

P/P out
10.7
19380

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

IN THE MATTER OF:)
)
 PETERSON/PURITAN, INC. NPL SITE)
)
)
 PETERSON/PURITAN, INC.)
 MARTIN STREET)
 CUMBERLAND, RHODE ISLAND)
) U.S. EPA Docket No.
 Respondent.) 1-87-1064
)
 Proceeding Under Section 122(d)(3))
 (relating to a settlement agreement for)
 action under Section 104(b)))
 of the Comprehensive Environ-)
 mental Response, Compensation,)
 and Liability Act of 1980, as)
 amended by the Superfund Amendments)
 and Reauthorization Act of 1986(SARA))

5/27/87

ADMINISTRATIVE ORDER ON CONSENT

JURISDICTION

1. This Consent Order is issued pursuant to the authority vested in the President of the United States by Section 122(d)(3) (relating to a settlement agreement for action under Section 104(b)) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended. This authority has been delegated to the Administrator of the United States Environmental Protection Agency (EPA) by Executive Order 12580, 52 Fed. Reg. 2926, and further delegated to the Regional Administrator of EPA Region I by EPA Delegation No. 14-14C. Peterson/Puritan, Inc. (hereinafter "Respondent") agrees to undertake all actions

required by the terms and conditions of this Consent Order. The Respondent consents to and will not contest EPA jurisdiction regarding this Consent Order.

STATEMENT OF PURPOSE

2. In entering into this Consent Order, the mutual objectives of EPA and Repondent are: to determine fully the nature and extent of the threat to the public health or welfare or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Peterson/Puritan NPL Site (Site); and to provide to EPA information for its use in evaluating alternatives for the appropriate extent of remedial action to prevent or mitigate the migration or the release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site. The activities conducted pursuant to this Consent Order are subject to approval by EPA and shall, unless otherwise directed by EPA, be consistent with: CERCLA as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA); the National Contingency Plan (NCP), 40 C.F.R., Part 300 as promulgated on November 20, 1985; EPA Interim Guidance on Superfund Selection of Remedy, OSWER Directive No. 9355.0-19.; and EPA Remedial Investigation (RI) and Feasibility Study (FS) Guidance to the extent such Guidance is consistent with OSWER Directive No. 9355.0-19. If any inconsistencies between any of the above laws, regulations, or guidances exist, CERCLA, as amended, shall govern which takes precedence. Furthermore, if any of the above laws, regulations or guidances are amended prior to the signing of a Record of Decision for a final remedial

action at the Site, EPA may amend the Work Plan accordingly, or develop a new Work Plan accordingly, and Respondent shall conduct all activities required by the new or amended Work Plan.

FINDINGS OF FACT

3. The Peterson/Puritan Site is located along the Blackstone River between the Towns of Cumberland and Lincoln in Rhode Island. The Site is about two miles long and extends approximately 2000 feet to the east and to the west of the main river channel of the Blackstone River. The above is a description of the approximate extent of the Site which in fact may be larger due to the migration of contamination.

4. Respondent owns and operates a packaging plant in an industrial park located in the northeast corner of the Site.

5. The Site has been included on the National Priorities List established pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605.

6. Based on information supplied to EPA by Respondent, the following hazardous substances, without limitation, are located on and are migrating in groundwater from Respondent's property:

- A. Methylene Chloride
- B. Trichlorofluoromethane
- C. 1,1-Dichloroethylene
- D. 1,1-Dichloroethane
- E. Trans-1,2-Dichloroethylene
- F. 1,1,1-Trichloroethane
- G. Trichloroethylene
- H. 1,1,2,2 Tetrachloroethylene
- I. Toluene

Determinations

7. The above-referenced substances located at and migrating

from the Site are "hazardous substances" within the meaning of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

8. The migration of these substances in groundwater at the Site constitutes a "release" into the "environment" within the meanings of Section 101(22) and Section 101(8) of CERCLA, 42 U.S.C. § 9601(22) and § 9601(8).

9. The actions to be taken hereunder, if properly performed, will be consistent with the National Contingency Plan to the extent that it is not inconsistent with SARA.

10. The Site is a "facility" within the meaning of Section 101(9) of CERCLA, 42 U.S.C. §9601(9).

11. The Respondent is a "person" within the meaning of Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

12. Respondent is an "owner or operator" within the meaning of Section 101(20)(A) of CERCLA, 42 U.S.C. § 9601(20)(A).

13. The Respondent is a responsible party pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

14. The actions required by this Consent Order are necessary to protect the public health and welfare and the environment.

15. EPA has arranged for oversight and review of the RI/FS by both qualified EPA personnel and qualified contractors, and the Respondent agrees to reimburse EPA for any costs incurred under, or in connection with, the oversight contract or agreement, in accordance with Section 104 (a)(1) of CERCLA, as amended.

16. The RI/FS will be conducted properly and promptly by the Respondent, in accordance with Section 104(a)(1) of CERCLA,

if the RI/FS is conducted according to the Work Plan and any amendments thereto and in accordance with this Consent Order.

17. Respondent is qualified to conduct the RI/FS in accordance with Section 104(a)(1) of CERCLA if the Respondent engages qualified persons in accordance with Paragraph 18 herein.

Based on the foregoing, it is hereby AGREED AND ORDERED THAT:

WORK TO BE PERFORMED

18. All work performed pursuant to this Consent Order shall be under the direction and supervision of a qualified individual with appropriate technical and management expertise. Within ten days of the effective date of this Order, the Respondent shall provide to EPA in writing the names, titles and qualifications of the persons who will be managing and conducting any work under this Order, including any contractors or subcontractors. EPA shall have the right to reject any person, contractor or subcontractor based on professional qualifications, and Respondent shall replace said rejected person with a person satisfactory to EPA.

19. Within ten days of the effective date of this Order, Respondent shall also submit to EPA an RI/FS organization chart, describing the responsibilities and lines of authority for all persons who will be involved in implementing the Work Plan. If Respondent intends to use any consultant, Respondent shall within ten days of the effective date of this Order, provide EPA with information demonstrating his or her contract management capabilities.

20. Upon signature of this Order by the Regional Administrator, Respondent shall commence implementation of the RI/FS Work Plan and shall, within the time frames established by EPA, conclude implementation of the Work Plan. Implementation of the Work Plan shall include, without limitation, the following:

A. Implementation of all activities described in Appendix I hereto and submission to EPA for approval of the related deliverables according to the schedule contained in Attachment A to Appendix I.

B. Implementation of any corrections or modifications made in writing by EPA to any deliverable required by Appendix I or amendment thereto.

C. Implementation of any modifications made in writing by EPA to Appendix I regardless of when modifications are made. "Modifications" shall include changes to, additions to or deletions from the activities described in Appendix I.

21. Implementation of all activities undertaken by Respondent under this Order shall be consistent with relevant EPA guidance including any guidance issued subsequent to the effective date of this Order but prior to the signing of a Record of Decision for final remedial action at the Site. Also, implementation of all activities under this Order shall be consistent with the Project Operations Plan submitted to Respondent by EPA and any amendments thereto.

22. The Respondent shall provide, in addition to all deliverables described in Appendix I, bi-weekly written progress reports to EPA. At a minimum these progress reports shall: (a) describe

the actions which have been taken toward achieving compliance with this Order; (b) include all results of sampling and tests and all other data received by the Respondent; and (c) include all plans and procedures completed during the past two week period as well as such actions, data, and plans which are scheduled for the next two week period. These reports are to be submitted to EPA on the first and fifteenth of each month following the effective date of this Consent Order.

23. The Respondent shall provide all deliverables and the preliminary and final RI and FS reports to EPA according to the schedule contained in Attachment A to Appendix I and any amendments thereto. Prior to receipt of final approval of any deliverable from EPA, any deliverable submitted to EPA for approval shall be marked "Draft" on each page and shall include, in a prominent location in the document, the following language: "This document is a DRAFT which has not received final EPA approval."

24. EPA shall review each deliverable and the preliminary and final RI and FS reports and shall notify the Respondent in writing of EPA's approval or disapproval of these deliverables and reports or any part thereof. In the event of any disapproval, EPA shall specify in writing both the deficiencies and the reasons for such disapproval.

25. Within ten days of EPA notification of EPA disapproval of a deliverable other than the RI and FS reports and within thirty calendar days of receipt of EPA notification of preliminary or final report disapproval, the Respondent shall amend and submit to EPA such revised deliverables and reports. In the

event of subsequent disapproval, EPA retains the right to amend such deliverables and reports, to perform additional studies, and to conduct a complete Remedial Investigation and Feasibility Study pursuant to its authority under CERCLA, and to recover the costs thereof from Respondent.

26. Documents, including reports, approvals, disapprovals, and other correspondence, to be submitted pursuant to this Order, shall be sent to the following addresses or to such other designated persons in writing:

- (1) Documents to be submitted to EPA should be sent in triplicate to:

David Newton
Rhode Island/Vermont Superfund Section
US EPA, Region I
JFK Federal Building
Boston, MA 02203

- (2) Documents to be submitted to the Respondent should be sent to :

Randy Mott
Heron, Burchette, Ruckert & Rothwell
Suite 700
1025 Thomas Jefferson Street, NW
Washington, DC 20007

27. EPA may determine that tasks, including remedial investigatory work and/or engineering evaluation, are necessary as part of a Remedial Investigation and Feasibility Study in addition to EPA-approved tasks and deliverables, including reports, which have been completed pursuant to this Consent Order. The Respondent shall implement any additional tasks which EPA determines are necessary as part of a Remedial Investigation and Feasibility Study and which are in addition to the tasks detailed

in the RI/FS Work Plan or amendments thereto. The additional work shall be completed in accordance with the standards, specifications, and schedule determined or approved by EPA.

DESIGNATED PROJECT COORDINATORS

28. On or before the effective date of this Consent Order, EPA and the Respondent shall each designate a Project Coordinator. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Order. The EPA Project Coordinator will be EPA's designated representative at the Site. To the maximum extent possible, communications between the Respondent and EPA and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Order, shall be directed through the Project Coordinators.

29. EPA shall have the right to change its Project Coordinator. Such a change shall be accomplished by notifying Respondent in writing at least ten calendar days prior to the change.

30. The EPA designated "On-Scene-Coordinator", who may be the EPA Project Coordinator, shall have the authority vested in the On-Scene-Coordinator by the National Contingency Plan. This includes the authority to halt, conduct, or direct any tasks required by this Consent Order and/or any response actions or portions thereof when conditions present an imminent risk to public health or welfare or the environment.

31. The absence of the EPA Project Coordinator from the Site shall not be cause for the stoppage of work.

QUALITY ASSURANCE

32. The Respondent shall use quality assurance, quality control, and chain of custody procedures in accordance with Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, QAMS-005/80, EPA Doc. No. 600/4-83-004, throughout all sample collection and analysis activities. This manual shall be provided to the Respondent by EPA. The Respondent shall consult with EPA in planning for, and prior to, all sampling and analysis as provided for herein. In order to provide quality assurance and maintain quality control regarding all samples collected pursuant to this Consent Order, the Respondent shall:

A. Ensure that EPA personnel and/or EPA authorized representatives are allowed access to the laboratory(ies) and personnel utilized by the Respondent for analyses.

B. Ensure that the laboratory(ies) utilized by the Respondent for analyses perform such analyses according to EPA methods or methods deemed satisfactory to EPA and submit all protocols to be used for analyses to EPA at least fourteen calendar days prior to the commencement of analysis.

C. Ensure that laboratory(ies) utilized by the Respondent for analyses participate in an EPA quality assurance/quality control program equivalent to that which is followed by EPA and which is consistent with EPA document QAMS-005/80. As part of such a program, and upon request by EPA, such laboratory(s) shall perform analyses of samples provided by EPA to demonstrate the quality of each laboratory's analytical data.

SITE ACCESS

33. To the extent that any portion of the Site is presently owned by a party other than Respondent, the Respondent shall obtain site access agreements from the present owners within thirty calendar days of the effective date of this Consent Order. Such agreements shall provide reasonable access to Respondent, EPA and their authorized representatives. In the event that site access agreements are not obtained within the time referenced above, the Respondent shall notify EPA regarding both the lack of, and efforts to obtain, such agreements within thirty-five days of the effective date of this Consent Order.

SITE SAFETY

34. In the event EPA determines that activities in non-compliance with this Order, or activities implementing this Order which present circumstances not contemplated by this Order, create danger or the risk of danger to health or welfare or the environment during implementation of this Order, or in the event that such danger or risk of danger arises from any other circumstances encountered during the implementation of this Order, EPA may require Respondent to stop further implementation of this Order for such period of time as may be needed to abate the danger.

SAMPLING, ACCESS, AND DATA/DOCUMENT AVAILABILITY

35. The Respondent shall make the results of all sampling and tests and other data generated by the Respondent, or on the Respondent's behalf, with respect to the implementation of this Order, available to EPA and shall submit these results in the

progress reports as described in Paragraph 22 of this Consent Order. EPA will make available to the Respondent the results of sampling and tests or other data generated by EPA to the extent such information is releasable under the Freedom of Information Act.

36. At the request of EPA, the Respondent shall allow split or duplicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Respondent pursuant to the implementation of this Order. The Respondent shall notify EPA not less than forty-eight hours in advance of any sample collection activity.

37. The site access agreements which Respondent shall secure pursuant to Paragraph 33 above shall provide at a minimum that EPA and any EPA authorized representatives have the authority to enter and freely move about all property at the Site at all reasonable times for the purposes of, inter alia: inspecting records, operating logs, and contracts related to the Site; reviewing the progress of the Respondent in carrying out the terms of this Order; conducting such tests as EPA or the Project Coordinator deem necessary; using a camera, sound recording, or other documentary-type equipment; and verifying the data submitted to EPA by the Respondent. The Respondent shall permit such persons to inspect and copy all records, files, photographs, documents, and other writings, including all sampling and monitoring data, in any way pertaining to work undertaken pursuant to this Consent Order. Respondent shall grant EPA and its representatives the same access rights on all property owned or leased by Respondent.

All Parties with access to the Site pursuant to this paragraph shall comply with all approved health and safety plans.

38. The Respondent may assert a confidentiality claim if appropriate, covering part or all of the information requested by this Consent Order pursuant to CERCLA § 104(e). Such an assertion shall be adequately substantiated when the assertion is made. Analytical data shall not be claimed as confidential by the Respondent. Information determined to be confidential by EPA will be afforded the protection specified by 40 CFR part 2, Subpart B, and by CERCLA § 104(e). If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to the Respondent.

RECORD PRESERVATION

39. The Respondent shall preserve, during the pendency of this Order and for a minimum of six (6) years after its termination, all records and documents in its possession or in the possession of its divisions, employees, agents, accountants, contractors, or attorneys which relate to the purposes and objectives of this Order, including records relating to virgin or product materials at the Site despite any document retention policy to the contrary. After this six year period, the Respondent shall notify EPA within thirty calendar days prior to the destruction of any such documents. Upon request by EPA, the Respondent shall make available to EPA such records or copies of any such records. Additionally, if EPA requests that some or all documents be preserved for a longer period of time, the Respondent shall comply with that request.

DISPUTE RESOLUTION

40. If the Respondent objects to any EPA notice of disapproval or decision made pursuant to Paragraphs 18-27 of this Order, the Respondent shall notify EPA in writing of its objections within ten days of receipt of the decision. EPA and the Respondent then have an additional seven days from the receipt by EPA of the notification of objection to reach agreement. If agreement cannot be reached on any issue within this seven day period, EPA shall provide a written statement of its decision to the Respondent and Respondent shall implement the activities required by the EPA decision. In the event that Respondent does not implement the activities required by the EPA decision, the EPA Regional Administrator may take such civil enforcement actions against Respondent as may be provided by statutory or equitable authorities, including but not limited to, the assessment of such civil penalties or damages as are authorized by Section 109 of CERCLA, as amended.

DELAY IN PERFORMANCE/STIPULATED PENALTIES

41. For each day that the Respondent delays in submitting a deliverable or otherwise delays in achieving any requirement of this Consent Order, including securing access agreements under Paragraph 33 above, the Respondent shall pay the sums set forth below as stipulated penalties.

| <u>Period of Failure to Perform</u> | <u>Penalty Per Day for Each Item of Noncompliance</u> |
|-------------------------------------|---|
| 1st - 5th day | \$ 500.00 |
| 6th - 10th day | \$1000.00 |
| each day thereafter | \$2000.00 |

Any such penalty shall be due and payable ten days following receipt of a written demand by EPA. Payment of any such penalty shall be made by certified check payable to Hazardous Substances Superfund, and mailed to the following address with a notation of the docket number of this Consent Order:

U.S. Environmental Protection Agency
Superfund
P.O. Box 371003M
Pittsburgh, PA 15251

The stipulated penalties set forth in this section do not preclude EPA from electing to pursue any other remedies or sanctions which may be available to EPA by reason of the Respondent's noncompliance with any of the requirements of this Order. Such remedies and sanctions include a suit for statutory penalties as authorized by Section 109 of CERCLA, a federally-funded response action, and a suit for reimbursement of costs incurred by the United States.

RESERVATION OF RIGHTS

42. Notwithstanding compliance with the terms of this Consent Order, including the completion of an EPA approved Remedial Investigation and Feasibility Study, the Respondent is not released from liability for any actions beyond the terms of this Consent Order taken by EPA respecting the Site. EPA reserves the right to take any enforcement action pursuant to CERCLA and/or any available legal authority, including the right to seek injunctive relief, monetary penalties, and punitive damages for any violation of law or this Consent Order. EPA expressly reserves all rights

and defenses that it may have, including EPA's right both to disapprove of work performed by the Respondent and to request that the Respondent perform tasks in addition to those detailed in the RI/FS Work Plan. In the event that the Respondent declines to perform any additional and/or modified tasks, EPA will have the right to undertake any remedial investigation and/or feasibility study work. In addition, EPA reserves the right to undertake removal actions and/or remedial actions at any time. In either event, EPA reserves the right to seek reimbursement from the Respondent thereafter for such costs incurred by the United States.

REIMBURSEMENT OF COSTS

43. At the end of each year, EPA shall submit to the Respondent an accounting of all response and oversight costs incurred by the U.S. Government and interest thereon with respect to this Consent Order. The Respondent shall, within 30 calendar days of receipt of that accounting, remit a check for the amount of those costs and interest made payable to the Hazardous Substance Response Trust Fund. Checks should specifically reference the identity of the site and be addressed to:

U.S. Environmental Protection Agency
Superfund Accounting
P.O. Box 371003M
Pittsburgh, PA 15251
Attention: [Collection Officer for Superfund]

A copy of the transmittal letter should be sent to the Project Coordinator.

44. Respondent shall reimburse the following costs and interest thereon, without limitation, under this provision:

A. All costs incurred by EPA in preparation of an RI/FS Work Plan for the Site;

B. All costs incurred by EPA in implementing tasks under said Work Plan; and all penalties incurred by EPA with respect to contracts entered into by EPA or its contractors;

C. All administrative costs including attorneys fees incurred by EPA in negotiating, and monitoring compliance with, this Consent Order;

D. All costs incurred by EPA in developing an Endangerment Assessment for the Site;

E. All costs incurred by ATSDR in conducting a Health Assessment for the Site;

F. All costs incurred by EPA under or in connection with an oversight contract or arrangement by which EPA will secure assistance in overseeing and reviewing the RI/FS conducted by Respondent under this Order.

G. All costs incurred by EPA in the development and implementation of a Community Relations Plan related to RI/FS activities at the Site.

45. EPA reserves the right to bring an action against the Respondent or any other party pursuant to Section 107 of CERCLA for recovery of all response and oversight costs incurred by the United States related to this Consent Order and not reimbursed by the Respondent, as well as any other past and future costs and interest thereon incurred by the United States in connection with response activities conducted pursuant to CERCLA at this site.

OTHER CLAIMS

46. Nothing in this Consent Order shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership, or corporation not a signatory to this Consent Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Site.

47. In consideration of the entry of this Consent Order, Respondent agrees not to make any claims pursuant to Sections 106 or 112 of CERCLA or any other provision of law directly or indirectly against the Hazardous Substance Superfund established by CERCLA or other claims against the United States for expenses related to the Site and/or to this Consent Order. Nothing in this Consent Order shall be deemed to constitute approval or preauthorization of a CERCLA claim under CERCLA Section 111(a)(2).

OTHER APPLICABLE LAWS

48. All actions required to be taken pursuant to this Consent Order shall be undertaken in accordance with the requirements of all applicable state and federal laws and regulations unless an exemption from such requirements is specifically provided in this Consent Order or by CERCLA, as amended. In the event that there is a conflict in the application of federal or state laws or regulations, the more stringent of the conflicting provisions shall apply.

INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

49. The Respondent agrees to indemnify and save and hold the United States Government, its agencies, departments, agents, and employees, harmless from any and all claims or causes of action arising from or on account of acts or omissions of the Respondent, its officers, employees, receivers, trustees, agents, or assigns, in carrying out the activities pursuant to this Consent Order. EPA is not a party in any contract involving the Respondent at the Site and shall not be held out as such.

PUBLIC COMMENT

50. Upon submittal to EPA of an approved proposed remedial action and/or Feasibility Study Final Report, EPA may make both the Remedial Investigation Final Report and the proposed remedial action and/or Feasibility Study Final Report available to the public for review and comment for, at a minimum, a twenty-one (21) day period, pursuant to CERCLA. Following the public review and comment period, EPA may request modification to the RI/FS and shall notify the Respondent which remedial action alternative is approved for the Site.

EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

51. In consideration of the communications between the Respondent and EPA prior to the issuance of this Consent Order concerning its terms, the Respondent agrees that there is no need for a settlement conference prior to the effective date of this Consent Order. Therefore, the effective date of this Consent Order shall be the date on which it is signed by EPA.

52. This Consent Order may be amended by mutual agreement of EPA and the Respondent. Such amendments shall be in writing and shall have as the effective date that date on which such amendments are signed by EPA.

53. Any reports, plans, specifications, schedules, and attachments required by this Consent Order are, upon approval by EPA, incorporated into this Consent Order. Any delay or non-compliance with such EPA approved reports, plans, specifications, schedules, and attachments shall be considered delay or non-compliance with requirements of this Consent Order and shall subject the Respondent to penalties pursuant to Paragraph 41.

54. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, and any other writing submitted by the Respondent will be construed as relieving the Respondent of its obligation to obtain such formal approval as may be required by this Consent Order.

PARTIES BOUND

55. This Consent Order shall apply to and be binding upon the Respondent and EPA, their agents, successors, and assigns and upon all persons, contractors, and consultants acting under or for either the Respondent or EPA or both.

56. No change in ownership or corporate or partnership status shall in any way alter the status of the Respondent or in any way alter the Respondent's responsibility under this Consent Order. The Respondent shall remain the Respondent under this Consent Order and shall be responsible for carrying out all activities required of the Respondent under this Consent Order.

57. The Respondent shall provide a copy of this Consent Order to all contractors, sub-contractors, laboratories, and consultants retained to conduct any portion of the work performed pursuant to this Consent Order within fourteen calendar days of the effective date of this Consent Order or date of such retention, and any contracts entered into by Respondent shall be conditioned upon compliance with the terms of this Order.

NOTICE TO THE STATE AND NATURAL RESOURCE TRUSTEES

58. EPA has notified the State of Rhode Island and the affected natural resource trustees of the issuance of this Order and has invited them to participate in negotiations related to its issuance.

TERMINATION AND SATISFACTION

59. The provisions of this Consent Order shall be deemed satisfied upon the Respondent's receipt of written notice from EPA that the Respondent has demonstrated, to the satisfaction of EPA, that all of the terms of this Consent Order, including any additional tasks which EPA has determined to be necessary, have been completed.

IT IS SO AGREED AND ORDERED:

By: Thomas M. McTenna
Respondent, Title

5/21/87
Date

By: Paul S. Keogh, Acting RA
U.S. Environmental Protection Agency

5-29-87
Date

Effective Date: _____

PETERSON/PURITAN SUPERFUND SITE RI/FS CONSENT ORDER
APPENDIX 1
WORKPLAN

Task 1 - Scoping of RI/FS: Identification of ARARs

OBJECTIVE:

Identify potential applicable and relevant and appropriate requirements, standards, criteria and limitations (RSCL).

APPROACH:

Respondent shall develop a comprehensive list and supporting rationale for all potential state and federal applicable and relevant and appropriate requirements, standards, criteria and limitations (RSCLs) that alternatives will need to attain to be consistent with SARA § 121. This should include identifying potential health based (RSCLs) related to determining action levels, requirements that restrict activities that can be undertaken at different locations (such as flood plains, wetlands, and historic sites) and whether the RSCLs might be met at the completion of each operable unit or the total site remedy. Also, Respondent shall coordinate with the State in identifying and notifying EPA of State RSCLs that may potentially be applicable or relevant and appropriate to the site.

DELIVERABLE:

A memo report containing a listing of and rationale for the identified applicable and relevant and appropriate requirements, standards, criteria and limitations.

Task 2 - Field Investigation

OBJECTIVE:

Evaluate the nature and extent of contamination on the Peterson-Puritan NPL site, providing sufficient detail to properly evaluate remedial alternatives which might be implemented to mitigate the existing contamination.

APPROACH:

The field investigation phase of the remedial investigation will be divided into several phases. This multi-phased approach will allow for an evaluation of ongoing field investigations in an attempt to direct activities in the most technically feasible and cost effective manner.

Phase I of the field investigation will focus on defining the hydrogeologic framework and characterizing the lateral and vertical extent of groundwater and soil contamination. Surface waters and sediments will be sampled to determine potential contamination migration pathways. Seasonal groundwater quality will be determined by periodic sampling in selected wells to establish a reliable data base for remediation. Environmental impacts of contamination will be evaluated with respect to onsite wetland and floodplain areas. Potential contaminant sources and pathways will be identified by evaluating the potentiometric surface, aquifer geometry and water quality information derived from seismic data and the installation and sampling of groundwater monitoring wells. The currently identified source of contamination, Peterson-Puritan, Inc., will be investigated for areas of potential soil contamination. Phase I of the field investigation will include:

- Subtask 2A Site Base Map
- Subtask 2B Surface Water and Sediment Sampling
- Subtask 2C Seismic Refraction
- Subtask 2D Groundwater Sampling (Including Water Level Measurements)
- Subtask 2E Wetlands/Floodplain Evaluation
- Subtask 2F Peterson-Puritan Plant Visit
- Subtask 2G Identification of Soil Source Areas at Peterson-Puritan

Phase II of the field investigation will provide an assessment of sources responsible for the contamination in the Quinnville wellfield and Lenox Street well. Additional activities may be selected subsequent to evaluation of data obtained from Phase I of the field investigation. Potential tasks will include: pumping tests conducted on the municipal supply wells, additional monitoring well installation and groundwater sampling, and an exfiltration study of the BVSD line. Contaminated soil source areas associated with each source will be delineated via field screening techniques. Also, any further characterization of the existing surface water and sediment contamination will be delineated based on biota sampling. Phase II includes:

- Subtask 2H Biota Sampling
- Subtask 2I Pumping Test(s) (Lenox Street and Quinnville Wellfield)
- Subtask 2J Exfiltration Study

- Subtask 2K Soil Sampling of Source Areas (not limited to Peterson-Puritan)
- Subtask 2L Additional Monitoring Well and Piezometer Installation
- Subtask 2M Additional Groundwater Sampling

As proposed, Phase II of the field investigation will be used to fill any data gaps remaining after Phase I and would only be initiated upon receiving written notification from EPA to proceed with each individual subtask. Note that additional phases of field work may be required to investigate newly identified sources and evaluate remedial technologies. A Project Operations Plan (POP) for Phase I activities will be supplied to Respondent by EPA and all Phase I activities shall be conducted in accordance with the POP, unless otherwise directed by EPA. If Phase II activities are required by EPA, Respondent shall develop a POP for Phase II consistent with the requirements developed by EPA.

Subtask 2A - Site Base Map

OBJECTIVE:

Develop an updated detailed site base map.

APPROACH:

A detailed site base map will be constructed prior to initiating any field work. The base map will be a more detailed version of the existing map shown in Figure 3. It will show the location of major physical structures in the area, the existing road network, the Blackstone River and canal, wetland areas, existing monitoring and supply wells, high voltage utility line, BVSD interceptor sewer, location of previous sampling points for both surface water and river sediments, proposed sampling points and the site orientation. The site base map will be drawn at a scale of 1 inch equals 100 feet. Respondent shall input all base map data onto a digital computer for ease of map generation at different scales and added flexibility in generation of maps with different data and areas of focus.

Currently, the Environmental Photographic Interpretation Center (EPIC) in Warrenton, Virginia is developing an aerial photographic analysis of the site. Aerial photographic coverage of the area surrounding this site from 1939 through 1986 was obtained. Of note is a fracture trace analysis (linement study) which may lend support to identifying preferential pathways of contaminated groundwater flow in bedrock. This regional overview will be compared to the limited fracture trace analysis performed by

Ecology and Environment Inc. in the Dexter Quarry area. EPIC will also incorporate a wetlands and drainage analysis in their report which will delineate surface water pathways. This information may be incorporated onto the site base map.

The site base map will be finalized after being field checked against the location of existing monitoring wells and other points of reference (i.e. high voltage lines etc.). The final site base map will include site topography, (2 foot contour intervals below an elevation of 120 feet and 10 foot contour intervals above this elevation), property lines, easements, rights-of-way or detailed information specific to each industrial property within the site. The site base map will cover an area approximately 2 miles long by 1 mile wide centered around the Blackstone River from a point approximately 2500 feet upstream of the Martin Street bridge to a point approximately 300 feet downstream of the Lenox Street Well.

Upon completion of the first phase of Task 2, the site base map will be revised and updated to show the actual sampling locations, seismic traverses, depths to bedrock, bedrock outcrops, and affected wetlands. A second revision may be required of Respondent by EPA after implementation of any subtask during the second phase of Task 2.

DELIVERABLES: An existing conditions site base map as described above.

An updated site base map showing new sampling locations.

Subtask 2B - Surface Water and Sediment Sampling

OBJECTIVE:

Define the existing nature and extent of contamination of surface waters and sediments onsite, i.e. 5,500 feet upstream of the Quinville wellfield, and 4,500 feet downstream of the Quinville wellfield (which is about 500 feet downstream of the Lenox Street well).

This allows an assessment of the impact of contaminated groundwater on local surface water and vice versa. (Note that the Blackstone River, Canal and BSVD line are potential sources of the groundwater contamination). Sediment sampling should give an indication of the cumulative impacts of the site. The data will be used to determine the need for remedial action and will provide the basis upon which to assess what appropriate remedial actions could be implemented and the extent of those actions.

APPROACH:

A total of nineteen (19) surface water/sediment sampling locations are identified on figure 6. These locations include:

- ° The Blackstone River Canal (9 locations adjacent to contaminated supply wells and upgradient and downgradient of the site i.e. SW-1, SW-2, SW-5, SW-6, SW-9, SW-10, SW-11, SW-18, and SW-19);
- ° All outlets of tributaries flowing into and out of the Blackstone River and Canal (five locations including two in Brook A, one in Dexter Quarry Brook, one in the discharge pipe to the Sand and Gravel operations due east of Healthtex, and one in the stream flowing into the river from the marshy area southwest of the Lenox Street well SW-3, SW-4, SW-7, SW-8, and SW-13);
- ° The wetland areas north of the Providence and Worcester Railroad and northwest of the Lenox Street well (three locations i.e. SW-14, SW-16 and SW-17); and
- ° Several ponded water locations between the landfill perimeter and the river which may constitute leachate breakouts (minimum of two samples i.e. SW-11 and SW-12).

All surface water samples will be analyzed for Volatile Organics (VOAs) on the Hazardous Substance List (HSL) by an EPA approved laboratory. In addition, samples SW-1, SW-2, SW-11, SW-12, SW-18 and SW-19 will be analyzed for Extractable Organics (Semi-volatiles, Pesticides and PCBs), Inorganics and Total Cyanide (full HSL list). Note that a special request for a one part per trillion detection limit will be requested for dieldrin when extractable organics are analyzed for; and trichlorofluoromethane will be analyzed for when VOA samples are collected because it is not on the HSL. These locations were selected to provide an indication of any Volatile/Extractable Organic or Inorganic contamination contribution from the site; i.e. samples in the river both upgradient and down gradient of the site and around the landfill. All sediment samples will be analyzed for the full HSL list (VOAs and Extractable Organics, Inorganics and Total Cyanide).

Sampling will occur once in May, 1987 during a high seasonal flow condition and once in October, 1987 during a period of seasonal low flow during which the groundwater contribution to stream flow to the river is at its maximum. All samples are to be collected after a three to four day period during which no rainfall has occurred. Surface water samples taken at SW-3, SW-4, SW-7, SW-8, SW-11, SW-12, SW-13, SW-14, SW-16 and SW-17 will be grab samples. These locations correspond to samples collected in Brook A, the Sand and Gravel Pit outlet to the

river, Dexter Quarry Brook, ponded water around the J.M. Mills Landfill, and the stream flowing into the river from the wetlands northwest of the Lenox Street well, and wetlands and associated surface waters. Surface water samples taken at SW-1, SW-2, SW-5, SW-6, SW-9, SW-10, SW-15, SW-18, SW-19 will also be grab samples but attention shall be taken to collect these samples at a point one third the distance of the depth of the river from the river bottom, all at a midchannel location. These sample locations are all taken in the Blackstone river and canal where it is felt that a representative sample of river water quality necessitates sampling in the zone of complete mixing.

Discharge flow rates will be measured at representative locations in the river, canal and brooks or streams associated with the Blackstone River and Canal. Staff gauges will be established at selected locations and will be surveyed to determine the relative water level differences of the river in comparison with water levels in nearby wells and piezometers.

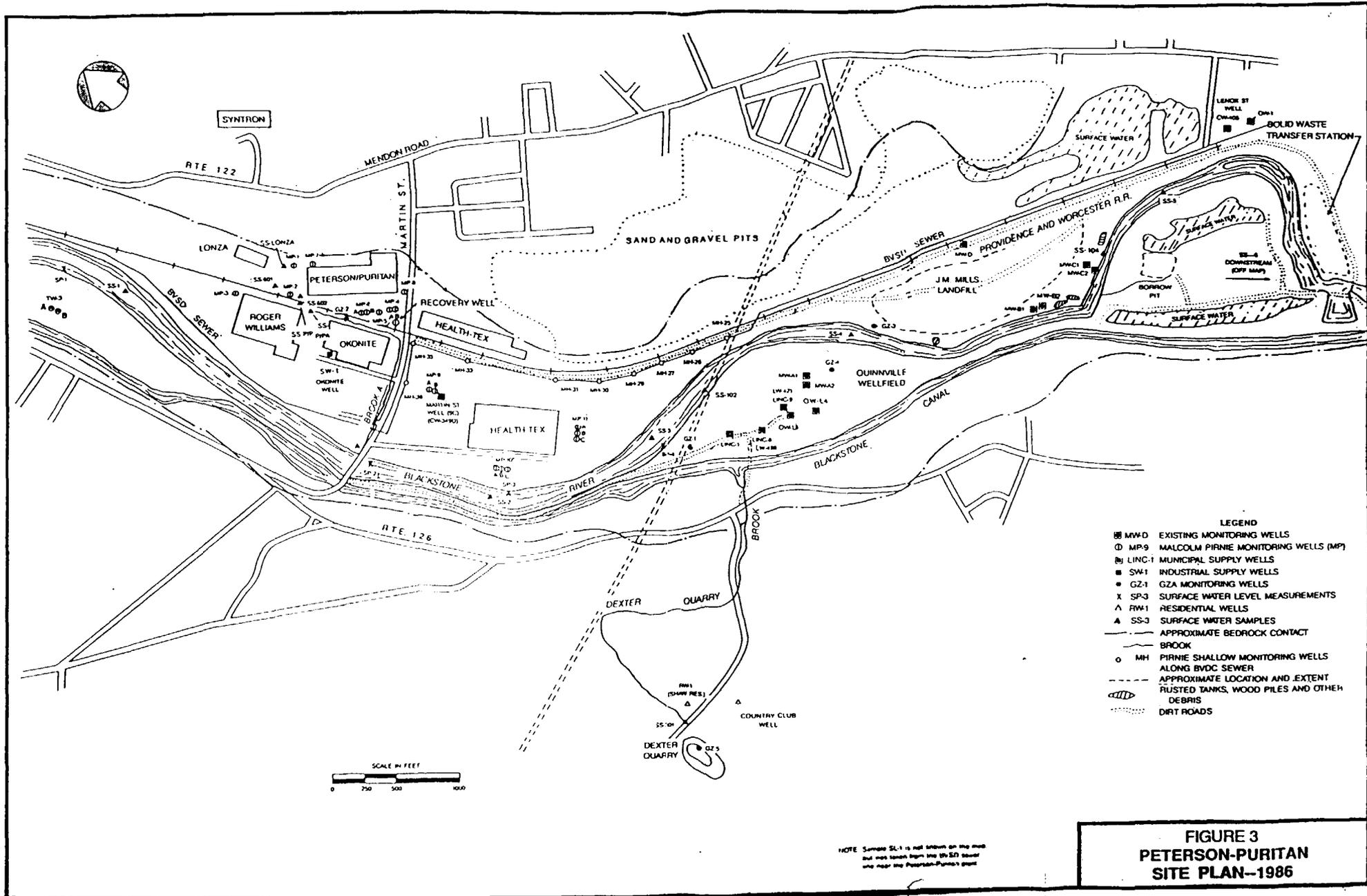
A sediment sample will be taken in the vicinity of each surface water and sewer sampling location. Sediment samples will be collected in a local eddy where deposition of fine-grained material occurs, as opposed to the scouring locations which typically occur at mid-stream or on the outside bend of the river. Sediment samples will be collected as grab samples to be composited from depths 0-12 inches. An attempt will be made to test the hydraulic conductivity of these materials as to their role as a barrier to or medium of contaminant transport between the river and the aquifer. (Procedures will be described further in the Project Operations Plan.)

The analytical results will be used to develop a wetlands/floodplain assessment and will provide information on potential sources. Background information in the form of upstream NPDES discharges will be reviewed as an aid in estimating river water quality impacts from the industries upstream. Further environmental impacts may require an assessment via biota sampling in Phase II if sediment contamination is found to be significant. Also further investigation of the river, canal and sewer line may be conducted in Phase II under the proposed pump tests and sewer exfiltration study.

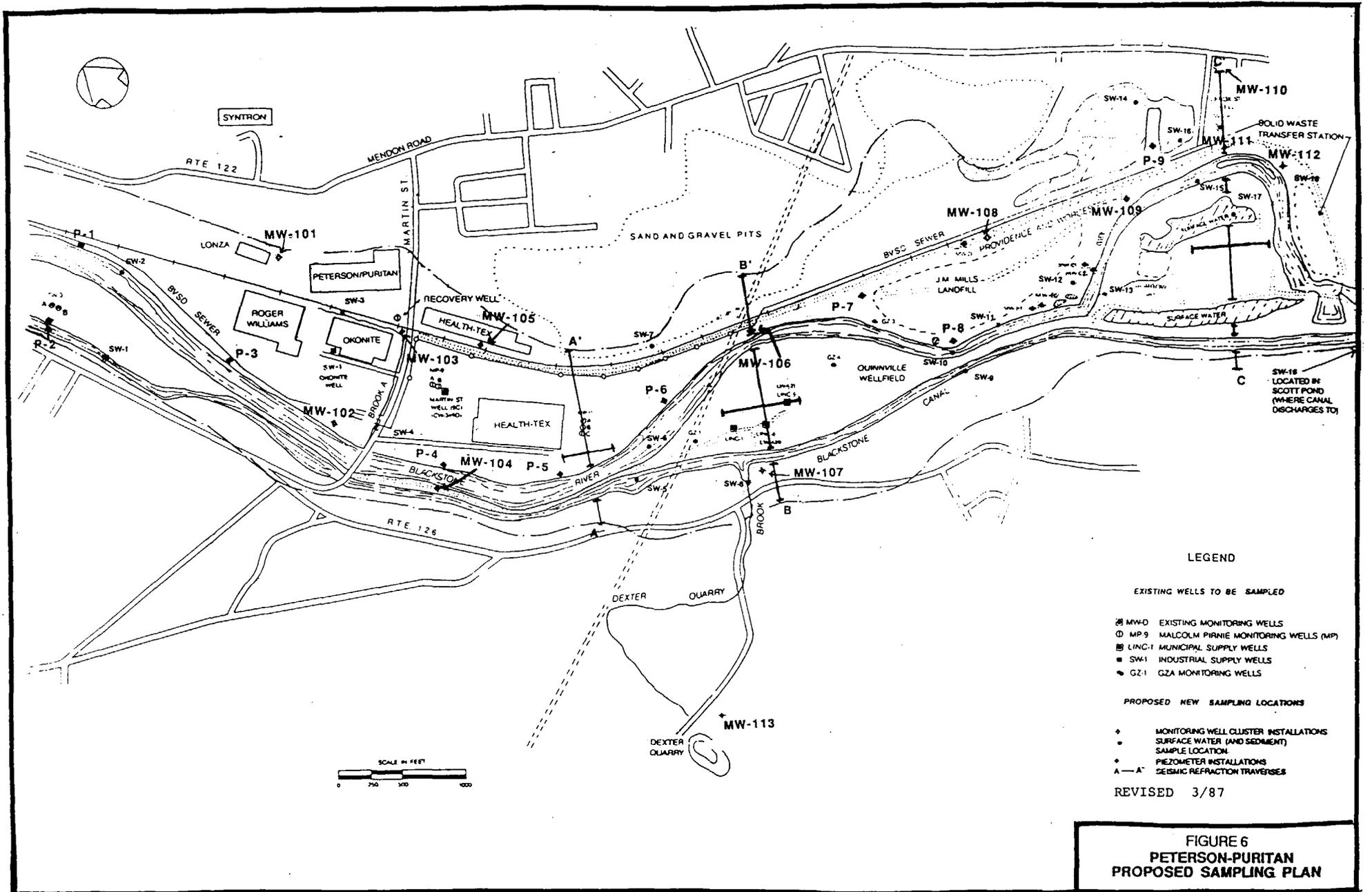
Note that additional surface water and sediment sampling is not currently planned for in this Work Plan.

DELIVERABLES: A memo report for each sampling round containing a description of the field sampling activities, tabulated analytical results, and an interpretation of the data.

A map(s) for each sampling round showing graphical representation(s) of analytical results.



**FIGURE 3
PETERSON-PURITAN
SITE PLAN—1986**



LEGEND

EXISTING WELLS TO BE SAMPLED

- ⊗ MW-0 EXISTING MONITORING WELLS
- ⊙ MP-9 MALCOLM PIRANIE MONITORING WELLS (MP)
- ⊠ LINC-1 MUNICIPAL SUPPLY WELLS
- SW-1 INDUSTRIAL SUPPLY WELLS
- GZ-1 GZA MONITORING WELLS

PROPOSED NEW SAMPLING LOCATIONS

- ◆ MONITORING WELL CLUSTER INSTALLATIONS
- SURFACE WATER (AND SEDIMENT) SAMPLE LOCATION
- ⊙ PIEZOMETER INSTALLATIONS
- A—A' SEISMIC REFRACTION TRAVERSES

REVISED 3/87

**FIGURE 6
PETERSON-PURITAN
PROPOSED SAMPLING PLAN**

Subtask 2C - Seismic Refraction

OBJECTIVE:

Obtain information on the shape of the valley to determine whether there is enough evidence to warrant further investigation of a deeper component of groundwater flow parallel to the Blackstone River.

APPROACH:

Three seismic refraction traverses will be performed to provide additional information regarding the bedrock surface under the river. Seismic data will be used to map the bedrock topography and to establish wave velocities for consolidated and unconsolidated materials. A multi-channel unit with explosives is expected to be needed due to the expected depth to bedrock (approximately 100 feet in the vicinity of monitoring well GZ-1) and the glacial till layer which appears to run along the top of the bedrock. Seismic data will be confirmed using the existing and proposed monitoring well boring data. It is estimated that a total of 6,000 linear feet of seismic refraction profiling will be conducted and will consist of three traverses, 2000 linear feet each. The proposed locations are shown on Figure 6. The final locations will be determined by EPA consistent with the POP. These locations will be selected to provide information on the area between the Peterson-Puritan facility and the Quinville wellfield, the Quinville wellfield, and the Lenox Street well. The area of primary concern for a preferential pathway linking the Peterson-Puritan plant and other potential upgradient sources on the east side of the river with the Lenox Street well will thus be investigated. The information obtained during this survey will be used to assist in determining remaining well locations and will be used in conjunction with well data to develop a bedrock contour map.

DELIVERABLE: A memo report with seismic data, profiles and corresponding locations with interpretation of results.

Subtask 2D Groundwater Sampling (including Water Level Measurements)

OBJECTIVE:

Within fourteen (14) days of notice by EPA, Respondent shall collect samples from a minimum of 58 new and existing wells and any additional wells identified by EPA using QA/QC procedures for field screening prior to selection of an EPA determined number of samples for analysis by an EPA approved laboratory.

APPROACH:

The wells to be sampled during the Phase I program include but are not limited to:

Existing Wells (Fig. 3)

| | |
|-------------------------------|-------------------|
| TW-3A, 3B | MW-B1, B2 |
| SW-1 (Okonite Well) | MW-C1, C2 |
| MP-9A, 9B, 9C (Martin Street) | MW-D |
| MP-11A, B, C | Lincoln Well #6 |
| GZ-1-1, 1-2, 1-3 | Lincoln Well #9 |
| GZ-3-1, 3-2, 3-3 | Lincoln Well #1 |
| GZ-4-1, 4-2, 4-3 | Lenox Street Well |

New Wells (New monitor wells will be numbered consecutively with a letter following it designating the cluster location; piezometers are numbered consecutively - Fig. 6)

| | |
|---------------------|---------------|
| MW-101A, 101B, 101C | P1 through P9 |
| MW-102A, 102B, 102C | |
| MW-103A, 103B, 103C | |
| MW-104A, 104B, 104C | |
| MW-105A, 105B, 105C | |
| MW-106A, 106B, 106C | |
| MW-107A, 107B, 107C | |
| MW-108A, 108B, 108C | |
| MW-109A, 109B, 109C | |
| MW-110A, 110B, 110C | |
| MW-111 | |

Note: Well placement and/or numbering scheme are subject to change dependant upon field observations during well installation.

Existing wells were selected for sampling based on their location with respect to the plume, potential migration pathways based on water level contours developed by GZA and Malcolm Pirnie and potential sources. (Note that EPA will make a more accurate determination of the condition of these wells for sampling purposes.) Well clusters MP-9 and MP-11 are in the pathway of the previously defined plume emanating from Peterson-Puritan property to the Quinville Wellfield. Wells GZ-1 and GZ-4 with multi-level Barcad samplers provide data throughout the depth of the overburden in the Quinville Wellfield, near the plume and J.M. Mills Landfill, respectively. Wells GZ-3, MW-B1, MW-B2, MW-C1, MW-C2 and MW-D provide information on the groundwater quality surrounding the landfill. Well SW-1, the Okonite production well, is proposed for sampling to help delineate the upgradient boundary of the plume. Well cluster TW-3 will be sampled because previous sampling rounds showed high VOC levels which indicate potential upgradient sources on the west side of the river. Finally all previously contaminated public supply wells (Lincoln No. 1, 6, and 9 Lenox Street and Martin Street (MP-9C) will be sampled to determine current contaminant levels. If any of these wells are deemed

inaccessible or unsuitable for sampling, additional monitoring wells may be installed and the costs thereof shall be reimbursed by Respondent. Note that, in addition to collecting and analyzing samples from these existing wells, the Rhode Island Department of Public Health and/or Department of Environmental Management files will be reviewed for additional data on nearby supply wells sampled during their sampling program.

Sample analyses will be conducted as follows:

- ° Water level measurements will be taken for all above mentioned monitoring wells and all piezometers identified by EPA.
- ° Samples will be collected from the above mentioned wells for analysis by an EPA approved laboratory for Volatile Organics (HSL). This will include a special request for an analysis of trichlorofluoromethane which is not on the HSL to help trace a potential distinct plume from the Peterson-Puritan property.
- ° Of the total number of wells identified for sampling, a minimum of twenty (20) wells will be analysed by an EPA approved laboratory for Extractable Organics (Semivolatiles, Pesticides, and PCBs), Inorganics and Total Cyanide (HSL). This will include a special request for a detection limit of one part per trillion for analysis of dieldrin. At a minimum, the list of wells include:

TW-3A, 3B
GZ-3-1, 3-2, 3-3
MW-C2
MW-B1, B2
MW-D
*MW-107A, 107B, 107C
*MW-111
MP-9A, 9B, 9C
Lincoln Well Nos. 1, 6, 9
Lenox Street Well

***New wells**

These wells were selected to identify and link sources with distinct plumes (i.e. upgradient sources, the J.M. Mills Landfill, the Dexter Quarry, and the Peterson-Puritan facility) to the municipal supply wells. (Note that although historic data does not indicate any health hazards with compounds other than volatile organics, the presence of these compounds may help distinguish the contribution of potential sources to the groundwater contamination found onsite.)

- ° A minimum of ten (10) key monitoring wells will be selected with EPA approval on the results of the wells sampled above, to be sampled every two months for the remainder of the RI to monitor seasonal variations in water quality. (This will amount to at least three or more sampling rounds of the key

monitoring wells as determined by EPA) These key wells will be field screened using the Photovac 10S50 for Volatile Organics. Water level measurements will also be taken in these wells and each piezometer for each sampling round.

- Other parameters which will be measured in the field at each sample round will be water temperature, pH, and specific conductance.

DELIVERABLES: A memo report for each sampling round containing a description of the field sampling activities, tabulated analytical results, and an interpretation of the data.

A map showing graphical representation of analytical results and water level measurements.

Subtask 2E - Wetlands/Floodplain Evaluation

OBJECTIVE:

Conduct a floodplain/wetland assessment to comply with the substantive requirements of the Floodplain Management Executive Order (E.O. 11988) and the Protection of Wetlands Executive Order (E.O. 11990).

APPROACH:

Prior to a site visit, all existing background information will be collected to determine the additional data required to carry out a wetlands and floodplain assessment. The National Wetlands Inventory Mapping for this site will be obtained from the U.S. Fish and Wildlife Service (U.S. FWS). Local town officials will be contacted to determine if local mapping has been performed and to determine whether local ordinances relating to wetlands exist. The U.S. Department of Interior (U.S. FWS), U.S. Department of Commerce (NOAA), the Rhode Island Natural Heritage Program, and local conservation commissioners will be contacted to determine the presence of any rare or endangered species including aquatic life and/or proposed restoration projects associated with the wetlands and river onsite. The Soil Conservation Service will be contacted for soil maps for the site area. The EPIC aerial photographic report will also be utilized to aid in identifying changes to and development of wetland areas and drainage patterns.

A site visit will be conducted to assess current conditions and perform field verification of background information. Wetland boundaries will be mapped on a U.S.G.S 7-1/2 minute quadrangle map or a detailed site base map. A list of dominant plant and animal species and unusual species (including endangered, rare and/or migratory species) observed onsite will be compiled. Soil types will be verified where necessary.

The wetland assessment will relate pertinent characteristics which help to define the impact of contamination on wetland areas. Wetlands will be referred to by type, according to the U.S. Fish

and Wildlife Service classification scheme. An estimate of the size of the wetland areas will be made. The wetlands will be related to the overall ecosystem of the site. Soils in the wetlands will be characterized based on background data for the site and analytical sample results. The hydrology of the site will be described i.e. seasonal fluctuations in the water table or surface water elevations, the history of flood events and hydraulic connections between wetlands, surface water and groundwater. The water quality of all these onsite waters will also be discussed.

Functional values of the wetland include water quality (including the impact of contamination determined by either analytical sampling data or visual observation), fauna and flora, flood storage capacity (recharge, discharge and low flow modulation) and any aesthetic, recreational or educational values of the wetlands (as well as the uniqueness of the type of wetland in its geographic area.)

The floodplain will be delineated using Flood Insurance Rate Maps (developed under FEMA - The Federal Emergency Management Act) or Flood Hazard Boundary Maps if available, or estimated using aerial photography. Mapping includes floodplain boundaries and elevations and indicates the level of the 100 year floodplain. Also, the characteristics of flooding to the extent that it occurs onsite will be discussed.

According to Appendix A of 40 CFR Part 6 entitled "Statement of Procedures on Floodplain Management and Wetland Protection," this assessment must evaluate the impacts of any proposed alternative on floodplains and/or wetlands. It includes a description of the proposed alternative (including the no action alternative) and a discussion of its effect including adverse impacts and a description of the measures to minimize potential adverse impacts to these areas. The floodplain/wetland assessment will be incorporated into the FS as an appendix as well as referred to under the environmental impacts for the no action alternative and all subsequent alternatives which are developed and evaluated.

Conformance of each alternative with Executive Order 11990 to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of the wetlands identified will be assessed. Also compliance with the December 24, 1980, Federal Register using the U.S. FWS Habitat Evaluation Procedure will be evaluated.

If the proposed action will alter the floodplain or wetland resources, public notification will be performed by EPA with assistance as requested from Respondent by EPA in accordance with EPA policy on CERCLA actions, including an initial Fact Sheet to satisfy the early public notice requirement, a Statement of Findings and an updated Fact sheet summarizing EPA's Record of Decision.

The Rhode Island Department of Environmental Management Fresh Water Wetlands Section will be notified if any proposed action will alter a floodplain or wetlands. The "Rules and Regulations Governing the

Enforcement of the Fresh Water Wetlands Act" will be complied with to the greatest extent possible.

DELIVERABLES: A memo report: Floodplain/Wetland Assessment

Two maps-one outlining the floodplain of the Blackstone River and one outlining the extent of wetlands identified within the area of interest.

Subtask 2F - Peterson-Puritan Plan Visit

OBJECTIVE:

Document current waste handling practices; identify potential historic handling problems in terms of potential existing soil source areas; document the actions taken to remedy those problems; and determine the need for further adjustments in plant operations.

APPROACH:

Peterson-Puritan has acknowledged that releases from its plant have contributed to the Quinville wellfield contamination and that past waste handling practices were the cause of such releases. Therefore, the documentation of current waste disposal practices is warranted to assure protection from future releases.

A site inspection will be conducted by EPA and RIDEM personnel and representatives with assistance as necessary from Respondent. This will include an in-plant tour and a site reconnaissance of the plant property outside the buildings including the recovery well operation.

A soil gas sampling work plan/proposal consistent with Subtask 2G will be prepared by the Respondent and submitted to EPA no later than two weeks prior to the commencement of Subtask 2F. This work plan will be reviewed and discussed as part of this plant visit.

Pending the results of this visit, split water samples of the recovery well and monitoring well data may be requested from Peterson-Puritan and shall be supplied to aid in the evaluation of the recovery well program.

Note that it may be necessary to visit other facilities in the area as well if those facilities are identified as potential sources of contamination. These visits are not covered in this Work Plan and would require a work plan amendment(s) and/or additional task(s).

DELIVERABLE: A draft soil gas sampling work plan/proposal submitted to EPA prior to the plant visit.

A memo report documenting the findings of the visit.

Subtask 2G - Identification of Soil Source Areas at Peterson-Puritan

OBJECTIVE:

Determine the existence of soil source areas at the Peterson-Puritan plant.

APPROACH:

The Peterson-Puritan facility has been identified as a source of contamination for the Quinville wellfield and possibly the Lenox Street well and therefore the need exists to delineate soil source areas within plant boundaries. Onsite waste disposal practices and highly contaminated groundwater near the ground surface, i.e. well GZ-2, lends support to the potential for soil source areas nearby. Field activities conducted by Malcolm Pirnie included the installation of three in-plant borings. Although sampling of solid in these boreholes revealed no VOC contamination, strong odors were noted in two of the three borings indicating organic contamination.

This part of the investigation of soil source areas entails delineating areas of contamination on the Peterson-Puritan property. This will consist of soil augering outside the building in the vadose zone, followed by in-hole gas sampling using two portable gas sampling field instruments, the Foxboro Century OVA 128 and the HNu PI 101. These instruments will be used in the total survey mode and will enable a three man crew to move quickly over the Peterson-Puritan property to delineate the lateral extent of volatile organic contamination in soils above the water table. Based on the results of this effort, further investigation consists of collecting soil samples for analysis using field analytical equipment (GC) and/or an EPA approved laboratory (GC/MS). This will consist of collecting soil samples by hand augering and mixing them with methanol to desorb contaminants. The methanol is then injected into the field gas chromatography, HNu 301. (Exact procedures will be determined by EPA.) This instrument has a heated oven and is equipped with a heated 10.2 eV Photoionization detector. Samples will also be collected for an EPA-approved laboratory analysis to verify the results of the field GC analyses and to provide a measure of extractable organics and volatile organics not measured with the HNu 301. This effort will quantitatively confirm the presence of volatile organic compounds in the contaminated areas delineated. Also, if deemed necessary, in-plant borings may be installed for sampling of soils beneath the buildings.

Note that other potential soil source areas (outside of the Peterson-Puritan facility) identified by any Phase I activities will be investigated and sampled in Phase II.

DELIVERABLE: A final soil gas sampling work plan submitted to EPA for approval prior to commencement of this subtask.

A memo report containing a description of the field

sampling activities, tabulated analytical results and an interpretation of the data.

A map showing a graphical representation of analytical results.

PHASE II

One or more of the subtasks discussed herein under the Phase II program shall be initiated by Respondent upon receiving written notification from EPA to proceed on a task by task basis. All such subtasks shall be performed according to the schedules, terms and conditions established by EPA. A Phase II Project Operations Plan will be developed by Respondent for any/all tasks proposed under Phase II prior to conducting any field work associated with Phase II.

Subtask 2H - Biota Sampling

OBJECTIVE:

Determine the impact of groundwater contamination on the biota of the Blackstone River.

APPROACH:

If contaminants are found in surface water and/or sediments, which are likely to bioaccumulate in aquatic organisms, fish or turtle samples will be collected and analyzed for these compounds. The appropriate sampling plan will be determined at that time, in consultation with the U.S. Fish and Wildlife Service, NOAA, EPA, and the appropriate state agencies.

DELIVERABLE: A memo report containing a description of the field sampling activities, tabulated analytical results and interpretation of the data.

Subtask 2I Pump Test(s) (Lenox Street and Quinnville Wellfield)

OBJECTIVE:

Define the origin(s) of water which would be drawn into the public supply wells if they were operated again and relate this to what occurred in the past, prior to their closing in 1979. Aquifer parameters in the vicinity of the Lenox Street well would be determined. Also information on the zones of influence, hydraulic conductivity and any interconnection between the Quinnville Wellfield and the Lenox Street well would be obtained. The concentrations of contaminants which would be drawn into these wells if they were put into use again would be illustrated as well.

APPROACH

An analysis of all historic pump test data, i.e. from the USGS or from the towns of Lincoln or Cumberland, will be made. If determined to be necessary by EPA, Respondent shall design new pump tests on the municipal supply wells describing the pumping duration, discharge rate(s), observation well placement, surface water measurements, instrumentation and sampling. Note that all supply wells would be sampled before and after extended pumping of the wells. Analysis of the samples would be for Volatile Organics (HSL).

DELIVERABLE: A summary report of an analysis of historic pump test data.

A memo report with water level measurements, drawdown curves and a summary of results.

A map showing water level contours during pumping.

Subtask 2J - Exfiltration Test

OBJECTIVE:

Determine the magnitude and extent of contamination emanating from the BVSD sewer line, it's relationship to the contamination of the public supply wells, and the need for remediation of the BVSD line. The BVSD line is above the water table throughout most of the site and previous testing of the water and soil surrounding the sewer indicates that leakage from the sewer is possible.

APPROACH:

The most appropriate test to determine leakage is dye testing. Engineering plans for the sewer line will be required and the line will be divided into segments for testing between one or more manholes at a time. At each designated location, the sewer will be plugged in the downstream manhole using an inflatable sewer plug and compressed air tank. Dye will then be introduced in an upstream manhole and the wastewater will be allowed to surcharge the sewer line. Plugging and surcharging the sewer line produces an increase water pressure (head) in the sewer pipe joints. This condition is expected to occur during severe storm conditions when wastewater flows are generally highest.

The nine existing shallow monitoring wells located along the sewer line will be evaluated for their potential use and designated for sampling during the dye test. Additional shallow monitoring wells may be required beyond MH-25 (see Figure 6) if the sewer line is determined to be above the water table to the southeast of this well. If the dye is detected in samples in these monitoring wells(s), then it can be concluded that the sewer line is leaking in the vicinity of the monitoring wells(s). If the flow backs up in the upstream manhole near to the surcharge height, the wastewater

may have to be diverted around the section being tested with temporary hosing and a pump.

If leakage is assessed to be a problem, then sampling of the sewer waste and sludge will be necessary. Sampling will be done in manholes along the sewer line in the vicinity of the suspected leak as well as upgradient and downgradient of the leak. Sample analyses will be for the full HSL list (VOAs and Extractable Organics as well as Priority Pollutant Metals (Tasks 1 and 2 and Total Cyanide, Task 3).

DELIVERABLES: A memo report containing a description of the field sampling activities, tabulated analytical results and an interpretation of the data.

A map showing graphical representation of analytical results.

Subtask 2K - Soil Sampling of Source Areas (not limited to Peterson-Puritan)

OBJECTIVE:

Characterize and quantify the contaminants present in source areas other than the Peterson-Puritan plant identified during Phase I field activities. Further delineation of the areal extent and depth of source areas on the Peterson-Puritan property may also be accomplished in this phase however.

APPROACH:

This work will be performed according to the same procedures described under Subtask 2G which entail soil gas sampling, analysis of samples with field GC equipment and collection of EPA approved laboratory samples.

DELIVERABLES: A memo report containing a description of the field sampling activities, tabulated analytical results and an interpretation of the data.

A map showing graphical representation of analytical results.

Subtask 2L - Additional Monitoring Well and Piezometer Installation

OBJECTIVE:

Fill data gaps from Phase I concerning water quality and groundwater flow patterns with additional monitoring wells or piezometers.

APPROACH:

Installation of additional three-level groundwater monitoring well clusters as determined by EPA.

DELIVERABLES: Complete well logs.

Update site base map to include new well locations.

Subtask 2M - Additional Groundwater Sampling

OBJECTIVE:

Fill data gaps from Phase I concerning water quality and groundwater flow patterns or obtain data from Phase II well or piezometer installations (Subtask 2L) with additional monitoring well sampling or water level measurements in wells or piezometers.

APPROACH:

Sampling and analysis of additional groundwater monitoring wells for Volatile Organics (HSL) will be done as determined by EPA. Also additional groundwater samples will be analyzed for Extractable Organics (HSL), Inorganics, Total Cyanide and special analytical requests as determined by EPA.

DELIVERABLES: A memo report containing a description of the field sampling activities, tabulated analytical results and an interpretation of the data.

A map showing graphical representation of analytical results and water level measurements.

TASK 3 - DEVELOPMENT OF PRELIMINARY REMEDIAL TECHNOLOGIES

OBJECTIVE:

Develop a list of preliminary remedial technologies and their associated containment or disposal requirements.

APPROACH:

During the site investigation, Respondent, in consultation with EPA and the State, shall develop a preliminary list of potential remedial technologies that could be used at the site. Special consideration should be given to technologies that permanently contain, immobilize, destroy or recycle contaminants and for technologies that promote energy recovery. The feasibility of integrating these technologies will be considered. This list should be based on waste-limiting and site-limiting characteristics and ARARs. Those technologies shall be defined in sufficient detail to ensure that the ongoing site investigation is properly

focused to devise a data base adequate for the development and evaluation of alternatives during the feasibility study.

DELIVERABLES: A letter report suggesting technologies for consideration and identifying any additional data needs.

TASK 4 - PREPARATION OF REMEDIAL INVESTIGATION REPORT

OBJECTIVE:

Incorporate into a report for submittal to EPA all data and analyses of data including earlier deliverables and comments, i.e. Tasks 1 through 3 and all EPA, State, Trustees and ATSDR documents or comments with a summary and all relevant conclusions.

APPROACH:

The work conducted under Task 2 will be described and the raw data will be summarized. (Note that all raw data will be included in the appendices of the report.) The report includes the preliminary list of technologies addressed in Task 3 and the baseline endangerment assessment developed by EPA. This draft report also includes a listing of all recognized sources of contamination together with the contamination which has migrated away from these sources (management of migration problems). Remediation of the site will be targeted for source control and management of migration problems as identified in the RI. Upon compilation of Agency, State and public comments, a final RI report will be developed and submitted.

DELIVERABLES: A Draft RI report.
A Final RI report.

TASK 5 - REMEDIAL INVESTIGATION SUPPORT

OBJECTIVE:

Provide all necessary coordination with EPA and the State for the Peterson-Puritan Remedial Investigation.

APPROACH:

Task 5 is divided into the following subtasks:

- Subtask 5A - RI Management and Coordination
- Subtask 5B - RI Community Relations
- Subtask 5C - RI Quality Control
- Subtask 5C - RI Quality Assurance

Subtask 5A: RI Coordination and Management

To maintain effective communication with EPA, the State, and the public on the progress of the RI, Respondent, will perform the following:

1. Prepare bi-weekly progress reports to EPA;
2. Attend monthly progress meetings with EPA;
3. At the request of EPA:
 - be available for discussion of any phase of site work;
 - attend meetings between oversight contractor, EPA, State and/or the public;
 - assist in the planning, coordination and support for public meetings and hearings; and
 - assist in preparing public meeting materials and visual aids.

Respondent shall comply with the reporting requirement stated in this work plan and in the Consent Order.

DELIVERABLES: Biweekly progress reports.
Community relations materials.

Subtask 5B - RI Community Relations Support Activities

OBJECTIVE:

The objective of community relations support activities at the Peterson-Puritan site is to assist EPA in implementing its site-specific community relations plan (CRP).

The objective of community relations program is to inform interested and affected individuals about the progress of site activities during the RI and to provide an opportunity for public participation in decisions about Superfund actions at the site. EPA community relations staff will take the lead in implementing the site-specific community relations plan for the Peterson-Puritan site and shall be assisted by Respondent as requested.

APPROACH:

EPA community relations staff will develop a site-specific CRP in accordance with U.S. EPA policy and guidance.

Community relations support assistance during the RI at the Peterson-Puritan site will be provided as specifically requested by EPA for participation in aspects of the Community Relations Plan jointly with EPA. These support activities may include, but are not limited to, the following:

- Providing planning, coordination, and logistical support for the public meetings on the RI: this includes the

preparation of slides, and participating in the practice runs of the meeting;

- ° Attending RI public meetings;
- ° Preparation of fact sheets throughout the course of the RI.
- ° Refer any concerned citizen contacts and inquiries to EPA Community Relations staff.

DELIVERABLE: Support documentation, comments and/or discussion as requested by EPA in implementing the community relations activities.

Subtasks 5C and 5D - RI Quality Control/Quality Assurance

OBJECTIVE:

To cooperate with EPA's oversight contractor in reviewing the sampling activities and the analytical data, as well as all project deliverables, produced from the field investigation to ensure the quality of the information obtained and to monitor conformance with EPA established QC protocols.

APPROACH:

Quality control/quality assurance procedures address both sampling activities and the analytical data which is produced. Respondent shall assist EPA's oversight contractors as necessary in securing field blanks, trip blanks, and duplicates to check sampling procedures, sampling chain-of-custody, and analytical data for specific quality control objectives. These objectives address precision, accuracy, completeness, representativeness, correctness, and comparability.

Also, Respondent shall assist EPA in implementing field performance and system audits. Performance audits entail checking the sampling protocol including sample collection activities, equipment calibration, preventative maintenance, and all QA/QC procedures to see if they are being conducted as they should.

TASK 6 - DEVELOPMENT OF ALTERNATIVES

OBJECTIVE:

To develop a number of alternatives using response objectives and criteria, remedial technologies developed under Task 3 and other appropriate considerations, as determined by EPA.

Subtask 6A - Site Specific Objectives and Criteria

Respondent shall establish site-specific objectives and criteria

for the development and evaluation of alternatives. These objectives shall be based on public health and environmental concerns, information gathered during the remedial investigation, CERCLA as amended by SARA, the National Contingency Plan (NCP) and any amendment thereto, EPA guidance, 40 CFR 264 (RCRA) and the requirements of any other applicable or relevant and appropriate federal or state requirement, standard, criteria, limitation, or statutes.

Preliminary cleanup objectives shall be developed in consultation with EPA and the State of Rhode Island. Respondent shall conduct a briefing for EPA, Trustees (if appropriate) and the State of Rhode Island in order to present preliminary response objectives and cleanup criteria for each medium requiring remedial action and to obtain input and concurrence.

Subtask 6B - Pre-Screening of Technologies and Development of Alternatives

- (1) Given the response objectives and criteria developed in Subtask 6A, Respondent shall pre-screen the technologies developed in Task 3 and other technologies proposed by Respondent or EPA for suitability as part of the site specific alternatives. Suitable technologies should then be assembled into alternative remedial actions. To the extent that it is both feasible and appropriate, treatment alternatives for source control actions will be developed ranging from an alternative that would eliminate the need for long-term management (including monitoring) at the site, to an alternative using, as a principal element, treatment that would reduce the toxicity, mobility, or volume of site waste. An alternative involving treatment as a principal element is one that uses treatment technologies to reduce the principal threats posed by the site. the Respondent should consider a number of alternatives within this range.
- (2) Respondent shall develop at least two additional alternatives:
 - (a) An alternative that involves containment of waste with little or no treatment, but provides protection of human health and the environment primarily by preventing potential exposure or reducing the mobility of the waste.
 - (b) A no action alternative.
- (3) For ground-water response actions, the Respondent should develop a number of remedial alternatives within a performance range that is defined in terms of a remediation level within the risk range of 10^{-4} to 10^{-7} for maximum lifetime risk and includes different rates of restoration. Where feasible one alternative should be configured that would restore ground water to a 10^{-6} for maximum lifetime risk level within five years.

- (4) Many remedial action alternatives necessarily involve both source control and ground water response actions. The dynamic relationship between these two elements require that they may need to be formulated together so that the comprehensive remedial action is effective and the elements are complementary. The different requirements of each (1 and 3) however, dictate that they be detailed separately in the development and analysis of alternatives.
- (5) For each alternative developed under subparagraphs 1, 2 and 3 the Respondent shall also identify potential Federal and State applicable or relevant and appropriate requirements (ARARs) and other criteria, advisories and guidance related to the technologies to be employed, and the containment or disposal requirements for residuals or untreated waste associated with the alternative.

DELIVERABLE: A memo report outlining the results of subtasks 6A and 6B (1), (2), (3), (4) and (5).

TASK 7 - INITIAL SCREENING OF ALTERNATIVES

OBJECTIVE:

Eliminate alternatives according to criteria in SARA, the NCP and any amendments thereto and relevant EPA guidance prior to undertaking a detailed evaluation of the remaining alternatives.

APPROACH:

The purpose of the screening step is to reduce the number of alternatives for further analysis while preserving a range of options. Consultation with the Agency and the State is very important at this stage. This screening is accomplished by considering the alternatives against effectiveness, implementability and cost factors. Cost is an important factor when comparing alternatives which provide similar results (i.e., cost may be used to discriminate among treatment alternatives, but not between treatment and nontreatment alternatives).

In some situations the above factors could occasionally result in elimination of alternatives which involve treatment of the source as the principal element. Typically, ground water actions will be necessary at such sites to achieve adequate protection. The Respondent will explain the rationale for eliminating source treatment options at this point in the process if this option exists.

Innovative technologies should be carried through the screen if there is reasonable belief that they offer potential for better treatment performance or implementability, few or lesser adverse impacts than other available approaches, or lower costs than demonstrated technologies.

DELIVERABLE: Memo report detailing the results and rationale for the initial screening.

TASK 8 - POST SCREENING FIELD INVESTIGATIONS

OBJECTIVE:

This phase of the RI should focus on collecting data sufficient to make a well-substantiated remedy selection decision.

APPROACH:

After a literature survey is conducted to identify existing treatment data, treatability tests at the bench and pilot scale may be necessary to test a particular technology on actual site wastes. Also, additional field data may be collected as needed to further assess alternatives.

DELIVERABLES: A letter memo on the results of the literature survey.

A memo report proposing bench and pilot scale tests.

A memo report on proposed additional field activities.

A memo report on results of bench and pilot scale tests.

A memo report on results of additional field activities.

TASK 9 - DETAILED EVALUATION OF ALTERNATIVES

OBJECTIVE:

To conduct a detailed analysis on the limited number of alternatives that remain after the initial screening.

APPROACH:

The alternatives passing through the initial screen should be analyzed in further detail against a range of factors and compared against one another.

The effectiveness of the alternatives should be assessed, taking into account whether or not an alternative adequately protects human health and the environment and attains Federal and State ARARs, whether or not it significantly and permanently reduces the toxicity, mobility, or volume of hazardous constituents and whether or not it is technically reliable.

Alternatives should be evaluated against implementability factors, including the technical feasibility and availability of the technologies each alternative would employ, the technical and

institutional ability to monitor, maintain, and replace technologies over time; and the administrative feasibility of implementing the alternative.

Finally, the costs of construction and the long-term costs of operating and maintaining the alternatives should be analyzed using present-worth analysis.

Both the short- and long-term effects of each of these factors must be assessed. In considering these items, Respondent will address all of the long-term effectiveness factors cited in SARA § 121(b)(1). After each alternative has been analyzed against these factors, the remedial options should be compared for their relative strengths and weaknesses.

The detailed evaluation will also include any or all of the following specific analyses as determined by EPA:

- A. A description of appropriate treatment and disposal technologies including the intent of the remedial alternative (i.e. source control or management of migration).
- B. Special engineering considerations required to implement the alternatives (e.g., pilot treatment facility, additional studies needed to proceed with final remedial design).
- C. Environmental impacts i.e. the affect of the remedy on the different uses of the Blackstone River, Blackstone Canal, wetlands and other bodies of water within the site boundary as well as any proposed methods and costs for mitigating any adverse effects.
- D. Operation, maintenance, and monitoring requirements of the remedy.
- E. Off-site disposal needs and transportation plans.
- F. Temporary storage requirements.
- G. Safety requirements for remedial implementation (including both on-site and off-site health and safety considerations).
- H. A description of how the alternatives could be phased into operable units. The description includes a discussion of how various operable units of the total remedy could be implemented individually or in groups, resulting in a significant improvement in the quality of the environment or savings in cost.
- I. A description of how the alternatives could be segmented into areas to allow implementation of different phases of the alternative.

- J. A review of any off-site facilities provided by the State to ensure compliance with applicable RCRA requirements, both current and proposed; the current EPA Policy on off-site disposal must be followed.
- K. An assessment of local residents' perception of the impact the alternative.
- L. Aspects of the site condition that the alternative will or will not control.
- M. The performance of a remedial alternative based on its effectiveness and useful life. Effectiveness refers to the degree to which an action prevents or minimizes substantial danger to public health, welfare, or the environment. This is usually accomplished via certain functions i.e. containment, diversion, removal, destruction, or treatment. The effectiveness of an alternative should be determined either through design specifications or by performance evaluation. The useful life of an alternative is the length of time this level of effectiveness can be maintained. Each alternative should be evaluated in terms of the projected service lives of its component technologies.
- N. The reliability of a remedial alternative which includes its operation and maintenance requirements and demonstrated reliability at similar sites. Operation and maintenance (O&M) requirements should be assessed by the availability and cost of necessary labor and materials, and the frequency and complexity of O&M activities. The demonstrated performance of an alternative should include an estimate of the probability of failure in qualitative or quantitative terms for each component technology and for the complete alternative. Although preference will be given to technologies previously demonstrated under similar site and waste conditions, innovative or developmental technologies should be evaluated as an alternative. Their evaluation will be based on bench scale tests completed during the RI and researchers' laboratory and field tests.
- O. An analysis of whether recycle/reuse, waste minimization, waste biodegradation, or destruction or other advanced, innovative, or alternative technologies are appropriate to reliably minimize present or future threats to public health or welfare or the environment.
- P. Safety criteria such as the security and freedom from risk, loss, injury, harm and danger. Each remedial action alternative will be evaluated with regard to safety. Factors to be considered in this evaluation will include short and long-term threats to the safety of the remedial workers, the community living and working in the site vicinity and the environment and facilities during implementation of the remedial measures.

Q. An analysis of agencies which can provide valuable assistance in the implementation of an alternative. All agencies with which consultations will be needed will thus be listed. A partial list may include the:

U.S. Dept. of Commerce (NOAA),
National Park Service,
Federal Emergency Management Agency,
Department of Health and Human Services,
U.S. Army Corps of Engineers,
U.S. Geological Survey,
Occupational Safety and Health Administration, and the
U.S. Department of Interior (U.S. Fish & Wildlife Service)

Of special concern for this site are the recent efforts by the Massachusetts Department of Environmental Management and the Rhode Island Department of Environmental Management to establish a linear park along the Blackstone River. This park will consist of a bicycle and pedestrian path which will be located between the Blackstone River and Canal. A total of 19 miles are planned extending from Pawtucket to North Smithfield.

So far, plans to purchase two parcels of land totaling 31 acres in Lincoln immediately upgradient of the Peterson-Puritan site have been announced. However, a three mile stretch of land south of the planned land acquisition was donated for the park several years ago. This land may be included in the Peterson-Puritan site. This will be investigated further in the RI/FS.

In 1983 the U.S. Congress asked the National Park Service to assess the national significance of the entire river valley corridor. It has since developed three conservation options emphasizing the educational, historic and recreational values of the valley.

Therefore coordination with the Rhode Island and Massachusetts Department of Environmental Management and the National Park Service will be important. Local preservation societies, i.e. the Blackstone Valley Historical Society, will also be contacted. Also federal laws governing historic parks may be applicable or relevant and appropriate requirements for this site.

Further analyses for each alternatives will be performed by the Respondent as follows:

A. Detailed Public Health Analysis

Respondent will evaluate each alternative to determine the alternative's public health effects. Each alternative will be addressed in terms of the extent to which it will mitigate damage to public health in comparison to the other remedial alternatives.

The public health analysis consists of a baseline site assessment, an exposure assessment, and a comparison of environmental considerations to relevant and applicable standards. First, a baseline site evaluation is conducted where all data on the extent of contamination, contaminant mobility and migration, and types of alternatives are reviewed. The result of the baseline evaluation is the determination of data required to conduct an exposure assessment and the level of detail in this assessment.

Second, an exposure assessment will be conducted. A qualitative exposure assessment is required for source control actions to evaluate the types, amounts, and concentrations of chemicals at the site, their toxic effects, the proximity of target populations, the likelihood of chemical release and migration from the site, and the potential for exposure. A quantitative exposure assessment is conducted for management of migration actions to estimate the frequency, magnitude, and duration of human exposure to toxic chemical contaminants released from a site.

Following the exposure assessment, estimated environmental concentrations of the indicator chemicals selected for the site (if there are a large number of chemicals present) are compared to applicable or relevant environmental standards such as those found in RCRA regulations, National Interim Primary Drinking Water Standards, Maximum Contaminant Levels, National Ambient Air Quality Standards, etc. as well as EPA criteria for noncarcinogens, carcinogens, and health advisories. When no applicable standards exist, at least one alternative should be aimed at a 10^{-6} risk level, and other alternatives in the 10^{-4} to 10^{-7} risk level.

B. Environmental Assessment.

An environmental assessment of each alternative shall be conducted to determine the extent to which it will mitigate damage to the environment. It addresses the value of contaminated or threatened areas; identifies the types of impacts that are likely; and assesses the general significance of the impacts. All alternatives including the no-action alternative will be evaluated, except those determined during the screening to not result in any of the following:

- ° A substantial increase in airborne emissions,
- ° A new discharge to surface or groundwaters,
- ° An increase in the volume of loading of a pollutant from existing sources or a new facility to receiving waters,

- ° Known or expected significant adverse effects on the environment or on human use of environmental resources, or
- ° Known or expected direct or indirect adverse effects on environmentally sensitive resources or areas, such as wetlands, prime and unique agricultural lands, aquifer recharge zones, archeological and historical sites, and endangered and threatened species.

In such cases the reasoning for not doing so must be stated. The level of detail is dependent on the degree of actual or potential damage to the environment. The evaluation should discuss both adverse and beneficial results associated with the remedial alternative. Beneficial effects include improvements in final environmental conditions, improvements in the environmental setting, and improvements in human use resources. Adverse effects can result from construction/operation activities and mitigative measures.

C. Cost Analysis.

The cost of each feasible remedial action alternative remaining after initial screening will be evaluated and will include each phase or segment of the alternative and consider cost and non-cost (i.e., loss of natural resources) criteria. The cost of each alternative will be presented as a present worth cost and includes the total cost of implementing the alternative and the annual operating and maintenance cost of implementing the alternative. A distribution of costs over time will also be provided. A table showing the above cost information for each alternative should be included.

In developing detailed cost estimates, Respondent will perform the following steps:

Estimation of Costs. Determine capital and annual operating costs for remedial alternatives.

Cost Analysis. Using estimated costs, calculate the stream of payments and present worth for each remedial alternative.

Sensitivity Analysis. Evaluate risks and uncertainties in cost estimates; cost estimates should be within +50 and -30 of the actual cost.

Input to Cost-Effective Analysis. Identify input data and reliability necessary to evaluate cost effectiveness of remedial action strategies.

D. A Summary Analysis.

Respondent will summarize in a comparative format the results of the detailed evaluation of alternatives (based on technical institutional, public health, environmental cost criteria and other criteria mentioned above.

DELIVERABLES: A summary table consisting of each alternative and the evaluation criteria. A narrative description of the advantages and disadvantages of each alternative considered in accordance with the appropriate analyses shall be prepared.

A briefing for EPA and the State of Rhode Island to present the results of the detailed evaluation of alternatives.

TASK 10 - DEVELOPMENT OF SUMMARY ANALYSIS AND RECOMMENDATION OF PREFERRED ALTERNATIVE

OBJECTIVE: To identify the preferred remedial alternative.

APPROACH:

Based on the meeting with EPA and the State, and the results of the detailed evaluation, a summary analysis shall be developed by Respondent that includes a narrative description of the detailed analysis and a recommendation of a preferred remedy.

DELIVERABLE: A memo report containing a summary of the detailed analysis and an identification of a preferred remedial alternative for the site.

TASK 11 - PREPARATION OF DRAFT FEASIBILITY STUDY REPORT

OBJECTIVE:

The objective of this task is to prepare a draft feasibility study report for EPA and public review.

APPROACH:

This report describes the feasibility study and presents the results of FS tasks. The report includes a detailed executive summary which can be used to present the results of the RI/FS to the public.

Upon review of the draft report by EPA and the State of Rhode Island and any amendments to the report requested of Respondent, a public meeting will be held during which EPA will describe the results of the RI/FS and present the recommended cost-effective alternative. Respondent shall provide whatever assistance is requested of it by EPA with regard to this meeting. A second public meeting will be held approximately two to three weeks later to respond to public questions and solicit comments on the recommended alternative.

DELIVERABLES: A Draft FS report.

Assistance as requested in making presentations to the public.

TASK 12 - FINAL FEASIBILITY STUDY REPORT

OBJECTIVE:

The objective of this task is to prepare a final feasibility study report.

APPROACH:

Incorporate comments received from the EPA, the State, and public, as compiled by EPA, and make the necessary revisions on the Draft Feasibility Study Report.

DELIVERABLE: A Final Feasibility Study Report.

TASK 13 - CONCEPTUAL DESIGN OF SELECTED REMEDIAL ALTERNATIVE

OBJECTIVE:

Respondent will prepare a conceptual design of the remedial alternative selected by EPA.

APPROACH:

The conceptual design includes, but is not limited to the following: the engineering approach including implementation schedule, special implementation requirements, institutional requirements, phasing and segmenting considerations, preliminary design criteria, preliminary site and facility layouts, budget cost estimate (including operation and maintenance costs), operation and maintenance requirements and duration, and an outline of the safety plan including cost impact on implementation. Any additional information required as part of the basis for the completion of the final remedial will also be included.

DELIVERABLE: A conceptual design report.

TASK 14 - FEASIBILITY STUDY SUPPORT

OBJECTIVE: Provide all necessary support for the Peterson-Puritan feasibility study.

APPROACH:

Task 14 is divided in to the following subtasks:

- Subtask 14A FS Management and Coordination
- Subtask 14B FS Community Relations
- Subtask 14C FS Quality Assurance/Quality Control

Subtask 14A - FS Management and Coordination

OBJECTIVE:

Provide for the necessary coordination with EPA and the State in support of the FS.

APPROACH:

In order to maintain effective communication with EPA, the State, and the public on the progress of the project, Respondent will perform the following during the FS.

1. Prepare bi-weekly progress reports to EPA;
2. Attend monthly progress meetings with EPA and State;
3. At the request of EPA:
 - attend meetings between oversight contractors, EPA, State and/or the public;
 - assist in the planning, coordination and support for public meetings and hearings; and
 - assist in preparing fact sheets and a portion of the Responsiveness Summary as directed by EPA.

DELIVERABLE: Biweekly progress reports.

Subtask 14B - FS Community Relations Implementation Activities

OBJECTIVE:

The objective of community relations program at the Peterson-Puritan site is to inform interested and affected individuals about the progress of site activities during the FS and to provide an opportunity for public participation in decisions about Superfund actions at the site.

APPROACH:

EPA community relations staff will assist in the implementation of a site-specific community relations plan. Community relations implementation assistance during the FS will be provided by Respondent as specifically requested by EPA for participation in aspects of the Community Relations Plan jointly with EPA. These activities may include, but are not limited to, the following:

- ° Providing planning, coordination and logistical support for the FS public meeting; this includes the preparation of slides, and participating in the practice run of the meeting;
- ° Attending the FS public meeting;
- ° Preparing fact sheets related to FS activities and remedy selection.
- ° Refer any concerned citizen contacts and inquiries to EPA Community Relations Staff.
- ° Assist in conducting administrative and managerial tasks necessary for providing community relations support at the site with EPA and the State.

All work on these tasks will be initiated by the EPA Region I Superfund Community Relations Coordinator and coordinated with the EPA Project Manager.

Respondent may be required by EPA to support the community relations implementation effort. This may include providing comment on and reviewing fact sheets, attending public meetings and hearings, preparing and delivering presentations at public meetings, and providing comment on responsiveness summary.

DELIVERABLES: Support documentation, comments and/or discussion as requested by EPA in implementing the Community Relations Plan and associated activities.

Subtask 14C FS Quality Assurance/Quality Control

OBJECTIVE:

Cooperate with EPA to ensure that all work products receive the sufficient technical review to ensure the accuracy of the information upon which decisions concerning appropriate remedial actions will be made.

APPROACH:

The work includes technical review of all deliverables. Quality assurance performed during the FS shall include assisting EPA in performing audits to ensure that the appropriate QC tasks have been completed within acceptable limits.

APPENDIX I
 WORK PLAN
 SCHEDULE OF DELIVERABLES

| <u>Task</u> | <u>Deliverable</u> | <u>Due Date</u> |
|-------------|--|-----------------|
| 1 | - ARARs memo report | 4/10/87 |
| 2A | - Existing conditions site map | 4/24/87 |
| | - Sampling locations site map | 6/5/87 |
| 2B | - Memo report and map: Surface water and sediment sampling | (1) |
| 2C | - Memo report: Seismic refraction | 5/1/87 |
| 2D | - Memo report and map: Groundwater sampling | (2) |
| 2E | - Memo report and maps: Wetlands/Floodplain Assessment | 5/15/87 |
| | - Draft work plan: Soil investigation | 4/15/87 |
| 2F | - Memo report: P/P plant visit | 4/30/87 |
| 2G | - Work plan: Soil investigation | 5/1/87 |
| | - Memo report and map: Soil investigation | 6/1/87 |
| H thru M | Phase II Deliverables | TBD by EPA |
| 3 | - Letter report: Preliminary remedial technologies | 7/1/87 |
| 4 | - Draft RI report | 12/25/87 |
| | - Final RI report | 2/21/88 |
| 5A and 14A | - Biweekly progress reports | biweekly |
| 5B and 14B | - RI & FS community relations material | TBD by EPA |
| 6 | - Memo report: Remedial objectives and alternatives | 3/30/88 |
| 7 | - Memo report: Initial screening | 4/15/88 |

| <u>Task</u> | <u>Deliverable</u> | <u>Due Date</u> |
|-------------|--|-----------------|
| 8 | - Memo report: Post screening | 4/30/88 |
| | - Memo report: Literature survey | 4/30/88 |
| | - Memo report: Proposed bench and pilot scale test | 5/15/88 |
| | - Memo report: Proposed additional field activities | 5/15/88 |
| | - Memo report: Results of bench and pilot scale tests | TBD by EPA |
| | - Memo report: Results of additional field activities | TBD by EPA |
| 9 | - Memo report: Summary analysis of detailed evaluation | (3) |
| 10 | - Memo report: Preferred remedial alternative | (3) |
| 11 | - Draft FS report | (3) |
| 12 | - Final FS report | (3) |
| 13 | - Conceptual design report | (3) |

NOTES: (1) Within fourteen (14) days of sampling and no later than 6/14/87 and 11/14/87.

(2) Total of three rounds; deliverable to be submitted to EPA within six (6) weeks of each round of sampling. Note that sampling should occur within two (2) weeks of notification from EPA to proceed. (i.e., the appropriate time to sample).

(3) These tasks cannot be accurately scheduled at this time because it is unknown how long Phase II field activities will continue. At the completion of Phase II field activities, EPA will determine the schedule for these deliverables which shall become enforceable due dates.