

APPENDIX B

TREATABILITY STUDY SCOPE

[Installation Name]

[Project]

[date]

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B-1. General.

a. General Statement of Services. The U.S. Army Corps of Engineers (USACE), [] District, is contracting for Architect-Engineer (AE) services, including analytical support, to perform a treatability study and produce a treatability study report. The treatability study shall provide information to be included in the design analysis, on the drawings, and in the specifications. The technical feasibility of air stripping of the volatile HTRW contaminants from the [ground] water [extracted] from [] [site and project name] will be evaluated.

b. Qualifications. Qualifications shall be submitted with the treatability study work plan.

(1) *Process Engineer.* The AE shall submit the qualifications of the process (chemical, environmental, or mechanical) engineer designated to work on these documents. The engineer(s) shall have a minimum of [] [six (6)] years of process design experience, including [] [four (4)] projects that included treatability studies.

(2) *Laboratory.* The AE shall submit the qualifications of the laboratory designated to work on these documents. The chemist shall have a minimum of [] [six (6)] years of experience specific to treatability studies.

(a) *Chief Chemist.* Qualifications of the chief analytical chemist designated to oversee the analytical work shall be included in the work plan submittal. The chief chemist(s) shall have a minimum of six (6) years of experience, including four (4) years of organic chemical analyses.

(b) *Bench Chemists and Laboratory Technicians.* Qualifications of the chemists designated to work on these tasks shall be included in the work plan submittal.

(c) *Quality Assurance Laboratory Validation/Certification.* [] [certification for contaminants of concern] shall be included in the work plan submittal.

(3) *Project Manager.* This scope will be assigned an AE Project Manager (PM), to serve as the single point of contact (POC) for the [] District POC. Deviations, changes, and inadequacies related to the interim schedule or technical issues shall be immediately reported to the POC. Contractual questions related to this scope of services and compliance with delivery of the final manuscript shall be reported to the POC.

B-2. Reference Documents and Publications. Guidance and publications containing pertinent information include the following:

AR 25-50

Preparing and Managing Correspondence, Appendix F.

DG 1110-1-3
31 Oct 2001

DG 1110-1-3
Air Stripping.

ER 385-1-92
Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities.

ER 1110-1-12
Quality Management.

ER 1110-1-263
Chemical Data Quality Management for HTRW Remedial Activities.

ER 1110-345-700
Design Analysis, Drawings and Specifications.

UFGS 01240
Cost and Performance Report.

UFGS 01351
Safety, Health, And Emergency Response (HTRW/UST).

UFGS 01450
Chemical Data Quality Control.

UFGS 02150
Piping: Off-Gas.

UFGS 02521
Water Wells.

UFGS 11215
Fans/Blowers/Pumps; Off- Gas.

UFGS 11220
Precipitation/Coagulation/Flocculation Water Treatment.

UFGS 11226
Vapor Phase Activated Carbon Adsorption Units.

UFGS 11242
Chemical Feed Systems.

UFGS 11301

Air Stripper.

UFGS 11360

Plate And Frame Filter Press System.

UFGS 11377

Advanced Oxidation Processes (AOP).

UFGS 11378

Thermal (Catalytic) Oxidation Systems.

UFGS 11393

Filtration System.

UFGS 13405

Process Control.

UFGS 15200

Pipelines, Liquid Process Piping.

In addition, industry and commercial standards—ASTM, ANSI, and ASME—included in the above references are useful and necessary.

B-3. Information.

a. Quality. Quality management shall be in accordance with ER 1110-1-12. The AE is responsible for completeness and accuracy of all work performed under this scope, and for compliance with all parts of the scope. Comprehensive quality control reviews shall be performed for accuracy, completeness of the work, compliance with the scope, and satisfaction of the scope requirements relating to quality of work performed. The Government relies upon the professional quality of the work that the AE will perform.

(1) *Completeness of Work.* The AE shall correct all deficiencies identified by the quality control review and by any other Government reviewers.

(2) *Accuracy of Work.* The AE shall verify all data and check all calculations in the quality control review. The AE shall correct all inaccuracies and errors identified by reviewers and by the AE quality control review.

b. Confidentiality. Documents and information developed or obtained in performance of the

work shall be considered privileged information of the United States Government. The AE shall not release information to anyone other than his/her own officers, employees, and agents who need to have access to the information to perform the work, and to U.S. Government officers designated by the POC. Requests for release of any of the information shall be referred to the POC for reply. The obligation to maintain the confidentiality of this information shall extend beyond the completion of this scope until released by the POC or determined by a Federal court of competent jurisdiction

c. *Conflict of Interest.* Prior to proposal submission, AE and subcontractor employees with access to the information and documents shall identify any potential conflicts of interest with the requirements of this scope. Any past or ongoing work conducted by, or involving, the AE, subcontractor(s), or respective personnel, for the Corps of Engineers, EPA, or other regulatory agencies regarding services required by this scope, may be considered as a conflict of interest. If the potential for a conflict exists, the USACE must be notified when it is discovered for a determination of eligibility for award of this scope. A statement on the potential for conflicts must be provided with the proposal for this scope.

d. *Services and Materials.* All labor, travel, and work described in the scope shall be supplied. All services, supplies, materials, equipment, plants, labors, and travel necessary to perform the work and render the data required under this scope are required to be furnished. Included are laboratory equipment, microcomputers, commercial software packages, modems, and facsimile (FAX) machines required to perform the work.

B-4. Progress and Payments. The AE shall submit progress reports with each payment request. Each listed task shall be completed and approved prior to commencing work on the next listed task. Scheduled and actual performance and task completion dates should be reported. Final payment on this delivery order will be made after all work is completed in compliance with the Delivery Order, after all required documentation has been submitted by the AE, and after all government audits and reviews have been completed.

B-5. Submittals, Meetings, and Travel. Personnel may be required to travel to attend meetings scheduled at the [] Offices, [], [], as part of this delivery order. Responsible representatives, approved by USACE for participation in the pilot study, shall attend the indicated meetings. The AE shall annotate comments and prepare meeting notes for each review meeting. Costs associated with travel shall be separately itemized in the delivery order cost. The AE shall assume, for purposes of negotiation, that [two] [three] people from the firm will attend each meeting.

a. *Task 1: Treatability Study Work Plan.* The AE shall review the criteria prior to preparing the initial submittal. The work plan will include:

- An execution plan for development of the treatability study in accordance with the criteria,

with explanatory text and notes and a detailed outline of the suggested technical requirements for each of the sections.

- The laboratory, the equipment, and personnel for accomplishing each effort.
- A schedule of the milestones to be accomplished.
- An organization chart with resumes, describing the qualifications of the personnel developing the document.
- The quality control plan describing internal reviews and technical editing responsibilities.
- A detailed outline for treatability study report.

The execution plan shall identify the resources the AE intends to use for accomplishing each effort.

b. Task 2: Treatability Study Work Plan Review, Coordination, and Meeting Number 1. Appropriate personnel shall attend a review meeting to address various subjects pertaining to the treatability study after receiving USACE comments on the work plan. Comments will be forwarded in advance to allow annotation prior to the meeting. A copy of the annotated comments shall be forwarded along with major points requiring discussion prior to the review meeting. Appropriate personnel shall make a presentation of the plan, the outline, total effort, content, and the work accomplished to date. Appropriate personnel shall participate in discussion designed to ensure understanding of the agency goals. The result of this meeting will be further USACE guidance and direction to proceed. Responsible team personnel shall be identified for approval in this preliminary meeting. Revisions to the execution plan may be required as a result of this meeting.

c. Task 3: Sample Collection, Preservation, Transportation, Analyses, Treatability Study Execution and Draft Report. The study shall be performed and a full draft of the treatability study report shall be prepared, in accordance with guidance and direction received at the initial submittal meeting, which shall be submitted for USACE review and approval.

d. Task 4: Draft Treatability Study Report Review, Coordination, and Meeting Number 2. Appropriate personnel shall attend a review meeting to address various subjects pertaining to the treatability study after receiving USACE comments on the draft report. Comments will be forwarded in advance to allow annotation prior to the meeting. A copy of the annotated comments shall be forwarded along with major points requiring discussion prior to the review meeting. Appropriate personnel shall make a presentation of the report and participate in discussion designed to ensure understanding of the agency goals. Revisions to the report may be required as a result of this meeting. Technical personnel shall participate in discussion with USACE personnel regarding comments and revisions to the draft report. The meeting will result in USACE direction for the AE to complete the final report.

e. Task 5: Final Treatability Study Report. The report shall be completed for implementation and record purposes in accordance with this scope of services. The final report will incorporate

all approved comments generated by review of previous submittals, any revisions in the format, technical content, grammar, or as otherwise required to ensure that the documents are in the proper form.

f. Schedule. The publication document is required 423 calendar days from the notice to proceed. A schedule proposed to achieve that result follows:

<i>Scheduled Task</i>	<i>Day of Required Completion</i>
Notice to Proceed	CD []
Task 1: Work Plan	CD []
Task 2: Work Plan Review, Coordination, and Meeting Number 1	CD []
Task 3: Sample Collection, Preservation, Transportation, Treatability Study Execution and Draft Report	CD []
Task 4: Draft Treatability Study Report Review, Coordination, and Meeting Number 2	CD []
Task 5: Final Report	CD []
Total calendar days	CD []

B-6. Format and Presentations.

a. The report shall be marked as to the stage of development, i.e., preliminary draft, second draft, and final, by header or footer at the right margin of each page. The stage markings shall be removed from the final document. The signed and approved publication document shall be converted to PDF format by AE.

b. Text shall conform as completely as is feasible to Chapter IV of AR 25-50.

c. Documents will be prepared on IBM compatible magnetic media using Microsoft Word, Times New Roman 10 point, twelve (12) characters per inch, with left and right margins on 8-1/2 × 11 inch pages equal to one (1) inch. Drafts shall be double-spaced. Page numbers shall be centered at the bottom of each page. Header and footers shall be mirror images on facing pages. Final and publication copies shall be double sided print.

d. Submittals may be electronic or high quality print hard copy suitable for reproduction. Hard copy submittals shall be stapled, except one copy to the POC shall not be stapled or fastened in any way. Documents shall not be bound with plastic.

e. A cover page on draft documents shall identify the Corps of Engineers, HTRW-CX, Omaha, NE, Control Number, the AE, and the date. This page will not be included on the publication and PDF copies.

f. Submittals shall incorporate all previous review comments and shall be complete and not just copies of affected pages. Disposition of each review comments shall be documented and shall be marked as follows:

- “A” approved and will be incorporated.
- “D” disapproved.
- “W” withdrawn by the government with the approval of the originator.
- “E” exception as noted

B-7. Technical Requirements.

a. Technical Content.

b. Technical Direction. ER 1110-345-700, *Design Analysis, Drawings and Specifications*, outlines the standard documents for construction contracts.

c. Design Analysis. Reasoning is presented in the design analysis text, with supporting calculations included in appendices. The treatability study report shall support the sizing of the air stripper and preparation of the design calculations, design analysis, plans, and specifications for the air stripping system without need to refer to other documents for analytical or treatability data.

d. Drawings. The drawings must clearly depict the existing layout, show the materials to be treated, indicate any site restraints, and show the desired restoration.

e. Specifications. UFGS 01351, *Safety, Health, and Emergency Response (HTRW/UST)*, and UFGS 01450, *Chemical Data Quality Control*, cover the health and safety and chemistry, respectively. Duplicate or overlapping coverage of either topic is expressly prohibited. UFGS 02111, *Excavation and Handling of Contaminated Material*, covers excavation of the contaminated material. UFGS 02120, *Transportation and Disposal of Hazardous Materials*, covers disposal of any contaminated residuals that will not remain on site.

UFGS 02150

Piping: Off-Gas.

UFGS 11211

Pumps: Water, Centrifugal.

UFGS 11212

Pumps: Water, Vertical Turbine.

UFGS 11215

Fans/Blowers/Pumps; Off-Gas.

UFGS 11220

Precipitation/Coagulation/Flocculation Water Treatment.

UFGS 11226

Vapor Phase Activated Carbon Adsorption Units.

UFGS 11242

Chemical Feed Systems.

UFGS 11243

Chemical Treatment of Water for Mechanical Systems.

UFGS 11250

Water Softeners, Cation-Exchange (Sodium Cycle).

UFGS 11301

Air Stripper.

UFGS 11378

Thermal (Catalytic) Oxidation Systems.

f. The Report. The AE shall edit the material to clearly support the designer in translation of the treatability study data into clear contract requirements.

B-8. Project Records and File.

a. Project File. The AE shall assemble all memos and records obtained or developed by the AE in the performance of this scope. The AE shall make an index of all project records, which shall be complete at the completion of this scope. The AE shall organize these records using a chronological method with a supplementary topic index. At the completion of the work under this scope, the AE shall place the originals of all project records, including the index, in secure boxes, mark the boxes with the control number, and send them to the POC. The AE shall not retain copies of any of the correspondence and records without written permission from the POC.

b. Meeting Notes. The AE shall be responsible for taking notes and preparing the reports for all meetings. Meeting notes shall be prepared in typed form and the original furnished to the

POC (within 10 working days after the date of the meeting) for concurrence and distribution. Each meeting report shall include, as a minimum:

- Project name and control number.
- Date and location of the meeting.
- Attendance list, including each the name of each attendee with the organization and telephone number.
- Written comments with the action noted shall be attached to each copy of the report.
- Discussion items.

c. Record Memos. The AE shall provide a record or file memo of each contact, meeting, conference, discussion, telephone conversation, or verbal directive that the AE or any employees of the AE participate in regarding the subject documents, irrespective of who the other participants may have been. Records and memos shall be dated and shall identify the participants, subjects discussed, and conclusions reached. The memos shall be numbered sequentially and shall be incorporated in the project file. A copy of all memos shall be submitted monthly to the POC (do not duplicate these submittals).

d. Correspondence. The AE shall keep a record of each piece of written correspondence related to the performance of this Delivery Order. The pieces of correspondence shall be numbered sequentially and shall be incorporated in the project file as described in paragraph B-8a. Any distribution of said correspondence will be made by the District.

e. Issues. Issues requiring Corps action or response and issues concerning the schedule shall be highlighted by a letter to the POC or [] per paragraph B-1b(3).

B-9. Document Distribution. Unless otherwise directed, all submittals and review material shall be submitted to the addresses at Table B-1:

**Table B-1
 Distribution**

Number of Copies	Item	Addressee
1	Memos	Commander
1	Meeting Notes	U.S. Army Corps of Engineers
4	Work Plan	U.S. Army Engineer District, []
4	Draft Report	[]
2	Final Report	[City], [State] [Zip]
2	Diskette	
2	Work Plan	Commander
2	Draft Report	U.S. Army Corps of Engineers
1	Final Report	ATTN: CENWO-HX (Technical Manager) 12565 West Center Road Omaha, NE 68144-3869