Revision 0
April 13, 2016
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APPROVALS	PRINT NAME	SIGNATURE
BTR*	Glen Chronister	
CAM / Project Controls**	Mark Byrnes	
Contracting Officer***	Scott Breslau	

* Approval for technical content ** Approval for funding availability ***Approval for contractibility

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1.0 INTRODUCTION / BACKGROUND

This contract is issued for the performance of *off-Site Fabrication Services* in support of CH2M Hill Plateau Remediation Company (CHPRC) work scope for the period from the Notice to Proceed (NTP) until 60 days thereafter. CHPRC is a prime contractor to the Department of Energy (DOE) and all work on this Statement of Work (SOW) will be performed in support of the CHPRC contract with DOE.

2.0 DESCRIPTION OF WORK – GENERAL

CHPRC requires a Contractor to fabricate, test, and deliver two Double Wall High Density Polyethylene (DWHDPE) tanks to the 200 East Area of the Hanford Site in accordance with the requirements of this SOW. The specific location of delivery and associated driving directions will be provided by the Buyer's Technical Representative (BTR).

Contractor shall provide and manage the labor, equipment, material, and services required to complete the tasks and deliverables identified herein. The work shall be performed at the Contractor's facilities. Onsite access is required, site visitation will be coordinated through the Contract Specialist.

The Contractor is responsible for execution of the work in accordance with the quality standards and requirements specified herein.

3.0 DESCRIPTION OF WORK – SPECIFIC

3.1 Task Description

The work products and services to be provided, including any specific CHPRC standards and requirements, required for the successful completion of this work activity includes the fabrication and delivery of two DWHDPE tanks. The two tanks will meet the criteria for Type I tanks specified in ASTM D-1998, *Standard Specification for Polyethylene Upright Storage Tanks.* The first will have a nominal usable capacity of four thousand four hundred (4,400) gallons. The second will have a nominal usable capacity of five hundred forty (540) gallons.

The two tanks will hold groundwater with pH control additives and will need to withstand a pH range of 6 to 9.

3.2 Special Requirements

Contractor shall provide a five (5) year warranty guaranteeing craftsmanship and materials.

- The Contractor will warrant that all debris, castings, Mylar, and other construction aids are removed from the interior of the tank, interior piping and exterior flange openings prior to shipping the unit to the Buyer.

Contractor shall label the 4,400 gallon tank, in a contrasting color, as "Extraction Transfer Storage Tank" and then "ETT-Y32" immediately below 'Extraction Transfer Storage Tank'.

Contractor shall label the 540 gallon tank, in a contrasting color, as “Leak Detection Overflow Tank” and then “LDOT-Y32” immediately below ‘Leak Detection Overflow Tank’.

Both tanks shall have the following:

- Tank nozzles shall be standard PVC flanges with a flat face and bolt pattern matching an ASME Class 150 flange (ASME N16.5)
- Secondary containment does not require a drain.
- Restraint system to include stainless steel hardware, edge softeners, and tension ring with stainless steel cables and clamps
    - Tank restraint system shall be supplied and the design certified by a Structural Engineer registered in the state of Washington. Design shall conform to the 2012 edition of the IBC for seismic and wind load.
    - Anchor bolts as required by the calculations shall be supplied by the contractor.
    - Design analysis / calculations for restraint system shall be included with the fabrication drawings submittal for approval.
    - Both tanks will be placed on a concrete pad consisting of 4,000 PSI concrete, 8 inches deep.
- Heat trace
    - The Contractor shall provide installed tank heating pads to maintain a desired temperature not to exceed 100 degrees F. Each system shall contain heating pads and a controller. The quantity and type of pads are determined by the tank size, desired temperature maintenance, and environmental conditions.
    - Pads to operate on 120VAC single phase with a maximum power density of 0.5 watts / square inch
    - Pads must be NEC (NFPA 70) compliant and certified by a Nationally Recognized Testing Laboratory (NRTL)
    - Temperature control to be supplied with two electronic thermostats switching the heating system via one solid state relay. Primary thermostat to control desired product temperature and secondary thermostat to provide over temperature protection at 150 degrees F.
- Insulation
    - Insulation used shall be polyurethane foam with a density of 2.5 lb/ft3 with a minimum an “R” value of 6.3/in. The foam shall be applied with a nominal thickness of 2” to the external tank surfaces except the tank bottom.
    - Upon completion of application and curing of the insulation, 2 full coverage coats of latex mastic coating shall be applied to the surface of the insulation in such manner as to seal the insulation from the outside environment. Coatings shall be able to withstand ultraviolet radiation from outdoor exposure.

Contractor shall install the following items on the 4,400 gallon tank, as depicted on the buyer provided sketch, *Sketch 1, Mechanical 4400 Gallon ETT-Y32 Tank Assy.*

- Access ladder manufactured of material compatible with groundwater and chemical additives
- One (1) 24” manway
- Seventeen (17) nozzles, as outlined in the provided sketch
- Eight (8) downcomers, as outlined in the provided sketch

- Six (6) lifting lugs, which will then be utilized as tie-down lugs

Contractor shall provide the following items on the 'Leak Detection Overflow Tank', as depicted on the provided sketch, *Sketch 2, Mechanical 540 Gallon LDOT-Y32 Tank Assy.*

- Seven (7) nozzles, as outlined in the provided sketch
- Three (3) downcomers, as outlined in the provided sketch
- One (1) 17" threaded manway
- Three (3) lifting lugs, which will then be utilized as tie-down lugs

The Contractor shall ship the tanks in an upright position, secured such as to avoid movement during shipping. The tanks shall not be in contact with sharp objects.

All fittings shall be installed and, if necessary, removed for shipping and shipped separately, as noted by the Contractor.

Installation will be inspected by Contractor to verify system flexible connections, venting and fittings are properly installed. In addition to on-sight inspection tank system(s) to be reviewed using tank manual check list as supplied by Contractor as listed below.

Contractor to provide 1 hour training session to prepare operators to service and maintain the tank system. Included in training session will be one (1) training manual.

Tank manuals will consist of installation check lists, tank drawing(s) as built, fitting drawings referencing nozzle schedule on tank drawing, materials of construction, and recommended maintenance program.

For transport, the shipper must meet 49 CFR Parts 40, 382, 383, 387, and 390 – 396.

The shipper must coordinate a Hanford Oversize Load Permit through the BTR, in addition to any required oversize load permits needed off-site.

3.3 Acceptance Criteria

The acceptance criteria for the work products and services provided are as listed in ASTM D-1998, *Standard Specification for Polyethylene Upright Storage Tanks.*

The Contractor shall perform the below tests and submit test results for the following:

- Perform impact tests per ASTM D 1998 on condition samples cut from each polyethylene storage tank.

- Use method C of ASTM D 1998- Section11.4 to determine the ortho-xylene insoluble fraction of cross-linked polyethylene gel test. Samples shall test at no less than 60 percent.

- Take exterior dimensions with the tank empty, in the vertical position. Outside diameter tolerance, including out-of-roundness, shall be per ASTM D 1998. Fitting placement tolerance shall be +/- 1/2-in vertical and +/- 1 degree radial.

- Inspect for foreign inclusions, air bubbles, pimples, crazing, cracking, and delamination.

- Following fabrication, the bottom of the tanks, including inlet and outlet fittings, shall be hydraulically tested with water by filling to the top of the sidewall for a minimum of 1 hour and inspected for leaks. Following successful testing, the tank shall be emptied and cleaned prior to shipment.

Further specific Acceptance Criteria applicable to this scope includes approval of submittals documenting factory testing.

3.4 Organizational Interfaces

The contractual interface for this work is the CHPRC Contract Specialist (or designee). The CHPRC Buyer Technical Representative (BTR) (or designee) will act as the technical point of contact.

3.5 Work Not Included

Work not included in this Contract includes the development of any required CHPRC work packages, the authority to release facility work scope, and the authority to serve as Responsible Manager (RM), Releasing Authority or Controlling Organization Administrator. The above functions will be performed by a CHPRC Representative.

Tank installation will be performed by others.

3.6 Buyer Furnished Materials and Equipment

The CHPRC will furnish the following materials, equipment and facilities at no cost to the Contractor for use in performing this work scope: This work scope does not include any Buyer Furnished Equipment (BFE).

3.7 Site Coordination Requirements

If onsite access is required, site visitation will be coordinated through the Contract Specialist.

4.0 TECHNICAL REQUIREMENTS

Contractor will perform all work in strict accordance with requirements, design criteria, national, state and local codes and standards, specifications, drawings, exhibits, and any other documents, which by reference are made a part of the Statement of Work.

CHPRC reserves the right to perform source inspections before and during fabrication. Inspections will be arranged jointly by CHPRC and Contractor.

4.1 Codes and Standards

The latest version of the codes, standards, and requirements listed below are hereby incorporated into and made a part of this Contract to the extent indicated in this Statement of Work and attachments.

Document No.	Title
ASTM D 1998	Standard Specification for Polyethylene Upright Storage Tanks
ANSI B-16.5	Pipe Flanges and Flanged Fittings
ASTM D638	Tensile Properties of Plastics
ASTM D883	Standard Definitions of Terms Relating to Plastics
ASTM D1505	Density of Plastics by the Density-Gradient Technique
ASTM D1525	Test Method for Vicat Softening Temperature of Plastics
ASTM D1693	ESCR Specification Thickness 0.125" F50-10% Igepal
ASTM F412	Standard Terminology Relating to Plastic Piping Systems
IBC 2012	International Building Code

4.2 Drawings

The latest version of the drawings listed below, are hereby incorporated into and made a part of this Contract to the extent indicated in this Statement of Work and attachments.

Drawing No.	Title
Sketch 1	Mechanical 4400 Gallon ETT-Y32 Tank Assy
Sketch 2	Mechanical 540 Gallon LDOT-Y32 Tank Assy

4.3 Exhibits

The Forms shown in the following table are hereby incorporated into and made a part of this Contract.

Specification No.	Title
A- Form A-6004-757	Contractor Document Submittal
B- Form A-6004-833	Request for Clarification/Information (RCI)
C- Form A-6003-609	Hanford Site Oversize / Overweight Permit

4.4 Design Changes

Any proposed changes (materials, dimensions, finish, fit, function, etc.) to Buyer or Contractor design media need to be approved by the Buyer in writing. The Contractor shall submit a copy of their change control process to the Buyer for approval. If the Contractor's change control process has previously been approved by the Buyer, the Contractor is to submit evidence that it has been previously approved by the Buyer and that it has not changed. Any redline changes shall be approved and initialed by a Buyer's Design Authority (designee) prior to execution of the change.

5.0 PERSONNEL REQUIREMENTS

5.1 Training and Qualification

A. There is no task specific or unique training or qualifications required for this task.

   a. The Contractor shall submit a list of personnel who will be performing fabrication and their associated discipline and qualifications with their proposal.

B. The Contractor is expected to provide appropriately trained and qualified staff to perform the type of work specified.

6.0 ENVIRONMENTAL, SAFETY, HEALTH, AND QUALITY REQUIREMENTS

The Contractor shall perform work safely, in a manner that ensures adequate protection for employees, the public, and the environment, and shall be accountable for the safe performance of work. The Contractor shall comply with, and assist CHPRC in complying with Environmental, Safety, Health, and Quality (ESH&Q) requirements of all applicable laws, regulations and directives.

The Contractor shall flow down ESH&Q requirements to the lowest tier subcontractor performing Work, commensurate with the risk and complexity of the work.

6.1 Safety Requirements

The Contractor shall comply with their facility specific safety requirements in the execution of this work.

6.2 Quality Assurance and Control

The Contractor shall submit their shop fabrication drawings for approval prior to manufacturing of the tanks. Sufficient data shall be included to show that the product conforms to Specification requirements. Provide the following additional information:

1. Vertical tank and Fitting Material

   a. Resin Manufacturer Data Sheet
   b. Fitting Material
   c. Gasket style and material
   d. Bolt material

2. Dimensioned Tank Drawings
   a. Location and orientation of openings, fittings, accessories, restraints and supports.
   b. Details of manways, flexible connections, and vents.

3. Calculations shall be stamped and signed by a registered, third party engineer in the State of installation.
   a. Wall thickness. Hoop stress shall be calculated using 600 psi @ 100 degrees F.

b. Lift lug design calculations.

4. Show seismic and wind criteria.

6.3 Quality Assurance Procurement Requirements

The Contractor shall comply with the Hanford Site Procurement Quality Clauses listed in Table 6.3.

Table 6.3 Procurement Quality Clause List

QA Clause	Description
B76	Procurement of Potentially Suspect or Counterfeit Items
B79	Certificate of Conformance

6.3.1 Suspect Counterfeit Items

The Contractor shall take the measures necessary to ensure Suspect/Counterfeit items are not brought onto the Hanford Site. This includes items within the Contractor's equipment or supplied as part of the Contract.

The Contractor warrants that items provided to CHPRC are genuine, new, and unused unless otherwise specified in writing by CHPRC. Contractor further warrants that items used during the performance of the Work include genuine, original, and new components, or are otherwise suitable for the intended purpose. The Contractor indemnifies CHPRC, its agents, and third parties for any financial loss, injury, or property damage resulting directly or indirectly from material, components, or parts that are not genuine, original, and unused, or otherwise suitable for the intended purpose. This includes materials that are defective, suspect, or counterfeit; materials that have been provided under false pretenses; and materials or items that are materially altered, damaged, deteriorated, degraded, or result in product failure.

The Contractor shall submit a written statement that "all items furnished under this Contract are genuine (i.e., not counterfeit) and match the quality, test reports, markings, and fitness for use required by the Contract." The statement shall be on Contractor letterhead and signed by an authorized agent of the Contractor.

Types of material, parts, and components known to have been misrepresented include fasteners; hoisting, shackles, turnbuckles, cable clamps, wire rope, rigging, and lifting equipment; cranes; hoists; valves; pipe and fittings; electrical equipment and devices; plate, bar, shapes, channel members, and other heat-treated materials and structural items; welding rod and electrodes; and as well as integrated circuits and other solid state devices. The Contractor's warranty shall also extend to labels and trademarks or logos affixed, or designed to be affixed, to items supplied or delivered to CHPRC. In addition, because falsification of information or documentation may constitute criminal conduct, CHPRC may reject and retain such information or items, at no cost; and identify, segregate, and report such information or activities to the DOE.

Any materials furnished as part of this Contract that have been previously identified as suspect/counterfeit by the DOE will not be accepted. For more information on items identified as suspect/counterfeit by the DOE, refer to the following link:
http://www.hss.energy.gov/sesa/corporatesafety/sci/

7.0 MEETINGS AND SUBMITTALS

7.1 Meetings

Contractor shall participate in the following meetings:

A. Project Kickoff meeting. This meeting will be held after contract award to review contract requirements and processes, establish protocols for communications and interfaces, introduce key personnel and their roles and responsibilities, and review the project schedule. The agenda for the meeting will be provided by the Buyer.

B. Weekly Progress meeting. This meeting will be coordinated with the Contractor to occur at a day/time acceptable to both the Buyer and the Contractor. The Contractor shall provide a two-week "look ahead" schedule, updated weekly, one day prior to each scheduled meeting

C. Any other meetings requested by the Buyer during the course of work as necessary.

The person or persons designated by the Contractor to attend all meetings shall have all required authority to make decisions and commit Contractor to technical decisions made during meetings.

7.2 Submittals

A. The required submittals for this contract are listed in Attachment 1, Submittal Register [sample].

B. The Contractor submittals identified herein on the Submittal Register shall be submitted by the Contractor using the Contractor Document Submittal Form (CDSF) A-6004-757 (available at http://chprc.hanford.gov/page.cfm/SubmittalsFormsDocs). Instructions for completion of the CDSF are included with the form.

C. If the Contractor is using submittals previously approved by the Buyer, the Contractor may declare no changes have taken place since last submittal and ask for approval based on previous referenced submittal.

D. CHPRC's Document Management and Control System (DMCS) will be used to electronically manage document submittals and RCIs for this contract. The address to transmit submittals and RCIs to is PTSCDC@rl.gov.

7.3 Final Data Package

The Contractor shall prepare a final data package containing the quality records listed in 3.3 of this SOW.

All documents shall be legible and reproducible to the third generation.

8.0 DELIVERABLES, PROJECT CONTROLS, MILESTONES, AND PERFORMANCE SCHEDULE REQUIREMENTS

8.1 Deliverables

Deliverables under this SOW are listed in Section 3 of this SOW and include: 2 tanks with 5 year warranty, installation inspection, installation certificate, 1 hour training session, (10) training manuals, tank manuals, and factory acceptance test documents (impact tests, polyethylene gel test, dimensional verification, defect inspection, static leak test)

8.2 Project Controls

The Contractor shall provide a detailed baseline schedule covering activities for duration of Contract. The schedule should be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the contract period of performance. Identify critical path activities, including logical sequence and relationship of activities for engineering, design, submittals, procurement, fabrication, inspection, testing, and delivery for work covered by Contract.

8.3 Performance Schedule

This contract will be effective from Notice to Proceed (NTP) through 60 days after NTP.

ATTACHMENT 1 - Submittal Register

The Contractor shall meet the required schedule and provide the documents specified in accordance with the following submittals.

Contract Number and Name:							Revision:	
1. No.	2. Type, and Number of Copies	3. Technical Submittal	4. Vendor Information	5. Description / Document Title	6. Submittal Date (Calendar Days)	7. Approver Organizations	8. CHPRC Review Time (Work Days)	9. Contract Paragraph or Requirement Reference
1	E/PDF			Shop Fabrication Drawings Including Restraint System Design	APW	ENG	5	6.2
2	E/PDF			Manufacturer's Warranty	EC	OPS	5	3.2
3	E/PDF			Installation & Operating Instructions	EC	ENG / OPS	5	3.2
4	E/PDF			Factory Test Report	EC	ENG / QA	5	3.3
5	E/PDF			Fabrication Personnel	With Bid	BTR	5	5.1
6	E/PDF			Certificate of Conformance	APW	QA / ENG	5	6.3 / B79
7	E/PDF			Letter Certifying the Prohibition of Suspect / Counterfeit Items	APW	QA / ENG	5	6.3.1
8	E/PDF			Change Control Process	APW	QA / ENG	5	4.4
9	E/PDF			Final Data Package	EC	QA / ENG	5	7.3

1. Typically a numerical sequence (i.e., 1, 2, 3,…). However, other numbering systems may also be used.
2. Submittal type, number of copies and format:

   APW = Approval Required Prior to Work (CHPRC must approve the Contractor's submittal prior to the Contractor being authorized to proceed with any activity/work associated with the submittal).
   AP = Approval Required (CHPRC must approve the Contractor's submittal, however, work associated with the submittal may proceed prior to CHPRC approval).
   Format: Describes the type of submittal required (electronic or printed):
   DWG An AutoCAD drawing using the Hanford standard formatting (See PRC-PRO-EN-440, *Engineering Documentation and Control)*.
   MFC Microsoft Format Compatible application (Word, Excel, Access, PowerPoint)
   P3 A Primavera Project Planner schedule
   GEN General or Open Format/Media
   PDF Adobe Acrobat (Portable Document Format)
3. Technical submittals are Engineering or Quality affecting submittals. A Yes in this column designates the need for formalized comments, and a formalized comment disposition process by the Contractor. Examples of Technical Submittals would include Engineering or Fabrication Drawings, or Certificates of Conformance.
4. Vendor Information for project record purposes.
5. Description / Document Title. Describe submittal.
6. Required submittal date or its relationship to project milestones. Examples are July 14, 2009, or Award + 15 days, Contract Completion +30 days.

   A Date of Award
   CD Conceptual Design Complete
   PD Preliminary Design Complete
   FD Final Design Complete
   M Mobilization
   SC Start of Construction
   EC End of Construction
7. Approver Organization. Examples are Construction Manager, Safety, Quality, Radiation Protection, Waste Management.
8. The number of Work Days required for review of the submittal.
9. Contract Reference: Cross reference to the Contract requirement that defines this submittal: