund Amendments and Reauthorization Act of 1986).
3. Memorandum from J. Winston Porter to Addressees ("Regional Administrators, Regions I-X; Regional Counsel, Regions I-X; Director, Waste Management Division, Regions I, IV, V, VII, and VIII; Director, Emergency and Remedial Response Division, Region II; Director, Hazardous Waste Management Division, Regions III and VI; Director, Toxics and Waste Management Division, Region IX; Director, Hazardous Waste Division, Region X; Environmental Services Division Directors, Region I, VI, and VII"), July 9, 1987 (discussing interim guidance on compliance with applicable or relevant and appropriate requirements).
4. Memorandum from Francis S. Blake, General Counsel, to J. Winston Porter, Assistant Administrator for Solid Waste and Emergency Response, July 31, 1987 (discussing the scope of the CERCLA petroleum exclusion under sections 101 (14) and 104 (a) (2)).
5. Memorandum from Michael Callahan, U.S. Environmental Protection Agency Office of Health and Environmental Assessment to Henry L. Longest, U.S. Environmental Protection Agency Office of Emergency and Remedial Response, December 6, 1988 (discussing update of PCB clean-up levels).
6. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Community Relations in Superfund: A Handbook (Interim Version) (EPA/HW-6, OSWER Directive 9230.0-3A), June 1988.
7. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. A Compendium of Superfund Field Operations Methods (EPA/540/P-87/001, OSWER Directive 9355.0-14), December 1987.
8. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Superfund Removal Procedures - Revision Number Three (OSWER Directive 9360.0-03B), February 1988.
9. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Superfund Removal Program Policy Notebook - Volume 1, October 12, 1988.
10. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Superfund Removal Program Policy Notebook - Volume 2, October 12, 1988.
11. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Guidance on Conducting Remedial Investigations and Feasibility Studies under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act), October 1988.
12. U.S. Environmental Protection Agency. Office of Emergency and Remedial Response. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites (OSWER Directive 9283.1-2), December 1988.

13. U.S. Environmental Protection Agency. Office of Health and Environmental Assessment. A Compendium of Technologies Used in the Treatment of Hazardous Waste (EPA/625/8-87/014), September 1987.
14. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Data Quality Objectives for Remedial Response Activities: Development Process (EPA/540/G-87/003), March 1987.
15. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. CERCLA Compliance with Other Laws Manual (OSWER Directive 9234.1-01), August 8, 1988.
16. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. CERCLA Compliance with Other Laws Manual - Part I (OSWER Directive 9234.1-02), August 1989.
17. U.S. Environmental Protection Agency. Supplemental Risk Assessment Guidance for the Superfund Program (EPA 901/5-89-001), June 1989.
18. U.S. Environmental Protection Agency. Office of Solid Waste and Emergency Response. Alternate Concentration Limits Guidance (OSWER Directive 9481.00-6C, EPA/530-SW-87-017) July 1987.