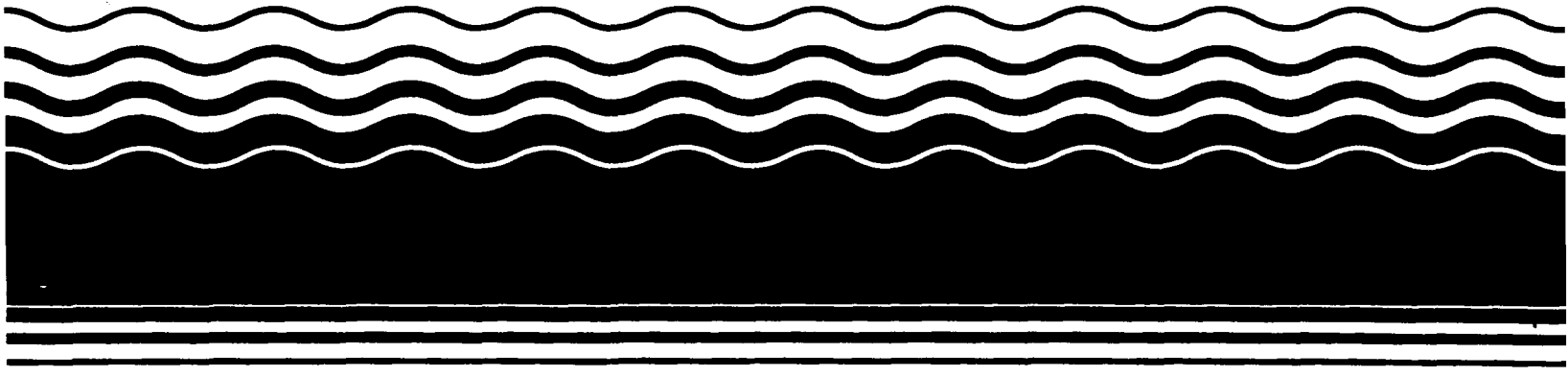
PB97-963102
EPA/541/R-97/004
November 1997

EPA Superfund
Explanation of Significant Difference for the Record of Decision:

PSC Resources,
Palmer, MA
11/26/1996



FINAL EXPLANATION OF SIGNIFICANT DIFFERENCES AND DESIGNATION OF CORRECTIVE ACTION MANAGEMENT UNIT

I. INTRODUCTION

A. Site Name and Location

Site Name: PSC Resources Superfund Site
Site Location: Hampden County, Massachusetts

B. Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency (EPA)

Contact: Don McElroy, RPM
(617) 223-5571

Support Agency: Massachusetts Department of Environmental Protection (MA DEP)

Contact: Harish Panchal
(617) 556-1118

C. Summary of Significant Differences

The September 15, 1992 Record of Decision (ROD) called for in-situ mixing and stabilization of contaminated soils and sediments, consolidation of these materials with lagoon and wetland sediments on site property and capping with a permeable cap. During the design process, studies showed that an ex-situ stabilization process would be more effective in the short term and less expensive than in-situ stabilization. These studies also showed that a low permeability cap would be more effective over the long term and comparable in cost to the permeable cap planned in the ROD.

Additionally, cleanup levels that appear in the ROD for lagoon sediment are based on non-promulgated Maximum Contaminant Levels (MCLs). Since the MCLs were only proposed and not promulgated, corrections were made, based on human health risk, to the cleanup values for 1,1-dichloroethane and acetone.

D. Legal Authority for ESD

Section 117© of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requires that, if any remedial or enforcement action is taken under Section 106 of CERCLA after adoption of a final remedial action plan, and such action differs in any significant respects from the final plan, the EPA shall publish an explanation of the significant differences (ESD) and the reasons such changes were made. In accordance with Section 117(d) of CERCLA, the final ESD will become part of the Administrative Record which is available for public review at both the EPA Region I Record Center in Boston, Massachusetts and the Palmer Public Library in Palmer, Massachusetts (see Section VI for addresses and phone numbers).

E. Summary of CAMU Designation

EPA is designating a Corrective Action Management Unit (CAMU) for this site A CAMU designation is needed for this site to allow temporary storage, stabilization and placement of excavated contaminated materials without triggering the Land Disposal Restrictions (LDRs) and Minimum Technology Requirements (MTRs) intended for hazardous process wastes. The CAMU will facilitate the cleanup plan which addresses contamination at the site. The CAMU covers an area within the PSC Site, including excavation areas, the cap area, the processing area and the staging area (collectively referred to as the Remedial Action Area) The CAMU is shown on Figure 1.

F. Legal Authority for CAMU Designation

Regulations found at 40 C.F.R. § 264.552 establish requirements for Corrective Action Management Units (CAMU) for placement of "remediation wastes", as defined in 40 C.F.R. § 260.10. Pursuant to the CAMU regulations found at § 264.552, certain activities which would normally constitute "placement", and thus trigger applicability of the land disposal restrictions (pursuant to 40 C.F.R. Part 268), are allowed when carried out in an Agency-approved CAMU, including that remediation waste can be removed from a CAMU and replaced (before or after treatment) in the same or a different CAMU, and remediation waste can be consolidated into a CAMU before or after treatment. The CAMU regulations allow federal or state officials to designate an area of a facility as a CAMU, and specify that placement of cleanup wastes into a CAMU does not trigger land disposal restrictions that would otherwise apply.

The CAMU regulations have been challenged in federal court in Environmental Defense Fund vs. EPA, No. 93-1316 (D.C. Cir., 5/14/93). In response, EPA, on April 29, 1996, has issued for public comment a proposed rule which, if it were to become final, would change CAMU, and possibly trigger the land disposal

restriction regulations in more remedial actions. ("Requirements for Management of Hazardous Contaminated Media [HWIR-media]: Proposed Rule"). The proposed rule was issued for 120 days public comment, and a public hearing was held June 4, 1996. The proposed rule states that all CAMUs approved at the time of publication of any final HWIR-media rule would be retained.

On March 13, 1996, EPA issued the following guidance: Use of the Area of Contamination (AOC) Concept During RCRA Cleanups. In this guidance, EPA states that as long as the CAMU rule remains in effect, CAMUs may be used to facilitate protective remedies under CERCLA.

II. SUMMARY OF SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

A. Site History and Contamination

The PSC Resources Site is located on Water Street in Palmer, Massachusetts. The record of ownership at the site, as described in the Remedial Investigation (RI) Report, indicates that the property was owned by various oil companies from 1898 to 1974. In 1974, PSC Resources, Inc. purchased the property to operate a waste oil and solvent recovery facility. In 1974, the Massachusetts Department of Environmental Protection (DEP, formerly the Massachusetts Department of Environmental Quality Engineering) issued a permit for collection and storage of waste oil materials. In 1976, this permit was amended to change the owner of the property and to allow for the collection and disposal of "solvent, lacquers, etc." The facility reportedly operated until 1977 or 1978 when the permit was not renewed and removal actions were initiated.

During the period from 1974 to 1977, the DEP conducted several property inspections and discovered several violations including improper maintenance and spills of waste oil and hazardous materials. In January of 1978, DEP initiated enforcement actions against the owners resulting in a closing of the facility in 1978. DEP then issued a Notice of Responsibility to the current owner requiring removal of approximately 1.5 million gallons of waste materials stored on the property. Initial removal activities were conducted by private firms and, by mid-1980, an estimated one quarter to one million gallons of waste material had been reportedly removed from the property.

As a result of the limited progress made in cleanup and removal of wastes following DEP's initial request in 1978, the state requested assistance from the federal government through the Superfund Program in 1982. At that time, an estimated 500,000 gallons of waste materials remained on the property. State site

inspections revealed evidence of oil discharges to the adjoining wetlands, as well as leakage of waste materials from the dikes on the property into the wetlands. Subsequent sampling programs performed by various investigators indicated elevated levels of polychlorinated biphenyls (PCBs), trichloroethylene (TCE), lead, and other hazardous materials primarily in soils and surface waters on the site Based on this information, state enforcement actions were initiated against the Potentially Responsible Parties (PRPs) requiring the removal of wastes and cleanup of the site.

In September, 1983, the site was listed on EPA's National Priorities List (NPL) making it eligible for Superfund funding. Between 1988 and 1992, the Remedial Investigation and Feasibility Study (RI/FS) were conducted for the site. EPA issued a Record of Decision (ROD) on September 15, 1992 selecting the Source Control and Management of Migration remedies for the site (see Section II.B for a description of the selected remedy).

Contaminants of concern (COCs) in the groundwater include: bis(2-ethylhexyl)phthalate, vinyl chloride, methylene chloride, trichloroethene, tetrachloroethene, benzene, lead, acetone, 2-butanone (MEK), and 1,1,1-trichloroethene. Contaminants of concern in soils and sediments include: PCBs, lead, arsenic, and polynuclear aromatic hydrocarbons (PAHs).

In September, 1993, EPA and DEP initiated negotiations with the PRPs at the site resulting in signing of a Consent Decree (CD) in September, 1994. Under this CD, the Settling Defendants agreed to perform the selected remedy.

During 1995, O'Brien & Gere, Inc. under contract to the Settling Defendants initiated a quarterly groundwater, surface water and sediment monitoring program In addition, further sampling to "fine tune" the limits of the impacted areas was performed. Wetland and lagoon sediment, surface soil, and subsurface soil were sampled and analyzed as part of investigations for the 30% Remedial Design As part of remediation activities, on-site buildings and structures were decontaminated, demolished, and removed from the site.

B. Summary of the Selected Remedy

The major components of the source control remedy selected in the ROD include

- Decontamination, demolition, and off-site disposal of property structures.
- Treatment and discharge of lagoon surface water:
- Consolidation of contaminated property soils with lagoon and wetland sediments on site property;

- In-situ mixing and stabilization of property soils/sediments with treatment agents to bind contaminants into a stable matrix;
- Construction of a permeable cap over stabilized property soils and sediments, and grading and planting of the cap's surface;
- Restoration of wetlands;
- Implementation of institutional controls on groundwater use and land development; and
- Long-term monitoring of groundwater, wetland sediments, and Quaboag River water and sediments.

The major components of the management of migration remedy selected in the ROD include:

- Use of natural attenuation to achieve groundwater cleanup levels;
- Groundwater monitoring of existing wells on the PSC Resources, Inc property and of monitoring wells adjacent to the property;
- Sediment sampling of portions of the wetland and the Quaboag River, where groundwater discharges to the wetland and the Quaboag River;
- Surface water sampling in areas adjacent to the wetland and in the Quaboag River; and
- Five-year site reviews to assess site conditions, contaminant distributions, and any associated site hazards.

III. DESCRIPTION OF CAMU AND SIGNIFICANT DIFFERENCES AND THE BASIS FOR THESE DIFFERENCES

A. Significant Differences

1. Ex-Situ Stabilization/Solidification

Ex situ stabilization of the contaminated soils and sediments is more effective over the short term than in situ stabilization due to the following factors:

- Unique stabilization mix designs are required for the soil, lagoon sediment and wetland sediment;

- Greater chemical addition quality control is provided with ex situ stabilization;

- Homogenization of the raw soil, lagoon sediment and wetland sediment is possible;

- Verification sampling in the excavations to ensure that materials above cleanup levels are excavated;

- Effective conditioning of the lagoon sediment is possible;

- Use of conventional construction equipment is possible;

- The presence of subsurface barriers throughout the areas to be stabilized; and

- The likelihood that groundwater dewatering will not be needed during ex situ stabilization.

Each of these factors is discussed in more detail below.

In-situ stabilization entails combining the contaminated material and the stabilization mix in-place or without excavation. Ex-situ stabilization entails excavation of the contaminated material prior to combining with the stabilization mix. The Treatability Study conducted as part of the Remedial Design indicated that, due to the variability of the chemical and physical properties of the various media at the site, a unique mix design should be used to solidify and stabilize each medium. Excavation of a particular site medium with subsequent processing by ex situ stabilization allows the utilization of different mix designs for each site medium.

The use of ex-situ stabilization processing techniques also provides greater quality control for the stabilization process. Chemical addition rates and mixing efficiency can be monitored more closely using ex-situ stabilization processing techniques such as mobile mixing plants and area mixing and layering. Ex situ stabilization also allows for verification sampling in the excavations to ensure that the soil, and lagoon and wetland sediments with concentrations above cleanup levels are stabilized.

In addition, although the effectiveness of ex situ stabilization could be adversely affected by heterogeneous feed material, excavation of site media prior to ex situ stabilization allows for additional processing steps prior to the stabilization to improve the homogeneity of the feed material at the stabilization plant. For example, excavation of site media will allow removal of oversize material and debris via screening and homogenizing of influent feed size via a hammermill. The difficulty of accounting for the variability in the feed material could also be minimized during ex situ stabilization because the feed material would be readily visible and perhaps

even pre-characterized for pertinent parameters such as moisture content and organic contaminants.

Ex situ processing techniques such as mobile mixing plants and area mixing and layering can also be operated as closed systems to allow the capture and treatment of fugitive emissions, if necessary.

Ex situ stabilization also allows for more effective conditioning of the lagoon sediments through the addition of lime kiln dust to improve the workability of the sediments. This would result in lower required dosages of solidify agent and lower volumes of stabilized material.

In addition, the greatest depth to which media must be remediated at the site is estimated to be no greater than six feet. This depth is well within the limits of common excavation techniques which would be used to excavate the material for the ex situ stabilization. The mobilization and use of in situ stabilization would be more practical for media which extended to greater depths and could not be readily removed by common excavation techniques.

A geophysical survey was also conducted to evaluate the presence of subsurface barriers in the areas to be stabilized. This survey indicated that subsurface barriers are pervasive and widespread throughout these areas Since the locations of the subsurface barriers correspond to the soil areas to be excavated, it is not practicable to excavate the soil for purposes of removing subsurface barriers, and then to backfill the soil for in situ stabilization. Rather, it is preferable to use ex situ stabilization techniques after excavation of the materials.

In addition, groundwater dewatering may be necessary during the stabilization process if in situ stabilization activities are performed while the groundwater table is above its seasonal low elevation. If the ex situ stabilization methods are used, dewatering will likely not be necessary.

Finally, the estimated cost for ex situ stabilization is approximately $1,000,000 less than in situ stabilization. This cost decrease is due to the fact that in situ stabilization requires the use of highly specialized equipment and specially trained personnel which is not necessary for ex situ stabilization.

Based on the rationale presented in the preceding paragraphs, EPA concludes that ex situ stabilization of site soil, lagoon sediment, and

wetland sediments is preferable to the in situ stabilization techniques included in the ROD.

2. CAMU Designation

A CAMU designation is needed to allow ex situ stabilization without triggering Land Disposal Restrictions (LDRs) and Minimum Technology Requirements (MTRs) intended for hazardous process wastes. The CAMU designation will facilitate the cleanup plan as proposed. The CAMU encompasses the area within the boundaries of the site which contain the excavation areas, the cap area, the processing area and the staging area (see Figure 1). In designating a CAMU, EPA is required to evaluate the application against the following seven criteria:

1) The CAMU shall facilitate the implementation of reliable, effective, protective, and cost effective remedies;
2) Waste management activities associated with the CAMU shall not create unacceptable risks to humans or to the environment resulting from exposure to hazardous wastes or hazardous constituents;
3) The CAMU shall include uncontaminated areas of the facility only if including such areas for purpose of managing remediation waste is more protective than management of such wastes at contaminated areas of the facility;
4) Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable;
5) The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable;
6) The CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing toxicity mobility, or volume of wastes that will remain in place after closure of the CAMU; and
7) The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

Each of these criteria is addressed below.

1. The CAMU shall facilitate the implementation of reliable, effective protective, and cost-effective remedies.

The use of ex situ stabilization, which is the reason for a CAMU designation, is as protective and reliable as the in situ stabilization selected in the ROD. In addition, based on the reasons discussed in III.A.1. above, ex situ stabilization is more effective over the short term and more cost effective than in situ stabilization. Therefore, the designation of a CAMU, which is necessary to perform ex situ stabilization, will result in the implementation of a reliable, effective, protective and cost-effective remedy.

2. Waste management activities associated with the CAMU shall not create unacceptable risks to humans or to the environment resulting from exposure to hazardous wastes or hazardous constituents

The purpose of designating a CAMU is to allow performance of a cleanup plan to decrease existing risks to humans and the environment. The remediation will be conducted in such a way that it does not create additional risks to humans or the environment. Air monitoring, both in the vicinity of the work and at the downwind perimeter fence, will be conducted during all remediation activities to evaluate whether controls are necessary. If it is determined that controls are necessary, they will be implemented.

3. The CAMU shall include uncontaminated areas of the facility, only if including such areas for the purpose of managing remediation waste is more protective than management of such wastes at contaminated areas of the facility.

A small amount of uncontaminated land is included in the area of the CAMU. The use of these uncontaminated areas is necessary to perform the remedial action, which will decrease existing risks to humans and the environment Therefore, inclusion of these uncontaminated areas is more protective than the management of wastes only at contaminated areas of the facility.

4. Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable.

The stabilized soil and sediments will be consolidated within

the CAMU and will be protected by a cap to minimize future releases.

5. The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable.

   The purpose of designating a CAMU is to permit the implementation of the remedy as designed to date. Designation of this CAMU will expedite the timing of remedial action implementation.

6. The CAMU shall enable the use, when appropriate, of treatment technologies to enhance the long-term effectiveness of remedial actions by reducing toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU.

   The CAMU designation will permit the use of ex-situ stabilization which will reduce the toxicity and mobility of wastes that will remain within the capped area of the CAMU after completion of the remedial activity. Ex-situ stabilization, when compared to the in situ stabilization selected in the ROD, also reduces the volume of wastes that will remain in the capped area since it provides better control of the volume of material to be stabilized.

7. The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

   Soils and sediments will be stabilized and consolidated within the capped area of the CAMU at the completion of the Remedial Action, thus reducing the land area upon which wastes remain in place.

3. Low-permeability Cap

As part of the 30% design, three cap systems were evaluated for the site one permeable cap system (as described in the ROD) and two low-permeability cap systems.

The ROD selected a permeable cap as the cover for the stabilized materials

based on the ability of the permeable cap to reduce potential for erosion due to weathering of the stabilized material and for flood storage capacity. These functions would also be provided by a low permeability cap.

One concern with using a low permeability cap is whether this type of cap would result in decreased flood storage capacity. However, design studies indicated that the flood storage capacity is minimally affected by the type of cap constructed. The component that makes the low-permeability cap less permeable is the geomembrane liner, not the soil layers above the liner. The cap volume available for flood storage in both the permeable and low-permeability designs is in the soil layers above the relatively impermeable stabilized material. The storage capacity of these soils is primarily based on the porosity of soil. Typically, the porosity of a silty sand and gravel ranges between 12% and 46%; the porosity of a barrier protection layer, which is generally silty sand, ranges between 23% and 47% (Holtz and Kovacs, 1981). Based on these ranges of porosity, the storage capacity of the permeable and low-permeability cap configurations is similar, with the low-permeability cap storage capacity being slightly higher. Therefore, both the permeable and low-permeability caps discussed provide similar storage capacity for flood water.

During the 30% Remedial Design, performance of the cap system alternatives was evaluated based on infiltration rates through the stabilized material as predicted by the USEPA HELP model version 3.01. The HELP model is based on climatological and soil data as well as specific characteristics of the site. Based on the results of this model, the low-permeability cap configurations would reduce the potential for erosion of the stabilized materials. A low-permeability cap would, therefore, enhance the long-term effectiveness of the stabilization system. In addition, there are no drawbacks to using a low-permeability cap at the site.

The cost difference between a low permeability cap and a permeable cap is insignificant.

Based on the above information, EPA concludes that a low permeability cap will be more effective in the long-term and is therefore preferable to the permeable cap described in the ROD.

4. Cleanup Levels for Lagoon Sediments

Lagoon sediment cleanup levels for 1,1-dichloroethane and acetone have

been recalculated based on appropriate ground water maximum contaminant levels (MCLs), 3,600 ppb and 3,500 ppb respectively. As part of the Feasibility Study, Summer's leaching model was used to determine the concentration of a contaminant in soils or soil cleanup level which corresponds to a concentration in ground water at or below MCLs, MCLGs, or risk based concentrations for contaminants of concern(appendix F of the FS). However, proposed Massachusetts MCLs, rather than promulgated MCLs, were used to calculate 1,1-dichloroethane and acetone cleanup levels for property soils and lagoon sediments. The recalculated lagoon sediment cleanup levels, based on promulgated MCLs, for 1,1- dichloroethane and acetone are 711 ppm and 50 ppm, respectively. These modified cleanup levels for 1,1-dichloroethane and acetone in lagoon sediments have been included in Table I of the Remedial Design/Remedial Action Statement of Work.

B. Rationale for Changes

The Settling Parties have proposed to modify the selected remedy in order to improve the overall short-term and long-term effectiveness and to decrease the overall costs of the remedy. They have also requested the CAMU designation in order to facilitate implementation of the proposed changes to the remedy.

The adjustment of cleanup levels based on the MCLs is a correction of a previous calculation based on non-promulgated MCLs.

EPA Interim Final Guidance on Preparing Superfund Documents (OSWER Directive 9355.3-02) states that changes to a component of a remedy are generally incremental changes to the hazardous waste approach selected for the site (i.e., a change in timing, cost, or implementability). An explanation of significant differences should be published when the differences in the remedial action significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost (40 C.F.R. Part 300). EPA has determined that the revisions to the remedy described in this ESD do not fundamentally alter the overall approach of this remedy but, rather, are incremental changes to a component of the remedy. Thus, consistent with the above-referenced guidance, it is appropriate to make these types of changes to the ROD through an ESD.

Furthermore, the Settling Parties have requested the designation of a CAMU to allow for temporary storage, stabilization and placement of excavated contaminated materials without triggering the Land Disposal Restrictions (LDRs) and Minimum Technology Requirements (MTRs) intended for hazardous process

wastes. EPA has determined that the CAMU will facilitate the cleanup plan which addresses contamination at the site and is therefore making this CAMU designation.

C. ARARs analysis

The ex situ stabilization/solidification modification referenced above in Section III.A.1., presents as an applicable or relevant and appropriate requirement (ARAR) the Resource Conservation and Recovery Act (RCRA) Corrective Action Management Unit requirements. In the September 1992 ROD, EPA states that in in situ stabilization, "placement" under the land disposal restrictions of 40 C F R Part 268 would not occur because the wastes remain in the same area of contamination (AOC), and are treated in place. However, while the ex situ stabilization/solidification option calls for treatment in the same AOC, the treatment will not be done in place but in a separate unit. By removing the soils for stabilization, the ex situ remedy may thus constitute "placement" under the land disposal restrictions.

Therefore, an ARAR for the modified remedy is the set of regulations under RCRA regarding Corrective Action Management Units (CAMUs). Under the CAMU regulations found at 40 C.F.R. § 264.552, certain activities which would normally constitute "placement", and thus trigger applicability of the land disposal restrictions, are allowed when carried out in an Agency-approved CAMU, including that remediation waste can be removed from a CAMU and replaced (before or after treatment) in the same or a different CAMU, and remediation waste can be consolidated into a CAMU before or after treatment. The CAMU regulations allow federal or state officials to designate an area of a facility as a CAMU, and specify that placement of cleanup wastes into a CAMU does not trigger land disposal restrictions that would otherwise apply.

Contemporaneous with this Final Explanation of Significant Differences, EPA is designating an area of the PSC Resources Site (which includes the site property and adjacent wetland spill area, and was delineated based on the areal extent of contiguous contamination) as a Corrective Action Management Unit. Pursuant to a CAMU designation, the ex situ stabilization/solidification can take place for the Site without triggering the land disposal restriction requirements found at 40 C.F.R. Part 268. To the extent that ex situ stabilization/solidification presents unit-specific ARARs not already addressed in the ROD or this ESD, the remedial action will comply with such requirements.

The ex situ stabilization/solidification also raises one other factor which EPA has considered. Specifically, the CAMU regulations have been challenged in federal

court in Environmental Defense Fund v. EPA, No. 93-1316 (D.C. Cir., 5/14/93). In response, EPA, on April 29, 1996, has issued for public comment a proposed rule which, if it were to become final, would change CAMU, and possibly trigger the land disposal restriction regulations in more remedial actions. ("Requirements for Management of Hazardous Contaminated Media [HWIR-media]: Proposed Rule"). The proposed rule was issued for 120 days public comment, and a public hearing was held June 4, 1996.

The Region has considered this proposed rule in developing this ESD. While the potential for a change in the CAMU regulations is significant, the Region believes, on balance, it is appropriate to proceed with the PSC Resources Site remedial action based on the current CAMU regulations. We do not know when, or if, the proposed rule will be approved as a final rule. Also, we do not know if any final rule will eliminate or modify the CAMU regulations in a manner which would affect the Site remedial action. Moreover, the Region has a strong interest in proceeding with cleanup progress at the Site; such interest would not be served by awaiting final action on the proposed rule. Furthermore, the March 13, 1996 EPA guidance, Use of the Area of Contamination (AOC) Concept During RCRA Cleanups, states that as long as the CAMU rule remains in effect, CAMUs may be used to facilitate protective remedies under CERCLA.

For these reasons, the Region will not be following the proposed rule on Requirements for Management of Hazardous Contaminated Media, but rather will follow substantively the current regulations on Corrective Action Management Units.

IV. SUPPORTING AGENCY COMMENTS

In an August 16, 1996 letter to EPA, MA DEP expressed its agreement with the ESD and CAMU designation.

V. STATUTORY DETERMINATIONS

This Final ESD documents the EPA's modification of the ROD to use ex situ stabilization techniques rather than in situ techniques, to construct a low-permeability cap over the stabilized materials rather than a permeable cap, and to revise cleanup levels based on promulgated MCLs.

EPA believes that the remedy as modified herein remains protective of human health and the environment, complies with all Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost effective.

Furthermore, this CAMU designation facilitates the cleanup plan which addresses contamination at the site. EPA believes that this CAMU will expedite the implementation of a reliable, effective, protective and cost-effective remedy and will not create unacceptable human health or environmental risk.

VI. PUBLIC RECORD

In accordance with Section 117(d) of CERCLA, this Final ESD and CAMU designation are part of the Administrative Record File, which is available for public review at the two locations listed below at the given times:

EPA Region I Records Center
90 Canal Street
Boston, Massachusetts 02114
(617) 573-5729
Monday - Friday: 10:00 a.m. - 1:00 p.m.
2:00 p.m. - 5:00 p.m.

Palmer Public Library
455 N. Main Street
Palmer, MA 01069
(413) 283-3330
Monday-Thursday: 10:00 a.m. - 8:00 p.m.
Friday 10:00 a.m. - 5:00 p.m.

VII. PUBLIC PARTICIPATION ACTIVITIES

Notice and information regarding these proposed changes to the ROD and the proposed CAMU designation were disseminated by (1) a mailing to all parties on the Community Relations Mailing List and to all Potentially Responsible Parties and (2) publishing a notice of availability and a brief description of the Draft ESD and proposed CAMU designation in the local newspaper, The Springfield Union News. In addition, the draft ESD and CAMU proposal was made available as part of the Administrative Record for this matter, which is available for public review at the locations and times stated in Section VI. of this document. EPA conducted a public comment period on these proposals from September 9, 1996 to October 9, 1996. During this public comment period, EPA received one comment letter. The comments contained in this letter as well as responses to the comments, are included in this document as Appendix I. A public meeting was requested and held on November 19, 1996 at the Palmer Town Hall, as part of the agenda of the Palmer Conservation Commission.

After review of all comments received during the public comment period, EPA has

determined that no significant new information was presented that would necessitate modification of the proposed changes in the ESD or the CAMU designation.

VIII. REFERENCES

Holtz, R.D., and Kovacs, W.D., 1991. An Introduction to Geotechnical Engineering, Prentice-Hall, Inc. Englewood Cliffs, New Jersey, pp. 104-105.

Linda M. Murphy, Director
Office of Site Remediation & Restoration
EPA-New England

December 24, 1996
Date

IX. DESIGNATION OF CORRECTIVE ACTION MANAGEMENT UNIT

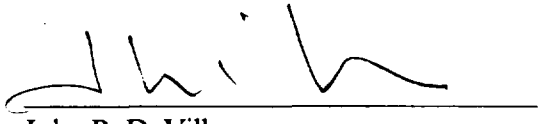
Based on information presented in this Final Explanation of Significant Differences and Designation of Corrective Action Management Unit, in the September 1992 Record of Decision for the Site, and in remedial design documents in the Site Administrative Record, I make the following findings:

1. In accordance with 40 C.F.R. § 264.552(b)(1), the Site remedial action will comply with state and federal requirements for closure and post-closure under 40 C.F.R. Part 264, Subpart G, and that inclusion of the regulated unit will enhance implementation of effective, protective and reliable remedial actions for the Site;

2. The Corrective Action Management Unit (CAMU) proposed for this Site, as described more fully in Section III of this document, is in accordance with the criteria for designation of a CAMU found at 40 C.F.R. § 264.552(c); and

3. This Final Explanation of Significant Differences and Designation of Corrective Action Management Unit, the September 1992 Record of Decision, and the remedial design documents found in the Administrative Record for the Site, provide specification of Site remedial action requirements in accordance with 40 C.F.R. § 264.552(e).

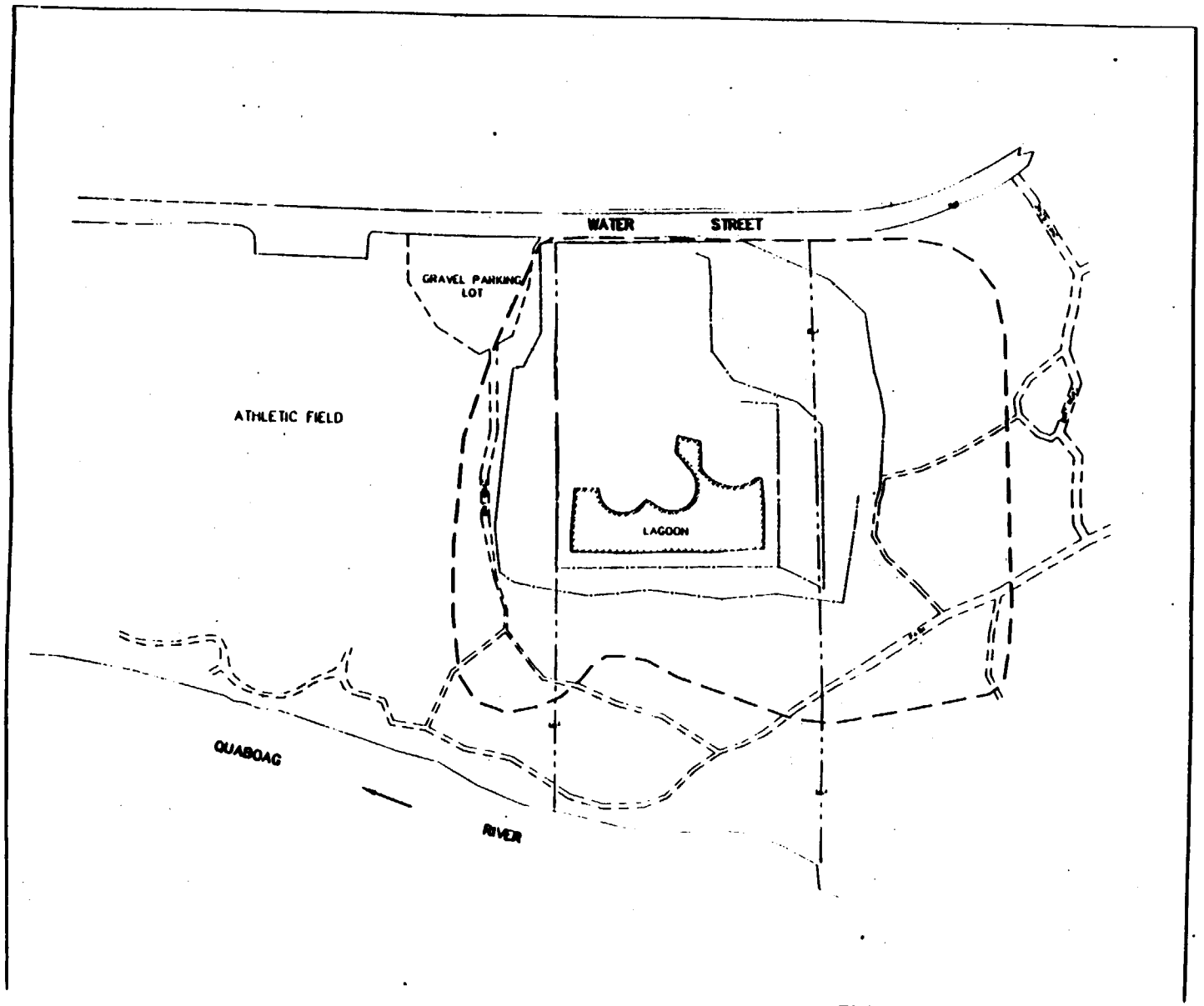
Based on these findings, and on the rationale provided for designating a CAMU found in this Final Explanation of Significant Differences and Designation of Corrective Action Management Unit and elsewhere in the Site Administrative Record, I hereby designate as a Corrective Action Management Unit the area of the PSC Resources Superfund Site in Palmer, Massachusetts described in the attached Figure 1, which includes excavation areas, the cap area, the processing area, and the staging area.



John P. DeVillars
Regional Administrator

11/27/96
Date

FIGURE 1



LEGEND

- CHAINLINK FENCE
- PSC RESOURCES PROPERTY BOUNDARY
- LIMITS OF CAMU

PSC RESOURCES
SUPERFUND SITE
PALMER, MASSACHUSETTS

AREAL CONFIGURATION
OF CAMU

NOT TO SCALE

FILE NO 5819.003-068

APPENDIX I

FINAL EXPLANATION OF SIGNIFICANT DIFFERENCES AND DESIGNATION OF CORRECTIVE ACTION MANAGEMENT UNIT RESPONSIVENESS SUMMARY

A. COMMENTS AND EPA RESPONSES

ESD, Section III, A

1. Ex-situ stabilization/solidification

a. Are more chemicals being added to the waste in order to excavate it?

No. Excavation of contaminated soils and sediments will be accomplished via standard construction equipment; i.e. backhoe and dump truck.

b. How are the lagoon sediments going to be conditioned?

A treatability study (30% Remedial Design, Sec. 3) recommends conditioning the Lagoon sediments with lime kiln dust. The reason for conditioning is to improve the workability of the sediments. Essentially, this conditioning will reduce water content, help eliminate clumping and will ensure full mixing of the "stabilization mix" with the sediments.

c. What are the stabilization mix designs?

The contaminated soils, the wetland sediments and the lagoon sediments (the contaminated media) exhibit different physical and chemical characteristics. The treatability study (30% Remedial Design, Sec 3) examined these characteristics in detail and came up with a suite of possible "mixes" (combinations of cement and other additives) which would potentially meet the performance and cleanup standards for this remedy. The intent of the treatability study was to find one or more mixes for each media, which would meet the performance standards for structural integrity, and contaminant mobility.

d. Is the toxic waste leaching into the Quaboag River?

The significant findings of the Remedial Investigation are summarized in the Record of Decision (ROD) pages 8-24. Discussion of findings related to the Quaboag River and area groundwater can be found on pages 16-18 of the ROD. In general, it appears (based on flow patterns) that contaminated groundwater is discharging to both the wetlands adjacent to the Quaboag River and to the River itself. However, no contaminants were detected in the Quaboag River surface water samples.

e. Will the contaminated plume continue to be monitored?

Yes. Groundwater surrounding the site is currently being monitored. Following completion of the Remedial Action, groundwater will continue to be monitored. In all probability, monitoring will continue for at least 30 years.

f. How will residents and businesses be affected during the cleanup?

Local effect of the Remedial Action should be minimal, similar to a construction project of equal magnitude. Aside from the transport of materials, all activities will take place within the Site boundaries. Materials (equipment, concrete and related material for the stabilization process, soils and geomembrane for the cap) will be brought in by truck at various stages of the Remedial Action. Noise and operating hours will be similar to other construction projects.

g. What is heterogeneous feed material?

Feed material is the contaminated soils and sediments which are to be stabilized under this remedy. Feed material could also be thought of as the "raw product" in a manufacturing context. Heterogeneous feed material refers to size inconsistencies in these same soils and sediments, i.e. boulders and sand mixed together, or a lot of clumping. The issue here is that the more inconsistent (heterogeneous) the feed material, the more difficult it is to fully mix (i.e. add the stabilization mix).

h. How long will the cleanup take?

O'Brien & Gere, the Remedial Design contractor, is planning on a 22 week period to complete the construction (stabilization and cap) and wetland restoration work. The plan is for the work to be completed between the Spring and Fall of 1997.

2. CAMU designation

a. Does the entire Superfund site become a CAMU, or just specific areas, and if so which areas?

Under the CAMU designation, the entire Site will be a CAMU (see Figure 1 at the end of the Draft ESD). On a small site like PSC Resources, this will allow some limited flexibility for the Construction Contractor to determine how to best handle the logistics of excavation, staging and materials handling with regard to the stabilization process.

b. Will the areas within the CAMU which remain in place after the closure be managed? By who?

After the closure, the contaminated media (i.e. the soils, lagoon sediments and wetland

sediments) will have been stabilized and capped (as discussed in the ESD and the Remedial Design). The Settling Defendants are performing the Remedial Action and will also be managing the Site after closure. This will entail groundwater and surface water monitoring, monitoring of sediments in wetlands and in the Quaboag River, monitoring of the wetlands restoration and operation and maintenance of the capped stabilized soils and sediments.

c. How will the soil and sediments be consolidated?

Consolidation of soil and sediments simply means placing of the soil, lagoon sediments and wetland sediments together, in the same location.

d. Where will the waste be located after it is transferred?

The waste will be located within the designated CAMU. The construction/remediation contractor would indicate in their work plans, the temporary storage location and the location where mixing of contaminated media will take place. Following stabilization the treated material will be located under a cap as discussed in the response to Question #3b.

e. How long is " temporary storage" ?

The period of temporary storage is planned for a maximum of 9 weeks. As the soils, wetland sediments and lagoon sediments will be handled separately with respect to stabilization, the storage period for each media prior to treatment (stabilization) will be less than 9 weeks.

f. Will the site still have Superfund designation?

PSC Resources will remain a Superfund Site at least until the Interim Cleanup Levels for groundwater have been met. A CAMU designation has no impact with regard to Superfund status.

g. If the site is designated a CAMU, will federal funding be affected?

A CAMU designation would have no impact on federal funding. The remedy for the PSC Resources is being paid for by the Settling Defendants with oversight by EPA and the State (which the Settling Defendants are also paying for).

3. Low permeability cap

a. What is a geomembrane liner?

The geomembrane liner is constructed of 60 mil (1.5mm) HDPE (high density polyethylene). Typically, the geomembrane portion of a cap consists of many HDPE

panels or sheets with the seams between panels welded together to prevent leakage..

b. Where will the cap systems be located?

The cap which covers the stabilized soil and sediments will be located over the area where most of the lagoon sediments and soils were excavated from. This can be seen on drawing G-3 of the 60% Remedial Design.

c. How "low" is the low permeability of the cap?

Geomembrane liners are essentially impermeable. One normally does not even see permeability specifications associated with them in construction specifications. In industry literature, permeability rates associated with geomembrane liners of 10(-12) cm/sec have been observed.

4. Cleanup Levels for Lagoon Sediments

a. Why is there such a huge range between the proposed and promulgated MCL's for 1,1-dichloroethane and acetone?

The referenced proposed MCL's never were promulgated. If EPA were setting cleanup levels for groundwater today, the 3,600 ppb and 3,500 ppb for 1,1-dichloroethane and acetone respectively, would still be appropriate. To clarify the use of MCL's in this case, MCL's (cleanup levels for groundwater) have been used to calculate cleanup levels in sediments. The intent of this is to determine what cleanup level in sediments must be achieved in order to ensure that groundwater does not become contaminated above MCL's due to leaching from those same sediments.

It should be stated again that EPA is not seeking to set new groundwater cleanup levels via this ESD. The groundwater cleanup levels of 3,600 ppb and 3,500 ppb for 1,1-dichloroethane and acetone respectively, were set at these levels in the Record of Decision (ROD) (see Table I, page 54). The error that EPA is documenting correction of in this ESD, is that these cleanup levels were mistakenly **not** used (as they should have been) in calculating the cleanup levels for these contaminants for lagoon sediments in the ROD.

b. Why are the units inconsistent (ppb versus ppm)?

1,000 ppb is equal to 1 ppm. The units are used for convenience, i.e. 711 ppm versus 711,000 ppb.

c. Why was Summer's Leaching model used as a determinant for the concentration of soil contaminants?

Summer's leaching model is the model which EPA normally approves the use of unless it is shown to be inappropriate for a particular application. A discussion of the inputs and the assumptions of the model can be found in the Appendix F of the Feasibility Study for PSC Resources.

d. If the cleanup levels are changed, will we lose federal funding?

A cleanup level change would not affect funding.

In addition to comments regarding the ESD, we have questions about the 60% Remedial Design, July 1996, Table 7-3, Predicted species.

1. How come vertebrates are the only organisms listed?

Relatively speaking, invertebrates are very adaptable and therefore are not as useful an indicator of the effect of an ecological change. Vertebrates in general, are viewed as being much more sensitive to changes.

2. Why is the Southern bog lemming on this list (our research shows it to be out of our geographic range)?

Our literature search shows New England as being in the range of the Southern bog lemming.

3. Are any of the organisms classified as threatened or endangered?

The Blue-spotted salamander, Southern bog lemming and Spotted turtle are listed as "species of concern".

The Eastern spade foot toad is listed as "threatened species"

None of the species in Table 7-3 are classified as "endangered".

B. PUBLIC MEETING

The November 19, 1996 public meeting was attended by representatives of; EPA, MADEP, the Performing Settling Defendants and O'Brien & Gere (the engineer performing the Remedial Design). In addition, the Palmer Conservation Commission and interested members of the public were also present.

The majority of the discussion at this meeting was in two areas. The first area was questions

relating to the Remedial Investigation/Feasibility Study and the Record of Decision (the period up to September, 1992 when the Site was characterized and the remedy chosen). The second area was questions relating to the ESD and CAMU designation. The ESD and CAMU questions were either similar to the written questions which are responded to above, or sought further technical or regulatory clarification to the issues raised by the original questions.

FINAL EXPLANATION OF SIGNIFICANT DIFFERENCES AND DESIGNATION OF CORRECTIVE ACTION MANAGEMENT UNIT

I. INTRODUCTION

A. Site Name and Location

Site Name: PSC Resources Superfund Site
Site Location: Hampden County, Massachusetts

B. Lead and Support Agencies

Lead Agency: United States Environmental Protection Agency (EPA)

Contact: Don McElroy, RPM
(617) 223-5571

Support Agency: Massachusetts Department of Environmental Protection (MA DEP)

Contact: Harish Panchal
(617) 556-1118

C. Summary of Significant Differences

The September 15, 1992 Record of Decision (ROD) called for in-situ mixing and stabilization of contaminated soils and sediments, consolidation of these materials with lagoon and wetland sediments on site property and capping with a permeable cap. During the design process, studies showed that an ex-situ stabilization process would be more effective in the short term and less expensive than in-situ stabilization. These studies also showed that a low permeability cap would be more effective over the long term and comparable in cost to the permeable cap planned in the ROD.

Additionally, cleanup levels that appear in the ROD for lagoon sediment are based on non-promulgated Maximum Contaminant Levels (MCLs). Since the MCLs were only proposed and not promulgated, corrections were made, based on human health risk, to the cleanup values for 1,1-dichloroethane and acetone.

CONCURRENCES								
SYMBOL	HBO	ARO	RPM I	HIO				
SURNAME	McElroy	Caplan	Bell	Murphy				
DATE	11/25/96	11/25/96	11/25/96	11/25/97				

EPA Form 1320-1 (12-70) OFFICIAL FILE COPY

GPO : 1983 O - 421-421