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UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

UNITED STATES OF AMERICA,)
)
 Plaintiff,)
)
 v.)
)
 Wildwood Conservation)
 Corporation,)
 John J. Riley, Jr.,)
 City of Woburn,)
 UniFirst Corporation,)
 New England Plastics)
 Corporation,)
 Charrette Corporation,)
 Massachusetts Rifle Association,)
 Northern Research and)
 Engineering Corporation,)
 Ingersoll-Rand Company,)
 Beatrice Company,)
 Cummings Properties Management)
 Inc.,)
 and W.R. Grace & Co. - Conn.)
)
 Defendants.)

CIVIL ACTION NO.
91-11807MA

COMMONWEALTH OF MASSACHUSETTS,)
)
 Plaintiff,)
)
 v.)
)
 Wildwood Conservation)
 Corporation,)
 UniFirst Corporation,)
 New England Plastics)
 Corporation,)
 Beatrice Company,)
 and W.R. Grace & Co. - Conn.)
)
 Defendants.)

CONSENT DECREE

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I.

BACKGROUND

The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), the National Oceanic and Atmospheric Administration ("NOAA"), and the Department of the Interior ("DOI"), and the Commonwealth of Massachusetts ("Commonwealth") on behalf of the the Massachusetts Department of Environmental Protection ("DEP") filed Complaints in this matter pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 et seq., as amended (hereinafter "CERCLA"), the Solid Waste Disposal Act, 42 U.S.C. §§ 6901 et seq., the Massachusetts Oil and Hazardous Release Prevention and Response Act, M.G.L. c. 21E and the Massachusetts common law;

EPA, pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, placed the Wells G & H Superfund Site in Woburn, Massachusetts (the "Site") in 1982 on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on December 21, 1982;

On January 15, 1987, the Site was placed on DEP's "List of Locations and Disposal Sites" published pursuant to M.G.L. c.21E §3A. DEP has classified the Site as a priority disposal site within the meaning of M.G.L. c. 21E, §2;

In response to a release or a substantial threat of a release of a hazardous substance at or from the Site, EPA

commenced Remedial Investigations and a Feasibility Study for the Site pursuant to 40 C.F.R. § 300.68;

EPA completed the Remedial Investigations/Feasibility Study for the Site in 1988;

On February 3, 1989, pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the Feasibility Study and of the proposed plan for remedial action for the first operable unit and provided opportunity for public comment;

Certain persons, including the Commonwealth and the defendants who have entered into this Consent Decree, have provided comments on EPA's proposed plan for remedial action, and to such comments EPA has provided a summary of responses;

The decision by EPA on the selected remedy is embodied in a final Record of Decision ("ROD"), executed on September 14, 1989, to which the Commonwealth of Massachusetts has given its concurrence. The ROD includes a discussion of the reasons EPA selected a plan for the first operable unit of the Site consisting of source control and management of migration from five source areas and an explanation of any significant changes in the selected remedy from that proposed;

Pursuant to Section 117(b) and (d) of CERCLA, 42 U.S.C. § 9617(b) and (d), EPA provided public notice of its adoption of the final remedial action plan for the first operable unit embodied in the form of the ROD, including notice of the ROD's availability to the public;

In accordance with Section 121(f) of CERCLA, 42 U.S.C. § 9621(f), EPA notified the Commonwealth of Massachusetts on April 20, 1990, of negotiations with potentially responsible parties for the Site regarding the remedial design, remedial action, and a further remedial investigation/feasibility study for the Site, and EPA has provided the Commonwealth with an opportunity to participate in such negotiations and be a party to any settlement;

In accordance with Section 122(j) of CERCLA, 42 U.S.C. § 9622(j), EPA, on April 20, 1990, notified the Federal and Massachusetts Natural Resource Trustees of negotiations with potentially responsible parties regarding the remedial design, remedial action, and the further remedial investigation/feasibility study at the Site and has encouraged the participation of the trustees in such negotiations;

In accordance with 40 C.F.R. § 300.435(c)(2)(i) of the National Contingency Plan ("NCP"), EPA will publish an Explanation of Significant Differences ("ESD") for the first operable unit that addresses changes to the ROD issued on September 14, 1989;

EPA, the Commonwealth, and the Defendants that have entered into this Consent Decree ("the Parties"), agree that the remedy for the First Operable Unit selected in the ROD and, to the extent embodied herein, is protective of the public health and the environment and is consistent with CERCLA, the NCP, Chapter 21E, and the Massachusetts Contingency Plan ("MCP");

The United States, the Commonwealth, and certain defendants named in the Complaints who sign this Decree desire to settle this matter;

The Defendants that have entered into this Consent Decree ("Settling Defendants") do not admit any liability to the Plaintiffs arising out of the transactions or occurrences alleged in the Complaints. Except in the case of stipulated penalties paid pursuant to Section XXI, statutory penalties, or contempt sanctions, any sums obligated to be paid as damages under this Consent Decree shall not be construed as fines, penalties or sanctions;

The Parties recognize, and the Court by entering this Consent Decree finds, that implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that entry of this Consent Decree is therefore in the public interest;

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II.

JURISDICTION

1. This Court has jurisdiction over the subject matter of these actions pursuant to: 28 U.S.C. §§ 1331, 1345; 42 U.S.C. §§ 9604(b), 9606, 9607, and 9613(b); 42 U.S.C. § 6973; and pendent jurisdiction over the claims asserted by the Commonwealth arising under the laws of Massachusetts. This Court also has personal jurisdiction over the Defendants. Venue in this District is

proper under 42 U.S.C. § 9613(b). For purposes of this Consent Decree and the underlying Complaints, Defendants waive all objections and defenses that they may have to personal jurisdiction and to jurisdiction of the Court or to venue in this District and all objections and defenses that they may have under Federal Rule of Civil Procedure 12(b)(6). Defendants shall not challenge this Court's jurisdiction to enter and enforce this Consent Decree.

III.

PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States, on behalf of EPA, NOAA, and DOI, the Commonwealth, and upon the Settling Defendants and, in their official capacities, their directors, officers, employees, agents and their successors, assigns, and trustees. Any change in ownership or corporate status of a Defendant, including any transfer of property located within the Site, shall in no way alter such Defendant's responsibility under this Decree. The appropriate Source Area Defendant(s) shall provide a copy of this Consent Decree to any contractor(s) and subcontractor(s) hired to perform the Work required by this Consent Decree and shall condition all contracts and subcontracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. The appropriate Source Area Defendant(s) shall nonetheless be responsible for ensuring that their contractors

and subcontractors perform the work contemplated herein in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be related by contract to the appropriate Source Area Defendant(s) within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3). Thus, as to acts or omissions of contractors, the appropriate Source Area Defendant(s) shall not assert a defense based upon CERCLA Section 107(b)(3), 42 U.S.C. § 9607(b)(3).

IV.

DEFINITIONS

3. Unless noted to the contrary, the terms of this Consent Decree shall have the meaning assigned to those terms by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq., its implementing regulations and the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901 et seq. and the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, M.G.L. c. 21E and its implementing regulations. Whenever the terms listed below are used in this Consent Decree and the Appendices attached hereto, the following definitions shall apply:

a. "Additional Work" shall mean all activities required by Section VIII herein.

b. "Appropriate Source Area Defendant(s)" shall mean, for any Source Area property, the Source Area defendant(s) who is/are

responsible for the performance of the Work at that Source Area property pursuant to Schedule A, or for the Central Area RI/FS, the Defendant(s) who is/are responsible for the Central Area RI/FS pursuant to Schedule A.

c. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

d. "Chapter 21E" shall mean the Massachusetts Hazardous Material Release Prevention and Response Act, M.G.L. c. 21E.

e. "Cleanup Standards" shall mean the numerical criteria selected to reflect the degree of cleanup to be achieved in the groundwater and soil at the Site. These criteria are referenced in Paragraph 15 herein.

f. "Commonwealth" shall mean the Commonwealth of Massachusetts, including the Department of Environmental Protection.

g. "Contractor" shall mean the company or companies retained by the appropriate Source Area Defendant(s) to undertake and complete the Work required by this Consent Decree. Each contractor and subcontractor shall be qualified to do those portions of the Work for which it is retained.

h. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or federal or state legal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal or state

legal holiday, the period shall run until the end of the next working day.

i. "Defendants" shall mean the Settling Defendants.

j. "DEP" shall mean the Massachusetts Department of Environmental Protection.

k. "EPA" shall mean the United States Environmental Protection Agency.

l. "ESD" shall mean the Explanation of Significant Differences published by EPA pursuant to 40 C.F.R. § 300.435(c)(2)(i), that addresses the First Operable Unit at the Site. After publication, the ESD shall be attached as Appendix VI.

m. "Facility" shall have the meaning provided in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

n. "Hazardous Substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) and shall include all hazardous materials pursuant to M.G.L. c.21E, §2.

o. "Massachusetts Contingency Plan" or "MCP" shall mean the Massachusetts Contingency Plan promulgated pursuant to §§ 3 and 6 of Chapter 21E, codified at 310 C.M.R. 40.000 including any amendments thereto.

p. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

- q. "Operation and Maintenance" or "O & M" shall mean all activities required under the Operation and Maintenance Work Plan pursuant to this Consent Decree and the Statement of Work.
- r. "Paragraph" shall mean a portion of this Consent Decree identified by an arabic numeral.
- s. "Parties" shall mean the United States, the Commonwealth, and the Defendants.
- t. "Performance Standards" shall mean the standards and criteria that define the degree and method of cleanup to be achieved at the Site. These include all location, chemical, and action specific applicable or relevant and appropriate standards, requirements, criteria and limitations identified in the ROD, as modified by the ESD, and the SOW or by EPA prior to Certification of Completion of the Work and all other health or environmentally related numerical standards in the ROD. Performance Standards include all Cleanup Standards.
- u. "Plaintiffs" shall mean the United States and its agencies and departments, and the Commonwealth and DEP.
- v. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the First Operable Unit for the Site signed on September 14, 1989, by the Acting Regional Administrator, EPA Region I, and all attachments thereto. The ROD is attached as Appendix I.
- w. "Remedial Action" shall mean all activities required by this Consent Decree, including any Additional Work required under

Section VIII hereof, except for Operation and Maintenance and the Remedial Investigation/Feasibility Study.

x. "RCRA" (Resource Conservation and Recovery Act) shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq.

y. "Remedial Investigation/Feasibility Study", "RI/FS" or "Central Area RI/FS" shall for the purposes of this Consent Decree, mean the remedial investigation/feasibility study for the Central Area, as defined in the SOW, conducted pursuant to 40 C.F.R. § 300 et seq. and any amendments thereto.

z. "Response Costs" or "Response Action Costs" shall mean any costs incurred by the Plaintiffs with respect to the Site pursuant to 42 U.S.C. §§ 9601 et seq., M.G.L. c. 21E §5, or 310 C.M.R. 40.600 et seq.

aa. "Non-Source Area Defendants" shall mean the following:

Charrette Corporation
31 Olympia Avenue
Woburn, MA 01888

Ingersoll-Rand Company
39 Olympia Avenue
Woburn, MA 01801

Cummings Properties Management, Inc.
200 West Cummings Park
Woburn, MA 01801

Massachusetts Rifle Association
290 Rear Salem Street
Woburn, MA 01801

Northern Research and Engineering
Corporation
39 Olympia Avenue
Woburn, MA 01801

City of Woburn
Property surrounding Wells G & H off
Rifle Range Road
Woburn, MA 01801

The Remedial Investigations/Feasibility Study Report in 1988 and the ROD did not identify the properties at the addresses listed above as source areas of contamination at the Site.

bb. "Section" shall mean a portion of this Consent Decree identified by a roman numeral and including one or more paragraphs.

cc. "Settling Defendants" shall mean those Source Area Defendants and Non-Source Area Defendants who sign this Consent Decree and, if applicable, make payments required under Section XVII, Paragraphs 46 and 47 of this Consent Decree.

dd. "Site" shall mean the area located in east Woburn, Massachusetts, bounded by Route 128 to the north, Route 93 to the east, the Boston and Maine Railroad to the west and Salem Street and Cedar Street to the south, and depicted in Appendix III to this Consent Decree, a facility which includes those Source Area Properties where disposal of Waste Material was conducted and/or where Waste Materials have come to be located. The Site includes, but is not limited to, the following five Source Area properties as identified in Appendix III:

"UniFirst Property" shall mean that property located at 15 Olympia Avenue in Woburn owned by UniFirst Corporation.

"W.R. Grace Property" shall mean that property at 369 Washington Street in Woburn owned by W.R. Grace & Co. - Conn.

"Wildwood Property" shall mean that property in Woburn between the Aberjona River and the B&M Railroad easement owned by the Wildwood Conservation Corporation.

"New England Plastics Property" shall mean that property located at 310 Salem Street in Woburn owned by New England Plastics Corporation.

"Olympia Property" shall mean that property located at 60 Olympia Avenue in Woburn owned by the Olympia Nominee Trust.

ee. "Source Area Defendants" shall mean for the purposes of this Consent Decree the following:

UniFirst Corporation ("UniFirst")
W.R. Grace & Co. - Conn. ("Grace")
Beatrice Company ("Beatrice")
New England Plastics Corporation ("New England Plastics")
John J. Riley, Jr. ("John J. Riley, Jr.")
Wildwood Conservation Corporation ("Wildwood")

ff. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the remedial design, remedial action, and operation and maintenance of the remedial action for the First Operable Unit at the Site, and the Central Area RI/FS as set forth in Appendix II and any modifications thereto in accordance with this Consent Decree.

gg. "United States" shall mean the United States of America, including the United States Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and the Department of the Interior.

hh. "Waste Material" shall mean: (1) any substance meeting the definition provided in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any "pollutant or contaminant" under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (3) any "hazardous

waste" under Section 1004(5) of RCRA, 42 U.S.C. § 6903(5); (4) any "solid waste" as defined by Section 1004(27) of RCRA, 42 U.S.C. 6903(27); and (5) any "hazardous material" under M.G.L. c. 21E §2.

ii. "Work" shall mean all work or other activities or obligations required by this Consent Decree and Statement of Work, including but not limited to, Remedial Action, Operation and Maintenance, and closure, for the First Operable Unit at the Site excluding the Olympia property, the RI/FS, and any activities required to be undertaken pursuant to Section VIII.

jj. "Work Plans" shall mean the work plans for implementation of the Work required under this Consent Decree and the Statement of Work and any modifications thereto in accordance with this Consent Decree and the Statement of Work.

kk. "First Operable Unit" shall mean the remedial design, remedial action, Operation and Maintenance and closure at the five (5) Source Area properties addressed in the ROD, as modified by the ESD.

V.

GENERAL PROVISIONS

4. Objectives of the Parties

The objectives of the Parties in entering into this Consent Decree are to protect the public health and welfare and the environment from releases or threatened releases of Waste Materials at and from the Site by the investigation, development,

design and implementation of the Work by the Settling Defendants, in accordance with Schedule A of this Consent Decree, and to reimburse certain Response Costs and Response Action Costs.

5. Commitment of Settling Defendants

a. The appropriate Source Area Defendant(s) agree to finance and perform all Work at the Site and/or to reimburse the United States and the Commonwealth for Response Costs and Response Action Costs and to pay civil penalties and stipulated penalties as provided herein and in accordance with Schedule A. The Non-Source Area Defendants agree to perform Work in accordance with Schedule A. Where Schedule A designates more than one Source Area Defendant liable for performance of the Work at a Source Area property, it is sufficient for purposes of such performance - including without limitation any action required to be taken, any ability required to be demonstrated, any obligation required to be assumed, or any responsibility required to be fulfilled under this Consent Decree, the ROD, the ESD, or the SOW - if one Source Area Defendant performs the Work with respect to that Source Area property. Nothing contained herein shall be construed to limit in any way the imposition of liability or joint and several liability as provided in Schedule A.

b. In the event of the insolvency or other inability of any one or more of the Source Area Defendant(s) at a Source Area property to implement the requirements of this Consent Decree, the other Source Area Defendant(s) primarily responsible for that

Source Area property in accordance with Schedule A agree(s) to complete all such requirements.

c. In the event that the appropriate Source Area Defendant(s) designated as having primary responsibility for the Work in Schedule A is/are unable to implement the requirements of this Consent Decree relating to a Source Area Property, the appropriate Source Area Defendant(s) designated as having secondary responsibility in Schedule A shall become responsible for the performance of all remaining requirements under this Consent Decree for that Source Area Property as provided in Schedule A. This responsibility shall commence upon receipt of sixty (60) days notice from EPA following a determination by EPA that the appropriate Source Area Defendant(s) having primary responsibility is/are unable to perform such Work. In the event that the appropriate Source Area Defendant(s) having secondary responsibility become(s) responsible to perform said Work in accordance with this paragraph, the appropriate Source Area Defendant(s) having secondary responsibility shall complete said Work. During the 60-day period following notice from EPA that the appropriate Source Area Defendant(s) having primary responsibility is/are unable to perform the Work, EPA and the appropriate Source Area Defendant(s) having secondary responsibility shall promptly meet to establish a mutually agreeable plan and schedule for completion of the requirements under the Consent Decree. If the parties cannot reach agreement, EPA, in consultation with the Commonwealth, shall specify a plan

and schedule subject to the right of the appropriate Source Area Defendant(s) to invoke the dispute resolution provisions of Section XX of this Decree regarding EPA's determination that the appropriate Source Area Defendant(s) having primary responsibility is/are unable to perform the Work regarding the plan and schedule. Such plan and schedule shall supersede any other existing plans and schedules established in this Consent Decree. The appropriate Source Area Defendant(s) having secondary responsibility shall not be subject to stipulated penalties accruing as a result of the failure of the appropriate Source Area Defendant(s) having primary responsibility to meet the requirements of this Consent Decree through the end of said 60-day period, but shall be liable for any stipulated penalties that accrue thereafter in connection with its(their) new plan and schedule for completing the Work.

d. The Work set forth in Section VI and in the SOW shall be completed in accordance with the standards, specifications and within the time periods as prescribed in Section VI and in the SOW.

e. Each Defendant shall assume any and all liability arising from or relating to its acts or omissions in the performance of the Work for which it is responsible pursuant to Schedule A or its failure to perform fully or complete the requirements of this Consent Decree that apply to it.

f. The Defendants agree that with respect to any suit or claim for contribution brought by or against them for matters

related to this Consent Decree they will notify the United States and the Commonwealth within ten (10) days after service of process.

g. In any subsequent administrative or judicial proceeding initiated by the United States or the Commonwealth for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendant(s) shall not assert, and may not maintain, any defense or claim based upon the principles of waiver or claim splitting or otherwise based upon any contention that the claims raised by the United States or the Commonwealth in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this paragraph affects the enforceability of the covenants not to sue set forth in Section XXII.

6. Permits and Approvals

a. All activities undertaken by the appropriate Source Area Defendant(s) pursuant to this Consent Decree shall be undertaken in accordance with the requirements of all applicable or relevant and appropriate public health and environmental requirements, as required by Section 121(d) of CERCLA and the NCP. The United States has determined that the obligations and procedures authorized under this Consent Decree are consistent with the NCP.

b. As provided in Section 121(e) of CERCLA and the NCP, no federal, state or local permit shall be required for any portion of the Work conducted entirely on the Site where such Work is selected and carried out in compliance with Section 121. Where

any portion of the Work requires a federal or state permit or approval under CERCLA and the NCP, the appropriate Source Area Defendant(s) shall timely submit applications and take all other actions necessary to obtain all such permits or approvals. The Non-Source Area Defendant(s) shall, to the extent appropriate, cooperate with the appropriate Source Area Defendants' efforts to obtain necessary permits by performing necessary ministerial functions.

c. The appropriate Source Area Defendant(s) shall include in all contracts or subcontracts entered into for Work required under this Consent Decree provisions stating that, except as provided in subparagraph b of this paragraph, such contractors or subcontractors, including their agents and employees, shall perform all activities required by such contracts or subcontracts in compliance with all applicable law and regulations.

d. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

7. Notice of Obligations; Easements

a. Within thirty (30) days after the entry of this Consent Decree, EPA or the Commonwealth shall record a certified copy of this Consent Decree, without appendices, except for Schedule A and copies of the Notices of Obligations, with the Registry of Deeds, Middlesex County, Commonwealth of Massachusetts or the Land Court, Commonwealth of Massachusetts. Thereafter, each deed, title, or other instrument of conveyance, except mortgages

and other instruments that do not convey fee title, for property included in the Site shall contain a notice stating that the property is subject to this Consent Decree and to any and all liens retained by the United States and the Commonwealth and shall reference the recorded location of the Consent Decree and any restrictions applicable to the property under this Consent Decree. Within thirty-five (35) days after the entry of this Consent Decree, each Settling Defendant who owns any interest in property included in the Site shall record at the Registry of Deeds, or other office where land ownership and transfer records are maintained for the property, a notice of obligation to provide access and related covenants in the form set forth in Appendix V which shall reference the recorded location of the Consent Decree. Each subsequent deed to any such property included in the Site shall reference the recorded location of such notice and covenant applicable to the property. Each Source Area Defendant shall provide for conveyancing and recording of easements for access to such property to the United States or the Commonwealth for purposes of monitoring and implementation of the activities required under this Consent Decree. The granting of such easements pursuant to this paragraph shall not operate to make the United States or the Commonwealth an owner or operator of the Site for purposes of liability under any environmental statute administered by EPA or DEP.

b. The obligations of each Source Area Defendant who owns any interest in property included in the Site, with respect to the provision of access under Section X, shall run with the land and shall be binding upon any and all such Source Area Defendants and upon any and all persons who subsequently acquire any such interest or portion thereof (hereinafter "Successors-in-Title").

c. Any Settling Defendant that owns an interest in property included in the Site and any Successor-in-Title shall, within thirty (30) days prior to the conveyance of any such interest, give written notice of this Consent Decree to the grantee and written notice to EPA of the proposed conveyance, including the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee. In the event of any such conveyance, the Settling Defendants' obligations under this Consent Decree shall continue to be met by the Settling Defendant and, subject to approval by the United States, in consultation with the Commonwealth, by the grantee.

d. No Settling Defendant shall use any portion of the Site in any manner which would, as determined by EPA, in consultation with the Commonwealth, adversely affect the integrity of any treatment system or monitoring system installed pursuant to this Consent Decree.

VI.

**PERFORMANCE OF WORK
BY SOURCE AREA DEFENDANTS**

8. As set forth in Schedule A, the appropriate Source Area Defendant(s) shall perform Work for the Site as described in this Decree; in the Record of Decision ("ROD"), attached hereto as Appendix I; in the Statement of Work ("SOW") attached hereto as Appendix II; and in any modifications to the Decree, ROD, and SOW, including the ESD, subject to the rights of dispute resolution. The Plaintiffs and the Source Area Defendants agree that the SOW is consistent with the ROD, as modified by the ESD. The ROD, the ESD, the SOW, and all modifications to the SOW, are hereby incorporated by reference and made a part of this Consent Decree. Such Work shall be performed in accordance with all the provisions of this Consent Decree, the SOW, any modifications to the SOW, and all design specifications, Work Plans or other plans or schedules attached to or approved pursuant to the SOW. Any modifications to the SOW, design specifications, Work Plans or other plans or schedules that are proposed by the appropriate Source Area Defendant(s) shall be effective upon approval by EPA. In the event of any conflict between the Consent Decree and the SOW, the Consent Decree shall control. In the event of any conflict between the ROD, the ESD, and the Consent Decree or the SOW, the Consent Decree or the SOW shall control.

9. In order to expedite the design of the remedial action for the First Operable Unit, excluding the Olympia property, and initiation of the RI/FS at the Site, in accordance with Schedule

A, the appropriate Source Area Defendant(s) agree(s) to commence and perform the remedial design activities and the RI/FS activities as described herein and in the SOW as a contractual obligation effective upon the lodging of this Consent Decree with the court. If the court enters an order disapproving the Consent Decree, the contractual obligation will terminate. All remedial design and RI/FS oversight response costs incurred after lodging of the Consent Decree shall be reimbursed after entry in accordance with Section XVII. If the Consent Decree is not entered by the court, the obligation to reimburse oversight response costs incurred between lodging of the Decree and its rejection by the court in accordance with Paragraph 47 shall continue.

10. All remedial design work and RI/FS work to be performed by the appropriate Source Area Defendants(s) pursuant to this Consent Decree shall be under the direction and supervision of qualified contractors. Within sixty (60) days after the lodging of this Consent Decree, the appropriate Source Area Defendant(s) shall submit to EPA and the Commonwealth, in writing, the name, title, and qualifications of the contractors from whom the appropriate Source Area Defendant(s) will solicit bids to perform the remedial design work and RI/FS work pursuant to this Consent Decree ("short list of bidders"). EPA may disapprove any or all of the bidders. EPA will notify the appropriate Source Area Defendant(s) in writing of its disapproval within fourteen (14) calendar days after receipt of

the short list of bidders. If EPA fails to give such notice to the appropriate Source Area Defendant(s), it shall mean that none of the contractors on the list of bidders has been disapproved. Within thirty (30) days of receipt of EPA's notice of disapproval of any of the bidders, or if no such notice has been received, within forty-four (44) days of submittal of the short list of bidders, the appropriate Source Area Defendant(s) shall select any contractor not disapproved by EPA. If EPA disapproves all proposed bidders, the appropriate Source Area Defendant(s) shall submit a new list of proposed bidders to EPA for approval in accordance with the procedures and timelines in this paragraph. After selection of a contractor, the appropriate Source Area Defendant(s) shall notify EPA in writing of the name of the selected contractor(s) within five (5) days of selection. The appropriate Source Area Defendant(s) shall submit to EPA and the Commonwealth the technical proposal of the contractor chosen along with the name of the selected contractor.

11. All remedial action work to be performed by the Source Area Defendants pursuant to this Consent Decree shall be under the direction and supervision of qualified contractors. Within thirty (30) days after approval or modification of the 100% design specifications, the appropriate Source Area Defendant(s) shall submit to EPA and the Commonwealth, in writing, the name, title and qualifications of the short list of bidders for the remedial action work. EPA will notify the appropriate Source Area Defendant(s) in writing of its disapproval within fourteen

(14) calendar days after receipt of the short list of bidders. If EPA fails to give such notice to the appropriate Source Area Defendant(s), it shall mean that none of the short list of bidders has been disapproved. Within 120 days of receipt of EPA's notice of disapproval of any of the bidders, or, if no such notice has been received, within 134 days of submittal of the short list of bidders, the appropriate Source Area Defendant(s) shall select any contractor not disapproved by EPA. If EPA disapproves of all proposed bidders, the appropriate Source Area Defendant(s) shall submit a new list of proposed bidders to EPA for approval in accordance with the procedures and timelines in this paragraph. After selection of a contractor, the appropriate Source Area Defendant(s) shall notify EPA in writing of the name of the selected contractor(s) within five (5) days of selection. The appropriate Source Area Defendant(s) shall submit to EPA and the Commonwealth the technical proposal of the contractor(s) chosen along with the name of the selected contractor(s).

12. Appendix II to this Consent Decree provides a Statement of Work for the completion of remedial design and remedial action for the First Operable Unit, excluding the Olympia property, and the Central Area RI/FS at the Site. This Statement of Work is incorporated into and made an enforceable part of this Consent Decree.

13. The following Work shall be performed by the Source Area Defendants:

a. In accordance with Schedule A and the SOW, the appropriate Source Area Defendant(s) shall submit for review, modification and/or approval by EPA, in consultation with the Commonwealth, work plans for the remedial design, remedial action, and RI/FS at the Site ("Work Plans"). The Work Plans shall be developed in conformance with the ROD, the ESD, the Statement of Work, EPA Superfund Remedial Design and Remedial Action Guidance (OSWER Directive 9355.0-4A, June 1986) and/or Superfund RI/FS Guidance (OSWER Directive 9355.3-01, October 1988) and any additional guidance documents provided by EPA. To the extent that EPA guidance conflicts with the NCP, the NCP shall control.

b. The Work Plans shall include, but not be limited to, the following sections: 1) Initial Remedial Steps Work Plan; 2) Remedial Investigation/Feasibility Study Work Plan; 3) Pre-Design Work Plan; 4) the Remedial Design Work Plan; and 5) Remedial Action Work Plan. The Work Plans shall contain schedules which are consistent with the time limits identified in the SOW.

c. The appropriate Source Area Defendant(s) shall implement the Work detailed in the Work Plans upon approval or modification of the Work Plans by EPA, in consultation with the Commonwealth, pursuant to the procedures in Section XII. Unless otherwise directed by EPA, no Source Area Defendant shall commence field activities until approval by EPA. Upon approval by EPA, in consultation with the Commonwealth, the Work Plans and

any submissions required by it or this Consent Decree shall be deemed incorporated into and made an enforceable part of this Consent Decree. All Work shall be conducted in accordance with the National Contingency Plan, the EPA Superfund Remedial Design and Remedial Action Guidance identified in Paragraph 13(a), the EPA Superfund RI/FS Guidance identified in Paragraph 13(a), any additional guidance provided by EPA, and the requirements of this Consent Decree, including the standards, specifications and schedule contained in the SOW and the Work Plans. To the extent that EPA guidance conflicts with the NCP, the NCP shall control.

d. Upon entry of this Consent Decree, all obligations under this Decree concerning remedial design and the RI/FS are subject to enforcement pursuant to this Consent Decree, including but not limited to stipulated penalties, retroactive to the date of the lodging of this Consent Decree.

14. The United States, the Commonwealth and the Settling Defendants acknowledge and agree that neither the SOW nor the Work Plan for remedial design and remedial action constitute a warranty or representation of any kind by the United States, the Commonwealth or the Settling Defendants that the SOW or Work Plan for remedial design and remedial action will achieve the Cleanup and Performance Standards set forth in the ROD, the ESD, and in Paragraph 15, below, and shall not foreclose the Plaintiffs from seeking performance of all terms and conditions of this Consent Decree, in accordance with Schedule A, including achieving the applicable Cleanup and Performance Standards.

15. The Work performed by the appropriate Source Area Defendants pursuant to this Consent Decree to implement the remedial action must, along with other Decree obligations, achieve the Cleanup and Performance Standards identified in Sections II.B.1.b, II.B.2.b, III.D. and IV.C. of the SOW as well as any additional standards identified in the ESD.

VII.

U.S. EPA PERIODIC REVIEW TO ASSURE PROTECTION OF HUMAN HEALTH AND ENVIRONMENT

16. To the extent required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations, EPA shall review the remedial action at the Site at least every five (5) years after initiation of the remedial action to assure that human health and the environment are being protected by the remedial action being implemented. Prior to EPA Certification of Completion of the Work, pursuant to Section XV, the appropriate Source Area Defendant(s) shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA in order to permit EPA to conduct the review of the Site required by Section 121(c) of CERCLA. If upon such review, EPA determines prior to the Certification of Completion of the Work that further response action is appropriate at the Site in accordance with Section 104 or 106, then the appropriate Source Area Defendant(s) shall implement such action. Any dispute regarding the necessity for or scope of such further response action shall be based upon the administrative record and shall be

subject to judicial review pursuant to the dispute resolution provisions in Section XX hereof to the extent permitted by, and in accordance with, Section 113(j) of CERCLA, 42 U.S.C. § 9613(j);

17. As provided by Sections 113(k) and 117 of CERCLA, 42 U.S.C. §§ 9613(k) and 9617, and the National Contingency Plan, the Settling Defendants will have an opportunity to submit comments for the administrative record on any proposed subsequent response action during the public comment period. The appropriate Source Area Defendant(s) shall be provided with an opportunity to confer with EPA on any additional work proposed by EPA, in consultation with the Commonwealth, during the 5-year review process. Selection of any subsequent response action shall be based on the administrative record.

VIII.

ADDITIONAL WORK

18. In the event that EPA, in consultation with the Commonwealth, or the the appropriate Source Area Defendant(s) determine that Additional Work, including Additional Work identified during the CERCLA Section 121(c) review process and during the RI/FS, is necessary to meet the Cleanup and Performance Standards described in Section VI above at the Source Area properties excluding the Olympia property, or is necessary at the Source Area properties excluding the Olympia property or in connection with the RI/FS to protect public health, or

welfare, or the environment, or to protect human health or the environment, notification of such Additional Work will be provided to the EPA RPM, the DEP RPM, and all Project Coordinators designated pursuant to this Decree.

19. Any Additional Work determined to be necessary by the appropriate Source Area Defendant(s) is subject to approval by EPA, in consultation with the Commonwealth.

20. Any Additional Work determined to be necessary by the appropriate Source Area Defendant(s) and approved by EPA, in consultation with the Commonwealth, or determined to be necessary by EPA in consultation with the Commonwealth, to meet the Cleanup and Performance Standards or to protect public health or welfare, or the environment shall be completed by the appropriate Source Area Defendant(s) in accordance with Schedule A and the standards, requirements, specifications, and schedules approved or established by EPA.

21. Unless otherwise stated by EPA, in consultation with the Commonwealth, within sixty (60) days after receipt of notice by EPA that Additional Work is necessary or otherwise agreed to by the Parties, the appropriate Source Area Defendant(s) shall submit a work plan for the Additional Work for approval by EPA, in consultation with the Commonwealth. The plan shall conform to the requirements of this Consent Decree, the National Contingency Plan, Superfund Remedial Design and Remedial Action Guidance identified in Paragraph 13(a) and/or the Superfund RI/FS Guidance identified in Paragraph 13(a) and any additional guidance

documents provided by EPA. To the extent that EPA guidance conflicts with the NCP, the NCP shall control. Upon approval of the work plan pursuant to the procedures set forth in Section XII, the appropriate Source Area Defendant(s) shall implement the plan for Additional Work in accordance with the schedule contained in the approved work plan. The appropriate Source Area Defendant(s) may dispute EPA's determination regarding Additional Work by invoking the dispute resolution procedures in Section XX herein.

IX.

QUALITY ASSURANCE; SAMPLING

22. Each appropriate Source Area Defendant shall use quality assurance, quality control, and chain of custody procedures in accordance with EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans" (QAM-005/80) and subsequent amendments to such guidelines upon notification to such Source Area Defendant of such amendments by EPA. The appropriate Source Area Defendant(s) shall submit as part of the Work Plans, Quality Assurance Quality Control Project Plans ("QAPP") that are consistent with the SOW and applicable guidelines, to EPA and the Commonwealth for approval by EPA, in consultation with the Commonwealth, pursuant to Section XII. Each appropriate Source Area Defendant shall assure that EPA or DEP personnel or authorized representatives are allowed access to any laboratory utilized by Source Area defendants in implementing

the Consent Decree - for the purpose of determining whether quality assurance, quality control, and chain of custody procedures are utilized by it (them) in implementing this Consent Decree. The Parties stipulate that all samples that have been analyzed consistent with the QAPP shall be admissible as evidence in any subsequent proceeding, subject to relevancy objections and objections that the probative value of the evidence is substantially outweighed by the danger of unfair prejudice.

23. Each appropriate Source Area Defendant shall make available to EPA, the Commonwealth, and to the appropriate Non-Source Area Defendant(s) the results of all sampling and/or tests or other data generated by it with respect to the implementation of this Consent Decree, except as provided in Paragraph 91.

24. At the request of EPA, or the Commonwealth, each appropriate Source Area Defendant shall allow split or duplicate samples to be taken by EPA, DEP and their authorized representatives, of any samples collected by such Source Area Defendant pursuant to the implementation of this Consent Decree. Each appropriate Source Area Defendant shall notify EPA and the Commonwealth not less than twenty-eight (28) days in advance of any sample collection activity unless otherwise agreed to by EPA. In addition, EPA or the Commonwealth shall have the right to take any samples that EPA or the Commonwealth deems necessary.

25. Notwithstanding any provision of this Consent Decree, the United States and the Commonwealth shall retain all of their information gathering, inspection and enforcement authorities and

rights under CERCLA, RCRA and any other applicable statutes or regulations.

X.

ACCESS TO PROPERTY

26. From the date of the lodging of this Consent Decree, until termination of this Consent Decree, the United States, the Commonwealth, and their representatives, including but not limited to EPA, DEP, and their employees, agents, authorized representatives, and contractors, shall have access at all reasonable times to the Site and any property to which access is required for the implementation of this Consent Decree, to the extent access to the property is owned, controlled by or available to Settling Defendants, for the purposes of conducting any activity authorized by or related to this Consent Decree, including, but not limited to:

- a. Monitoring the Work or any other activities taking place on the property;
- b. Verifying any data or information submitted to the United States;
- c. Conducting investigations relating to contamination at or near the Site;
- d. Obtaining samples;
- e. Assessing the need for or planning and implementing additional response actions at or near the Site including, but not limited to, completion of the RI/FS.

f. Inspecting and copying records, operating logs, contracts, or other documents directly related to implementation of this Consent Decree that are necessary to assess compliance with this Consent Decree, subject to the provisions of Paragraph 91; and

g. Assessing the appropriate Source Area Defendant(s)' compliance with this Consent Decree.

27. Each Non-Source Area Defendant shall enter into an access agreement with the appropriate Source Area Defendant(s) in the form contained in Appendix VII.

28. Whenever any Source Area Defendant requires access to a Non-Source Area Defendant's property pursuant to this Section, the appropriate Source Area Defendant(s) shall provide written notice to such Non-Source Area Defendant at least five (5) days, if practicable, in advance of such anticipated need of access. In the event that access on any particular date would place an undue burden on such Non-Source Area Defendant, the parties involved shall use all reasonable efforts to determine a mutually convenient time. EPA may, if practicable, provide notice to the Non-Source Area Defendants.

29. To the extent that the Site or any other area where Work or Additional Work is to be performed under this Consent Decree is owned or controlled by persons other than the Settling Defendants, the appropriate Source Area Defendant(s) shall use best efforts to secure from such persons access for such Source Area Defendant(s), the United States, and the Commonwealth,

including EPA, DEP, and their employees, agents and authorized representatives, contractors or consultants as necessary to effectuate implementation of this Consent Decree. In the event that access is not obtained, Source Area Defendant(s) shall notify the DEP RPM and the Commonwealth shall use its best efforts to assist the Source Area Defendant(s) in obtaining access. If access is not obtained within forty-five (45) days of the date of the lodging of this Consent Decree, or within forty-five (45) days of the date EPA determines in writing to the appropriate Source Area Defendant(s) that additional access beyond that previously secured is necessary, whichever is later, such Source Area Defendant(s) shall promptly notify the United States in writing. EPA may thereafter, consistent with its authority, assist such Source Area Defendant(s) in obtaining access. The appropriate Source Area Defendant(s) shall, in accordance with Section XVII herein, reimburse the United States for all costs incurred by it in obtaining access, including, but not limited to, costs incurred in acquiring all property interests necessary for performance of the Work or Additional Work.

30. Notwithstanding any provision of this Consent Decree, the United States and the Commonwealth retain all of their access authorities and rights under CERCLA, RCRA, Chapter 21E and any other applicable statutes or regulations.

XI.

REPORTING REQUIREMENTS

31. The appropriate Source Area Defendant(s) shall submit to EPA and the Commonwealth written monthly progress reports regarding Remedial Action and RI/FS activities which: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month; (b) include all results of sampling and tests and all other data received by each appropriate Source Area Defendant during the course of the Work in the previous month, except as provided in Paragraph 91; (c) include all plans and procedures completed under the Work Plans and SOW during the previous month; (d) describe all actions, data and plans which are scheduled for the next month and provide any other information relating to the progress of construction that is necessary to assess compliance under this Consent Decree; (e) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Statement of Work or the Work Plans, and a description of efforts made to mitigate those delays or anticipated delays. These progress reports are to be submitted by the appropriate Source Area Defendant(s) to EPA and the Commonwealth by the tenth day of every month following the date of the lodging of this Consent Decree until EPA certifies Completion of the Work for that Source Area property or for the RI/FS until all field work is completed. For Operation and

Maintenance activities, a schedule for submittal of progress reports will be defined in the Operation and Maintenance Work Plan. In addition, the appropriate Source Area Defendant(s) shall submit each year, within thirty (30) days of the anniversary of the entry of the Consent Decree, a report to the Court and the Parties setting forth the status of response actions at the Site, which shall, at a minimum, include a statement of major milestones accomplished in the preceding year, a statement of tasks remaining to be accomplished, and providing a schedule for implementation of the remaining work. EPA retains discretion to require that any report submitted pursuant to this paragraph be submitted on a less frequent basis.

32. Upon the occurrence of any event during performance of the Work which, pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603 and/or Section 304 of the Emergency Planning and Community Right-To-Know Act (EPCRA), 42 U.S.C. § 11004, requires reporting, the appropriate Source Area Defendant(s) shall promptly orally notify the EPA Remedial Project Manager ("RPM"), or in the event of the unavailability of the EPA RPM and the EPA Geographic Section Chief designated pursuant to Section XIII, the Emergency Response Unit, and the Commonwealth Project Coordinator, in addition to the reporting required by Section 103 and Section 304 of EPCRA. Within twenty (20) days of the onset of such an event, the appropriate Source Area Defendant(s) shall furnish to EPA and the Commonwealth a written report setting forth the events which occurred and the measures taken, and to be taken, in response

thereto. Within thirty (30) days of the conclusion of such an event, the appropriate Source Area Defendant(s) shall submit a report to EPA and the Commonwealth setting forth all actions taken to respond thereto. Nothing contained herein shall be construed to limit in any way the obligations of the Non-Source Area Defendants under Section 103 of CERCLA, 42 U.S.C. § 9603 and/or Section 304 of EPCRA, 42 U.S.C. § 11004.

XII.

SUBMISSIONS REQUIRING AGENCY APPROVAL

33. After review of any plan, report or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA, in consultation with the Commonwealth, shall either: (1) approve the submission; (2) disapprove the submission, in whole or in part, notifying the appropriate Source Area Defendant(s) of deficiencies; (3) modify the submission to cure the deficiencies; (4) direct that the appropriate Source Area Defendant(s) modify the submission; or (5) approve the submission subject to conditions.

34. In the event of approval or EPA modification, the appropriate Source Area Defendant(s) shall proceed to take any action required by the plan, report, or other item, as approved or modified, subject to the rights of dispute resolution in Section XX.

35. Upon receipt of a notice of disapproval, in whole or in part, or a request for a modification, the appropriate Source

Area Defendant(s) shall, within thirty-five (35) days thereafter or such additional time as EPA may grant, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding a notice of disapproval or request for modification, the appropriate Source Area Defendant(s) shall proceed to take any action required by any non-deficient separable portion of the submission unless otherwise directed by EPA. Implementation of non-deficient separable portions of the submission shall not relieve the appropriate Source Area Defendant(s) of their liability for stipulated penalties under Section XXI.

36. If, upon resubmission, the plan, report, or item is disapproved in whole or in part by EPA, EPA may consider the appropriate Source Area Defendant(s) to be in violation of this Consent Decree, subject to the rights of dispute resolution in Section XX.

XIII.

REMEDIAL PROJECT MANAGER/PROJECT COORDINATORS

37. Within ten (10) days of the date of the lodging of this Consent Decree, the appropriate Source Area Defendant(s) shall notify all other Parties, EPA and the Commonwealth in writing, of the name, address and telephone number of the appropriate Source Area Defendant(s)' Project Coordinator(s) and an Alternate Project Coordinator(s) for the Remedial Action activities and the RI/FS. The appropriate Source Area

Defendant(s)' Project Coordinator(s) shall have responsibility for coordination and implementation of the Work at the Site by such appropriate Source Area Defendant(s). EPA will designate a Remedial Project Manager (RPM) and a Geographic Section Chief within the same ten (10) day period. The Commonwealth will designate a Remedial Project Manager (RPM) within the same ten (10) day period. If the Plaintiffs or any Source Area Defendant decide to change the designated Project Coordinator or RPM, the name, address, and telephone number of the successor shall be given to all other Parties within five (5) working days before the change is to be effective, unless impracticable, but in no event later than the actual day the change is made.

38. EPA and the Commonwealth may designate other representatives, including EPA and DEP employees, and federal contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's RPM shall have the authority lawfully vested in a RPM and On-Scene Coordinator (OSC) by the National Contingency Plan, 40 C.F.R. Part 300. In addition, the EPA RPM shall have authority, consistent with the National Contingency Plan, to halt, conduct, or direct any work required by this Consent Decree, and to take any necessary response action when he or she determines that conditions at the Site may present an endangerment to public health or welfare or the environment.

XIV.

ASSURANCE OF ABILITY TO COMPLETE WORK

39. The appropriate Source Area Defendant(s) shall demonstrate its(their) ability to complete the Work for which it (they) is(are) responsible as set forth in Schedule A and to pay all claims that arise from the performance of such Work by obtaining within thirty (30) days of entry of this Consent Decree one of the following:

a. A surety bond guaranteeing performance of the Work;

b. One or more letters of credit equalling the total estimated cost of the Work for which it has responsibility as set forth in Schedule A;

c. A guarantee to perform the Work by one or more parent corporation, sibling corporation, subsidiary, or unrelated corporation which has a business or contractual relationship with at least one of the Source Area Defendants;

d. Internal financial information regarding the appropriate Source Area Defendant(s)' net worth, cash flow, total liabilities, and current rating for most recent bond issuances sufficient to demonstrate to EPA's satisfaction that one or more Settling Defendants have the financial ability to complete the Work for which it(they) is(are) responsible as set forth in Schedule A; or

e. Such other security interest which is acceptable to EPA.

40. If any appropriate Source Area Defendant seeks to demonstrate the ability to complete the Work for which it has assumed responsibility as set forth in Schedule A through a guarantee by a third party, they must provide financial information regarding the guarantor's net worth, cash flow, total liabilities, and current rating for its most recent bond issuance sufficient to demonstrate to EPA's satisfaction that the guarantor(s) has(have) the financial ability to finance completion of the Work. If any appropriate Source Area Defendant seeks to demonstrate ability to complete the Work by means of internal financial information, it shall submit sworn statements conveying such information and shall resubmit such statements annually, on the anniversary of the effective date of this Consent Decree.

41. In the event that EPA determines at any time that such financial assurances are inadequate, the appropriate Source Area Defendant(s) shall, within thirty (30) days of receipt of notice of EPA's determination, obtain and present for approval to EPA one of the other forms of financial assurance listed in Paragraph 39. No appropriate Source Area Defendant(s)' inability to demonstrate financial ability to complete the Work shall excuse performance of any activities required under this Consent Decree pursuant to Schedule A.

CERTIFICATION OF COMPLETION OF WORK

42. a. Source Area Properties - Within ninety (90) days after the appropriate Source Area Defendant(s) concludes that the Work has been fully performed at a specific Source Area property, the appropriate Source Area Defendant(s) shall so notify the United States, EPA, the Commonwealth and Non-Source Area Defendant(s), as appropriate, and shall schedule and conduct a pre-certification inspection to be attended by the appropriate Source Area Defendant(s), EPA, and the Commonwealth. Such inspection shall be followed within thirty (30) days by a written report signed by the appropriate Source Area Defendant(s)' project coordinator certifying that all such activities have been completed in full satisfaction of the pertinent requirements of this Consent Decree.

b. Central Area RI/FS - Upon EPA's issuance of the Record of Decision for the Central Area, EPA shall determine if the appropriate Source Area Defendant(s) have met all of their Work responsibilities for the Central Area RI/FS under the provisions of this Consent Decree.

c. Completion of Work - If EPA, in consultation with the Commonwealth, determines that the Work or any portion thereof has not been completed in accordance with this Consent Decree, EPA will notify the appropriate Source Area Defendant(s) in writing of the activities that must be done to complete the Work and will set forth in the notice a schedule for performance of such

activities. Subject to the dispute resolution procedures of Section XX, the appropriate Source Area Defendant(s) shall perform all activities described in the notice in accordance with the specifications and schedules established therein.

43. If EPA, in consultation with the Commonwealth, conclude, that the Work for a specific Source Area property or the RI/FS has been fully performed in accordance with this Consent Decree, EPA will so certify in writing to the appropriate Source Area Defendant(s). This certification shall constitute the "Certification of Completion of Work" for the Work required at that specific Source Area property or for the RI/FS for purposes of this Consent Decree, including Section XXII (Plaintiffs' Covenants Not to Sue).

XVI.

ENDANGERMENT AND FUTURE RESPONSE

44. In the event of any action or occurrence during the performance of the Work that causes or threatens a release of Waste Material or that may present an endangerment to public health or welfare or the environment, the appropriate Source Area Defendant(s) shall immediately take all appropriate action to prevent, abate, or minimize such release or endangerment, and shall, as appropriate, immediately notify the EPA RPM, the EPA Emergency Response Unit, Region I, the DEP RPM, and, if appropriate, Non-Source Area Defendant(s). The appropriate Source Area Defendant(s) shall take such action in accordance

with all applicable provisions of the Health and Safety Plan developed pursuant to the SOW and approved by EPA. The appropriate Source Area Defendant(s) shall develop and submit a response plan to EPA, the Commonwealth, and, if appropriate, Non-Source Area Defendant(s) within ten (10) days of the action or occurrence or as soon thereafter as is practicable. The provisions of Section XII apply to the submission of such response plan, except that the time period for resubmission after disapproval shall be five (5) days rather than the thirty-five (35) days unless extended by EPA. In the event the appropriate Source Area Defendant(s) fail to take appropriate response action as required by this Section and EPA or the Commonwealth takes such action instead, the appropriate Source Area Defendant(s) shall reimburse all costs of the response action not inconsistent with the NCP or Chapter 21E. Payment of such response costs shall be made in the manner described in Paragraph 47 of Section XVII, within thirty (30) days of the appropriate Source Area Defendant(s)' receipt of demand for payment. In the event of any action or occurrence during the performance of the Work on the property of a Non-Source Area Defendant that causes or threatens a release of Waste Material or that may present an endangerment to public health or welfare or the environment, such Non-Source Area Defendants shall immediately take all appropriate action and cooperate with the appropriate Source Area Defendant(s) to prevent, abate, or minimize such release or endangerment and

shall, as appropriate, immediately notify the EPA RPM and the EPA Emergency Response Unit, Region I and the DEP RPM.

45. Nothing in the preceding paragraph shall be deemed to limit the power and authority of the United States or the Commonwealth or this Court to take, direct, or order all appropriate action to protect public health, or welfare or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances on, at, or from the Site.

XVII.

REIMBURSEMENT OF RESPONSE COSTS

46. a. Within thirty (30) days of lodging of this Consent Decree, the Source Area Defendants shall establish an escrow account in any bank or trust company and shall jointly and severally remit to that escrow account funds in the amount of \$2,666,195.66. Within the same time frame, the Source Area Defendants shall send to the United States and the Commonwealth a copy of the correspondence establishing and funding the escrow account, together with information containing the identity of the bank, the bank account under which the escrow account is established and a bank statement showing the initial balance of the escrow account. The correspondence shall also reference the appropriate DOJ case number. As provided below, within thirty (30) days of entry of the Consent Decree by the Court, the Source Area Defendants shall, through their escrow holder, remit

the principal of the escrowed monies to the United States and the Commonwealth in the amounts specified below along with each Plaintiff's proportionate share of interest accrued thereon. If the Court decides not to enter the Consent Decree, the Source Area Defendants shall direct the escrow holder to remit the escrowed monies with accrued interest to the Source Area Defendants.

b. Within thirty (30) days of the entry of this Consent Decree, the Source Area Defendants shall, through their escrow holder, jointly and severally, pay to EPA \$2,650,000. and all interest accrued thereon in the form of a certified check made payable to "EPA Hazardous Substances Superfund" and referencing the Wells G & H Superfund Site, CERCLA Number 0146 and DOJ Case Number 90-11-3-194, in reimbursement of Response Costs incurred by the United States as accounted for and calculated as of January 1990, and demanded by EPA on April 20, 1990, relating to the Site. The certified check shall be forwarded to EPA Region I, Attn: Superfund Accounting, P.O. Box 360197M, Pittsburgh, PA 15251. Copies of the check and any transmittal letter shall be sent to the Regional Hearing Clerk, EPA Region I, J.F.K. Federal Building, Boston, MA 02203.

c. Within thirty (30) days of entry of this Consent Decree, the Source Area Defendants shall, through their escrow holder, jointly and severally, pay to the Commonwealth \$16,195.66 and all interest accrued thereon in the form of a certified check made payable to the Commonwealth of

Massachusetts, Department of Environmental Protection, Site Number 3-0479, in reimbursement of the Response Action Costs incurred by the Commonwealth in relation to the Site through August 6, 1990. The certified check shall be forwarded to the Commonwealth of Massachusetts, Department of Environmental Protection, P.O. Box 4062, Boston, MA 02211. Copies of the check and any transmittal letter shall be sent to William Harkins, Chief, Cost Recovery Section, Bureau of Waste Site Cleanups, Department of Environmental Protection, One Winter Street, Boston, MA 02108. Copies of the check and any transmittal letters shall be sent to Cindy Amara, Assistant Attorney General, Environmental Protection Division, Department of the Attorney General, One Ashburton Place, Boston, MA 02108.

47. a. Reimbursement of Oversight Costs - The appropriate Source Area Defendant(s) shall, consistent with their obligations pursuant to Schedule A, and Paragraphs 47b. and c, below, reimburse the United States and the Commonwealth for all oversight response costs incurred by them in connection with: the review or development of plans, reports, and other items; overseeing or verifying the Work pursuant to this Consent Decree; undertaking action to prevent, abate, or minimize a release or endangerment pursuant to Section XVI; securing access to the Site or other property to which access is required for the performance of the Work; conducting the review of the Site required by Section 121(c) of CERCLA in accordance with Section VII; enforcing and monitoring compliance with this Consent Decree; and

developing and implementing a Community Relations Plan for the Site.

b. Source Area Properties - (i) The United States through EPA, and the Commonwealth through DEP, shall allocate such costs to the extent practicable by Source Area property and shall send to the appropriate Source Area Defendant(s) for each Source Area property a demand for payment of such costs, together with a summary of such costs, on an annual basis, with each demand to be made as soon as practicable after each anniversary date of the entry of this Consent Decree. Payment shall be made in the manner described in Paragraph 46 above, within thirty (30) days of receipt of the demand for payment. (ii) The United States through EPA, and the Commonwealth through DEP, shall send to all Source Area Defendants a demand for payment, jointly and severally, for such oversight response costs that are not practicably allocable to specific Source Area properties, together with a summary of such costs, on an annual basis, with each demand to be made as soon as practicable after each anniversary date of the entry of this Consent Decree. Within thirty (30) days of receipt of the demand for payment of such unallocable costs, the Source Area Defendants shall jointly and severally pay such costs in the manner described in Paragraph 46.

c. Central Area RI/FS - The United States through EPA, and the Commonwealth through DEP, shall allocate to the appropriate Source Area Defendant(s) such oversight response costs attributed to the Central Area RI/FS and shall send to the appropriate

Source Area Defendant(s) a demand for payment of such costs, together with a summary of such costs, on an annual basis, with each demand to be made as soon as practicable after each anniversary date of the entry of this Consent Decree. Payment shall be made in the manner described in Paragraph 46 above, within thirty (30) days of receipt of the demand for payment.

48. In the event that the payments required by Paragraphs 46 and 47 are not made timely, the Defendant(s) obligated to make such payments under those paragraphs shall pay interest on the unpaid balance at the rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. 102.13. Those same Defendant(s) shall further pay to the United States a handling charge of one (1) percent, to be assessed at the end of each thirty-day late period, to be assessed if the appropriate Source Area Defendant(s) responsible for such payment have not paid in full within ninety (90) days after the payment is due. In the event that the payments to the Commonwealth required by Paragraphs 46 and 47 are not made timely, the Source Area Defendant(s) shall pay interest on the unpaid balance at twelve (12) percent as set forth in Chapter 21E. Payments made under this paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of Source Area Defendant(s)' failure to make timely payments under this Section.

XVIII.

INDEMNIFICATION AND INSURANCE

49. The United States and the Commonwealth do not assume any liability by entering into this Consent Decree or by virtue of any designation of any Source Area Defendant(s) as EPA's authorized representatives, if such occurs, under Section 104(e) of CERCLA.

50. Each Settling Defendant shall indemnify and save and hold harmless the United States and the Commonwealth and their officials, agents, employees, contractors, and representatives from any and all claims or causes of action or other costs incurred by the United States or the Commonwealth including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from or on account of the acts or omissions of said Settling Defendant, and its officers, employees, agents, contractors, subcontractors, and any persons acting on its behalf or under its control, in carrying out its activities pursuant to this Consent Decree or Schedule A, including any claims arising from any designation of Source Area Defendants as EPA's authorized representatives under Section 104(e) of CERCLA. The United States and the Commonwealth shall not be held out as a party to any contract entered into by or on behalf of Settling Defendants in carrying out activities pursuant to this Consent Decree. Neither Settling Defendants nor any such contractor shall be considered an agent of the United States or the Commonwealth.

51. Settling Defendants waive any claims or causes of action against and shall indemnify and hold harmless the United States and the Commonwealth and their officials, agents, employees, contractors, and representatives for damages or reimbursement, or set-off of any payments made or to be made to the United States or the Commonwealth arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of work on or relating to the Site, including claims on account of construction delays.

52. a. Prior to commencing any on-Site work, the appropriate Source Area Defendant(s) shall secure, to the extent commercially available, and shall maintain for the duration of this Consent Decree comprehensive general liability and automobile insurance with limits of \$8 million Site-wide, with minimum coverage of at least \$2 million combined single limit per Source Area property, excluding the Olympia property, and, to the extent commercially available, naming as additional insured the United States and the Commonwealth. EPA, in consultation with the Commonwealth, may agree to lower limits. In addition, for the duration of this Consent Decree, the appropriate Source Area Defendant(s) shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of workmen's compensation insurance for all persons performing work on behalf of Settling Defendants in furtherance of this Consent Decree. Prior to

commencement of on-Site Work under this Consent Decree, the appropriate Source Area Defendant(s) shall provide to EPA and the Commonwealth certificates of such insurance and a copy of each insurance policy. If the appropriate Source Area Defendant(s) demonstrate by evidence satisfactory to EPA, in consultation with the Commonwealth, that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then with respect to that contractor or subcontractor the appropriate Source Area Defendant(s) need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

b. Failure by the appropriate Source Area Defendant(s) to obtain or maintain any insurance required by this Section shall not be deemed a violation of this Consent Decree if the appropriate Source Area Defendant(s) demonstrate that they and their contractor(s) have made best efforts to obtain such insurance and that such insurance is not commercially available.

53. The appropriate Source Area Defendant(s) shall indemnify and save and hold harmless the Non-Source Area Defendant(s), as appropriate, and its (their) officers, employees, shareholders, agents contractors and representatives from any and all claims or causes of action or other costs incurred by such Non-Source Area Defendant(s) (including, but not limited to, attorneys' fees and other expenses of litigation and settlement) arising from or on account of all acts or omissions

of such appropriate Source Area Defendants(s), its (their) officers, employees, agents, contractors, subcontractors, and any person acting on its (their) behalf or under its (their) control, in carrying out activities pursuant to this Consent Decree.

54. The appropriate Source Area Defendant(s) shall assume any and all liability for physical damage to any Non-Source Area Defendant's real property or improvements thereon arising from or relating to its (their) performance of Work on such Non-Source Area Defendant's property.

XIX.

FORCE MAJEURE

55. "Force Majeure" is defined for the purposes of this Consent Decree as an event arising solely from causes beyond the control of the appropriate Source Area Defendants(s) and of any entity controlled by the Source Area Defendant(s), including its (their) contractors and subcontractors, which delays or prevents the performance of any obligation under this Consent Decree notwithstanding the appropriate Source Area Defendant(s)' best efforts to avoid the delay. The requirement that the appropriate Source Area Defendant(s) exercise "best efforts to avoid the delay" includes using best efforts: (i) to anticipate any potential Force Majeure event; (ii) to address the effects of any potential Force Majeure event; (iii) to address the event as it is occurring; and (iv) to address the delay following the

event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include unanticipated or increased costs, changed financial circumstances, or non-attainment of the Cleanup or Performance Standards and requirements set forth in Section VI hereof or in the SOW.

"Force Majeure" may include delays caused by failure to obtain or maintain access to property not owned by an appropriate Source Area Defendant despite its timely, best efforts to obtain access, including seeking court-ordered access.

56. When circumstances occur which may delay or prevent the completion of any obligation of the Consent Decree, whether or not caused by a Force Majeure event, the appropriate Source Area Defendant(s) shall notify the EPA RPM and the DEP RPM orally of the circumstances within two working days after the appropriate source Area Defendant(s) first knew or should have known of such circumstances. If the EPA RPM is unavailable, the appropriate Source Area Defendant(s) shall notify the Director of the Waste Management Division, EPA Region I. Within seven (7) working days after the appropriate Source Area Defendant(s) first become aware of such circumstances, the appropriate Source Area Defendant(s) shall supply to the United States and the Commonwealth in writing an explanation of the cause(s) of any actual or expected delay, the anticipated duration of any delay, the measures taken and to be taken by the appropriate Source Area Defendant(s) to prevent or minimize the delay, and the timetable for implementation of such measures. The appropriate Source Area Defendant(s) shall

exercise best efforts to avoid or minimize any delay and any effects of a delay. Failure to give timely oral and written notice to the United States and the Commonwealth in accordance with this Paragraph shall constitute a waiver of any claim of Force Majeure with respect to the circumstances in question.

57. If EPA, in consultation with the Commonwealth, agrees that an event delaying or preventing the completion of an obligation under this Consent Decree is or was caused by a Force Majeure event, then EPA shall notify the appropriate Source Area Defendant(s) in writing of its agreement to provide such additional time as may be necessary to allow the completion of the specific phase of the Work and/or any succeeding phase of the Work directly affected by such delay, which additional time shall be no longer than the total delay resulting from the Force Majeure event or shall allow for the performance of a substitute activity in furtherance of the Work if EPA, in consultation with the Commonwealth, determines that a substitute activity is appropriate. In proceedings on any dispute regarding a delay in or prevention of performance, the appropriate Source Area Defendant(s) shall have the burden of proving by a preponderance of the evidence (1) that the delay is or was caused by a Force Majeure event, and (2) that the amount of additional time requested is necessary to compensate for that event.

58. Delay in achievement of any milestone established by the Work Plans and/or other relevant documents shall not

automatically justify or excuse delay in achievement of any subsequent milestone.

XX.

DISPUTE RESOLUTION BETWEEN PLAINTIFFS AND SETTLING DEFENDANTS

59. Any dispute between Plaintiffs and Settling Defendant(s) which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations begins when the Settling Defendant(s) notify EPA of the existence of a dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is extended by agreement between Plaintiffs and the parties to the dispute. The period for informal negotiations shall end when EPA, in consultation with the Commonwealth, provides its position on the disputed matter to the disputing Defendant(s) in writing, but not later than thirty-four (34) days from the time the dispute arises. At the same time that it provides its position on the disputed matter, EPA, in consultation with the Commonwealth, shall i) notify the disputing Defendant(s) whether the dispute is subject to administrative resolution and must be resolved on the administrative record under Paragraph 63 below; and ii) identify those separable obligations that the disputing Defendant(s) shall continue to perform pursuant to Paragraph 66 below. Settling

Defendants shall waive any rights to contest EPA's determination that the dispute is subject to administrative resolution.

60. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding paragraph, then the position advanced by EPA, in consultation with the Commonwealth, shall be considered binding unless, within ten (10) days after receipt of notification, the disputing Defendant(s) serve on the other parties a notice invoking dispute resolution together with a written statement of their position on the matter in dispute ("Statement of Position"), including any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon. Any Party wishing to contest the disputing Defendant(s) position shall serve a Statement of Position, including supporting documentation, on the parties no later than twelve (12) days after receipt of the disputing Defendant(s)' Statement of Position. In the event that these periods for exchange of the Statements of Position may delay the Work, they may, if practicable, be shortened by agreement of the parties to the dispute.

61. Upon review of the administrative record, the Director of the Waste Management Division, EPA Region I, in consultation with the Commonwealth, shall issue a final decision resolving the dispute. This decision shall be enforceable administratively pursuant to Section 121(e)(2) of CERCLA, subject to the rights of judicial review set forth in Paragraphs 62 and 63. If EPA has not issued a final decision within thirty (30) days after all

Statements of Position have been received by EPA, stipulated penalties directly related to the matter in dispute shall be stayed until the final decision has been issued.

62. Any final decision of EPA, in consultation with the Commonwealth, pursuant to the preceding paragraph, shall be reviewable by this Court, provided that a petition is filed with the Court within ten (10) days of receipt of EPA's decision.

63. Any dispute under this Section which relates to the selection, extent, or adequacy of any aspect of the Work including but not limited to: Additional Work, closure, and achievement of Performance and Cleanup standards, shall be reviewed by the Court on the basis of the administrative record maintained by EPA. In such proceedings, the EPA final decision shall be upheld unless Settling Defendant(s) can demonstrate that the decision is arbitrary and capricious or otherwise not in accordance with the law. For purposes of this paragraph, the adequacy of the Work includes: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA, in consultation with the Commonwealth, under this Consent Decree; and (2) the adequacy of Work performed pursuant to this Consent Decree. The administrative record shall include the written notification of dispute, all Statements of Position, and any other materials submitted by the parties in support of their positions.

64. If EPA, in consultation with the Commonwealth, determines that a dispute is not subject to administrative

resolution under paragraphs 60-63, then the position on the dispute advanced by EPA following informal negotiations shall be considered binding on all Parties unless, within ten (10) days after receipt of the determination that paragraphs 60-63 are inapplicable, Settling Defendant(s) file a petition with this Court setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. In proceedings on any dispute, Settling Defendant(s) shall bear the burden of coming forward with evidence and of persuasion on factual issues. Nothing herein shall prevent the United States or the Commonwealth from arguing that the Court should apply the arbitrary and capricious standard of review to all disputes under this Consent Decree. Nothing herein shall prevent the Settling Defendant(s) from arguing that the Court should apply a standard of review other than the arbitrary and capricious standard of review to all disputes under the Consent Decree, except for disputes relating to the selection, extent or adequacy of any aspect of the Work as provided in Paragraphs 60-63.

65. The dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes between Plaintiffs and the Settling Defendant(s) arising under or with respect to this Consent Decree and shall apply to all provisions of this Consent Decree. Decisions concerning remedy selection for the next operable unit are not addressed under this Consent Decree.

and are not subject to dispute resolution. For purposes of this Section, EPA and the Commonwealth shall not be deemed to be disputing parties. Invocation of the procedures of this Section shall not of itself extend or postpone any obligation of Settling Defendant(s) under this Consent Decree, provided that payment of stipulated penalties with respect to the disputed matter shall be stayed pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree except as specified in Paragraph 61. EPA and the Commonwealth retain the discretion to mitigate stipulated penalties. In the event that Settling Defendant(s) do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XXI. If Settling Defendant(s) prevail on the disputed issue, stipulated penalties shall be forgiven as to disputed matters in which Settling Defendant(s) prevail.

66. Notwithstanding the invocation of the procedures stated in this Section, Settling Defendant(s) shall continue to perform their separable obligations under this Consent Decree that EPA determines are not affected substantially by the disputed issue.

XXI.

STIPULATED PENALTIES

67. a. In the event that any Settling Defendant fails to comply with any requirement applicable to it pursuant to Sections XIV (Assurances of Ability to Complete Work), XI (Reporting Requirements), XIII (Remedial Project Manager/Project Coordinators) and XXXIV (Communication and Coordination Among Defendants) of this Consent Decree, such Settling Defendant(S) shall pay stipulated penalties of \$750 per day for each and every violation.

b. In the event that any Settling Defendant fails to comply with any requirement applicable to it pursuant to Sections XXV (Access to Information), XII (Submissions Requiring Agency Approval), or XVII (Reimbursement of Response Costs) of this Consent Decree, such Settling Defendant(s) shall pay stipulated penalties in the following amounts for each day of each and every violation of said requirements:

<u>Period of Noncompliance</u>	<u>Penalty Per Violation Per Day</u>
1st through 7th day	\$ 1,000
8th through 28th day	\$ 2,000
29th through 50th day	\$ 4,000
51st through 60th day	\$ 7,500
Beyond 60 days	\$15,000

c. In the event that any Settling Defendant refuses or denies access to property required by Section X, that Settling Defendant shall pay the following amounts for each day of each and every violation of said requirements:

<u>Period of Noncompliance</u>	<u>Penalty Per Violation Per Day</u>
1st through 7th day	\$750
8th through 14th day	\$1,500
15th through 28th day	\$2,500
29th through 60th day	\$4,000
Beyond 60 days	\$8,000

d. Settling Defendants shall be liable for stipulated penalties as set forth in Paragraphs a., b., and c. except as provided in Section XIX and Paragraph 61.

e. "Compliance by Settling Defendants" with this Decree shall include completion of any activity under this Consent Decree or any plan approved under this Consent Decree in a manner acceptable to the United States and within the specified time schedules established by and approved under this Consent Decree and SOW, except that compliance for purposes of stipulated penalties for violation of Section XXXIV shall be limited as provided in paragraph 107.

f. Fifty percent (50%) of the above amounts shall be paid to EPA and fifty percent (50%) to the Commonwealth, except that stipulated penalties paid by the Non-Source Area Defendants shall be paid in their entirety to EPA.

68. All penalties shall begin to accrue on the day that performance is due or other failure or refusal to comply occurs, and shall continue to accrue through the final day of the noncompliance. Penalties shall accrue from the date of violation regardless of whether the United States has notified Settling Defendants of a violation. Separate penalties shall accrue for

each separate failure or refusal to comply with the terms or conditions of this Consent Decree.

69. All penalties due to EPA and the Commonwealth under this Section shall be payable within thirty (30) days after receipt by the responsible Settling Defendants of notification of noncompliance if the notification is not disputed. If the noncompliance is disputed, all penalties due to EPA and the Commonwealth shall be payable within thirty (30) days of the final resolution of any dispute concerning the noncompliance in accordance with Paragraphs 59 through 66. Interest shall begin to accrue on the unpaid balance at the end of the thirty-day period, at the rate established by the Department of the Treasury under 31 U.S.C. § 3717. The responsible Settling Defendants shall pay a handling charge of one (1) percent to be assessed at the end of each thirty-day late period, and a six (6) percent per annum penalty charge to be assessed if the penalty is not paid within ninety (90) days after it is due.

70. Stipulated penalties due to EPA shall be paid by certified check made payable to "EPA Hazardous Substances Superfund" and referencing DOJ case number 90-11-3-194 and shall be mailed to EPA Region I, Attn: Superfund Accounting, P.O. Box 360197M, Pittsburgh, PA 15251. Copies of the checks and any transmittal letters shall be sent to the United States. Stipulated penalties due to the Commonwealth shall be paid by certified check made payable to the Commonwealth of Massachusetts, Department of Environmental Protection, and mailed

to the Commonwealth of Massachusetts, Department of Environmental Protection, P.O. Box 4062, Boston, MA 02211. Copies of the checks and any transmittal letters shall be sent to Cindy Amara, Assistant Attorney General, Environmental Protection Division, Department of the Attorney General, One Ashburton Place, Boston, MA 02108.

71. Neither the filing of a petition to resolve a dispute nor the payment of penalties shall alter in any way Settling Defendant's obligation to complete the performance required hereunder.

72. Stipulated penalties made under this Section shall not be tax deductible.

73. If the responsible Settling Defendants fail to pay stipulated penalties, the United States and/or the Commonwealth may institute a proceeding to collect the penalties, as well as late charges and interest. Notwithstanding the stipulated penalties provision of this Section, EPA or the Commonwealth may also assess civil penalties and/or bring an action in the U.S. District Court pursuant to Sections 109 and 122 of CERCLA, 42 U.S.C. §§ 9609 and 9622, as amended by SARA, or Chapter 21E to enforce the provisions of this Consent Decree. Payment of stipulated penalties shall not preclude EPA or the Commonwealth from electing to pursue any other remedy or sanction to enforce this Consent Decree, and nothing shall preclude EPA or the Commonwealth from seeking statutory penalties against Settling

Defendants for violations of statutory or regulatory requirements.

74. Any responsible Settling Defendant may dispute the United States' right to the stated amount of penalties due of it by invoking the dispute resolution procedures under Section XX herein. Penalties shall accrue but need not be paid during the dispute resolution period. If a disputed matter is submitted to the District Court, the period of dispute shall end upon the rendering of a decision by the District Court regardless of whether any party appeals such decision. If Settling Defendants do not prevail upon resolution, the United States and the Commonwealth have the right to collect all penalties which accrued prior to and during the period of dispute from the responsible Settling Defendants. If the responsible Settling Defendants prevail upon resolution, those Settling Defendants shall pay only such penalties as the resolution requires.

XXII.

COVENANTS NOT TO SUE BY PLAINTIFFS

75. The Source Area Defendants. In consideration of the actions that will be performed and the payments that will be made by the Source Area Defendants under the terms of the Consent Decree, and except as specifically provided in Paragraphs 78, 79, and 80 of this Section, the United States and the Commonwealth covenant not to sue or to take administrative action under their

respective authorities against the Source Area Defendants for Covered Matters as defined in Paragraph 77 except that with respect to any and all liability for the Central Area RI/FS, such covenants not to sue shall only extend to those appropriate Source Area Defendants responsible for such Work pursuant to Schedule A. With respect to all such liability for Covered Matters with respect to the Source Area properties, except for any future liability relating to response activities at the Source Area properties not identified in the ROD or the SOW, these covenants not to sue shall take effect upon the receipt by EPA and the Commonwealth of the payments required by Paragraphs 46 and 47 of Section XVII. With respect to all such liability for the Central Area RI/FS, these covenants not to sue shall take effect upon the Certification of Completion of Work for the RI/FS pursuant to paragraphs 42(b) and (c) and 43. With respect to future liability for Covered Matters with respect to each Source Area property excluding the Olympia property, the covenant not to sue shall take effect upon the issuance of the Certification of Completion of Work for such Source Area Property pursuant to paragraphs 42(a) and (c) and 43. When EPA issues a Certification of Completion of Work for such Source Area Property, such Source Area Defendant(s) and any other party jointly and severally liable for that Source Area property pursuant to Schedule A shall receive a covenant not to sue for future liability for that Source Area property. These covenants not to sue are conditioned upon complete and satisfactory

performance by the Source Area Defendant(s) of their obligations under this Consent Decree covered by the Certification of Completion of Work for that Source Area property or for the RI/FS. With respect to future liability for Covered Matters for the Olympia property, the covenant not to sue shall take effect upon EPA certifying that the First Operable Unit remedial action and operation and maintenance for the Olympia property have been completed to EPA's satisfaction. These covenants not to sue extend only to the appropriate Source Area Defendant(s) and do not extend to any other person.

76. Non-Source Area Defendants. In consideration of the access that Non-Source Area Defendants will provide to their properties pursuant to Section X, and except as specifically provided in Paragraphs 78, 79, and 80 of this Section, the United States covenants not to sue or to take administrative action under its authority against the Non-Source Area Defendants for Covered Matters. With respect to all such liability, these covenants not to sue shall take effect upon initial entry of this Consent Decree with the Court and provision of access. These covenants not to sue are conditioned upon the Non-Source Area Defendants providing access to their properties pursuant to Section X during the life of the Decree and compliance with other requirements of the Consent Decree that are applicable to the Non-Source Area Defendants. The covenants not to sue described in this Paragraph extend only to the Non-Source Area Defendants and do not extend to any other person.

77. a. Except as provided in Paragraphs 78, 79 and 80, for the appropriate Source Area Defendant(s) responsible for performing the Work related to the Source Area properties and the Non-Source Area Defendants, Covered Matters shall include any and all civil liability to the United States for causes of action arising under Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 or 9607(a), and under Section 7003 of RCRA, 42 U.S.C. § 6973, for the First Operable Unit including performance of the Work for the Source Area properties at the Site, performance of any Additional Work for the Source Area properties that is undertaken pursuant to Section VIII, and reimbursement of any Response Costs which were incurred by the United States as accounted for and calculated as of January, 1990, and demanded by EPA on April 20, 1990, and oversight response costs that are paid by the Source Area Defendants pursuant to Section XVII, Paragraphs 46 and 47(a) and (b) of the Consent Decree. Except as provided in Paragraphs 78, 79, and 80, for the appropriate Source Area Defendants responsible for performing the Central Area RI/FS pursuant to this Consent Decree, Covered Matters shall also include any and all civil liability to the United States for causes of action arising under Sections 104(b) and 107(a) of CERCLA, 42 U.S.C. § 9604(b), 9607(a) for the performance of the Work at the Site related to the Central Area RI/FS, performance of any Additional Work for the Central Area RI/FS that is undertaken pursuant to Section VIII, reimbursement of the Response Costs for the RI/FS performed by EPA and its contractors

for the Second Operable Unit, and reimbursement of oversight response costs that are paid pursuant to Section XVII, paragraphs 47(a) and (c).

b. Except as provided in Paragraphs 78, 79 and 80, Covered Matters shall include any and all civil liability to the Commonwealth for causes of action, including any and all civil and administrative claims, arising under Section 107(a) of CERCLA, 42 U.S.C. §9607(a) and under Section 7003 of RCRA, 42 U.S.C. §6973 which were asserted or could have been asserted in the complaint and pursuant to state common law, Chapter 21E, or Chapter 21C provided that any such claims arise from the facts surrounding the transactions or occurrences with respect to the First Operable Unit including performance of the Work at the Source Area properties at the Site, performance of any Additional Work for the Source Area properties at the Site that is undertaken pursuant to Section VIII, and reimbursement of any Response Costs or Response Action Costs which were incurred by the Commonwealth as of August 6, 1990, and oversight response costs that are paid by the Defendants pursuant to Section XVII, Paragraph 47(a), (b) and (c) of the Consent Decree.

78. Pre-certification reservations. Notwithstanding any other provision of this Consent Decree, the United States and the Commonwealth reserve the right to institute proceedings in this action or in a new action, or to issue an Administrative Order, seeking to compel Settling Defendants (1) to perform additional response actions at the Site with respect to the First Operable

Unit or (2) to reimburse the United States and the Commonwealth for response costs if, prior to Certification of Completion of the Work for a specific Source Area property:

(a) conditions at the Site, previously unknown to the United States, are discovered after the issuance of the ROD on September 14, 1989, or

(b) information is received by the United States, in whole or in part, after the issuance of the ROD on September 14, 1989, and the EPA Administrator or his delegate finds, based on these previously unknown conditions or this information together with any other relevant information, that the Work is not protective of human health and the environment.

79. Post-certification reservations. Notwithstanding any other provision of this Consent Decree, the United States and the Commonwealth reserve the right to institute proceedings in this action or in a new action, or to issue an Administrative Order, seeking to compel Settling Defendants (1) to perform additional response actions at the Site for the First Operable Unit or (2) to reimburse the United States and the Commonwealth for response costs if, subsequent to Certification of Completion of Work for a specific Source Area property:

(a) conditions at the Site, previously unknown to the United States, are discovered after the Certification of Completion of Work for that Source Area property, or

(b) information is received by the United States, in whole or in part, after the Certification of Completion of Work for that Source Area property, and the EPA Administrator or his delegate finds, based on these previously unknown conditions or this information together with other relevant information, that the Work is not protective of human health and the environment. The above-mentioned reservation of rights in Paragraphs 78 and 79 includes the right to institute proceedings in this action or in a new action to seek reimbursement of costs incurred as a result of actions undertaken pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

80. For purposes of Paragraph 78, the information received by and the conditions known to the United States shall include that information and those conditions set forth in the Record of Decision for the Wells G & H Site and the administrative record supporting the Record of Decision. For purposes of Paragraph 79, the information received by and the conditions known to the United States shall include that information and those conditions set forth in the Record of Decision and any information received by the United States pursuant to the requirements of this Consent Decree.

81. General reservations of rights as to Settling Defendants. The covenants not to sue set forth in Paragraphs 75, 76, and 77 do not pertain to any matters other than those expressly specified to be Covered Matters. The United States and

the Commonwealth reserve, and this Consent Decree is without prejudice to, all rights against Settling Defendants with respect to all other matters. In addition, the following are specifically identified as matters that are not Covered Matters:

(a) claims based on a failure or refusal by Settling Defendants to meet a requirement of the Consent Decree;

(b) liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site and not attributable to the Site;

(c) liability for the disposal of any Waste Material taken from the Site;

(d) liability for damages for injury to, destruction of, or loss of natural resources except for liability for damages for injury to, destruction of, or loss of those natural resources under the trusteeship of DOI addressed in the First Operable Unit;

(e) any matter as to which the United States or the Commonwealth is owed indemnification under Section XVIII above;

(f) criminal liability;

(g) except as provided in Paragraph 77, all response costs or administrative or judicial claims taken to compel any action other than those expressly included in Covered Matters, including, but not limited to, any action undertaken pursuant to subsequent Records of Decision;

(h) liability for violations of federal or state law which occur during implementation of the Work;

(i) possible bedrock contamination beneath the Olympia property;

(j) any Response Costs associated with the remedial design, remedial action and operation and maintenance of any EPA response action regarding the Central Area and the Aberjona River.

82. Notwithstanding any other provision of this Consent Decree, the United States and the Commonwealth retain all authority and reserve all rights to take any and all response actions authorized by law subject to the covenant not to sue in this Section. In addition, EPA, in consultation with the Commonwealth, reserves the right to undertake actions under Section 104 of CERCLA, including removal and/or remedial actions at any time and to perform any and all portions of the RI/FS which the appropriate Source Area Defendant(s) fail to perform to EPA's satisfaction subject to the covenant not to sue in this Section.

83. Notwithstanding any other provisions in this Consent Decree, the covenant not to sue in this Section shall not relieve the Settling Defendants of their obligations as set forth in Schedule A to meet and maintain compliance with the requirements set forth in this Consent Decree, including the conditions in the ROD, as modified by the ESD, and the United States and the Commonwealth reserve their rights to take response actions at the Site in the event of a breach of the terms of this Consent Decree and to seek recovery of costs incurred after entry of the Consent Decree: (1) resulting from such a breach; (2) relating to any

portion of the Work funded or performed by the United States or the Commonwealth; or (3) incurred by the United States or the Commonwealth as a result of having to seek judicial assistance to remedy conditions at or adjacent to the Site.

84. Nothing in this Consent Decree shall constitute or be construed as a release or a covenant not to sue regarding any claim or cause of action against any person, firm, trust, joint venture, partnership, corporation or other entity not a signatory to this Consent Decree for any liability it may have arising out of or relating to the Site.

XXIII.

CONTRIBUTION PROTECTION

85. Subject to the reservations of rights in Section XXII, Paragraphs 78, 79 and 81, the United States and the Commonwealth agree that by entering into and carrying out the terms of this Consent Decree, the appropriate Source Area Defendants will have resolved their liability to the United States and to the Commonwealth for Covered Matters for the Source Area properties or the RI/FS as defined in Section XXII, Paragraph 77, pursuant to Section 113(f) of CERCLA, and shall not be liable for claims for contribution for Covered Matters for the Source Area properties or the RI/FS, as applicable, to the extent permitted by law. Subject to the reservation of rights in Section XXII, Paragraphs 78, 79, and 81, the United States agrees that by entering into and carrying out the terms of this Consent Decree,

the Non-Source Area Defendants will have resolved their liability to the United States for Covered Matters for the Source Area properties as defined in Section XXII, Paragraph 77, pursuant to Section 113(f) of CERCLA, and shall not be liable for claims for contribution for Covered Matters for the Source Area properties or the RI/FS, as applicable, to the extent permitted by law.

86. The Plaintiffs expressly reserve their rights to continue to sue any person(s) other than the Settling Defendants in connection with the Site.

87. Settling Defendants further retain and reserve the right to assert claims against other Settling Defendants with respect to any agreements relating to the performance of their obligations under this Consent Decree. Notwithstanding anything in this Consent Decree to the contrary, participation in this Consent Decree does not constitute a waiver of statutory rights, including, but not limited to, rights under CERCLA and Chapter 21E, to seek private cost recovery and/or contribution between other Source Area Defendants in this matter. The Source Area Defendants expressly agree to waive their statutory defenses of contribution protection set forth in Section 113 of CERCLA, 42 U.S.C. § 9613, as to other Source Area Defendants.

88. Participation in this Consent Decree by the Settling Defendants shall not constitute, be interpreted, construed or used as evidence of any admission of liability, law or fact, a waiver of any right, claim, or defense, or an estoppel against any Settling Defendant by Settling Defendants as among themselves

or by any other person not a Settling Defendant. Without limiting the scope of the foregoing, each Settling Defendant expressly reserves and retains its rights to assert any claims or causes of action against any other Settling Defendant, including (a) the Non-Source Area Defendants' express reservation and retention of their rights to assert any claims or causes of actions against the Source Area Defendants for any damages sustained to the Non-Source Area Defendants due to the presence of hazardous substances on or under the Non-Source Area Defendants' property where such contamination emanated from Source Area Defendants' property; and (b) the Source Area Defendants' express reservation of statutory rights, including but not limited to, rights under CERCLA and Chapter 21E, to seek private cost recovery and/or contribution from other Source Area Defendants in this matter. However, nothing in this Paragraph is intended or should be construed to limit, bar, or otherwise impede the enforcement of any term or condition of the Consent Decree.

89. Nothing in this Consent Decree shall be construed to create any rights in or grant any cause of action to, any person not a party to this Consent Decree. Except as provided in Paragraph 90, each of the Parties expressly reserves any and all rights, including any right to contribution, defenses, claims, demands, and causes of action which each party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a party hereto.

XXIV.

COVENANTS BY DEFENDANTS; NOTIFICATION OF CLAIMS

90. Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States or the Commonwealth for any claims related to or arising from Covered Matters or any response action taken with respect to this Consent Decree, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507), through CERCLA Sections 106(b)(2), 111 or 112 or otherwise, or to seek any other costs, damages, or attorneys' fees from the United States or the Commonwealth arising out of Covered Matters or response activities with respect to this Consent Decree. Settling Defendants shall give notice to the United States of any complaint filed by such Settling Defendants related to Covered Matters within ten (10) days of filing and Settling Defendants shall provide sixty (60) days notice to the United States prior to their filing of any motion for summary judgment, if practicable, and sixty (60) days notice prior to trial. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. 300.25(d).

ACCESS TO INFORMATION

91. Settling Defendants shall provide to EPA and the Commonwealth upon request, copies of all documents and information within their possession and/or control or within that of their contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. With the exception of sampling data, the Settling Defendants may assert any claim of privilege covering any information requested by the United States under this Section to the extent permitted by law. Settling Defendants, without waiving their rights to assert privilege, shall also make available to EPA and the Commonwealth for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

92. Settling Defendants may assert business confidentiality claims covering part or all of the documents or information submitted to the Plaintiffs under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2,

Subpart B. If no claim of confidentiality accompanies specific documents or information when they are submitted to EPA or if EPA has notified Settling Defendants that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA, the public may be given access to such documents or information without further notice to Settling Defendants.

93. No claim of confidentiality shall be made with respect to any sampling or analytical data or any other documents or information evidencing conditions at or around the Site.

94. Each Party waives any objection to the admissibility, with the exception of objections to relevancy and objections that the probative value of the evidence is substantially outweighed by the danger of unfair prejudice, of the results of any analyses of sampling conducted by or for it at the Site or other data gathered, generated, or evaluated pursuant to this Consent Decree. Further, each Party waives its right to contest the validity of any data unless it is established that such data has not been validated in accordance with all relevant quality assurance and quality control procedures established by or pursuant to this Consent Decree.

XXVI.

RETENTION OF RECORDS

95. Until six (6) years after EPA's Certification of Completion of the Work, each Defendant shall preserve and retain

at least one copy of all records and documents now in its possession or control as of the date of lodging of the Consent Decree that relate in any manner to response activities or liability of any party at the Site excluding clerical drafts, and general financial and accounting records and excluding records generated in defense of private party claims relating to the Site, specifically Anderson v. Cryovac, later styled Anderson v. W.R. Grace & Co. (D.Mass. No. 82-1672-S) and styled on appeal Anderson v. Beatrice Foods Company (1st Cir. No. 85-1070) and Anderson v. UniFirst Corp. (Super Ct. No. 85-2098). After this document retention period, the Defendants shall notify the United States and the Commonwealth at least ninety (90) calendar days prior to the destruction of any such records or documents, and, upon request by the United States or the Commonwealth, Defendants shall deliver all such records or documents to EPA in the Commonwealth.

96. Until six (6) years after Certification of Completion of the Work and termination of this Consent Decree, Settling Defendants shall preserve, and shall instruct their contractors and agents to preserve, at least one copy of all documents, records, and information of whatever kind, nature or description for the performance of the Work excluding clerical drafts, and general financial and accounting records and excluding records generated in defense of private party claims relating to the Site, specifically Anderson v. Cryovac, later styled Anderson v. W.R. Grace & Co. (D.Mass. No. 82-1672-S) and styled on appeal

Anderson v. Beatrice Foods Company (1st Cir. No. 85-1070) and Anderson v. UniFirst Corp. (Super. Ct. No. 85-2098). Upon Certification of Completion of the Work, the Settling Defendants shall deliver all such documents, records and information to EPA and the Commonwealth. EPA may in its sole discretion waive this requirement in whole or in part.

XXVII.

NOTICES AND SUBMISSIONS

97. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one party to another, it shall be directed to the individuals and the addresses specified below, unless those individuals or their successors give written notice of a change to the other Parties. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the Commonwealth and the Source Area Defendants, respectively.

As to the United States:

Chief, Environmental Enforcement Section
Land and Natural Resources Division
Department of Justice
10th & Pennsylvania Avenue, N.W.
Washington, D.C. 20530
Re: DOJ # 90-11-3-194

and

Director, Waste Management Division
United States Environmental
Protection Agency, Region I
J.F.K. Federal Building HRS-CAN3
Boston, MA 02203
C/O Barbara Newman
re: Wells G&H Superfund Site

As to EPA

EPA RPM Wells G & H Superfund Site
Barbara Newman
Massachusetts Superfund Section
Waste Management Division HRS-CAN3
J.F.K. Federal Building
Boston, MA 02203

As to the Commonwealth

The State Project Coordinator/DEP RPM

As to the Source Area Defendants:

The Defendants' Project Coordinator

XXVIII.

REMOVAL OF LIEN

98. Upon the appropriate Source Area Defendant(s)' satisfactory demonstration of assurance of ability to complete the Work for a specific Source Area property pursuant to Section XIV, EPA shall remove the Notice of Lien on that Source Area property by filing a notice of removal of lien in the Middlesex County Registry of Deeds or Registry District of the Land Court, as appropriate. EPA retains the unreviewable discretion to remove any lien currently on a Source Area property regardless of whether a satisfactory demonstration of assurance of ability to

complete the Work has been made. Nothing contained herein shall be construed to limit the rights of the United States, in the future, pursuant to Section 107(1) of CERCLA, 42 U.S.C. § 9607(1) to record a lien on any property which is the subject of this Decree.

XXIX.

EFFECTIVE DATE

99. Except as to those Paragraphs which are effective upon lodging of this Consent Decree with the Court, the effective date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court.

XXX.

RETENTION OF JURISDICTION

100. This Court will retain jurisdiction for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XX hereof.

XXXI.

TERMINATION

101. Upon notice by the United States to the Court that EPA has issued a Certification of Completion of Work pursuant to

Section XV for a specific Source Area property and that the appropriate Source Area Defendants have satisfied their obligations under Section XVII [Response Costs], Section XXI [Stipulated Penalties], Section XVI [Endangerment and Emergency Response], and Section VIII [Additional Work] for a specific Source Area property, this Consent Decree shall terminate upon the motion of any of the Parties with respect to the Work so certified. With respect to the Non-Source Area Defendants, termination of this Consent Decree as to all Source Area Defendants that required access to a Non-Source Area Defendant's property shall operate as a termination of this Consent Decree as to that Non-Source Area Defendant with respect to the Work so certified provided that the Non-Source Area Defendant has satisfied its obligations under Section XXI [Stipulated Penalties] and XVI [Endangerment and Emergency Response]. Nothing contained herein shall affect any continuing obligation under Schedule A. Termination of this Consent Decree shall not affect the Covenants Not to Sue (Sections XXII and XXIV above), including all reservations pertaining to those covenants, shall not affect Section XXIII [Contribution Protection] and shall not affect any continuing obligation of Settling Defendants under Sections V, VII, VIII, XI, XVIII, XXV, XXVI and any other continuing obligation under this Consent Decree.

XXXII.

MODIFICATION

102. No material modification shall be made to this Consent Decree without written notification to and written approval of the Parties and the Court. The notification required by this Section shall set forth the nature of and reasons for the requested modification. No oral modification of this Consent Decree shall be effective. Modifications that do not materially alter the requirements of this Consent Decree may be made upon the written consent of EPA, the Commonwealth and the Source Area Defendants' Project Coordinator, which consent shall be filed with this Court. Nothing in this paragraph shall be deemed to alter the Court's power to supervise or modify this Consent Decree. Modifications to the SOW or the RD/RA or RI/FS Work Plans shall be made by written agreement between EPA, in consultation with the Commonwealth, and the Source Area Defendants' Project Coordinator.

XXXIII.

COMMUNITY RELATIONS

103. The appropriate Source Area Defendants shall cooperate with EPA and the Commonwealth in providing information regarding the Work to the public. As requested by EPA, the appropriate Source Area Defendant(s) shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain

activities at or relating to the Site. The appropriate Source Area Defendant(s) shall submit a Community Relations Support Plan as a section of the RD/RA Work Plan in accordance with the SOW which specifies the support to be provided to EPA for community relations.

XXXIV.

COMMUNICATION AND COORDINATION AMONG SOURCE AREA DEFENDANTS

104. Within forty-five (45) days after the lodging of this Consent Decree, the appropriate Source Area Defendant(s) shall submit to EPA and the Commonwealth, a Communication and Coordination Plan (CCP) for EPA approval, in consultation with the Commonwealth, which defines the procedures by which the Source Area Defendant(s) will communicate and coordinate with one another and EPA and the Commonwealth in carrying out the requirements of this Consent Decree. The primary objectives of the CCP shall be to avoid unnecessary duplication, to limit the number of persons communicating with EPA and the Commonwealth regarding the Work under this Consent Decree, to limit the number of submittals to EPA and the Commonwealth under this Consent Decree and SOW, and to provide for uniformity in the Conduct of Work under this Consent Decree and SOW. The CCP shall include, but not be limited to, the following:

A. Communication Strategy. The Source Area Defendant(s) shall describe how the designated coordinator and the individual Source Area Defendants will communicate and disseminate

information relative to this Consent Decree. The name, title, address and telephone number of the primary contact person for each appropriate Source Area Defendant shall be included in the communication strategy.

B. Coordination of Efforts. The appropriate Source Area Defendant(s) shall describe with specificity how the technical, financial, and administrative requirements of this Consent Decree are to be coordinated and distributed among and performed by the appropriate Source Area Defendants. The CCP shall describe the obligations of each and every Source Area Defendant.

105. The appropriate Source Area Defendant(s) shall sign the CCP (by a duly authorized representative if the appropriate Source Area Defendant(s) is other than a natural person) prior to its submission to EPA. Failure of any appropriate Source Area Defendant to sign the CCP will constitute a violation of this Consent Decree by that individual appropriate Source Area Defendant.

106. The appropriate Source Area Defendant(s) shall submit all proposed changes or amendments to the CCP to EPA for approval.

107. The CCP as approved by EPA, in consultation with the Commonwealth, shall be incorporated into and enforceable under this Consent Decree. Failure to submit a timely or approvable plan shall be subject to stipulated penalties pursuant to Section XXI.

XXXV.

LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

108. This Consent Decree shall be lodged with the Court for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States shall provide notice of such lodging to the Settling Defendants. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Defendants consent to the entry of this Consent Decree without further notice.

XXXVI.

SIGNATORIES

109. Each undersigned representative of a Defendant to this Consent Decree certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such party to this document.

110. Each Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that party with respect to all matters arising under or relating to this Consent Decree, including any complaints filed with respect to this Consent Decree. Defendants hereby agree to accept service in that manner and to waive the formal service

requirements set forth in Rule 4 of the Federal Rules of Civil Procedure, including service of a summons, and any applicable local rules of this Court.

SO ORDERED THIS _____ DAY OF _____, 19__.

United States District Judge

THE UNDERSIGNED PARTIES enter into this Consent Decree relating to the Wells G & H Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date: 6-17-91

Richard B. Stewart
Richard B. Stewart
Assistant Attorney General
Environment and Natural Resources
Division
U.S. Department of Justice
Washington, D.C. 20530

Date: 5/15/91

Henry Friedman
Henry Friedman
Environmental Enforcement Section
Environment and Natural Resources
Division
U.S. Department of Justice
Washington, D.C. 20530

WAYNE A. BUDD
United States Attorney

Date: _____

By: _____

Assistant United States Attorney

Date: 9/28/90

Julie Belaga
Julie Belaga
Regional Administrator, Region I
U.S. Environmental Protection
Agency

Date: 9/25/90

M. Gretchen Muench
M. Gretchen Muench
Assistant Regional Counsel
U.S. Environmental Protection
Agency, Region I
J.F.K. Federal Building
Boston, MA 02203

Date: _____

James M. Strock
Assistant Administrator for
Enforcement
U.S. Environmental Protection
Agency
401 M Street, S.W.
Washington, DC 20460

Date: _____

Douglas P. Dixon
Office of Enforcement
U.S. Environmental Protection
Agency
401 M Street, S.W.
Washington, DC 20460

FOR THE COMMONWEALTH OF MASSACHUSETTS

JAMES M. SHANNON

Date: 10/2/90

Nancy E. Harper

Nancy Elizabeth Harper
Commonwealth of Massachusetts
One Ashburton Place
Boston, MA 02108

Date: 10/2/90

Raymond Dougan

Raymond Dougan
Environmental Protection Division-
Section Chief
Assistant Attorney General
Commonwealth of Massachusetts
One Ashburton Place
Boston, MA 02108

Date: 9/26/90

James C. Colman

James C. Colman
Assistant Commissioner
Department of Environmental
Protection
One Winter Street
Boston, MA 02108

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR WILDWOOD CONSERVATION CORPORATION

Date: December 14, 1990

John J. Riley, Jr.
John J. Riley, Jr. as President

Agent Authorized to Accept Service on Behalf of: Wildwood Conservation Corporation

Name: James Stewart, Esq.
Title: Lowenstein, Sandler, et al.
Address: 65 Livingston Avenue, Roseland, N.J. 07068
Telephone: (201) 992-8700

APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT

The undersigned hereby appoints on its behalf
James Stewart, Esq. ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
2053

Signed under seal this 12 day of December, 1990.

Name of Company: Wildwood Conservation Corporation
Date: December, 1990 By: _____
Name: John J. Riley, Jr.
Title: President

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR JOHN J. RILEY, JR.

Date: December 14, 1990

John J. Riley, Jr.
John J. Riley, Jr.

Agent Authorized to Accept Service on Behalf of: John J. Riley, Jr.

Name: James Stewart, Esq.
Title: Lowenstein, Sandler, et al.
Address: 65 Livingston Avenue, Roseland, N.J. 07068
Tel hone: (201) 992-8700

APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT

The undersigned hereby appoints on its behalf
James Stewart, Esq. ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 2 day of December, 1990.

Name ~~XXXXXXXXXX~~: John J. Riley
Date: December 2, 1990 By: _____
~~NAME~~
~~NAME~~

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR

Date:

12-19-91

Edward S. Robertson

Agent Authorized to Accept Service on Behalf of: City of Woburn

Name:

EDWARD S. ROBERTSON

Title:

CITY SOLICITOR

Address:

CITY HALL - 10 COMMONWEALTH STREET, WOBURN, MA 01801

Telephone:

(617) 932-425

APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT

The undersigned hereby appoints on its behalf

EDWARD S. ROBERTSON ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 19th day of DECEMBER, 1990.

Name of Company: CITY of Woburn

Date: DECEMBER 19, 1990

By: _____

Name: JOHN W. RABBITT

Title: MAYOR

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR UniFirst Corporation

Date: 9/26/90

Aldo Croatti

Agent Authorized to Accept Service on Behalf of:

Name: Aldo Croatti
Title: Chairman
Address: 68 Jonspin Road, Wilmington, MA 01887
Telephone: 508-658-8888

APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT

The undersigned hereby appoints on its behalf

Jeffrey C. Bates, Esq. ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 11th day of October, 1990.

Name of Company: UniFirst Corporation
Date: 10/11/90 By: 
Name: Ronald D. Croatti
Title: Vice Chairman

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR *New England Plastics Corp.*

Date: 24 September 1990

Robert D. Kearin
President

Agent Authorized to Accept Service on Behalf of:

Name: ROBERT D. KEARIN
Title: PRESIDENT
Address: 310 SALEM ST
Telephone: (617) - 933-6004

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR Charrette Corporation

Date: 9/20/90

Arnold Spira

Agent Authorized to Accept Service on Behalf of:

Name: Colburn T. Cherney, Esq.
Title: Attorney
Address: Ropes & Gray
1001 Pennsylvania Avenue, N. W.
Suite 1200 South
Washington, D. C. 20004
Telephone: (202) 626-3900

**APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT**

The undersigned hereby appoints on its behalf Colburn T. Cherney, Esq. ("Agent") or his designee to accept service of any and all complaints and summonses served by or on behalf of the United States relating to the Wells G & H Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written notice to Agent with a copy to _____, Environmental Enforcement Section, Lands & Natural Resources Division, United States Department of Justice, Washington, D. C. 20530.

Signed under seal this 20th day of September, 1990.

Name of Company:	<u>Charrette Corporation</u>
Date: <u>9/20/90</u>	By: <u>Lionel Spiro</u>
	Name: Lionel Spiro
	Title: CEO

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR Massachusetts Rifle Association

Date: 9/21/90


Robert Summa, President

Agent Authorized to Accept Service on Behalf of: Massachusetts Rifle Association

Name: Rome & George
Title: Attorneys
Address: 11 Beacon Street, Suite 1210, Boston, MA 02108
Telephone: (617) 723-7090

**APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT**

The undersigned hereby appoints on its behalf
ROME & GEORGE ("Agent") or ~~his~~ ^{its} designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

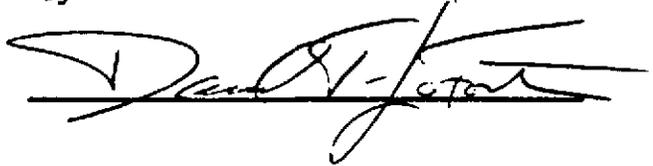
Signed under seal this 21 day of September, 1990.

Name of Company: Massachusetts Rifle Associatio
Date: 9/21/90 By: 
Name: Robert Summa
Title: President

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR Northern Research and Engineering Corporation
By: David T. LaFortune, Controller

Date: September 21, 1990



Agent Authorized to Accept Service on Behalf of:

Name: David T. LaFortune, Controller
Title: Northern Research and Engineering Corporation
Address: 39 Olympia Avenue, Woburn, MA 01801
Telephone: (617) 935-9050

**APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT**

The undersigned hereby appoints on its behalf

David T. LaFortune, Controller ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

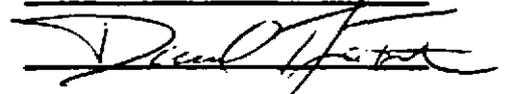
This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 21 day of September, 1990.

Name of Company: Northern Research and
Engineering Corporation

Date: September 21, 1990

By:



Name: David T. LaFortune

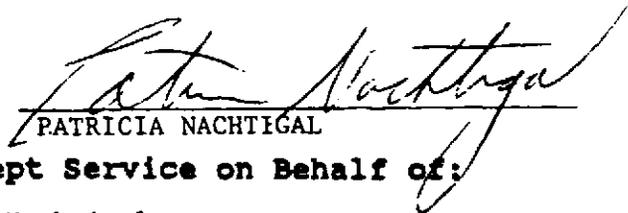
Title: Controller

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR

Date: September 21, 1990

INGERSOLL-RAND COMPANY


PATRICIA NACHTIGAL

Agent Authorized to Accept Service on Behalf of:

Name: Patricia Nachtigal
Title: Secretary
Address: Ingersoll-Rand Co.
~~Telephone:~~ 200 Chestnut Ridge Road
Woodcliff Lake, NJ 07675
Telephone: (201) 573-3473

**APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT**

The undersigned hereby appoints on its behalf

PATRICIA NACHTIGAL ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 21 day of September, 1990.

Name of Company: INGERSOLL-RAND COMPANY

Date: September 21, 1990

By: *Patricia Nachtigal*

Name: Patricia Nachtigal

Title: Secretary

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR

Becker Corp
by Karl M. Becker

Date: September 21, 1990

Karl M. Becker, Senior Vice President
and General Counsel

Agent Authorized to Accept Service on Behalf of:

Name: James Stewart, Esq.
Title: Attorney
Address: Lowenstein, Sandler, Kohl, Fisher & Boylan
Telephone: 65 Livingston St.
Roseland, New Jersey 07068
(201) 992-8700

**APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT**

The undersigned hereby appoints on its behalf James Stewart, Esq.
Lowenstein, Sandler, Kohl, Fisher & ^{Boylan} ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 21st day of September, 1990.

Name of Company: _____

Date: September 21, 1990

By: _____

Name: Karl M. Becker

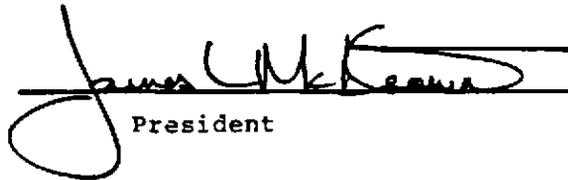
Title: Senior Vice Preside
and General Counsel

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR CUMMINGS PROPERTIES MANAGEMENT, INC.

Date:

9/21/90


President

Agent Authorized to Accept Service on Behalf of:
CUMMINGS PROPERTIES MANAGEMENT, INC.

Name: James L. McKeown
Title: President
Address: 200 West Cummings Park, Woburn, MA 01801
Telephone: (617) 935-8000

APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT

The undersigned hereby appoints on its behalf

James L. McKeown ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 21st day of September, 1990.

Name of Company: CUMMINGS PROPERTIES MANAGEMENT, INC.

Date: 9/21/90

By: James L. McKeown

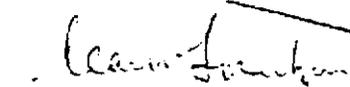
Name: James L. McKeown

Title: President

THE UNDERSIGNED PARTY enters into this Consent Decree relating to the Wells G & H Superfund Site.

FOR W.R. GRACE & CO.- CONN.

Date: September 21, 1990



CARL W. LORENTZEN
SENIOR VICE PRESIDENT

Agent Authorized to Accept Service on Behalf of: W.R. Grace & Co.-C.

Name: CT Corporation System
Title: _____
Address: 2 Oliver St., Boston, Ma. 02019
Telephone: 617/482-4420

**APPOINTMENT OF AGENT TO ACCEPT
SERVICE OF SUMMONS AND COMPLAINT**

The undersigned hereby appoints on its behalf

CT Corporation System ("Agent") or his designee
to accept service of any and all complaints and summonses served
by or on behalf of the United States relating to the Wells G & H
Superfund Site in Woburn, Massachusetts.

This appointment shall be terminated only upon written
notice to Agent with a copy to _____,
Environmental Enforcement Section, Lands & Natural Resources
Division, United States Department of Justice, Washington, D.C.
20530.

Signed under seal this 21st day of September, 1990.

Date: 9/21/90

Name of Company: W.R. Grace & Co.-Conn.

By: [Signature]

Name: Mark Stoler

Title: Environmental Counsel

SCHEDULE A

Schedule A consists of a listing of each Source Area Property, except the Olympia property, and the Central Area of the Site and the obligations each Settling Defendant assumes pursuant to the Consent Decree, the ROD, the ESD, the SOW and all documents submitted, approved or modified pursuant to this Consent Decree, including the Work obligations as defined in Section IV of this Consent Decree, obligations to reimburse the United States and the Commonwealth for response costs, and obligations to provide access.

I. Source Area Properties

Section I. UniFirst Property

Primary Responsibility

UniFirst shall perform that portion of the Work to be conducted at the UniFirst property.

Secondary Responsibility

In the event that EPA determines that UniFirst is unable to perform the Work at the UniFirst property, Grace shall be liable, after receiving notice from EPA of such inability, for the performance of all remaining requirements of such Work at the UniFirst property.

Section 2. W.R. Grace & Co. Property

Primary Responsibility

Grace shall perform that portion of the Work to be conducted at the Grace property.

Secondary Responsibility

In the event that EPA determines that Grace is unable to perform the Work at the Grace property, UniFirst shall be liable, after receiving notice from EPA of such inability, for the performance of all remaining requirements of such Work.

Section 3. New England Plastics Company

Primary Responsibility

New England Plastics shall perform that portion of the Work to be conducted at the New England Plastics property.

Secondary Responsibility

In the event that EPA determines that New England Plastics is unable to perform that portion of the Work at the New England Plastics property that addresses contaminated water in the bedrock, UniFirst and Grace shall be jointly and severally liable after receiving notice from EPA of such inability, for the performance of all remaining requirements of such Work. Specific responsibilities for the remaining requirements of the Work are contained in Section XIII of the SOW.

Section 4. Wildwood Property

Primary Responsibility

Beatrice, Wildwood and John J. Riley, Jr. shall be jointly and severally liable for that portion of the Work to be conducted at the Wildwood property.

II. Central Area RI/FS

Beatrice, Grace, New England Plastics, Cummings Properties, and UniFirst shall be jointly and severally liable for that portion of the Work related to the RI/FS for the Central Area.

III. Reimbursement

The Source Area Defendants shall reimburse the United States and the Commonwealth in accordance with Section XVII.

IV. Non-Source Area Defendants

The obligations of each Non-Source Defendant shall be to provide access pursuant to Section X of the Consent Decree.

APPENDIX II

APPENDIX II
STATEMENT OF WORK
WELLS G & H SUPERFUND SITE

APPENDIX II
STATEMENT OF WORK
WELLS G & H SUPERFUND SITE

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APPENDIX II
STATEMENT OF WORK
WELLS G & H SUPERFUND SITE

I. Purpose of Plan

This Statement of Work (SOW) defines the remedial activities the appropriate Source Area Defendant(s) shall perform in order to complete the remedial response at the Site as defined in the United States Environmental Protection Agency (EPA) Record of Decision (ROD) signed by the Regional Administrator, Region I, on September 14, 1989, as modified by an explanation of significant differences (ESD) at the Grace, UniFirst, Wildwood, and New England Plastics properties. To the extent that there is a conflict between the SOW for the Administrative Order on Consent, Docket # CERCLA I-90-1035 and this SOW, the SOW to the Administrative Order on Consent shall control only in the matters concerning Section VII.B.1.b.v., vi., x., xii., Section VII.B.2 and Section VII.D. of this SOW for the Grace and UniFirst properties. Sections III., IV. and V., of this Appendix II set forth a description of the remedial action for soils, sludge and debris and groundwater, respectively. In addition, this SOW defines the Remedial Investigation/Feasibility Study (RI/FS) for the second operable unit. Section XII and Appendix 2 sets forth a description of this RI/FS study for the Central Area. Sections II-XI of this Appendix II set forth the requirements and procedures that the appropriate Source Area Defendant(s) shall follow during the Remedial Design, Remedial Action and Operation and Maintenance phases of the Work.

II. Remedial Action Overview

A. Description of the Selected Remedy

The remedial action selected for implementation at the four Site Source Area properties addressed in this SOW consists of a source control component and/or a management of migration component.

The source control component includes, where applicable:

- Excavation and off-site incineration of contaminated soil. Excavated areas shall be backfilled with clean soils.
- In situ volatilization of contaminated soil, part of which is located in a wetlands area. In situ-volatilization shall use carbon adsorption or an EPA-approved, after consultation with DEP, equally

or more effective, technology to treat vapor emissions.

- The removal and disposal of sludge and debris.

The management of migration component includes, where applicable:

- Pumping contaminated groundwater from the saturated unconsolidated deposits and/or bedrock, pretreatment to remove suspended solids and metals, and treatment by air stripping or an EPA-approved, after consultation with DEP, equally or more effective, technology to remove contaminants. Carbon adsorption or an EPA-approved, after consultation with DEP, equally or more effective, technology shall be used to treat emissions from the air stripper.
- Groundwater at the four separate Source Area properties addressed in this SOW shall be treated.
- Groundwater shall be pumped with the objective of achieving the clean up levels selected in the ROD and listed below.

B. Objectives and Cleanup Levels

1. Soil

- a. The remedial objectives for soil contaminated at the four Source Area properties at the Site are as follows:
 - Prevent public contact with soil contaminated above the Cleanup levels;
 - Stop the leaching of contaminants in the soil that result in groundwater contaminant concentrations in excess of groundwater clean-up levels; and
 - Protect the natural resources at the Site from further degradation due to contact with contaminants.
- b. The clean-up levels for Hazardous Substances in the soil established in the ROD to meet these objectives are:

<u>Compound</u>	<u>Target Soil Concentration</u> <u>(ug/kg)</u>
Chloroform	63
Tetrachloroethene	37
Trichloroethene	13
trans-1,2-dichloroethene	83
1,1,1-Trichloroethane	613
Lead	640,000
Chlordane	6140
4,4 - DDT	23,500
*cPAHs	690
PCBs	1040

*The carcinogenic PAHs are: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)perylene. This level refers to the total of all cPAHs at any one location.

Cleanup levels may be modified based on revised inputs to the leaching model used in the Feasibility Study incorporating measured soil properties derived from the Source Area properties.

2. Groundwater

a. The remedial objectives for contaminated groundwater at the four Source Area properties addressed in this SOW are as follows:

- Prevent further migration of contaminated groundwater from the Source Area properties to the central area;
- Prevent further migration of contaminated groundwater off-site from the Source Area properties;
- Restore groundwater in the saturated bedrock and unconsolidated deposits in the vicinity of the Source Area properties to clean up levels; and
- Prevent public contact with contaminated groundwater above the cleanup levels.

b. The cleanup levels for hazardous substances that

are found in groundwater to meet these objectives are listed in the ROD as modified by the ESD, and below as follows:

chloroform	100 ug/l
1,1-dichloroethane	5 ug/l
1,2-dichloroethane	5 ug/l
1,1-dichloroethene	7 ug/l
Tetrachloroethene	5 ug/l
Trichloroethene	5 ug/l
vinyl-chloride	2 ug/l
trans-1,2-dichloroethene	70 ug/l
1,1,1-trichloroethane	200 ug/l

In addition, the Maximum Contaminant Levels under the Safe Drinking Water Act, 42 U.S.C. 300(f) et seq., listed in Tables 7 and 9 of the ROD and set forth in Tables 1 and 2 of this SOW, are cleanup levels for the groundwater.

III. Source Control: Contaminated Soils and Debris

In accordance with the ROD and Section VI of the Consent Decree above, the appropriate Source Area Defendant(s) shall design and implement the following Work in a manner that meets the objectives and cleanup levels of Section II.B.1. of this SOW.

A. Soil

1. In-Situ Volatilization

In-situ volatilization shall be used to treat VOC contaminated soil on the Wildwood and UniFirst properties. In-situ volatilization shall use carbon adsorption or an EPA-approved, after consultation with DEP, equally or more effective, technology for treatment of emissions.

A portion of the soil to be treated by in-situ volatilization is located in a wetland area on the Wildwood property. The in-situ volatilization system shall be installed in such a way that it minimizes damage to the wetland.

2. Incineration

Contaminated soils shall be excavated and transported to an off-site incinerator from the following Source Area properties:

- Approximately 1,900 cubic yards of soil at the Wildwood property contaminated with a mix

of PCBs, PAHs, pesticides, and VOCs above cleanup levels; and

- Approximately 10 cubic yards of soil at the New England Plastics property contaminated with VOCs.

Excavated areas will be backfilled with clean soils.

B. Sludge and Debris Disposal

A specific program for the characterization, removal and disposal/incineration of sludge and debris from the Wildwood property shall be defined. Areas referred to as "sludge" in the RI shall be excavated and stored on-site temporarily. All debris including tires, rusted barrels and wood shall be collected and contained until disposal has been approved by EPA, after consultation with DEP.

C. Compliance

The appropriate Source Area Defendant(s) shall prepare a plan for each specific Source Area property that describes how they will demonstrate that all soils have been reduced to the Cleanup levels found in Section II.B.1.b., that they have met all Performance Standards of this SOW, and that the residual levels are protective of public health. This plan shall also contain a schedule for its implementation. The plan shall include a soil sampling program for organic and inorganic constituents. Twenty (20) percent of the samples shall be analyzed for all parameters identified on both the Target Compound List (TCL) included as Table 3 and the Target Analyte List included as Table 3A of this SOW. The remaining eighty (80) percent of the samples shall be analyzed only for parameters for which cleanup levels are established. The sampling plan shall be submitted to EPA for approval after consultation with DEP, pursuant to Section XII of the Consent Decree. Once approved, the appropriate Source Area Defendants shall implement the plan with EPA oversight, in accordance with the approved schedule therein.

D. Performance Standards

In accordance with §121(e)(1) of CERCLA, no Federal, State, or local permit shall be required for the portion of the Remedial Action conducted entirely on-site. The appropriate Source Area Defendant(s) shall,

however, meet the substantive technical requirements and standards that Federal, State, and local permits would contain for all aspects of the Work.

The appropriate Source Area Defendant(s) shall submit a plan for approval by EPA after consultation with DEP, that demonstrates how these performance standards will be met for each activity conducted on or off-site.

Work shall be conducted in accordance with the applicable or relevant and appropriate portions of the following standards:

- a. The Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq., and regulations promulgated thereunder;
- b. The federal Clean Air Act (CAA), 42 U.S.C. §§ 7401 et seq., and regulations promulgated thereunder;
- c. The Wetland Executive Order 11990, and Floodplains Executive Order 11988.
- d. All requirements identified in Tables 5, 6, and 10 of the ROD and incorporated in this SOW in Table 4, 5, and 6.

IV. Management of Migration

In accordance with the ROD and Section VI of the Consent Decree, the appropriate Source Area Defendant(s) shall design and implement the following Work in the manner set forth below that meets the objectives and cleanup levels of Section II.B.2.b. of this SOW.

A. Groundwater Extraction and Treatment

The appropriate Source Area Defendant(s) shall implement groundwater extraction and treatment at each Source Area property. As the location and type of contamination may vary among the Source Area properties, each system shall be designed to address the contamination within the bedrock and/or unconsolidated deposits associated with a particular area. In the case of the UniFirst and W.R. Grace properties, extraction systems may be combined.

The selected groundwater treatment system shall consist of pretreatment by precipitation, coagulation, flocculation, and clarification to remove suspended solids and metals, followed by air stripping to remove VOCs. Carbon adsorption or an EPA-approved after consultation

with DEP, equally or more effective, technology shall be used to treat emissions from the air stripper. The appropriate Source Area Defendant(s) have the option of recommending to EPA and DEP an alternative to the selected groundwater pretreatment and treatment system. This system shall be equally or more effective in treating contaminants listed in Tables 1, 2, and 7 of this SOW to the appropriate discharge standards. The system shall also be equally protective of public health and the environment as the selected treatment system, and shall meet the requirements of CERCLA for remedy selection. Pretreatment sludge shall be disposed of at a licensed facility. The sludge shall be tested to determine if it is subject to the RCRA Land Disposal Restrictions. If the sludge is subject to such restrictions, it shall be managed accordingly. Treated groundwater shall be discharged within the Site.

Pre-design Work shall consist of pumping tests, groundwater sampling, and bench and pilot testing of the proposed treatment technologies. Pumping tests shall be performed to determine well yields, water level changes, zones of influence, zones of capture of extraction wells, and hydraulic properties of the saturated bedrock and unconsolidated deposits. This information shall be used to help determine pumping rates, and the location, number and depth of extraction and monitoring wells.

Groundwater sampling shall be performed by the appropriate Source Area Defendant(s) at each Source Area property to the extent appropriate for remedial design purposes.

Consideration shall be given to the sequencing of the soil and groundwater components of the remedy to avoid recontamination of treated soil by volatilization of contaminated groundwater.

B. Compliance

The appropriate Source Area Defendant(s) shall prepare a groundwater monitoring plan with a schedule for implementation, that shall describe how the appropriate Source Area Defendants will demonstrate the hydraulic and chemical effectiveness and progress of the groundwater extraction and treatment system. This plan shall include monitoring points that will be used to determine compliance for the Source Area properties with cleanup levels stipulated in Sections II.B.2.b. of this SOW and with the performance standards listed

below; and shall demonstrate that remediation is protective of public health. This plan is subject to EPA approval and modification after consultation with DEP, pursuant to Section XII of this Consent Decree. Once approved, this plan shall be implemented according to the approved schedule therein.

C. Performance Standards

In accordance with §121(e)(1) of CERCLA, no Federal, State, or local permit(s) shall be required for the portion of the Remedial Action conducted entirely on-site. The appropriate Source Area Defendant(s) shall, however, meet the substantive technical requirements and standards that Federal, State, and local permits would contain for all aspects of the Work. Work shall be conducted in accordance with the applicable or relevant and appropriate portions of the following standards:

- a. The Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq., and regulations promulgated thereunder;
- b. The federal Clean Water Act (CWA), 33 U.S.C. §§ 1251 et seq., and regulations promulgated thereunder;
- c. The federal Clean Air Act (CAA), 42 U.S.C. 7401 et seq., and regulations promulgated thereunder;
- d. The Safe Drinking Water Act (SDWA), 42 U.S.C. §§ 300(f) et seq., and regulations promulgated thereunder which are included as Tables 1, 2, 7, and 8, including the Underground Injection Control regulations;
- e. All requirements identified in Tables 7, 8, 9 and 11 of the ROD and included as Tables 1, 2, 7, and 8 of this SOW.
- f. The Wetland Executive Order 11990, and Floodplains Executive Order 11988.

V. Additional Requirements

A. Wetlands/Floodplains Assessment

During pre-design the appropriate Source Area Defendant(s) shall conduct a literature search for information on the location of wetlands and floodplains at each individual Source Area property and shall confirm the location of these wetlands and floodplains through an on-site walkover and evaluation of soils and

flora. A map shall be constructed that contours exactly, and with the precision necessary for use during remediation, the location of the wetlands and floodplains at each appropriate source area property. The map shall be prepared by a registered survey based on flora and fauna data collected by a wetlands scientist familiar with Massachusetts wetland regulations. Vegetation and biological species, soil types and approximate water content will be described for wetlands.

B. Wetlands Monitoring

The appropriate Source Area Defendant(s) shall submit a plan for review and approval by EPA after consultation with DEP, detailing steps to be taken to minimize impact on wetland resources, including destruction, loss, or degradation during pre-design activities, soil removal and/or treatment, groundwater pumping and discharge, and site preparation. This plan should include the following monitoring in the potentially affected wetlands:

1. Water levels and soil moisture content during groundwater removal (pumping).
2. Potential disruption of vegetation and soil contours within the wetland boundary (due to construction, etc.).
3. Changes in surface water drainage in the wetland.
4. Soils compaction in wetlands which could interfere with groundwater/surface water recharge or movement and with growth of vegetation.
5. Such additional monitoring as may be necessary to characterize impacts on the wetlands.

C. Wetlands Restoration

The appropriate Source Area Defendant(s) shall submit a wetland restoration plan for EPA approval after consultation with DEP, subject to Section XII of this Consent Decree, that shall describe the wetland restoration program that shall be implemented upon completion of the remedial activities in wetland areas

adversely impacted by remedial activities. The restoration program shall be developed during design.

Monitoring of the wetlands restoration shall be

conducted at a minimum of two year intervals during the early Spring and late Summer to determine the success of the restoration if such restoration takes place. Monitoring shall continue until the condition of the wetland reflects the restorative conditions described in the approved wetlands restoration program. Wetland plant species should be of sufficient diversity to provide habitat for a balanced indigenous animal community.

D. Disposal

Wastes (e.g. Tyveks) generated during remedial activities shall be temporarily stored on the appropriate source area properties and disposed of off-site in accordance with State and Federal regulations, and 42 U.S.C. 9621(d)(3).

VI. Source Area Security and Closure

A. Source Area Security. Security shall be provided for in accordance with 40 CFR §264.117(b) and 40 CFR §264.14, and the appropriate submittals described herein.

B. Closure:

1. Source Control Requirements.

After EPA, in consultation with DEP, determines that the appropriate Source Area Defendant(s) have demonstrated compliance pursuant to Section III.C. of this SOW, the appropriate Source Area Defendant(s) shall dismantle the in-situ volatilization apparatus. Excavated areas shall be backfilled to original grade with clean soil. Wetlands restoration monitoring pursuant to Section V.C. of this SOW shall be implemented.

2. Management of Migration.

After EPA determines, in consultation with DEP, that the appropriate Source Area Defendant(s) have demonstrated compliance pursuant to Section IV.B. of this SOW, the extraction wells shall be shut down and a post-remediation monitoring program shall be implemented. The appropriate Source Area Defendant(s) shall submit a plan describing a post-remediation monitoring program. This program shall consist of a minimum of three years of quarterly monitoring of groundwater quality. If, at any time during the post remediation

monitoring, the data show a statistically significant increase in contaminant levels, such that cleanup goals are not maintained, active groundwater remediation shall be resumed. The results of this monitoring program shall be submitted and reviewed by EPA and DEP in order to evaluate the success of the remedy, the maintenance of cleanup goals, the need for any additional site work including the resumption of the remedy or the implementation of institutional controls, and to provide information for Site delisting.

VII. **Remedial Design**

The remedial design process shall consist of 1) initial remedial steps; 2) a pre-design phase; and 3) a remedial design phase. The appropriate Source Area Defendant(s) shall prepare separate Work plans for the pre-design and remedial design phases and shall submit them to EPA and DEP.

A. Initial Remedial Steps

Within sixty (60) days after the lodging date of this Consent Decree, the appropriate Source Area Defendant(s) shall submit to EPA and DEP, the names and qualifications of the contractors from whom the appropriate Source Area Defendant(s) will solicit bids to perform the pre-design and remedial design tasks set forth in the Consent Decree (i.e. a short list of bidders) pursuant to Section VI. Par. 10 of the Consent Decree. EPA may disapprove any or all the bidders.

B. Pre-Design Work Plan

1. The appropriate Source Area Defendant(s) shall submit to EPA and DEP a Pre-Design Work Plan within ninety (90) days of providing the list of selected contractor(s) to EPA and DEP. The Pre-Design Work plan shall describe all tasks and studies to be undertaken that shall facilitate the design of the Remedial Action. The Pre-Design Work Plan shall include the items specified in (a) and (b) below:
 - a. a detailed Project Operations Plan (POP) prepared in support of all field work to be conducted under the pre-design phase of Work described below. The POP shall include the following:
 1. a health and safety plan (see Attachment 1.A.)

2. a quality assurance/quality control plan (see Attachment 1.B.)
 3. a detailed sampling and analytical plan (see Attachment 1.C.)
 4. a statement of objectives for all the above field work, for each Source Area property a specific list of all ARARs and "to be considered" requirements for the above work taken from Tables 1, 2 and 4 through 8 of this SOW, and the methods for providing for compliance with these requirements.
 5. a Source Area property Security Plan which provides for security in accordance with 40 CFR Section 264.117(b) and 40 CFR Section 264.14. The Security Plan shall include, but not be limited to, a description of the measures to be taken to provide for the safety of the personnel and equipment at each Source Area property, safety of nearby residents, and to provide an effective barrier against unauthorized public access. The security plan will be designed to reflect and complement the level of Work activity at each Source Area property, and shall incorporate 24-hour security, if found to be necessary by EPA in consultation with DEP. This plan may be combined with the Source Area property Health and Safety Plan mentioned above.
- b. A detailed description of the investigations necessary for the design and implementation of the above specified remedial actions in Sections III-V in the SOW. This description shall include for each investigation, a statement of purpose and objectives, identification of the specific activities necessary to complete the investigation, and timetable for initiation duration, and completion of the investigations. These investigations shall include the following:
- i. Studies to refine the areal extent of contaminated soil on the Wildwood, Unifirst and New England Plastics properties and to determine property specific soil/water partitioning coefficients in the soil. This information will be used to modify soil volumes and soil cleanup goals as necessary

and as approved by the EPA after consultation with DEP. The conclusions of this study shall contain maps and cross-sections delineating the horizontal and vertical extent of contamination above cleanup levels on these properties, and partitioning coefficients at representative locations on the properties. The appropriate Source Area Defendant(s) shall recommend to EPA and DEP, refinement of cleanup goals, if necessary, based on revised inputs to the leaching model used in the Feasibility Study incorporating measured soil properties derived from Source Area properties.

- ii. For the Wildwood and UniFirst properties, pilot scale tests for in-situ volatilization to ensure effectiveness and optimization of the extraction systems and the emissions treatment systems. The results of these studies shall determine at a minimum, the exact location and depth of extraction wells, sizing, efficiency of the emissions treatment systems, effectiveness in achieving cleanup levels, and ability to meet ARARs.
- iii. For the Wildwood property, a study that shall determine the method of disposal of contaminated debris and sludge on the Wildwood property. This study shall include a characterization of the debris on-site, the collection of all sludge and debris on-site in containers or drums for temporary storage, and an analysis of the sludge to determine its composition. This study shall recommend off-site incineration, off-site disposal, or a combination of both for the debris and sludge, based on analysis of content and ARARs.
- iv. Detailed evaluations of off-site incineration alternatives will be conducted for the Wildwood, and New England Plastic properties. These evaluations shall consider access to and from all contaminated materials, removal and transportation of soils to the incinerators, and backfilling with clean soils.
- v. A pumping test at each Source Area property that addresses the following objectives:

- a. obtains information needed to design a groundwater recovery and treatment system that shall meet the Response Objectives found in Section II above in this SOW;
 - b. determines the yield potential and anticipated extraction rate of all extraction wells;
 - c. determines the hydraulic properties of the bedrock/unconsolidated deposits systems where existing data are insufficient;
 - d. determine the water level changes, the zone of influence, and the most effective zone of capture of the final extraction well systems;
 - e. determine the best location for extraction wells and monitoring wells; and
 - f. provide information that can be used to evaluate the combined effect of extraction and treatment of water at the individual Source Area properties on Site hydrology and contaminant migration.
- vi. A treatability study for any groundwater pre-treatment and treatment technology recommended by the appropriate Source Area Defendant(s) that differs from the one selected in the ROD. This treatability study shall include either pilot scale, or bench and pilot scale testing. This study shall obtain information necessary to complete design specifications for a treatment system that shall meet the Response Objectives of Section II and the ARARs in Tables 1, 2, 7, and 8 of this SOW in a time frame approved by EPA after consultation with DEP.
- vii. Studies that address the best method for discharging treated water at each Source Area property. As appropriate, these studies shall examine discharging to the Aberjona River directly, discharging to wetlands directly, reinjection into groundwater directly through wells or indirectly through a trench system or any combination thereof.

These studies shall consider the ARARs listed in Tables 1, 2, 7, and 8 of this SOW and, as appropriate, the effects of discharging treated water on wetlands and floodplains, on river flow and on downgradient and adjacent properties. If appropriate, the studies shall also evaluate the effects of infiltration rates on direct or indirect discharges to the ground.

- viii. A study that evaluates the optimum sequencing of groundwater and soil treatment at each Source Area property in order to optimize total contaminant removal, and to avoid recontaminating soil with contaminated groundwater or volatilization of contamination in the groundwater.
- ix. At the Wildwood and UniFirst properties, soil sampling and analysis programs to monitor the performance of in-situ volatilization during the pilot studies. These programs shall also include soil gas sampling for influent and effluent air releases. These programs shall include soil and/or soil gas sampling at the beginning, during and end of the pilot study.
- x. Groundwater sampling and analysis shall be performed to the extent appropriate for remedial design purposes at each Source Area property and in the vicinity of each Source Area property. Analyses shall include, as appropriate, volatiles, semi-volatile and metals. For semi-volatiles and metals, samples shall be both filtered and unfiltered.
- xi. As appropriate a wetlands/floodplain assessment. This assessment shall include mapping of wetlands and floodplain areas and monitoring of wetlands during pre-design activities, pursuant to Section V.A. and B.
- xii. A description of, and justification for, the proposed extent of the zone of capture of the full-scale extraction and treatment system for each Source Area property.
- xiii. Such additional investigations as may be necessary to design and implement the remedial actions specified in Sections II-V of this SOW.

2. Implementation

Within thirty (30) days of receipt of approval or modification of the Work Plan by EPA after consultation with DEP, pursuant to Section XII of the Consent Decree, the appropriate Source Area Defendant(s) shall implement the Work required by and/or developed under Section VII.B. of this SOW, according to the timetable submitted and approved therein.

Within sixty (60) days of completion of the Work required under the Pre-Design Work Plan, the appropriate Source Area Defendant(s) shall submit a summary report presenting the results of the studies and shall include, but not be limited to, the following information:

- a. a map of sampling locations;
- b. tabular representation of laboratory results by media including comparison with any standards when appropriate;
- c. data validation packages;
- d. interpretation of data;
- e. reporting of any unusual conditions at the Source Area property; and
- f. recommendations and/or conclusions.

EPA, in consultation with DEP, shall then review the submittal and approve or disapprove it pursuant to Section XII of the Consent Decree.

C. Evaluation of Combined Effect of Groundwater Extraction Systems

For purposes of evaluating the expected combined effects of full-scale groundwater extraction systems, two reports shall be submitted to EPA and DEP. One report shall address groundwater extraction systems on the east side of the Aberjona River and the other report shall address groundwater extraction systems on the west side of the Aberjona River. Within thirty (30) days after EPA and DEP receive the initial draft summary reports pursuant to Section VII.B.3., above, for all Source Area properties on one side of the river, the appropriate Source Area Defendants for the sources on that side of the river shall submit a report that assesses the combined effects and interactions of the full-scale groundwater extraction and treatment systems proposed for each of the individual Source Area properties. The purpose of this report is to describe

the individual and combined zones of influence and capture zones of the full-scale systems proposed for that side of the river, identify any potential negative impacts on individual extraction systems and wetlands resulting from full-scale operation, and consider adjustments of the extraction systems at individual Source Area properties to minimize negative impacts.

If, after review of these combined effects reports, EPA, in consultation with DEP, determines that the expected effects of the full-scale systems on either side of the river extend to the other side of the river, the appropriate Source Area Defendants shall evaluate the combined effects which would result from operating full-scale systems at all Source Area properties. A report which addresses the combined effects of full-scale systems at all Source Area properties shall be submitted to EPA and DEP within fifteen (15) days after EPA and DEP receive both reports describing the evaluations of the combined full-scale systems on each side of the river. Any predicted impacts to wetlands are to be addressed pursuant to Section V.B. and V.C. of the SOW.

The combined effects evaluation reports shall be submitted to EPA for approval after consultation with DEP, pursuant to Section XII of the Consent Decree. The results will be incorporated into the remedial actions at the appropriate Source Area properties.

D. Remedial Design Work Plan

1. Within sixty (60) days after EPA, in consultation with DEP, approves the summary report, the appropriate Source Area Defendant(s) shall submit to EPA and DEP a Remedial Design Work Plan, (RDWP). The Remedial Design Work Plan shall set forth and describe all activities to be undertaken in connection with the design of the Remedial Action, and shall include a proposed timetable for completion of the design process. The Remedial Design Workplan shall include, but not be limited to, descriptions of the activities set forth in the following items a. through f.
 - a. Development of detailed design plans and specifications for the soil and groundwater components of the above specified remedial action. Design plans and specifications for alternative treatment technologies for groundwater shall be developed and submitted as provided herein upon the determination

that that alternative should be implemented.

- b. Submission of design plans to EPA and DEP at four stages during their development as indicated in items (1) through (4) below.

Submittals at this stage shall be based on data gathered during the pre-design stage and on data gathered during earlier investigations at the Site.

- (1) preliminary design addressing approximately 30% of the total design. The deliverables for this 30% design submission shall be specified in the Remedial Design Work Plan, and shall include at a minimum:
 - i. technical requirements for the remedial actions;
 - ii. summary of Work done to support design. Data shall be in tabular format with documentation to support each functional aspect of the remedial actions;
 - iii. organization and technical specifications of construction drawings; and
 - iv. preliminary design calculations;
 - v. preliminary design criteria and a preliminary construction schedule;
- (2) intermediate design addressing approximately 60% of the total design. The deliverables for this 60% design submission shall be specified in the Remedial Design Work Plan.
- (3) pre-final design addressing 95% of the total designs which shall include, at a minimum:
 - i. corrected design drawings and calculations with written comments to define corrections and/or additions made to the 60% design plans;

- ii. plans, specifications and calculations equivalent to 95% of the overall design;
 - iii. initial draft Operation and Maintenance Plan consistent with Section VII.f. below; and
 - iv. a summary of the experience and qualifications of invited bidders if they differ from pre-design consultants.
- (4) a final design addressing 100% of the total design for each Source Area property remedy which shall include:
- i. final plans and specifications in reproducible format; and
 - ii. a final Operation and Maintenance Plan consistent with Section VII.f. below;
- c. Correlation of plans and specifications (to be provided only at the pre-final and final design stage).
- d. Submission with the preliminary (30%) design, of a detailed statement of all applicable or relevant and appropriate State and Federal public health and environmental requirements and standards as they relate to the specific circumstances and response activities at each Source Area property, based on, but not limited to, ARARs contained in Tables 1, 2, and 4 through 8 in this SOW and specifically including the following:
- (1) Resource Conservation and Recovery Act and regulations promulgated thereunder at 40 CFR, Part 264;
 - (2) Clean Water Act;
 - (3) Clean Air Act;
 - (4) Toxic Substances Control Act;
 - (5) Executive Orders 11988 (Floodplain) and 11990 (Wetlands), and Guidance outlined under 40 CFR Part 6,

Appendix A:

- (6) Massachusetts Wetlands Protection Act, M.G.L.c.131 §40 and regulations promulgated thereunder.
- e. The provision at the pre-final and final design stage of the assumptions, drawings and specifications necessary to support the analysis of compliance with applicable or relevant and appropriate Federal and State public health and environmental requirements identified in the preliminary (30%) design.
- f. Development of an Operation and Maintenance Plan that shall provide for the long-term, continued effectiveness of the remedial action and that shall include:
 - i. maintenance and operation of the groundwater monitoring system to monitor the efficiency of remedial action;
 - ii. protection and maintenance of surveyed benchmarks and site security measures;
 - iii. surface water monitoring adequate to monitor the effectiveness of the Remedy;
 - iv. compliance with applicable, relevant and appropriate and "to be considered" State and Federal standards and requirements; and
 - v. a schedule for completion of each activity and submittal of reports.
2. At the time of the submittal of the RDWP to EPA, and DEP, the appropriate Source Area Defendant(s) shall brief EPA and DEP personnel on the proposed design.
3. Within thirty (30) days after receipt of approval or modification by EPA in consultation with DEP, of the Remedial Design Work Plan pursuant to Section XII of the Consent Decree, the appropriate Source Area Defendant(s) shall implement the Work in accordance with the specified approved timetable and shall submit to EPA for review and approval, after consultation with DEP, each of the items described in the Remedial Design Work Plan.

VIII. Remedial Action

A. Remedial Action Contractor

1. Within thirty (30) days of approval or modification of the final (100%) design specifications, the appropriate Source Area Defendant(s) shall submit to EPA and DEP the names and qualifications of the contractors from whom the appropriate Source Area Defendant(s) propose to solicit bids to perform the remedial action tasks set forth in this Appendix II (i.e. the short list of bidders) pursuant to Section VI. Paragraph 11 of the Consent Decree.

B. Remedial Action Work Plan

1. Within sixty (60) days of notifying EPA and DEP of the selected contractor(s), the appropriate Source Area Defendant(s) shall submit to EPA and DEP a Remedial Action Work Plan for implementing the Source Area property remedial actions and associated activities including operation and maintenance consistent with the approved design for each Source Area property. This Work Plan shall contain, at a minimum, the items in (a), (b) and (c) below:
 - a. a detailed Project Operations Plan (POP) prepared in support of all field work to be conducted under the remedial action phase of Work described below. The POP shall include:
 1. a health and safety plan (see Attachment 1.A.)
 2. a quality assurance/quality control plan (see Attachment 1.B.)
 3. a detailed sampling and analytical plan (see Attachment 1.C.)
 4. a statement of objectives for all the above Work, a list of all ARARs relevant to the above Work, and the methods for providing for compliance with these ARARs.
 5. Source Area property Security Plans which provides for security in accordance with 40 CFR Section

264.117(b) and 40 CFR Section 264.14. The Security Plan shall include, but not be limited to, a description of the measures to be taken to provide for the safety of the personnel and equipment on-site, safety of nearby residents, and to provide an effective barrier against unauthorized public access. The appropriate Source Area Defendants shall submit a security plan which shall be designed to reflect and complement the level of Work activity on each Source Area property, and shall incorporate 24-hour security, if found to be necessary by EPA in consultation with DEP. This Plan may be combined with the appropriate Source Area Defendants' Health and Safety Plan mentioned above.

- b. A detailed description of the investigations necessary for the implementation of the above specified remedial actions in Sections II-V in the SOW. This description shall include for each investigation, a statement of purpose and objectives, identification of the specific activities necessary to complete the investigation, and a timetable for performance of the activities including submission of study reports. This description shall encompass, at a minimum, the investigations specified below:
1. a soil sampling and analysis program to monitor the performance of in-situ volatilization and to assure that soil shall be treated to cleanup levels, including monitoring of influent and effluent air emissions;
 2. sampling of pre-treatment sludge to determine if it is subject to Land Disposal Restrictions. Sludge shall be analyzed to determine appropriate disposal options;
 3. sampling, analysis, and monitoring of all discharges to demonstrate compliance with performance standards throughout remedial action;
 4. sampling and monitoring of the groundwater in the saturated

unconsolidated deposits and bedrock during groundwater treatment. Extraction well systems shall be sampled at least quarterly for the first five years of operation for chemical contamination, and daily for extraction rates with instantaneous and totalizing flow meters. If the extraction well system consists of more than one well, the following annual sampling and analysis schedule for extraction wells shall be used: Two quarterly sampling events shall include sampling and analysis of each extraction well. These samples shall be collected during alternate quarterly sampling events. The two remaining quarterly sampling events shall include sampling and analysis of a composite sample from the combined system. Selected monitoring wells shall be sampled at least quarterly for the first five years for chemical contamination. After five years, an evaluation will be made as to the frequency for further monitoring. This will include existing and new wells deemed necessary for adequate monitoring. The objectives of monitoring are to define the mass of the contaminants extracted over the life of the remedy, to evaluate the efficiency of the remedy, and to demonstrate compliance with Federal and State requirements;

5. a plan to submit a summary report that shall be generated yearly during the implementation of the remedy. The report shall summarize the status of groundwater remediation and, shall include the following: summary table of contaminant concentrations including radionuclides; a summary of the mass of contaminants removed, i.e., groundwater pumping rates and the influent and effluent concentrations; contour maps of the distribution of contaminants, an interpretation of the trends in contaminant concentration and distribution, a summary of air emissions and carbon usage rates, if appropriate, and recommendations for modifications to the system if necessary, such as

additional recovery wells, replacement of parts, and such additional data or analyses as may be necessary to summarize the status of groundwater remediation;

6. wetlands monitoring plan pursuant to Section V.B. of this SOW. This includes monitoring of wetlands during remediation;
 7. a Wetlands restoration program pursuant to Section V.C. of this SOW;
 8. soil and groundwater compliance plans pursuant to Section III.C. and Section IV.B. respectively, of this SOW; and
 9. post-remediation monitoring plan pursuant to Section VI.B.2. of this SOW.
- c. a timetable for the completion of all these activities, which shall also identify major and minor milestone events in the remedial action process.

2. Within thirty (30) days after the appropriate Source Area Defendant(s) receipt of the Remedial Action Work Plan, as approved, or modified by EPA, after consultation with DEP, pursuant to Section XII of the Consent Decree, and with EPA's direction, the appropriate Source Area Defendant(s) shall implement remedial activities in accordance with the approved Remedial Action Work Plan and schedules contained therein.
3. During the construction period, the appropriate Source Area Defendant(s) and their contractor(s) shall meet monthly with EPA and DEP and EPA's oversight contractor(s) regarding progress and details of construction. EPA may in its sole discretion increase or waive this requirement either generally or with respect to particular meetings.
4. Upon completion of construction, the appropriate Source Area Defendant(s) shall submit to EPA and DEP a final remedial construction report that includes a certification of completion of construction from a professional engineer that the construction has been completed in compliance with the terms of the remedial design.

IX. Operation & Maintenance

Immediately after EPA approval, in consultation with the DEP, of the appropriate Source Area Defendant(s) certification of completion of construction activities, the appropriate Source Area Defendant(s) shall implement all operation and maintenance activities according to the terms and schedules set forth in the Operation and Maintenance Plan as approved or modified by EPA, after consultation with the DEP.

X. Design and Construction and Schedule Modifications

During design or construction of the remedial actions, should conditions that would alter the ability of the system(s) to achieve performance standards warrant modifications of the design or construction, EPA, in consultation with DEP, may require, or the appropriate Source Area Defendant(s) may propose by a submittal, such design or construction modifications. After approval by EPA in consultation with the DEP, the modifications shall be implemented.

XI. EPA Review of Plans, Workplans, Reports, and Other Terms

All submissions by the appropriate Source Area Defendant(s) of items which are required to be submitted to EPA pursuant to this SOW, and any approved Workplans, shall be governed by the requirements of Section XII of the Consent Decree.

XII. Central Area Remedial Investigation/Feasibility Study

Definition

The Central Area, for the purpose of this RI/FS, consists of all groundwater and land masses within Route 128 to the north, Route 93 to the east, Salem and Cedar Streets to the south, and the Boston and Maine railroad to the west, excluding the source area properties as defined in the Consent Decree and the Aberjona River, its tributaries, and their sediments, and associated wetlands on the east side of the Aberjona River.

A. Objectives

The appropriate Source Area Defendants shall conduct the study in the format of a Remedial Investigation and Feasibility Study (RI/FS). This study shall be considered a second operable unit for the Site. Ultimately, a second Record of Decision shall be issued by EPA in consultation

with DEP, that shall include the Central Area. The Outline of Work for the RI/FS can be found in Attachment 2, to this SOW. This outline describes the processes, deliverables, objectives and methods for completing an RI/FS.

The objectives of the RI/FS shall include those listed in Attachment 2 and also the following:

- Define the nature and extent of contamination in the Central Area.
- Refine the present understanding of the interaction of the Aberjona River and the aquifer systems within the Central Area.
- Evaluate the impact of pumping groundwater within the Central Area on the Aberjona River and associated wetlands by analyzing the USGS pumping test and integrating the results of Source Area property pilot pumping tests conducted pursuant to the RD/RA portion of this SOW to the extent that these results are available, and by using the results of any additional pumping test(s) required by EPA, in consultation with DEP, as part of this investigation.
- Identify and evaluate the effectiveness of various established and innovative remedial technologies, e.g., pump and treat and in-situ bioremediation.

The appropriate Source Area Defendants shall perform an RI/FS that shall meet the objectives listed above and those listed in Attachment 2 and the RI/FS Work Plan.

B. Remedial Investigation and Feasibility Study (RI/FS) WORK PLAN

1. If, as of the date of lodging of the Consent Decree, the Pumping Test (the "Pumping Test") required to be performed by Grace and UniFirst pursuant to Appendix A of the Administrative Order on Consent, U.S. EPA Docket No. CERCLA I-90-1035 dated March 24, 1990 (the "Order"), is not scheduled to begin within ninety (90) days of lodging, the RI/FS Work Plan shall be submitted within ninety (90) days. If the Pumping Test is scheduled to begin within ninety (90) days of lodging of the Consent Decree, the RI/FS Work Plan shall be submitted within ninety (90) days of submittal of the Report required to be submitted pursuant to Appendix A, Paragraph 3, of the Order, unless a different schedule is agreed to by EPA in consultation with the DEP and the appropriate Source Area Defendants. This Work plan shall describe all tasks to be performed pursuant to

Section XII and Attachment 2 of this SOW.

- a. The investigations that shall be addressed in the Work Plan shall include items 1-4 below and those listed in Attachment 2 of this SOW:
 1. A review of available information, including the Remedial Investigation reports, USGS 30 day aquifer test report, and the Wetlands Assessment, shall be conducted to assist in determining data needs;
 2. Development of a conceptual model of groundwater flow and contaminant transport from known sources of contamination at the Site in the unconsolidated deposits and bedrock. This model should include flow nets in map view and cross sections that depict piezometric head and contaminant concentrations. Areas where assumptions have been made due to lack of field data shall be clearly identified. The lateral and vertical distributions of hydraulic conductivity in the unconsolidated deposits and bedrock shall be included.
 3. For portions of the Central Area where groundwater remediation is determined by EPA in consultation with DEP to be necessary, a pumping test shall be conducted that provides information that can be used to design a system that would maximize VOC removal and minimize potential contaminant infiltration from the river.

During the course of these hydrologic investigations, an evaluation of the application and utility of updating the USGS groundwater flow model as a management tool for the design and operation of a remedial system shall be made. The model that shall be used is the USGS groundwater flow model as described in the report titled: Hydrogeology and Simulation of Groundwater Flow at Superfund Site Wells G & H, Woburn, Massachusetts, diLima, Virginia and Olimpio, Julio, 1989, USGS, Water Resources Investigations Report, 89-4059.

2. Implementation

- a. Within sixty (60) days of the lodging of the Consent Decree, the appropriate Source Area Defendants shall submit to EPA and DEP the names and qualifications of the contractors from whom

the appropriate Source Area Defendants shall solicit bids to perform the RI/FS tasks set forth in this Appendix II (i.e. the short list of bidders) pursuant to Section VI. Paragraph 10 of the Consent Decree.

- b. Within thirty (30) days of receipt of the RI/FS Work plan, as approved or modified by EPA in consultation with DEP pursuant to Section XII of the Consent Decree, the appropriate Source Area Defendants shall implement the Work as required by and or developed under Section XII of this SOW and the RI/FS Work plan according to the approved schedule therein.
- c. Within ninety (90) days of the completion of the Work described in the RI/FS Work Plan, the appropriate Source Area Defendants shall submit to EPA and DEP a draft Initial Central Area Characterization Report.
- d. Within thirty (30) days of receipt of EPA's executive summary for the Draft Baseline Risk Assessment, the appropriate Source Area Defendant(s) shall submit a Phase 1B Work Plan as described in Attachment 2, to EPA for review and approval in consultation with DEP pursuant to Section XII of the Consent Decree.
- e. Within thirty (30) days of receipt of the Phase 1B Work Plan as approved or modified by EPA in consultation with DEP pursuant to Section XII of the Consent Decree, the appropriate Source Area Defendants shall initiate the Work, if required, according to the approved plan.
- f. Within ninety (90) days of the completion of the Phase 1B field work, if required, or if Phase 1B field work is not required, within sixty (60) days after approval of the Initial Central Area Characterization Report the appropriate Source Area Defendants shall submit to EPA for review and approval in consultation with DEP pursuant to Section XII of the Consent Decree, an Initial Draft RI/FS report as described in Section 4.2 of Attachment 2.
- g. Within sixty (60) days after receipt of the Draft Baseline Risk Assessment, the appropriate Source Area Defendant(s) shall submit to EPA for review and approval in consultation with DEP pursuant to Section XII of the Consent Decree a Post-Screening

Field Investigation Work Plan.

- h. Within thirty (30) days after receipt of the Post-Screening Field Investigation Work Plan as approved or modified by EPA in consultation with DEP, pursuant to Section XII of the Consent Decree, the appropriate Source Area Defendant(s) shall implement the work required in the plan.
- i. Within thirty (30) days of completion of the Work required in the Post-Screening Work Plan and approval of the Initial Draft RI/FS, the appropriate Source Area Defendants shall submit to EPA for review and approval in consultation with DEP pursuant to Section XII of the Consent Decree, a complete first Draft RI/FS as described in Section 5.0 and 5.1 of Attachment 2.
- j. If EPA, in consultation with DEP, determines that additional studies are not needed and a Post-Screening Field Investigation Work Plan is not performed, then within sixty (60) days of receipt of the Initial Draft RI/FS as approved or modified by EPA, in consultation with DEP, pursuant to Section XII of the Consent Decree, and receipt of EPA's Draft Baseline Risk Assessment, the appropriate Source Area Defendants shall submit a complete first Draft RI/FS as described in Section 5.0 and 5.1 of Attachment 2, to EPA for review and approval, after consultation with DEP, pursuant to Section XII of the Consent Decree.

XIII. Secondary Obligation for New England Plastics' Property

In the event that Grace and UniFirst become obligated to perform work at the New England Plastics property pursuant to Schedule A, such obligations shall as appropriate be the following:

- 1. All remaining Design work necessary to address groundwater contamination in bedrock.
- 2. All remaining construction work necessary to address groundwater contamination in bedrock.
- 3. All remaining Remedial Action, Operation and Maintenance and all groundwater monitoring necessary to address groundwater contamination in unconsolidated deposits and bedrock, except such chemical analyses that cannot be routinely performed on site.

APPENDIX II
ATTACHMENT 1

All Work Plans shall be designed to ensure that all remedial activities under this Consent Decree shall be conducted in accordance with the applicable requirements of the National Contingency Plan (NCP), 40 CFR Part 300, and, to the extent appropriate, the guidelines of EPA guidance documents and Data Quality Objectives (OSWER Directive 9355.0-7A, Oct. 17, 1986). Should there be any inconsistencies between the NCP and the EPA guidance documents, the NCP shall control. Any deviations from EPA guidance documents shall be identified.

A. SOURCE AREA PROPERTY SPECIFIC HEALTH AND SAFETY PLAN

Health and Safety Plans (HSPs) shall be prepared to address realistic potential hazards to the field remedial teams and the surrounding community potentially impacted by Source Area property response activities. This plan shall be consistent with the applicable guidelines of EPA's Health and Safety Planning for Remedial Investigations, Guidance on Remedial Investigations under CERCLA, (EPA/540/G-85/002, June 1985,) and the requirements of the Occupational Safety and Health Administration (OSHA) Guidelines for Hazardous Waste Operations and Emergency Response Activities (interim final rule, 29 CFR Part 1910 as amended, Federal Register Vol. 51, No. 244, Dec. 19, 1986).

The HSPs shall be adequate to address the safety of the field team and the community during all activities conducted pursuant to the Consent Decree. Contingency plans shall be developed to address situations which may likely impact the nearby community. The HSPs shall also include action levels for ambient-air-quality monitoring during groundwater and soil sampling and treatment.

The Health and Safety Plans shall address at a minimum the following items:

1. personal protective equipment requirements;
2. on-site monitoring equipment requirements. This will include air monitoring to address fugitive and point source emissions so that they do not result in unacceptable ambient air quality to on-site workers and nearby residents. Air-monitoring stations will be located at appropriate locations on the Source Area properties and appropriate locations within the Central Area during Remedial Action implementation.
3. safe working procedures specification;

4. equipment decontamination procedures;
5. personal decontamination procedures; and
6. submission of a contingency plan describing potential on-site and off-site emergency conditions, action levels and response procedures with schedules to be used in the event of emergencies. The contingency plan shall include:
 - (a) Name of person responsible for responding in the event of an emergency incident;
 - (b) Plan for initial safety indoctrination and training for all employees, name of the person who shall give the training, and the topics to be covered;
 - (c) Plan and date for meeting with the local community, including local, State and Federal agencies involved in the cleanup, as well as local emergency squads and hospitals;
 - (d) First aid and medical information including location of first aid kits; names of personnel trained in first aid; clearly marked map with the route to the nearest hospital; all necessary emergency phone numbers; fire, rescue, local hazardous material teams; and National Emergency Response Team;
 - (e) Plans for protection of public and visitors to the job site;
 - (f) Air monitoring plans. At each Source Area property, air monitoring may include personnel monitoring, on-site and/or off-site area monitoring, and perimeter monitoring. Trigger concentrations to implement the contingency plan shall be specified; and
 - (g) Spill Prevention Control and Countermeasures plan (SPCC) which shall provide contingency measures for potential spills and discharges from materials handling and/or transportation and that describes methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment or material from the discharge of wastes due to spills; provides for equipment and personnel to perform emergency measures required to contain any spillage and to remove and properly dispose of any

media that become contaminated due to spillage; and provides for equipment and personnel to perform decontamination measures that may be required to remove spillage from previously uncontaminated structures, equipment, or material.

B. PROJECT ACTIVITIES QUALITY ASSURANCE/QUALITY CONTROL PLAN

A Quality Assurance/Quality Control (QA/QC) Plan shall be prepared to specify the procedures to be used in all sampling and analyses, and reporting performed pursuant to this Consent Decree. The QA/QC plan shall be prepared in accordance with the EPA guidance document QAMS-005/80, Data Quality Objectives guidance documents EPA/540/G-87/003 and 004 (March 1987), and U.S. EPA Contract Lab Program, Scope of Work for inorganic (7/88) and organic analyses (2/88). At a minimum the following topics shall be addressed in the QA/QC Plan:

1. title page with provisions for approval signatures ;
2. table of contents;
3. project description;
4. sampling procedures;
5. analytical procedures, which must meet EPA's Contract Lab Program's Scope of Work; when possible, otherwise, analytical procedures must be EPA approved.
6. project organization and hierarchy of responsibility;
7. quality-assurance objectives for measurement data, stated in terms of precision, accuracy, completeness, representativeness, correctness, and comparability;
8. sample chain-of-custody procedures;
9. field and analytical equipment, calibration procedures, reference, and frequency;
10. data reduction, validation and reporting;
11. internal quality-control checks and frequency;
12. quality-assurance performance audits, system audits, and frequency of implementation and non-conformance reports;
13. preventive maintenance procedures and schedules for analytical equipment;

14. specific routine procedures to be used to assess the precision, accuracy, and completeness of data and to assess specific measurement parameters involved;
15. corrective action; and
16. quality-assurance reports.

C. SAMPLING AND ANALYTICAL PLAN

The sampling and analytical plan shall specify the procedures to be followed for all samples to be taken and analyzed pursuant to this Consent Decree. The QA/QC Plan and the Sampling and Analytical Plan may be combined to the extent that there may be duplicate requests under each section. At a minimum, the Sampling and Analytical Plan shall address the following:

1. objectives of the sampling efforts;
2. type, location, rationale and construction specifications for placement of any proposed or newly developed monitoring wells, well screens and borings.
3. type, quantity, rationale, frequency, and location of samples to be collected;
4. sampling methods to be used, where appropriate, including a field GC for on-site sampling, well sampling and evaluation procedures, water and air-quality sampling techniques, provisions for split sampling, preservation techniques, equipment needs, equipment cleaning and decontamination procedures, and field support requirements;
5. sampling shipping and chain-of-custody procedures;
6. A list of chemical constituents of interest and historical ranges of concentrations based on available data. These chemical constituents are to include but not be limited to the following; trichloroethylene, tetrachloroethene, 1,1,1-trichloroethane, trans 1,2-dichloroethene, 1,1-dichloroethane, 1,1-dichloroethene, carbon tetrachloride, vinyl chloride, toluene, benzene, naphthalene, phthalates, iron, manganese, arsenic, chromium, lead and radionuclides. Next to each analyte; list the analytical method that shall be used to detect that analyte, and the detection limit for that analyte.
7. Laboratories that shall be used for analyses.

ATTACHMENT 2

OUTLINE OF WORK FOR REMEDIAL INVESTIGATION AND FEASIBILITY STUDY FOR WELLS G & H SUPERFUND SITE

1.0 OBJECTIVES AND SCHEDULE

The primary objective of the Remedial Investigation and Feasibility Study (RI/FS) shall be to assess the environmental conditions within the Central Area and evaluate potential remedial alternatives for the Central Area that shall be consistent with the National Contingency Plan. The RI and FS shall be conducted simultaneously as integrated, phased studies leading to selection of a remedy. The integration and phasing of the RI and FS reflect the intent of EPA's developing policies for RI/FS studies as reflected in "Guidance for Conducting Remedial Investigation and Feasibility Studies Under CERCLA" (EPA/540/G-89/004, OSWER Directive 9355.3-01 October 1988) and the current National Contingency Plan (NCP) (40 CFR Part 300).

1.1 Remedial Investigation

The objectives of the RI portions are to:

1. define the source(s), nature, extent, and distribution of contaminants released;
2. provide sufficient information to evaluate remedial alternatives, conceptually design remedial actions, select a remedy, and issue a Record of Decision that includes the Central Area.

If EPA, in consultation with DEP at any time during or after the RI/FS process determines that any of these objectives are not fully met, the Source Area Defendants shall design and perform additional work plans, studies or other appropriate activities until EPA, in consultation with DEP, decides that no further investigation is necessary to achieve the goals and intentions of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The RI shall include data gathering (samples, monitoring, and testing), and developing methodology, procedures and assessments for characterizing the physical and chemical attributes of the Central Area.

All data, methods, and interpretations must be:

1. scientifically and technically sound with all assumptions, biases, and deficiencies explicitly stated;

2. thoroughly discussed with observations and interpretation clearly identifiable and distinguishable;
3. concisely illustrated and presented in separate graphs, charts, maps, and/or cross-sections where possible so that the text provides a discussion of such illustrations;
4. linked to the objectives for which they were completed and to which they are applicable; and
5. sufficient to satisfy the RI objectives listed above and in Section XII of this SOW.

The variety of procedures used to address the RI objectives include: evaluating available Site information including data generated by the appropriate Source Area Defendant(s), EPA, DEP, other parties and their respective contractors; identifying data gaps; performing field sampling and laboratory analyses; conducting bench scale and/or field pilot studies; and consulting available Federal, State, or local applicable, or relevant and appropriate public health and environmental regulations and/or laws (ARARs).

1.2 Feasibility Study

The objectives of the FS portions are, without limitation, to:

1. review the applicability of various remedial technologies, including innovative technologies, to determine whether they are appropriate remedies for the Central Area;
2. determine if each alternative developed by combining technologies is effective, by evaluating in the short and long term whether it is:
 - (a) effective,
 - (b) implementable, and
 - (c) cost effective, but cost shall only be used to evaluate alternatives of similar effectiveness;
3. evaluate potential remedial alternative(s) through a detailed and comparative analysis based upon the nine (9) criteria listed in the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA 540/G-89/004 OSWER Dir. 9355.3-01 October 1988) and any criteria identified in accordance with the effective NCP (40 CFR Part 300) or CERCLA as amended; and
4. provide direction to the RI such that sufficient data of the appropriate type are gathered to select a remedy based on the factors mentioned in the objectives listed above.

The FS includes conceptualizations, engineering analyses, cost analysis, and scheduling for engineered aspects of the Central Area cleanup to select among alternative remedies. The plans, specifications, organization system, pilot studies, and costs must be:

1. technically sound with design criteria, potential deficiencies, and safety factors explicitly stated;
2. discussed with all supporting reference material clearly identified and included;
3. concisely illustrated and presented with separate plans, charts, graphs, and/or maps, such that the text discusses illustrations;
4. linked to the objectives for which they were completed and to which they are applicable; and
5. sufficient to satisfy the FS objectives listed above and in the SOW.

1.3 The RI/FS Process: Steps and Deliverables

The appropriate Source Area Defendant(s) shall perform the RI/FS as discussed in this section and as shown in Figure 1. The illustrated process is based on the current understanding of the Central Area. The results of investigations during the RI/FS may require changes in the process. The integrated RI/FS process provides an orderly selection of a remedy. For example, the data needed to perform the FS shall be identified as early as possible in the RI.

In this SOW, Phase 1 of the RI, the Initial Central Area Characterization has been divided into Phase 1A and Phase 1B Field Investigations. The integrated RI/FS process described herein for the Central Area has five (5) major steps. Each step of the RI/FS process is associated with one or more phases of the RI or the FS and at least one deliverable, as discussed in Sections 2.0 through 6.0.

Initiation of the scoping of the RI/FS phase and delivery of the Work Plan for the RI/FS shall be triggered by the lodging date of the Consent Decree as qualified by Section XII.B.1 of the SOW. Initiation of the other phases of the RI/FS shall be triggered by receipt of appropriate submittals approved or modified by EPA, in consultation with DEP, pursuant to Section XII of the Consent Decree.

The appropriate Source Area Defendant(s) shall include the schedule in the Work Plan for the RI/FS. The schedule shall also

accompany each of the major predetermined deliverables and
monthly progress reports.

Figure 1

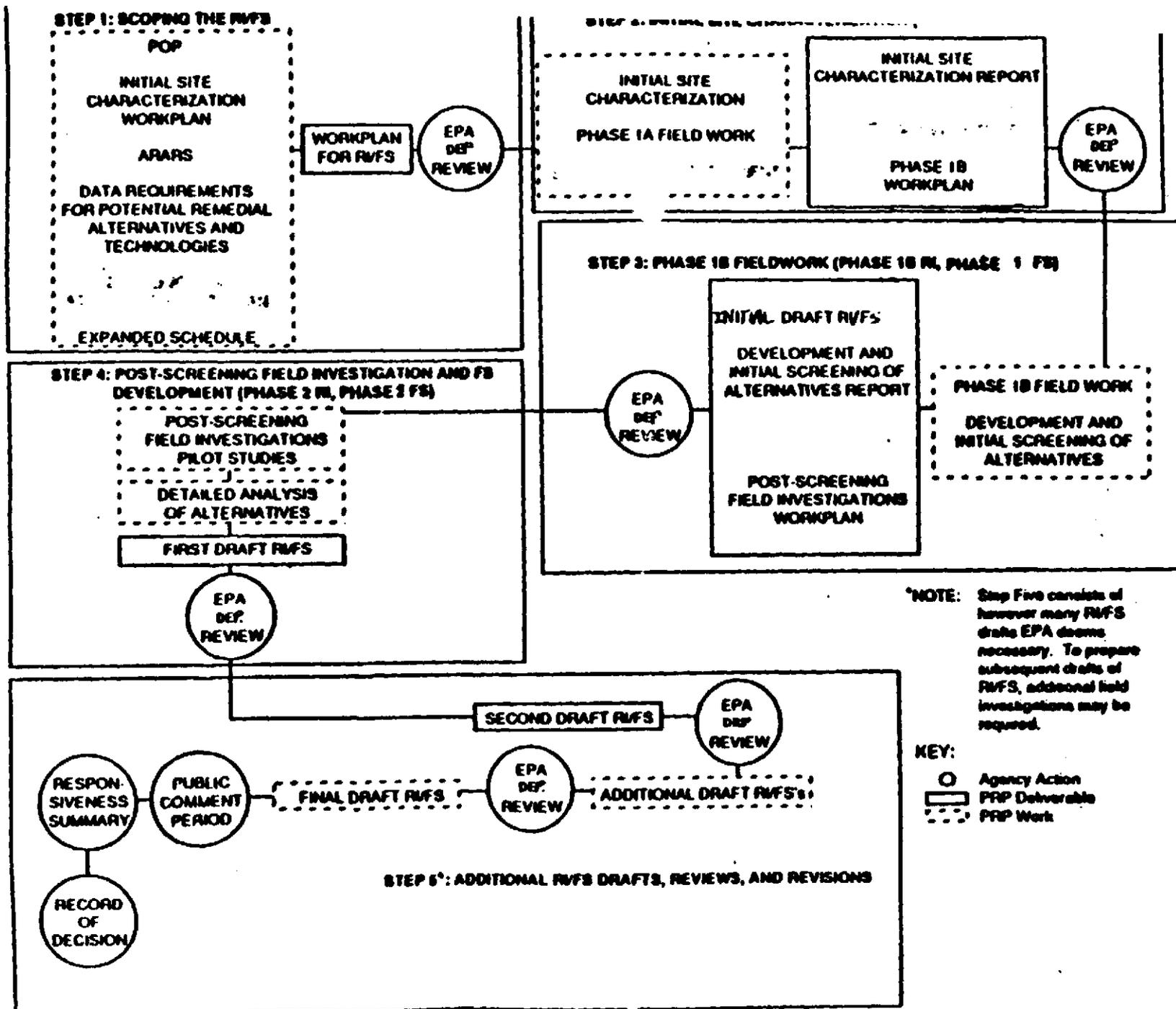


FIGURE 1. FLOW DIAGRAM OF RI/FS PROCESS

2.0 SCOPING OF THE RI/FS

The appropriate Source Area Defendant(s) shall scope the RI/FS such that the RI/FS:

1. addresses the objectives of the RI/FS;
2. develops procedures to meet the RI/FS objectives, including those for field activities;
3. initiates the identification of federal or state applicable or relevant and appropriate requirements (ARARs) which shall provide criteria for remedy selection at the Central Area;
4. assembles and evaluates existing data, identifies data gaps, and resolves inconsistencies;
5. develops a conceptual understanding of the Central Area based on the evaluation of existing data described in paragraph (4) of this section;
6. identifies likely response scenarios and potentially applicable technologies and operable units that may address Central Area problems;
7. undertakes limited data collection efforts or studies where this information will assist in scoping the RI/FS or accelerate response actions, and begin to identify the need for treatability studies, as appropriate;
8. identifies the type, quality and quantity of the data needed to assess potential remedial technologies, to evaluate technologies that may be combined to form remedial alternatives, and to support decisions regarding remedial response activities;
9. prepare site specific health and safety plans that shall specify, at a minimum, employee training and protective equipment, medical surveillance requirements, standard operation procedures, and a contingency plan that conforms with 29 CFR 1910.120(1)(1) and (1)(2);
10. identifies natural resources that have been or may be injured as a result of releases at the Site, and provides for notification of state and federal trustees of the affected natural resources in order that the trustees may initiate appropriate actions. The lead agency shall seek to coordinate necessary assessments, evaluations, investigations, and planning with such state and federal trustees;

11. develops sampling and analysis plans that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs; and
12. drafts the schedule which shows the flow of studies and the submission of deliverables.

The scoping phase of the RI/FS includes submission of an RI/FS work plan. The RI/FS Work Plan shall consist of the following:

1. Project Operations Plan;
2. Initial Central Area Characterization Section;
3. Initial list of ARARs;
4. Data Requirements of Potential Remedial Alternatives and Technologies; and
5. Expanded Schedule for the RI/FS.

Collectively, these documents are referred to as the Work Plan for the RI/FS in Figure 1 and elsewhere in this document.

To reduce the submittal of repetitive information contained within each of the elements of the Work Plan, the appropriate Source Area Defendant(s) shall provide the appropriate cross-references at key places within each document.

2.1 Project Operations Plan

Before remedial investigation field activities, several site-specific plans shall be written to establish procedures to be followed by the appropriate Source Area Defendant(s) in performing field, laboratory and analysis work, and community and agency liaison activities. These site-specific plans include the:

1. Central Area Management Plan;
2. Sampling and Analysis Plan (SAP);
3. Health and Safety Plan (HSP); and
4. Community Relations Support Plan.

The appropriate Source Area Defendant(s) shall combine these plans to prepare the Project Operations Plan (POP). As illustrated in Figure 1, the POP is part of the Work Plan for the RI/FS and is subject to EPA review, pursuant to Section XII of the Consent Decree in consultation with DEP. The four components of the POP are discussed in Sections 2.1.1 through 2.1.4.

The format and scope of each plan shall be modified as needed to describe the sampling, analyses, and other activities that are clarified as the RI/FS progresses. These activities include on-site pilot studies of remedial treatments, laboratory bench scale studies, and subsequent rounds of field sampling.

2.1.1 Central Area Management Plan

The Central Area Management Plan shall describe to EPA and DEP how the appropriate Source Area Defendant(s) shall manage the project to appropriately characterize the Central Area. As part of the plan, the appropriate Source Area Defendant(s) shall perform the following tasks:

1. provide a map and list of properties, the property owners, and addresses of owners to whose property access may be required;
2. clearly indicate the exclusion zone, contamination reduction zone, and clean area for on-site activities;
3. establish necessary procedures and provide sample letters to land owners to arrange field activities and to keep EPA and DEP abreast of access-related problems and issues;
4. endeavor to minimize unauthorized entry to active work areas, when such work is being performed pursuant to this SOW, which might result in exposure of persons to potentially hazardous conditions;
5. establish the location of a field office for on-site activities;
6. provide contingency and notification plans for potentially dangerous activities associated with the RI/FS.

The overall objective of the Central Area Management Plan is to provide EPA and DEP with a written understanding and commitment of how various project aspects such as access, security, contingency procedures, management responsibilities, waste disposal, and data handling are being managed by the appropriate Source Area Defendant(s). Specific objectives and provisions of the Central Area Management Plan shall include the following:

1. communicate to EPA and DEP, and the public, the organization and management of the RI/FS, including key personnel and their responsibilities;
2. provide a list of potential contractors and subcontractors of the appropriate Source Area Defendant(s) in the RI/FS and a description of their activities and roles;
3. provide for the proper disposal of materials used and wastes generated during the RI/FS (e.g., drill cuttings, extracted ground water, protective clothing, disposable equipment). These provisions shall be consistent with the offsite disposal aspects of SARA, RCRA, and applicable state laws. The appropriate Source Area Defendant(s), a representative of the appropriate Source Area Defendant(s), or another

party acceptable to EPA, in consultation with DEP, shall be identified as the generator of wastes for the purpose of regulatory or policy compliance; and

4. provide plans and procedures for organizing, manipulating, and presenting the data generated and for verifying its quality during the Central Area RI/FS.

The last item shall, if appropriate, include the description of computer data base management systems that are compatible with hardware available to EPA Region I personnel for handling media-specific sampling results obtained during the Central Area RI/FS. The description shall include data input fields, appropriate quality assurance/quality control to provide accuracy, and capabilities of data manipulation. To the degree possible, the data base management parameters shall be compatible with the EPA Region I data storage and analysis system.

2.1.2 SAMPLING AND ANALYSIS PLAN (SAP)

The SAP consists of two parts: (1) a Quality Assurance Project Plan (QAPP) that describes the policy, organization, functional activities and quality assurance and quality control protocols necessary to achieve data quality objectives dictated by the intended use of the data; and (2) the Field Sampling Plan (FSP) that provides guidance for fieldwork by defining in detail the number, type and location of samples and the type of analyses to be used on a project. Components of these two individual plans are described below. Additional guidance on the topics covered in each of these plans and the integration of the QAPP and the FSP into the SAP can be found in the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988) and the references contained in that document. In addition, the FSP and QAPP should be submitted as a single document (although they may be bound separately to facilitate use of the FSP in the field).

The overall objectives of the sampling and analysis plan are as follows:

- (1) to document specific objectives, procedures, and rationales for field work and sample analytical work;
- (2) to provide a mechanism for planning and approving field and laboratory activities;
- (3) to provide sampling and analysis activities that are appropriate and sufficient; and
- (4) to establish a common point of reference for all parties to

provide comparability and compatibility of appropriate objectives and of sampling and analysis activities.

To achieve this last objective the SAP shall document all field sampling and analysis objectives as noted above, as well as all data quality objectives and specific procedures/protocols for field sampling and analysis set forth by the Central Area Management Plan.

The following critical elements of the SAP shall be described for each sample medium (e.g., ground water, soil, and air) for each sampling event:

1. sampling objectives;
2. data quality objectives, including data uses and the rationale for the selection of analytical levels and detection limits (see Data Quality Objectives Development Guidance for Uncontrolled Hazardous Waste Site Remedial Response Activities (OSWER Directive 9355.0-7, March 1987))
3. site background update, including an evaluation of the validity, sufficiency, and sensitivity of existing data;
4. sampling locations and rationale;
5. sampling procedures and rationale and references;
6. numbers of samples and justification;
7. numbers of field blanks, trip blanks, and duplicates;
8. sample media (e.g., ground water, unconsolidated deposits, air, buildings and facilities including floor drains), as necessary;
9. sample equipment, containers, minimum sample quantities, sample-preservation techniques, maximum holding times;
10. procedures for the calibration and use of portable air-, soil-, or water-monitoring instruments to be used in the field;
11. chemical and physical parameters in the analysis of each sample;
12. chain-of-custody procedures should be clearly stated (See EPA NEIC Policies and Procedures Manual, May 1978 revised Nov. 1982 EPA 330/9-78 001-RJ);
13. procedures to eliminate cross-contamination of samples;

14. sample types, including collection methods and if field and laboratory analyses shall be conducted;
15. laboratory analytical procedures, equipment, and detection limits;
16. equipment decontamination procedures;
17. consistency with the other parts of the work plan by having consistent objectives, procedures, and justification, or by cross-reference;
18. analyses for an appropriate number of samples from each medium for substances on the TCL and TAL included as Tables 3 and 3A of this SOW.
19. analysis for other compounds and chemical species proposed by the appropriate Source Area Defendant(s) or required by EPA in consultation with DEP; and
20. for any limited field investigation method (field screening technique), provisions for the collection and laboratory analysis of limited parallel samples and for the quantitative correlation analysis in which screening results are compared with laboratory results.

The SAP shall be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on the first round of field work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). During the RI/FS, the SAP shall be revised as necessary to cover each round of field or laboratory activities. Revisions or a statement regarding the need for revisions shall be included in each deliverable describing new field work, including the Phase 1B Work Plan and the Post-Screening Field Investigation Work Plan.

The SAP shall allow for notifying EPA and DEP four (4) weeks before initiation of field sampling or monitoring activities. The plan shall also allow split, replicate, or duplicate samples to be taken by EPA, (or their contractor), DEP and by other parties approved by EPA. At the request of EPA, the appropriate Source Area Defendant(s) shall provide these samples in appropriate containers to the government representatives. Identical procedures shall be used to collect parallel samples unless otherwise specified by EPA. Several references shall be used to develop the SAP:

1. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 93553-01, EPA/540/G-89/004, October 1988);

2. Data Quality Objectives for Remedial Response Activities Development Process (OSWER Directive 9355.0-7, EPA/540/G-87/003, March 1987);
3. Draft Data Quality Objectives for Remedial Response Activities, Example Scenario: RI/FS Activities at a Site with contaminated Soil and Ground Water (OSWER Directive 9355.0-7B, EPA/540/G-87/002, March 1987); and
4. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition).
5. U.S. EPA Contract Lab Program, Scope of Work, for inorganic (7/88) and organic analyses (2/88).

2.1.2.1 Quality Assurance Project Plan (QAPP)

The Quality Assurance Project Plan (QAPP) shall document in writing site-specific objectives, policies, organizations, functional activities, and specific quality assurance/quality control activities designed to achieve the data quality objectives (DQOs) of the RI/FS. The QAPP shall cover appropriate environmentally related measurements. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications. All applicable project activities throughout the RI/FS shall comply with the QA: All QAPP and sampling and analysis objectives and procedures shall be consistent with Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (EPA, 1983 - EPA/QAMS 005/80) and appropriate EPA handbooks, manuals, and guidelines including Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition, as amended by update 1) and Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136).

The 16 basic elements of the QAPP are:

1. title page with provision for approval signatures of principal investigators;
2. table of contents;
3. project description;
4. project organization and responsibility;
5. quality assurance objectives for measurement data, in terms of precision, accuracy, completeness, representativeness, and comparability;
6. sampling procedures;

7. sample custody;
8. calibration procedures and frequency;
9. analytical procedures, which must be EPA approved or equivalent methods;
10. data reduction, validation and reporting;
11. internal quality control checks and frequency;
12. performance and system audits and frequency;
13. preventive maintenance procedures and schedules for analytical equipment;
14. specific routine procedures to be used to assess the precision, accuracy, and completeness of data and to assess specific measurement parameters involved;
15. corrective action; and
16. quality assurance reports to the appropriate Source Area Defendant(s).

As indicated in EPA/QAMS-005/80, the above list of essential elements must be considered in the QAPP for the RI/FS. If a particular element is not relevant to a project, reasons must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills the requirements of EPA/QAMS-005/80. Examples of how this cross reference might be accomplished can be found in the Draft Quality Objectives for Remedial Response Activities (OSWER Directive 9355.0-7B) and the Data Quality Objectives for Remedial Response Activities, example scenario (OSWER Directive 9355.0-7B). EPA-approved references, or equivalent, or alternative methods approved by EPA in consultation with DEP shall be used, and their corresponding EPA-approved guidelines shall be applied when they are available and applicable.

The QA/QC procedures for any laboratory used during the RI/FS shall be included in the appropriate Source Area Defendant(s)'s QAPP. When this work is performed by a contractor to a private party, each laboratory performing chemical analyses shall meet the following requirements:

1. be approved by the State Laboratory Evaluation Program, if

available;

2. have successful performance in one of EPA's National Proficiency Sample Programs (i.e., Water Supply or Water Pollution Studies or the State's proficiency sampling program);
3. be familiar with the requirements of 48 CFR Part 1546 contract requirements for quality assurance; and
4. have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

The appropriate Source Area Defendant(s) is required to certify that all data have been validated by an independent qualified chemist according to Region I Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses and Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (amended as necessary to account for the differences between the approved analytical methods for the project and the Contract Laboratory Program (CLP) procedures). Approved methods shall be contained in the QAPP. The independent qualified chemist shall not be the laboratory conducting the analyses and should be familiar with EPA data validation procedures. The independent chemist shall certify that the data have been validated, discrepancies have been resolved if possible, and the appropriate modifiers have been provided. The appropriate Source Area Defendant(s) must keep the complete data package and make it available to EPA on request in order for EPA to conduct an independent validation of the data. The complete data package shall consist of all results, the raw data, and all relevant QA/QC information. An example set of data package deliverables is listed below.

1. summary of positive results and detection limits of non-detects with all raw data;
2. tabulated surrogate recoveries and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
3. tabulated matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
4. associated blanks (trip, equipment, and method) with accompanying raw data for tests;
5. tabulated initial and continuing calibration results (concentrations, calibration factors or relative response

factors and mean relative response factors, percent differences and percent relative standard deviations) with accompanying raw data;

6. tabulated retention time windows for each column;
7. record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;
8. chain of custody for the sample shipment groups;
9. narrative summary of method and any problems encountered during extraction or analysis;
10. tabulated sample weights, volumes, and percent solids used in each sample calculation;
11. example calculations for positive values and detection limits; and
12. SW-846 method 3500 and 8000 validation data for all tests.

The forms contained in Chapter 1 of SW-846 must be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labelled. The concentration of all standards analyzed with the amount injected must be included.

2.1.2.2 Field Sampling Plan (FSP)

The objective of the Field Sampling Plan is to provide EPA and DEP, and all parties involved with the collection and use of field data, with a common written understanding of all fieldwork. The FSP shall define in detail the sampling and data gathering methods used on a project. The FSP should be written so that a field sampling team unfamiliar with the Central Area would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of Superfund Field Operations Methods, (OSWER Directive 9355.0-12, EPA/540/P-87/001), which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites. The FSP shall be Central Area specific and shall include the following elements:

Central Area Background. If the analysis of the existing Central Area details is not included in the Work Plan or in the QAPP, it must be included in the FSP. This analysis shall include a conceptual Central Area model. A conceptual Central Area model includes a description of the Central Area and

surrounding areas and a discussion of known and suspected contaminant sources, probable transport pathways, and other information about the Central Area. The analysis shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps.

Sampling Objectives. Specific objectives of a sampling effort that describe the intended uses of data must be clearly and succinctly stated.

Sample Location and Frequency. This section of the sampling plan identifies each sample matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples to be collected along with the appropriate number of replicates and blanks. Figures shall be included to show the locations of existing or proposed sample points.

Sample Designation. A sample numbering system shall be established for each project. The sample designation should include the sample or well number, the sample round, the sample matrix (e.g., unconsolidated deposits, ground water, unconsolidated deposit boring), and the project name.

Sampling Equipment and Procedures. Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling are necessary to enable the field team to gather data that shall meet the Data Quality Objectives (DQO). A list should include the equipment to be used and the material composition of equipment along with decontamination procedures.

Sampling Handling and Analysis. A table shall be included that identifies sample preservation methods, types of sampling containers, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain of custody forms, packing slips, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

2.1.3 Health and Safety Plan

The objective of the site-specific Health and Safety Plan (HSP) is to establish the procedures, personnel responsibilities, and training necessary to protect the health and safety of all onsite personnel during the RI/FS. The plan shall provide for routine but hazardous field activities and for unexpected Central Area emergencies.

The site-specific health and safety requirements and procedures in the HSP shall be updated based on an ongoing assessment of Central Area conditions, including the most current information

on each medium. For each field task during the RI/FS, the HSP shall identify:

1. possible problems and hazards and their solutions;
2. environmental surveillance measures;
3. specifications for protective clothing;
4. the appropriate level of respiratory protection;
5. the rationale for selecting that level; and
6. criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary.

The HSP shall also include the delineation of exclusion areas on a map and in the field. The HSP shall describe the onsite person responsible for implementing the HSP for the appropriate Source Area Defendant(s) representatives at the Central Area, protective equipment, personnel decontamination procedures, and medical surveillance. The following documents shall be consulted:

1. Interim Standard Operations Safety Guides, (Hazardous Response Support Division, Office of Emergency and Remedial Response EPA, Wash. D.C. 1982);
2. Superfund Public Health Evaluation Manual, (OSWER Directive 9285.41, EPA/540/1-861060, EPA 1986);
3. Hazardous Waste Operations and Emergency Response, (Department of Labor, Occupational Safety and Health Administration, (OSHA) 29 CFR Part 1910); and
4. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B, (NIOSH/OSHA/USCG/EPA 1985).

OSHA regulations at 40 CFR 1910 and Chapter 9 of the Interim Standard Operating Safety Guide, which describe the routine emergency provisions of a site-specific health and safety plan, shall be the primary reference used by the appropriate Source Area Defendant(s) in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to provide for compliance with applicable State and Federal occupational health and safety regulations. The HSP shall be consistent with the objectives and contents of all other plans submitted by the appropriate Source Area Defendant(s). The HSP shall be updated at the request of EPA during the course of the

RI/FS and as necessary.

2.1.4 Community Relations Support Plan (CRSP)

EPA and DEP shall develop a Community Relations Plan (CRP) to describe public relations activities anticipated during the RI/FS. The appropriate Source Area Defendant(s) shall develop a Community Relations Support Plan, whose objective is to provide for and specify adequate support from the appropriate Source Area Defendant(s) for the community relations efforts of EPA and DEP. This support shall be provided at the request of EPA and DEP and may include:

1. participation in public informational or technical meetings, including the provision of visual aids and equipment;
2. publication and copying of fact sheets or updates; and
3. assistance in preparing a responsiveness summary after the RI/FS public comment period.

2.2 Applicable or Relevant and Appropriate Requirements

The appropriate Source Area Defendant(s) shall identify all probable Federal applicable or relevant and appropriate requirements (ARARs), identify State ARARs and identify any local requirements. Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal, local, or State law or regulation that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal or State law that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA Site that their use is well suited to the particular site.

In addition to ARARs, the appropriate Source Area Defendant(s) shall also make preliminary determinations on the extent that other criteria, advisories, and guidances are pertinent to the hazardous substances, location of the Site, and remedial actions. ARARs and other criteria, advisories and guidances shall be:

1. considered in terms of their chemical-specific, location-specific, and action-specific attributes;
2. evaluated for each medium (ground water, unconsolidated

deposits, and air), particularly for chemical-specific ARARs, but including other ARARs as appropriate;

3. distinguished for each technology considered, particularly for action-specific ARARs, but including other ARARs as appropriate; and
4. considered at each major step of the RI/FS where they are indicated.

In general, identification of chemical- and location-specific ARARs is more important in the beginning steps of the RI/FS, whereas the identification of action-specific ARARs gains importance later, during the more FS-oriented step. If a requirement is determined to be not applicable, the appropriate Source Area Defendant(s) shall subsequently consider whether it is relevant and appropriate. When any new site-specific information becomes available, ARARs should be re-examined.

Chemical-specific ARARs are usually health or risk-based numerical limits on the amount of, or concentration of, a chemical that may be found in, or discharged to, the ambient environment. The Maximum Contaminant Levels (MCLs) of the Safe Drinking Water Act (SDWA, 1986), and the Federal Ambient Water Quality Criteria of the Clean Water Act, are examples of chemical-specific ARARs. Additive risks shall be evaluated and, if appropriate, shall be utilized as a remediation goal.

Location-specific ARARs are general restrictions placed upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations. Some examples of special locations include, but are not limited to, floodplains, wetlands, historic places, places with objects of archaeological significance, and sensitive ecosystems or habitats. A few examples of possible location-specific ARARs are the Floodplain Management Executive Order (Federal Register, 1977a - E.O. 11988), and the Protection of Wetlands Executive Order (Federal Register, 1977 - E.O. 11990), and the regulations promulgated pursuant to the National Historic Preservation Act of 1966 and any and all of its subsequent amendments.

Action-specific ARARs are usually technology-based or activity-based directions or limitations which control actions taken at CERCLA Sites. Action-specific ARARs, as the name implies, govern the remedial actions. The RCRA 40 CFR Part 264, Subpart G Closure Regulations, and RCRA 40 CFR Part 264, Subpart O Incineration Regulations, and the land disposal restrictions set forth by the Hazardous and Solid Waste Amendments Act of 1984 are a few examples of possible action-specific ARARs.

As part of the Work Plan for the RI/FS, the appropriate Source Area Defendant(s) shall provide a list in the form of a chart of ARARs and EPA and DEP criteria, advisories, and guidances, and limitations which should initially include all such requirements. The description should briefly describe the requirements and shall include: if it is a numerical requirement; what it is based upon (i.e., health, technical practicality); and what media it is designed for (i.e., surface water, ambient air, etc.). The list shall indicate whether each requirement is: potentially applicable or relevant and appropriate; chemical-specific, location-specific, or action-specific; pertinent to surface water, ground water, unconsolidated deposits, air, or facilities; and, affixed with specific levels or goals to be attained. If specific levels or goals are affixed, they must be enumerated in the chart.

Data requirements in terms of physical and chemical characteristics needed to evaluate ARARs shall be considered as part of the scoping. Such requirements may include but are not limited to chemical residuals, background levels, or various modeling parameters. Such data requirements shall be satisfied during Phase I of the RI to the extent possible, rather than during the later phases of make-up studies. The appropriate Source Area Defendant(s) shall identify attributes necessary to achieve specific levels or goals and include appropriate procedures in the Initial Central Area Characterization (Phase I. RI) discussed in Section 3.1.

A partial list of potential ARARs is presented in the preamble to the proposed NCP published in December 1988. Section 4 of Guidance of Feasibility Studies Under CERCLA (EPA, 1985c - EPA/540/G-85/003), and Appendix E of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, EPA October 1988) also give some potential sources of ARARs. Additional ARARs must be sought by the appropriate Source Area Defendant(s) during a thorough search of Federal and State environmental statutes.

EPA after consultation with DEP, shall have final authority in deciding which ARARs are retained or added for consideration and the extent to which they must be considered in remedy selection. Sufficient justifications for incorporating or dropping a requirement shall be provided at each step where such decisions are made.

The appropriate Source Area Defendant(s) shall identify all site-specific ARARs. At a minimum, chemical- and location-specific ARARs shall be identified after the Initial Central Area Characterization, and the action-specific ARARs shall be identified after the Development and Initial Screening of the Remedial Alternatives. The following paragraphs partially list potential ARARs for the Central Area. For additional potential

ARARs, see Tables 7-11 in the ROD, and Section 4.0 of the Feasibility Study.

Safe Drinking Water Act

National Primary Drinking Water Standards, Maximum Contaminant Levels (40 CFR 141): The maximum level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system.

Maximum Contaminant Level Goals (40 CFR 141): The maximum level of contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety.

Secondary Drinking Water Standards, Secondary Maximum Contaminant Levels (40 CFR 143): Contaminants that primarily affect the aesthetic quality of drinking water and are not federally enforceable.

Underground Injection (40 CFR 144): These standards may be applicable if underground injection is chosen as a remediation technology. These standards require compliance with certain administrative and procedural sections of 40 CFR 265 Subpart R.

Clean Water Act

An NPDES permit (40 CFR 125) may be required if the remedy includes discharging to surface water offsite. The best available technology that is economically achievable must be used.

Toxic Pollutant Effluent Standards (40 CFR 129): The concentration of a toxic pollutant in navigable waters that shall not result in adverse impact on important aquatic life, or on consumers of aquatic life, after exposure of that aquatic life to the pollutant for periods of time exceeding 96 hours and continuing through at least one reproductive cycle.

Toxic Substances Control Act

Disposal of PCBs (40 CFR 761): If the remedy involves excavation of soils that contain PCBs, the requirements of this section must be satisfied. However, the section does not explicitly require excavation of PCB-containing soil.

Resource Conservation and Recovery Act

In general, the applicable solid waste requirements shall be action-specific, applying to the remedial activities undertaken. The following are some examples of RCRA requirements (40 CFR 264) that may be applicable or relevant and appropriate:

Chemical, Physical, and Biological Treatment: Although standards do not yet exist for general waste treatment in new facilities, standards do exist for interim status facilities (40 CFR 265, Subpart Q) and include specific requirements for ignitable and reactive wastes. The interim status requirements are probably not applicable if the treatment is performed onsite, but they may be relevant and appropriate.

Thermal Treatment: Standards do not yet exist for thermal treatment in new facilities, but standards do exist for interim status facilities (40 CFR 265, Subpart P) and provide for general operating requirements, waste analysis, monitoring and inspections, closure, open burning, and waste explosives. The interim status requirements are probably not applicable if the treatment is performed onsite, but they may be relevant and appropriate.

Incineration (40 CFR 264, Subpart O): This subpart includes performance standards for incinerators and monitoring, inspection, and operating requirements.

Storage (40 CFR 264, Subparts I and J): Two subparts include standards for storage of hazardous waste in containers (Subpart I) and tanks (Subpart J). In addition, sections of Subparts B and C also relate to storage.

Onsite Land Disposal (40 CFR 264, Subparts L, M and N): Land disposal techniques will probably not be chosen given SARA's preference for permanent remedies that reduce the volume, mobility, and toxicity of hazardous substances. However, requirements for landfills are in Subpart N and requirements for general land treatment (biodegradation, volatilization, land farming) are in Subpart M. Another form of land treatment is underground injection, which is discussed above (40 CFR 144).

Site Closure with Waste in Place (40 CFR 264, Subpart G): Certain sections of 40 CFR 264 may be applicable or relevant and appropriate if the waste is to be left in place. This could include, among others, capping, installation of slurry walls, grading and covering with vegetation, or consolidation of substances in one location. Subpart G of 264 provides technical requirements for closure and post-closure activities.

Ground-Water Monitoring (40 CFR 264, Subpart F): This subpart provides RCRA ground-water corrective action requirements that may be applicable or relevant and appropriate at the Central Area. These requirements include ground-water monitoring and ground-water protection standards.

Other potential ARARs include:

1. Ground-water classification for aquifers underlying the Central Area;
2. OSHA requirements for hazardous waste workers;
3. Department of Transportation rules for transportation of hazardous materials (49 CFR 107 and 171);
4. Regulations pertaining to activities that affect the navigation of waters of the United States (33 CFR 320-329);
5. Endangered Species Act (50 CFR 81, 225, 402);
6. Fish and Wildlife Conservation Act (50 CFR 83);

The above list is not complete because the major investigative effort at the Central Area has not yet been performed. However, the list shall be used during the RI/FS. At points during the RI/FS, site-specific ARARs shall be identified. The chemical- and location-specific ARARs shall be identified during the Baseline Risk Assessment, Phase 1A and Phase 1B Field Investigations and action-specific ARARs shall be identified during the Feasibility Study. EPA shall make the final decision as to what are applicable or relevant and appropriate requirements.

2.3 Data Requirements for Potential Remedial Alternatives and Technologies

Potential remedial action objectives shall be identified for each contaminated medium and a preliminary range of remedial action alternatives and associated technologies shall be identified in this Section of the Work Plan. The appropriate Source Area Defendant(s) shall identify, consistent with the National Contingency Plan, all potential remedies that may be useful in remediating affected media. In discussing potential remedies, EPA describes an alternative as a group of technologies, including innovative ones, that will achieve certain remedial action goals (see Section 4.0). The appropriate Source Area Defendant(s) shall identify the various technologies, showing the critical data needed to evaluate such technologies, and the performance of technologies grouped into an alternative. These data requirements shall be initially developed during the Work Plan for the RI/FS and shall be further incorporated in all subsequent field investigation Work Plans. The data shall be obtained during the Initial Central Area Characterization (Phase 1A of the RI, see Section 3.1), the Phase 1B Field Investigation (Phase 1B RI, Phase 1 FS, see section 4.0) and shall be further refined during the Post-Screening Field Investigation (Phase 2 RI, Phase 2 FS, see section 5.0).

The identification of potential technologies shall help provide that data needed to evaluate the technologies are collected in the Phase 1A and Phase 1B field investigations. Certain parameters may be common to several possible technologies and alternatives. For example, the following parameters for unconsolidated deposits are common: chemical compounds, density, moisture, grain-size distribution, BTU values, total halogens, and total organic carbon. Similar common data requirements exist for alternative remedies for other media. In addition to the common data requirements, any other known data necessary to evaluate a particular technology or alternative leading to remedy selection shall be noted in the Work Plan and subsequently integrated into each field investigation. The EPA Guidance on Conducting Remedial Investigations and Feasibility Studies Under CERCLA, (EPA/540/G-89/004, OSWER Directive 9355.3-01, EPA October 1988), and the Technology Screening Guide for Treatment of CERCLA Soils and Sludges, (EPA/540/2-88/004, September 1988) shall be sources of additional information on identifying alternative remedies and potential innovative technologies.

A preliminary list of alternatives shall be developed by the appropriate Source Area Defendant(s). This list shall include a range of alternatives in which treatment that significantly reduces the toxicity, mobility, or volume of waste is a principal element; one or more alternatives that involve containment with little or no treatment; and a no-action alternative. The appropriate Source Area Defendant(s) shall present a chart, or a series of charts, showing the requirements and technologies to be considered for remedial alternatives (see Section 4.0). In the charts, data requirements shall be linked to the Section of the Work Plan that addresses each field investigation.

2.4 Initial Central Area Characterization (Phase 1A RI)

As a Section of the Work Plan for the RI/FS, the appropriate Source Area Defendant(s) shall describe how each of the following and other necessary studies shall be done during the Initial Central Area Characterization (see Section 3.1):

1. site survey of monitoring wells and data collection points;
2. studies of appropriate wetland unconsolidated deposits and sources of contaminants;
3. studies of subsurface and hydrogeological factors;
4. air quality, if appropriate;
5. monitoring and sampling; and
6. bench and pilot treatability studies, if indicated.

This section shall detail the type and content of each study needed to gather and analyze sufficient data to evaluate and

select a remedial action. The appropriate Source Area Defendant(s) shall coordinate work to provide opportunities for EPA and DEP input. This section shall address the RI/FS objectives and conform to the procedures in Section 2.0 and the National Contingency Plan. The elements to be addressed in the studies and the Work Plan are further described in Section 3.0. The results of these studies shall be in the Initial Central Area Characterization Report. Section 3.0 also contains some examples designed to facilitate the appropriate Source Area Defendant(s)'s understanding of the type and quality of the deliverable required for each activity of the Central Area characterization. Deliverables shall be submitted according to the schedule.

The Initial Central Area Characterization Work Plan submitted as a part of the Work Plan for the RI/FS shall be sufficiently detailed to carry out the study, and shall provide for obtaining valid data needed to address fully the objective of the study and to complete the study, barring unforeseen developments. Each study shall be designed to achieve a high performance on the first attempt. The work plan shall be related (by cross-references) to the requirements in the Project Operations Plan (Section 2.1).

2.5 Data Collection for Baseline Risk Assessment

EPA will conduct a Baseline Risk Assessment as part of the RI/FS for the Central Area. The appropriate Source Area Defendants shall be responsible for collecting groundwater, unconsolidated deposit, and, as appropriate, air quality data necessary for the completion of the Baseline Risk Assessment. The data shall be suitable to address the applicable requirements for the appropriate medium of the Risk Assessment Guidance for the Superfund Program (EPA, 1989) and the Region I Supplemental Risk Assessment Guidance for the Superfund Program (EPA 1989), as superseded or modified, to the extent such documents are not inconsistent with CERCLA and the NCP.

The RI/FS Work Plan must include the data requirements, data collection methods, and analyses required to acquire the above-specified data necessary for the EPA Risk Assessment. At least one scoping meeting between the appropriate Source Area properties, EPA, EPA's contractor and DEP will be held prior to submission of the RI/FS Work Plan to identify data requirements. The Work Plan shall include, but not be limited to, specifying and/or describing the:

1. approach that shall be taken to determine the extent of contamination in each medium. This includes the definition of groundwater plume(s), extent of soil contamination, and extent of air contamination. The vertical and lateral extent of contaminants shall be described for all media;

2. summary statistics to be used; and
3. uncertainties and limitations of each data set that shall be considered.

2.6 Expanded Schedule for Remedial Investigation/ Feasibility Study

The major deliverables are identified in Figure 1. The established schedule along with a more detailed, expanded schedule for subtasks shall be included as a component of the Work Plan for the RI/FS. Modifications of the schedule which affect deliverables must be approved by EPA in consultation with DEP. All deliverables shall be submitted to EPA for review and approval in consultation with DEP pursuant to Section XII of the Consent Decree.

The schedule shall be presented as a chart, which shall include target data and time periods for each deliverable, to the extent possible. The chart shall be updated when the schedule changes, by showing the original (planned) due date and revisions of the due date.

A copy of the schedule shall be in the preface of each major deliverable of the RI/FS and in each monthly progress report required by the RI/FS agreement.

Within thirty (30) days of receipt of the RI/FS Work Plan as approved or modified by EPA in consultation with DEP, pursuant to Section XII of the Consent decree, the appropriate Source Area Defendants shall implement the RI/FS Work Plan according to the EPA approved, after consultation with DEP, schedule therein.

3.0 INITIAL CENTRAL AREA CHARACTERIZATION: PHASE 1A FIELD INVESTIGATIONS

At its onset, the goal of the Initial Central Area Characterization shall be to collect all field data which can reasonably be assumed to be necessary for the Remedial Investigation and Feasibility Study. Physical and chemical characteristics of the Central Area shall be assessed by the appropriate Source Area Defendant(s) to provide data that are sufficient to select a remedy. Existing site information, including data generated by the appropriate Source Area Defendant(s), EPA, DEP, other parties, and their respective contractors, shall be used to the extent appropriate. The Central Area characterization shall conform to the work plans for the characterization, written in the Work Plan for the RI/FS. The appropriate Source Area Defendant(s) shall characterize and/or describe the following, at a minimum:

1. extent to which the sources of the hazardous substances can be adequately identified and characterized;
2. amount, concentration, environmental fate, transport (e.g., persistence, mobility), form (e.g., solid, liquid), and other significant characteristics of each hazardous substance present;
3. waste mixtures, the media of occurrence, interface zones among media, and critical parameters for decontamination (e.g., soil moisture, density);
4. hydrogeologic factors (e.g., soil permeability; depth to saturated zone, hydraulic gradients, hydraulic conductivity; proximity to production wells, flood plains, and wetlands);
5. climate and water table fluctuation (e.g., precipitation, run-off, stream flow, water budget);
6. routes of exposure and receptors;
7. extent to which the hazardous substances have migrated or are expected to migrate from their original location;
8. to the extent practical, identify the extent to which buildings, foundations, or other underground structures contain or overlie hazardous substances or contaminant plumes and the potential for decontaminating them;
9. contribution of the Central Area to the contamination of air, land, and water;
10. ground-water characteristics and current and potential ground-water uses (e.g., characteristics related to the ground-water classes described in the Ground Water Protection Strategy, (EPA, 1984));
11. extent to which contamination levels exceed health-based ARARs/levels;
12. waste characteristics that affect the type of treatment possible (e.g., BTU values, pH, BOD);
13. physical characteristics of the Central Area, including important surface features, soils, geology, hydrogeology, and meteorology;
14. characteristics or classifications of air and ground water;
15. general characteristics of the waste(s), including quantities, state, concentration, persistence, and mobility;

16. other factors that pertain to the characterization of the Central Area or support the analysis of potential remedial action alternatives; and
17. identification and characterization, to the extent practical, of possible site-specific source areas, including but not limited to the discharge pipes, waste piles, leach fields, underground tanks, buried containers, and the surrounding areas potentially contaminated by the above-mentioned possible source areas.

The Central Area characterization shall provide information sufficient to refine the preliminary identification of potentially feasible remedial technologies, ARARs and the data needed to perform the Baseline Risk Assessment.

3.1 Components of the Central Area Characterization

The Central Area characterization shall consist of the following activities and deliverables. EPA in consultation with DEP may decide that additional investigations are necessary if remedial technologies are modified, requiring additional data for the evaluation of alternatives. In this case, the appropriate Source Area Defendant(s) shall prepare a work plan for additional investigations (see Figure 1), which shall be reviewed by EPA and DEP before starting the investigations.

3.1.1 Central Area Survey

The appropriate Source Area Defendant(s) shall use the Topographic Map for Planning Board, City of Woburn, Massachusetts, Lockwood, Kessler & Bartlett, Inc., including the modifications made by the U.S. Geological Survey and contained in U.S. Geological Survey Water Resources Investigations Report 87-4100 titled "Area of Influence and Zone of Contribution to Superfund-Site Wells G and H, Woburn, Massachusetts" to prepare a base map for the Central Area. This map of the Central Area shall have 2-foot elevation contours and shall display survey data collected within the Central Area. The map shall be amended to show the surveyed locations of accessible wells (including production wells), and data collection points.

The appropriate Source Area Defendant(s) shall determine the elevations and horizontal locations of any new wells, piezometers, and other sampling locations. The Central Area survey shall be of sufficient detail for explanations of areas into which contaminants may migrate.

3.1.2 Subsurface and Hydrogeological Investigations

To the extent that the following information is not available or

needs to be updated, the appropriate Source Area Defendant(s) shall plan, conduct, and report subsurface and hydrogeological investigations of the Central Area, sufficient to characterize and/or describe, the following at a minimum:

1. quantitatively estimate the number of years necessary to achieve clean-up goals for ground-water extraction and treatment by remedial alternatives;
2. determine the subsurface stratigraphy and structure by way of maps and cross sections to the extent appropriate, for each rock and soil type including but not limited to lithologies, grain size distributions and fracturing (orientation, extent, and effects);
3. determine the concentration, environmental fate, transport mechanisms, and other significant characteristics of each contaminant; Should solid or liquid waste materials be encountered, analyses will be undertaken for appropriate remediation-oriented properties (e.g. corrosivity, ignitability, BTU value);
4. evaluate the waste mixtures and partitioning of contaminants between ground water and unconsolidated deposits, and determine the phases, including their partitioning coefficients;
5. quantify the hydrogeological factors (e.g., in situ permeability, conductivity, and storage capacity of representative unconsolidated deposits and rock type; depth of saturated zone; flow and pressure gradients;
6. describe the routes of groundwater migration, transport rates, and discharge locations. Also describe the locations, flow rates, contaminant concentrations, and variability for groundwater discharge to the Aberjona River and its tributaries;
7. perform quarterly sampling for groundwater quality. Determine water level elevations monthly at selected wells and continuously at a subset of wells. Data collection shall continue for a minimum of one year and until receipt from EPA of the Draft Baseline Risk Assessment and not to exceed two years;
8. assess the condition of existing monitoring wells and identify those that need replacement or repairs;
9. assess the extent to which the hazardous substances may migrate once the limits of plumes are determined. If modeling studies are involved, explicitly state the parameters, assumptions, accuracy, contingencies of the

studies and level of model calibration;

10. evaluate appropriate physical and chemical waste characteristics that may affect the possible type of treatment, and organize in a chart the information for each detected compound; and
11. establish the background contaminant concentration levels for ground water at a sufficient number of locations and within the saturated unconsolidated deposits and bedrock including differentiable horizons and strata.
12. The USGS ground water flow model shall be evaluated to determine the applicability and utility for further use as a management tool. This evaluation shall entail identification of conditions and situations to be analyzed, review of the existing model calibration, and assessment of revisions identified during this evaluation and any new data. The analysis will include examination of model grid discretization, model layering, boundary conditions, and parameter values.

The appropriate Source Area Defendant(s) shall design investigations that are sufficient to fully address the objectives listed above and those listed in Section XII of the SOW. The designs shall be presented in the Central Area characterization section of the Work Plan for the RI/FS. The section shall also describe † locations, methods, field forms, procedures, and types of analyses to be used in performing the subsurface and hydrogeological investigations. The Ground Water Technical Enforcement Guidance Document (OSWER Directive 9950, Sept. 1986) and the Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites (OSWER Dir. 9283.1-2 Final Review Draft, EPA, August 1988) shall provide the framework of these investigations. The framework for these investigations may consider state-of-the-science research and methodologies as well as applicable experience at other sites. The section shall clearly show the relations between the objectives and the studies to be performed (see Sections 1.0 and 3.0). The section shall provide for EPA and DEP review of deviations from the section procedures due to unforeseen field conditions. The section shall allow additional work contingent on the results of the studies described in the Work Plan for the RI/FS.

For the subsurface and hydrogeological investigations, the appropriate Source Area Defendant(s) shall present the results and describe the actual procedures (especially when the actual procedures differ from those in the work plan) in a section of the Initial Central Area Characterization Report. The section shall contain all data, analyses, maps, cross sections, and charts necessary to meet the objectives for which the investigations were performed. Illustrations shall clearly

identify the data points, values, and the degree of interpolation or extrapolation necessary to draw conclusions.

3.1.3 There is no Section 3.1.3.

3.1.4 Air Quality

If EPA after consultation with DEP, determines it is appropriate, the appropriate Source Area Defendant(s) shall characterize and/or describe, the impact of existing site conditions on air quality.

The appropriate Source Area Defendants shall evaluate the factors that are critical in characterizing the nature and extent of airborne contaminants from selected locations within the Site, such as background air quality. The appropriate Source Area Defendants shall address the control of gaseous emissions, including fugitive emissions (e.g., control by minimizing interfaces between soil and air and between soil and water, and materials-handling aspects of remedial design).

3.1.5 Surface Water and River Sediments Sampling

[SECTION DELETED]

3.1.6 Ecological Studies [SECTION DELETED]

3.1.7 Monitoring and Sampling

The appropriate Source Area Defendant(s) shall monitor ground water within the Central Area to determine the changes in the nature, extent, quantity, seasonal variability, environmental fate and transport, background levels, and migration pathways for each contaminant of concern identified within the Central Area. The appropriate Source Area Defendant(s) shall submit a plan for periodically sampling and monitoring contaminants in ground water. The plan shall include provisions for needed expansions of the type, quantity, and coverage of the monitoring.

The monitoring and sampling plan shall also include a thorough discussion of the statistical and mathematical techniques to be used in comparing the results of each sampling round to previous results. Notable differences shall be explained and resolved by repeating sampling and analyses, if necessary. The plan shall be consistent with the procedures and requirements established in the Project Operations Plan (Section 2.0), the overall objectives (Section 1.0), and the assessments (Section 3.0). The plan shall allow for revision, including further studies that may be required by EPA in consultation with DEP. The plan shall also allow for EPA and DEP review before deviating from the original work plan specifications for field work. Plans shall be developed for all unconsolidated deposits and air as appropriate.

The Monitoring and Sampling Plan shall be submitted as part of the Work Plan. Results shall be presented after the sampling and in accordance with the procedures described in the Project Operations Plan (Section 2.0). Results of each round of sampling shall be statistically and mathematically compared with results of previous rounds. Deviations and trends shall be illustrated and explained.

3.1.8 Treatability and Pilot Studies [SECTION DELETED]

3.2 Baseline Risk Assessment [SECTION DELETED]

3.3 Phase 1A Deliverables: Initial Central Area Characterization Reports and Phase 1B Work Plan

The appropriate Source Area Defendant(s) shall submit a Draft Initial Central Area Characterization Report and a Phase 1B Work Plan as Phase 1A Deliverables to EPA and DEP for review and approval pursuant to Section XII of the Consent Decree.

The Phase 1A Reports shall include the methods, data gathered and analyses of results. The appropriate Source Area Defendant(s) shall evaluate how well the studies satisfy the objectives of the RI/FS (Section 1.0), the site characterization (Section 3.0), and the objectives stated in study descriptions (Section 3.0). The report shall also explain differences between the actual field work and the work specified by Work Plans for the RI/FS. Compilations of data shall be presented in formats that can accommodate the results of additional studies. The appropriate Source Area Defendant(s) shall provide data compilations on computer data bases that are compatible with those used by EPA Region I. The appropriate Source Area Defendant(s) shall work closely with EPA during the development of the data bases.

During the Phase 1A Field Investigation, it is anticipated that the need for additional information may become apparent. Should the need for additional information become apparent, the appropriate Source Area Defendant(s) shall prepare a Phase 1B Work Plan that describes the data to be obtained. The appropriate Source Area Defendant(s) shall submit the Work Plan to EPA and DEP for review as a Phase 1A Deliverable, and shall perform the necessary studies after receiving a notice to proceed with Phase 1B Field Work by EPA. The Phase 1B Work Plan shall be scoped to meet all field data collection objectives of the RI/FS (Section 1.0), be consistent with the procedures in the Project Operations Plan (Section 2.0), and fulfill the requirements of the Central Area characterization (Section 3.0).

4.0 PHASE 1B FIELD WORK

In the Phase 1B Field Work the appropriate Source Area

Defendant(s) shall gather additional field data necessary to fulfill the requirements of the following deliverables:

1. Draft Remedial Investigation Report;
2. Development and Initial Screening of Alternatives Report;
3. Detailed Analysis of Alternatives Work Plan; and
4. Post-Screening Field Investigation Work Plan.

The Phase 1B Field Work would be the second set of field investigations. Data gaps identified in the Phase 1A Field Investigation and further data requirements identified from review of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), the National Contingency Plan, and the previous three sections of this SOW shall provide the focus for the Phase 1B Field Work.

4.1 The Development And Initial Screening of Alternatives

The appropriate Source Area Defendant(s) shall develop an appropriate range of waste management options in a manner consistent with the National Contingency Plan (NCP) (40 CFR Part 300), the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-1) and any format or guidance provided by Region 1 EPA. Alternatives for remediation shall be developed by assembling combinations of technologies, including innovative ones, and the media to which they would be applied, into alternatives that address contamination at the Central Area or for an identified operable unit. Alternatives shall be developed that:

1. protect human health and the environment by recycling waste or by, eliminating, reducing, and/or controlling risks to human health and the environment posed through each pathway at the Central Area,
2. consider the long-term uncertainties associated with land disposal,
3. consider the goals, objectives and requirements of the Solid Waste Disposal Act,
4. consider the persistence, toxicity, mobility, and propensity to bioaccumulate of hazardous substances and their constituents,
5. consider the short and long-term potential for human exposure,

6. consider the potential threat to human health and the environment if the remedial alternative proposed was to fail,
7. consider the threat to human health and the environment associated with the excavation, transportation, and redisposal or containment of contaminated substances and/or media.

In addition, the appropriate Source Area Defendant(s) shall perform, at a minimum, the following activities:

1. develop remedial action objectives specifying the contaminants and media of concern, potential exposure pathways, and preliminary remediation goals that are based on chemical specific ARAR's, risk assessments, and Central Area characterization data;
2. develop response actions for each media of interest defining engineering controls, treatment, excavation, pumping, or other actions, singly and in combinations;
3. identify volumes or areas of media to which response actions shall apply;
4. identify and screen technologies, including innovative ones, that would be applicable to each response action;
5. identify and evaluate technology process options;
6. assemble the selected technologies into alternatives representing a range of treatment and containment options; and
7. identify and evaluate all the handling, treatment, and final disposal of all treatment residuals (e.g., ash, decontaminated soil, sludge, decontamination fluids).

In screening the alternatives, the appropriate Source Area Defendant(s) shall consider, but not be limited to, the short and long term aspects of the following three criteria:

1. Effectiveness. This criterion focuses on the degree to which an alternative reduces toxicity, mobility, or volume through treatment, minimizes residual risks and affords long term protection, complies with ARARs, minimizes short-term impacts and how quickly it achieves protection with a minimum of short term impact in comparison to how quickly the protection shall be achieved.
2. Implementability. This criterion focuses on the technical

feasibility and availability of the technologies that each alternative would employ and the administrative feasibility of implementing the alternative.

3. Cost. The costs of construction and any long-term costs to operate and maintain the alternatives shall be considered.

For the Central Area the appropriate Source Area Defendant(s) shall develop a series of alternatives including but not limited to the following:

1. an alternative that throughout the entire soil, source, and/or ground water plume reduces the contaminant concentrations to meet or exceed all MCLs, ARARs, and a 10^{-6} excess cancer risk. It shall achieve this objective as rapidly as possible, must be completed in less than 10 (ten) years and shall require no long term maintenance;
2. a no-action alternative, which may be no further action if some removal or remedial action has already occurred within the Central Area;
3. for source control actions, the appropriate Source Area Defendant(s) shall develop:
 - i. A range of alternatives in which treatment that reduces the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants is a principal element. As appropriate, this range shall include an alternative that removes or destroys hazardous substances, pollutants, or contaminants to the maximum extent feasible, eliminating or minimizing, to the degree possible, the need for long-term management. The appropriate Source Area Defendant(s) also shall develop, as appropriate, other alternatives which, at a minimum, treat the principal threats posed by the Central Area but vary in the degree of treatment employed and the quantities and characteristics of the treatment residuals and untreated waste that must be managed; and
 - ii. One or more alternatives that involve little or no treatment, but provide protection of human health and the environment primarily by preventing or controlling exposure to hazardous substances, pollutants, or contaminants through engineering controls, for example, containment, and, as necessary, institutional controls to protect human health and the environment and to assure continued effectiveness of the response action.
4. For groundwater response actions, the appropriate Source

Area Defendant(s) shall develop a limited number of remedial alternatives that attain site-specific remediation levels within different restoration time periods utilizing one or more different technologies if they offer the potential for comparable or superior performance or implementability; fewer or lesser adverse impacts than other available approaches; or lower costs for similar levels of performance than demonstrated treatment technologies.

An alternative that involves no need for long term maintenance and the no action alternatives shall be carried through the development and screening and shall be analyzed during the Detailed Analysis of Alternatives (Figure 1).

The appropriate Source Area Defendant(s) shall give special consideration to innovative technologies. One or more such technologies shall be evaluated beyond the initial screening.

The appropriate Source Area Defendant(s) shall develop the no-action alternative, which may be no further action if some removal or remedial action has already occurred at the Central Area.

All alternatives shall be presented in the Development and Initial Screening Report. If an alternative is to be eliminated it must be screened out for clearly stated reasons contained in the NCP (40 CFR Part 300) and other EPA guidances.

4.2 Phase 1B Deliverables

An Initial Draft RI/FS shall be submitted as a Phase 1B Deliverable. This draft shall contain the following sections: 1) a Draft Remedial Investigation Report (Draft RI). The Draft RI shall describe and display in appropriate maps, tables, and figures, any results from the pre RI/FS sampling, the Phase 1A and Phase 1B Field Investigations and parallel samples taken by EPA available to the appropriate Source Area Defendant(s). The Initial Draft RI shall include a Central Area Characterization Report which shall consider, and if appropriately valid, use all available pre-RI/FS, Phase 1A, Phase 1B and government field sample results. The Initial Draft RI shall meet the requirements and objectives of the National Contingency Plan, and be consistent with the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), and Sections 1, 2, 3, and 4 of the Outline of Work. 2) an FS Section that will contain the Development and Initial Screening of Alternatives. The FS Section shall contain a chart of all alternatives and the analysis of the basic factors described in Section 4.2. The report shall justify dropping, refining, or adding alternatives. It shall also identify the data needed to select a remedy, such

as treatability studies. The report shall contain charts, graphs, and other graphics to display the effectiveness of the alternatives including but not limited to:

1. maps showing the three-dimensional extent of contamination within the Central Area;
2. maps showing equal concentration lines for soil contamination;
3. graphs of soil volume to be treated or removed plotted against concentration, if appropriate; and
4. graphs showing the predicted concentration reduction over time for the potential ground water remedial alternatives, identified in the FS.

If additional data are required to select a remedy, a Post-Screening Field Investigation Work Plan shall be prepared by the appropriate Source Area Defendant(s) as part of the Initial Draft RI/FS. Alternatives, particularly those involving innovative technologies, may require additional field investigations to obtain data needed for the further evaluation of Central Area characteristics and the detailed analysis of alternatives. The Post-Screening Field Investigation Work Plan (Phase 2 RI) shall include, but not be limited to:

1. supplemental literature searches to obtain additional data on treatment technologies;
2. bench and pilot scale treatability tests; and
3. the collection of additional field data to assess further the characteristics of the Central Area.

The Post-Screening Field Investigation Work Plan shall describe the nature and degree of the Post-Screening Field Investigation. The purpose and objective of this phase is to provide for the information required to fill all relevant data gaps and to provide information necessary to perform the Detailed Analysis of Alternatives. This may include but not be limited to bench and pilot studies of potential technologies, literature searches, and field investigations. Field investigations must be performed by the appropriate Source Area Defendant(s) if information relevant to the selection of a remedial action alternative is not sufficient to perform a Detailed Analysis of Alternatives that shall result in a remedy consistent with the National Contingency Plan. The appropriate Source Area Defendant(s) must also perform additional field investigations if new areas of concern are identified that require characterization to accurately define the Central Area boundaries. The Initial Draft RI/FS shall be submitted to EPA for review and approval in consultation with DEP

pursuant to Section XII of the Consent Decree. Within thirty (30) days of approval of the Initial Draft RI/FS, the appropriate Area Defendant(s) shall initiate the field investigation approved in the work plan section of the draft.

4.2.1. Treatability and Pilot Studies

Treatability studies shall, if appropriate, be conducted during the RI/FS upon determination of need by the appropriate Source Area Defendant(s) or EPA in consultation with DEP. The appropriate Source Area Defendant(s) shall prepare a Work Plan for the treatability and pilot studies and shall include this in the Post-Screening Field Investigation Work Plan.

The objective of the treatability and pilot studies is to obtain the information necessary to evaluate the effectiveness of potential remedial treatment technologies. If indicated, the appropriate Source Area Defendants shall conduct laboratory-scale simulations of treatment processes to evaluate the treatability of contaminated ground water, soils, and other environmental media. In any treatability and/or pilot studies, the appropriate Source Area Defendants shall evaluate treatment options, including, but not limited to, biological treatments, physical separation, chemical conditioning, and in-situ treatments.

The data from additional sampling programs and previously published data on the Central Area may be sufficient to develop a well-designed pilot program. Before dynamic modeling, bench-scale tests may be performed to establish the "preliminary" treatability. Through the bench-scale tests, the appropriate Source Area Defendant may initially evaluate the applicability of treatments. Treatability studies to determine the most effective technologies to remediate identified contaminant plumes and groundwater shall be initiated as early as possible.

5.0 DELIVERABLES FROM POST-SCREENING FIELD INVESTIGATIONS

The appropriate Source Area Defendant(s) shall submit a complete Draft Remedial Investigation/Feasibility Study to EPA and DEP for review after completing the Post-Screening Field Investigation. This and any subsequent drafts of the RI/FS shall conform to the NCP (40 CFR Part 300), be consistent with the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988) and any additional format, guidance, or examples provided by EPA. The RI section will be updated to incorporate any additional data gathered during field investigations. The FS section shall include a Detailed Analysis of Alternatives as described below in section 5.1. Graphics shall be included that allow for comparisons of multiple alternatives at various risk, cost, and soil or water clean-up levels. These include but are

not limited to graphs of the cost of potential remediation alternatives plotted against a range of soil clean-up levels; graphs of soil/waste volumes plotted against a range of soil clean-up levels; and projected ground water concentrations plotted against time for ground water alternatives. The appropriate Source Area Defendant(s) shall compare the alternatives by using the listed criteria and other appropriate criteria consistent with the National Contingency Plan and all previous Sections of this SOW.

If the EPA in consultation with the DEP, or the appropriate Source Area Defendants determine that additional studies are needed, the appropriate Source Area Defendants shall submit a work plan for approval by EPA in consultation with DEP, and perform the studies.

5.1 Detailed Analysis of Alternatives

The Detailed Analysis of Alternatives consists of an assessment of individual alternatives against each of the nine (9) evaluation criteria and a comparative analysis that focuses upon the relative performance of each alternative against those criteria. The analysis shall be consistent with the National Contingency Plan (NCP) (40 CFR Part 300) and shall consider the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive 9355.3-01). The nine criteria are as follows:

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short term effectiveness
6. Implementability
7. Cost
8. State Acceptance
9. Community Acceptance

Criteria one and two from the above list are considered threshold criteria. This means that an alternative must meet these two criteria or must contain a statutory basis for waiving compliance with specific ARARs for it to be eligible for selection. Criteria three through seven on the above list are considered primary balancing criteria. These five criteria used to further evaluate alternatives that satisfy the threshold criteria. The final two criteria, state acceptance and community acceptance, are modifying criteria that shall be considered in remedy selection. The Detailed Analysis of alternatives shall be presented in the Feasibility Study and shall contain the following:

1. further definition of each alternative with respect to the volumes or areas of contaminated media to be addressed, the technologies to be used, and any performance requirements associated with those technologies;
 2. a process scheme for each alternative which describes how each process stream, waste stream, emission residual, or treatment product shall be handled, treated and/or disposed;
 3. an assessment and a summary profile of each alternative against the nine (9) evaluation criteria; and
 4. a comparative analysis among the alternatives to assess the relative performance of each alternative with respect to each evaluation criterion.
- 6.0 ADDITIONAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY DRAFTS, REVIEWS, AND REVISIONS

When EPA, in consultation with DEP, determines that no other studies or RI/FS Drafts are needed, the most recent appropriate Source Area Defendant(s) Draft RI/FS shall be considered the Final Draft Remedial Investigation/Feasibility Study (Figure 1). The Final Draft Remedial Investigation/Feasibility Study shall be submitted for public comment by EPA.

After the public comment period, the appropriate Source Area Defendant(s) shall assist EPA in preparing a responsiveness summary. This assistance shall include, but not be limited to, providing EPA with draft responses to any comments provided by EPA to the appropriate Source Area Defendant(s) within two weeks of the date EPA provides the comments to the appropriate Source Area Defendant(s). If EPA seeks assistance from the appropriate Source Area Defendant(s) to respond to numerous technical or extensive comments and an extension is requested, EPA shall extend the two week deadline by an appropriate time period.

Table 1. ARAR-based action levels for groundwater.
(Source: Table 7, Wells G & H Record of Decision)

A. POTENTIAL CARCINOGENS

COMPOUND	DRINKING WATER STANDARD OR CRITERIA ($\mu\text{g/l}$)	INTAKE (mg/kg/day)	POTENCY FACTOR (mg/kg/day) ⁻¹	RISK
Chloroform	100 MCL ^(a)	2.86E-03	6.10E-03	1.7E-05
1,1 dichloroethane	5 ^(b)	1.43E-04	9.10E-02	1.3E-05
1,2 dichloroethane	5 MCL	1.43E-04	9.10E-02	1.3E-05
1,1 dichloroethene	7 MCL	2.00E-04	5.80E-01	1.2E-04
Tetrachloroethene	5 ^(c)	1.43E-04	5.10E-02	7.3E-06
Trichloroethene	5 MCL	1.43E-04	1.10E-02	1.6E-06
Vinyl chloride	2 MCL	5.71E-05	2.30E+00	1.3E-04

(a) MCL is for total trihalomethanes; refers to the sum of chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

(b) MCL is for 1,2-dichloroethane. This value was used based on the chemical similarities between the two compounds and their toxicological endpoints.

(c) MCL is for trichloroethene. This value was used based on the chemical similarities between the two compounds and their toxicological endpoints. This value is also the CLP detection limit.

NOTE: Scientific notation (such as 2E-06) is a shorthand way of indicating decimal places (i.e. the magnitude of the number). A negative exponent indicates that the decimal should be moved the specified number of places to the left (i.e. 2.4E-03 = 0.0024 = 2.4×10^{-3}).

(Source: Feasibility Study, Section 1.0, Table 1-4)

Table 1 (continued). ARAR-based action levels for groundwater.

B. NONCARCINOGENS

COMPOUND	DRINKING WATER STANDARD OR CRITERIA (ug/l)	INTAKE (mg/kg/day)	REFERENCE DOSE (RfD) (mg/kg/day)	RATIO OF INTAKE TO RfD
Trans-1,2-dichloroethene	70 MCLG ^(d)	2.00E-03	1.00E-02	2.00E-01
1,1,1-trichloroethane	200 MCL	5.71E-03	9.00E-02	6.35E-02

(d) Proposed.

NOTE: Scientific notation (such as 2E-06) is a shorthand way of indicating decimal places (i.e. the magnitude of the number). A negative exponent indicates that the decimal should be moved the specified number of places to the left (i.e. 2.4E-03 = 0.0024 = 2.4×10^{-3}).

(Source: Feasibility Study, Section 1.0, Table 1-4)

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Table 2. Chemical-specific potentially applicable or relevant and appropriate requirements and "to be considered" requirements.
(Source: Table 9, Vella G & H Record of Decision)

	Safe Drinking Water Act Maximum Contaminant Levels (MCLs) 40 CFR 141	Safe Drinking Water Act Maximum Contaminant Level Goals (MCLGs) 40 CFR 141 & 50 FR 46934	Clean Water Act Water Quality Criteria for Freshwater Aquatic Life Acute/Chronic	Clean Water Act Water Quality Criteria for Human Health - Fish Consumption	Massachusetts Drinking Water Maximum Contaminated Levels ^(*) (310 CMR 22.00)
1,1 dichloroethene	7	7	11,600/-(c)	1.85	7
1,1,1 trichloroethene	200	200	-	1,030,000	200
Trans-1,2-dichloroethene	-	70**	-	-	-
Tetrachloroethene	-	9**	5,200/840(c)	8.85	-
Trichloroethene	5	0	45,000/21,900(c)	80.7	5
Chloroform	100(a)	-	28,900/1,240(c)	15.7	100(a)
Trichlorofluoroethene	-	-	-	-	-
Methylene chloride	-	-	-	-	-
Carbon tetrachloride	5	0	35,200/-(c)	6.94	5
Para-dichlorobenzene	75	-	1,100/760(c)	2,600	75
Dichlorobenzenes	-	-	1,100/760(c)	2,600	-
1,1 dichloroethane	-	-	-	-	-
1,2 dichloroethane	5	0	118,000/20,000(c)	243	5
1,2,4-trichlorobenzene	-	-	-	-	-

All values in µg/l unless otherwise noted

Table 2 (continued). Chemical-specific potentially applicable or relevant and appropriate requirements and "to be considered" requirements.

	Safe Drinking Water Act Maximum Contaminant Levels (MCLs) 40 CFR 141	Safe Drinking Water Act Maximum Contaminant Level Goals (MCLGs) 40 CFR 141 & 50 FR 46934	Clean Water Act Water Quality Criteria for Freshwater Aquatic Life Acute/Chronic	Clean Water Act Water Quality Criteria for Human Health - Fish Consumption	Massachusetts Drinking Water Maximum Contaminated Levels ^(*) (310 CMR 22.00)
Vinyl chloride	2	0	-	525	2
1,2-dichlorobenzene	-	-	1,120/763 ^(c)	2,600	-
Benzene	5	0 ^a	5,300/- ^(c)	40	5
Toluene	-	2,000 ^{**}	17,500/- ^(c)	424,000	-
Acetone	-	-	-	-	-
Methyl ethyl ketone (MEK)	-	-	-	-	-
Ethylbenzene	-	600 ^{**}	32,000/- ^(c)	3,250	-
Xylene	-	440 ^{**}	-	-	-
Styrene	-	140 ^{**}	-	-	-
Carbon disulfide	-	-	-	-	-
Phenol	-	-	10,200/2,560 ^(c)	-	-
Naphthalene	-	-	2,300/620	-	-
2-methylnaphthalene	-	-	-	-	-
Dibutyl phthalate	-	-	-	154,000	-
Diethyl phthalate	-	-	-	1,000,000	-

All values in µg/l unless otherwise noted

Table 2 (continued). Chemical-specific potentially applicable or relevant and appropriate requirements and "to be considered" requirements.

	Safe Drinking Water Act Maximum Contaminant Levels (MCLs) 40 CFR 141	Safe Drinking Water Act Maximum Contaminant Level Goals (MCL 40 CFR 141 & 50 FR 46936	Clean Water Act Water Quality Criteria for Freshwater Aquatic Life Acute/Chronic	Clean Water Act Water Quality Criteria for Human Health - Fish Consumption	Massachusetts Drinking Water Maximum Contaminated Levels ^(e) (310 CMR 22.00)
bis(2-ethylhexyl) phthalate	-	-	-	50,000 ^(h)	-
Acenaphthylene	-	-	-	-	-
Acenaphthene	-	-	1,700/520 ^(c)	-	-
Phenanthrene	-	-	-	-	-
Fluorenone	-	-	3,980/- ^(c)	54	-
Chrysene	-	-	-	-	-
2-methylphenol	-	-	-	-	-
4-methylphenol	-	-	-	-	-
2,6-dimethylphenol	-	-	2,120/- ^(c)	-	-
2-hexene	-	-	-	-	-
4-ethyl-2-pentanone	-	-	-	-	-
Trichloroisocyanuric acid	-	-	-	-	-
Chlordane	-	0**	2.4/0.0043	.00048	-
Polychlorinated biphenyls	-	0**	2.0/0.014	0.000079	-
Arsenic	50	50**	850/48 ^{(c)(f)}	.0175	50

All values in µg/l unless otherwise noted

Table 2 (continued). Chemical-specific potentially applicable or relevant and appropriate requirements and "to be considered" requirements.

	Safe Drinking Water Act Maximum Contaminant Levels (MCLs) 40 CFR 141	Safe Drinking Water Act Maximum Contaminant Level Goals (MCLGs) 40 CFR 141 & 50 FR 46936	Clean Water Act Water Quality Criteria for Freshwater Aquatic Life Acute/Chronic	Clean Water Act Water Quality Criteria for Human Health - fish Consumption	Massachusetts Drinking Water Maximum Contaminated Levels ^(g) (310 CMR 22.00)
Chromium	50 ^(b)	120 ^{**}	1,700/210 ^{(d)(e)}	3,433,000 ^(e)	50
Barium	1,000	1,500 ^{**}	-	-	1,000
Mercury	2	3 ^{**}	2.4/0.012	0.146	2
Lead	50 ^(f)	20 ^{**} (^g)	82/3.2 ^(d)	-	50
Cadmium	10	0 ^{**}	3.9/1.1 ^(e)	-	10
Manganese	-	-	-	100	-
Zinc	-	-	120/110 ^(d)	-	-
Iron	-	-	1,000	-	-
Cadmium	10	-	3.9/1.1 ^(c)	-	10
Copper	1,300 [*]	1,300 [*]	18/12 ^(d)	-	-
Nickel	-	-	1,400/140 ^(d)	100	-

- * Proposed MCL or MCLG (1988) (53 FR 31516)
- ** Proposed MCLGs 50 FR 46936 (November 13, 1985)
- (a) MCL for total trihalomethane concentration
- (b) Chromium +6
- (c) Lowest observed effect level

- (d) Hardness dependent criteria (100 mg/l used)
- (e) As of 8/31/1988
- (f) Value shown is for (pent)arsenic. (Tri)arsenic is 360/190 µg/l.
- (g) (Tri)chromium
- (h) Value shown is for di-2-ethylhexylphthalate

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All values in µg/l unless otherwise noted

Table 3. Target Compound List (TCL)

Volatiles

1. Chloromethane
2. Bromomethane
3. Vinyl Chloride
4. Chloroethane
5. Methylene Chloride

6. Acetone
7. Carbon Disulfide
8. 1,1-Dichloroethene
9. 1,1-Dichloroethane
10. 1,2-Dichloroethene (total)

11. Chloroform
12. 1,2-Dichloroethane
13. 2-Butanone
14. 1,1,1-Trichloroethane
15. Carbon Tetrachloride

16. Bromodichloromethane
17. 1,2-Dichloropropane
18. cis-1,3-Dichloropropene
19. Trichloroethene
20. Dibromochloromethane

21. 1,1,2-Trichloroethane
22. Benzene
23. trans-1,3-Dichloropropene
24. Bromoform
25. 4-Methyl-2-pentanone

26. 2-Hexanone
27. Tetrachloroethene
28. Toluene
29. 1,1,2,2-Tetrachloroethane
30. Chlorobenzene

31. Ethyl Benzene
32. Styrene
33. Xylenes (total)

Table 3 (cont.) Target Compound List (TCL)

Semivolatiles

34. Phenol
35. bis(2-Chloroethyl) ether
36. 2-Chlorophenol
37. 1,3-Dichlorobenzene
38. 1,4-Dichlorobenzene

39. 1,2-Dichlorobenzene
40. 2-Methylphenol
41. 2,2'-oxybis (1-Chloropropane)*
42. 4-Methylphenol
43. N-Nitroso-di-n-dipropylamine

44. Hexachloroethane
45. Nitrobenzene
46. Isophorone
47. 2-Nitrophenol
48. 2,4-Dimethylphenol

49. bis(2-Chloroethoxy)methane
50. 2,4-Dichlorophenol
51. 1,2,4-Trichlorobenzene
52. Naphthalene
53. 4-Chloroaniline

54. Hexachlorobutadiene
55. 4-Chloro-3-methylphenol
56. 2-Methylnaphthalene
57. Hexachlorocyclopentadiene
58. 2,4,6-Trichlorophenol

59. 2,4,5-Trichlorophenol
60. 2-Chloronaphthalene
61. 2-Nitroaniline
62. Dimethylphthalate
63. Acenaphthylene

64. 2,6-Dinitrotoluene
65. 3-Nitroaniline
66. Acenaphthene
67. 2,4-Dinitrophenol
68. 4-Nitrophenol

69. Dibenzofuran
70. 2,4-Dinitrotoluene
71. Diethylphthalate
72. 4-Chlorophenyl-phenyl ether
73. Fluorene

* Previously known by the name bis(2-Chloroisopropyl) ether

Table 3 (cont.) Target Compound List (TCL)

74. 4-Nitroaniline
75. 4,6-Dinitro-2-methylphenol
76. N-nitrosodiphenylamine
77. 4-Bromophenyl-phenylether
78. Hexachlorobenzene

79. Pentachlorophenol
80. Phenanthrene
81. Anthracene
82. Carbazole
83. Di-n-butylphthalate

84. Fluoranthene
85. Pyrene
86. Butylbenzylphthalate
87. 3,3'-Dichlorobenzidine
88. Benzo(a)anthracene

89. Chrysene
90. bis(2-Ethylhexyl)phthalate
91. Di-n-octylphthalate
92. Benzo(b)fluoranthene
93. Benzo(k)fluoranthene

94. Benzo(a)pyrene
95. Indeno(1,2,3-cd)pyrene
96. Dibenz(a,h)anthracene
97. Benzo (g,h,i)perylene

Pesticides/Aroclors

98. alpha-BHC
99. beta-BHC
100. delta-BHC
101. gamma-BHC (Lindane)
102. Heptachlor

103. Aldrin
104. Heptachlor epoxide
105. Endosulfan I
106. Dieldrin
107. 4,4'-DDE

108. Endrin
109. Endosulfan II
110. 4,4'-DDD
111. Endosulfan sulfate
112. 4,4'-DDT

Table 3 (cont.) Target Compound List (TCL)

- 113. Methoxychlor
- 114. Endrin ketone
- 115. Endrin aldehyde
- 116. alpha-Chlordane
- 117. gamma-Chlordane

- 118. Toxaphene
- 119. Aroclor-1016
- 120. Aroclor-1221
- 121. Aroclor-1232
- 122. Aroclor-1242

- 123. Aroclor-1248
- 124. Aroclor-1254
- 125. Aroclor-1260

Table 3A. Inorganic Target Analyte List (TAL)

Analyte

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Calcium
Chromium
Cobalt
Copper
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Potassium
Selenium
Silver
Sodium
Thallium
Vanadium
Zinc
Cyanide

Table 4. Action Levels for soil at the Wells G & H Site based on the leaching of contaminants from soil into groundwater. (Source: Table 5, Wells G & H Record of Decision)

A. POTENTIAL CARCINOGENS

COMPOUND	Koc (l/kg)	Kd (l/kg)	DRINKING WATER STANDARD (mg/l)	TARGET SOIL CONCENTRATION (µg/kg)
Chloroform	3.10E+01	3.10E-01	1.00E-01 MCL (a)	62.5
Tetrachloroethene	3.64E+02	3.64E+00	5.00E-03 MCL (b)	36.7
Trichloroethene	1.26E+02	1.26E+00	5.00E-03 MCL	12.7

B. NONCARCINOGENS

COMPOUND	Koc (l/kg)	Kd (l/kg)	DRINKING WATER STANDARD (mg/l)	TARGET SOIL CONCENTRATION (µg/kg)
Trans-1,2-dichloroethene	5.90E+01	5.90E-01	7.00E-02 MCLG (c)	83.2
1,1,1-trichloroethane	1.52E+02	1.52E+00	2.00E-01 MCL	613

Action levels based on the attainment of a target risk level in soils which corresponds to the attainment of ARARs in groundwater.

- (a) MCL is for total trihalomethanes; refers to the sum of chloroform, bromochloromethane, and bromoform.
- (b) MCL is for trichloroethene. This value was used based on the chemical similarities between the two compounds and their toxicological endpoints.
- (c) Proposed.

NOTE: Scientific notation (such as 2E-06) is a shorthand way of indicating decimal places (i.e. the magnitude of the number). A negative exponent indicates that the decimal should be moved the specified number of places to the left (i.e. 2.4E-03 = 0.0024 = 2.4x10⁻³).

(Source: Feasibility Study, Section 1.0, Table 1-5)

Table 5. Action levels for soil at the Wells G & H Site
 future use conditions for direct contact
 (Source: Table 6, Wells G & H Record of Decision)

POTENTIAL CARCINOGENS

COMPOUND	POTENCY FACTOR (mg/kg/d) ⁻¹	TARGET SOIL CONCENTRATION (mg/kg)			
		TARGET RISK LEVEL			
		10 ⁻⁴	10 ⁻⁵	10 ^{-6*}	10 ⁻⁷
Chlordane	1.30E+00	6.14E+02	6.14E+01	6.14E+00	6.14E-01
4,4'-DDT	3.40E-01	2.35E+03	2.35E+02	2.35E+01	2.35E+00
cPAHs	1.15E+01	6.94E+01	6.94E+00	6.94E-01	6.94E-02
PCBs	7.70E+00	1.04E+02	1.04E+01	1.04E+00	1.04E-01

Action levels based on the attainment of a target risk level for the potential carcinogens and a CDI:RfD of one for the noncarcinogens for exposure to compounds in the soil via direct contact (dermal contact with and incidental ingestion of soil); exposure assumptions are presented in the endangerment assessment and below.

GENERAL ASSUMPTIONS: Body weight = 70 kg; Average lifetime = 70 years; Exposure period = 70 years; Frequency of exposure = 100 days/year; Incidental ingestion rate = 54 mg/day; Dermal contact rate = 790 mg/day.

ASSUMPTIONS FOR PESTICIDES, PAHs, AND PCBs: Ingestion absorption factor = 0.3; Dermal absorption factor = 0.02.

ASSUMPTIONS FOR VOLATILE ORGANICS: Ingestion absorption factor = 1.0; Dermal absorption factor = 0.3.

ASSUMPTIONS FOR INORGANICS: Ingestion absorption factor = 1.0; Dermal absorption is negligible.

NOTE: Scientific notation (such as 2E-06) is a shorthand way of indicating decimal places (i.e. the magnitude of the number). A negative exponent indicates that the decimal should be moved the specified number of places to the left (i.e. 2.4E-03 = 0.0024 = 2.4x10⁻³).

*Cleanup levels for the Wells G & H Site are based on a 10⁻⁶ risk level.

(Source: Feasibility Study, Section 1.0, Table 1-6)

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TABLE 6

**ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TBCS FOR ALTERNATIVE SC-10:
IN-SITU VOLATILIZATION/EXCAVATION/ON-SITE INCINERATION/BACKFILL ON-SITE
WELLS GRM SITE, WOBURN, MASSACHUSETTS**

(Source: Table 10, Wells G & H Record of Decision)

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
1) Action-Specific ARARs		
<ul style="list-style-type: none"> RCRA - General Facility Requirements (40 CFR 264.10-264.18)² 	<ul style="list-style-type: none"> General facility requirements outline general waste security measures, inspections, and training requirements. 	<ul style="list-style-type: none"> Facilities will be constructed, fenced, posted, and operated in accordance with this requirement. All workers will be properly trained.
<ul style="list-style-type: none"> RCRA Incineration Requirements (40 CFR 264 Subpart O)² 	<ul style="list-style-type: none"> Principal Organic Hazardous Constituents (POHC) are to be destroyed to 99.99 percent destruction and removal efficiency, stringent particulate and MEL limits are imposed. 	<ul style="list-style-type: none"> On-site incineration activities will be designed and operated in compliance with Subpart O.
<ul style="list-style-type: none"> TSCA - PCB Incineration Requirements (40 CFR 763.70(a)(2), (b))¹ 	<ul style="list-style-type: none"> Contaminated soil in excess of 50 ppm PCB concentration must be incinerated to a 99.9999 percent destruction efficiency. 	<ul style="list-style-type: none"> Appropriate technology will be employed to achieve the 99.9999 percent TSCA destruction requirement.
<ul style="list-style-type: none"> RCRA - Generator and Transporter Responsibilities (40 CFR 262 and 263)² 	<ul style="list-style-type: none"> Provides standards for packing and accumulating hazardous waste prior to off-site disposal. 	<ul style="list-style-type: none"> Decontamination and scrubber water and carbon adsorption waste management and off-site disposal will proceed in accordance with RCRA requirements.
<ul style="list-style-type: none"> RCRA - Land Disposal Restrictions (40 CFR 268)² 	<ul style="list-style-type: none"> Provide treatment standards and schedules governing land disposal of RCRA wastes and of materials contaminated with or derived from RCRA wastes. 	<ul style="list-style-type: none"> On-site incinerators will be designed in accordance with standards to allow site-specific RCRA delisting of material.
<ul style="list-style-type: none"> RCRA - Container Requirements (40 CFR 264 Subpart I)² 	<ul style="list-style-type: none"> This regulation sets forth RCRA requirements for use and management of containers at RCRA facilities. 	<ul style="list-style-type: none"> Packing and accumulation of excavated soil treatment sludges and other materials will adhere to these standards.
<ul style="list-style-type: none"> DOT - Transportation of Hazardous Waste Requirements (49 CFR 171-179)² 	<ul style="list-style-type: none"> These regulations set forth DOT requirements for transportation of hazardous waste. These are generally identical to RCRA requirements at 40 CFR 263. 	<ul style="list-style-type: none"> All on- and off-site transport of excavated soil treatment sludges, and other materials will follow these standards.

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TABLE 6 (Cont'd)

ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TBCS FOR ALTERNATIVE SC-10:
IN-SITU VOLATILIZATION/EXCAVATION/ON-SITE INCINERATION/BACKFILL ON-SITE
WELLS G&H SITE, WOHURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> RCRA - Tank Requirements (40 CFR 264 Subpart J) 	<ul style="list-style-type: none"> Provides design and operating requirements for RCRA waste treatment facilities utilizing tanks. 	<ul style="list-style-type: none"> Design and operation of the in-situ volatilization facility will follow these requirements.
<ul style="list-style-type: none"> RCRA - Preparedness and Prevention (40 CFR 264.30 - 264.31)² 	<ul style="list-style-type: none"> This regulation outlines requirements for safety equipment and spill control. 	<ul style="list-style-type: none"> On-site facilities and activities will be designed and operated in accordance with RCRA requirements.
<ul style="list-style-type: none"> RCRA - Contingency Plan and Emergency Procedures (40 CFR 264.50 - 264.56)² 	<ul style="list-style-type: none"> This regulation outlines the requirements for emergency procedures to be used following explosions, fires, etc. 	<ul style="list-style-type: none"> Emergency procedures will be developed and implemented in accordance with RCRA requirements.
<ul style="list-style-type: none"> RCRA - Manifesting, Recordkeeping, and Reporting (40 CFR 264.70 - 264.77)² 	<ul style="list-style-type: none"> This regulation specifies the recordkeeping and reporting requirements for RCRA facilities. 	<ul style="list-style-type: none"> Records will be maintained during site remediation in compliance with this requirement.
<ul style="list-style-type: none"> RCRA - Closure and Post-Closure (40 CFR 264 Subpart G)² 	<ul style="list-style-type: none"> This regulation details the specific requirements for closure and post-closure care of hazardous waste facilities. 	<ul style="list-style-type: none"> Hazardous waste facilities will be closed in a manner that meets the requirements of the closure regulations.
<ul style="list-style-type: none"> OSHA - General Industry Standards (29 CFR 1910)¹ 	<ul style="list-style-type: none"> This regulation specifies the 8-hour, time-weighted average concentration for various organic compounds and 2 PCB compounds; site control procedures; training; and protective clothing requirements for worker protection at site remediations. 	<ul style="list-style-type: none"> Proper respiratory equipment will be worn if it is not possible to maintain the work atmosphere below these concentrations.
<ul style="list-style-type: none"> OSHA - Safety and Health Standards (29 CFR 1926)¹ 	<ul style="list-style-type: none"> This regulation specifies the type of safety equipment and procedures to be followed during construction and excavation activities. 	<ul style="list-style-type: none"> All appropriate safety equipment will be on-site and procedures will be followed during groundwater monitoring and excavation.
<ul style="list-style-type: none"> OSHA - Recordkeeping, Reporting and Related Regulations (29 CFR 1904)¹ 	<ul style="list-style-type: none"> The regulation outlines the recordkeeping and reporting requirements for an employer under OSHA. 	<ul style="list-style-type: none"> These regulations are applicable to the company contracted to execute site remediation.

4-80

TABLE 6 (Cont'd)

ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TDCS FOR ALTERNATIVE SC-10:
IN-SITU VOLATILIZATION/EXCAVATION/ON-SITE INCINERATION/BACKFILL ON-SITE
WELLS G&H SITE, WOBURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> DEQE - Hazardous Waste Management Requirements (310 CMR 30.00)² 	<ul style="list-style-type: none"> These regulations provide comprehensive monitoring, storing, recordkeeping, etc. programs at hazardous waste sites. 	<ul style="list-style-type: none"> During remedial design, these regulations will be compared to the corresponding federal RCRA regulations, and the more stringent requirements will be utilized. Note that Massachusetts considers soil contaminated in excess of 50 ppm PCBs to be a hazardous waste (310 CMR 30.13), waste #9002).
<ul style="list-style-type: none"> DEQE - Hazardous Waste Incinerator Air Emission Requirements (310 CMR 7.00(4))² 	<ul style="list-style-type: none"> Provides air emission requirements for hazardous waste incinerators. Principal Organic Hazardous Constituents (POHCS) destroyed to 99.99 percent, PCBs to 99.9999 percent. Particulate, HCL and CO emissions also controlled. 	<ul style="list-style-type: none"> On-site incineration activities to be designed and operated in compliance with requirements.
<ul style="list-style-type: none"> TSCA - Marking of PCBs and PCB Items (40 CFR 761.40 - 761.79)¹ 	<ul style="list-style-type: none"> 50 ppm PCB storage areas, storage items, and transport equipment must be marked with the M₂ mark. 	<ul style="list-style-type: none"> All storage areas, drums, and transport equipment will carry the appropriate markings displayed in an easily readable position.
<ul style="list-style-type: none"> TSCA - Storage and Disposal (40 CFR 761.60 - 761.79)¹ 	<ul style="list-style-type: none"> This requirement specifies the requirements for storage and disposal/destruction of PCBs in excess of 50 ppm. These PCB-contaminated soils would have to be disposed of or treated in a facility permitted for PCBs, in compliance with TSCA regulations. Treatment must be performed using incineration or some other method with equivalent destruction efficiencies. 	<ul style="list-style-type: none"> Storage areas for drums containing PCB soils in excess of 50 ppm will be constructed to comply with this requirement. Verification of incinerator compliance will be made prior to drum shipment.
<ul style="list-style-type: none"> TSCA - Records and Reports (40 CFR 761.10-761.105)¹ 	<ul style="list-style-type: none"> This regulation outlines the requirements for recordkeeping for storage and disposal of >50 ppm PCBs. 	<ul style="list-style-type: none"> Records will be maintained during remedial action in compliance with this regulation for all PCB drums which contain soils in excess of 50 ppm.
<ul style="list-style-type: none"> CAA - National Air Quality Standards for Total Suspended Particulates (40 CFR 129.105, 750)¹ 	<ul style="list-style-type: none"> This regulation specifies maximum primary and secondary 24-hour concentrations for particulate matter. 	<ul style="list-style-type: none"> Fugitive dust emissions from site activities will be maintained below 150 ug/m³ (secondary standard) by water sprays and other dust suppressants.
<ul style="list-style-type: none"> DEQE - Ambient Air Quality Standards for the Commonwealth of Massachusetts (310 CMR 6.00) 	<ul style="list-style-type: none"> This regulation specifies dust, odor, and noise emissions from construction activities. 	<ul style="list-style-type: none"> Fugitive dust will be controlled by water sprays or suppressants. All equipment will be maintained so as not to produce excessive noise.
<ul style="list-style-type: none"> DEQE - Air Pollution Controls (310 CMR 7.00)¹ 	<ul style="list-style-type: none"> Regulates new sources of air pollution to prevent air quality degradation. Requires the use of "Best Available Control Technology" (BACT) on all new sources. 	<ul style="list-style-type: none"> BACT will be used on all new sources.

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TABLE 6 (Cont'd)

ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TDCS FOR ALTERNATIVE SC-10:
IN-SITU VOLATILIZATION/EXCAVATION/ON-SITE INCINERATION/BACKFILL ON-SITE
WELLS GEM SITE, WOBURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> Employee and Community Right-to-Know Requirements (310 CMR 33)⁽¹⁾ 	<ul style="list-style-type: none"> Establishes rules for the dissemination of information related to toxic and hazardous substances to the public. 	<ul style="list-style-type: none"> Information dissemination procedures in these regulations will be used.
2) Action-Specific TDCs		
<ul style="list-style-type: none"> RCRA - Proposed Air Emission Standards for Treatment Facilities (52 FR 3740, February 5, 1987) 	<ul style="list-style-type: none"> This proposal would set performance standards for RCRA treatment facility air emissions. 	<ul style="list-style-type: none"> Volatilization facilities and other non-incinerators that have air emissions (e.g., air strippers) will be designed to meet the proposed federal regulations.
3) Location-Specific ARARs		
<ul style="list-style-type: none"> RCRA - Location Standards (40 CFR 264.10)¹ 	<ul style="list-style-type: none"> This regulation outlines the requirements for constructing a RCRA facility on a 100-year floodplain. <p>A facility located on a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood, unless waste may be removed safely before floodwater can reach the facility, or no adverse effects on human health and the environment would result if washout occurred.</p>	<ul style="list-style-type: none"> It is assumed that remediation facilities will be located outside floodplains. Temporary staging areas or remediation facilities that are located in a floodplain will be designed to allow quick mobilization out of the area and to prevent damage caused by initial floodwaters.
<ul style="list-style-type: none"> CWA - Section 404 Dredge and Fill Requirements (Guidelines at 40 CFR 230)¹ 	<ul style="list-style-type: none"> The placement for fill following excavation of contaminated soil pursuant to remediation activities in the Aberjona River wetlands triggers Section 404 jurisdiction. The governing regulations favor practicable alternatives that have less impact on wetlands. If no mitigated practicable alternative exists, impacts must be mitigated. 	<ul style="list-style-type: none"> Under this alternative no excavation will occur in Section 404 wetlands. Soil contamination in such areas will be remediated using in-situ volatilization which does not require excavation and subsequent filling.
<ul style="list-style-type: none"> Massachusetts Wetlands Protection Requirements (310 CMR 10.00)¹ 	<ul style="list-style-type: none"> These requirements control regulated activities in freshwater wetlands, 100-year floodplains, and 100-foot buffer zones beyond these areas. Regulated activities include virtually any construction or excavation activity. Performance standards are provided for evaluation of the acceptability of various activities. 	<ul style="list-style-type: none"> Under this alternative, no excavation will occur in the regulated wetlands. Excavation of contaminated soil may occur in the wetlands buffer zone. In this case, the alternative will meet performance standards for activities in the buffer zone.

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TABLE 6 (Cont'd)

ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TDCS FOR ALTERNATIVE SC-10:
IN-SITU VOLATILIZATION/EXCAVATION/ON-SITE INCINERATION/BACKFILL ON-SITE
WELLS G&H SITE, WOBURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> Wetlands Executive Order (EO 11990) 	<ul style="list-style-type: none"> Under this Executive Order, federal agencies are required to select alternatives that minimize the destruction, loss or degradation of wetlands, and preserve and enhance natural and beneficial values of wetlands. 	<ul style="list-style-type: none"> No excavation will occur in Section 404 wetlands. This is the best practicable alternative for treating contaminated wetlands.
<ul style="list-style-type: none"> Floodplains Executive Order (EO 11088) 	<ul style="list-style-type: none"> Federal agencies are required to reduce the risk of flood loss, to minimize impact of floods, and to restore and preserve the natural and beneficial value of floodplains. In addition, practicable alternatives must be selected that have less impact on wetlands. 	<ul style="list-style-type: none"> Excavation and filling are temporary disruptions, and filling will match preconstruction topography. Thus, there is no permanent disruption of floodplain values and the ARAR will be met.
<ul style="list-style-type: none"> Protection of Archaeological Resources (32 CFR 229) 	<ul style="list-style-type: none"> These regulations develop procedures for the protection of archaeological resources. 	<ul style="list-style-type: none"> If archaeological resources are encountered during excavation, work will stop until the area has been reviewed by federal and state archaeologists.

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¹Applicable

²Relevant and Appropriate

TABLE 7

CHEMICAL - SPECIFIC ARARS AND TBCS FOR
WELLS G&H SITE, WOBURN, MASSACHUSETTS

(Source: Table B, Wells G & H Record of Decision)

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
1) ARARS		
<ul style="list-style-type: none"> • DMA - Maximum Contaminant Levels (MCLs) (40 CFR 141.11 - 141.16)² 	<ul style="list-style-type: none"> • MCLs have been promulgated for a number of common organic and inorganic contaminants. These levels regulate the concentration of contaminants in public drinking water supplies, but may also be considered relevant and appropriate for groundwater aquifers potentially used for drinking water. 	<ul style="list-style-type: none"> • Treatment will be conducted to achieve SDWA MCLs in groundwater.
<ul style="list-style-type: none"> • RCRA - Maximum Concentration Limits (MCLs) (40 CFR 264.94)² 	<ul style="list-style-type: none"> • RCRA MCLs provide groundwater protection standards for 14 common contaminants. All are equal to the SDWA MCLs for these contaminants. 	<ul style="list-style-type: none"> • Treatment will be conducted to achieve RCRA MCLs in groundwater.
<ul style="list-style-type: none"> • DEQE - Massachusetts Drinking Water Maximum Contaminant Levels (MCL) (310 CMR 22.00)² 	<ul style="list-style-type: none"> • Massachusetts MCLs establish levels of contaminants allowable in public water supplies. They are essentially equivalent to SDWA MCLs. 	<ul style="list-style-type: none"> • Since DEQE MCLs are the same as SDWA MCLs, they were used to set clean-up levels for contaminants of concern.
<ul style="list-style-type: none"> • DEQE - Massachusetts Groundwater Quality Standards (314 CMR 6.00)² 	<ul style="list-style-type: none"> • These standards consist of groundwater classifications which designate and assign the uses of Commonwealth groundwaters, and water quality criteria necessary to sustain these uses. There is a presumption that all groundwaters are Class 1. 	<ul style="list-style-type: none"> • DEQE groundwater standards were considered when determining clean-up levels.
<ul style="list-style-type: none"> • CMA - Ambient Water Quality Criteria (AWQC) - Protection of Freshwater Aquatic Life, Human Health - Fish Consumption 	<ul style="list-style-type: none"> • AWQC are developed under the Clean Water Act (CWA) as guidelines from which states develop water quality standards. A more stringent AWQC for aquatic life may be found relevant and appropriate rather than an MCL, when protection of aquatic organisms is being considered at a site. 	<ul style="list-style-type: none"> • AWQC were used to characterize risks to fresh water aquatic life resulting from discharge of treated groundwater to the Aberjona River.
2) TBCS		
<ul style="list-style-type: none"> • EPA Risk Reference Doses (RfDs) 	<ul style="list-style-type: none"> • RfDs are dose levels developed by the EPA for noncarcinogenic effects. 	<ul style="list-style-type: none"> • EPA RfDs were used to characterize risks due to exposure to contaminants in groundwater, as well as other media.
<ul style="list-style-type: none"> • EPA Carcinogen Assessment Group Potency Factors 	<ul style="list-style-type: none"> • Potency Factors are developed by the EPA from Health Assessments or evaluation by the Carcinogen Effects Assessment Group. 	<ul style="list-style-type: none"> • EPA Carcinogenic Potency Factors were used to compute the individual incremental cancer risk resulting from exposure to site contamination.
<ul style="list-style-type: none"> • Massachusetts Drinking Water Health Advisories 	<ul style="list-style-type: none"> • DEQE Health Advisories are guidance criteria for drinking water. 	<ul style="list-style-type: none"> • DEQE Health Advisories were considered when developing clean-up levels for groundwater.

TABLE 8

ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TBCS FOR NOM ALTERNATIVES:

- NOM-2** Pump and Treat Source Areas
 - 20(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants
 - 20(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
- NOM-3** Pump and Treat Central Area
 - 30 Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
- NOM-4** Pump and Treat Source Areas and Central Area
 - 40(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants
 - 40(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant

WELLS G&H SITE, WOBURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
1) Action-Specific ARARs		
● RCRA - General Facility Requirements (40 CFR 264.10-264.10) ²	● General facility requirements outline general waste security measures, inspections, and training requirements.	● Facilities will be constructed, fenced, posted, and operated in accordance with this requirement. All workers will be properly trained.
● RCRA - Generator and Transporter Responsibilities (40 CFR 262 and 263) ²	● Provides standards for packing and accumulating hazardous waste prior to off-site disposal.	● Pretreatment, sludge management and off-site disposal will proceed in accordance with RCRA requirements.
● RCRA - Preparedness and Prevention (40 CFR 264.30 - 264.31) ²	● This regulation outlines requirements for safety equipment and spill control.	● On-site facilities and activities will be designed and operated in accordance with RCRA requirements.
● RCRA - Contingency Plan and Emergency Procedures (40 CFR 264.50 - 264.54) ²	● This regulation outlines the requirements for emergency procedures to be used following explosions, fires, etc.	● Emergency procedures will be developed and implemented in accordance with RCRA requirements.
● RCRA - Manifesting, Recordkeeping, and Reporting (40 CFR 264.70 - 264.77) ²	● This regulation specifies the recordkeeping and reporting requirements for RCRA facilities.	● Records will be maintained during site remediation in compliance with this requirement.
● RCRA - Container Requirements (40 CFR 264 Subpart I) ²	● This regulation sets forth RCRA requirements for use and management of containers at RCRA facilities.	● Packing and accumulation of treatment sludges and other materials will adhere to these standards.
● RCRA - Land Disposal Restrictions (40 CFR 268) ²	● Provide treatment standards and schedules governing land disposal of RCRA wastes and of materials contaminated with or derived from RCRA wastes.	● On-site treatment will be conducted in accordance with standards to allow site-specific RCRA delisting of material.

(Source: Table 11, Wells G & H Record of Decision)

TABLE B (Cont'd)
ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TDCS FOR NOM ALTERNATIVES:

- NOM-2 Pump and Treat Source Areas
 - 28(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants
 - 28(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
- NOM-3 Pump and Treat Central Area
 - 30 Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
- NOM-4 Pump and Treat Source Areas and Central Area
 - 40(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants
 - 40(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant

WELLS GUN SITE, WOBURN, MASSACHUSETTS

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REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> Massachusetts Wetlands Protection Requirements (310 CMR 10.00) 	<ul style="list-style-type: none"> These requirements control regulated activities in freshwater wetlands, 100-year floodplains, and 100-foot buffer zones beyond these areas. Regulated activities include virtually any construction or excavation activity. Performance standards are provided for evaluation of the acceptability of various activities. 	<p>bottom contours. These actions meet the terms of the U.S. Army Corps of Engineers Nationwide Permit No. 12 (33 CFR 330.5(a)(12)). This permit provides authorization under Section 404 for discharge of material for backfill or bedding for "utility lines", provided there is no change in preconstruction bottom contours. A "utility line" is defined as a pipe for the transportation of any liquid for any purpose.</p> <ul style="list-style-type: none"> Extraction pipes will be laid underground through regulated wetlands, floodplains, and buffer zones. This will not cause loss of flood storage capacity, and will only temporarily disturb wetlands. The performance standards of the regulations will therefore be achieved. All treatment facilities will be constructed above the 100-year floodplain elevation (e.g., 40 feet above sea level).
<ul style="list-style-type: none"> Massachusetts Waterways Licenses (310 CMR 9.00) 	<ul style="list-style-type: none"> Controls dredging, filling, and other work in water of the Commonwealth. 	<ul style="list-style-type: none"> Alternatives involving source area pumping and central area treatment require placement of pipes under and across the Aberjona River. Pertinent requirements will be followed regarding dredging methods and management of dredged spoil.
<ul style="list-style-type: none"> Massachusetts Certification for Dredging and Filling (314 CMR 9.00) 	<ul style="list-style-type: none"> Establishes water quality-based standards for filling activities (CMA Section 401). 	<ul style="list-style-type: none"> Alternatives involving source area pumping and central area treatment require placement of pipes under and across the Aberjona River. Proper measures will be taken to avoid contravention of water quality standards (i.e., turbidity) during installation of pipes.

TABLE B (Cont'd)

ACTION-SPECIFIC AND LOCATION-SPECIFIC ARAAS AND TBES FOR NON ALTERNATIVES:

NON-2	Pump and Treat Source Areas - 2B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants - 2B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
NON-3	Pump and Treat Central Area - 3B Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
NON-4	Pump and Treat Source Areas and Central Area - 4B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants - 4B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant

WELLS GAN SITE, WOBURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> • DOT - Transportation of Hazardous Waste Requirements (49 CFR 171-179)² 	<ul style="list-style-type: none"> • These regulations set forth DOT requirements for transportation of hazardous waste. These are generally identical to RCRA requirements at 40 CFR 263. 	<ul style="list-style-type: none"> • All on- and off-site transport of treatment sludges and other materials will adhere to these standards.
<ul style="list-style-type: none"> • CAA - National Air Quality Standards for Total Suspended Particulates (40 CFR 129.105, 750)¹ 	<ul style="list-style-type: none"> • This regulation specifies maximum primary and secondary 24-hour concentrations for particulate matter. 	<ul style="list-style-type: none"> • Fugitive dust emissions from site activities will be maintained below 150 ug/m³ (secondary standard) by water sprays and other dust suppressants.
<ul style="list-style-type: none"> • DEQE - Ambient Air Quality Standards for the Commonwealth of Massachusetts (310 CMR 6.00)¹ 	<ul style="list-style-type: none"> • This regulation specifies dust, odor, and noise emissions from construction activities. 	<ul style="list-style-type: none"> • Fugitive dust will be controlled by water sprays or suppressants. All equipment will be maintained so as not to produce excessive noise.
<ul style="list-style-type: none"> • DEQE - Air Pollution Control (310 CMR 7.00)¹ 	<ul style="list-style-type: none"> • Regulates new sources of air pollution to prevent air quality degradation. Requires the use of "Best Available Control Technology" (BACT) on all new sources. 	<ul style="list-style-type: none"> • BACT will be used on all new sources.
<ul style="list-style-type: none"> • OSHA - General Industry Standards (29 CFR 1910)¹ 	<ul style="list-style-type: none"> • This regulation specifies the 8-hour, time-weighted average concentration for various organic compounds and 2 PCB compounds; site control procedures; training; and protective clothing requirements for worker protection at site remediations. 	<ul style="list-style-type: none"> • Proper respiratory equipment will be worn if it is not possible to maintain the work atmosphere below these concentrations.
<ul style="list-style-type: none"> • OSHA - Safety and Health Standards (29 CFR 1926)¹ 	<ul style="list-style-type: none"> • This regulation specifies the type of safety equipment and procedures to be followed during construction and excavation activities. 	<ul style="list-style-type: none"> • All appropriate safety equipment will be on site and procedures will be followed during groundwater monitoring.
<ul style="list-style-type: none"> • OSHA - Recordkeeping, Reporting and Related Regulations (29 CFR 1904)¹ 	<ul style="list-style-type: none"> • The regulation outlines the recordkeeping and reporting requirements for an employer under OSHA. 	<ul style="list-style-type: none"> • These regulations are applicable to the company contracted to execute site remediation.
<ul style="list-style-type: none"> • CWA - National Pollutant Discharge Elimination System (NPDES) (40 CFR 122-125)¹ 	<ul style="list-style-type: none"> • Provides permitting process for surface water body point source discharges. 	<ul style="list-style-type: none"> • Water discharges to the Aberjona River will be treated to ensure that violations of the Clean Water Act do not occur.

TABLE 9 (Cont'd)
ACTION-SPECIFIC AND LOCATION-SPECIFIC ACTIONS AND TDCS FOR MDM ALTERNATIVES:

MDM-2	Pump and Treat Source Areas - 2B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants - 2B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
MDM-3	Pump and Treat Central Area - 3B Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
MDM-4	Pump and Treat Source Areas and Central Area - 4B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants - 4B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant

WELLS GEM SITE, WOBURN, MASSACHUSETTS

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REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
DEQE - Water Discharge Permit Program Requirements (314 CMR 3.00) ¹	Provides permitting process for surface water body point discharges. This requirement is generally identical to CMA NPDES.	Water discharges to the Aberjona River will be treated to ensure that violations of the DEQE water discharge permit program do not occur.
DEQE - Surface Water Quality Standards (314 CMR 4.00) ¹	This regulation consists of surface water classifications which designate and assign uses, and water quality criteria necessary to sustain the designated uses.	Water discharges to the Aberjona River will be treated to ensure that violations of the DEQE water quality standards for that water body do not occur.
DEQE - Groundwater Quality Standards (314 CMR 6.00) ¹ and Groundwater Discharge Permit Program (314 CMR 5.00) ¹	This regulation consists of groundwater classifications which designate and assign uses, and water quality criteria necessary to sustain the designated uses.	Class I groundwater quality criteria will be achieved at end of the remediation process.
DEQE - Air Emission Limitations for Unspecified Sources of Volatile Organic Compounds (310 CMR 7.18(17)) ²	Unspecified source with the potential to emit 100 tons/year of VOCs must install "Reasonably Available Control Technology" (RACT).	Treatment of VOC air emissions from pretreatment units to 99.99 percent combustion efficiency in vapor phase carbon adsorption.
DEQE - Hazardous Waste Management Requirements (310 CMR 30.00) ²	These regulations provide comprehensive monitoring, storing, recordkeeping, etc. programs at hazardous waste sites.	During remedial design, these regulations will be compared to the corresponding federal RCRA regulations, and the more stringent requirements will be utilized. Note that Massachusetts considers liquids contaminated with PCBs greater than 50 ppm to be hazardous wastes (M002).
DEQE - Air Pollution Control New Source Approvals (310 CMR 7.00) ¹	Regulates new sources of air pollution to prevent air quality degradation. Requires the use of "Best Available Control Technology" (BACT) on all new sources.	BACT will be used on all new sources.
Employee and Community Right-to-Know Requirements (310 CMR 33) ¹	Establishes rules for the dissemination of information related to toxic and hazardous substances to the public.	Information dissemination procedures in these regulations will be used.

TABLE B (Cont'd)
ACTION-SPECIFIC AND LOCATION-SPECIFIC ARARS AND TDCS FOR MON ALTERNATIVES:

- MON-2 Pump and Treat Source Areas
 - 2B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants
 - 2B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
- MON-3 Pump and Treat Central Area
 - 3B Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
- MON-4 Pump and Treat Source Areas and Central Area
 - 4B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants
 - 4B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant

WELLS GRN SITE, WOBURN, MASSACHUSETTS

REQUIREMENT	REQUIREMENT SYNOPSIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
2) Action-Specific TRCs		
<ul style="list-style-type: none"> RCRA - Proposed Air Emission Standards for Treatment Facilities (52 FR 3748, February 5, 1987) 	<ul style="list-style-type: none"> The proposal would set performance standards for RCRA treatment facility air emissions. 	<ul style="list-style-type: none"> Vapor phase carbon adsorption facilities and other non-incinerators that have air emissions will be designed to meet the proposed federal regulations.
<ul style="list-style-type: none"> USEPA Office of Solid Waste and Emergency Response, Directive 9355.0-28, Air Stripper Control Guidance 	<ul style="list-style-type: none"> Establishes guidance on the control of air emissions from air strippers used at Superfund sites for groundwater treatment. 	
3) Location-Specific ARARs		
<ul style="list-style-type: none"> RCRA - Location Standards (40 CFR 264.18)² 	<ul style="list-style-type: none"> This regulation outlines the requirements for constructing a RCRA facility on a 100-year floodplain. A facility located on a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood, unless waste may be removed safely before floodwater can reach the facility, or no adverse effects on human health and the environment would result if washout occurred. 	<ul style="list-style-type: none"> There is adequate space to site treatment plants outside a floodplain. Pipes extending from pumping areas and treatment plants through floodplains do not present any risk of washout due to flooding and will not displace floodplains.
<ul style="list-style-type: none"> CWA - Section 404 Dredge and Fill Requirements (Guidelines at 40 CFR 230)¹ 	<ul style="list-style-type: none"> The placement for fill pursuant to remediation activities in Aberjona River wetlands triggers Section 404 jurisdiction. The governing regulations favor practicable alternatives that have less impact on wetlands. If no practicable alternative exists, impacts must be mitigated. 	<ul style="list-style-type: none"> There is adequate space to site treatment plants outside Section 404 wetlands. Excavation and subsurface placement of extraction wells and piping to and from source areas and treat-

4-130

TABLE B (Cont'd)
ACTION-SPECIFIC AND LOCATION-SPECIFIC ARIAS AND TDCS FOR NOM ALTERNATIVES:

NOM-2	Pump and Treat Source Areas - 2B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants - 2B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
NOM-3	Pump and Treat Central Area - 3B Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant
NOM-4	Pump and Treat Source Areas and Central Area - 4B(i) Pretreatment and UV/Chemical Oxidation at Separate Treatment Plants - 4B(ii) Pretreatment and UV/Chemical Oxidation at a Central Treatment Plant

WELLS GUN SITE, WOBURN, MASSACHUSETTS

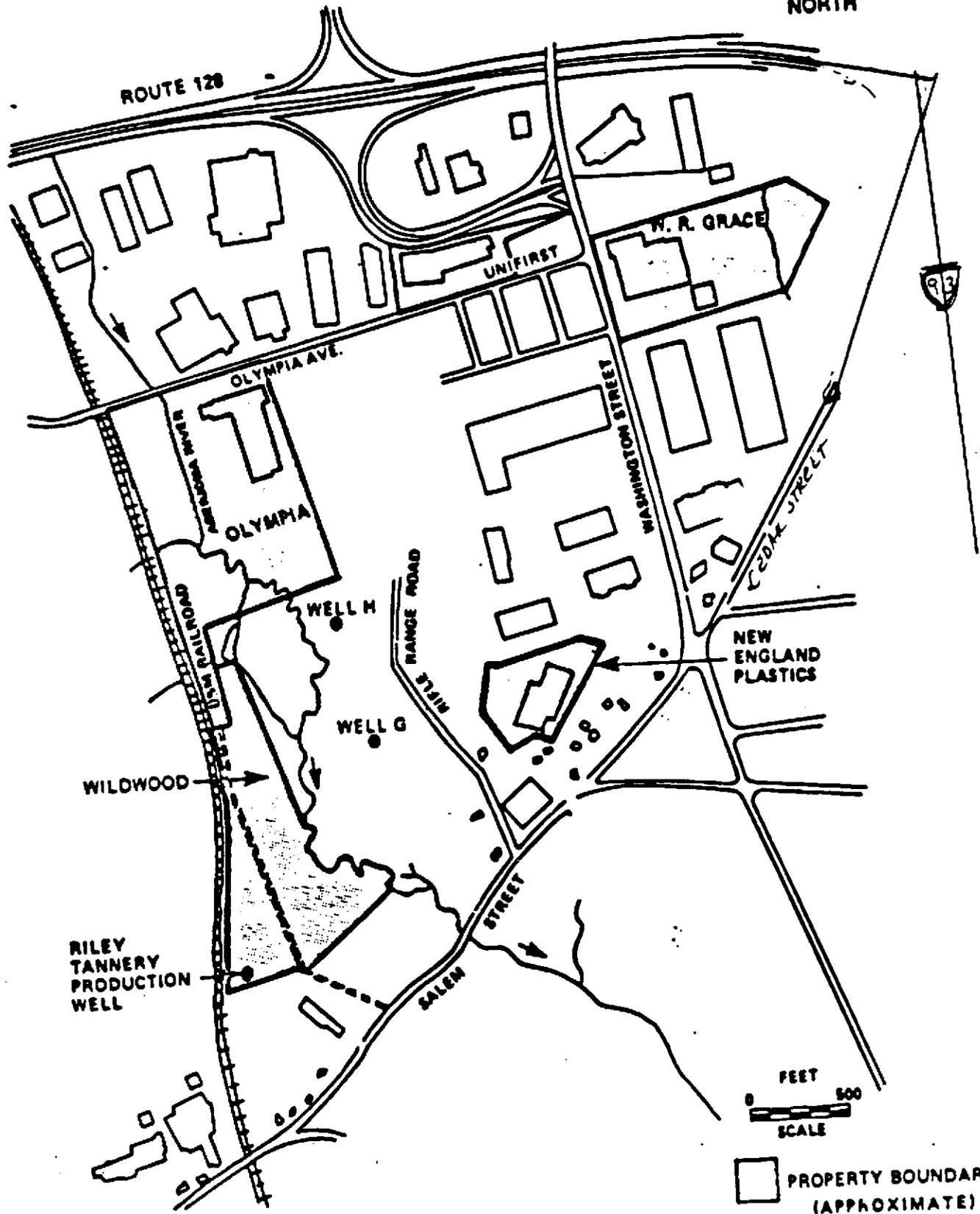
REQUIREMENT	REQUIREMENT BASIS	ACTION TO BE TAKEN TO ATTAIN REQUIREMENT
<ul style="list-style-type: none"> • Inland Wetland Orders (302 CMR 6.00)² 	<ul style="list-style-type: none"> • Defines wetland areas, establishes encroachment lines along waterways or floodplain areas, and regulates activities in these areas. 	<ul style="list-style-type: none"> • Some pipes connecting central treatment plants will be laid across the river. In these cases, consultation with DEQE regarding proper construction will occur.
<ul style="list-style-type: none"> • Operation and Maintenance and Pretreatment Standards for Waste Water Treatment Works and Indirect Discharges (314 CMR 12.0)² 	<ul style="list-style-type: none"> • Insures the proper operation and maintenance of waste water treatment facilities including operation and maintenance, sampling, and discharges. 	<ul style="list-style-type: none"> • Guidelines appropriate for a wastewater treatment facility will be followed.
<ul style="list-style-type: none"> • Wetlands Executive Order (EO 11990)¹ 	<ul style="list-style-type: none"> • Under this Executive Order, federal agencies are required to minimize the destruction, loss or degradation of wetlands, and preserve and enhance natural and beneficial values of wetlands. If no practicable alternative exists impacts must be mitigated 	<ul style="list-style-type: none"> • The placement of pipes in wetlands, is necessary to connect the central treatment plants. Therefore, it is consistent with the requirements of the Executive Order.
<ul style="list-style-type: none"> • Floodplains Executive Order (1) 11888)¹ 	<ul style="list-style-type: none"> • Federal agencies are required to reduce the risk of flood loss, to minimize impact of floods, and to restore and preserve the natural and beneficial value of floodplains. 	<ul style="list-style-type: none"> • The placement of pipes in wetlands, below grade, poses no additional flood hazard and meets the requirements of the Executive Order.
4) Location-Specific TDCs		
<ul style="list-style-type: none"> • EPA Groundwater Protection Strategy 	<ul style="list-style-type: none"> • EPA classifies groundwater into three categories depending on current, past or potential use. This serves as a guide for protection of the resource. 	<ul style="list-style-type: none"> • Wells Gun aquifer is a Class II B aquifer-potentially usable aquifer. At the end of remediation, all NOM alternatives will attain standards for Class IIB aquifers.

¹Applicable

²Relevant and Appropriate
9428b

APPENDIX III

SOURCE AREA MAP FOR THE WELLS G & H SITE WOBURN, MA



PROPERTY BOUNDARY
(APPROXIMATE)

APPENDIX IV

SETTLING DEFENDANTS

UniFirst Corporation
New England Plastics Corporation
Charrette Corporation
Massachusetts Rifle Association
Northern Research and Engineering Corporation
Ingersoll-Rand Company
Beatrice Company
Cummings Properties Management Inc.
W.R. Grace & Co. - Conn.
City of Woburn
John J. Riley, Jr.
Wildwood Conservation Corporation

Appendix V Notices of Obligations

- a. for Source Area Defendants**
- b. for Non-Source Area Defendants**

NOTICE OF OBLIGATIONS, COVENANTS AND EASEMENTS

GRANTOR: _____

GRANTEES: United States Environmental Protection Agency, and its successor agencies ("EPA")

Commonwealth of Massachusetts, By and through the Department of Environmental Protection, and its successor agencies ("Commonwealth")

Grantor hereby gives notice that, in consideration of the obligations and covenants contained in a consent decree entered in the United States District Court for the District of Massachusetts in cases entitled _____, Civil Action No. [] (the "Consent Decree"), a copy of which has been recorded at the Middlesex South District Registry of Deeds at Book _____, Page _____, Grantor has granted access to the property described below (the "property") for the purposes of performing and monitoring certain work required under the Consent Decree on, at, or for the Wells G&H Site (the "Site") in Woburn, Massachusetts, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA), 42 U.S.C. §9601 et. seq., and the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, Mass. G.L. Chapter 21E, as more particularly described below.

The Grantor hereby grants to the Grantees an easement for access (the "Easement") over the Property solely for such activities by the Grantees, its employees, agents, authorized representatives and contractors and solely for such time as shall be necessary for the Grantees to carry out their on-site responsibilities for the implementation of the Consent Decree, which activities may include but are not limited to the following:

- a. Monitoring the Work or any other activities taking place on the Property;
- b. Verifying any data or information submitted by Owner;
- c. Conducting investigations relating to contamination at or near the Site;
- d. Obtaining samples;
- e. Assessing the need for or planning and implementing additional response actions at or near the Site;
- f. Inspecting and copying records, operating logs, contracts, or other documents required to assess the compliance of owner with the Consent Decree;
- g. Assessing the compliance of Owner with the Consent Decree.

This Easement is an easement for access only and grants no possessory interest.

This Easement is revocable by Grantor upon receipt of a Certificate of Completion of Work from EPA. The recording of an instrument executed by Grantor, its successors or assigns terminating this Agreement shall be conclusive evidence that such condition for revocation has been met.

The easements and rights granted herein and the covenants, restrictions and other rights related to such easements and rights referred to or contained herein run with the land and, except as otherwise provided, shall be binding on the Grantor and all persons to whom any interest in the Property, or any portion thereof, is transferred, other than a person who acquires such interest solely to protect a security interest in the Property and who has not exercised any right to enter or possess the Property, and shall expressly be enforceable by the Grantees or by either one acting singly. Each deed, title, or other instrument of conveyance except mortgages and other interests that do not convey fee title for the Property shall contain a notice stating that the Property is subject to this Notice and the Consent Decree and to any and all liens retained by the Grantees and shall reference the recorded location of this Notice of Obligation and the Consent Decree.

For Grantor's title see deed of [] dated [], 19[], registered as Document No. [] with the Middlesex _____ District Registry of Deeds].

No documentary stamps are affixed hereto as none are required by law as this conveyance is made without monetary consideration.

Executed as a sealed instrument this _____ day of _____, 199__.

GRANTOR:

NOTICE OF OBLIGATIONS

GRANTOR: _____

GRANTEES: United States Environmental Protection Agency, and
its successor agencies ("EPA")

Commonwealth of Massachusetts, By and through the
Department of Environmental Protection, and its
successor agencies ("Commonwealth")

Grantor hereby gives notice that, in consideration of the obligations and covenants contained in a consent decree entered in the United States District Court for the District of Massachusetts in cases entitled _____ Civil Action No. [] (the "Consent Decree"), a copy of which has been recorded at the Middlesex South District Registry of Deeds at Book _____, Page _____, Grantor has granted access to the property described below (the "property") for the purposes of performing and monitoring certain work required under the Consent Decree on, at, or for the Wells G&H Site (the "Site") in Woburn, Massachusetts, pursuant to the Comprehensive Environmental Response, Compensation and Liability Act, as amended (CERCLA), 42 U.S.C. §9601 et. seq., and the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, Mass. G.L. Chapter 21E. For Grantor's title see deed of [] dated [], 19[], registered as Document No. [] with the Middlesex _____ District Registry of Deeds].

No documentary stamps are affixed hereto as none are required by law as this conveyance is made without monetary consideration.

Executed as a sealed instrument this _____ day of _____, 199 .

GRANTOR:

Appendix VI



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

EXPLANATION OF SIGNIFICANT DIFFERENCES WELLS G & H SUPERFUND SITE WOBURN, MASSACHUSETTS

Site Name: Wells G & H Superfund Site

Location: Woburn, Massachusetts

Lead Agency: U.S. Environmental Protection Agency

Support Agency: Massachusetts Department of Environmental Protection

Under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), if the United States Environmental Protection Agency (EPA) determines that the remedial action at a Site differs significantly in scope, performance or cost from the Record of Decision (ROD) for the Site, EPA shall publish an explanation of the significant differences between the remedial action being undertaken and the remedial action set forth in the ROD and the reasons such changes are being made.

This Explanation of Significant Differences (ESD) contains a brief history of the Wells G & H Site, a description of the remedy selected in the ROD signed on September 14, 1989, and a description of and rationale for the changes to the ROD. These changes are included in the proposed settlement embodied in the Consent Decree signed by EPA's Region I office, the Commonwealth of Massachusetts, and certain potentially responsible parties on September 28, 1990.

This ESD and other supporting documents can be found in the Administrative Record located at EPA's Region I office at 90 Canal Street, Boston, Massachusetts, open Monday - Friday, 8 am - 1 pm and 2 pm - 5 pm, and at the Woburn Public Library, 45 Pleasant Street, Woburn, Massachusetts 01801.

I. Site History

The Wells G & H Superfund Site covers approximately 330 acres in east Woburn, Middlesex County, Massachusetts. The Site includes the aquifer and land mass area located within the zone of contribution of the two municipal drinking water wells known as Wells G & H. The boundaries of the Site are Route 128 to the north, Route 93 to the east, the Boston and Maine railroad to the west, and Salem Street to the south.



The Aberjona River flows through the Site and eventually reaches the Mystic Lakes in Winchester as part of the Mystic River watershed. Wells G & H are situated in the sand and gravel aquifer of the Aberjona River basin. The Site includes substantial wetland areas on both sides of the Aberjona River which are associated with the Aberjona River floodplains.

Wells G & H were developed by the City of Woburn in 1964 and 1967, respectively. The Wells, screened in the Aberjona River Aquifer, provided an estimated twenty-eight percent of the community's drinking water supply. In 1979, the Massachusetts Department of Environmental Protection (formerly Massachusetts Department of Environmental Quality Engineering) tested these water supply wells and detected contamination consisting of several chlorinated volatile organic compounds ranging from one to four hundred parts per billion (ppb). As a result of these findings, the Wells were immediately shut down. In 1982, the Wells G & H Site was listed on the National Priorities List, making it eligible for funding for remedial action under CERCLA.

Between 1981 and 1989, EPA, as well as several owners of property within the Site boundaries, conducted a series of studies to determine the nature and extent of contamination at the Site. The results of the studies revealed groundwater contaminated with volatile organic compounds (VOCs) throughout a one square mile area surrounding the Wells. This one square mile area now approximates the Site boundaries.

Five properties surrounding the Wells were identified as the sources of the groundwater contamination. These properties belong to W.R. Grace & Co. - Conn., UniFirst Corporation, Wildwood Conservation Corporation, New England Plastics Company, and the Olympia Nominee Trust. VOCs were found in the groundwater beneath these five source area properties.

In addition to the groundwater contamination, EPA identified soil contamination above target levels on the Wildwood, UniFirst, New England Plastics and Olympia properties. Specifically, EPA found the following: a mixture of VOCs, pesticides, polychlorinated biphenyls (PCBs), PAHs and lead on the Wildwood property; VOCs on the UniFirst property; PAHs on the Olympia property; and VOCs on the New England Plastics property. Sediment samples taken from the Aberjona River and its surrounding wetlands within the Site boundaries revealed contamination consisting of PAHs and metals such as arsenic, mercury, and chromium. Finally, an area of sludge and debris was identified on the Wildwood property.

II. Summary of the Remedy

On September 14, 1989, EPA issued a Record of Decision (ROD) that embodied the remedy selected for the first operable unit of the

Site. The remedial action selected in the ROD consists of the following:

1. Treatment of contaminated soil using in-situ volatilization on the Wildwood property;
2. Excavation and on-site incineration of contaminated soils at the Wildwood, Olympia, New England Plastics and UniFirst properties;
3. Treatment and/or disposal of the sludge and debris found on the Wildwood property in a manner to be determined during the design phase of the clean-up;
4. Extraction and treatment of contaminated groundwater separately at the five source area properties using pre-treatment for metals and an air stripper to remove contaminants, or an equally or more effective technology approved by EPA. The extraction systems will be designed to address the specific bedrock and/or overburden contamination at each source area property.

III. Explanation of Significant Differences

A. Significant Changes

1. On-site Incineration of Soils Changed to Off-site Incineration

Off-site incineration will now be used to treat contaminated soils on the Wildwood, New England Plastics, and Olympia properties instead of on-site incineration. Because these contaminated soils will now be transferred off-site, this portion of the remedial action must be conducted in accordance with Section 121(d)(3) of CERCLA.

Off-site incineration is equally effective and protective of human health and the environment as on-site incineration. Off-site incineration was not selected in the ROD because it was more expensive than on-site incineration. On-site incineration would, however, require significant coordination among the parties performing the clean-up by requiring use of a common incinerator. Those parties conducting the clean-up prefer to act separately and feel that it is more cost effective for them if the soil is taken off-site. The settlement requires that they implement this portion of the remedy regardless of cost.

2. In-situ Volatilization on UniFirst Property

In-situ volatilization instead of incineration will now be used for treatment of the contaminated soil on the UniFirst property. A review of recently gathered data on the UniFirst property shows

that the soil on the UniFirst property is, in part, being recontaminated by the upward migration of VOC vapors from the highly contaminated groundwater beneath the pavement of the UniFirst property. This is supported by recent data collected at the UniFirst property in an area of the property that had been excavated and refilled with clean soil in 1986. The data collected in 1989 show that this area is now contaminated with tetrachloroethene.

Although the contaminated soil could currently be treated by incineration, the vapors from the groundwater would continue to recontaminate the soil and the soil would again need to be excavated and incinerated. Repeated incineration of soils would be more costly than originally estimated by EPA in the ROD. The only alternative would be to wait until groundwater remediation is complete before incinerating the soil.

In-situ volatilization, however, can be applied at an appropriate point during groundwater remediation, and would be more efficient and effective since the apparatus can remain on-site and be turned on and off as necessary. In-situ volatilization is the selected remedy for treating similarly contaminated soil on other portions of the Site and is protective of human health and the environment.

3. Change in Target Clean-up Levels

The target levels for non-carcinogen. action levels in groundwater set out in Table 7 of the ROD entitled "ARAR-Based Action Levels For Groundwater" will be changed to more stringent levels. This change is designed to correct an inadvertent error in transcription which occurred in the final drafting of the ROD. This error was not identified until after the issuance of the ROD.

Table 7 incorrectly identified milligrams/liter (mg/l) as the units for the non-carcinogenic action levels in groundwater. The units have now been changed to micrograms/liter (ug/l), which reflect the units used for these compounds under the Safe Drinking Water Act and were the intended action levels. This is consistent with other portions of the ROD that identify Maximum Contaminant Levels (MCLs) promulgated under the Safe Drinking Water Act as the clean up levels for the Site. This correction does not alter the cost of the remedy for the Site since MCLs were consistently used as the basis for any calculations in the Feasibility Study.

B. Other Non-Significant Change

1. Combined Extraction Systems for the UniFirst and Grace Properties

The UniFirst and Grace properties may share extraction systems for groundwater if it proves to be beneficial and appropriate during pre-design. The ROD required separate extraction systems on each source area property because sufficient technical information was not available to design the appropriate extraction system for each source area property. In addition, if each property had its own separate system it would require less coordination and cooperation between the different property owners thereby making it easier to implement.

Since the ROD was written, UniFirst and Grace have begun pre-design work on these two adjacent properties pursuant to a Consent Order entered into under Sections 104(b) and 122(d)(3) of CERCLA. Under this Order, UniFirst and Grace are performing pilot studies for the extraction and treatment of contaminated groundwater on their respective properties. They propose to use one extraction well on the UniFirst property to extract groundwater from both the Grace and UniFirst properties simultaneously. If this proves to be an efficient and effective method for extracting contaminated groundwater from both properties, then it will be incorporated into the design of the remedial action for these properties.

C. Summary

This ESD provides for certain changes to the soil and groundwater remedy as described above, but the overall remedy fundamentally remains the same: incineration and in-situ volatilization of contaminated soils, removal of sludge and debris, and extraction and treatment of groundwater at the source areas.

IV. Support Agency Comments

The Commonwealth of Massachusetts has participated with EPA in developing the adjustments to the ROD which are described herein and concurs with the approach adopted by EPA. Massachusetts is a signatory to the proposed settlement that includes these changes to the remedy.

V. Affirmation of the Statutory Determinations

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA believes the remedy remains protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective. In addition, this remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this Site.

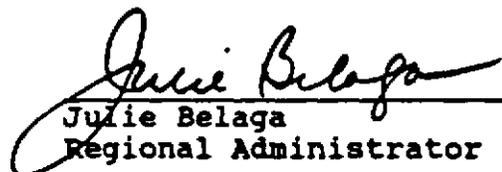
VI. Public Participation Activities

This ESD and supporting information are available for public review at the locations and times identified in the Introduction to this document.

VII. Declaration

For the foregoing reasons, by my signature below, EPA is issuing this Explanation of Significant Differences for the Wells G & H Superfund Site in Woburn, Massachusetts.

April 25, 1991
Date


Julie Belaga
Regional Administrator

Appendix VII Access Agreements

a. between Source and Non-Source Area Defendants

b. Between Commonwealth and Non-Source Area Defendants

ACCESS AGREEMENT

AGREEMENT, made this _____ day of _____, 199_,
by _____ and between _____ (hereinafter,
Grantor) and _____ (hereinafter,
Grantee).

WITNESSETH

WHEREAS, Grantee has a desire to carry out certain activities which are the subject of a Consent Decree entered in the United States District Court of the District of Massachusetts in cases entitled _____ Civil Action No. [] (the Consent Decree) a copy of which has been recorded at the Middlesex Registry of Deeds at Book _____, Page _____. The activities subject to that Consent Decree include the collection of data and the sampling and monitoring of wells (the "Work") as set forth in the statement and of Work thereto.

WHEREAS, Grantee wishes to secure the permission of the Grantor to obtain access to the following Property:

[Insert Property Description]

in order to perform the Work required by the Consent Decree and

WHEREAS, Grantor is willing to grant Grantee access to the Property to undertake certain activities as described more particularly herein, subject to the following terms and conditions.

NOW, THEREFORE, in consideration of the foregoing premises, the covenants and conditions hereinafter set forth and the further consideration of One Dollar (\$1.00), receipt of which is hereby acknowledged, the parties hereto agree as follows:

I. Access to Premises

Grantor and its consultants, contractors and subcontractors are permitted to have access into, over and upon the Property for the purpose of performing the Permitted Activities as defined herein. Such access is conditioned upon the receipt by Grantor of written notice describing the nature, scope and location of the work to be undertaken at least five (5) days in advance of the date of the commencement of the Work, if practicable. Grantee and its consultants shall use all reasonable efforts to notify Grantor when a decision is being made regarding the location of any wells to be placed on Grantor's property. In the event that access on any particular date would place an undue burden upon Grantor or its tenants, the parties involved shall use all reasonable efforts to determine a mutually convenient date.

II. Permitted Activities

Grantee and its consultants, contractors and subcontractors are permitted to have access to the Property to perform the following activities to the extent required by the Consent Decree (herein the "Permitted Activities") at, under or upon the Property, which will not interfere with any operations of Grantor or its tenants and which will not impact any of the improvements and water levels at the Property.

- (a) Survey of the Property;
- (b) Repair and/or installation of one or more monitoring wells;
- (c) Collection of samples from all monitoring and production wells;
- (d) Measurement of water levels from all monitoring and production wells;
- (e) Installation of monitoring devices in all monitoring and production wells.

In the event Grantor determines to construct additional facilities on the Property, and a monitoring or production well installed by Grantee interferes with such proposed facility, Grantee agrees, at its expense , to relocate the affected well to an area that will not interfere with the proposed facility, provided that EPA and the Commonwealth do not object to the relocation.

III. Provision of Data

- (a) Grantee will provide a copy of the Health and Safety Plans prepared by Grantee as applicable to the Property as referenced in the Consent Decree.
- (b) Upon request by the Grantor, Grantee will provide split water samples to the Grantor.
- (c) Upon request by the Grantor, Grantee will provide copies of all data developed from analysis of samples taken from the Property.

IV. Permits or Approvals for Permitted Activities

In the event that a permit or approval is required from any governmental agency to perform any of the Permitted Activities at the Property, it is agreed neither the Grantor nor its tenants have any responsibility to pay for or secure such permits or approvals. The Grantor will, however, agree to sign any application or form reasonably deemed necessary in order to secure such permit or approval, subject to the provisions of Article VI herein.

V. Covenant against Liens

Grantor's right, title and/or interest in and to the Property shall not be subject to or liable for liens of mechanics or materialmen arising out of the performance of the Permitted Activities at the Property.

VI. Liability of Grantee for Damages

Grantee shall assume any and all liability for physical damage to the Property or improvements thereon arising from or relating to its performance of the Permitted Actions at the Property.

VII. Indemnification

Grantee shall indemnify and save and hold harmless the Grantor and its tenants and their officers, employees, shareholders, agents, contractors and representatives from and against any and all claims or causes of action or other costs incurred by the Grantor or tenants (including, but not limited to attorneys fees and other expenses of litigation and settlement) arising from or on account of all acts or omissions of Grantee, its officers, employees, agents, contractors, subcontractors, and any person

acting on its behalf or under their control in carrying out activities on the Property.

VIII. Insurance

Grantees shall satisfy or shall ensure that their consultants, contractors or subcontractors satisfy all applicable laws and regulations regarding the provision of workmen's compensation insurance for persons who will be performing the Permitted Activities on the Property and that comprehensive general liability policies of insurance are in full force and effect with minimum policy limits of \$1,000,000 for personal injury (including death) and \$1,000,000 for property damage. Grantees shall furnish evidence reasonably satisfactory to the Grantor of the existence of such coverage. The Grantor and any tenants shall be listed as

ditional insureds on all such policies of insurance covering all claims brought against the Grantor because of acts or omissions by Grantee's consultants. The furnishing of such evidence is a pre-condition to the right of access granted by this Agreement.

IX. Property to be Bound

In the event that the Grantor shall convey the Property or lease or relet the Property to a tenant, it shall secure the approval of such purchaser or tenant to the terms of this Agreement. In the event Grantees are denied access to the Property for purposes of performing Permitted Activities by such future owner or tenant, Grantor agrees to reimburse Grantee for any reasonable cost incurred in securing access to the Property for

purposes of performing Permitted Activities. Nothing in this agreement, however, shall be construed to be a conveyance of any interest in land or realty from Grantor to Grantee.

X. Term

The Term of this Agreement shall commence on the date of the signing of this Agreement and shall continue in full force and effect until Grantor has fulfilled all of its work obligations under the Consent Decree. The Grantee shall provide a copy of the Certificate of Completion of Work provided by EPA to the Grantor upon Grantee's receipt of such Certificate.

XI. Waiver/Modification

Failure by Grantor to insist upon or enforce any of its rights as contained herein shall not constitute a waiver thereof and nothing shall constitute a waiver of such rights to insist upon strict compliance with the provisions hereof. Any modification to the terms of this Agreement must be in writing and signed by the parties hereto.

XII. Interpretation

The section headings used herein are for convenience of reference only and shall not enter into the interpretation of this Agreement.

XIII. Nonrecordation

Grantor and Grantee agree that this Agreement shall not be recorded in any registry of deeds or in any office where information regarding title to land is customarily kept.

IN WITNESS WHEREOF the parties have executed this Agreement on the date first written above.

Grantor: _____

By: _____

Title: _____

Grantee: _____

By: _____

Title: _____

ACCESS AGREEMENT

AGREEMENT, made this _____ day of _____, 199_, by and between _____ (hereinafter, Grantor) and The Commonwealth of Massachusetts, including its Department of Environmental Protection (hereinafter, Grantee).

WITNESSETH

WHEREAS, Grantee has a desire to carry out certain activities which are the subject of a Consent Decree entered in the United States District Court of the District of Massachusetts in cases entitled _____ Civil Action No. [] (the Consent Decree) a copy of which has been recorded at the Middlesex Registry of Deeds at Book ____, Page _____. The activities subject to that Consent Decree include the collection of data and the sampling and monitoring of wells (the "Work") as set forth in the statement and of Work thereto.

WHEREAS, Grantee wishes to secure the permission of the Grantor to obtain access to the following Property:

[Insert Property Description]

in order to perform the Work required by the Consent Decree and

WHEREAS, Grantor is willing to grant Grantee access to the Property to undertake certain activities as described more particularly herein, subject to the following terms and conditions.

NOW, THEREFORE, in consideration of the foregoing premises, the covenants and conditions hereinafter set forth and the further consideration of One Dollar (\$1.00), receipt of which is hereby acknowledged, the parties hereto agree as follows:

I. Access to Premises

Grantor and its consultants, contractors and subcontractors are permitted to have access into, over and upon the Property for the purpose of performing the Permitted Activities as defined herein. Such access is conditioned upon the receipt by Grantor of written notice describing the nature, scope and location of the work to be undertaken at least five (5) days in advance of the date of the commencement of the Work, if practicable. Grantee and its consultants shall use all reasonable efforts to notify Grantor when a decision is being made regarding the location of any wells to be placed on Grantor's property. In the event that access on any particular date would place an undue burden upon Grantor or its tenants, the parties involved shall use all reasonable efforts to determine a mutually convenient date.

II. Permitted Activities

Grantee and its consultants, contractors and subcontractors are permitted to have access to the Property to perform the following activities to the extent required by the Consent Decree (herein the "Permitted Activities") at, under or upon the Property, which will not interfere with any operations of Grantor or its tenants and which will not impact any of the improvements and water levels at the Property.

- (a) Survey of the Property;
- (b) Repair and/or installation of one or more monitoring wells;
- (c) Collection of samples from all monitoring and production wells;
- (d) Measurement of water levels from all monitoring and production wells;
- (e) Installation of monitoring devices in all monitoring and production wells.

III. Permits or Approvals for Permitted Activities

In the event that a permit or approval is required from any governmental agency to perform any of the Permitted Activities at the Property, it is agreed neither the Grantor nor its tenants have any responsibility to pay for or secure such permits or approvals. The Grantor will, however, agree to sign any application or form reasonably deemed necessary in order to secure such permit or approval, subject to the provisions of Article VI herein.

IV. Property to be Bound

In the event that the Grantor shall convey the Property or lease or relet the Property to a tenant, it shall secure the approval of such purchaser or tenant to the terms of this Agreement. In the event Grantees are denied access to the Property for purposes of performing Permitted Activities by such future owner or tenant, Grantor agrees to reimburse Grantee for any reasonable cost incurred in securing access to the Property for

purposes of performing Permitted Activities. Nothing in this agreement, however, shall be construed to be a conveyance of any interest in land or realty from Grantor to Grantee.

V. Term

The Term of this Agreement shall commence on the date of the signing of this Agreement and shall continue in full force and effect until Grantor has completed its oversight of all work to be performed at Grantor's property under the Consent Decree.

VI. Waiver/Modification

Failure by Grantor to insist upon or enforce any of its rights as contained herein shall not constitute a waiver thereof and nothing shall constitute a waiver of such rights to insist upon strict compliance with the provisions hereof. Any modification to the terms of this Agreement must be in writing and signed by the parties hereto.

VII. Interpretation

The section headings used herein are for convenience of reference only and shall not enter into the interpretation of this Agreement.