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ATTACHMENT E

SCOPE OF WORK FOR CORRECTIVE MEASURES IMPLEMENTATION
ADMINISTRATIVE ORDER ON CONSENT
U.S. EPA DOCKET NO.

The purpose of this Corrective Measure Implementation (CMI) is to design, construct, operate, maintain, and monitor the performance of the corrective measures selected to protect human health and the environment.

The scope of the Corrective Measure Implementation Plan will depend on the needs of the Site as determined by the Corrective Measures Study. Deviations from this Scope of Work may be made only with prior EPA approval, based on the nature of the selected corrective measure. In general, the Corrective Measure Implementation program will consist of the following four tasks:

TASK 1: CORRECTIVE MEASURE IMPLEMENTATION WORK PLAN

Respondent shall prepare a Corrective Measure Implementation Work Plan. This Work Plan will include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as the work is performed to focus efforts on a particular problem. The CMI Work Plan includes the following:

A. Program Management Plan

Respondent shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance, and monitoring of the selected corrective measure(s). The plan shall document the responsibility and authority of all organizations and key personnel involved with the implementation. The Program Management Plan will also include a description of qualifications of key personnel directing the Corrective Measure Implementation program, including contractor personnel.

B. Public Involvement Plan

Respondent shall revise the Public Involvement Plan required under this Order to reflect any changes in the level of concern or information needs of the community for design and construction activities.

1. Specific activities which must be conducted during the design stage are:

   a. Revise the Public Involvement Plan to reflect knowledge of citizen concerns and involvement at this stage of the process; and,

   b. Prepare and distribute a public notice and an updated fact sheet at the completion of engineering design.

2. Depending on citizen interest, specific activities that may be conducted during the construction stage could range from group meetings to fact sheets on the technical status.

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TASK 2: CORRECTIVE MEASURE DESIGN

Respondent shall prepare final construction plans and specifications to implement the corrective measures at the Site as selected by EPA.

A. Design Plans and Specifications

Respondent shall develop clear and comprehensive design plans and specifications which include, but are not limited to, the following:

1. Discussion of the design strategy and the design basics, including:

   a. Compliance with all applicable or relevant and appropriate environmental and public health standards; and,

   b. Minimization of environmental and public health impacts.

2. Discussion of the technical factors including:

   a. Use of currently used and accepted environmental control measures and technology;

   b. The constructability of the design; and,

   c. Use of currently used and acceptable construction practices and techniques.

3. Description of assumptions made and adequate justification of those assumptions;

4. Discussion of the possible sources of error and possible operation and maintenance problems;

5. Engineering drawings of the proposed design;

6. Tables listing equipment and specifications;

7. Appendices including:

   a. Sample calculations (one example presented and explained clearly for significance or unique design calculations);

   b. Results of laboratory or field tests.

B. Operation and Maintenance Plan

Respondent shall prepare an Operation and Maintenance Plan to cover both installation and long-term maintenance of the selected corrective measures. The plan shall be composed of the following elements:

1. Description of potential operating problems:

   a. Description of analysis of potential operation problems;

   b. Sources of information regarding problems; and,

   c. Common and/or anticipated remedies.

2. Description of alternate operation and maintenance:

   a. Should systems fail, alternate procedures to prevent undue hazard; and,

   b. Analysis of vulnerability and additional resource requirements should a failure occur.

3. Safety Plan:

   a. Description of precautions, or necessary equipment, etc., for site personnel; and,

   b. Safety tasks required in event of systems failure.

4. Description of equipment:

   a. Equipment identification;

   b. Installation of monitoring components;

   c. Maintenance of site equipment; and,

   d. Replacement schedule for equipment and installed components.

5. Records and reporting mechanisms:

   a. Daily operating logs;

   b. Laboratory records;

   c. Records for operating costs;

   d. Mechanism for reporting emergencies; and,

   e. Personnel and maintenance records.

A Draft Operation and Maintenance Plan shall be submitted simultaneously with the Prefinal Design Document required by Task 2.F.6 of this Attachment, and the Final Operation and Maintenance Plan shall be submitted simultaneously with the Final Design Documents.

C. Cost Estimate

Respondent shall develop cost estimates for the purpose of assuring that the Respondent has the financial resources necessary to construct and implement the selected corrective measure(s). The cost estimate developed in the CMS shall be refined to reflect the more detailed/accurate design plans and specifications being developed. The cost estimate shall include, at a minimum, both capital costs and operation and maintenance costs. An Initial Cost Estimate shall be submitted simultaneously with the Prefinal Design submission and the Final Cost Estimate with the Final Design Document.

D. Project Schedule

Respondent shall develop Project Schedules for construction and implementation of the selected corrective measures which identifies timing for initiation and completion of all critical path tasks. Respondent shall specifically identify dates for completion of the project and major interim milestones. An Initial Project Schedule shall be submitted simultaneously with the Prefinal Design Document submission and the final Project Schedule with the Final Design Document.

E. Construction Quality Assurance Objectives

Respondent shall identify and document the objectives and framework for the development of a construction quality assurance program including, but not limited to, the following: responsibility and authority; personnel qualifications; inspection activities; sampling requirements; and documentation.

F. Design Phases

The design of the selected corrective measures should include the phases outlined below.

1. Preliminary Design

Respondent shall submit the preliminary design when the design effort is approximately 30 percent complete. At this stage, Respondent shall have field verified the existing conditions of the Site. The preliminary design shall reflect a level of effort such that the technical requirements of the project have been addressed and outlined so that they may be reviewed to determine if the final design will provide operable and usable corrective measures. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the program. The scope of the technical specifications shall be outlined in a manner reflecting the final specifications. Respondent shall include with the preliminary submission, design calculations reflecting the same percentage of completion as the designs they support.

2. Intermediate Design

Complex project design may necessitate EPA review of the design documents between the preliminary and the prefinal/final design. At the discretion of EPA, a design review may be required at 60 percent completion of the project. This intermediate design submittal shall include the same elements as the prefinal design.

3. Correlating Plans and Specifications

General correlation between drawings and technical specifications is a basic requirement for all sets of working construction plans and specifications. Before submitting the project specifications, Respondent shall:

a. Coordinate and cross-check the specifications and drawings; and,

b. Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

These activities shall be completed prior to the 95 percent prefinal submittal to EPA.

4. Equipment Start-up and Operator Training

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 operations procedures once the start-up has been successfully accomplished.

5. Additional Studies

Corrective Measure Implementation may require additional studies to supplement the available technical data. At the direction of EPA for any such studies required, Respondent shall furnish all services, including field work as required, materials, supplies, plant, labor, equipment, investigations, studies, and superintendence. Sufficient sampling, testing, and analysis shall be performed to optimize the required treatment and/or disposal operations and systems. There may be an initial meeting with EPA and all principal personnel involved in the development of the additional studies. The purpose of the meeting will be to discuss objectives, resources, communication channels, personnel responsibilities, and orientation of the Site, etc. An interim and final report documenting the additional studies may be required by EPA. The interim report shall present the results of the testing with the recommended treatment or disposal systems (including options). A review conference may be scheduled after the interim report has been reviewed by all interested parties. The final report shall include all data taken during the testing and a summary of the results of the studies.

6. Prefinal and Final Design

If required by EPA, Respondent shall submit the prefinal/final design documents in two parts. The first submission shall be at 95 percent completion of design (i.e., prefinal). After approval of the prefinal submission, Respondent shall execute the required revisions and submit the final documents 100 percent complete with reproducible drawings and specifications.

The prefinal design submittal shall consist of the Design Plans and Specifications, Operation and Maintenance Plan, Capital and Operating and Maintenance Cost Estimate, Project Schedule, Quality Assurance Plan, and Specifications for the Health and Safety Plan.

The final design submittal shall include: Final Design Plans and Specifications (100 percent complete), Respondent's Final Construction Cost Estimate, the Final Operation and Maintenance Plan, Final Quality Assurance Plan, Final Project Schedule, and Final Health and Safety Plan specifications. The quality of the design documents should be such that the Respondent would be able to include them in a bid package and invite contractors to submit bids for the construction project.

TASK 3: CORRECTIVE MEASURE CONSTRUCTION

Following EPA approval of the final design, Respondent shall develop and implement a construction quality assurance (CQA) plan to ensure, with a reasonable degree of certainty, that the completed corrective measures meets or exceeds all design criteria, plans, and specifications. The CQA Plan is a site-specific document which must be submitted to EPA for approval prior to the start of construction. At a minimum, the CQA Plan should include the elements summarized below. Upon EPA approval of the CQA Plan, the Respondent shall construct and implement the corrective measure in accordance with the approved design, schedule, and the CQA Plan. The Respondent shall also implement the elements of the approved Operation and Maintenance Plan.

A. Responsibility and Authority

The responsibility and authority of all organizations (e.g., technical consultants, construction firms, etc.) and key personnel involved in the construction of the selected corrective measure(s) shall be described in the CQA Plan. Respondent must identify a CQA officer and the necessary supporting inspection staff.

B. Construction Quality Assurance Personnel Qualifications

The qualifications of the CQA officer and supporting inspection personnel shall be presented in the CQA Plan to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

C. Inspection Activities

The observations and tests that will be used to monitor the construction and/or installation of the components of the selected corrective measure(s) shall be summarized in the CQA Plan. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with all applicable environmental requirements and include, but not be limited to, air quality and emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. The inspection should also ensure compliance with all applicable health and safety procedures. In addition to oversight inspections, the Respondent shall conduct the following activities.

1. Preconstruction Inspection and Meeting

Respondent shall conduct a preconstruction inspection and meeting to:

a. Review methods for documenting and reporting inspection data;

b. Review methods for distributing and storing documents and reports;

c. Review work area security and safety protocol;

d. Discuss any appropriate modifications of the CQA Plan to ensure that Ste specific considerations are addressed; and,

e. Conduct a Site walk-around to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

The preconstruction inspection and meeting shall be documented by a designated person and minutes should be transmitted to all parties.

2. Prefinal Inspection

Upon preliminary project completion, Respondent shall notify EPA for the purposes of conducting a prefinal inspection. The prefinal inspection will consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and the EPA approved corrective measures. Any outstanding construction items discovered during the inspection will be identified and noted. Treatment equipment will be operationally tested by Respondent. Respondent will certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. The Prefinal Inspection Report should outline the outstanding construction items, actions required to

resolve items, completion date for these items, and date for final inspection.

3. Final Inspection

Upon completion of any outstanding construction items, Respondent shall notify EPA for the purpose of conducting a final inspection. The final inspection will consist of a walk-through inspection of the project site. The Prefinal Inspection Report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

D. Sampling Requirements

The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specifications should be presented in the CQA Plan.

E. Documentation

Reporting requirements for CQA activities shall be described in the CQA Plan. This should include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records also should be presented in the CQA Plan.

TASK 4: REPORTS

Respondent shall prepare plans, specifications, and reports as set forth in Tasks 1 through 3 to document the design, construction, operation, maintenance, and monitoring of the corrective measure. The documentation shall include, but not be limited to, the following:

A. Progress

1. Respondent shall provide EPA with quarterly progress reports during the design and construction phases, containing:

a. A description and estimate of the percentage of the CMI completed;

b. Summaries of all findings;

c. Summaries of all changes in the CMI during the reporting period;

d. Summaries of all contacts with representatives of the local community, public interest groups or state government during the reporting period;

e. Summaries of all problems or potential problems encountered during the reporting period;

f. Actions being taken to rectify problems;

g. Changes in personnel during the reporting period;

h. Projected work for the next reporting period; and,

i. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

2. Respondent shall provide EPA with monthly progress reports during operation of the selected corrective measure(s), demonstrating the effectiveness of the corrective actions in accordance with the final site-specific performance standards, and describing all operation and maintenance activities performed during the reporting period. This progress report shall include items c through i specified above in Task 4.A.1.

B. Draft

1. Respondent shall submit a draft Corrective Measure Implementation Plan as outlined in Task 1.

2. Respondent shall submit draft Construction Plans and Specifications, Design Reports, Cost Estimates, Schedules, Operation and Maintenance Plans, and Study Reports as outlined in Task 2.

3. Respondent shall submit a draft Construction Quality Assurance Program Plan and Documentation as outlined in Task 2.

C. Final

1. Respondent shall finalize the Corrective Measure Implementation Plan, Construction Plans and Specifications, Design Reports, Cost Estimates, Project Schedule, Operation and Maintenance Plan, Study Reports, Construction Quality Assurance Program Plan/Documentation, and the Corrective Measure Implementation Report incorporating comments received on draft submissions.

2. At the "completion" of the construction of the selected corrective measures, Respondent shall submit a Corrective Measure Construction Report to EPA. The Report shall document that the project is consistent with the design specifications, and that the corrective measure is performing adequately. The Report shall include, but not be limited to, the following elements:

a. Synopsis of the corrective measure(s) and certification of the design and construction;

b. Explanation of any modifications to the plans and why these were necessary for the project;

c. Listing of the corrective action performance standards, established in conjunction with EPA during the CMS, for judging the effectiveness and efficiency of the corrective measure;

d. Results of site monitoring, indicating that the corrective measure will meet or exceed the performance standards; and,

e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the Site.

This report should include all of the inspection summary reports, inspection data sheets, problem identification and corrective measure reports, photographic reporting data sheets, design engineers' acceptance reports, deviations from design and material specification (with justifying documentation), and as-built drawings.