

STATE OF CALIFORNIA  
ENVIRONMENTAL PROTECTION AGENCY  
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

IN THE MATTER OF:

Aristech Chemical Corporation  
291 West Adams Street  
Colton, California 92324

EPA Number CAD 091 933 895

Aristech Chemical Corporation  
1801 Market Street  
Philadelphia, Pennsylvania 19103

Respondent

Docket Number: P3-04/05-007

CORRECTIVE ACTION  
CONSENT AGREEMENT

Health and Safety Code  
Section 25187

INTRODUCTION

1.0. The Department of Toxic Substances Control (DTSC or Department) and Aristech Chemical Corporation (Respondent) enter into this Corrective Action Consent Agreement (Consent Agreement) and agree as follows:

1.1. Jurisdiction exists pursuant to Health and Safety Code section 25187, which authorizes DTSC to issue an order to require corrective action when DTSC determines that there is or may be a release of hazardous waste or hazardous waste constituents into the environment from a hazardous waste facility.

1.2. The parties enter into this Consent Agreement to avoid the expense of litigation and to carry out promptly the corrective action described below.

1.3. Respondent is the former operator of a hazardous waste facility located at 291 West Adams Street, Colton, CA 92324 (the Facility).

1.4. Aristech Chemical Corporation was the former owner/operator of the Facility and engaged in the management of hazardous waste pursuant to the permits issued by the Department of Health Services (DHS) (which was DTSC's predecessor

agency) and the United States Environmental Protection Agency (U.S. EPA). The permit issued by DHS became effective on November 6, 1989 and expired on November 6, 1994. The permit issued by U.S. EPA became effective on November 15, 1989 and expired on November 15, 1994. Aristech's closure certification for the two hazardous waste management units (HWMUs) (an incinerator and a hazardous waste storage tank system) was acknowledged by DTSC on May 21, 1998.

1.5. The terms used in this Consent Agreement are as defined in California Code of Regulations, title 22, section 66260.10, except as otherwise provided.

1.6. Subject to its rights under this Consent Agreement, Respondent agrees to implement all DTSC-approved workplans and to undertake all actions required by the terms and conditions of this Consent Agreement, including any portions of this Consent Agreement incorporated by reference.

1.7. Respondent waives any right to request a hearing on this Consent Agreement pursuant to HSC section 25187.

### FINDINGS OF FACT

2.0. On November 1988, U.S. EPA completed a RCRA Facility Assessment (RFA). The RFA identified a total of 17 solid waste management units (SWMUs) and three (3) areas of concern (AOCs) that either have released or may release hazardous waste or hazardous waste constituents into the environment. The identified SWMUs and AOCs are as follows:

SWMUs:

SWMU #1	Packed Columns
SWMU #2	Partial Condensers (3)
SWMU #3	Total Condensers (3)
SWMU #4	Aqueous Waste Receivers
SWMU #5	Distillate Storage Tank System (Aqueous Waste Storage Tank and Accessories)
SWMU #6	Thermal Oxidizer ( Incinerator)
SWMU #7	Old Ditch, Unlined Pit Site
SWMU #8	Past Area of Tank Caustic Wash
SWMU #9	Sump in the Chemical Storage Tank Area
SWMU #10	Old Wastewater Holding Tank
SWMU #11	Parts Cleaning Tank
SWMU #12	Resin Filters
SWMU #13	Filter Bag Drain
SWMU #14	Nonhazardous Solid Waste Drum Storage Area
SWMU #15	Hazardous Waste Drum Storage Area
SWMU #16	Scrap Metal Yard

SWMU #17 Old Underground Storage Tanks Area.

AOCs:

AOC #1 Raw Material and Product Drums Storage Areas  
AOC #2 Reactor Room  
AOC #3 Tank Farm

2.1. Based on information available to DTSC, including the RCRA Facility Assessment Report completed by U.S. EPA, the Facility Current Conditions Summary Report dated December 1989 for SWMU #7 and SWMU #17, prepared by Radian Corporation, the Soil Investigation Report dated July 20, 1993, prepared by Geraghty and Miller, Inc., and the Closure Certification Report prepared by Mc Laren Hart, DTSC concludes that further investigation is needed to determine the nature and extent of contamination in ten (10) SWMUs and three (3) AOCs as listed below:

SWMUs:

SWMU #7 Old Ditch, Unlined Pit Site  
SWMU #8 Past Area of Tank Caustic Wash  
SWMU #9 Sump in the Chemical Storage Tank Area  
SWMU #10 Old Wastewater Holding Tank  
SWMU #11 Parts Cleaning Tank  
SWMU #12 Resin Filters  
SWMU #13 Filter Bag Drain  
SWMU #14 Non-hazardous Solid Waste Drum Storage Area  
SWMU #15 Hazardous Waste Drum Storage Area  
SWMU #16 Scrap Metal Yard

AOCs:

AOC #1 Raw Material and Product Drums Storage Area  
AOC #2 Reactor Room  
AOC #3 Chemical Tank Storage

2.2. The hazardous waste and hazardous waste constituents of concern at the Facility were distillate waste, a variety of organic solvents, resin, styrene and raw material discharges, which consist of styrene, polymer, silica, organic acids, and ethylene.

2.3. Hazardous wastes or hazardous waste constituents have migrated or may migrate from the Facility into the environment through the following pathways: soil and groundwater.

2.4. The Facility is located in Colton, California, near the San Bernardino Freeway. It is bordered on the west by the Union Pacific railroad tracks, and on the South by the Whittaker Chemical and Coating Company property. A few residences are adjacent to the site on the east. Land use within ½ mile of the property includes light industry, residential areas, a park and two schools, the San Salvador School and the Wilson School, and a wastewater treatment plant. A few wells are indicated in the vicinity of the site based on the topographic map of South San Bernardino. These are all located along the sides of the Santa Ana River. The City of Colton draws its water supply from local wells. The Santa Ana River is located approximately 1/4 mile east and less than ½ mile south of the Facility.

### PROJECT COORDINATOR

3.0. Within 14 days of the effective date of this Consent Agreement, DTSC and Respondent shall each designate a Project Coordinator and shall notify each other in writing of the Project Coordinator selected. Each Project Coordinator shall be responsible for overseeing the implementation of this Consent Agreement and for designating a person to act in his/her absence. All communications between Respondent and DTSC, and all documents, report approvals, and other correspondence concerning the activities performed pursuant to this Consent Agreement shall be directed through the Project Coordinators. Each party may change its Project Coordinator with at least seven days prior written notice.

### WORK TO BE PERFORMED

4.0. Respondent agrees to perform the work required by this Consent Agreement in accordance with the applicable state and federal laws, their implementing regulations, and the applicable DTSC and the United States Environmental Protection Agency guidance documents.

4.1. Respondent shall submit to DTSC documents, information and data related to the Facility and prepared for the RWQCB (the "RWQCB Information"). To the extent practical, DTSC will review the RWQCB Information and determine on a case-by-case basis whether certain RWQCB Information may be used to satisfy requirements of this Consent Agreement. DTSC reserves the right to comment to the RWQCB on RWQCB Information.

### INTERIM MEASURES (IM)

5.0. If at any time Respondent identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous waste constituents, or discovers new solid waste management units not previously identified, Respondent shall notify the DTSC Project Coordinator orally within 48 hours of discovery and the Respondent will notify DTSC and the current

owner/operator in writing within 10 days of discovery summarizing the findings, including the immediacy and magnitude of the potential threat to human health and/or the environment.

5.1. If DTSC identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous waste constituents, or discovers new solid waste management units not previously identified, DTSC will notify Respondent and the current owner/operator in writing.

5.2. If within 30 days of receiving DTSC's written request for the submittal of an Interim Measures Workplan, Respondent does not submit an Interim Measures Workplan for approval, DTSC reserves its right to issue an order or take any other action provided by law.

### RCRA FACILITY INVESTIGATION (RFI)

6.0. Within 60 days of the effective date of this Consent Agreement, Respondent shall submit to DTSC a Current Conditions Report (unless an earlier submittal date is specified in this Consent Agreement) and a Workplan for a RCRA Facility Investigation ("RFI Workplan"). The Current Conditions Report and RFI Workplan are subject to approval by DTSC and shall be developed in a manner consistent with the Scope of Work for a RCRA Facility Investigation contained in Attachment 5. DTSC will review the Current Conditions Report and RFI Workplan and notify Respondent in writing of DTSC's approval or disapproval.

6.1. The RFI Workplan shall detail the methodology for using existing and new data necessary to make decisions during the early phases of the RCRA Facility Investigation to : (1) identify and characterize all sources of contamination; (2) define the nature, degree and extent of contamination; (3) define the rate of movement and direction of contamination flow; (4) characterize the potential pathways of contaminant migration; (5) identify actual or potential human and/or ecological receptors; and (6) support development of alternatives from which a corrective measure, if any is required, which will be selected by DTSC. A specific schedule for implementation of all activities shall be included in the RFI Workplan.

6.2. Respondent shall submit a RFI Report to DTSC for approval in accordance with DTSC-approved RFI Workplan schedule. The RFI Report shall be developed in a manner consistent with the Scope of Work for a RCRA Facility Investigation contained in Attachment 5. If there is a phased investigation, separate RFI Reports and a report that summarizes the findings from all phases of the RFI must be submitted to DTSC. DTSC will review the RFI Report(s) and notify Respondent in writing of DTSC's approval or disapproval.

6.3. Concurrent with the submission of a RFI Workplan, Respondent shall submit to DTSC a Health and Safety Plan in accordance with Attachment 2. If

Workplans for both an IM and RFI are required by this Consent Agreement, Respondent may submit a single Health and Safety Plan that addresses the combined IM and RFI activities.

6.4. Respondent shall submit a RFI Summary Fact Sheet to DTSC that summarizes the findings from all phases of the RFI. The RFI Summary Fact Sheet shall be submitted to DTSC in accordance with the schedule contained in the approved RFI Workplan. DTSC will review the RFI Summary Fact Sheet and notify Respondent in writing of DTSC's approval or disapproval, including any comments and/or modifications. When DTSC approves the RFI Summary Fact Sheet, Respondent shall mail the approved RFI Summary Fact Sheet to all individuals on the Facility mailing list established pursuant to California Code Regulations, title 22, section 66271.9, subdivision (c), paragraph (1), subparagraph (D), within 15 business days of receipt of written approval.

6.5. Concurrent with the submission of a RFI Workplan, Respondent shall submit to DTSC for approval a Community Profile in accordance with Attachment 3. Based on the information provided in the Community Profile and any Supplement to the Community Profile, if DTSC determines that there is a high level of community concern about the Facility, Respondent shall prepare a Public Participation Plan.

### RISK ASSESSMENT

7. 0. Based on the information available to DTSC, Respondent may be required to conduct a Risk Assessment to evaluate potential human health risk and ecological risk and to establish site-specific action levels and cleanup standards. If DTSC determines that a Risk Assessment is required, Respondent, subject to its rights hereunder, shall submit to DTSC for approval a Risk Assessment Workplan within 60 days of receipt of DTSC's determination. Respondent shall submit to DTSC for approval a Risk Assessment Report in accordance with DTSC-approved Risk Assessment Workplan schedule.

### CORRECTIVE MEASURES STUDY AND IMPLEMENTATION

8.0. If it becomes necessary to perform subsequent phase(s) of work, DTSC and Respondent will amend this Consent Agreement to address the additional work. If another consent agreement or an amendment is not reached within 60 days, DTSC reserves its right to issue an order or take any other action provided for by law. DTSC's costs incurred in negotiating the subsequent consent agreement or the amendment are considered costs incurred pursuant to this Consent Agreement and are payable under this Consent Agreement. Respondent retains all its rights, including defenses, in respect of any such potential DTSC action.

## CALIFORNIA ENVIRONMENTAL QUALITY ACT

9.0. DTSC must comply with the California Environmental Quality Act (CEQA) insofar as activities required by this Consent Agreement are projects subject to CEQA. Respondent shall provide all information necessary to facilitate any CEQA analysis. DTSC will make an initial determination regarding the applicability of CEQA. If the activities are not exempt from CEQA, DTSC will conduct an Initial Study. Based on the results of the Initial Study, DTSC will determine if a Negative Declaration or an Environmental Impact Report (EIR) should be prepared. DTSC will prepare and process any such Negative Declaration. However, should DTSC determine that an EIR is necessary, such an EIR would be prepared under a separate agreement between DTSC and Respondent.

### DTSC APPROVAL

10.0. Respondent shall revise any workplan, report, specification, or schedule in accordance with DTSC's written comments, subject to Respondent's right to meet and confer with DTSC or resolve disputes under this Consent Agreement pursuant to sections 18.0 – 18.5. After any such meeting or conference held pursuant to sections 18.0 – 18.5, Respondent shall submit to DTSC any revised documents by the due date specified by DTSC. Revised submittals are subject to DTSC's approval or disapproval.

10.1. Upon receipt of DTSC's written approval, Respondent shall commence work and implement any approved workplan in accordance with the schedule and provisions contained therein.

10.2. Any DTSC-approved workplan, report, specification, or schedule required under this Consent Agreement shall be deemed incorporated into this Consent Agreement.

10.3. Verbal advice, suggestions, or comments given by DTSC representatives will not constitute an official approval or decision.

### SUBMITTALS

11.0. Beginning with the first full month following the effective date of this Consent Agreement, Respondent shall provide DTSC with quarterly progress reports of corrective action activities conducted pursuant to this Consent Agreement. Progress reports are due on the 15th day of the first month following the close of each reporting period. The progress reports shall conform to the Scope of Work for Progress Reports contained in Attachment 8. DTSC may adjust the frequency of progress reporting to be consistent with site-specific activities. However, DTSC may not request progress reporting more frequently than monthly, unless requested by Respondent or unless

DTSC determines in writing that certain reporting is necessary more frequently than monthly.

11.1. Any report or other document submitted by Respondent pursuant to this Consent Agreement shall be signed and certified by the project coordinator, a responsible corporate officer, or a duly authorized representative.

11.2. The certification required by paragraph 11.1 above, shall be in the following form:

I certify that the information contained in or accompanying this submittal is true, accurate, and complete. As to those portions of this submittal for which I cannot personally verify the accuracy, I certify that this submittal and all attachments were prepared at my direction in accordance with procedures designed to assure that qualified personnel properly gathered and evaluated the information submitted.

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

11.3. Respondent shall provide at least two copies of all documents, including but not limited to, workplans, reports, and correspondence. Submittals specifically exempted from this copy requirement are all progress reports and correspondence of less than 15 pages, of which one copy is required.

11.4. Unless otherwise specified, all reports, correspondence, approvals, disapprovals, notices, or other submissions relating to this Consent Agreement shall be in writing and shall be sent to the current Project Coordinators.

### PROPOSED CONTRACTOR/CONSULTANT

12.0. All work performed pursuant to this Consent Agreement shall be under the direction and supervision of a professional engineer or registered geologist, registered in California, with expertise in hazardous waste site cleanup. Respondent's contractor or consultant shall have the technical expertise sufficient to fulfill his or her responsibilities. Within 14 days of the effective date of this Consent Agreement, Respondent shall notify the DTSC Project Coordinator in writing of the name, title, and qualifications of said professional engineer or registered geologist and of any professional contractors or consultants and their personnel to be used in carrying out the terms of this Consent Agreement.

## ADDITIONAL WORK

13.0 DTSC may determine or Respondent may propose that certain tasks, including investigatory work, engineering evaluation, or procedure/methodology modifications are necessary in addition to, or in lieu of, the tasks and deliverables included in any part of DTSC-approved workplans. DTSC shall request in writing that Respondent perform the additional work and shall specify the basis and reasons for DTSC's determination that the additional work to carry out this phase of the Consent Agreement and related to the Facility is necessary. Within 14 days after the receipt of such determination, Respondent may confer with DTSC to discuss the additional work DTSC has requested. If required by DTSC, Respondent shall submit to DTSC a workplan for the additional work. Such workplan shall be submitted to DTSC within 30 days of receipt of DTSC's determination or according to an alternate schedule established by DTSC. Upon approval of a workplan, Respondent shall implement it in accordance with the provisions and schedule contained therein. The need for, and disputes concerning, additional work are subject to the dispute resolution procedures specified in this Consent Agreement.

## QUALITY ASSURANCE

14.0. All sampling and analyses performed by Respondent under this Consent Agreement shall follow applicable DTSC and U.S. EPA guidance for sampling and analysis. Workplans shall contain quality assurance/quality control and chain of custody procedures for all sampling, monitoring, and analytical activities. Any deviations from the approved workplans must be approved by DTSC prior to implementation, must be documented, including reasons for the deviations, and must be reported in the applicable report.

14.1. The names, addresses, and telephone numbers of the California State certified analytical laboratories Respondent proposes to use must be specified in the applicable workplans.

## SAMPLING AND DATA/DOCUMENT AVAILABILITY

15.0. Respondent shall submit to DTSC upon request the results of all sampling and/or tests or other data generated by its employees, agents, consultants, or contractors pursuant to this Consent Agreement.

15.1. Unless DTSC's schedule provides otherwise, Respondent shall notify DTSC in writing at least seven days prior to beginning each separate phase of field work approved under any workplan required by this Consent Agreement. If Respondent believes it must commence emergency field activities without delay, Respondent may seek and obtain emergency telephone authorization from DTSC Project Coordinator or,

if the Project Coordinator is unavailable, his/her Branch Chief, to commence such activities immediately. Written notification will follow within five (5) business days.

15.2. At the request of DTSC, Respondent shall provide or allow DTSC or its authorized representative to take split or duplicate samples of all samples collected by Respondent pursuant to this Consent Agreement. Similarly, at the request of Respondent, DTSC shall allow Respondent or its authorized representative to take split or duplicate samples of all samples collected by DTSC under this Consent Agreement. DTSC and Respondent agree to request only a reasonable number of split samples.

### ACCESS

16.0. Except as provided in Section 16.2, and subject to the Facility's security and safety procedures, Respondent agrees to use best efforts to provide DTSC and its representatives access at all reasonable times to the Facility and any off-site property to which access is required for implementation of this Consent Agreement. Respondent shall also permit such persons to inspect and copy all records, files, photographs, documents, including all sampling and monitoring data, that pertain to work undertaken pursuant to this Consent Agreement and that are within the possession or under the control of Respondent or its contractors or consultants. DTSC acknowledges Respondent no longer owns or operates the Facility and Respondent shall secure access subject to Section 16.1 below.

16.1. Respondent shall use its best efforts to obtain an access agreement necessary to complete work required by this Consent Agreement from the present owners of the Facility within 30 days of approval of this Consent Agreement. Best efforts as used in this paragraph shall include, at a minimum, a letter by certified mail from the Respondent to the present owner(s) of the Facility requesting an agreement to permit Respondent and DTSC and its authorized representatives access to the Facility. Best efforts shall also include offering the payment by Respondent of reasonable sums of money in consideration of granting such access. Any such access agreement shall provide for access to DTSC and its representatives. Respondent shall provide DTSC's Project Coordinator with a copy of such access agreement(s). In the event that an agreement for access is not obtained within 30 days of approval of this Consent agreement, Respondent shall notify DTSC in writing within 14 days thereafter regarding both the efforts undertaken to obtain access and its failure to obtain such agreement. DTSC may, at its discretion, assist Respondent in obtaining access.

16.2. Nothing in this section limits or otherwise affects DTSC's right of access and entry pursuant to any applicable State or federal law or regulation.

## RECORD PRESERVATION

17.0. Respondent shall retain, during the pendency of this Consent Agreement and for a minimum of six years after its termination, all data, records, and documents that relate in any way to the performance of this Consent Agreement or to hazardous waste management and/or disposal at the Facility. Respondent shall notify DTSC in writing 90 days prior to the destruction of any such records, and shall provide DTSC with the opportunity to take possession of any such records. Such written notification shall reference the effective date, caption, and docket number of this Consent Agreement and shall be addressed to:

Chief  
Southern California Permitting and Corrective Action Branch  
Department of Toxic Substances Control  
1011 N. Grandview Avenue  
Glendale, California 91201

17.1. If Respondent retains or employs any agent, consultant, or contractor for the purpose of carrying out the terms of this Consent Agreement, Respondent will require any such agents, consultants, or contractors to provide Respondent a copy of all documents produced pursuant to this Consent Agreement.

17.2. All documents pertaining to this Consent Agreement shall be stored in a central location agreed to by the parties, to afford easy access by DTSC and its representatives.

## DISPUTE RESOLUTION

18.0. The parties agree to use their best efforts to resolve all disputes informally. The parties agree that the procedures contained in this section are the sole administrative procedures for resolving disputes arising under this Consent Agreement. If Respondent fails to follow the procedures contained in this section, it shall have waived its right to further consideration of the disputed issue.

18.1. If Respondent disagrees with any written decision by DTSC pursuant to this Consent Agreement, Respondent's Project Coordinator shall orally notify DTSC's Project Coordinator of the dispute. The Project Coordinators shall attempt to resolve the dispute informally.

18.2. If the Project Coordinators cannot resolve the dispute informally, Respondent may pursue the matter formally by placing its objection in writing. Respondent's written objection must be forwarded to Chief, Southern California Permitting Branch, Hazardous Waste Management Program, Department of Toxic Substances Control, with a copy to DTSC's Project Coordinator. The written objection

must be mailed to the Branch Chief within 14 days of Respondent's receipt of DTSC's written decision. Respondent's written objection must set forth the specific points of the dispute and the basis for Respondent's position.

18.3. DTSC and Respondent shall have 14 days from DTSC's receipt of Respondent's written objection to resolve the dispute through formal discussions. This period may be extended by DTSC for good cause. During such period, Respondent may meet or confer with DTSC to discuss the dispute.

18.4. After the formal discussion period, DTSC will provide Respondent with its written decision on the dispute. DTSC's written decision will reflect any agreements reached during the formal discussion period and be signed by the Branch Chief or his/her designee.

18.5. During the pendency of all dispute resolution procedures set forth above, the time periods for completion of work required under this Consent Agreement that are affected by such dispute shall be extended for a period of time not to exceed the actual time taken to resolve the dispute. The existence of a dispute shall not excuse, toll, or suspend any other compliance obligation or deadline required pursuant to this Consent Agreement.

#### RESERVATION OF RIGHTS

19.0. DTSC reserves all of its statutory and regulatory powers, authorities, rights, and remedies, which may pertain to Respondent's failure to comply with any of the requirements of this Consent Agreement. Respondent reserves all of its statutory and regulatory rights, defenses and remedies, as they may arise under this Consent Agreement. This Consent Agreement shall not be construed as a covenant not to sue, release, waiver, or limitation on any powers, authorities, rights, or remedies, civil or criminal, that DTSC or Respondent may have under any laws, regulations or common law.

19.1. DTSC reserves the right to disapprove of work performed by Respondent pursuant to this Consent Agreement and to request that Respondent perform additional tasks.

19.2. DTSC reserves the right to perform any portion of the work consented to herein or any additional site characterization, feasibility study, and/or remedial actions it deems necessary to protect human health and/or the environment. DTSC may exercise its authority under any applicable state or federal law or regulation to undertake response actions at any time. DTSC reserves its right to seek reimbursement from Respondent for costs incurred by the State of California with respect to such actions. DTSC will notify Respondent in writing as soon as practicable regarding the decision to perform any work described in this section.

19.3. If DTSC determines that activities in compliance or noncompliance with this Consent Agreement have caused or may cause a release of hazardous waste and/or hazardous waste constituents, or a threat to human health and/or the environment, or that Respondent is not undertaking any of the work required, DTSC may order Respondent to stop further implementation of this Consent Agreement for such period of time as DTSC determines may be needed to abate any such release or threat and/or to undertake any action which DTSC determines is necessary to abate such release or threat. The deadlines for any actions required of Respondent under this Consent Agreement affected by the order to stop work shall be extended to take into account DTSC's actions.

19.4. This Consent Agreement is not intended to be nor shall it be construed to be a permit. This Consent Agreement is not a substitute for, and does not preclude DTSC from requiring, any hazardous waste facility permit, post closure permit, closure plan or post closure plan. The parties acknowledge and agree that DTSC's approval of any workplan, plan, and/or specification does not constitute a warranty or representation that the workplans, plans, and/or specifications will achieve the required cleanup or performance standards. Compliance by Respondent with the terms of this Consent Agreement shall not relieve Respondent of its obligations to comply with the Health and Safety Code or any other applicable local, state, or federal law or regulation.

#### OTHER CLAIMS

20.0. Except as provided in this Consent Agreement, nothing in this Consent Agreement shall constitute or be construed as a release by DTSC or Respondent from any claim, cause of action, or demand in law or equity against any person, firm, partnership, or corporation 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 constituents, hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken or migrating from the Facility.

#### COMPLIANCE WITH WASTE DISCHARGE REQUIREMENTS

21.0. Respondent shall comply with all applicable waste discharge requirements issued by the State Water Resources Control Board or a California regional water quality control board.

#### OTHER APPLICABLE LAWS

22.0. All actions required by this Consent Agreement shall be conducted in accordance with the requirements of all local, state, and federal laws and regulations. Respondent shall obtain or cause its representatives to obtain all permits and approvals necessary under such laws and regulations.

## REIMBURSEMENT OF DTSC'S COSTS

23.0. Respondent shall pay DTSC's costs incurred in the implementation of this Consent Agreement.

23.1. An estimate of DTSC's costs is attached as Exhibit A showing the amount of \$97,339. It is understood by the parties that this amount is only a cost estimate for the activities shown on Exhibit A and it may differ from the actual costs incurred by DTSC in overseeing these activities or in implementing this Consent Agreement. DTSC will provide additional cost estimates to Respondent as the work progresses under the Consent Agreement.

23.2. Respondent shall make an advance payment to DTSC in the amount of \$25,000 within 30 days of the effective date of this Consent Agreement. If the advance payment exceeds DTSC's costs, DTSC will refund the balance within 120 days after the execution of the Acknowledgment of Satisfaction pursuant to Section 25 of this Consent Agreement.

23.3. DTSC will provide Respondent with a billing statement at least quarterly, which will include the name(s) of the employee(s), identification of the activities, the amount of time spent on each activity, and the hourly rate charged. If Respondent does not pay an invoice within 60 days of the date of the billing statement, the amount is subject to interest as provided by Health and Safety Code section 25360.1.

23.4. DTSC will retain all costs records associated with the work performed under this Consent Agreement as required by state law. DTSC will make all documents that support the DTSC's cost determination available for inspection upon request, as provided by the Public Records Act.

23.5. Any dispute concerning DTSC's costs incurred pursuant to this Consent Agreement is subject to the Dispute Resolution provision of this Consent Agreement and the dispute resolution procedures as established pursuant to Health and Safety Code section 25269.2. DTSC reserves its right to recover unpaid costs under applicable state and federal laws.

23.6. All payments shall be made within 30 days of the date of the billing statement by check payable to the Department of Toxic Substances Control and shall be sent to:

Accounting Unit  
Department of Toxic Substances Control  
P. O. Box 806  
Sacramento, California 95812-0806

All checks shall reference the name of the Facility, the Respondent's name and address, and the docket number of this Consent Agreement. Copies of all checks and letters transmitting such checks shall be sent simultaneously to DTSC's Project Coordinator.

#### MODIFICATION

24.0. This Consent Agreement may be modified by mutual agreement of the parties. Any agreed modification shall be in writing, shall be signed by both parties, shall have as its effective date the date on which it is signed by all the parties, and shall be deemed incorporated into this Consent Agreement.

24.1. Any requests for revision of an approved workplan requirement must be in writing. Such requests must be timely and provide justification for any proposed workplan revision. DTSC has no obligation to approve such requests, but if it does so, such approval will be in writing and signed by the Chief, Southern California Permitting and Corrective Action Branch, Hazardous Waste Management Program, Department of Toxic Substances Control, or his or her designee. Any approved workplan revision shall be incorporated by reference into this Consent Agreement.

#### TERMINATION AND SATISFACTION

25.0. The provisions of this Consent Agreement shall be deemed satisfied upon the execution by both parties of an Acknowledgment of Satisfaction (Acknowledgment). The Acknowledgment shall not be provided until Respondent has completed all work required by the RWQCB. DTSC will prepare the Acknowledgment for Respondent's signature. The Acknowledgment will specify that Respondent has demonstrated to the satisfaction of DTSC that the terms of this Consent Agreement, including payment of DTSC's costs due under this Consent Agreement, have been satisfactorily completed. The Acknowledgment will affirm Respondent's continuing obligation to preserve all records after the Consent Agreement is satisfactorily completed.

EFFECTIVE DATE

26.0. The effective date of this Consent Agreement shall be the date on which this Consent Agreement is signed by all parties. Except as otherwise specified, "days" means calendar days. If any deliverable is due on a State of California holiday or a weekend, the due date shall be the next day that is not a weekend or holiday.

SIGNATORIES

27.0. Each undersigned representative certifies that he or she is fully authorized to enter into this Consent Agreement.

DATE: 1/14/05

BY: //original signed by//  
Bruce G. Fischer  
Aristech Chemical, Inc.

DATE: 1/26/05

BY: //original signed by//  
Jose Kou, P.E., Chief  
Southern California Permitting and Corrective Action Branch  
Hazardous Waste Management Program  
Department of Toxic Substances Control

## ATTACHMENT 1

### SCOPE OF WORK FOR INTERIM MEASURES IMPLEMENTATION

#### PURPOSE

Interim measures are actions to control and/or eliminate releases of hazardous waste and/or hazardous constituents from a facility prior to the implementation of a final corrective measure. Interim measures must be used whenever possible to achieve the goal of stabilization which is to control or abate threats to human health and/or the environment, and to prevent or minimize the spread of contaminants while long-term corrective action alternatives are being evaluated.

#### SCOPE

The documents required for Interim Measures (IM) are, unless the Department of Toxic Substances Control (DTSC) specifies otherwise, an IM Workplan, an Operation and Maintenance Plan and IM Plans and Specifications. The scope of work (SOW) for each document is specified below. The SOWs are intended to be flexible documents capable of addressing both simple and complex site situations. If the Respondent can justify to the satisfaction of DTSC that a plan or portions thereof are not needed in the given site specific situation, then DTSC may waive that requirement.

The scope and substance of interim measures should be focused to fit the site specific situation and be balanced against the need to take quick action.

DTSC may require the Respondent to conduct additional studies beyond what is discussed in the SOWs in order to support the IM program. The Respondent will furnish all personnel, materials and services necessary to conduct the additional tasks.

#### A. Interim Measures Workplan

The Respondent shall prepare an IM Workplan that evaluates interim measure options and clearly describes the proposed interim measure, the key components or elements that are needed, describes the designer's vision of the interim measure in the form of conceptual drawings and schematics, and includes procedures and schedules for implementing the interim measure(s). The IM Workplan must be approved by the DTSC prior to implementation. The IM Workplan must, at a minimum, include the following elements:

##### 1. Introduction/Purpose

Describe the purpose of the document and provide a summary of the project.

##### 2. Conceptual Model of Contaminant Migration

The Respondent must present a conceptual model of the site and contaminant migration. The conceptual model consists of a working hypothesis of how the contaminants may move from the release source to the receptor population. The conceptual model is developed by looking at the applicable physical parameters (e.g., water solubility, density, Henry's Law Constant, etc.) for each contaminant and assessing how the contaminant may migrate given the existing site conditions (geologic features, depth to ground water, etc.). Describe the phase (water, soil, gas, non-aqueous) and location where contaminants are likely to be found. This analysis may have already been done as part of earlier work (e.g., Current Conditions Report). If this is the case, then provide a summary of the conceptual model with a reference to the earlier document.

3. Evaluation of Interim Measure Alternatives

List, describe and evaluate interim measure alternatives that have the potential to stabilize the facility. Propose interim measures for implementation and provide rationale for the selection. Document the reasons for excluding any interim measure alternatives.

4. Description of Interim Measures

Qualitatively describe what the proposed interim measure is supposed to do and how it will function at the facility.

5. Data Sufficiency

Review existing data needed to support the design effort and establish whether there are sufficient accurate data available for this purpose. The Respondent must summarize the assessment findings and specify any additional data needed to complete the interim measure design. DTSC may require or the Respondent may propose that sampling and analysis plans and/or treatability study workplans be developed to obtain the additional data. Submittal times for any new sampling and analysis plans and/or treatability study workplans must be included in the project schedule.

6. Project Management

Describe the levels of authority and responsibility (include organization chart), lines of communication and a description of the qualifications of key personnel who will direct the interim measure design and implementation effort (including contractor personnel).

7. Project Schedule

The project schedule must specify all significant steps in the process, when any key documents (e.g., plans and specifications, operation and maintenance plan) are to be submitted to DTSC and when the interim measure is to be implemented.

8. Design Basis

Discuss the process and methods used to design all major components of the interim measure. Discuss the significant assumptions made and possible sources of error. Provide justification for the assumptions.

\*Conceptual Process/Schematic Diagrams.

\*Site plan showing preliminary plant layout and/or treatment area.

\*Tables listing number and type of major components with approximate dimensions.

\*Tables giving preliminary mass balances.

\*Site safety and security provisions (e.g., fences, fire control, etc.).

9. Waste Management Practices

Describe the wastes generated by the construction of the interim measure and how they will be managed. Also discuss drainage and indicate how rainwater runoff will be managed.

10. Required Permits

List and describe the permits needed to construct the interim measure. Indicate on the project schedule when the permit applications will be submitted to the applicable agencies and an estimate of the permit issuance date.

11. Sampling and Monitoring

Sampling and monitoring activities may be needed for design and during construction of the interim measure. If sampling activities are necessary, the IM Workplan must include a complete sampling and analysis section which specifies at a minimum the following information:

- a. Description and purpose of monitoring tasks;
- b. Data quality objectives;

- c. Analytical test methods and detection limits;
- d. Name of analytical laboratory;
- e. Laboratory quality control (include laboratory QA/QC procedures in appendices)
- f. Sample collection procedures and equipment;
- g. Field quality control procedures:
  - \*duplicates (10% of all field samples)
  - \*blanks (field, equipment, etc.)
  - \*equipment calibration and maintenance
  - \*equipment decontamination
  - \*sample containers
  - \*sample preservation
  - \*sample holding times (must be specified)
  - \*sample packaging and shipment
  - \*sample documentation (field notebooks, sample labeling, etc.);
  - \*chain of custody;
- h. Criteria for data acceptance and rejection; and
- i. Schedule of monitoring frequency.

The Respondent shall follow all DTSC and USEPA guidance for sampling and analysis. DTSC may request that the sampling and analysis section be a separate document.

12. Appendices including:

- \*Design Data - Tabulations of significant data used in the design effort;
- \*Equations - List and describe the source of major equations used in the design process;
- \*Sample Calculations - Present and explain one example calculation for significant calculations; and
- \*Laboratory or Field Test Results.

B. Interim Measures Operation and Maintenance Plan

The Respondent shall prepare an Interim Measures Operation and Maintenance (O&M) Plan that includes a strategy and procedures for performing operations, maintenance, and monitoring of the interim measure(s). An Interim Measures Operation and Maintenance Plan shall be submitted to DTSC simultaneously with the Plans and Specifications (section C). The O&M plan shall, at a minimum, include the following elements:

1. Purpose/Approach

Describe the purpose of the document and provide a summary of the project.

2. Project Management

Describe the levels of authority and responsibility (include organization chart), lines of communication and a description of the qualifications of key personnel who will operate and maintain the interim measure(s) (including contractor personnel).

3. System Description

Describe the interim measure and identify significant equipment.

4. Personnel Training

Describe the training process for O&M personnel. The Respondent shall prepare, and include in the technical specifications governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, start up and operation of the treatment systems, and training covering appropriate operational procedures once the start-up has been successfully accomplished.

5. Start-Up Procedures

Describe system start-up procedures including any operational testing.

6. Operation and Maintenance Procedures

Describe normal operation and maintenance procedures including:

- a. Description of tasks for operation;
- b. Description of tasks for maintenance;
- c. Description of prescribed treatment or operation condition, and
- d. Schedule showing frequency of each O&M task.

7. Replacement schedule for equipment and installed components.

8. Waste Management Practices

Describe the wastes generated by operation of the interim measure and how they will be managed. Also discuss drainage and indicate how rainwater runoff will be managed.

9. Sampling and Monitoring

Sampling and monitoring activities may be needed for effective operation and maintenance of the interim measure. If sampling activities are necessary, the O&M plan must include a complete sampling and analysis section which specifies at a minimum the following information:

- a. Description and purpose of monitoring tasks;
- b. Data quality objectives;
- c. Analytical test methods and detection limits;
- d. Name of analytical laboratory;
- e. Laboratory quality control (include laboratory QA/QC procedures in appendices)
- f. Sample collection procedures and equipment;
- g. Field quality control procedures:
  - \*duplicates (10% of all field samples)
  - \*blanks (field, equipment, etc.)
  - \*equipment calibration and maintenance
  - \*equipment decontamination
  - \*sample containers
  - \*sample preservation
  - \*sample holding times (must be specified)
  - \*sample packaging and shipment
  - \*sample documentation (field notebooks, sample labeling, etc.);
  - \*chain of custody;
- h. Criteria for data acceptance and rejection; and
- i. Schedule of monitoring frequency.

The Respondent shall follow all DTSC and USEPA guidance for sampling and analysis. DTSC may request that the sampling and analysis section be a separate document.

10. O&M Contingency Procedures:

- a. Procedures to address system breakdowns and operational problems including a list of redundant and emergency back-up equipment and procedures;
- b. Should the interim measure suffer complete failure, specify alternate procedures to prevent release or threatened releases of hazardous substances, pollutants or contaminants which may endanger public health and/or the environment or exceed cleanup standards; and
- c. The O&M Plan must specify that, in the event of a major breakdown and/or complete failure of the interim measure (includes emergency situations), the

Respondent will orally notify DTSC within 24 hours of the event and will notify DTSC in writing within 72 hours of the event. The written notification must, at a minimum, specify what happened, what response action is being taken and/or is planned, and any potential impacts on human health and the environment.

#### 11. Data Management and Documentation Requirements

Describe how analytical data and results will be evaluated, documented and managed, including development of an analytical database. State the criteria that will be used by the project team to review and determine the quality of data.

The O&M Plan shall specify that the Respondent collect and maintain the following information:

a. Progress Report Information

\*Work Accomplishments (e.g., performance levels achieved, hours of treatment operation, treated and/or excavated volumes, concentration of contaminants in treated and/or excavated volumes, nature and volume of wastes generated, etc.).

\*Record of significant activities (e.g., sampling events, inspections, problems encountered, action taken to rectify problems, etc.).

b. Monitoring and laboratory data; and

c. Personnel, maintenance and inspection records.

DTSC may require that the Respondent submit additional reports that evaluate the effectiveness of the interim measure in meeting the stabilization goal.

#### C. Interim Measures Plans and Specifications

The Respondent shall prepare Plans and Specifications for the interim measure that are based on the conceptual design but include additional detail. The Plans and Specifications shall be submitted to DTSC simultaneously with the Operation and Maintenance Plan. The design package must include drawings and specifications needed to construct the interim measure. Depending on the nature of the interim measure, many different types of drawings and specifications may be needed. Some of the elements that may be required are:

- \*General Site Plans
- \*Process Flow Diagrams
- \*Mechanical Drawings

- \*Electrical Drawings
- \*Structural Drawings
- \*Piping and Instrumentation Diagrams
- \*Excavation and Earthwork Drawings
- \*Equipment Lists
- \*Site Preparation and Field Work Standards
- \*Preliminary Specifications for Equipment and Material

General correlation between drawings and technical specifications is a basic requirement of any set of working construction plans and specifications. Before submitting the project specifications to DTSC, the Respondent shall:

- a. Proofread the specifications for accuracy and consistency with the conceptual design; and
- b. Coordinate and cross-check the specifications and drawings.

## ATTACHMENT 2

### SCOPE OF WORK FOR HEALTH AND SAFETY PLAN

The Department of Toxic Substances Control (DTSC) requires the Respondent to prepare a Health and Safety Plan (HASP) for any and all corrective action field activities at a site. The HASP must be in conformance with Title 8, California Code of Regulations (T8 CCR) Section 5192 (a)(4), DTSC's policies and guidelines, and the NIOSH/OSHA/USCG/EPA Guidance Manual as well as other appropriate State and Federal Health and Safety Regulations.

The HASP is intended to be a functional stand-alone document. The plan is used to educate and familiarize the on-site workers with the site history, proposed work activities, known or potential health hazards, emergency action plans and the site safety information that is necessary to mitigate the risks from the identified hazards. In utilizing the site HASP, field staff should be able to obtain sufficient information to compile an accurate assessment of the site safety issues associated with every job function.

The HASP, which must be kept on site, must address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The HASP must be organized with component sections and appendices covering all tasks, operations, and contractors/sub-contractors and must embody, at a minimum, the following essential key elements:

- \*A brief site history/background information.
- \*An organizational structure to establish a specific chain of command and to specify the overall responsibilities of supervisors and employees. It must include, at a minimum, the following elements:
  - \*A general supervisor who has the responsibility and authority to direct all hazardous waste operations.
  - \*A Site Safety and Health Supervisor who has the responsibility and authority to develop and implement the HASP and verify compliance.
  - \*A Qualified Person for operations defined as hazardous substance removal work, who will be responsible for scheduling any air sampling, laboratory calibration of sampling equipment, evaluation of soil or other contaminated materials sampling results, and for conducting any equipment testing and evaluating the results of the tests.
- \*All other personnel needed for hazardous waste site operations and emergency response and their general functions and responsibilities.

- \*The lines of authority, responsibility, and communication.
- \*A safety and health risk or hazard analysis for each site task and operation found in the workplan.
- \*Employee training records to assure compliance with T8 CCR 5192.
- \*Personal protective equipment (PPE) to be used by employees for each of the site tasks and operations being conducted as required by the personal protective equipment program in T8 CCR 5192 (g)(5).
- \*Medical surveillance requirements in accordance with the program in T8 CCR 5192 (f).
- \*Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used.
- \*Site control measures in accordance with the site control program required in T8 CCR 5192 (d).
- \*Decontamination procedures in accordance with T8 CCR 5192 (k).
- \*An emergency response plan meeting the requirements of T8 CCR 5192 (l) for safe and effective responses to emergencies, including the necessary PPE and other equipment.
- \*Confined space entry procedures.
- \*A spill containment program meeting the requirements of T8 CCR 5192 (j).

## ATTACHMENT 3

### COMMUNITY PROFILE OUTLINE

The following items should be included in the Community Profile:

#### SITE DESCRIPTION

- \* Description of proposed project.
- \* Map.
- \* Description of the site/facility location.
- \* Description of the surrounding land uses and environmental resources (including proximity to residential housing, schools, churches, etc.).
- \* Visibility of the site to neighbors.
- \* Demographics of community in which the site is located (e.g., socioeconomic level, ethnic composition, specific language consideration, etc.). [This information may be found in local libraries (e.g., census records).]

#### LOCAL INTEREST

- \* Contacts with community members - any inquiries from community members, groups, organizations, etc. (include names, phone numbers, and addresses on the key contact list).
- \* Community interactions - any current meetings, events, presentations, etc.
- \* Media coverage - any newspaper, magazine, television, etc., coverage.
- \* Government contacts - city and county staff, state and local elected officials.

#### KEY CONTACT LIST

- \* Names, addresses, and phone numbers of city manager, city/county planning department staff, local elected officials, and other community members with whom previous contact has been made.

## PAST PUBLIC INVOLVEMENT ACTIVITIES

- \* Any ad hoc committees, community meetings, workshops, letters, newsletters, etc., about the site or similar activity.

## KEY ISSUES AND CONCERNS

- \* Any specific concerns/issues raised by the community regarding the site/facility or any activities performed on the site/facility.
- \* Any anticipated concerns/issues regarding the site/facility.
- \* Any general environmental concerns/issues in the community.

## ATTACHMENT 4

### SCOPE OF WORK FOR A PUBLIC PARTICIPATION PLAN

The Public Participation Plan (PPP) must address the public involvement needs for all aspects of corrective action including Interim Measures (IM), RCRA Facility Investigation (RFI), Corrective Measures Study (CMS) and Corrective Measures Implementation (CMI). For additional information, see DTSC's Public Participation Manual and RCRA Public Involvement Manual. The PPP shall include the following elements:

#### 1. Introduction

Describe the public involvement goals and objectives for corrective action (e.g., provide for citizen input and involvement, provide the community with information updates and respond to inquiries). Specify the minimum requirements mandated by law, regulation and policy.

The amount of public involvement work must be consistent with the nature and degree of community concerns and with any state or federal requirements. The public involvement program should be flexible and able to respond to changing public concerns as the corrective action process proceeds from the RFI to the CMS and into Corrective Measure Implementation (CMI).

#### 2. Public Participation Background

Identify and describe any known issues or community concerns related to the facility (historically and currently) and environmental issues in general (i.e., awareness of other sites and facilities nearby, involvement in agency decision making related to these other sites). Indicate if any community or local officials have been interviewed. Acquire and describe demographic information about the potentially impacted community, to include non-English-speaking populations.

#### 3. Techniques to Reach Public Participation Goals

Many public participation techniques may be used to accomplish the objectives. These techniques include: fact sheets, information community workgroup meetings, community advisory committees, community meetings, information repositories, mailing lists and public service announcements. Include a detailed description of how the local community will be contacted and informed. At a minimum, the following items must be developed as described below:

##### 3.1 Mailing List

Establish and maintain a mailing list of: all local officials; interested, affected and potentially affective private citizens; residents within a one-half mile radius of the facility; contiguous property owners and occupants, (expanded to include owners and occupants of property on off-site plume, if applicable; and news media representatives who should receive fact sheets or other information regarding the investigation/migration activities at the facility. The mailing list must be expanded as time goes on to include all interested persons. The mailing list should be submitted to the Department separately from the PPP. The mailing list shall also include DTSC "mandatory" mailing lists.

### 3.2 Information Repository

Establish and maintain at least one information repository at a location convenient to public access (e.g., local library). The purpose of the information repository is to allow open and convenient public access to site-related documents approved by the Department for public disclosure. Therefore all documents for the information repository must be approved by the Department. At a minimum, the repository for a site must include copies of the following:

- \*Order or Consent Agreement
- \*Regional Water Quality Control Board Orders
- \*RFI Workplans
- \*RFI Reports
- \*Interim Measure Workplans
- \*Corrective Measures Study Workplans
- \*Corrective Measures Study Reports
- \*Public Involvement Plan
- \*Statement of Basis for Remedy Selection

Other information:

- \*Copy of relevant laws, regulations and policies;
- \*Copies of press releases and newspaper clippings that refer to the site;
- \*Brochures, fact sheets, and other information about relevant laws, regulations, policies and the specific site;
- \*Any other relevant material (e.g., published studies on the potential risks associated with specific chemicals that have been found at the site)

### 3.3 Fact Sheet

The Respondent shall prepare fact sheets to inform the community key event in the corrective action process (e.g., interim measures, RFI, RFI findings, etc.), as indicated in the PPP or directed by DTSC in response to changing site conditions.

It is important that all fact sheets be written clearly so that the public will understand the information. In general, facility fact sheets should include: a description of the overall investigation/remedial process from start to finish; a summary of existing contamination at the facility; a summary of possible impacts on the local community (e.g., drinking water supplies, etc.); a summary of any interim measures being taken or planned at the facility; a synopsis of upcoming activities; and a description of public participation opportunities to include a brief description about the potential uses of available documents in and the location of the information repository. All fact sheets must be approved by DTSC before distribution.

#### 4. Submittal Schedule

The submittal schedule must tie technical milestones (when key documents are to be submitted to DTSC) to public involvement activities.

## ATTACHMENT 5

### SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION (RFI)

#### PURPOSE

The purpose of this RCRA Facility Investigation is to determine the nature and extent of releases of hazardous waste or constituents from regulated units, solid waste management units, and other source areas at the Facility and to gather all necessary data to support the Corrective Measures Study. The RFI must include characterization of the facility (processes, waste management, etc.), environmental setting, source areas, nature and extent of contamination, migration pathways (transport mechanisms) and all potential receptors.

#### SCOPE

The documents required for an RFI are: a Current Conditions Report, a RCRA Facility Investigation Workplan, a RCRA Facility Investigation Report, a Health and Safety Plan. The scope of work (SOW) for each document is specified below.

##### A. Current Conditions Report

The Current Conditions Report must describe existing information pertinent to the facility including operations, processes, waste management, geology, hydrogeology, contamination, migration pathways, potential receptor populations and interim corrective measures. The required format for a current conditions report is described below.

##### 1. Introduction

###### 1.1 Purpose

Describe the purpose of the current conditions report.

###### 1.2 Organization of Report

Describe how the report is organized.

##### 2. Facility Description

Summarize background, current operations, waste management and products produced at the facility. Include a map that shows the general geographic location of the facility.

Describe current facility structures including any buildings, tanks, sumps, wells, waste management areas, landfills, ponds, process areas and storage areas.

Include detailed facility maps that clearly show current property lines, the owners of all adjacent property, surrounding land use (residential, commercial, agricultural, recreational, etc.), all tanks, buildings, process areas, utilities, paved areas, basements, rights-of-way, waste management areas, ponds, landfills, piles, underground tanks, wells and other facility features.

### 3. Facility History

#### 3.1 Ownership History

Describe the ownership history of the facility.

#### 3.2 Operational History

Describe in detail how facility operations, processes and products have changed over time (historical aerial photographs could be useful for this purpose).

#### 3.3 Regulatory History

Describe all permits requested or received, any enforcement actions taken by regulatory agencies and any closure activities that are planned or underway.

#### 3.4 Waste Generation

Describe all wastes (solid or hazardous) that have been generated at the facility. Include approximate waste volumes generated and summaries of any waste analysis data. Show how the waste stream (volume and chemical composition) has changed over time.

#### 3.5 Waste Management

Describe in detail all past solid and hazardous waste treatment, storage and disposal activities at the facility. Show how these activities have changed over time and indicate the current status. Make a clear distinction between active waste management units and older out of service waste management units. Identify which waste management units are regulated under RCRA.

Include maps showing: (1) all solid or hazardous waste treatment, storage or disposal areas active after November 19, 1980, (2) all known past solid waste or hazardous waste treatment, storage or disposal areas regardless of whether they were

active on November 19, 1980 and (3) all known past or present underground tanks or piping.

### 3.6 Spill and Discharge History

Provide approximate dates or periods of past product and waste spills, identify the materials spilled and describe any response actions conducted. Include a summary of any sampling data generated as a result of the spill. Include a map showing approximate locations of spill areas at the facility.

### 3.7 Chronology of Critical Events

Provide a chronological list (including a brief description) of major events, communications, agreements, notices of violation, spills, discharges that occurred throughout the facility's history.

## 4. Environmental Setting

### 4.1 Location/Land Use

Discuss facility size, location and adjacent land use. Include a rough demographic profile of the human population who use or have access to the facility and adjacent lands. Provide approximate distance to nearest residential areas, schools, nursing homes, hospitals, parks, playgrounds, etc.

### 4.2 Local Ecology

Describe any endangered or threatened species near the facility. Include a description of the ecological setting on and adjacent to the facility. Provide approximate distance to nearest environmentally sensitive areas such as marsh lands, wetlands, streams, oceans, forests, etc.

### 4.3 Topography and Surface Drainage

Describe the regional and site specific topography and surface drainage patterns that exist at the facility. Include a map that shows the topography and surface drainage depicting all waterways, wetlands, floodplains, water features, drainage patterns and surface water containment areas.

### 4.4 Climate

Discuss mean annual temperatures, temperature extremes, 24-hour rainfall, average annual rainfall, prevailing wind direction, etc.

#### 4.5 Surface Water Hydrology

Describe the facility's proximity (distance) to surface water bodies (e.g. coastal waters, lakes, rivers, creeks, drainage basins, floodplains, vernal pools, wetlands, etc.).

#### 4.6 Geology

Describe the regional and site specific geology including stratigraphy and structure. Include cross sections to show the subsurface stratigraphy.

#### 4.7 Hydrogeology

Describe the regional and site specific hydrogeologic setting including any information concerning local aquifers, ground water levels, gradients, flow direction, hydraulic conductivity, and velocity. Include potentiometric surface contour maps. Describe the beneficial uses of the ground water (e.g. drinking water supply, agricultural water supply, etc.). Describe temporal variations (seasonal and historical).

#### 4.8 Ground Water Monitoring System

Describe the facility's ground water monitoring system including a table detailing the existing well construction. The table must, at a minimum, identify the following construction details for each well:

- \*Well ID
- \*Completion Date
- \*Drilling Method
- \*Borehole Diameter (inches)
- \*Well Casing Diameter and Type
- \*Measuring Point Elevation (feet MSL)
- \*Borehole Depth (feet BGS)
- \*Depth of Well (feet)
- \*Screened Interval
- \*Formation Screened
- \*Slot Size and Type (inches)
- \*Filter Pack Material
- \*Filter Pack Thickness
- \*Type of Filter Pack Seal
- \*Thickness of Filter Pack Seal
- \*Pump System (dedicated or non-dedicated)
- \*Type of Pump
- \*Approximate Depth to Water (feet BGS)

If some of this information is not available, so indicate on the table with an "NA". {BGS: Below Ground Surface, MSL: Mean Sea Level}

The monitoring well locations must be shown on the facility map (see Section A.2 of this Attachment).

## 5. Existing Degree and Extent of Contamination

For each medium where the Order or Consent Agreement identifies a release (e.g. soil, ground water, surface water, air, etc.), describe the existing extent of contamination. This description must include all available monitoring data and qualitative information on the locations and levels of contamination at the facility (both onsite and offsite). Include a general assessment of the data quality, a map showing the location of all existing sampling points and potential source areas and contour maps showing any existing ground water plumes at the facility (if ground water release). Highlight potential ongoing release areas that would warrant use of interim corrective measures (see section 8, Interim Corrective Measures).

### 5.1 Previous Investigations

List and briefly describe all previous investigation that have occurred at the facility, who they were done for (i.e., agency) and agency contacts.

## 6. Potential Migration Pathways

### 6.1 Physical Properties of Contaminants

Identify the applicable physical properties for each contaminant that may influence how the contaminant moves in the environment. These properties could include melting point ( $^{\circ}\text{C}$ ), water solubility (mg/L), vapor pressure (mm Hg), Henry's law constant ( $\text{atm m}^3/\text{mol}$ ), density (g/mL), dynamic viscosity (cp), kinematic viscosity (cs), octanol/water partition coefficient ( $\log K_{OW}$ ), soil organic carbon/water coefficient ( $\log k_{OC}$ ) and soil/water partition coefficients. Include a table that summarizes the applicable physical properties for each contaminant.

### 6.2 Conceptual Model of Contamination Migration

Develop a conceptual model of contaminant migration. The conceptual model consists of a working hypothesis of how the contaminants may move from the release source to the receptor population. The conceptual model is developed by looking at the applicable physical parameters for each contaminant and assessing how the contaminant may migrate given the existing site conditions (geologic features, depth to ground water, etc.).

Describe the phase (water, soil, gas, non-aqueous) and location where contaminants are likely to be found (e.g., if a ground water contaminant has a low water solubility and a high density, then the contaminant will likely sink and be found at the bottom of the aquifer, phase: non-aqueous). Include a discussion of potential transformation reactions that could impact the type and number of contaminants (i.e., what additional contaminants could be expected as a result of biotic and abiotic transformation reactions given the existing soil conditions).

## 7. Potential Impacts of Existing Contamination

Describe the potential impacts on human health and the environment from any existing contamination and/or ongoing activities at the facility. This description must consider the possible impacts on sensitive ecosystems and endangered species as well as on local populations. Potential impacts from any releases to ground water, surface water, soil (including direct contact with contaminated surface soil) and air (including evaporation of volatile organic compounds from contaminated soil) must be discussed.

### 7.1 Ground Water Releases

Identify all wells (municipal, domestic, agricultural, industrial, etc.) within a 1-mile radius of the facility. Include a summary of available water sampling data for any identified municipal, industrial or domestic supply wells.

Develop a well inventory table that lists the following items for each identified well:

- \*Well Designation
- \*State ID
- \*Reported Owner
- \*Driller
- \*Date of Completion
- \*Original Use of Well
- \*Current Use of Well
- \*Drilling Method
- \*Borehole Diameter (inches)
- \*Casing Diameter (inches)
- \*Perforated Interval (feet)
- \*Gravel Pack Interval (feet)
- \*Total Well Depth (feet)
- \*Depth of Water (feet below ground surface)
- \*Date of Water Level Measurement

If some of this information is not available, so indicate on the table with an "NA". Include a regional map showing the facility, ground water flow direction and the location of all identified wells within a 1-mile radius of the facility.

Identify and describe any potential ground water discharge to surface water bodies. Identify and list all relevant and applicable water standards for the protection of human health and the environment (e.g., maximum contaminant levels, water quality standards, etc.).

## 7.2 Surface Water Releases

Discuss the facility's potential impact on surface water within a 2-mile radius of the facility. Describe the potential beneficial uses of the surface water (e.g., drinking water supply, recreational, agricultural, industrial, or environmentally sensitive). Identify all water supply intake points and contact areas within a 2-mile radius of the facility. Include a summary of the most recent water sampling data available for each of the identified water supply intake points. Include a description of the biota in surface water bodies on, adjacent to, or which can be potentially affected by the release. Also summarize any available sediment sampling data.

Include a regional map showing the facility, surface water flow direction, beneficial use areas, and the location of any identified water supply intake points or contact areas that are within a 2-mile radius of the facility.

## 7.3 Sensitive Ecosystem/Habitats

Discuss the facility's potential impact on sensitive ecosystem.

## 8. Interim Corrective Measures and Stabilization Assessment

Identify all corrective measures that were or are being undertaken at the facility to stabilize contaminant releases. Describe the objective of the corrective measures including how the measure is mitigating a potential threat to human health and the environment. Summarize the design features of the corrective measure. Include a schedule for completing any ongoing or future work.

Identify and describe potential interim corrective measure alternatives that could be implemented immediately to stabilize any ongoing releases and/or prevent further migration of contaminants and control source areas.

## 9. Data Needs

Assess the amount and quality of existing data concerning the facility and determine what additional information must be collected to meet the objectives of the RFI. This assessment must identify any additional information that may be needed to

(1) support development of interim measures for early action and (2) adequately evaluate and compare corrective measures alternatives. The RFI Workplan must detail how this additional information will be collected.

B. RCRA Facility Investigation Workplan

The RCRA Facility Investigation (RFI) Workplan shall define the procedures necessary to:

1. Characterize the presence, magnitude, extent (horizontal and vertical), rate of movement and direction of any ground water contamination in and around the facility;
2. Characterize the geology and hydrogeology in and around the facility;
3. Characterize the presence, magnitude, extent (horizontal and vertical), rate of movement and direction of any soil contamination in and around the facility;
4. Characterize the presence, magnitude, extent (horizontal and vertical), rate of movement and direction of any soil gas contamination in and around the facility;
5. Characterize the presence, magnitude, extent (horizontal and vertical), rate of movement and direction of any surface water contamination (includes surface water sediments) at the facility;
6. Characterize the presence, magnitude, extent (horizontal and vertical), rate of movement and direction of any air releases at the facility;
7. Identify and characterize any potential sources of contamination;
8. Characterize the potential pathways of contaminant migration;
9. Identify any actual or potential receptors;
10. Gather all data to support human and/or ecological risk assessment reflecting multimedia and multipathway evaluations;
11. Gather all necessary data to support interim corrective measures to stabilize ongoing releases and prevent further contaminant migration; and
12. Gather all necessary data to support the Corrective Measures Study.

The RFI Workplan shall describe all aspects of the investigation, including project management, sampling and analysis, well drilling and installation and quality assurance and quality control. If the scope of the investigation is such that more than one phase is

necessary, the "Phase 1" RFI Workplan must include a summary description of each phase.

The required format for an RFI Workplan is described below:

1. Introduction

Briefly introduce the Workplan. Discuss the Order or Consent Agreement requiring the RFI and how the Workplan is organized.

2. Investigation Objectives

2.1 Project Objectives

Describe the overall objectives and critical elements of the RFI. State the general information needed from the site. The general information should be consistent with the objectives of the RFI and the data needs identified in the Current Conditions Report.

2.2 Data Quality Objectives

Provide data quality objectives that identify what data are needed and the intended use of the data following the U.S. Environmental Protection Agency procedures in *Guidance For The Data Quality Objectives Process, EPA QA/G-4, September 1994* or the most recent edition.

3. Project Management

Describe how the investigation will be managed, including the following information:

\*Organization chart showing key personnel, levels of authority and lines of communication;

\*Project Schedule; and

\*Estimated Project Budget.

Identify the individuals or positions who are responsible for: project management, field activities, laboratory analysis, database management, overall quality assurance, data validation, etc. Include a description of qualifications for personnel performing or directing the RFI, including contractor personnel.

#### 4. Facility Background

Summarize existing contamination, local hydrogeologic setting and any other areas of concern at the facility. Include a map showing the general geographic location of the facility and a more detailed facility map showing the areas of possible contamination. Provide a reference to the Current Conditions Report and/or other applicable documents as a source of additional information.

#### 5. Field Investigation

##### 5.1 Task Description

Provide a qualitative description of each investigation task.

##### 5.2 Rationale for Sampling

Describe where all samples will be collected (location and depth), types of matrices that will be sampled and the analytical parameters. Explain the rationale for each sampling point, the total number of sampling points, and any statistical approach used to select these points. The conceptual model of contaminant migration developed in the Current Conditions Report should be considered when selecting sampling locations and depths. If some possible sampling points are excluded, explain why. Describe any field screening techniques that will be used to identify samples for laboratory analysis. Include the rationale for use of field screening techniques and criteria for sample selection.

##### 5.2.1 Background Samples

Background samples should be analyzed for the composite set of parameters for each matrix; treat sediments, surface soils and subsurface soils as separate matrices. Background samples are collected, numbered, packaged, and sealed in the same manner as other samples. For long term and/or especially large projects, it is recommended that 10% of samples collected be from background locations.

##### 5.3 Sample Analysis

List and discuss all analysis proposed for the project. Include a table that summarizes the following information for each analysis to be performed:

\*Analytical Parameters

\*Analytical Method Reference Number (from EPA SW 846)

\*Sample Preparation and/or Extraction Method Reference Number (from SW 846)

\*Detection and Practical Quantitation Limits (Data above the detection limit but below the practical quantitation limit must be reported with the estimated concentration.)

Discuss the rationale for selection of the analytical parameters. The rationale must relate to site history and the RFI objectives. The achievable detection limits or quantitation limits stated in the selected methods must be adequate for valid comparisons of analytical results against any action levels or standards. Give an explanation if all samples from the same matrix will not be analyzed for the same parameters.

Provide the name(s) of the laboratory(s) that will be doing the analytical work. Indicate any special certifications or ratings of the laboratory. Describe the steps that will be taken to select and pre-qualify analytical laboratories to be used including any previous audits and/or other criteria. If a define laboratory has not yet been selected, list at least 3 laboratories that are being considered for the analytical work.

#### 5.4 Sample Collection Procedures

Describe how sampling points will be selected in the field, and how these locations will be documented and marked for future reference. If a sampling grid will be used, describe the dimensions and layout planned for the grid.

Outline sequentially or step-by-step the procedure for collecting a sample for each matrix and each different sampling technique. Include a description of sampling equipment (including materials of construction), field measurements, sample preservation, housekeeping/ cleanliness techniques and well purging procedures. The procedure described must ensure that a representative sample is collected, and that sample handling does not result in cross contamination or unnecessary loss of contaminants. Special care in sample handling for volatile organic samples must be addressed.

Described how and when duplicates, blanks, laboratory quality control samples and background samples will be collected.

The RFI must include sufficient maps and tables to fully describe the sampling effort. This shall include, at a minimum, a map showing all proposed sampling locations and tables that contain the following information:

##### Sample Collection Table

\*Sampling Location/Interval

\*Analytical Parameters (e.g., volatile organic compounds)

\*Analytical Method Number

- \*Matrix
- \*Preservation Method
- \*Holding Times
- \*Containers (quantity, size, type plus footnotes that discuss source and grade of containers)

#### Sample Summary Table

- \*Sample Description/Area (include QC samples)
- \*Analytical Parameters
- \*Analytical Method Number
- \*Preparation or Extraction Method Number
- \*Matrix
- \*Number of Sample Sites
- \*Number of Analyses

#### 5.4.1 Equipment Decontamination

Describe the decontamination procedure for all drilling and sampling equipment (including metal sleeves), and field-parameter testing equipment. Clearly document the decontamination procedures.

#### 5.4.2 Equipment Calibration and Maintenance

Logbooks or pre-formatted calibration worksheets should be maintained for major field instruments, to document servicing, maintenance and instrument modification. The calibration, maintenance and operating procedures for all instruments, equipment and sampling tools must be based upon manufacturer's instructions. List all field equipment to be used, specify the maintenance/calibration frequency for each instrument and the calibration procedures (referenced in text and included in appendices).

#### 5.4.3 Sample Packaging and Shipment

Describe how samples will be packaged and shipped. All applicable Department of Transportation regulations must be followed.

#### 5.4.4 Sample Documentation

Discuss the use of all paperwork including field notebooks, record logs, photographs, sample paperwork, and Chain of Custody forms (include a blank copy in RFI Workplan Appendices) and seals.

Describe how sample containers will be labeled and provide an example label if available. At a minimum, each sample container label should include: project ID, sample location, analytical parameters, date sampled and any preservative added to the sample.

A bound field log book must be maintained by the sampling team to provide a daily record of events.

Field log books shall provide the means of recording all data regarding sample collection. All documentation in field books must be made in permanent ink. If an error is made, corrections must be made by crossing a line through the error and entering the correct information. Changes must be initialed, no entries shall be obliterated or rendered unreadable. Entries in the log book must include, at a minimum, the following for each days sampling:

- \*Date
- \*Starting Time
- \*Meteorological Conditions
- \*Field Personnel Protection
- \*Level of Personnel Protection
- \*Site Identification
- \*Field Observations/Parameters
- \*Sample Identification Numbers
- \*Location and Description of Sampling Points
- \*Number of Samples Collected
- \*Time of Sample Collection
- \*Signature of Person Making the Entry
- \*Observation of Sample Characteristics
- \*Photo Log
- \*Deviations

#### 5.4.5 Disposal of Contaminated Materials

Describe the storage and disposal methods for all contaminated cuttings, well development and purge water, disposable equipment, decontamination water, and any other contaminated materials. The waste material must be disposed of in a manner consistent with local, state and federal regulations.

#### 5.4.5 Standard Operating Procedures

If Standard Operating Procedures (SOPs) are referenced, the relevant procedure must be summarized in the RFI Workplan. The SOP must be specific to the type of tasks proposed and be clearly referenced in the RFI Workplan. The SOP must also be directly applicable, as written, to the RFI Workplan; otherwise, modifications to

the SOP must be discussed. Include the full SOP description in the RFI Workplan appendix.

### 5.5 Well Construction and Aquifer Testing

When new monitoring wells (or piezometer) are proposed, describe the drilling method, well design and construction details (e.g., depth of well, screen length, slot size filter pack material, etc.) and well development procedures. Describe the rationale for proposed well locations and selection of all well design and construction criteria (i.e., provide rationale for selection of slot size and screen length).

When aquifer testing is proposed, describe the testing procedures, flow rates, which wells are involved, test periods, how water levels will be measured, and any other pertinent information.

## 6. Quality Assurance and Quality Control

Quality control checks of field and laboratory sampling and analysis serve two purposes: to document the data quality, and to identify areas of weakness within the measurement process which need correction.

Include a summary table of data quality assurance objectives that, at a minimum, lists:

- \*Analysis Group (e.g., volatile organic compounds)
- \*Matrix
- \*Practical Quantitation Limits (PQL)
- \*Spike Recovery Control Limits (%R)
- \*Duplicate Control Limits +/- (RPD)
- \*QA Sample Frequency
- \*Data Validation

A reference may note the specific pages from EPA's SW 846 Guidance Document that list the test method objectives for precision and accuracy. If the field and laboratory numerical data quality objectives for precision are the same and presented on a single table, then a statement should be made to this effect and added as a footnote to the table (e.g., "These limits apply to both field and laboratory duplicates"). Include a copy of the analytical laboratory quality assurance/quality control plan in the appendices of the RFI Workplan and provide the equations for calculating precision and accuracy.

### 6.1 Field Quality Control Samples

#### 6.1.1 Field Duplicates

Duplicate samples for all parameters and matrices must be collected at a frequency of at least 1 sample per week or 10 percent of all field samples, whichever is greater.

Duplicates should be collected from points which are known or suspected to be contaminated. For large projects, duplicates should be spread out over the entire site and collected at regular intervals.

Duplicates must be collected, numbered, packaged, and sealed in the same manner as other samples; duplicate samples are assigned separate sample numbers and submitted blind to the laboratory.

#### 6.1.2 Blank Samples

Blank samples should be analyzed for all parameters to be evaluated. At least one blank sample per day must be done for all water and air sampling. Additionally, field blanks are required for soil sampling if non-dedicated field equipment is being used for sample collection.

Equipment and field bottle blank samples may be required.

#### 6.2 Laboratory Quality Control Samples

A minimum of one field sample per week or 1 per 20 samples (including field blanks and duplicates), whichever is greater, must be designated as the "Lab QC Sample" for the matrix and laboratory duplicate analysis.

Laboratory quality control samples should be selected from sampling points which are suspected to be moderately contaminated. Label the bottles and all copies of the paperwork as "Lab QC Sample"; the laboratory must know that this sample is for their QC analyses. The first laboratory QC sample of the sampling effort should be part of the first or second day's shipment. Subsequent laboratory QC samples should be spread out over the entire sampling effort.

For water matrices, 2-3 times the normal sample volume must be collected for the laboratory QC sample.

#### 6.3 Performance System Audits by Respondent

This section should describe any internal performance and/or system audit which the Respondent will conduct to monitor the capability and performance of the project. The extent of the audit program should reflect the data quality needs and intended data uses.

## 7. Data Management

Describe how investigation data and results will be evaluated, documented and managed, including development of an analytical database. State the criteria that will be used by the project team to review and determine the quality of data. To document any quality assurance anomalies, QC Summary Forms must be completed by the analytical laboratory and submitted as part of the RFI Report. In addition, provide examples of any other forms or checklists to be used.

Identify and discuss personnel and data management responsibilities, all field, laboratory and other data to be recorded and maintained, and any statistical methods that may be used to manipulate the data.

### C. RCRA Facility Investigation Report

An RFI Report must be prepared that describes the entire site investigation and presents the basic results. The RFI Report must clearly present an evaluation of investigation results.

The RFI Report must also include an evaluation of the completeness of the investigation and indicate if additional work is needed. This work could include additional investigation activities and/or interim corrective measures to stabilize contaminant release areas and limit contaminant migration. If additional work is needed, a Phase 2 RFI Workplan and/or Interim Corrective Measures Workplan must be submitted along with the RFI Report.

At a minimum, the RFI Report must include:

\*A summary of investigation results (include tables that summarize analytical results).

\*A complete description of the investigation, including all data necessary to understand the project in its entirety including all investigative methods and procedures.

\*A discussion of key decision points encountered and resolved during the course of the investigation.

\*Graphical displays such as isopleths, potentiometric surface maps, cross-sections, plume contour maps (showing concentration levels, isoconcentration contours), facility maps (showing sample locations, etc.) and regional maps (showing receptor areas, water supply wells, etc.) that describe report results.

Highlight important facts such as geologic features that may affect contaminant transport.

\*Tables that list all chemistry data for each matrix investigated.

\*An analysis of current and existing ground water data to illustrate temporal changes for both water chemistry and piezometric data (use graphics whenever possible).

\*A description of potential or known impacts on human and environmental receptors from releases at the facility.

\*A discussion of any upset conditions that occurred during any sampling events or laboratory analysis that may influence the results. The discussion must include any problems with the chain of custody procedures, sample holding times, sample preservation, handling and transport procedures, field equipment calibration and handling, field blank results that show potential sample contamination and any field duplicate results that indicate a potential problem. Summary tables must be provided that show the upset condition and the samples that could be impacted. QC Forms must be completed by the analytical laboratory and submitted as part of the RFI Report.

\*Assessment of the entire QA/QC program effectiveness.

\*Data validation results must be documented in the RFI Report.

All raw laboratory and field data (e.g., analytical reports) must be kept at the facility and be made available or sent to the Department upon request.

## ATTACHMENT 6

### SCOPE OF WORK FOR A CORRECTIVE MEASURES STUDY

#### PURPOSE

The purpose of the corrective Measures Study (CMS) is to:

1. Develop and evaluate corrective measure alternatives that may be taken at the Facility to address releases of hazardous wastes (including hazardous constituents); and
2. Recommend the corrective measures to be taken at the Facility that are protective of human health and the environment.

#### SCOPE

A Corrective Measures Study Workplan and Corrective Measures Study Report are required elements of the CMS. The Scope of Work (SOW) for the Corrective Measures Study Workplan and Report describe what should be included in each document.

##### A. Corrective Measures Study Workplan

The Corrective Measures Study (CMS) Workplan shall, at a minimum, include the following elements:

1. A brief project summary;
2. A site-specific description of the overall purpose of the Corrective Measure Study;
3. Corrective measure objectives including proposed media cleanup standards and points of compliance, and corresponding justification and supporting rationale;
4. A description of the specific corrective measure technologies and/or corrective measure alternatives which will be studied;
5. A description of the general approach to investigating and evaluating potential corrective measures;

6. A summary description of any proposed pilot, laboratory and/or bench scale studies. Proposed studies must be further detailed in either the CMS Workplan or in separate workplan. Submittal times for separate workplans must be included in the CMS Workplan project schedule;

7. A proposed outline for the CMS Report including a description of how information will be presented;

8. A description of overall project management including overall approach, levels of authority (include organization chart), lines of communication, budget and personnel. Include a description of qualifications for personnel directing or performing the work; and

9. A project schedule that specifies all significant steps in the process and when key documents (e.g., CMS Report) are to be submitted.

**B. Corrective Measures Study Report**

The Corrective Measures Study (CMS) Report shall, at a minimum, include the following elements:

1. Introduction

Describe the purpose and intent of the document.

2. Description of Current Conditions

The Respondent shall include a brief discussion of any new information that has been developed since the RCRA Facility Investigation Report was finalized. This discussion should concentrate on those issues which could significantly affect the evaluation and selection of the corrective measure alternative(s).

3. Corrective Action Objectives

The Respondent shall propose corrective action objectives including applicable media cleanup standards and points of compliance. The Respondents shall justify media cleanup standards.

4. Identification and Screening of Corrective Measure Technologies

a. Identification

List and briefly describe potentially applicable technologies for each affected media that may be used to achieve the corrective action objectives. Include a table that summarizes the available technologies.

The Respondent should consider innovative treatment technologies. Innovative technologies are defined as those technologies for source control other than incineration, solidification/stabilization and pumping with conventional treatment for contaminated groundwater.

b. Screening

Technologies must be screened to eliminate those that may prove unfeasible to implement given the existing set of waste and site-specific conditions. The screening is accomplished by evaluating technology limitations and using contaminant and site characterization information from the RCRA Facility Investigation to screen out technologies that cannot be fully implemented at the facility. The screening process must focus on eliminating those technologies which have several limitations for a given set of waste and site-specific conditions.

As with all decisions during the CMS, the screening of technologies must be fully documented. This is especially true if the screening step indicates that only one corrective action technology should proceed to the next step and be evaluated in detail. List the corrective action technologies selected for further evaluation. Also document the reasons for excluding any corrective action technologies. Include a table that summarizes the findings.

5. Corrective Measure Alternative Development

Assemble the technologies that pass the screening step into specific alternatives that have potential to meet the corrective action objectives. List and briefly describe each corrective measure alternative.

6. Evaluation of Corrective Measure Alternatives

All alternatives must meet the corrective action standards before the remedy decision factors are used for further evaluation.

The corrective action standards are as follows:

- \*Be protective of human and health and the environment;
- \*Attain media cleanup standards;
- \*Control the source(s) of releases; and
- \*Comply with any applicable federal, state, and local standards for management of waste.

The remedy selection decision factors are as follows:

- \*Short- and Long-term effectiveness;
- \*Reduction of toxicity, mobility and/or volume;
- \*Long-term reliability;
- \*Implementability; and
- \*Cost.

## 6.1 Corrective Action Standards

### 6.1.1 Be Protective of Human Health and the Environment

Describe in detail how each corrective measure alternative is protective of human health and the environment.

### 6.1.2 Attain Media Cleanup Standards

Describe in detail each corrective measure alternative's ability to meet the proposed media cleanup standards.

### 6.1.3 Control the Sources of Releases

Describe in detail each corrective measure alternative's ability to control the sources of releases to stop further environmental degradation.

### 6.1.4 Comply With Any Applicable Standards for Management of Wastes

Discuss how nay specific waste management activities will be conducted in compliance with all applicable federal, state, or local regulations.

## 6.2 Remedy Selection Decision Factors

### 6.2.1 Short- and Long-Term Effectiveness

Each corrective measure alternative must be evaluated as to its effectiveness in protecting human health and the environment and meeting the corrective action objectives. Both short- and long-term components of effectiveness must be evaluated; short-term referring to the construction and implementation period, and long-term referring to the period after the remedial action is complete. Estimate approximately how much time it will take to implement each corrective measure alternative, how much time to see initial beneficial results, and how much time to achieve the corrective action objectives.

The evaluation of short-term effectiveness must include possible threats to the safety of nearby communities, workers, and environmentally sensitive areas (e.g., oceans, wetlands) during construction of the corrective measure alternative. Factors to consider are fire, explosion, exposure to hazardous substances and potential threats associated with treatment, excavation, transportation and re-disposal or containment of waste material.

The evaluation of long-term effectiveness must include possible threats to the safety of nearby communities workers, and environmentally sensitive areas (e.g., oceans, wetlands) during operation of the corrective measure alternative.

#### 6.2.2 Reduction of Toxicity, Mobility and/or Volume

Each corrective measure alternative must be evaluated for its ability to reduce the toxicity, mobility, and/or volume of the contaminated media. Estimate how much the corrective measure alternative will reduce the waste toxicity, volume and/or mobility (compare initial site conditions to post-corrective measure conditions).

#### 6.2.3 Long-Term Reliability

Each corrective measure alternative must be evaluated with regards to its long-term reliability. This evaluation includes consideration of operation and maintenance requirements.

Discuss whether the technology or combination of technologies have been used effectively together under analogous site conditions, whether failure of an one technology in the alternative has an impact on receptors or contaminant migration, and whether the alternative would have the flexibility to deal with uncontrollable changes at the site (e.g., heavy rain storm, earthquakes, etc.)

Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. The availability of labor and materials to meet these requirements must also be considered.

Each corrective measure alternative shall be evaluated in terms of the projected useful life of the overall alternative and of its component technologies. Useful life is defined as the length of time the necessary or required level of effectiveness can be maintained.

#### 6.2.4 Implementability of Corrective Measure Alternatives

Each corrective measure alternative must be evaluated using the following criteria:

\*Construction and Operation: Corrective measure alternatives must be feasible to implement given the existing set of waste and site-specific conditions.

\*Administrative Feasibility: Discuss the administrative activities needed to implement the corrective measure alternative (e.g., permits, public acceptance, rights of way, off-site approvals, etc.)

\*Availability of Services and Materials: Discuss the availability of adequate off-site treatment, storage, disposal services, needed technical services and materials, and the availability of prospective technologies for each corrective measure alternative.

#### 6.2.5 Cost

Develop a preliminary cost estimate, include both capital and operation and maintenance costs, for each corrective measure alternative. Include a description of how the costs were estimated and what assumptions were used.

\*The preliminary capital cost estimate must consider all key costs including, at a minimum, costs for engineering, mobilization, demobilization, site preparation, construction, materials, labor, equipment purchase and rental, sampling, analysis, waste disposal, permitting and, health and safety measures.

\*The preliminary operation and maintenance cost estimate must consider all key costs including, at a minimum, costs for labor, training, sampling, analysis, maintenance materials, utilities, waste disposal, waste treatment, permitting and, health and safety measures.

\*Calculate the net present value of preliminary capital and operation and maintenance costs for each corrective measure alternative.

#### 6.3 Respondent Recommendation

Respondent may recommend a preferred corrective measure alternative. Such a recommendation must include a description and supporting rationale.

Based on the CMS Report and other information including public comments, DTSC will establish final cleanup standards, points of compliance and will select a final remedy.

## ATTACHMENT 7

### SCOPE OF WORK FOR PROGRESS REPORTS

Progress reports shall, at a minimum, include:

1. All actions taken during the reporting period to achieve compliance with the Order or Consent Agreement;
2. A summary of any findings made during the reporting period;
3. All problems or potential problems encountered during the reporting period (also discuss problem solutions);
4. All projected work for the next reporting period as well as anticipated problems and avoidance measures;
5. A discussion of any changes in personnel that occurred during the reporting period;
6. Summaries of all contacts with representatives of the press, local community or public interest groups.