1.0 Objective

The objective of this scope of work is to obtain defensible and documented grout development and testing leading to grout formulations to be used in the closure of the C-200 series tanks and the pipeline encasements.

2.0 Background/Introduction

Closure of Waste Management Area C (WMA C) will involve grouting of tanks and some equipment within the 241-C Tank Farm. Initial grout testing to identify grout formulas and details of grouting for the closure of WMA C was conducted in FY2009 and documented in Closure Demonstration Grout Test Report (RPP-RPT-41550, Rev. 1). Additional grout testing is needed to finalize grout formulas for the grouting of the four 200-Series Tanks and pipeline encasements in 241-C Tank Farm.

The C-200 Series Tanks are 241-C-201, 241-C-202, 241-C-203, and 241-C-204. Waste from the four tanks was retrieved in 2004 through 2006 to the limits of retrieval technologies employed and various volumes of waste remain within the tanks to be grouted in place. The post-retrieval waste volumes and inventories of the four tanks is provided in Retrieval Data Report for Single-Shell Tank 241-C-201 (RPP-RPT-30181), Retrieval Data Report for Single-Shell Tank 241-C-202 (RPP-RPT-29095), Retrieval Data Report for Single-Shell Tank 241-C-203 (RPP-RPT-26475), and Retrieval Data Report for Single-Shell Tank 241-C-204 (RPP-RPT-34062). These four tanks will be the first single-shell tanks at the Hanford site to undergo closure.

Closure of the tanks will involve grouting of each of the four tanks. It is anticipated that tank grouting will be completed in two stages for each of the four tanks. The number of stages could change based on field evaluations, safety considerations, and administrative controls that require additional steps. Each of the four tanks has a flat top with tank risers that penetrate into the headspace. In Stage 1, active ventilation will be used while the residual waste heel is encapsulated and the tank is filled to a level just below the tank risers. In Stage 2, passive ventilation will be used while filling the tank headspace risers, and pits. These risers and pits will be filled individually, which could be performed in one or more steps.

In addition to grout formulations for filling the C-200 Series Tanks, a highly-flowable grout formulation is needed to fill pipe chases near the C-200 Series Tanks to prevent potential subsidence of a future closure barrier and closure cap to be placed over WMA C.
3.0 Scope

The scope of this statement of work is to (1) research grout formulations used within the DOE complex and identify potential grout formulations for use in grouting the C-200 Series Tanks and pipeline encasements, (2) develop a test plan for testing the grout formulations; (3) perform the grout testing, (4) develop a final test report documenting the testing and its results, and grout formulations to be used for grouting the C-200 Series Tanks and pipeline encasements.

**Task 1:** Research grouting and grout formulations for potential application to (1) grouting pipe chases in the 241-C Tank Farm and (2) grouting of the 241-C-200 series tanks, and identify grouts for physical testing. The research will be documented in a report. The report will also identify the grouts chosen for testing and the reasoning behind those choices. The report will be provided as a draft for review by WRPS and DOE-ORP staff. The report will be revised to incorporate comments from WRPS and DOE-ORP. The final report will be approved by WRPS.

**Task 2:** Develop a grout testing plan to be implemented to test and qualify the grouts identified through Task 1. The test plan will be provided as a draft for review by WRPS and DOE-ORP staff. The test plan will be revised to incorporate comments from WRPS and DOE-ORP. The final test plan will be approved by WRPS.

**Please note:** Task 3 and 4 will be authorized under separate cover at a later time but should be included in the proposal.

**Task 3:** Perform grout testing as specified in the approved test plan developed in Task 2. Grout testing will be performed at an offsite facility, applying appropriate quality assurance principles to ensure the results of the testing are defensible.

**Task 4:** Develop a final test report documenting the testing and its results, and recommending grout formulations to be used for grouting the C-200 Series Tanks and pipeline encasements. The test report will include the report developed under task 1 and the grout testing plan developed under Task 2 as appendices. The report will be provided as a draft for review by WRPS and DOE-ORP staff. The report will be revised to incorporate comments from WRPS and DOE-ORP. The final report will be approved by WRPS.

4.0 Submittals

In support of the work scope established in Section 3.0 above, submittals are listed on the Master Submittal Register (MSR).

Submittals shall be provided using the TOC Incoming Letter of Transmittal (form A-6005-315). All transmittal subject headings shall contain, at a minimum, the subcontract number, submittal number, and submittal description.

Submittals shall be provided in electronic format unless available only as a hard copy. Electronic submittals shall be sent in accordance with instructions provided by the Procurement Specialist. Electronic formats must be non-password protected in one of the following formats:
5.0 **Acceptance Criteria**

Acceptance criteria will be met once the final reports are approved by WRPS.

Subcontract work products and services shall meet applicable standards as referenced in 6.2 below. All deliverable documentation shall be complete, accurate, legible, and reproducible. Before delivery, design media and documents shall be reviewed by qualified Subcontractor personnel for technical adequacy and appropriate content. The Subcontractor shall attest, in writing, to the accuracy and completeness of the information contained in the final deliverables.

6.0 **Configuration Management and Standards**

6.1 **Configuration Management Requirements**

There are no specific Configuration Management requirements applicable to this SOW.

6.2 **Applicable Standards**

**APPLICABLE CODES AND STANDARDS**

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7.0 **ESH&Q Requirements**

7.1 **Quality Assurance Requirements**

The subcontractor’s program shall be submitted for review/approval against the requirements identified on site form A-6006-661 Quality Assurance Requirements dated 08/29/17. This work is designated as Quality Level 3.
7.1.1 **Supplier Quality Assurance Program**

The Subcontractor’s Quality Assurance Program shall be subject to review at all times, including prior to award.

7.1.2 **Supplier Quality Assurance Program Changes**

The Subcontractor shall, during the performance of this subcontract, submit proposed changes to their approved quality assurance program to the WRPS Buyer for review and concurrence prior to implementation.

7.1.3 **Quality Assurance Oversight**

WRPS personnel will coordinate with the supplier to conduct scheduled and periodic oversight of activities or products associated with this scope of work.

7.2 **Price-Anderson Amendments Act Requirements**

This 7.2 section and the General Provisions Article 2.11 entitled, *Price-Anderson Amendments Act (PAAA)*, are both determined to be *not applicable*.

7.3 **Special ESH&Q Requirements**

Hanford Site access is not authorized for work to be completed under this SOW.

8.0 **Verification/Hold Points**

There are no specific verification or hold points identified for this task.

9.0 **Reserved**

10.0 **Work Location/Potential Access Requirements**

This work associated with this task will be conducted and the subcontractor’s place of business and not on the Hanford Site.

11.0 **Training**

The subcontractor shall provide personnel capable of performing defensible and documented grout development and testing leading to grout formulations

12.0 **Qualifications**

Final report will be signed by a licensed Professional Engineer with at least 25 years of experience.

13.0 **Special Requirements**

There are no special requirements identified for this task.
14.0 Reporting/Administration

Subcontract shall attend status meetings as requested by the Project Manager or delegate.

15.0 Workplace Substance Abuse Program Requirements

A Workplace Substance Abuse Program is not required for this SOW.