

**SECTION C
PERFORMANCE WORK STATEMENT**

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C.1.0 GENERAL AND BACKGROUND INFORMATION

Established in 1989, the Department of Energy's (DOE) Office of Environmental Management (EM) is charged with addressing the environmental legacy of over 50 years of nuclear weapons production and government sponsored research. Since its inception in 1949, the Idaho Site has fulfilled numerous DOE missions including designing and testing nuclear reactors; reprocessing spent nuclear fuel to recover fissile materials; managing spent nuclear fuel; and storing, treating and disposing of various waste streams. Currently, EM is a tenant on the site, and the Office of Nuclear Energy (NE) is the landlord and maintains site-wide infrastructure.

The majority of EM's cleanup work at the Idaho site is driven by regulatory compliance agreements. The two foundational agreements are: the 1991 Comprehensive Environmental Response Compensation and Liability Act (CERCLA)-based Federal Facility Agreement and Consent Order (FFA/CO), which governs the cleanup of contaminant releases to the environment; and the 1995 Idaho Settlement Agreement (ISA), which governs the removal of transuranic waste, spent nuclear fuel and high level radioactive waste from the state of Idaho. Other regulatory drivers include the Federal Facility Compliance Act-based Site Treatment Plan (STP), and other environmental permits, closure plans, Federal and state regulations, Records of Decision (RODs) and other implementing documents.

The Idaho Cleanup Project (ICP) is funded through the DOE's Office of Environmental Management and focuses equally on reducing risks to workers, the public, and the environment and on protecting the Snake River Plain Aquifer, the sole drinking water source for much of eastern Idaho.

C.1.1 Contract Purpose and Objectives

The purpose of this contract is to safely accomplish as much of the remaining DOE Office of EM's cleanup mission at the Idaho Site as possible within available funding while meeting regulatory and legal requirements. The contract will apply performance-based contracting approaches and techniques. The ICP Core Contract (ICP Core) will require the Contractor to perform all work specified in the contract and to determine the specific methods of accomplishing the work. The Contractor shall comply with all Federal, State, and local laws and regulations, Executive Orders, DOE Orders (and other type of directives), Regulatory Permits, Agreements and Orders and Milestones with the regulators (both State and Federal) in the performance of this contract.

The ICP Core EM mission work encompasses ongoing Advanced Mixed Waste Treatment Project (AMWTP) and ICP work scopes that must continue into the future: completing treatment of the liquid sodium bearing waste, stabilizing and storage of spent nuclear fuel and high-level waste; dispositioning transuranic waste; retrieving targeted buried waste; closing the Idaho Nuclear Technology and Engineering Center (INTEC) tank farm; maintaining CERCLA remedial actions; and operating and maintaining the INTEC, Radioactive Waste Management Complex (RWMC), and the Radioactive Scrap and Waste Facility (RSWF) facility

infrastructure. The scope of the ICP Core contract is specifically categorized per the following areas:

- Facility Infrastructure: This principally includes INTEC, RWMC, and RSWF facility infrastructure. The Office of Nuclear Energy (NE) is the Lead Program Secretarial Office (LPSO) at Idaho and manages site-wide infrastructure.
- Environmental Activities (CERCLA Remediation): This includes compliance with the Federal Facilities Compliance Act (FFCA) Site Treatment Plan (STP), Resource Conservation and Recovery Act (RCRA), CERCLA, and ISA activities principally at INTEC and RWMC; the Test Area North (TAN) groundwater remediation; new CERCLA site remediation; site-wide Stewardship; Idaho CERCLA Disposal Facility (ICDF) transition operations; and the INTEC Tank Farm closure.
- Waste Management: This includes Contact Handled (CH)-TRU waste management; Remote Handled (RH)-TRU waste management; Mixed Low Level Waste/Low Level Waste (M/LLW) activities/disposition; exhumed buried waste characterization and shipment; treatment and disposal of excess radioactive and hazardous materials (including sodium contaminated waste); and disposition of newly generated waste as needed.
- Spent Nuclear Fuel (SNF): This includes Spent Fuel transfers [Experimental Breeder Reactor (EBR II) and Advanced Test Reactor (ATR) fuels], Facility Surveillance and Maintenance, and SNF Receipt and Storage.

The DOE has numerous prime contractors that support ongoing activities at the Idaho site. The number of contractors and scope of the contracts may change during the period of performance of this Contract. During the term of this Contract, the ICP Core Contractor (herein referred to as “the Contractor”) shall interface with the other site contractors. The Contractor shall establish Interface Agreements in accordance with Section 2.1 with the other Department of Energy-Idaho (DOE-ID) contractors, as required.

- (1) The Idaho Site landlord contractor conducting work for NE is referred to as “the INL contractor.” The INL contractor is responsible for site-wide infrastructure. This requires that an Interface Agreement be established.
- (2) The Nuclear Regulatory Commission (NRC) contractor is responsible for providing services for management and operation of Spent Nuclear Fuel (SNF) storage facilities and licenses under NRC regulations. This requires that an Interface Agreement be established.
- (3) The Calcine Disposition and Spent Fuel Repackaging Architect and Engineer (A&E) contractor will be responsible for providing services to develop a path forward for waste calcine disposition and to ensure regulatory compliance. The Calcine Disposition Project (CDP) contractor will also perform pre-design and design of the CDP along with development and submittal of the Best Demonstrated Available Technology (BDAT) petition to the Environmental Protection Agency (EPA) for the Hot Isostatic Press (HIP) process. The CDP contractor will also perform pre-design and design for a receiving, packaging and shipping facility for Spent Nuclear Fuel with a focus on repurposing an existing facility.

- (4) The Construction/Decontamination and Decommissioning (D&D) contractor will be responsible for performing the Idaho CERCLA Disposal Facility (ICDF) operations, Accelerated Retrieval Project (ARP) IX construction, Tank Farm interim cap construction and Integrated Waste Treatment Unit (IWTU) strip-out.

C.1.2 Goals and Objectives

The Idaho site works to ensure goals described in the DOE- EM, “DOE Office of Environmental Management FY14 Annual Performance Agreement,” Section J, Attachment J-6, are supported. The goals that are pertinent to this Performance Work Statement (PWS) are:

Goal 1: Improve safety, security and quality performance towards a goal of zero accidents, incidents, and defects and continue to improve the EM Complex-Wide Safety Culture.

Goal 2: Continue cleanup progress in a cost-effective manner that is risk-informed, engages stakeholders, applies innovative solutions, and provides value to the American taxpayer.

Goal 3: Improve management of contracts and projects/operations activities with the objective of delivering results on time and within cost.

Goal 4: Achieve excellence in leadership and resource management by championing financial stewardship, integrating business processes, optimizing EM culture change, and improving communications with the objective of enhancing accountability and achieving performance results.

Goal 5: Execute the EM Mission in a Sustainable Manner.

The Contractor shall support and implement actions in furtherance of the performance agreement and achievement of the above goals as they relate to the ICP Core activities.

C.1.3 Format and Structure

The PWS includes ten sections. Sections C.1.0 and C.2.0 contain the introduction information and transition requirements, which are relevant to the entire scope of the Contract. Sections C.3.0, C.4.0, C.5.0, C.6.0 and C.7.0 contain the technical requirements for the specific EM Facility Infrastructure; CERCLA Remediation; Waste Management; Liquid Waste Facility Infrastructure; and Spent Nuclear Fuel Surveillance, Maintenance and Stabilization, respectively. Section C.8.0 contains general program management and support requirements, which are relevant to the entire scope of the Contract. Section C. 9.0 addresses the list of applicable deliverables and Section C.10.0 incorporates the list of applicable exhibits, which are also relevant to the entire scope of the Contract.

C.2.0 GENERAL TRANSITION SCOPE

During the transition period, as specified in the Section F clause entitled, *Period of Performance*, the Contractor shall perform those activities that are necessary to transition work from the INL

and the previous ICP and AMWTP contractors in a manner that: (1) ensures that all work for which the Contractor is responsible under the contract is continued without disruption; (2) provides for an orderly transfer of resources, responsibilities, and accountability from the previous contractor; and (3) provides for the ability of the Contractor to perform the work in an efficient, effective, and safe manner. Workforce transition shall be managed in accordance with the requirements of any and all applicable Section H, Contractor Human Resource Management clauses, within the contract transition period, which is estimated to be 90 days. The first day of the Transition Period will be the date of the issuance of the Notice To Proceed (NTP). The contract effective date is the date the Contractor shall assume full responsibility.

The Contractor shall establish the necessary logistical support (office space, computers, telephone, etc.) to execute transition and shall ensure all necessary personnel, including key personnel for the Contractor, are on-site during the transition period, unless specifically directed otherwise by the Contracting Officer (CO). During the Transition Period, the Contractor shall brief workers, Federal staff, and stakeholders on the Contractor's approach and commitments for accomplishing the PWS.

Transition Plan and Other Transition Activities

The Contractor shall submit a Transition Plan for DOE approval within 14 calendar days after the issuance of the NTP. The Transition Plan shall cover the necessary activities during the transition period from Contract NTP date to the Contract effective date. The plan shall provide sufficient detail for all transition activities, including but not limited to: the transition schedule, a description of all necessary transition activities, coverage of key functional areas during the transition period, the planned strategy for developing required documents (including licenses and agreements), a brief description of all involved organizations, planned execution of Interface Agreements with other DOE-ID site contractors and necessary Memoranda of Understanding (MOUs) with outside support organizations (e.g. NRC, Bureau of Land Management (BLM), etc.), required utilities and other transition activities such as acquisition of necessary equipment, hiring and training of personnel, and development or revisions of required plans and procedures. The objectives of the Transition Plan are to prepare for implementation of the contract and minimize the impacts on continuity of operations. The Contractor shall perform due diligence to ensure that all transition activities are identified and completed during the Transition Period.

The Contractor shall establish any Interface Agreements necessary between it and other DOE-ID site contractors/subcontractors to define necessary interface points, scope boundaries, and/or provision of services, as required. A purchase order, subcontract, or other contracting vehicle between the contractors may dually serve as the necessary Interface Agreement where appropriate. The Contractor shall provide informational copies of all Interface Agreements to DOE as they are established.

To ensure continuity of operations, the Contractor shall adopt the incumbent contractors' programs and procedures at NTP (e.g. Safety Analysis Report (SAR)s, Technical Safety Requirement (TSR)s, operating procedures, etc.), provided the Contractor has formally reviewed the programs and procedures to ensure compliance with Contract requirements, current regulatory requirements, DOE Orders and directives, and the Contractors' organizational roles

and responsibilities. The Contractor shall revise those programs and procedures it deems necessary to accommodate their technical approach, provided the programs and procedures remain in compliance with DOE requirements, and shall maintain its plans, procedures, programs, etc. in accordance with this PWS.

Status Reports - Transition Activities

The Contractor shall provide weekly status reports of transition activities to DOE. The Contractor shall establish routine status meetings with DOE and other affected contractors to review transition activities and issues. The frequency of the meetings may increase as the end of Contract transition period approaches. The Contractor shall coordinate directly with DOE-ID, and other organizations and contractors to finalize any transition agreements required to assume full responsibility.

DOE Safeguards and Security Survey

During the Contract transition period and prior to assuming control and responsibility for Safeguards and Security (SAS), the Contractor shall be subject to a DOE SAS initial survey conducted in accordance with U.S. DOE Order 470.4B, Change 2, Safeguards and Security Program. The results of the survey shall be documented and form the basis for DOE authorization to assume SAS responsibilities, in particular, responsibility for Special Nuclear Material (SNM) and classified information. Following the receipt of DOE authorization, the Contractor shall assume responsibility at the contract effective date for all applicable SAS resources, materials, facilities, documents, and equipment within the facilities for which the Contractor is responsible.

Assumption of Permits

In accordance with Section H clause entitled *Allocation of Responsibilities for Contractor Environmental Compliance Activities*, the Contractor shall submit to DOE and/or the regulator, as required, no later than 30 days prior to the contract effective date, certified permit modification requests per Exhibit C-1 *List of Current Environmental Permits Applicable to EM INL Site Work Scope* (e.g., site-wide level RCRA permits, EM facility-specific air permits, and EM facility-specific Waste Water Land Application permits) to assume ownership (i.e., change the “operator” name and identify a “responsible corporate officer” responsible for the permit).

Mandatory and Optional Site Services

By contract effective date, the Contractor shall establish a formal interface agreement with the INL contractor describing how the mandatory and optional site services per Exhibit C-2 will be performed and reimbursed throughout the ICP Core contract period.

Transition of the Integrated Waste Treatment Unit (IWTU):

This modification includes the incorporation of the incremental transition scope in a manner that: (1) ensures the IWTU work for which Fluor Idaho, LLC (Fluor) will be responsible under the

contract is continued without disruption; (2) provides for an orderly transfer of resources, responsibilities, and accountability from CH2M♦WG Idaho, LLC (CWI) to Fluor; and (3) provides for the ability of Fluor to perform the work in an efficient, effective, and safe manner upon the contract effective date (CED) scheduled for June 1, 2016, which includes obtaining the necessary resources, participating in walk down(s) of the IWTU facility, in-depth discussions with CWI staff and management, and a gap analysis to better understand what will be required by Fluor to be able to assume operations by the CED.

C.3.0 EM FACILITY INFRASTRUCTURE

General Infrastructure support is provided by the INL contractor to the Contractor at no cost over the five-year contract period of performance. The INL contractor maintains site roads including snow removal, weed control, lighting, and sign maintenance up to the main gate of the EM-owned site areas and facilities, as well as the parking lot outside of the main gate entrance at the INTEC and RWMC facility areas. The INL contractor maintains and inspects the existing railroad system up to the EM facility perimeter fence or area boundary. The INL contractor maintains other site grounds that are outside of the EM facility areas and outlying EM facilities and structures. The INL contractor will maintain the site seismic monitoring network.

The Contractor shall operate and maintain the EM-owned buildings and structures at the INL site listed in Exhibit C-3 *List of ICP Core EM Buildings and Structures*. The Contractor shall assume that with proper maintenance, no critical equipment failures (cranes, PaRs, fuel casks, box lines, Sodium Bearing Waste (SBW) components, etc.) will occur.

C.3.1 EM Facility Infrastructure – RWMC

The Contractor shall operate and maintain the EM-owned buildings and structures at RWMC listed in Exhibit C-3 *List of ICP Core EM Buildings and Structures*. This includes providing operators, maintenance crafts, engineers, support personnel (QA, Safety, etc.), and management. The Contractor shall maintain needed facilities, equipment, roads, and railroads within RWMC throughout the performance period to function at the same level and in the same condition as at the contract effective date. The Contractor shall serve as Building Code Official for EM buildings as described in DOE Order 420.1C, Facility Safety, and associated standards.

The Contractor shall operate and maintain the utility systems for RWMC listed in Exhibit C-4, *ICP Core Utility Systems for INTEC and RWMC*. Utility services must provide adequate building protection including, but not limited to, fire protection (the INL contractor provides the site-wide Fire Department, but the Contractor shall maintain fire protection within RWMC areas), alarm systems, nuclear safety, and Life Safety Code requirements, specified in National Fire Protection Association 101.

The Contractor shall be responsible for general facility maintenance and custodial services at RWMC including, but not limited to: sanitary systems, trash removal, recycling, grass mowing, weed control, housekeeping, floor maintenance, pest control, and snow removal. The INL contractor provides electrical power to the RWMC substations as described in Exhibit C-4, *ICP Core Utility Systems for INTEC and RWMC*. The Contractor shall maintain the power

distribution systems downstream from these substations and reimburse the INL contractor for power consumption.

C.3.1.01 EM Facility Infrastructure – RWMC/AMWTP

The Contractor shall complete the remaining work scope associated with the Infrastructure Improvement Project (IIP) at the Advanced Mixed Waste Treatment Project Treatment Facility.

C.3.1.02 EM Facility Infrastructure – RWMC Paving

The Contractor shall:

- A. Remove the degraded asphalt around the shipping facility WMF-602 (approximately 29,000 SF);
- B. Install approximately 310 cubic yards of ¾ road base; and
- C. Install approximately 660 tons of asphalt.

C.3.2 INTEC Infrastructure

If directed by the Contracting Officer, the Contractor shall place the RAL in a cold, dark, and dry status. This includes the following work scope:

- A. Develop work orders and a detailed working schedule.
- B. Prepare engineering isolation design documents and work order instructions.
- C. Prepare/review all ESH&Q documents and support cold, dark and dry activities.
- D. Isolate, drain, air gap, and/or disconnect associated systems such as power, water, sewer, alarms, fire protection, etc.
- E. Perform radiological surveys, document radiological conditions, ensure installation of proper postings and perform any reviews required
- F. Establish a waste disposition path and ensure all waste is properly disposed.
- G. Close out all work orders associated with the facility changes.
- H. Provide management throughout the duration of the project.

C.3.2.01 EM Facility Infrastructure - INTEC

The Contractor shall operate and maintain the EM-owned buildings and structures at INTEC listed in Exhibit C-3 *List of ICP Core EM Buildings and Structures*. This includes providing operators, maintenance crafts, engineers, support personnel (QA, Safety, etc.), and management. The Contractor shall maintain needed facilities, equipment, roads, and railroads within INTEC throughout the performance period to function at the same level and in the same condition as at the contract effective date. However, the Contractor shall refer to Section C.7.0 for required surveillance, maintenance, and stabilization of SNF facilities. The Contractor shall serve as Building Code Official for EM buildings as described in DOE Order 420.1C, Facility Safety, and associated standards.

The Contractor shall operate and maintain the utility systems for INTEC listed in Exhibit C-4, *ICP Core Utility Systems for INTEC and RWMC*. Utility services must provide adequate building protection including, but not limited to, fire protection (the INL contractor provides the site-wide Fire Department, but the Contractor shall maintain fire protection within INTEC areas), alarm systems, nuclear safety, and Life Safety Code requirements, specified in National Fire Protection Association 101.

The Contractor shall operate and maintain the INTEC Calcine Solids Storage Facility bin sets.

The Contractor shall be responsible for general facility maintenance and custodial services at INTEC including, but not limited to: sanitary systems, trash removal, recycling, grass mowing, weed control, housekeeping, floor maintenance, pest control, and snow removal. The INL contractor provides electrical power to the INTEC substations as described in Exhibit C-4, *ICP Core Utility Systems for INTEC and RWMC*. The Contractor shall maintain the power distribution systems downstream from these substations and reimburse the INL contractor for power consumption.

The Contractor shall provide material and storage control for TMI-2 and Fort St. Vrain (FSV) spare parts that are currently located in Idaho.

The Contractor shall replace the roofs for WMF-676 and WMF-678 at the Advanced Mixed Waste Treatment Project.

C.3.2.01.01 INTEC Paving

The Contractor shall complete the scope identified in Fluor Idaho, LLC Letter (CCN 323806), Thomas M. Williams to Jennifer K. Cate, Subject: Contract No. DE-EM0004083 – Idaho Nuclear Technology and Engineering Center (INTEC) Paving to Alleviate Legacy Safety Concerns – Request for Notice to Proceed and Not-To-Exceed (NTE), dated June 25, 2019 and in Attachment “Proposed 2019 Paving INTEC Paving” dated June 12, 2019.

The Contractor shall complete the scope identified in Fluor Idaho, LLC letter (CCN 325815), Thomas M. Williams to Jennifer K. Cate, Subject: Contract No. DE-EM0004083 – Transmittal of the Cost and Schedule Estimate to Repair or Replace Additional Damaged Paving at the Idaho Nuclear Technology and Engineering Center (INTEC), dated October 1, 2020 and in Attachment “INTEC Pavement Repair and Replacement (Phase II)” dated October 1, 2020.

C.3.2.02 Upgrade of the Emergency Communication System (ECS)

The Contractor shall upgrade the Emergency Communication System (ECS) Random Access Digital Audio (RADA) Announcement System. The ECS upgrades shall be completed and commissioned by March 31, 2021, with speaker installation completed by September 30, 2021 (see Exhibit C-5).

C.3.2.03 Upgrade of Utility Control System

The Contractor shall upgrade the Utility Control System (See Exhibit C-5).

C.3.2.04 Upgrade of Electrical Distribution System

The Contractor shall upgrade the Electrical Distribution System (See Exhibit C-5).

C.3.2.05 Upgrade of Underground Storage Tanks

The Contractor shall implement the revised regulatory requirements (40 CFR Part 280) for the three (3) underground storage tanks VES-WCS-106, VES-SAA-152, and VES-SAA-153 before October 13, 2018.

To bring the deferred tank VES-WCS-106 into regulatory compliance, the existing Veeder-Root system connected to the tank will be upgraded prior to October 13, 2018. To achieve regulatory compliance for tanks VES-SAA-152 and VES-SAA-153, temporary closure will be achieved prior to October 13, 2018. The balance of work required for permanent closure will be completed within one (1) year of temporary closure.

The Contractor shall assist the INL contractor with replacement of the INL proprietary supervision station alarm system as follows:

- Contractor Life Safety System (LSS) personnel assist in resolving technical issues in the design;
- LSS personnel, planners, and fire protection personnel assist with fire impairments and compensatory measures (if needed) to perform system testing in order to “map” the systems to the new fire alarm system at CFA; and
- LSS personnel, planners, fire protection personnel and the Fire Marshal assist with final acceptance testing of the installed system

C.3.2.06 INTEC Utility Tunnel (CPP-1776) Repairs

The Contractor shall complete the following INTEC Utility Tunnel (CPP-1776) Repair work scope by September 30, 2021:

1. Repair the storm water infiltration leak at the ~680' mark of the Beech Street section.
2. Repair the storm water infiltration leak at the ~120' mark of the Beech Street section.
3. Install a new 2" carbon steel treated water line from the ~610' - 940' mark of the Beech Street section and abandon the 10" carbon steel treated water line (10" TWN-109825) from the ~610' - 940' mark of the Beech Street section as process demands have decreased to where a 10" line is no longer needed.
4. Replace the 10" carbon steel treated water line (10" TWN-109825) at the ~100' - 120' mark in the Beech Street section.
5. Replace the 10" carbon steel treated water line (10" TWN-109825) at the ~480' - 500' mark in the Beech Street section.

6. Replace the 4" carbon steel high pressure air line (4" HAN-101637) at the ~540' -570' mark in the Olive Avenue section.
7. Replace 6" carbon steel treated water line (6" TWN-109826) and 2" potable water line (2" CW-NJ-103623) at the ~550' - 570' mark in the Olive Avenue section.
8. Replace the 4" carbon steel high pressure air line (4" HAN-101637) at the ~460' - 510' mark in the Olive Avenue section.
9. Replace 10" carbon steel fire water line (10" FWN-101604) at the ~460' - 500' mark in the Olive Avenue section.
10. Replace various corroded piping and wire tray supports throughout the Utility Tunnel.
11. Repair corroded and exposed wire trays (Security, Life Safety, and Emergency Communications) and make any associated wiring repairs as needed throughout the Utility Tunnel.
12. Replace Utility Access Hatch Panels on the southwest side of CPP-659.
13. Replace Utility Access Hatch Panels on the west side of CPP-697.
14. Replace Utility Access Hatch Panels on the east side of CPP-606.
15. Cut out seven (7) identified and abandoned Utility Tunnel access manholes and replace with reinforced concrete.
16. Perform Utility Tunnel ceiling repairs at the Olive Avenue and Beech Street intersection.

C.3.2.07 INTEC Infrastructure

The Contractor shall define, optimize, and project the future infrastructure needs for the INTEC campus through the year 2050. Specific items in the work scope include:

1. Alignment of INTEC mission milestones with DOE to ascertain INTEC mission future projection.
2. Definition of the required building footprint to support future INTEC mission milestones.
3. Define the core functions for each of the required buildings.
4. Develop an optimization and consolidation plan to meet required core infrastructure function for the footprint.
5. Review the material condition of each of the buildings in the optimization/consolidation plan.
6. Review each building in the optimization/consolidation plan for the minimum set of required operable systems.
7. Perform a life cycle analysis of each required system and major component contained within each building identified in the optimization plan.
8. Develop the life cycle management plan (LCMP) for all required infrastructure to identify required upgrades during the extended mission window to 2050.
9. Develop a risk informed prioritization strategy for the implementation of the LCMP activities.
10. Develop time sequenced Rough Order of Magnitude (ROM) estimates on the identified life cycle management plan activities.
11. Develop a preventative maintenance strategy to maintain required infrastructure viable for the course of the mission through 2050.
12. Develop a ROM estimate for the sustainment of the required facilities.

C.3.2.08 Integrated Waste Treatment Unit (IWTU) External Vulnerabilities (CLIN-1)

The Contractor shall complete the following scope of work identified in RPT-1727 “Integrated Waste Treatment Unit (IWTU) External Vulnerabilities Evaluation,” and in accordance with the scope stated in Section II of the Contractor’s proposal (CCN 324232) dated September 23, 2019:

- A. CPP-659 New Waste Calcining Facility (NWCF) Valve Cubicle/Filter Cell Clean up
- B. NWCF Valve Cubicle PaR Manipulator MAN-NCD-914
- C. Sodium-bearing Waste (SBW) Feed Pumps
- D. NWCF Process Off-Gas (POG) System
- E. Sodium Bearing Waste (SBW) Secondary Containment Leak Detection
- F. INTEC Fire Water (FW) System
- G. INTEC Plant Air system
- H. Waste Management PaR Manipulator MAN-NCD-905

C.3.2.09 INTEC CPP-659 Roof Repair/Replacement

The Contractor shall complete all scope necessary to repair/replace the roof at CPP-659 to include:

- A. Characterizing the existing roof materials for asbestos-containing material (ACM) and radiological or hazardous contamination. Should asbestos, lead, or any other hazardous material be identified, the Contractor shall notify the DOE. This includes any process resulting in the need for a modification to the Resource Conservation and Recovery Act (RCRA) permit.
- B. Project preparation consisting of developing documents for engineering, planning, and design support.
- C. Performing repair/replacement of the roof in sections to minimize the impact to operations. No interior repairs are included in this scope.
- D. Removal of all existing built-up gravel roofing and insulation down to the metal deck, including removal of metal edging and flashing.
- E. Managing the waste and disposing of all waste at the Idaho CERCLA Disposal Facility (ICDF).
- F. Installation of layers of insulation to metal deck.
- G. Installation of reinforced fully adhered ethylene propylene diene terpolymer (EPDM) roof membrane over insulation.
- H. Installation of new edging and flashing around perimeter of roof, pipes, vents, and penetrations to ensure roof is watertight.
- I. Providing resource support i.e. project management, radiological, engineering, industrial health and safety, work order planning, planning and controls, subcontracts administration, waste management, environmental resources, and skilled craft support to remove and re-install roof equipment as necessary such as lightning protection, exhaust hoods, or other non-structural equipment on the roof.

C.3.2.10 INTEC Fire Water Distribution System Investigation and Upgrades

The following work scope is based on recommendations in Report (RPT) 1471, "Assessment of the INTEC and RWMC Fire Water Supply, Fire Alarm, and Emergency Communications Systems," dated March 31, 2016, and addresses the path toward reliable and adequate fire water supply and distribution at INTEC in accordance with DOE O 420.1C requirements. This work scope is considered Phase 1 (work scope for Phase 2 will be negotiated under separate contract modification, as necessary). The Contractor shall:

- (a) Perform "leak-by" testing of INTEC underground fire water mains to determine the "leak-by" condition of existing installed facility firewater valves. Testing shall identify the quantity, condition, and size of valves which are considered critical for isolation and control of fire water. Develop a document which identifies the fire water valves to be tested and the evaluation/testing process. Document the results of valve "leak-by" tests of INTEC underground fire water mains that determines which, if any, in-line valves are leaking when shut. Provide the results of the testing with appropriate recommendations to DOE-ID.
- (b) Excavate four areas at INTEC with older underground fire water piping and/or carbon steel fire water piping and evaluate internal pipe conditions using non-destructive methods. Develop a document which identifies the lines to be tested and the evaluation process. Provide the results of the testing with appropriate recommendations to DOE-ID.
- (c) Perform evaluation of the entire INTEC fire water distribution system with the objective of lowering the system static pressure, within applicable requirements, to 100 psi or as low as practicable, while still providing the highest system demand. Document the evaluation and results with appropriate recommendations to DOE-ID.
- (d) Replace/reroute existing BondstrandTM underground fire water distribution piping located on the east side of INTEC building CPP-666 with C900 PVC listed fire water pipe. Re-establish a suitable fire water underground loop around the south side of CPP-666 with C900 PVC listed fire water pipe. Abandon existing BondstrandTM fire water line in place.

C.3.2.11 RESERVED

C.3.2.12 INTEC Tank Farm Front End Control System Upgrade

The Contractor shall perform a vulnerability study to identify current system configuration, deficiencies, and required Structures, Systems, and Components (SSC) upgrades or replacements needed to ensure a reliable Tank Farm Front End Control (TFFEC) system. Phase 1 scope includes:

- a. Performing walkdowns, existing design review and field investigations to develop and issue a vulnerability study;
- b. Identifying TFFEC dependent and interfacing systems; and
- c. Developing comprehensive and detailed design drawings of the existing TFFEC system.

C.3.3 RESERVED

C.4.0 CERCLA REMEDIATION

The Contractor shall ensure compliance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and the CERCLA-based Federal Facility Agreement and Consent Order (FFA/CO) for the Idaho National Engineering Laboratory (1991), the Agreement to Implement (2008), and with associated CERCLA Records of Decision and their implementing plans for Waste Area Groups (WAG) 1, 2, 3, 4, 5, 6, 7, and 10. Many applicable documents (but not all) are listed in this PWS. These documents are available at <http://ar.inl.gov>. The Contractor shall develop, submit, and finalize reports required by the above documents in accordance with Exhibit C-6 *Environmental Regulatory Structure and Interface Protocol for the ICP Core Contractor*. Key CERCLA deliverables, including FFA/CO Primary documents, are listed in Section J, Attachment J-2 List of Contract Deliverables/Submittals.

This scope also includes but is not limited to: hazardous substance release site evaluation and remediation, institutional controls, monitoring, operation and maintenance of remedial actions, and CERCLA Five-Year reviews. The Contractor shall implement Quality Assurance Project Plan (QAPjP) (DOE/ID-10587) as appropriate for data collection activities under the FFA/CO.

C.4.1 INTEC Tank Farm Cap

The Contractor shall assume control of the Interim Tank Farm Low Permeability Cover 90% Design (EDF-10116 dated 3/6/2012) and update it as necessary to reflect current field conditions.

The 90% design drawings for Phase II include a design on the installation of low permeability pavement to be completed in two parts: Part A (pavement and drainage on the western two thirds), and Part B (pavement and drainage on the eastern one third).

The Contractor shall install low-permeability pavement over the western two thirds of the tank farm (including any activities necessary to prepare the tank farm area for low-permeability pavement) in accordance with Phase II Part A of the Operable Unit 3-14 Tank Farm Soil and INTEC Groundwater Remedial Design/Remedial Action Work Plan (DOE/ID- 11333) and the Phase II 90% Design Drawings (EDF-10116 dated 3/6/2012).

The Contractor shall complete construction of Phase II Part A, complete the Draft Phase II Part A pre-final inspection report and the Draft Phase I and Phase II, Part A Interim Remedial Action report and submit them to the Agencies in accordance with the applicable regulatory milestones specified in Table 4-3 of the OU 3-14 Tank Farm Soil and INTEC Groundwater Remedial Design/Remedial Action Work Plan (DOE/ID-11333).

The construction of Phase II Part B may be added to the scope pending the completion of RCRA closure of WM-187-190 tanks within the contract period of performance.

During construction of the low permeability cover the Contractor shall maintain the design by keeping it current and incorporating field changes as necessary.

Following construction, the Contractor shall maintain the low permeability cover through the remainder of the contract period of performance.

The Federal Facility Agreement/Consent Order (FFA/CO) contains a provision for requesting extensions to enforceable milestones when “good cause exists”. Specific guidance is defined in the FFA/CO, Section XIII. Good cause is defined below:

- An event of Force Majeure
- Failure by another party to meet a requirement
- Delay caused by good faith invocation of dispute resolution
- Delay caused by extension to another deadline
- Any other event or series of events mutually agreed to by all three parties to the FFA/CO.

The Contractor may submit a request for extension to DOE-ID should it experience a “good cause” as defined in the FFA/CO.

C.4.2 RWMC SDA Cap

The Contractor shall design the final monolithic soil evapotranspiration cap over the Subsurface Disposal Area located within Waste Area Group (WAG) 7 at RWMC in accordance with the Operable Unit (OU) 7-13/14 Phase 3 Remedial Design Work Plan (DOE/ID-11482). The Contractor shall submit the Phase 3 90% pre-final design document for the cap by April 30, 2020 for DOE submittal to the regulatory agencies for review. The Contractor shall also be responsible for revising and finalizing the design document per agency comments in accordance with the FFA/CO.

C.4.2.01 SDA Well Decommissioning

The Contractor shall decommission 52 wells in the SDA area by May 31, 2021. The scope includes the following:

- A. Perform project preparation activities including preparation of a well decommissioning plan in accordance with Idaho Department of Water Resources (IDWR) regulations, procurement of materials and equipment, revising an existing well maintenance work order to address removal of internal well piping, training of personnel (if required), etc.
- B. Prepare and submit a notification letter to IDWR.
- C. Decommission 52 scientific instrumentation, vapor port, neutron access, and observation wells within the footprint of the future SDA cap that are currently available for decommissioning in accordance with the approved decommissioning plan. This will consist of removing concrete pads and pipe bollards at the well heads, cutting off well casings/pipes to 6 to 12 inches below ground level, placing a bentonite mixture inside the casings/pipes, and capping the casings/pipes. Internal piping must be removed from well

79-2 only and will necessitate use of a crane. A licensed professional engineer is required to witness the work and sign off on the well closure forms.

- D. Waste Disposal/Waste Generator Services (WGS) will review the decommissioning plan, develop the Waste Determination and Disposition form and waste profiles, support disposal of the cut off well casings/pipes, bollards, and concrete pads. They will also provide inventory and barcoding for waste tracking.
- E. Prepare and submit a well abandonment form to the Idaho Cleanup Project Hydrologic Data Repository and update the applicable well files for inclusion in the Annual Water Use Report and comprehensive well inventory update.
- F. Provide project and construction management and support.

C.4.2.02 SDA Vadose Zone Vapor Rebound Study

The Contractor shall complete a Vadose Zone Vapor Rebound Study in the SDA area by February 28, 2021. The scope includes the following:

- A. Complete the first (only) rebound test described in the test plan. Samples from 83 Region A vapor ports and 74 Region B vapor ports (for a total of 157) will be collected each week for a minimum of 16 weeks or up to 20 weeks and analyzed on-site using a Bruel and Kjaer (B&K) or similar photoacoustic residual gas analyzer. Collection Method Validation Sampling (CMVS) validation samples will be collected throughout the duration of the project from up to 12 Region A and B vapor ports and will be analyzed by an off-site independent laboratory using U.S. Environmental Protection Agency (EPA) Method TO-15.
- B. Based on the first rebound test, estimate how long it will take for concentrations of Carbon Tetrachloride (CC14) in Zones A1 and A2 to reach equilibrium and determine if vadose zone vapor average concentrations of CC14 in Zones A1 and A2 are greater than remediation goals in static (i.e., equilibrium) conditions.
- C. Summarize results, compare equilibrated average concentrations of CC14 to remediation goals, and provide information to the EPA and the Department of Environmental Quality (DEQ) to facilitate Agency deliberations.
- D. If the Agencies determine that remediation of volatile organic compounds (VOCs) in the vadose zone is complete in accordance with CERCLA, document that conclusion in a rebound study report in accordance with the test plan and await a decision from the Agencies and DOE-ID as to what the path forward will be regarding shutdown of the VVET system
- E. If the Agencies conclude that remediation goals have not been achieved, document the decision to restart and operate the VVET system in the interim until it is time for the second rebound test in accordance with the test plan.

C.4.3 CERCLA

C.4.3.01 Idaho CERCLA Disposal Facility (ICDF)

The Contractor shall operate and maintain the Idaho CERCLA Disposal Facility (ICDF) through the end of the contract period of performance. The Contractor shall dispose of CERCLA soil and debris in the landfill, and dispose of CERCLA waste liquids in the evaporation ponds, in accordance with the Operable Unit 3-13 Records of Decision (DOE/ID-10660) and the following documents:

- ICDF Complex Remedial Action Work Plan (DOE/ID-10984)
- ICDF Complex Operations and Maintenance (O&M) Plan (DOE/ID-11000)
- ICDF Groundwater Monitoring Plan (DOE/ID-10955)
- ICDF Operational and Monitoring Sampling and Analysis Plan (DOE/ID-11005)
- ICDF Waste Acceptance Criteria (DOE/ID-10881)
- ICDF Complex Waste Profile and Verification Sample Guidance (DOE/NE-ID-11175)
- Health and Safety Plan for ICDF INEEL/EXT-01-01318
- DOE Order 435.1, *Disposal Authorization Statement* through the end of the contract period of performance, including submittal ICDF DOE Order 435.1 annual report.
- ICDF Waste Placement Plan (EDF-ER-286)

The Contractor shall complete the necessary characterization, treatment and disposal of all materials in seven (7) waste container types located in the West Storage Area at RWMC based on completion of the final West Storage Area (RWMC) Report that will include evaluation and preferred treatment and disposal recommendations on all materials in the waste container types located in the West Storage Area. Three (3) of the seven (7) waste container types have been assessed under the current draft report "West Storage Area Report". Section 2 of the report states that "This report is limited to items 2, 4 and 5 as directed by Waste Generator Services (WGS) Management." Items 1, 3, 6 and 7 (from the below list) are not addressed in the Waste Storage Area Draft Report. Therefore, the report must be completed to address the additional four (4) waste types along with preferred treatment and/or disposal actions.

1. One empty cargo container
2. Section 5.0 - twenty-two 5-gallon buckets containing soil
3. Two 20-foot corrugated metal storm water pipes
4. Section 6.0 - twenty-seven 55-gallon "Empty" stainless steel drums
5. Section 7.0 - sixteen 85-gallon containers
6. Four concrete storage vaults
7. One electrical control panel

The Contractor shall complete initial preparatory documentation for siting and design of an additional ICDF landfill cell and evaporation ponds.

- a. Complete and submit for agency review an Explanation of Significant Differences (ESD) document to the OU 3-13 Record of Decision (ROD) for the expansion of capacity for

the ICDF complex including construction of an additional cell and two additional evaporation ponds.

- b. Complete and submit for agency review a Field Sampling Plan (FSP) for the geotechnical study of the preferred siting location adjacent and to the south of the existing ICDF landfill, as well as potential borrow material sources for the liner system.

C.4.3.01.01 Idaho CERCLA Disposal Facility (ICDF) Life Expectancy

The Contractor shall conduct an evaluation to determine if the ICDF can remain operational to accommodate CERCLA/D&D projected waste volumes for waste generated beyond 2025 through 2050, or if an additional ICDF landfill cell is required to be constructed. This scope includes the following:

- A. Update Engineering Design File (EDF)-10995 with current waste volume projections from all contractors who are anticipated to have waste dispositioned at the ICDF for the years 2020 through 2050. Currently, these contractors are Fluor Idaho, Battelle Energy Alliance (BEA), and Naval Reactors Facility (NRF).
- B. Revise the ICDF Waste Placement Plan to reflect a more efficient waste placement scenario (this will expand the capacity and extend the life of the ICDF by approximately one year).
- C. Update all ICDF documents to reflect an updated waste placement scenario.
- D. Obtain Agency and Low-Level Waste Disposal Facility Federal Review Group (LFRG) (if necessary) approvals for the revised Waste Placement Plan and other relevant documents.
- E. Provide a formal recommendation on a path forward for closing current ICDF cells.

C.4.3.02 WAG 1 Test Area North (TAN)

The Contractor shall implement the Technical Support Facility Injection Well (TSF-05) Record of Decision (ROD) for WAG1, Operable Unit (OU) 1-07B and the associated ROD Amendment. Accordingly, the Contractor shall implement revision 4 of the In-Situ Bioremediation (ISB) Rebound Test Plan (DOE/ID-11444) including providing drilling support for a new groundwater monitoring well.

The Contractor shall implement the Groundwater Monitoring Plan for TAN OU 1-07B (DOE/ID-11412).

The Contractor shall implement the New Pump and Treat Facility O&M Plan (DOE/ID-10684), the Air Stripper Treatment Unit O&M Plan (DOE/ID-11414), and the ISB O&M Plan (DOE/ID-11012).

The Contractor shall comply with Waste Management Plan for TAN Final Groundwater Remediation OU 1-07B (INEEL/EXT-98-00267).

The Contractor shall maintain the TAN Demolition Landfill in accordance with the Post Closure Care requirements pertaining to the period after the first six months following the Closure Certification per the approved Closure Plan (DOE/ID-11347).

The Contractor shall provide materials, equipment and services necessary to support the United States Geological Survey (USGS) in drilling a new monitoring/injection well at Test Area North (TAN) for the TAN OU 1-07B TAN Source Action. Scope includes:

- A. Prepare Fluor Idaho/USGS interface agreement (IAG).
- B. Obtain Idaho Department of Environmental Quality (IDEQ) approval for new injection well for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remediation.
- C. Prepare Fluor Idaho Work Order.
- D. Perform power management site inspection.
- E. Perform subsurface investigation.
- F. Perform survey of well site location.
- G. Prepare site including construct decontamination area and secondary containment.
- H. Establish work and rad zones.
- I. Prepare Environmental Checklist (EC)/Eco clearance.
- J. Prepare Davis Bacon Determination.
- K. Prepare Radiological Work permit.
- L. Provide waste management services for waste and returns generated during drilling.
- M. Provide well construction oversight including radcon and safety support.
- N. Provide support for USGS pump test, well completion activities and initial well sampling.

C.4.3.03 WAG 3 INTEC CERCLA Remediation

The Contractor shall implement the Record of Decisions (RODs) for WAG 3, OU 3-13 and 3-14, to ensure Remedial Action Objectives (RAO) are met.

The Contractor shall implement the 3-14 Tank Farm Soil and INTEC Groundwater Remedial Design/Remedial Action (RD/RA) Work Plan (DOE/ID-11333) and take action to reduce anthropogenic water losses and recharge to the INTEC northern perched water zone per the Work Plan.

The Contractor shall implement the OU 3-14 Tank Farm Soil and INTEC Groundwater Operation and Maintenance Plan (DOE/ID-11337).

The Contractor shall comply with the OU 3-14 Tank Farm Soil and INTEC Groundwater Waste Management Plan (DOE/ID-11335).

C.4.3.04 WAG 7 RWMC CERCLA Remediation

The Contractor shall perform vadose zone sampling and reporting; operate and maintain the organic contamination in the vadose zone vapor extraction and treatment system; provide

products and services to satisfy requirements of the Federal Facility Agreement and Consent Order (FFA/CO) at the Subsurface Disposal Area (SDA).

The Contractor shall implement the Field Sampling Plan for OU 7-13/14 Aquifer Monitoring (DOE/ID-11492) and perform groundwater monitoring and O&M of the monitoring wells.

The Contractor shall implement the Vadose Zone Field Sampling Plan for OU 7-13/14 (DOE/ID-11503).

The Contractor shall implement the Operable Unit 7-13/14 Operations and Maintenance Plan (DOE/ID-11393); operate and maintain the vapor vacuum extraction system (OCVZ); complete Pad A inspections and reports, etc. The Contractor shall revise the plan in accordance with the FFA/CO to allow the necessary studies to complete the design for the final SDA cap.

The Contractor shall implement the Health and Safety Plan for OU 7-13/14 Field Activities (ICP/EXT-04-00209) for applicable work at RWMC.

The Contractor shall note that the WAG 7 Buried Waste Exhumation scope is addressed in Section C.5.2.01 CH-TRU Waste Exhumation.

C.4.3.05 WAG 10 Balance of Site Remediation

The Contractor shall prepare and submit to DOE the monthly report required by the FFA/CO Section 17.1 by the 15th day of each month.

The Contractor shall implement the Comprehensive ROD for WAG 10, OU 10-08, for Long-Term Management and Control of ICP sites to ensure remedial action objectives are met.

The Contractor shall maintain all CERCLA records and operate and maintain the environmental databases for all WAGs. This includes, but is not limited to, the Institutional Control (IC) database; the Geographical Information System; the CERCLA Action Tracking System; the Environmental Data Warehouse (EDW); and the Administrative Record and Information Repository.

The Contractor shall implement the Site-Wide Institutional Controls, and Operations and Maintenance (IC & O&M) Plan (DOE/ID-11042).

The Contractor shall prepare a draft 2020 CERCLA 5-year review document for submittal to regulatory agencies by August 15, 2020. The Contractor shall also be responsible for revising and finalizing the 5-year review document per agency comment.

The Contractor shall implement the OU 10-08 Post-Record of Decision Groundwater Monitoring and Field Sampling Plan for OU 10-08 (DOE/ID-11420). The Contractor shall maintain the current CERCLA monitoring well network, including well logging, routine maintenance of existing monitor wells, and the annual reporting of such activities.

The Contractor shall manage and maintain the New Site Process by identifying, tracking, remediating, and documenting the remediation of future new sites in accordance with OU 10-08 ROD and Remedial Design Remedial Action Work Plan (DOE/ID-11418). See Section 5. of DOE/ID-11418. The Contractor shall perform remedial actions at new CERCLA sites identified through the New Site Identification (NSI) process.

The Contractor shall prepare a plug-in remedy memorandum and Explanation of Significant Differences for a removal and disposal plug-in remedy to remove two feet of contaminated gravel from the northern drain (32-TRA), properly plug and abandon both shallow injection wells (32-TRA and 33-TRA at the former location of TRA-655), and maintain institutional controls until the risks have been reduced to acceptable levels. See CERCLA document NSI-25188 for new site TRA-75.

The Contractor shall complete New Site Identification Forms (NSID), Part A's as necessary.

The Contractor shall implement Field Sampling Plans (FSP) and remedial actions in the field.

The Contractor shall implement FSPs for the following new sites:

- TRA-79 (includes TRA-15 and TRA-78) (DOE/ID-11493 Rev. 0). See CERCLA document NSI-26003.
- TRA-80 (includes ATRX courtyard area, TRA-Y, and TRA-19). See CERCLA document NSI-26011.

FSP documents for TRA-80, and CPP-138 will be posted to ar.inl.gov when complete.

After the FSPs are implemented for these two sites and characterization data are obtained, the Contractor shall complete Part B of the NSID process for each of the two sites and obtain regulatory agency approval.

The Contractor shall prepare a FSP for CPP-142, implement the FSP, abandon the shallow injection well, and after characterization data are obtained, complete Part B of the NSID process for this site and obtain regulatory agency approval.

The Contractor shall prepare Part Bs of the NSID process and obtain regulatory agency approval for the following three sites:

- PBF-39, See CERCLA document NSI-26019;
- TRA-83, See CERCLA document NSI-26020;
- TRA-84, See CERCLA document NSI-26021;

The Contractor shall implement the Groundwater Monitoring Plan for ATRX OU 2-13 (DOE/ID-10626).

The Contractor shall implement the Central Facilities Area (CFA) Landfills Long-Term Monitoring and Field Sampling Plan (DOE/ID-11374).

C.4.3.06 Additional Groundwater Monitoring Wells - CFA Landfill (PRICED OPTION)

The Contractor shall abandon three existing monitoring wells and install three new monitoring wells for the CFA Landfill monitoring.

C.4.3.07 Additional Groundwater Monitoring Wells - TAN Groundwater Remediation (PRICED OPTION)

The Contractor shall install three new monitoring wells for the TAN Groundwater Remediation.

C.5.0 WASTE MANAGEMENT

The Contractor shall manage all: hazardous, M/LLW (including primary M/LLW from INTEC and AMWTP, which is stored ISA CH-TRU reclassified as M/LLW), CH-TRU and RH-TRU waste, and exhumed CH-TRU waste generated by the Idaho Cleanup Project (ICP). Waste types anticipated to be encountered under this PWS include debris, solids, and soil. The Contractor shall establish and maintain a DOE Order 435.1 Change 1 compliant M/LLW and TRU waste program. This includes but is not limited to: treating waste; maintaining characterization and treatment equipment and facilities; supporting inspection, certification, and compliance audits (including multiple disciplines within the Department of Energy Consolidated Audit Program (DOECAP) process); transporting and disposing; and interfacing with regulatory agencies including EPA, the state of Idaho, the state of Nevada, and the state of New Mexico.

The Contractor shall be subject to the Department of Transportation (DOT) Hazardous Material Regulations (HMR) and may wish to prepare and/or conduct an offsite shipment that is not in accordance with the HMR. If so, then the contractor shall apply for a DOT Special Permit. Applications shall be submitted to the responsible Head of Operations Office or the Field Office/Site Office Manager for processing through the EM Headquarters Certifying Official (HCO) to DOT. Applications shall follow the directions in 49 CFR 107.105.

All TRU waste generated under this Contract, listed in the ISA, identified in the PWS waste inventory exhibits, or encountered during the course of accomplishing this contract work shall be processed and continue to ship waste out of the state of Idaho.

All TRU waste with a generation date of 1995 or earlier shall be managed as Idaho Settlement Agreement TRU waste and is defined as "Legacy TRU waste." Waste retrieved from the Transuranic Storage Area – Retrieval Enclosure (TSA-RE) includes waste that may fall out as M/LLW. All ISA CH-TRU waste shall be treated per Schedule Milestones (SM)-8, SM-9, SM-10 and shipped out of the state of Idaho in accordance with the WIPP shipping schedule approved by the CBFO. The Contractor shall assume an initial total volume of 13,000 cubic meters of ISA CH-TRU waste that shall be treated, characterized, and certified for shipment at the contract effective date. All ISA CH-TRU waste and associated volumes that are treated and disposed shall be accounted for such that DOE can provide objective evidence of compliance with provisions of the 1995 Idaho Settlement Agreement and the INL Site Treatment Plan.

All targeted waste exhumed and packaged from the SDA under OU 7-13/14 activities, regardless of assay results, shall be processed and shipped out of the state of Idaho in compliance with the requirements defined in the Agreement to Implement. For WIPP disposal purposes, related to the exhumation of buried waste, the Contractor shall manage it in accordance with the applicable requirements of the Waste Analysis Plan of the WIPP Hazardous Waste Facility Permit, *NM 4890139088-TSDF WIPP document repository* available at http://www.wipp.energy.gov/Documents_All_Number.htm. See Exhibit C-7, *ISA Inventory of CH-TRU Waste [Item Description Code (IDC) Definitions]*, and Exhibit C-13 *Standard Waste Container Volume Assumptions*, for definitions and container volume assumptions for the waste within Exhibits C-8 and C-9. Estimated CH-TRU and RH-TRU waste inventory on-site is available in Exhibit C-8, *ISA Inventory of CH-TRU Waste* and Exhibit C-9, *ISA and Non-ISA Inventory of RH-TRU Waste*.

Work associated with the disposal of TRU waste at the Waste Isolation Pilot Plant (WIPP), includes, but is not limited to: retrieval from various on-site locations; exhumation from the SDA; development of acceptable knowledge documentation (including Tier 1-request development and support); treatment to meet the most current version of the Transuranic Waste Acceptance Criteria (WAC) (available at the *WIPP document repository*: http://www.wipp.energy.gov/Documents_All_Number.htm); visual examination; waste characterization and certification; assembly of containers into payloads; and loading of approved transportation containers for shipment to and disposal at WIPP. TRU waste must be treated to meet the requirements of the most current version of the WIPP WAC, which includes, but is not limited to: development of data packages to show compliance with the WIPP WAC, defense of data packages, and negotiation with the state of New Mexico and EPA.

Payloads that are certified for disposal at WIPP shall meet the requirements for shipment in TRUPACT-II containers, HalfPACT containers, RH-72B containers, or other NRC-certified packaging as applicable (i.e. TRUPACT-III containers, once certified). The container specifications for approved payload configurations are identified in the most current version of the WIPP WAC. The payload configurations can include a mixture of TRU waste and waste having TRU constituents provided the final disposal configuration is determined to be TRU waste.

The WIPP Shipping Baseline schedule is subject to Carlsbad Field Office (CBFO) approval and utilizes a week starting on Sunday and ending on Saturday. The Contractor shall ensure the WIPP Shipping Baseline schedule accounts for the following Idaho native Indian tribal holidays: [Treaty Days (July 3), Independence Day (July 4), Shoshone – Bannock Indian Festival (second weekend in August, Thursday through Sunday) and Indian Days (last Friday of September)]. The Contractor shall plan for approximately six weeks for the annual WIPP maintenance shutdown, typically during the second quarter of the Government fiscal year. CBFO will establish what constitutes the last shipment prior to a holiday or shutdown and when shipments can resume.

Agreement on specific dates for TRU waste shipments to WIPP shall be reached with the DOE Carlsbad Field Office, approximately one month in advance. Shipments shall be managed through the CBFO approved WIPP Shipping Baseline schedule. The WIPP Shipping Baseline

schedule is subject to changes based upon CBFO funding and DOE priorities. Shipment departure times are subject to CBFO approval in order to minimize transit times between the INL site and WIPP and to comply with CBFO agreements with participating states en route (i.e. the number of shipments at a Port of Entry at any one time or shipment arrival times at a Port of Entry).

Transportation inspections are required by the U.S. Department of Transportation (DOT) and the state of Idaho prior to the TRU waste shipments leaving the INL. The Contractor shall be responsible for control of the shipment through: loading and assembly of the cask, placement and securing the cask onto the transport trailer provided by the Government, and inspection of the assembled load, truck, and trailer by the Idaho State Police (ISP). After the ISP has determined that the shipment has passed inspection, the shipment is released, thereby transferring control to the WIPP transportation contractor. Transportation of TRU waste to WIPP is the responsibility of CBFO after the transport receives dispatch approval from the WIPP Central Monitoring Room and leaves the INL security gate.

The three major waste programs discussed under this section include: CH-TRU (C.5.1 and C.5.2), RH-TRU (C.5.3 and C.5.4), and CH M/LLW (C.5.5).

C.5.1 CH TRU Waste Disposition

The Contractor shall complete the processing of all ISA waste at the Transuranic Storage Area (TSA) and also shall complete shipment out of the state of Idaho in accordance with the WIPP shipping schedule approved by the CBFO. All non-ISA waste at TSA shall be treated and disposed of within 6 months of the completion of the ISA scope. These activities include, but are not limited to, routine operations and maintenance activities needed to support the CH-TRU facilities and any facility improvements needed to sustain operations. When all CH-TRU waste and M/LLW has been shipped out of the state of Idaho for disposal, facilities shall be maintained in a stand-by condition to the end of the contract unless directed otherwise by the CO.

The Contractor shall support the Waste Isolation Pilot Plant (WIPP) actions in response to a suspected pinhole defect in a Ten-Drum-Overpack (TDOP) shipped by the Contractor.

C.5.1.01 AMWTP Permit

The AMWTP Hazardous Waste Management Act (HWMA)/RCRA Permit was issued with an effective date of 06/04/2008, and currently consists of the Waste Storage Facilities (WSF) (WMF-628 through WMF-635), WMF-610, WMF-676, and the Outside Storage Area. The WSF, WMF-610, and WMF-676 are currently permitted for storage, various miscellaneous treatment, and mechanical processing. WMF-636 Pad 2 and the Outside Storage Area are currently permitted for container storage and treatment.

The Contractor shall complete a reapplication for the AMWTP HWMA/RCRA Permit as required by the INL RCRA Work Plan, see the following website:
https://idahocleanupproject.com/Portals/0/Documents/FINALWORKPLAN_Rev041714.pdf.

This reapplication is required to be submitted to the Idaho Department of Environmental Quality (IDEQ) by December 1, 2017 and shall include all areas that are currently permitted.

The Contractor shall prepare a RCRA closure plan for WMF-636 including the TSA-RE Interim Status Units and WMF-636 Pad 2 and submit the plan to DOE for approval. This plan may require coordination with CERCLA to determine if contamination is present below the asphalt. The closure plan shall be developed to show closure activities beginning within 90 days of removing all stored TRU waste from the facilities. WMF-636 (TSA-RE) is a weather-tight metal building over hazardous waste container storage units TSA-RE Pad R, Pad 2, and Pad 1. The TSA-RE building covers the waste stack, berms, and sloped earth. TSA-RE Pad 1 and TSA-RE Pad R are currently permitted for storage, liquid absorption, decanting, neutralization, sizing, and repackaging. The Pad 1 and Pad R portions of this unit will operate under interim status, and the Pad 2 portion of this unit will operate under the AMWTP HWMA/RCRA Permit until closure.

C.5.1.02 CH-TRU Waste from Other DOE Sites

The Contractor shall process up to 100 cubic meters of CH-TRU waste from other DOE sites as directed by the CO in accordance with the INL Site Treatment Plan requirements. Anything beyond 100 cubic meters will be directed by the CO and will be considered out of target work scope under CLIN 00001. The INL Site Treatment Plan requires that this waste be treated within six (6) months of receipt and shipped out of the state of Idaho within six (6) months of treatment, whether dispositioned as CH-TRU or M/LLW. CH-TRU waste from other DOE sites will be shipped in TRUPACT containers or other certified packaging. The Contractor shall separately account for all treated and disposed waste volumes such that DOE can provide objective evidence of compliance with provisions of the 1995 Idaho Settlement Agreement and the INL Site Treatment Plan. The Contractor shall reduce the volume of this material whenever possible, such as through supercompaction, prior to shipment for disposal. The Contractor shall manage this additional work such that no INL Site regulatory milestones will be missed. This work may be performed utilizing existing facilities and equipment as agreed to by the Contractor and the generating site within a DOE-approved MOU.

C.5.1.03 CH-TRU Retrieval

The Contractor shall complete the retrieval of all stored waste from the earthen covered berms and cargo containers located within building number WMF-636, Transuranic Storage Area (TSA)-Retrieval Enclosure (RE) to ensure that all waste can be certified and/or shipped prior to December 31, 2018. All waste retrieved from WMF-636 shall be managed as Idaho Settlement Agreement waste. The retrieved containers may be breached, damaged, degraded, or of questionable structural integrity. The Contractor shall take appropriate measures to manage all containers safely and effectively to minimize the spread of radioactive contamination and hazardous materials, and exposure to workers. The Contractor shall disposition the soil cover removed from the waste stored in the TSA-RE in a compliant manner established by the Contractor (e.g. CERCLA waste in ICDF). The approximate footprint of the containers that remain to be retrieved from WMF-636 is included in Exhibit C-14, *CH-TRU Waste Inventory to be Retrieved*.

C.5.1.04 CH-TRU Characterization and Certification

In order to ship waste to WIPP, the waste shall be certified and characterized, packaged, and shipped by a program that is certified by CBFO. On the contract effective date, the Contractor shall assume responsibility for the certification authority granted to the Idaho CH-TRU Program by CBFO in order to characterize CH-TRU waste for disposal at WIPP. The Contractor shall maintain the certification authority to perform the characterization, packaging, and shipping of CH-TRU waste to WIPP throughout the contract period. To maintain this capability, the Contractor shall accommodate audits performed by the CBFO, the state of New Mexico, and the EPA.

The Contractor shall perform characterization as needed for storage, treatment, certification, transportation, and disposal of CH-TRU waste. Characterization may include, but is not limited to: radiological or radiographical examination, visual examination, non-destructive assay, head-space gas analysis, and/or flammability analysis (prior to final certification), reviewing characterization and treatment data to ensure the waste meets all disposal requirements, or any other methodology acceptable to DOE. The Contractor shall ensure waste packages meet all certification requirements for acceptance at WIPP.

The Contractor shall establish a contract mechanism with Nuclear Waste Partnership (NWP) to complete disposition and storage of remaining Central Characterization Program (CCP) characterization records transition for previously characterized Advanced Mixed Waste Treatment Plant (AMWTP) and Accelerated Retrieval Project (ARP) wastes. These records shall be dispositioned by NWP in accordance with CCP's Records Inventory Disposition Schedule. Records generated during the process of CCP performing characterization and certification will be dispositioned and stored at the Waste Isolation Pilot Plant Records Archive.

C.5.1.05 CH-TRU Treatment

The Contractor shall treat all legacy ISA CH-TRU waste for disposal and certify that the waste has been treated to applicable requirements, including the waste acceptance criteria of the treatment/disposal facility. Waste that is demonstrated through assay to contain greater than or equal to 100 nCi/g of transuranic isotopes shall be treated to meet the requirements of the WIPP WAC and shall be disposed of as CH-TRU. Waste that is demonstrated through assay to contain less than 100 nCi/g of transuranic isotopes shall be classified as M/LLW and shall meet the requirements of the appropriate disposal facility's WAC for disposition.

Existing treatment processes include but are not limited to: repackaging, size reduction, opening and sorting waste in order to address prohibited conditions, and mixing with absorbent to remove free liquid. These processes are currently performed in various facilities at RWMC including the Advanced Mixed Waste Treatment Facility, various treatment tents in the CH-TRU program, Accelerated Retrieval Project (ARP) V and ARP-VII for sludge repackaging, and various other facilities at RWMC. All of these processes are available for the Contractor to use as appropriate.

The Contractor shall use the AMWTP Treatment Facility to process selected S3000/S4000 Item Description Code (IDCs) through the boxlines. Sampling shall be performed as required for

identified IDCs per the Operational Chemical Compatibility Evaluation: EDF – 11208. The Contractor shall develop, submit, and receive DEQ approval of a Class II RCRA permit modification request (PMR) for processing IDC RF-762 waste. Sludge waste (S3000 and S4000) shall be treated to mitigate conditions allowing for WIPP certification and/or offsite disposal. Waste from IDCs with lack of generator traceability shall be visually identified and treated to allow for WIPP certification and/or offsite disposal.

C.5.1.06 CH-TRU Storage and Movement

The Contractor shall store all waste in a safe and compliant manner until the waste is disposed off-site or transferred for shipment to WIPP. Waste may be transferred within the RWMC footprint without characterization or Department of Transportation (DOT) compliant packaging. Waste transfers between RWMC and INTEC or Materials and Fuels Complex (MFC) shall be performed under the Contractor's DOE approved Transportation Safety Document in accordance with DOE 460.1C, Packaging and Transportation Safety.

C.5.1.07 CH-TRU Packaging and Transportation

Contractor assembly and certification of payloads and shipments are under the oversight and authority of the DOE CBFO Central Characterization Project (CCP). The Contractor shall utilize the services of the DOE CBFO CCP contractor to oversee the development of the CH-TRU waste assembly and certification of payloads and shipments in accordance with the current version of DOE CBFO TRU Waste Transportation. Costs for the services of DOE CBFO CCP shall be included in the Contractor's target cost, with the exception of the costs for shipment of the waste to WIPP.

For the CH-TRU packaging and transportation activities, the CCP Contractor will be responsible for:

- Assembly of certified waste containers into virtual payloads for shipment to WIPP.
- Completion of flam gas analysis and other transportation related activities that lead to the development of a certified shipment.
- Oversight of the payload assembly and loading for WIPP shipment.
- Shipment of waste to WIPP.

The Contractor shall utilize payload configurations that maximize the WIPP disposal capability, as determined by CBFO. The Contractor shall assemble shipments that contain a mixture of payloads that can be disposed of in an efficient arrangement in WIPP (i.e., a mixture of 7-packs of 55-gallon drums, 3-packs of 100-gallon product drums, ten drum overpacks, and standard waste boxes). The Contractor shall follow DOE policy for efficient use of TRU waste transportation resources which requires shipping sites to ship the maximum number of loaded packages (i.e., three TRUPACT-II's or two TRUPACT-II's and one HalfPACT) per shipment with minimal dunnage containers and the maximum amount of waste. All over-packed shipping configurations require specific advance approval from CBFO.

The Contractor shall follow DOE CBFO guidelines specified in the WIPP WAC. Such measures shall include, but are not limited to, supercompaction of waste whenever practical, and utilizing payload configurations and waste packaging that minimizes dunnage and maximizes shipping and disposal efficiency.

The Contractor shall utilize transport containers provided by WIPP. Transport of TRU waste to WIPP is a government furnished service that is provided by CBFO (see Section H.58 *GOVERNMENT FURNISHED SERVICES/ITEMS*). Costs for transportation of TRU waste to WIPP that are associated with: TRUPACT-II, HalfPACT, other approved NRC licensed containers, trailers, tractors, drivers, and disposal at WIPP are borne by CBFO. All other costs, including consumables, associated with TRU waste shipments to WIPP shall be included in the Contractor's Target Cost.

The Contractor shall ship all CH-TRU waste previously certified, but not shipped, by the incumbent contractor as a result of the 2014 WIPP shutdown. The backlog of CH-TRU waste is anticipated to be 750 shipments (approx. 3,750 cubic meters) which shall be shipped per the shipping schedule established by WIPP. The backlog inventory shall be shipped prior to any other CH-TRU waste. The exhumed SDA waste shall be shipped after the CH-TRU waste backlog has been shipped and after the ISA CH-TRU waste has been shipped. The Contractor shall follow this order of priority for shipping unless directed otherwise by the CO.

C.5.1.08 Disposition of MLLW

The Contractor shall disposition 431 containers of MLLW to offsite treatment and disposition by September 30, 2021. Three types of MLLW populations are included in this work scope:

- 207 previously indeterminate containers that were re-assayed using new equipment. The results of the new assays allow direct offsite disposition without processing through the sludge repackaging operations.
- 130 containers to be dispositioned offsite to commercial treatment/disposal facilities based on information gained during chemical compatibility evaluation development after the ARP V event.
- 94 containers of MLLW with Organic concentrations to be shipped for offsite thermal desorption and follow-on disposition versus SRP processing.

C.5.1.08 BROKK Removal

The Contractor shall provide supervision, craft, equipment and services to safely remove the existing BROKK structure, equipment, concrete and electrical items in accordance with Contractor's lease with the Lindsey Boulevard facility landlord. The work will be accomplished at the Lindsey Boulevard facility leased by Fluor Idaho in Idaho Falls.

C.5.2 Buried Waste Exhumation

The Contractor shall continue implementation of the WAG 7 OU 7-13/14 ROD and Agreement to Implement Court Order, dated May 25, 2006, including all required actions and reporting. In

performing waste exhumation, the Contractor shall implement the OU 7-13/14 Phase 1 RD/RA Work Plan, Rev. 2 (DOE/ID-11389).

The Contractor shall continue completion efforts for the buried waste exhumation of the approximately 1.55 acres of remaining footprint in ARPs VIII and IX at the RWMC using the existing facilities and equipment (excavators, telehandlers, front end loaders, Drum Packaging Stations, etc.). This scope shall include the operations, maintenance and improvements of RWMC facilities located on the Subsurface Disposal Area (SDA). These activities shall include but are not limited to: routine operations and maintenance activities needed to support the AMWTP facilities, and any facility improvements needed to sustain operations. All other work associated with processing exhumed waste shall be completed in accordance with Sections C.5.1.04, C.5.1.06, and C.5.1.07.

The Contractor shall complete system operability testing and operations startup of ARP IX.

The Contractor shall continue to operate and maintain facilities WMF-602, 610, 618, 628, 634, 635, and type II storage modules (WMF- 629 – 633) as needed for both stored and/or buried CH-TRU waste through completion of shipping of exhumed waste.

C.5.3 RH-TRU Waste Disposition RH-TRU (LOTS 1 – 9)

The Contractor shall complete the processing and shipment for disposal out of Idaho for all RH-TRU in storage at INTEC which includes all waste remaining in Lots 1 through 9. The estimated inventory is included in Exhibit C-9, *ISA and Non-ISA Inventory of RH-TRU Waste*. All waste in Lots 1 through 9 shall be treated and packaged by September 30, 2016. The Contractor shall prepare this waste for shipment out of the state of Idaho when WIPP accepts RH-TRU shipments. This scope includes the operations, maintenance, and improvements of RH-TRU Program facilities at INTEC. These activities shall include, but are not limited to: routine operations and maintenance activities needed to support the RH-TRU Program facilities, install a new operating system (hardware and software) for the RTR equipment to ensure its operability in nondestructive examination for characterization of RH TRU wastes for years to come, and any facility improvements needed to sustain operations.

The RH-TRU Program consists of the following elements.

C.5.3.01 RH-TRU Retrieval

The Contractor shall retrieve stored RH-TRU waste from INTEC (CPP-1617) and from the RSWF at MFC and stage it at INTEC for future treatment at CPP-666. The Contractor shall use a DOE provided Facility Transfer Cask, or an Interim Storage Container (ISC), when transporting material from the RSWF to INTEC. Retrieval of waste from RSWF may require pulling inner waste containers from below grade liners or excavation of the outer liners depending upon the inner waste container integrity.

C.5.3.02 RH-TRU Characterization and Certification

The RH-TRU waste shall be treated and characterized in accordance with the WIPP WAC requirements. The Contractor shall utilize the services of the DOE CBFO CCP contractor for continued characterization of RH-TRU waste with existing approved programmatic documents in accordance with the WIPP WAC. The Contractor shall support the development of the waste certification data packages to show compliance with the WIPP WAC, support the defense of the data packages and support negotiations with the State of New Mexico and the Environmental Protection Agency. The program shall be fully operational and support the recertification audit performed by the CBFO and the state of New Mexico tentatively planned for February 2021. The Contractor shall work with CCP to resolve any audit findings and close out by September 30, 2021. Costs for the services of DOE CBFO CCP shall be included in the Contractor's target cost through May 31, 2021.

The Contractor shall perform characterization under the DOE CBFO CCP program. Characterization may include, but is not limited to, radiological or radiographical examination, visual examination, dose-to-curie, flammability analysis, wattage determinations, reviewing characterization and treatment data to ensure the waste meets all disposal requirements, or any other methodology acceptable to DOE. This scope shall also include performing proficiency demonstration of the 72-B cask.

The Contractor shall work with the Central Characterization Project (CCP) to provide programmatic documents to the U.S. Environmental Protection Agency (EPA) in support of the EPA's Tier 1 review of five (5) waste streams. The specific waste streams are:

- a. Lot 2 – add liners ANLE4, ANLE50 and ANLE51 (CCP-AK-INL-500)
- b. Lot 9B (CCP-AK-INL-740)
- c. Lot 9C (CCP-AK-INL-680B)
- d. Lot 9E (CCP-AK-INL-710)
- e. Lot 9F (CCP-AK-INL-720A)

C.5.3.03 RH-TRU Treatment

The Contractor shall treat all waste for disposal and certify that the waste has been treated to applicable requirements, including the waste acceptance criteria of the treatment/disposal facility. Waste that is demonstrated through assay or dose-to-curie to contain greater than or equal to 100 nCi/g of transuranic isotopes shall be treated to meet the requirements of the WIPP WAC. Waste that is demonstrated through assay or dose-to-curie to contain less than 100 nCi/g of transuranic isotopes shall meet the requirements of the appropriate disposal facility's WAC.

Existing treatment processes include but are not limited to: repackaging, size reduction, removal of WIPP prohibited waste characteristics (e.g. Sodium) and opening and sorting waste in order to address prohibited conditions that prevent disposal of the subject waste. These processes are currently performed in CPP-666 and CPP-659 at INTEC. All of these processes are available for the Contractor to use as appropriate.

No liquids are anticipated to be generated during RH-TRU treatment that would require the INTEC Liquid Waste Management System to remain active for RH-TRU operations.

C.5.3.04 RH-TRU Storage and Movement

The Contractor shall store all waste in a safe and compliant manner until the waste is disposed off-site or transferred for shipment to WIPP. Waste may be transferred within the INTEC footprint without characterization or DOT compliant packaging. Waste transfers between RWMC or MFC and INTEC shall be performed under the Contractor's DOE approved Transportation Safety Document in accordance with DOE 460.1C, Packaging and Transportation Safety.

C.5.3.05 RH-TRU Packaging and Transportation

Contractor assembly and certification of payloads and shipments are under the oversight and authority of the DOE CBFO CCP. The Contractor shall utilize the services of the DOE CBFO CCP contractor to oversee the development of the RH-TRU waste assembly and certification of payloads and shipments in accordance with the DOE CBFO CCP certified Packaging and Transport program. Costs for the services of DOE CBFO CCP shall be included in the Contractor's target cost. Contractor assembly and certification of payloads and shipments shall be performed in accordance with the CCP certified packaging and transportation program. The Contractor shall utilize payload configurations that maximize the WIPP disposal capability, as determined by CBFO. The Contractor shall assemble shipments that contain a mixture of payloads that can be disposed of in an efficient arrangement in WIPP. The Contractor shall follow DOE policy for efficient use of TRU waste transportation resources which requires shipping sites to ship the maximum number of loaded packages (i.e., fully loaded RH-72Bs) per shipment with minimal dunnage containers and the maximum amount of waste. All over-packed shipping configurations require specific advance approval from CBFO.

The Contractor shall follow DOE Carlsbad Field Office guidance specified in the WIPP WAC. Such measures shall include, but are not limited to utilizing payload configurations and waste packaging that minimizes dunnage and maximizes shipping and disposal efficiency

The Contractor shall utilize transport containers provided by WIPP. Transport of TRU waste to WIPP is a Government Furnished Service that is provided by CBFO. Costs for transportation of TRU waste to WIPP that are associated with: RH-72B casks, other approved NRC licensed containers, trailers, tractors, drivers, and disposal at WIPP are borne by CBFO. All other costs, including consumables (e.g., removable lid canisters), associated with TRU waste shipments to WIPP shall be included in the Contractor's Target Cost.

The Contractor shall ship all RH-TRU waste (Lots 1-9) previously certified, but not shipped, by the incumbent contractor as a result of the 2014 WIPP shutdown. The backlog of RH-TRU waste is anticipated to be 50 shipments (approx. 15 cubic meters) which shall be shipped per the shipping schedule established by WIPP. The backlog inventory shall be shipped prior to any other RH-TRU waste. Once the backlog inventory has been shipped, the Contractor shall resume shipments of RH-TRU waste in accordance with the shipping schedule established by WIPP.

C.5.3.06 RH Waste LOT 11

The Contractor shall retrieve, process, treat, characterize, and dispose of the waste identified as Lot 11 (Legacy RH-M/LLW). See Exhibit C-11, *Lot 11 – Legacy RH- M/LLW*. Although most of Lot 11 can only be treated in CPP-666 due to container size and Rad fields greater than 50 R/hr at 30 cm, some of the population may be treated in CPP-659.

This scope involves the treatment and repackaging of waste that contains sodium, NaK, and/or RCRA metals. The reactive nature of this waste requires segregation and management to prevent its unintended contact with water or other materials that may cause a reaction. Activities such as hot cell cleanouts may be required prior to introduction of other waste streams into treatment areas that have processed active waste. This waste shall be retrieved from below ground storage at the RSWF at MFC, or above ground as made available by the INL contractor and transferred to INTEC by the Contractor for treatment. The storage configuration at RSWF is vertical pipes placed below grade and retrieval may require excavation of the pipes.

C.5.3.07 RH Waste LOT 11 FY 2020 Option Work (PRICED OPTION)

The Contractor shall operate the RH Waste program in accordance with sections C.5.3.01 RH-TRU Retrieval, C.5.3.02 RH-TRU Characterization and Certification, C.5.3.03 RH-TRU Treatment, C.5.3.04 RH-TRU Storage and Movement, and C.5.3.05 RH-TRU Packaging and Transportation for Lot 11 (Legacy RH-M/LLW) and/or suspect RH-TRU from AMWTP. See Exhibit C-11, *Lot 11 – Legacy RH-M/LLW*. This Option work shall be completed by September 30, 2021.

This scope involves the treatment and repackaging of waste that contains sodium, NaK, and/or RCRA metals. The reactive nature of this waste requires segregation and management to prevent its unintended contact with water or other materials that may cause a reaction. Activities such as hot cell cleanouts may be required prior to introduction of other waste streams into treatment areas that have processed active waste.

The contract will require steady state operations of the facilities for FY 2020, and Fluor Idaho shall continue working on waste identified in contract Section C.5 through the period of performance. As this steady state operation produces additional containers, no additional fee can be earned above the max fee for the period.

C.5.3.08 RH Waste LOT 12 Option Work (PRICED OPTION)

The Contractor shall operate the RH Waste program in accordance with sections C.5.3.01 RH-TRU Retrieval, C.5.3.02 RH-TRU Characterization and Certification, C.5.3.03 RH-TRU Treatment, C.5.3.04 RH-TRU Storage and Movement, and C.5.3.05 RH-TRU Packaging and Transportation for Lot 12 (Newly Generated RH M/LLW and MTRU Waste) per Exhibit C-12, *Lot 12 – Newly Generated RH-TRU and MTRU Waste*.

This option shall only include work that is excluded in Section C 5.3.06, treating only waste with Rad fields of less than 50 R/hr at 30 cm. This waste is located in below ground storage at the RSWF at MFC. CPP-659 is available to characterize, treat, certify, package and transport this waste.

C.5.3.09 RH Waste LOT 11 FY 2021 Option Work (Priced Option)

The Contractor shall operate the RH Waste program in accordance with sections C.5.3.01 RH-TRU Retrieval, C.5.3.02 RH-TRU Characterization and Certification, C.5.3.03 RH-TRU Treatment, C.5.3.04 RH-TRU Storage and Movement, and C.5.3.05 RH-TRU Packaging and Transportation for Lot 11 (Legacy RH-M/LLW) and/or suspect RH-TRU from AMWTP. See Exhibit C-11, *Lot 11 – Legacy RH-M/LLW*. This Option work shall be completed in FY 2021.

C.5.4 Naval Nuclear Propulsion Program (NNPP) Pieces, Parts, and Fines (PPF) (RH-TRU LOT 10)

The Contractor shall treat the Naval Nuclear Propulsion Program (NNPP) 102 cans (Lot 10). See Exhibit C-10, *NNPP Pieces, Parts, and Fines (PPF) Inventory*. In addition to the RH-TRU Program activities defined in Sections C.5.4.01 – C.5.4.05, the Contractor shall also transfer the NNPP-PPF from the CPP-666 fuel storage basins to the CPP-666 Fluorinel Dissolution Process (FDP) hot cell for treatment as RH-TRU waste, and then characterized. All costs associated with this work shall be tracked separately to allow EM to recover costs from NNPP. All M/LLW and other process generated waste resulting from the treatment and handling of the NNPP-PPF shall be properly treated, characterized, and shipped off site for disposal. The Contractor shall inform DOE of material that does not meet the WIPP WAC.

This work (Lot 10) shall begin no earlier than GFY2018, and the waste shall be processed in available facilities (e.g. processing the waste in CPP-666 FDP hot cell; and characterization in CPP-659). Operations, including upgrades, during GFY 2018 thru 2020 shall be performed in the available facilities per availability of NNPP funds.

The scope of work to be performed includes: preparing or revising facility authorization basis documents supporting project activities; completing facility modifications and equipment upgrades at building CPP-666 Fuel Storage Area (FSA), CPP-666 FDP cell, and building CPP-659 where characterization activities occur; completing waste characterization activities, including performing visual examination (VE) and Dose to Curie (DTC) measurements.

Security clearances shall be required for all staff that will view the contents of the NNPP containers or have access to the classified information associated with their contents. A secure conference room with electronic communications equipment, located in CPP-666, shall be maintained for the use of NNPP staff. This room can be shared with staff associated with the SNF Transfer Program.

C.5.4.01 Naval Nuclear Propulsion Program (NNPP) RH-TRU Retrieval

The Contractor shall retrieve Naval Nuclear Propulsion Program (NNPP) Pieces, Parts, and Fines (PPF) (RH-TRU LOT 10) stored waste from CPP-666 at INTEC. Facility hot cell clean out and decontamination (from prior Sodium waste processing), facility modification, facility and transfer cart upgrades, and preparations shall be completed prior to initiating Lot 10 waste processing. Three cart inserts are required to support can transfers to the FDP cell. The transfer cart is used to transfer individual cans from the pool storage area through the canal into the FDP cell for repackaging.

C.5.4.02 Naval Nuclear Propulsion Program (NNPP) RH-TRU Characterization and Certification

The Contractor shall characterize Naval Nuclear Propulsion Program (NNPP) Pieces, Parts, and Fines (PPF) (RH-TRU LOT 10) in accordance with C.5.3.02. Waste characterization and certification will be performed under the certification authority of the CCP for disposal at WIPP. The general services for CCP Lot 10 support include: Issue Chemical Compatibility Evaluations; Issue Basis of Knowledge memo, prepare Interface Waste Management Document Management List (IWMDL); prepare CCP-TP-005 Attachment 3, AK Source Document Summary and submit to CCP Records; and completing Characterization Information Summary (CIS), Characterization Reconciliation Report (CRR), Acceptable Knowledge (AK) Accuracy Report, and support Carlsbad Field Area Office (CBFO) annual recertification audit.

C.5.4.03 Naval Nuclear Propulsion Program (NNPP) RH-TRU Treatment

The Contractor shall treat Naval Nuclear Propulsion Program (NNPP) Pieces, Parts, and Fines (PPF) (RH-TRU LOT 10) in accordance with C.5.3.03. Accountability of nuclear material shall remain in effect until treatment and packaging are completed. NNPP PPF shall be treated using existing facilities and equipment.

C.5.4.04 Naval Nuclear Propulsion Program (NNPP) RH-TRU Storage and Movement

The Contractor shall perform storage and movement of Naval Nuclear Propulsion Program (NNPP) Pieces, Parts, and Fines (PPF) (RH-TRU LOT 10) in a safe and compliant manner until the waste treatment and characterization is complete. Waste may be transferred within the INTEC footprint without characterization or DOT compliant packaging.

C.5.4.05 RESERVED

C.5.5 CH MLL LLW Disposition

C.5.5.01 Waste Generator Services

The Contractor shall manage a waste generator services program that encompasses: hazardous and M/LLW (including primary M/LLW from AMWTP, which is stored legacy CH-TRU reclassified as M/LLW, and M/LLW at INTEC, see Exhibit C-26, *U-233 Waste Located In*

Storage at INTEC) waste. This management starts with pre-generation planning through shipment to off-site or on-site disposal. The Contractor shall ensure that all wastes are properly characterized and maintained in safe, compliant storage until properly disposed of or shipped off-site. The Contractor shall establish management controls to allow timely and efficient verification by DOE of waste volumes retrieved, treated, certified, packaged, loaded, and shipped off-site. The Contractor shall safely manage and dispose of waste, generated by or discovered during on-site EM cleanup activities (which includes any waste generated at TMI-2 by the NRC contractor), at an appropriate disposal facility. The Contractor shall establish or maintain the generator certifications with off-site disposal facilities (e.g. Energy Solutions, Waste Control Specialists, etc.) necessary to implement the PWS. Should another contractor require ICP Core Waste Generator Services, then the Interface Agreement between the two contractors shall define how waste treatment and disposal services will be provided and reimbursed.

There is currently no on-site disposal facility for non-CERCLA M/LLW. Packaging, transporting, and disposing of non-TRU waste for treatment and/or disposal facilities shall be the responsibility of the Contractor. The Contractor shall package waste to meet applicable regulatory and treatment/disposal requirements and shall comply with the applicable waste acceptance criteria for treatment and disposal facilities. The Contractor shall be responsible for providing shipping containers for non-TRU waste and ensuring all applicable shipments meet DOT requirements. The Contractor shall provide transportation coordination related to the scheduling, inspection, notification, tracking, and reporting of non-TRU waste shipments. The Contractor shall assume responsibility for the shipping certification granted by the DOE Nevada National Security Site (NNSS) in order to dispose of non-TRU waste at NNSS. This certification shall be maintained throughout the contract.

The Contractor shall treat, as necessary, and dispose of process-generated waste and other wastes in accordance with timeframes specified in the Site Treatment Plan or any other relevant regulations or regulatory requirements. Process-generated waste is newly generated as a result of waste processing, maintenance operations, or equipment change out. Examples of process-generated wastes include, but are not limited to, shredder boxes, empty cargo containers, cleaning solvents used during maintenance, rags, contaminated clothing, and failed equipment parts. All process generated waste created during the execution of this Contract, with the exception of waste generated in the last 90 days, shall be dispositioned prior to the end of the Contract.

The Contractor shall operate the RWMC RH-LLW vaults and dispose of on-site generated NNPP remote-handled (RH) low level radioactive waste (LLW) using the concrete vaults at the Subsurface Disposal Area (SDA). The Contractor shall be responsible for the safe management and disposal of RH-LLW and the work shall be performed through September 30, 2021.

The Contractor's Waste Generator Services shall include the following:

- (1) Management and operations of the Integrated Waste Tracking System (IWTS) and the Waste Tracking System (WTS) at AMWTP.
- (2) Packaging and transportation services including coordination of shipments that do not

meet Department of Transportation requirements (non-routine shipments) and shipment of non-WIPP containerized waste from the Accelerated Retrieval Project (ARP) exhumations.

A request for equitable adjustment (REA-2018-004) was submitted (CCN 322461) for changes in cost and schedule in U-233 Shipment delays resulting from delayed waste stream approvals by the National Nuclear Security Administration (NNSA) Nevada Field Office. DOE accepted the REA in part on September 6, 2019.

C.5.5.02 Special Requirements Wastes

During the course of normal operations, the Contractor may encounter waste that has special handling requirements. These wastes include, but are not limited to: non-defense TRU waste, mercury contaminate granulated activated carbon (GAC), high fissile gram equivalent (FGE) TRU waste, oversized and overweight containers and items, greater than class C (GTCC)-like waste, and TRU waste from other DOE sites. The Contractor shall manage this waste in accordance with all applicable laws and regulations.

There are currently no operating facilities that can accept non-defense TRU waste and GTCC-like waste for treatment and/or disposal. WIPP can only accept defense-generated TRU waste and no other commercial or Government facility has disposal and/or treatment capability. The Contractor shall manage this waste in accordance with all applicable laws and regulations until such a time as an operating facility becomes available.

C.5.5.03 Legacy Excess Radioactive/Hazardous Materials (PRICED OPTION)

The Contractor shall process and dispose of all Legacy Excess Radioactive/Hazardous Materials (excluding depleted uranium ingots) and the entire Sodium Component Maintenance Shop (SCMS) Backlog. See Exhibit C-15 *Inventory of Legacy Excess Radioactive/Hazardous Materials* and Exhibit C-16 *Inventory of SCMS Backlog*. Processing and disposing of this waste include Retrieval, Characterization and Certification, Treatment, Storage and Movement, and Packaging and Transportation.

C.5.5.04 Legacy Excess Radioactive/Hazardous Materials

For the depleted uranium ingots generated by Experimental Breeder Reactor II spent nuclear blanket fuel processing, see Exhibit C-15, *Inventory of Legacy Excess Radioactive/Hazardous Materials*. The Contractor shall perform an evaluation of the waste stream and provide a recommended disposal path, along with an estimated cost and schedule, to DOE by April 4, 2019.

C.5.6 RCRA Closure of AMWTP Facilities (PRICED OPTION)

The Contractor shall perform RCRA Closure for the AMWTP 636 facility per the RCRA permit and execute the RCRA closure in accordance with the permit. Begin Phase II as outlined in the RCRA Closure strategy plan for the pre-RCRA closure of WMF-676 Treatment facility. Begin

pre-RCRA closure of WMF-634 and WMF-610. Begin developing Phase II, III and IV draft PMRs to the HWMA/RCRA permits for the RCRA closure of Treatment Facilities/Process Closure areas, type II modules, shipping process and support buildings and all outside storage areas.

C.5.7 Additional Temporary CH-TRU Storage (PRICED OPTION)

The Contractor shall construct one 15,000 drum equivalent storage facility to address storage of waste while WIPP remains closed. The facility shall be constructed in the Pit 9 laydown area north of the Subsurface Disposal Area (SDA), and shall be constructed in accordance with Exhibit C-17, *CH-TRU Storage Facility Technical and Functional Requirements*.

C.5.8 ARP IX Construction Support at RWMC

The Contractor shall assume and maintain the ARP IX design through the period of construction and shall also support construction activities of ARP IX to be performed by a separate DOE Construction/D&D prime contractor. The Contractor shall accept the ARP IX facility from the separate DOE Construction/D&D prime contractor upon construction completion (anticipated to be October 1, 2017) and perform system operability testing, operations startup, and complete exhumations.

C.5.9 RCRA Closure of ARP-V Scope

The Contractor shall remove and manage visible RCRA waste and eliminate the need for post-closure RCRA activities in WMF-1617. This scope includes:

- A. Develop and obtain DEQ approval of a Class 1 permit modification request (PMR) to update the existing RCRA closure plan. DOE-ID review will be completed within two weeks from submittal. The Contractor shall provide briefings, facilitate walk-downs, and hold discussions to receive DEQ approval as soon as possible after submittal (30 days is preferred).
- B. Clean all visible RCRA waste from process equipment and building components that will remain in place per the requirements of the RCRA closure plan. The soil in the ARP V facility is CERCLA contaminated and no soil related action is required by the Closure plan.
- C. Remove all visible RCRA contamination from reusable equipment (e.g. trays, pans, vacuums, thumbs, etc.) per the requirements of the RCRA closure plan and transfer it for reuse in WMF-1619 (ARP VII).
- D. Accumulate secondary residual RCRA waste (small amounts of sludge and other debris) remaining in the ARP V facility. Process these waste residues through the ARP V sorting table, complying with Documented Safety Analysis controls and package thru the drum packaging stations. All secondary waste will be packaged out of the facility.
- E. After the last of the accumulated RCRA residual waste is processed, any remaining residual RCRA waste will be cleaned from all process equipment, including but not limited to the sorting table, secondary containment

under/adjacent the sorting table, waste trays, vacuums from the DPS units, vacuums from the airlock, and the drum packaging stations per the requirements of the RCRA closure plan. Any remaining equipment in the WMF-1617 facility will be placed out of service.

- F. A passageway for transfer of reusable heavy equipment from WMF-1617 to WMF-1619 will be designed and constructed. Equipment will then be transferred. The passageway will be dismantled and collapsed, then buried in the SDA after transfer of /equipment
- G. A Professional Engineer (PE) will perform certification of RCRA closure and develop a Certification Report which will be submitted to DEQ. This report submittal and acceptance by DEQ will mark the completion of RCRA closure activities for WMF-1617.
- H. A video documenting the absence of all visible RCRA waste in WMF-1617 will be compared to the initial baseline video to support completion of closure activities. Any spills experienced during operations were logged, then cleaned up to a minimum of four inches below the spill, in compliance with the RCRA permit therefore no soil remediation or placement of additional soil will be required during RCRA closure. Any change from this planned approach would be a change in work scope.

C.6.0 LIQUID WASTE FACILITY CLOSURE

C.6.1 Integrated Waste Treatment Unit (IWTU) Operations and Turnover (PRICED OPTION)

The Contractor shall continue IWTU operations and turnover as described in the subsections below.

C.6.1.1 Integrated Waste Treatment Unit (IWTU) Phase One, Process Assessment

The Contractor's Project Plan of IWTU Resolution and Technical Issues, Revision 1, dated June 29, 2016, is incorporated herein and attached hereto (Attachment A).

Attachment A is included with contract modification 013 (See Contracting Officer).

C.6.1.2 Integrated Waste Treatment Unit (IWTU) Phase Two, Facility Modifications and Pilot-Scale Testing

The Contractor's IWTU Technical Issues Resolution Phase 2 Project Plan, dated October 20, 2016, is incorporated herein and attached hereto (Attachment B).

The Contractor shall execute the IWTU Phase 2 project plan delivered to DOE-ID on October 21, 2016. The IWTU Phase 2 Project Plan will incorporate the results of the IWTU Phase 1 Testing Program. This scope of work shall include the modifications required by the Phase 2 project plan to support making the IWTU facility ready for Phase 3 (IWTU Confirmatory Simulant Runs) and Phase 4 (IWTU Readiness and Radioactive Operations).

The Contractor shall continue with LOE activities related to the PGF filter discovery efforts.

This REA mitigates the schedule impacts realized due to the Process Gas Filter (PGF) issues, Carbon Reduction Reformer (CRR), Refractory and Denitration Mineralization Reformer (DMR) redesign, removing and cleaning the uncoated elements on the PGF, and an unplanned power outage. Phase 2 scope did not include any effort to understand and resolve the legacy PGF filter problems.

C.6.1.3 IWTU DMR FLUIDIZATION REDESIGN

The Contractor shall provide an alternate solution for the ringheader that will support and improve fluidization. This includes the following:

- Conduct Workshops to develop feasible fluidizing alternatives, rank alternatives, and recommend top three design concepts.
- Complete a design package, plus procure components for a double plenum with a conical bottom.
- Complete design package plus procure components for a modified fluidizing gas ring with a conical bottom.
- Complete design package plus procure components for a flat plate with bubble caps.
- Select final design for installation into the DMR vessel.
- Model each option above at the National Energy Technology Laboratory (NETL) using computational fluid dynamics modeling.
- Perform three cold flow tests at the Particulate Solids Research Inc. (PSRI) unit.
- Procure, fabricate and test each option above at the Hazen Research pilot plant.
- Procure components for fabrication and installation of the double plenum and cone mock-up.
- Develop work packages to support installation of design concepts into a mock-up vessel and DMR

C.6.1.4 IWTU CRR REFRACTORY REPAIR/REPLACEMENT

The Contractor shall fabricate and install the CRR refractory. This includes the following:

- Demolition and removal of existing castable refractory material from the CRR vessel.
- Design the new brick refractory layout, new 18” removable flange opening on the CRR vessel, and anchors for the refractory brick.
- Fabrication of the 18” flange.
- Procurement of all equipment necessary to execute the repairs.
- Install and test 18” opening for access, 18” Flange, Refractory anchors (weld), refractory brick with small areas of castable.
- Resolve CRR Issues including, repair/replace Brick Insulator, warranty work.
- Final disposal of construction and repair debris.

C.6.1.5 DMR AGING COUPONS AND SCHEDULING EXTENSION

Prior to the waterjet cutting for the DMR manway access, welding issues were identified due to potential thermal instability. Lack of heat stress manufactory data required development of a technical approach to demonstrate the ability to weld non-heat stressed material to heat stressed

material. This scope is in addition to the Phase-2 project plan and caused a schedule delay. Fluor Idaho is expected to coordinate with BEA who will perform an additional scope of work.

C.6.1.6 ADDITIONAL HAZEN AND LABORATORY/CONSULTANT SUPPORT

The original scope of work for the Hazen and Laboratory/Consultant Support included bench-scale testing and fabrication, installation, and operation of an 18-inch pilot plant to test and understand operational controls to be used at IWTU. The initial test runs, along with Simulant Run 1 at IWTU, demonstrated the need for fundamental changes to the configuration of the DMR. The added scope includes fabrication, testing, and evaluation of three distinctly different fluidizing configurations and a prototype of the design to be implemented at IWTU, as well as the subsequent testing to develop operating parameters for IWTU.

C.6.1.7 CANISTER DECONTAMINATION INITIAL CONCEPTUAL DESIGN

The planned and completed conceptual design tests demonstrated that the use of liquid nitrogen was not effective. Additional testing and conceptual development were necessary to ascertain feasible and effective decontamination and cleaning methods. The Target Cost Adjustment captures the follow-on conceptual design and testing.

C.6.1.8 PRODUCT SAMPLING ENGINEERING AND PARTIAL PROCUREMENT

The original Phase 2 scope included modification of the existing system to improve ability to reliably collect operational samples. The additional scope is to add the ability to collect, remove and safely store radiologically 'hot' samples from the sample cell during waste treatment operations.

C.6.1.9 PGF REMOVE & CLEAN UNCOATED ELEMENTS

This involves removing, cleaning, and testing the Process Gas Filter (PGF) uncoated filter elements. Removal and replacement of the installed PGF filter elements was originally planned to occur in Phase 3 prior to the introduction of Tank Waste. During Simulant Run 2 it became clear that the filters were not performing as expected and would need to be inspected and evaluated prior to Simulant Run 3. The target cost adjustment captures the effort to remove, clean, test, and evaluate the condition of PGF filter elements.

C.6.1.10 INTEGRATED WASTE TREATMENT UNIT (IWTU) PHASE 3/4, FACILITY MODIFICATIONS, CONFIRMATORY DEMONSTRATION RUN, SYSTEM PERFORMANCE TESTS, AND THE STARTUP OF RADIOACTIVE OPERATIONS

Overall Phase 3/4 scope of work:

The Contractor shall perform all necessary work towards achieving the startup of radiological operations (processing sodium bearing waste). This includes facility modifications, a confirmatory demonstration run, and may include system performance tests.

IWTU Control of Contaminated Canisters - The scope of work specific to this modification, includes:

- Modifying the Canister Fill Cells 0 & 1 HVAC systems
- Modifying the Canister Fill tube shroud design
- Pre/Post-cleaning of the Fill tube
- Evaluating and optimizing can fill tree purges and procedures Engineering and Operational evaluations of the timing and extent of Can Fill Tree purges and associated procedures.
- Modifying the Vault Loading Cell HVAC system
- Modifying the Vault Loading Cell; and
- TPR and ALARA reviews

The overall scope of work is broken down into three parts. Part A was scope that could be well defined and accurately estimated early on. Part A has been definitized as modification 131. Part B was scope that was known early on but could not be definitively estimated at the time of Part A proposal submission. Part B has been definitized as modification 152. Part C items (above) were items that could not be known at the beginning of phase 3/4 due to the complexity of this work. However, as they became known they were addressed appropriately in accordance with Section B.15 Advance Understanding – Changes to Cost and Fee.

The scope added with this modification was included in Part C, but only as a ROM. The details at the time of the part C submission were not understood sufficiently to be able to estimate accurately.

Part A - The scope of work specific to this modification, which supports the overall scope of work, includes:

1. Early engineering, procurement, planning, and execution of accelerated Outage J work into the PGF outage, including installation of new (coated, sintered-metal filter) PGF elements
2. Outage J, Part A plant modifications items as specified in Fluor's proposal (CCN 323109)
3. Fiscal Year (FY) 2019 level of effort (LOE)
4. FY 2019 Hazen Research Inc. (Hazen) scope
5. FY 2019 external laboratory and consultant support identified to date (e.g., Particulate Solids Research, Inc., Battelle Energy Alliance, LLC, Studsvik AB, Savannah River National Laboratory, Fluor Corporate Support, Dominion Engineering, etc.)
6. Confirmatory run consumables
7. FY 2020 and FY 2021 LOE through the Phase 3 confirmatory run, and CRA/DRA; excludes schedule extensions due to Part B and C items.

Part B – The scope of work specific to this modification, which supports the overall scope of work includes:

1. Canister decontamination system (engineering, procurement, installation).
2. Cell decontamination system (engineering, procurement, installation).
3. Spare parts.
4. FY 2020 Hazen, external laboratory, and consultant support.
5. FY 2020 Plant Operations (LOE).
6. Phase 4 System Performance Test (SPT); TI-103 Parts 1 and 2.
7. SPT Hazen, external laboratory, and consultant support.
8. SPT Plant Operations (LOE).

The overall scope of work for Phase 3/4 include three specific sections. Part A was scope that could be well defined and accurately estimated early on. Part A was definitized with contract Modification 131, dated July 17, 2019. Part B (above) is scope that was known but could not be definitively estimated at the time of Part A proposal submission; however, Part B is included in this scope as the schedule allows. Part C items recognizes that due to the complexity of this work, there may be additional items that cannot be known at this time. However, as they arise, they will be addressed appropriately in accordance with Section B.15 Advance Understanding – Changes to Cost and Fee. The Part C scope of work will be estimated at a later date.

Part C – The scope of work specific to this modification, which supports the overall scope of work includes:

1. PGF filter selection, procurement, vessel modification (tube sheet blow back), installation, and analytical testing.
2. A PGF inspection outage following the confirmatory run.
3. Modifications to the Hazen PGF mockup to support testing of the new filters.
4. Technical Review Group (TRG), Fluor seconded, other lab and consultant support for Part C items.
5. Newly identified facility modifications of which some have been authorized to work.
6. Data Analysis, preparation and submittal of the System Performance Test (SPT) completion report as the schedule allows.

The overall scope of work is broken down into three parts. Part A was scope that could be well defined and accurately estimated early on. Part A has been definitized as modification 131. Part B was scope that was known early on but could not be definitively estimated at the time of Part A proposal submission. Part B has been definitized as modification 152. Part C items (above) are scope items that could not be known at the beginning of phase 3/4 due to the complexity of this work. However, as the scope became known, it was addressed appropriately in accordance with Section B.15 Advance Understanding – Changes to Cost and Fee.

The Contractor shall continue with LOE activities related to the PGF filter technical resolution and discovery efforts.

This REA mitigates the schedule impacts realized due to the Process Gas Filter (PGF) issues, Carbon Reduction Reformer (CRR), Refractory and Denitration Mineralization Reformer (DMR) redesign, removing and cleaning the uncoated elements on the PGF, and an unplanned power outage.

Distributed Control System (DCS) – the Contractor shall upgrade two (2) DCS engineering station’s hardware, software, licensing and support contract. This scope includes conversion of the database, a top down compilation requiring one plant outage, installation of the upgraded engineering stations, and system testing and training.

The DCS engineering stations upgrade shall be performed during Outage J prior to the Confirmatory run to allow thorough testing of the system prior to moving to radiological operations. The Contractor shall:

- A. Procure two ABB Windows AdvaBuild v3.7 SP2 engineering stations, licensing, support contract and spare equipment.
- B. Procure support vendor services to convert main and simulator databases, migrate custom programs and perform other conversion services in preparation for upgraded engineering station install at the IWTU/ Idaho Nuclear Technology and Engineering Center (INTEC) facilities. Support services will also include a site visit to oversee installation and perform on-site engineer training.
- C. (IWTU and INTEC staff) Install upgraded engineering stations under one outage, perform formal test of simulator and production and provide final results for acceptance.
- D. (IWTU and INTEC staff) Update the DCS system drawings and software management plan.

The Contractor shall:

- Procure as much of the needed 2,529,000 pounds (lbs.) of calcined coal as possible for an additional 30 days of radioactive System Performance Testing (SPT) and completion of SBW processing.
- Procure 1,134,000 lbs. of Petcoke to complete SBW processing.
- Conduct sample analysis of the Calcined Coal for the purpose of certification to meet quality requirements.

If any of the shipments for the calcined coal will be received outside the current contract period of performance, the Contractor shall novate the applicable subcontract(s) to the follow-on ICP Core prime contractor to manage any remaining receipts.

The Contractor shall complete the following:

Installation of Permanent Simulant Tanks

- A. Engineering configuration management and design of permanent tanks.
- B. Procurement of tanks, valves, piping, and controls equipment for permanent simulant tanks.
- C. Installation of a support pad for tanks
- D. Installation of permanent simulant tanks, valves, piping and controls.
- E. Testing of permanent tanks and transfer system.
- F. Document close out of permanent tank installation.

Replacement of Waste Feed Valves

- A. Project Management
- B. Estimation
- C. Engineering Design to include evaluation of flow to mitigate cavitation
- D. Procurement (new flow control valves and spares)
- E. Mockup Testing of new waste feed valves to ensure they will pass larger wet decon particles while being able to maintain the correct flow rates.
- F. Work Package Planning
- G. Field Installation, post maintenance testing and document close out

The Contractor shall continue progress to complete the scope items as detailed in CCN 325592 Transmittal of Integrated Waste Treatment Unit Additional Outage J Extended Scope, Cost and Schedule Estimate, dated August 12, 2020. These scope items include: East Cyclone Cleanout (reduction); Cord Plug and Transfer Switch for Control Power to IWTU Sub 12; PRC Plugging and PRC Acid Decontamination; and Canister Prep and Fab.

The Contractor shall complete the scope items as detailed in CCN 326032 Cost and Schedule Estimate for the IWTU DMR Seismic Analysis, dated November 11, 2020. This scope includes:

- A. Performing a new structural analysis on IWTU's Denitration Mineralization Reformed (DMR) vessel. This analysis will require building a new model in Abaqus that analyzes the whole DMR vessel.
- B. Performing an extent of conditions on other IWTU vessels. The scope of the extent of conditions is a review of IWTU's other process vessel's original structural analysis to determine if the analysis required spacers and if the spacers were installed. This extent of conditions has been completed and only the Process Gas Filter (PGF) vessel has been identified as having the same structural issue as the DMR.
- C. Once the Abaqus model is completed and the structural analysis has identified the required repairs, an engineering design will be completed.
- D. A Work Order (WO) will be prepared, and materials procured, prior to construction performance. Once the WO and materials are ready to work, it is anticipated that these modifications will be performed after the re-insulation of the PGF and DMR following the previous Outage J modifications. This field work will require scaffolding access, existing paint removal, carbon steel plate/block water jetting and machining and field fit fabrication, spacer fit-up, welding, weld inspection, the repainting of the structure, minor repairs to the vessel insulation cladding, and removal of scaffolding. Upon completion of the field modifications and approval, the work control documents will be closed out and as-builts completed to then complete the facility change forms, design forms, and final modeling.
- E. It is assumed that the carbon steel plates will be machined and welded into each of the four I-Beam connectors on the DMR and PGF vessel lateral structural supports to

perform the function of the missing mica spacers. Engineering has already determined that the thermal insulation feature of the mica is not required; however, removing most of the gap between the lateral support and the structural steel is essential.

The IWTU uses Sulphur Impregnated Granular Activated Carbon (GAC) beds to remove mercury from process off-gas. Recent sampling results of the GAC bed material indicate the bed's sulfur content is depleted. In order to maximize the duration, the plant may run until the next GAC change out, the GAC should be replaced before commencing radiological operations. This includes the following scope of work:

1. Procurement of:
 - a. New GAC bed material
 - b. Filters for vacuum equipment
 - c. PPE required for the effort; and
 - d. Tools and other expendables required to execute the effort
2. On-Site handling/storage
3. Development of work control planning/development
4. Engineering/safety/environment support
5. Post-maintenance testing and disposal of old bed material.

The Contractor shall continue Phase 3 LOE plant operations and labor including the following:

- IWTU Facility Operations
- IWTU Technical Management Support. This includes:
 - o Project Management
 - o ESH&Q
 - o Training
 - o QA
 - o Facilities Management
 - o Project Planning
- IWTU Facility Maintenance
- IWTU Construction Support (Force Account)
- IWTU Radiation Control
- IWTU Engineering Support. This Includes:
 - o System and Process Engineers
 - o Safety Analysis Engineering
 - o Minor Design Engineering
 - o Testing and Commissioning

The Contractor shall complete and document the preliminary design basis, specifications, technical and functional requirements, and rough order of magnitude pricing and schedule for the IWTU product storage building expansion.

C.6.2 Calcine Disposition - High Level Waste and SNF Long Term Planning

This scope was performed by Mr. David Bland, service provider (not affiliated with Fluor Idaho), under an unauthorized commitment by a DOE federal employee and is hereby incorporated into the ICP Core contract through this contract modification. The DOE-ID Contracting Officer is ratifying this unauthorized action in accordance with *FAR 1.602-3 Ratification of unauthorized commitment* through the ICP Core contract. Period of performance for the unauthorized commitment was April 20, 2020 through September 1, 2020.

Scope to be incorporated: Provide managerial and technical support to the DOE-ID EM team assigned to an Integrated Project Team (IPT). The work will include support in the evaluation of options for packaging and/or options for management of the spent nuclear fuel (SNF) currently stored or planned for receipt and storage of the Idaho National Laboratory (INL). The purpose of this review is to provide DOE-EM Headquarters and DOE-ID senior management technically-defensible recommendations to support informed decisions regarding the long-term management of SNF at the INL, including the path forward strategy for implementing the required infrastructure and capabilities necessary to cost-effectively comply with the 1995 Idaho Settlement Agreement (ISA). To that end, the IPT will evaluate the costs, risks, and benefits of the current planning baseline (i.e., RRDS in the envisioned ISFF), as well as identify viable alternatives and conduct an Analysis of Alternatives (AoA) for the management of SNF at the INL.

C.6.3 Liquid Waste Facility Maintenance Activities

The Contractor shall continue the maintenance of the INTEC Liquid Waste Management Facilities at the same level conducted since contract takeover on June 1, 2016. This includes providing the same level of support for the INTEC Liquid Waste Management System (ILWMS) Closure.

C.6.3.1 Removal, Treatment, and Disposal of Nitric Acid from Tank System VES-NCR-171

The Contractor shall remove, treat, and dispose of all of the 12 Molar nitric acid currently stored in Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) permitted tank VES-NCR-171, including the treatment and disposal of any waste generated during this process.

C.6.3.2 Lead Blanket Disposition

The Contractor shall dispose of the 13 wooden lead-containing boxes from CPP-1681 (lead blankets) formerly used as shielding at the INTEC tank farm and transfer them to a specially designed and fabricated containment tent located on the CPP-654 concrete pad. The lead blankets shall be disposed off-site at the Nevada National Security Site (NNSS) by September 30, 2021.

C.6.4 Incidental D&D

C.6.4.1 MFC D&D Demobilization

The Contractor shall perform all tasks required to demobilize the decommissioning and demolition (D&D) program from the Materials and Fuels Complex (MFC) in accordance with letter CCN 319963.

C.6.4.2 MFC EBR-II Demobilization

As a result of the transfer of the Experimental Breeder Reactor (EBR)-II (MFC-767) from DOE Environmental Management (EM) to DOE Nuclear Energy (NE), the Contractor shall complete the final demobilization of the EM D&D program from MFC. This includes completely demobilizing from MFC and closing the D&D debris landfill located near the Transient Reactor Test (TREAT) Facility. The Contractor shall also mitigate any regulatory issues with the State due to the suspension of an active Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) Action Memo.

C.6.5 Calcine Retrieval Project

The Contractor shall continue work on the Calcine Retrieval Project including but not limited to:

- (a) Project Management
- (b) Engineering
 - (1) Distributor/Fill line Clean Out Mockup
 - i) Prepare RFP and issue contract for distributor/fill line mockup fabrication
 - (2) Thermowell Conversion Mockup
 - i) Complete thermowell mockup design and project review
 - ii) Prepare thermowell mockup test plan
 - (3) Bin group/cluster Mockup
 - i) Prepare bin group/cluster design
 - ii) Prepare fabrication subcontract SOW
 - (4) Bin Set Riser Installation Mockup
 - i) Prepare bin set riser mockup design and test plan
 - ii) Prepare fabrication subcontract SOW
 - (5) Prepare Vault Surcharge Loading EDF
 - (6) Prepare CSSF 6 Roof Analysis EDF
 - (7) Prepare surrogate for CRP Mock-up RPT
 - (8) Prepare draft feasibility of using existing CSSF-6 transfer line and cyclone RPT
- (c) Prepare draft Radiological Requirements EDF
- (d) Environmental/Regulatory Support
 - (1) PA/CA Planning
 - (2) RCRA permitting support
 - (3) Regulatory interface support
- (e) Nuclear Safety Support
 - (1) DOE review and approval of hazard categorization

The scope of work includes work necessary to conduct proof-of-concept tests, initiate regulatory closure discussions and prepare a Safety Analysis Report (SAR) addendum.

- (a) Conduct six proof-of-concept tests to reduce design risk, safety hazards and unknowns. The six proof-of-concept tests include:
 - (1) CSSF 1 distributor/fill line clean-out
 - (i) Development and fabrication of an apparatus and method for removing residual calcine from the CSSF 1 distribution and fill line network.
 - (2) Thermowell conversion
 - (i) Development of an approach for removing the thermocouple wires from the thermowell pipes, cutting off the bottom thermowell cap, and installing the retrieval system platform.
 - (3) Top-down residual calcine retrieval
 - (i) Development of supporting equipment for clean-out of residual calcine.
 - (4) Bottom-up retrieval testing
 - (i) Test thermowell vacuum retrieval apparatus to define operating parameters and evaluate retrieval rate, flow characteristics and bin cleanliness.
 - (5) D&D Pipe crimping and removal
 - (i) Evaluate methods for crimping CSSF-1 piping in order to safely remove the piping while containing residual calcine.
 - (6) Riser installation
 - (i) Development of an approach for installing bin group retrieval access risers.
- (b) Design and fabricate a full-scale prototype mock-up of one CSSF 1 bin group.
- (c) Design and construct a full-scale transport mock-up prototype
- (d) Initiate engineering analysis to support future retrieval and transport designs.
- (e) Complete CSSF-1 D&D design that describes how the facility will be prepared for retrieval operations.
- (f) Initiate discussions with the regulatory agencies (i.e., DOE, the U.S. Environmental Protection Agency, and DEQ) on the path forward for RCRA closure, CERCLA NTCRA, and NDAA 3116 closure. Work shall include the following:
 - (1) Conduct scoping meetings with DEQ, EPA, and NRC.
 - (2) Hold performance assessment/composite analysis scoping meetings with NRC/DEQ.
 - (3) Initiate preparation of a draft performance assessment/composite analysis based upon predicted level of calcine retrieval.
 - (4) Initiate preparation of background documents to support RCRA closure, CERCLA EE/CA, and NDAA 3116 closure.
 - (5) Development of a Permit Modification Request for submittal to DOE for review and certification for transmittal to DEQ to support grouting of vault, demolition of above grade structures, and construction of retrieval and transfer system.
- (g) Safety basis
 - (1) Draft SAR/TSR-105 Addendum for CSSF-1 D&D.
 - (2) Complete DOE approval of SAR/TSR-105 Addendum and implement the addendum.
- (h) FY17-18 Deliverables
 - (1) Draft SAR/TSR-105 Addendum for CSSF-1 D&D.

- (2) CRP Test Report documenting the results of the six proof-of-concept tests.
- (3) Residual clean out technology selection report (for environmental support).
- (4) Draft RCRA Permit Modification Request (as necessary to support grouting, demolition, retrieval, and transfer).

C.6.5.01 Calcine Retrieval Project (CLIN-3)

The Contractor shall complete the scope that includes work necessary to conduct proof-of-concept tests; conduct integrated retrieval tests; continue regulatory closure discussions; and prepare a draft Safety Analysis Report (SAR) revision. Specifically, the scope includes:

- A. Calcine Project Management
 1. Project management functions include management, financial controls records, administrative support, and travel.
 2. Engineering design management includes technical leadership for the CRP team and managing the project design team and proof-of-principle (POP) testing.
 3. Operations management includes operations leadership for the CRP team, facility manager for CPP-691, maintenance of CPP-691, and managing integrated tests at the full-scale retrieval and transport prototype.
 4. CSSF facility closure management includes interpreting environmental regulations and continuing discussions with the regulatory agencies (i.e., DOE, the U.S. Environmental Protection Agency, and DEQ) on the path forward for NEPA, RCRA closure, CERCLA NTCRA, and NDAA 3116 closure.
- B. Engineering Design
 1. Complete the technical and functional requirements for CSSF-1 vault weather enclosure.
 2. Revise calcine Historical Processing Model (HPM).
- C. Retrieval Operations
 1. Prepare the full-scale retrieval and transport prototype for testing
 - a. Configure Programmable Logic Controller (PLC) for system control.
 - b. Develop system operability (SO) test plans and conduct SO tests.
 - c. Develop mockup operating procedures.
 - d. Install life safety systems in CPP-691.
 - e. Develop bulk retrieval Phase I test plan.
- D. CSSF Regulatory Support
 1. Prepare performance assessment (PA).
 - a. Complete PA dose assessment report.
 - b. Prepare draft PA.
 2. Integrate PA with 3116 Basis document
 3. Develop and document Preliminary RCRA Risk Analysis.
- E. Concept Design Development
 1. Design and fabricate a scaled bin base for residual retrieval concept testing.
 2. RESERVED
 3. RESERVED
 4. Revise design and fabricate new bottom up retrieval system.
 5. Design and fabricate bottom up retrieval motive air nozzle.

6. Design, fabricate and test bin access riser placement concepts.
 7. Design, fabricate and test a bin access penetration system.
 8. Design, fabricate and test bin cleanout inspection system.
 9. Design, fabricate and test residual calcine retrieval systems.
 10. Design, fabricate and test a vacuum line placement system.
 11. Develop CSSF 1 mapping plan and map CSSF 1 vault.
 12. Design, fabricate and test bin cleaning air nozzle and lance.
 13. Prepare the FY 2018 CRP test report.
- F. FY 2018 deliverables
1. FY 2018 CRP Test Report

C.6.5.02 Calcine Retrieval Project FY19 (CLIN-3)

The Contractor shall complete the following FY19 Calcine Retrieval Project work scope by September 30, 2019:

Additional Scope:	Activity ID
CSSF Planning and Staffing	CRPA3010
Update CSSF-1 modification design	CRPA3020
Design CSSF-1 Cyclone Vault Mockup	CRPA3110
Fabricate Cyclone Vault Mockup	CRPA3120
Activate CPP-691 Elevator	CRPA4150

- A. Perform retrieval and transport tests using the full-scale mockup
 1. Conduct full scale bulk retrieval and transport testing
 2. Conduct full scale residual retrieval and transport testing
 3. Conduct full scale concept testing
 4. Complete CPP-691 building upgrades (50-ton crane repair)
- B. Continue development and testing of
 1. Vacuum Crawler
 2. Continuum Arm
 3. Air Lance
 4. Access riser placement
 5. Bin inspection system
 6. Retrieval Nozzle Development
 7. Access riser/vault interface
 8. Access riser cartridge
 9. Access riser positioning system
 10. Shield plug design for vault penetrations
 11. Design Bottom-up retrieval system
 12. Vacuum retrieval line installation method
 13. CSSF vault coring
- C. Calcine Packaging and Fill System
 1. Design Shipping Canister fill system interface

- D. Facility Closure
 - 1. Support DOE with finalizing NEPA Rod Amendment
 - 2. Complete draft PA and 3116 Basis Document
 - 3. Develop change control process for the CSSF PA
 - 4. Complete an APAD for calcine retrieval.
- E. Deliverables
 - 1. FY 2019 test report
 - 2. Draft PA for DOE review
 - 3. Draft 3116 Basis Document for DOE review

C.6.5.03 Calcine Retrieval Project FY20 (CLIN-3)

The Contractor shall complete the following FY20 Calcine Retrieval Project work scope by September 30, 2020:

- A. Calcine Project Management FY 2020
 - 1. Project management functions including management, financial controls records, administrative support, and travel.
 - 2. Engineering design management including technical leadership for the CRP team and managing the project design team and proof-of-principle (POP) testing.
 - 3. Operations management including operations leadership for the CRP team, facility manager for CPP-691, maintenance of CPP-691 and managing integrated tests at the full-scale retrieval and transport mockup.
 - 4. CSSF facility closure management including interpreting environmental regulations and continuing discussions with the regulatory agencies (i.e., DOE, the U.S. Environmental Protection Agency, and DEQ) on the path forward for National Environmental Policy Act (NEPA), Resource Conservation and Recovery Act (RCRA) closure, CERCLA non-time-critical removal action (NTCRA), and National Defense Authorization Act (NDAA) 3116 closure. Supporting DOE with a NEPA Record of Decision (ROD) Amendment and reviews of the draft Performance Assessment (PA) and NDAA 3116 Basis Document.
- B. CSSF Regulatory Support
 - 1. Complete draft Composite Analysis (CA)
 - 2. Complete draft Tier I Closure Plan
 - 3. Complete draft PA/CA Maintenance Plan
 - 4. Complete draft PA/CA Monitoring Plan
 - 5. Complete draft Compliance Demonstration Report
 - 6. Complete defense waste determination
 - 7. Complete CERCLA risk assessment to support engineering evaluation/cost analysis (EE/CA)
 - 8. Complete CERCLA technical feasibility study to support EE/CA.
- C. Retrieval Operations
 - 1. Conduct full scale retrieval tests from mockup bin A, B and C
 - 2. Conduct full scale residual retrieval tests from mockup bin A, B and C
 - 3. Complete CPP-691 building upgrades (exterior lighting and electrical upgrades).
- D. Engineering Design
 - 1. As-build CSSF 1 vault from LIDAR survey

2. Develop technical and functional requirements (T&FRs) for systems and components
 3. Develop system design documents (SDDs) for systems and components.
- E. Technology Development
1. Fabricate and test vacuum crawler version (8-inch, TRL 2 to TRL 4)
 2. Fabricate and test articulating arm (TRL 1 to TRL 3)
 3. Design, fabricate and test the air lance (TRL 2 to TRL 6)
 4. Design, fabricate and test the access riser welder/cutter; and design, fabricate and test the access riser cleaning attachment (Access riser placement) (TRL 3 to TRL 6)
 5. Design, fabricate and test inspection system (TRL 3 to TRL 6)
 6. Nozzle development; analysis, design, fabrication of retrieval nozzle (TRL 2 to TRL 5)
 7. Design, fabricate and test optimized blind tee (TRL 2 to TRL 6)
 8. Design, fabricate and test access riser/vault interface system (TRL 3 to TRL 6)
 9. Design, fabricate and test the access riser cartridge system (TRL 3 to TRL 6)
 10. Access riser placement and positioning system (TRL 3 to TRL 6)
 11. Design, fabricate and test bulk retrieval recovery methods (TRL 1 to TRL 4)
 12. Design and fabricate bottom-up retrieval system (TRL 3 to TRL 5)
 13. Design, fabricate and test vault coring system with incorporation of rad control (TRL 4 to TRL 6).
- F. Calcine Packaging and Fill System
1. Complete a preliminary fill system docking interface design (TRL 0 to TRL 2)
 2. Fabricate and test fill docking interface system
 3. Design secondary containment and canister isolation system (TRL 0 to TRL 2).
- G. FY 2020 deliverables
1. FY 2020 CRP progress report
 2. Draft CA
 3. Draft Tier I Closure Plan
 4. Draft PA/CA Maintenance Plan
 5. Draft PA/CA Monitoring Plan.

C.6.5.04 Calcine Retrieval Project FY21 (CLIN-3)

A. Calcine Retrieval Project (CRP) Management

1. Project management functions include management, financial controls records, administrative support, and travel.
2. Engineering design management includes technical leadership for the CRP team and managing the project design team and technology testing.
3. Operations management includes operations leadership for the CRP team, facility manager for CPP-691, maintenance of CPP-691 and managing integrated tests at the full-scale retrieval and transport mockup.
4. CSSF facility closure management includes managing the CSSF closure team, interpreting environmental regulations and continuing discussions with the regulatory agencies (i.e., DOE, the U.S. Environmental Protection Agency, and DEQ) on the path forward for NEPA, RCRA closure, CERCLA Non-Time-Critical Removal Action (NTCRA), and NDAA 3116 closure.

B. CRP Regulatory Support

1. Complete calcine direct disposal at Low Level Waste (LLW) disposal facilities

evaluation report.

2. Complete calcine vitrification studies summary report.
3. Complete CSSF 1 Pipe and Closure Boundaries and Waste Management Evaluation.
4. Low-level Waste Disposal Facility Federal Review Group (LFRG) Review of CSSF Performance Assessment / Composite Analysis (PA/CA)
 - a. Resolve LFRG review comments (key and secondary issues).
 - b. Revise supporting Engineering Design Files (EDFs) as needed.
 - c. Revise CSSF PA/CA and produce Rev. D for NRC review.
5. Revise CSSF PA/CA Maintenance Plan.
6. Revise CSSF PA/CA Monitoring Plan.
7. Support DOE-HQ Review of CSSF 3116 Basis Document.
 - a. Revise CSSF 3116 Basis Document and produce Rev. D for NRC review
8. Revise CSSF Tier 1 Closure Plan.

C. CRP Operations

Perform retrieval and transport tests using the full-scale mockup.

1. Conduct bulk retrieval tests from mockup bin.
2. Conduct residual retrieval tests from mockup bin.
3. Conduct technology development tests.

D. CRP Engineering Design

1. Develop preliminary retrieval equipment installation and calcine retrieval strategy.
2. Complete system design documents (SDDs) for systems and components.
3. Develop requirements matrix.
4. Develop mockup control system automation.
5. RESERVED
6. Enhance CSSF 1 vault model.
7. Develop technology readiness plan (technology maturation plan, TMP).
8. Design Air Processing Unit (APU) for CSSF 1.

E. Calcine Technology Development

Continue development of:

1. Vacuum crawler.
2. Articulating Arm.
3. Air Lance.
4. Access riser placement.
 - a. ARC robot welder/cutter.
 - b. Bin surface cleaning attachment.
5. Bin Inspection system.
6. Retrieval Nozzle development.
7. Blind Tee design and optimization.
8. Access riser and cartridge.
9. Bottom-up retrieval system.
10. Vacuum retrieval line installation method.
11. Bulk retrieval recovery.
12. CSSF vault coring.

F. Calcine Canister Fill Design.

1. Complete radiation testing of various seal materials.
2. RESERVED

3. RESERVED
4. RESERVED
5. Complete preliminary design of Fluor fill funnel 2.0.
6. RESERVED
7. RESERVED

G. FY 2021 deliverables

1. FY 2021 CRP progress report.
2. Calcine direct disposal at LLW disposal facilities evaluation report.
3. Calcine vitrification studies summary report.
4. CSSF PA/CA, Rev. D.
5. CSSF 3116 Basis Document, Rev. D.

C.7.0 SPENT NUCLEAR FUEL (SNF) MANAGEMENT

The 1995 Idaho Settlement Agreement (ISA) generally governs the removal of all DOE-managed spent nuclear fuel (SNF) from the state of Idaho and specifically requires transfer of all SNF from wet to dry storage by 2023.

Elements of scope contained within this section were developed to meet the needs of the INL landlord, the Office of Nuclear Energy (NE) and their Management and Operations (M&O) contractor, Battelle Energy Alliance, LLC (BEA). As a result, the Contractor may negotiate agreements (to include roles and responsibilities) and associated schedules with the INL contractor to accomplish these tasks.

The SNF storage facilities and their contents are to be managed in accordance with prescribed safety basis. This includes surveillance and maintenance (S&M) adequate to perform all scope described herein. With the exception of CPP-666, all facilities are available for additional storage missions. CPP-666 is to be emptied of all SNF and retired from SNF storage service. The subject facilities are described below.

Scheduling and shipping for DRR SNF receipts are managed by NE and their contractor. Scheduling and shipping for FRR SNF receipts are managed by NNSA and their contractor. Preparations and inspections prior to shipping and onsite receipt at INTEC will be managed by the Contractor. Receipts from other domestic and government sources will be managed entirely by the Contractor. These other sources are government institutions or facilities serving the government. The Contractor must interact with these parties to achieve timely and efficient receipt and storage of planned shipments.

CPP-666, the Fluorinel Dissolution Process and Fuel Storage (FAST) facility was built for cooling and wet storage of SNF prior to reprocessing. The FAST facility consists of the Fuel Storage Area (FSA) and the Fluorinel Dissolution Process Area (FDPA). The FSA is the area of concern for wet storage of SNF. The FSA consists of 12 major functional areas designed to manage fuel receipts in large transfer casks and subsequent handling of SNF for storage. The functional areas include a truck unloading area, two unloading pools, and six underwater storage pools. The facility contains three types of fuels (EBR-II, ATR, and Naval fuels), each to be

removed to dry storage in its own campaign. The facility, as currently configured, contains 3,788 ports and is at less than 30% capacity.

CPP-603, the Wet & Dry Fuel Storage Facility, was also built for cooling and wet storage of SNF prior to reprocessing, and is comprised of two major functional areas: the wet and dry fuel storage areas. Supporting those functions are cranes, two cask loading and unloading areas, and truck loading and unloading bays. The wet side, the Basin Facility, comprised of three pools, is now closed. The dry side, the Irradiated Fuel Storage Facility, remains in operation and stores the largest inventory of SNF of the facilities discussed.

There are 636 storage positions (ports) in CPP-603. 550 ports are in use. 58 ports are available for use without modification. 28 ports are inaccessible and cannot currently be used. Additional ports may be made available if the 550 ports currently in use are reconfigured, and/or if facility modifications are made to allow access to the 28 inaccessible ports.

CPP-749, the Underground Fuel Storage Facility, contains 218 fuel storage vaults. The Contractor shall assume 62 vaults are available for use and that 24 fuel elements may be stored in each vault. The Peach Bottom Cask may be used to transfer the fuel.

Due to an increase in hydrogen generation rates in five CPP-749 storage vaults, gas sampling for at risk vaults will be performed more frequently than other vaults to avoid exceeding hydrogen level limits until, or unless appropriate remedial action is identified, authorized, and completed.

The Contractor shall:

1. Perform 12 gas sampling and analyses within select liners at CPP-749 adequate to confirm or exclude the presence of organic constituents; and
2. Prepare a formal cost estimate for the safe and secure recovery and transfer of all Peach Bottom fuel from first generation liners to second generation liners within CPP-749.

CPP-2707, the Dry Spent Fuel Cask Storage Pad, contains eight storage casks and has space for an additional 14 casks that may be stored on the pad. The maximum cask weight is 140 tons.

C.7.1 SNF Programs

The Contractor shall complete repair and recovery efforts of the 10-ton overhead bridge crane (CRN-GSF-101) used to support nuclear fuel operations in the Irradiated Fuel Storage Facility (IFSF) (CPP-603) at the Idaho Nuclear Technology and Engineering Center (INTEC).

C.7.1.01 Spent Nuclear Fuel Management

The Contractor shall maintain Spent Nuclear Fuel (SNF), SNF records, and operate and maintain SNF facilities including CPP-666 (the fuel basin portion of CPP-666), CPP-603, CPP-749 and CPP-2707 and related ancillary facilities at INTEC. This work, however, excludes facility surveillance and maintenance (S&M) specifically relating to Navy SNF as described in Section C.7.3.

The SNF inventories, including current locations, are identified in Exhibit C-18, *Spent Nuclear Fuel Inventory and Plot Plans for CPP-603, CPP-749, and CPP-2707 (OUO)*. The SNF is described in Exhibit C-19, *EBR-II Spent Nuclear Fuel Description Document (OUO)*, and Exhibit C-20, *INTEC Spent Nuclear Fuel Description Document (OUO)*.

C.7.1.02 Foreign and Domestic SNF

The Contractor shall maintain the capability to receive and off-load Foreign and Domestic Research Reactor (FRR/DRR) Program SNF and other domestic sources for dry storage in CPP-603. The Contractor shall maintain the equipment used to perform inspections and shall ensure compliance with CPP-603 documented safety analysis during the term of the contract.

The Contractor shall inspect the SNF at the generating reactor and perform analyses to determine transport and storage configurations in preparation to receive SNF from three (3) sources.

The Contractor shall maintain the equipment used to perform inspections and shall ensure compliance with CPP-603 documented safety analysis during the term of the contract. A list of potential receipt sources is provided in Exhibit C-21, *FRR/DRR Spent Nuclear Fuel Potential Sources*.

The Contractor shall provide all materials and equipment necessary to support this activity.

C.7.1.03 Experimental Breeder Reactor (EBR) - II SNF

The Contractor shall continue to transfer EBR II SNF to MFC for treatment by the INL contractor at the Fuel Conditioning Facility (FCF) and for storage at RSWF on a schedule to ensure the Idaho Settlement Agreement (ISA) requirement for removal of all SNF from CPP-666 underwater storage can be met. The Contractor shall retrieve EBR-II SNF from CPP-666 and transfer it to one of the two facilities located at MFC.

The Contractor shall conform to restrictions on shipping and storage as defined by the INL contractor. The Contractor shall establish an Interface Agreement (See C.1.01) with the INL contractor.

MFC-771, the Radioactive Scrap and Waste Facility (RSWF), has 268 liners available for use; however, only some of these are available for use during this contract period. The Contractor shall purchase 40 storage liners and commence installation for use to store EBR II SNF.

While the Contractor shall have access to this facility, the Contractor shall not manage the facility nor be responsible for its safety basis documents. Safety basis changes will be negotiated with the facility landlord, the NE contractor.

The Contractor shall provide all materials and equipment necessary to support this activity.

The Contractor shall complete the following work scope to place into service a new HFEF-14 cask provided by the INL Contractor:

1. Modify the design of the Shielded Cask Insert and Cask Lid to be compatible with a new HFEF-14 cask constructed of stainless-steel versus carbon steel.
2. Modify Fluor Idaho HFEF-14 supporting documentation to support a stainless-steel version of the cask.
3. Procure & fabricate:
 - a) Modified Shielded Cask Insert
 - b) Cask Lid
4. Fit-up and installation on the new HFEF-14 cask.

Based on new security requirements the Contractor shall build a pad for storing the HFEF-14 cask on a cask stand inside the secure area of the RSWF. Due to a change in security requirements at the RSWF, overnight staging of a loaded HFEF-14 cask inside of the fenced staging area at MFC is no longer authorized.

C.7.1.04 Advanced Test Reactor (ATR) SNF receipts

The Contractor shall receive five (5) shipments of ATR SNF for storage in CPP-666 during FY 2017. Subsequently, upon receipt, the contractor shall receive, prepare, and place into dry storage in CPP-603 up to 15 shipments per year of ATR SNF during the period FY 2019 through 2020.

The Contractor shall complete all necessary safety basis evaluations and document revisions to accommodate this scope. The Contractor shall reconfigure the existing storage scheme to accommodate these receipts through the contract period. The Contractor shall negotiate a schedule for receipt with the INL contractor.

The Contractor shall provide all materials and equipment necessary to support this activity.

C.7.1.05 ATR SNF Wet To Dry Storage Transfers

The Contractor shall continue to transfer ATR SNF elements from CPP-666 into dry storage in CPP-603 on a schedule to ensure the Idaho Settlement Agreement requirement for removal of all SNF from CPP-666 underwater storage can be met. The Contractor shall perform any necessary maintenance and repairs to the equipment (e.g. crane, shield doors, casks, etc.) and any necessary facility modifications to accomplish this scope of work.

The Contractor shall provide all necessary materials and equipment to support this activity.

C.7.1.06 CPP-749 Peach Bottom 1st Generation Vaults Remediation

The Contractor shall perform remediation activities for the CPP-749 Peach Bottom 1st Generation Vaults as follows:

1. Perform an inspection of five (5) Peach Bottom vaults identified as high risk for corrosion of the fuel package. The inspection will only include the lifting of the fuel package if the contractor determines the risk to be warranted.
2. Commence transfers of fuel packages from Peach Bottom vaults identified as low risk for corrosion of the fuel package from 1st generation vaults to 2nd generation vaults.
3. Prepare a conceptual design for the retrieval equipment suitable to recover high risk Peach Bottom vaults for DOE review and approval.

The Contractor shall procure a 160-ton mobile boom crane rather than the originally anticipated gantry crane.

C.7.1.07 Transfer of NuPac 125B Casks

The Contractor shall prepare to transfer the NuPac 125B casks currently stored in CPP-666 Cask Receiving area to CPP-603. This scope includes:

- a) Prepare engineering supporting documentation to allow these transfers.
- b) RESERVED
- c) Design facility modifications at CPP-603 to provide a location to store the casks out of the way of future operations in the facility.
- d) Design a system to provide a continuous nitrogen purge on the casks.
- e) Prepare a Conceptual Design for a cask basket for the transport trailer.
- f) RESERVED
- g) RESERVED
- h) RESERVED

C.7.2 NRC Licensed SNF Storage Facilities

The Contractor shall provide surveillance and monitoring, utilities, office space, general infrastructure support (including facility maintenance and cyber security) for the NRC Licensed facility Three Mile Island 2 (TMI-2) Independent Spent Fuel Storage Installation (ISFSI) at INTEC. The Contractor shall also provide emergency management services for the NRC licensed facilities TMI-2 and Fort Saint Vrain ISFSI, at INTEC and in Colorado respectively. The Contractor shall establish an Interface Agreement with the NRC contractor to perform the required services below. The NRC contractor will oversee the Contractor's performance to ensure compliance with the TMI-2 NRC license. Should a fine or penalty be issued by NRC or DOE resulting from work supporting the NRC license at TMI-2 or Fort Saint Vrain, the DOE will assess the incident and determine contractor (ICP Core or NRC Licensed Facilities) liability for the fine or penalty.

The ICP Core contractor shall utilize MCP-101, "ICP Integrated Work Control Process" in performance of the following maintenance actions at the TMI-2 Independent Spent Fuel Storage Installation (see Exhibit C-22 *Listing of NRC Documents Applicable to ICP Core*):

- (1) Perform leak check of the vent housing double metallic seals on each Dry Shielded Canister (DSC) containing TMI-2 canisters.

Periodicity of Performance: Every five years during storage starting in 2020.

- (2) Perform a radiation survey at the vent of each DSC.

Periodicity of Performance: Annually in September with a 25% grace period.

- (3) Sample the gas inside each DSC containing spent fuel.

Periodicity of Performance: Annually in September with a 25% grace period.

- (4) Replace the HEPA filter or the DSC after DSC purge is complete.

Periodicity of Performance: As necessary

- (5) Perform sampling and monitoring to include:

- a. Monthly airborne radioactivity sampling within the Independent Spent Fuel Dry Storage Installations (ISFSI) perimeter fence.
- b. Quarterly direct radiation monitoring with Optical Stimulated Luminescent dosimeters (OSLs) placed along the ISFSI perimeter fence.
- c. Quarterly radiation surveys and loose surface radioactive contamination monitoring adjacent to each DSC opening and each HSM drain line.

- (6) Perform aging management activities. This will include:

- a. HSM concrete surface monitoring of all 29 HSMs.

Periodicity of Performance: No later than September 16, 2021 and every five (5) years thereafter.

- b. Repair of deteriorated concrete and cracks, and reinspection as necessary.
- c. Protection against water intrusion, including sealing, eliminating bolt hole voids, and application of surface sealer.
- d. Support inspections performed by NRC contractor, to include providing radiation monitoring, preparing the work order for the inspection being performed, and manning the ISFSI with Operations/Maintenance personnel and concrete inspector, as needed.

The Contractor shall assist DOE-ID in evaluating the logistics and future costs for extending the Fluor network to FSV. This includes a trip to Fort St. Vrain, Colorado.

The Contractor shall provide Information Technology (IT) services for the NRC Licensed Facilities Contractor at the Willow Creek Building (WCB). This will involve working with the INL Contractor to provide direct, hard-wired, computer network connectivity to 2nd floor of the WCB.

The Contractor shall procure and install 15 workstations to be supplied at FSV and the Willow Creek Building in Idaho. The workstations shall be a mixture of eight (8) desktops and seven (7) laptops. All workstations are required to be Federal Information Security Management Act (FISMA) compliant with cyber security and the systems managed by Fluor Idaho with connectivity to the Fluor network in Idaho. Guest Internet connection will be necessary for equipment to connect between FSV and Idaho. The necessary equipment supporting the connections will also need to be procured and installed. This includes three trips to FSV; once during design/planning, the second during implementation, and the third to relocate the equipment to the permanent facility.

C.7.3 Navy Nuclear Propulsion Program (NNPP) SNF

This scope has been negotiated with the Nuclear Navy Propulsion Program (NNPP) located at DOE-IBO as defined in the *Memorandum of Agreement for Naval Spent Fuel Transfer and Disposition*. This agreement defines the subject scope, cost and schedule.

The Contractor shall retrieve, load the cask, and place cask on trailer for departure of all NNPP SNF currently stored in the INTEC CPP-666 fuel basins. See Exhibit C-23, *Memoranda of Agreement (MOA) for Naval Spent Nuclear Fuel Transfers and Disposition*. The Contractor shall receive Large Cell Casks (LCCs) from NRF on the INL Site and load and ship the casks back to NRF per a schedule negotiated with the NNPP, for a total of 29 shipments. All work is done under the CPP-666 authorization basis (SAR/TSR-113), but procedures and equipment designs that interface with NNPP SNF must be approved by NNPP. Equipment required for SNF handling shall be designed, fabricated, and tested by the Contractor. The Contractor shall prepare a data package fully describing the SNF in each cask-load and the position of each element within the load. This package shall pass quality assurance review by Naval Reactor Facilities (NRF) prior to cask shipment. The Contractor shall retain a copy of all records related to NNPP SNF and maintain secure records storage. The Contractor shall perform required surveillance and maintenance in CPP-666 (the fuel basin portion of CPP-666) relating to Navy SNF from GFY 2016 through calendar year 2018.

The contractor shall prepare all NNPP SNF prior to loading and shipping to NRF. For further information please contact the CO.

The Contractor shall coordinate the schedule for cask transfers with the NNPP and shall consider the ability of NRF to receive a cask as well as coordination with other INTEC SNF management and CPP-666 Fluorinel Dissolution Process cell operations. Security Level L clearances shall be required for all staff involved in NNPP SNF. A secure conference room with electronic communications equipment, located in CPP-666, shall be maintained for the use of NNPP staff. NRF staff may be present during SNF handling and NNPP senior staff will tour the facility on a periodic basis. DOE provides monthly reports to NNPP using the Contractor's monthly A3 report and additional information including, but not limited to, tracking of management reserve and emerging issues expenditures.

The Contractor shall disposition all low-level waste generated during SNF operations. The Contractor shall disposition tools, materials, and equipment used by the Contractor as agreed with NNPP.

The Contractor shall re-orient 48 half clusters that are currently stored in an inverted orientation (i.e., the operational top of the cluster is at the bottom of the storage bucket) in Chemical Processing Plant (CPP)-666.

C.7.3.1 NRF Seismic Borehole Drilling

The Contractor shall process all invoices submitted by the INL contractor in support of the NRF Seismic Borehole Drilling. Refer to Attachment B of this contract modification 150 identifying the scope that will be performed by USGS/INL. The period of performance is August 1, 2019 through May 31, 2021.

C.7.3.2 Core Cartridge Preparations

The Contractor shall perform, to the extent possible, the following Core Car Preparations activities at INTEC and proceed with the scope identified by Naval Reactors Laboratory Field Office as stated in letter NRLFO:IBO-21/001, dated January 11, 2021, from H. Huth to Ms. Connie Flohr by May 31, 2021:

- A. A preliminary Criticality Safety Evaluation (CSE)
- B. Technical and Functional Requirements (T&FRs)
- C. Facility Change Forms (FCFs) for drawings, equipment and systems
- D. A Fuel Movement Plan
- E. An advanced conceptual design of upending equipment for the core car and the cutting table
- F. Design of the arc saw by a vendor
- G. Draft designs and requirements for the Removable Storage Container (RSC) venting, rinsing and blowdown systems
- H. Design of a full-scale core car mockup
- I. Draft drop analysis for moving core car from the Shipping Shield (SS) to the decontamination room
- J. Draft drop analysis for placement of the core car into Unloading pool 1
- K. Draft drop analysis for removal of lid from RSC over top of the core car
- L. Develop a Hazards Assessment Document (HAD)
- M. Complete an Environmental Checklist (EC)
- N. Perform an Air Permit Determination
- O. Utilize the As Low As Reasonably Achievable (ALARA) committee to oversee and provide input for radiological considerations of the project
- P. Draft an update to the CPP-666 Physical Security Plan in preparation for in facility work
- Q. Support NRF in maintaining the CPP-666 annex secure room. NRF will update three (3) computers for confidential analyses efforts, grant personnel access to Naval Nuclear Laboratory (NNL) network, etc.
- R. Provide project management, oversight and support activities.

- S. Revise/update the Memorandum of Agreement (MOA) between the ICP contractor and NR-IBO.
- T. Evaluation of safety basis changes and initiation of draft safety document to meet new Safety Analysis Report (SAR) requirements

C.7.4 CPP-603 Large Cask Adaptation Project Turnover

The Contractor shall continue uninterrupted services for the detailed final design and analysis for the energy absorbing transfer car insert; support structural detailed analysis and final design; and continuing administration of the subcontract with American Crane & Equipment Corporation for the crane procurement. The Contractor shall also support ad-hoc DOE-ID requests and management briefings.

C.7.4.1 CPP-603 Large Cask Adaptation Project

The Contractor shall continue uninterrupted services to support the DOE's review and approval of the CD-2/3B document package (which includes: Project Execution Plan with appendices; Risk Management Plan with appendices, Final Design Documents for transfer car adaptor, Facility Modifications, and Crane General Design; Revised Funding Determination; and Readiness Determination); make necessary changes to the CD-2/3B documentation per the agreed comment resolutions and submit revised documents per the schedule; and continue administration of the crane procurement subcontract with American Crane & Equipment Corporation for the anticipated invoicing through April 2017. The Contractor shall also support ad-hoc DOE-ID requests and management briefings.

C.7.4.2 CPP-603 CD-2/3B Large Cask Adaptation Project – Approve Performance Baseline/Start Construction

The Contractor shall continue uninterrupted services for the design, fabrication, installation, and testing of the 75-ton tandem cranes; analysis, design, and fabrication of a new transfer car insert; analysis, design, and installation of the CPP-603 building structural improvements to correct structural deficiencies to allow the installation of the 75-ton tandem cranes and projected loads; remove the existing CRN-SF-001 from the existing rails of CPP-603 and ship for disposal; modify power service to feed the new cranes and the Permanent Containment Structure (PCS) so that power is available for additional electrical devices within the PCS; accomplish Nuclear Safety documentation development, approvals, and training on changes and the new equipment; and support the development of the CD-4 *Project Completion*.

Baseline/Start Construction is revised as follows:

Scope deleted:

- DOE Readiness Assessment (RA) – DOE determined the DOE RA will not be necessary to support the testing of the new crane. Instead, DOE will execute a Line Management Assessment that will run in parallel with the Contractor Readiness Assessment.
- Permanent containment Structure (PCS) – The parties determined the removal and reinstallation of the PCS will not be necessary to support the testing of the new crane.

Scope Added:

- Line management Assessment – DOE determined that a Line Management Assessment will be executed in place of performing a DOE Readiness Assessment.
- Transfer Car (Contingency Scope realized)

In addition, Contingency Schedule was realized for the Solar Eclipse and Transfer car (22 days).

C.7.5 USGS Reactor Fuel Selection, Inspection, and Packing

BACKGROUND

The Department of the Interior (DOI) U.S. Geological Survey (USGS) operates a low-enriched uranium-fueled, pool-type reactor located at the Federal Center in Denver, Colorado. The mission of the Geological Survey TRIGA® Reactor (GSTR) is to support USGS science by providing information on geologic, plant, and animal specimens to advance methods and techniques unique to nuclear reactors. The reactor facility is supported by programs across the USGS and is organizationally under the Associate Director for Energy and Minerals. Samples from around the world are submitted to the USGS for analysis using the reactor facility. Qualitative and quantitative elemental analyses, spatial elemental analyses, and geochronology are performed. Few research reactor facilities in the United States are equipped to handle the large number of samples processed at the GSTR. Historically, more than 475,000 sample irradiations have been performed at the USGS facility. Providing impartial scientific information to resource managers, planners, and other interested parties throughout the world is an integral part of the research effort of the USGS.

The USGS TRIGA® reactor has been in operation since the late 1960s in support of nuclear-based research for the USGS and a number of universities across the nation. It is the only research reactor in the Department of the Interior and the only research reactor within a 350-mile radius of Denver, Colo. The reactor design is similar to research and training reactors at universities throughout the United States. The reactor provides an intense neutron source for experiments and is capable of continuous steady-state operation at 1,000 kilowatts (thermal). Also, it may be pulsed to a peak power of approximately 1,600 megawatts.

These routine operations at the GSTR involve the irradiation of samples to produce nuclear changes in the samples. This change or “transmutation” of the original elements in the sample is accomplished when neutrons from the reactor strike the sample and change its nuclear composition. This technique, where the specimen is “activated” and then analyzed to determine its elemental composition, is called neutron activation analysis (NAA). Most elements can be detected at a level of a few nanograms or less. An advantage of NAA is that the samples can be analyzed without any chemical processing before or after the activation. This composition information is useful in determining geological sources and origins and in discovering mineral deposits.

The reactor is also used to produce nuclear changes in rock and mineral samples to determine their ages. Elemental analyses using other methods often result in data of less precision and/or less accuracy. The GSTR provides high-quality data on rock and mineral elemental composition using state-of-the-art techniques while providing the research tools needed to develop new and

improved analytical techniques. The GSTR must add low-enriched uranium fuel to its fuel supply at the Denver Federal Center, Lakewood, CO USA to continue services for scientific studies. The GSTR uses stainless-steel clad cylinders of uranium mixed with zirconium hydride (U-ZrH) for fuel. These cylinders are specifically made for TRIGA nuclear research reactors such as the GSTR and are referred to as TRIGA fuel elements.

The U.S. Department of Energy (DOE) CPP-603 Irradiated Fuel Storage Facility (IFSF) in Idaho, USA is a shielded cell containing vertical tube storage positions. The IFSF has been used to store domestic and foreign research reactor fuels and to support consolidation of other Idaho National Laboratory (INL) fuels into dry storage. The IFSF has a supply of lightly-irradiated TRIGA fuel elements which can be used at the USGS National Reactor Facility. These fuel cylinders are owned by DOE, located at the IFSF in Idaho, and need to be selected, inspected, and shipped from INL to Denver Federal Center, Lakewood CO USA.

SCOPE

The USGS requires services, non-personal, to provide all plant equipment, labor, travel, and materials (unless otherwise provided herein) necessary for on-site (IFSF) fuel selection, inspection, packing, and loading of 19 stainless-steel clad cylinders of 8.5 wt% uranium mixed with zirconium hydride (U-ZrH) to be used as sources of fissile material to operate the USGS National Reactor Facility. These fuel cylinders are owned by DOE and located at the IFSF facility in Idaho and need to be selected, inspected, and shipped from INL to the Denver Federal Center, Lakewood CO USA.

WORK REQUIREMENTS

The contractor shall:

Formalize a strategy for selecting TRIGA elements for shipment to GSTR and communicate the fuel burnup information for the selected elements to the USGS for approval within 30 days of their selection.

1. Retrieve the nineteen selected TRIGA fuel elements from the storage vault (IFSF) and perform an inspection of the selected TRIGA elements. The inspection date(s) shall be coordinated with USGS Technical Liaison (TL). These elements shall meet the USGS requirements so as not to be considered damaged. The fuel parameters for damaged fuel are detailed in NRC Facility License R-113 for the United States Geological Survey TRIGA Research Reactor Technical Specifications 4.1.3, Specification 2.
2. Support leak testing of the BEA Research Reactor (BRR) cask prior to loading the cask onto the trailer and load the BRR cask on the trailer in accordance with the BRR Safety Analysis Report (SAR). Ensure the BRR cask is ready for shipment in accordance with Department of Transportation (DOT) and NRC regulations.

Work requirements 2 and 3 shall be completed in an appropriate timeframe to support the project schedule.

REFERENCES & ESTABLISHED STANDARDS

1. Title 10, Code of Federal Regulations, Part 71 (10 CFR 71), *Packaging and Transportation of Radioactive Material*, 01-01-08 Edition.

2. Title 49, Code of Federal Regulations, Part 173 (49 CFR 173), *Shippers-General Requirements for Shipments and Packagings*, 10-01-08 Edition
3. Title 49, Code of Federal Regulations, Part 172 (49 CFR 172), *Hazardous Materials Tables and Hazardous Communications Regulations*, 10-01-08 Edition.
4. AREVA Federal Services LLC, *BEA Research Reactor Package Safety Analysis Report*, Revision 6, October 2013.

QUALITY ASSURANCE/SURVEILLANCE PLAN

The contractor shall be responsible for quality control throughout the performance of this contract.

The Government will be responsible for quality assurance of the services performed by the contractor as required in this work statement.

The USGS TL or COR will review data, including fuel inspection information, on selected fuel elements and confirm their acceptability for receipt at the USGS facility.

Note: Fuel depends on the other parties to have completed their respective scopes prior to being able to deliver the fuel. As a result, the schedule is flexible to permit this interaction. DOE-ID recognizes that fact as an operating condition.

C.7.6 TRIGA Mining

Due to the unavailability of fresh TRIGA fuel from the licensed European vendor (**TRIGA International**, a joint venture between General Atomics and CERCA – a subsidiary of AREVA of France), NE has entered into an agreement with EM to retrieve good quality, low burnup SNF from its inventory in CPP-603 and supply it to selected clientele of NE. The Contractor, within a schedule to be negotiated with the NE contractor, shall make five shipments, approximately one per year, to an NE client utilizing the BRR cask provided by NE.

C.7.7 Technical Planning and Engineering Support for Naval Reactors

Technical Planning and Engineering for Prototype Dismantlement and the Expended Core Facility (ECF) - Naval Reactors Facility (NRF)

The Contractor shall complete the following scope by the end of the contract period: planning, performing engineering evaluations, and developing the technical specifications required for Prototype Dismantlement (S1W, A1W, and S5G); developing the S1W reactor vessel disposal reports; preparing the S1W, A1W, and S5G CERCLA Engineering Evaluation and Cost Analysis (EE/CA) Reports and Expended Core Facility (ECF) Grouting Tunnels / Equipment Pit CERCLA EE/CA Report; and procuring and installing D&D infrastructure. Details of this scope are included in PLN-5915, Rev 1.

C.8.0 PROGRAM MANAGEMENT AND SUPPORT FUNCTIONS

The Contractor shall establish program management, support and general infrastructure activities necessary to safely execute the PWS requirements. When more than one contractor works in a shared workplace, the Contractor shall coordinate with the other contractors to ensure roles, responsibilities, and worker safety and health provisions are clearly delineated. If a reportable incident related to the NRC Facilities contract, D&D and Construction contract, A/E contract and/or another DOE prime contract (e.g. personnel injury, notice of violation, safety, security, quality, radiological) occurs while doing work at the Idaho Site, any such incidents will be reported in their respective statistics and will not contribute toward the Contractor statistics or reflect on Contractor performance as incentivized in PI-3.

C.8.1 Information Management and Technology

C.8.1.01 Information Technology and Cyber Security Policy Memoranda

The Contractor shall manage and maintain a secure automated information system, server operations, firewall support, and all other necessary secure information technology (IT) services for their missions. The Contractor shall provide DOE access to the Contractor's local systems and databases as necessary to support DOE's contractor oversight efforts. The Contractor shall work towards providing a cyber-security program based on the federal regulations and the DOE requirements as contained in DOE Order 205.1C, Chg. 1, that ensures adequate protection of DOE's information, IT operations, identifies and seeks to resolve threats and vulnerabilities, assesses overall risk to the systems, provides incident response, system logging, continuous monitoring, and mitigates those risks for DOE approval.

The Contractor shall establish necessary Memorandums of Understanding (MOU's) and Interconnection Security Agreements between the INL contractor, DOE-ID and DOE HQ for any necessary cyber security or IT services. All parties will accept the responsibility for adhering to DOE Directives, National Policy and OMB guidance. The Contractor shall work towards implementing all Federal Information System Management Act (FISMA) regulations and obtain the necessary system certifications from the INL Site Authorizing Official for authorization to operate.

The Contractor shall ensure IT services such as network backbone, remote connectivity, and wireless communications (cell, radio, etc.) are available to support the contract missions. This scope also includes Telecom Management/Planning/Control.

The Contractor shall provide support for DOE IT Capital Planning & Investment Control, Enterprise Architecture, and other IT activities required for the Contractor's operation.

The Contractor shall comply with the following mutually-agreed upon subset of the elements contained in the DOE Information Technology and Cybersecurity (ITC) policies (per DOE-ID letter CLN190248, dated November 20, 2018, and subsequent emails, (1) Jennifer Cate to Tom Williams, Subject: RE: ITC Scope, dated January 28, 2019; and (2) Jennifer Cate to):

Anti-Phishing Security Defenses (DOE ITC 18-01)

- Implement annual Incident Response Training
- Test/validate existing URL stripping and rewriting capabilities
- Confirm INL's ability to implement sandbox detonation functionality for Fluor Idaho
- Investigate host-based firewall functionality
- Test/validate content filtering for anti-malware and malicious websites
- Test/validate encrypted exfiltration detection capabilities
- Mark inbound external emails as "external"
- Implement internally-spoofed (i.e., from xyz@icp.doe.gov) emails in our anti-phishing user testing/awareness campaigns
- Create targeted anti-phishing user testing/awareness campaigns for select groups, such as network/server admins, HR personnel, Finance personnel, etc.
- Anti-Phishing Training for End Users
- Document and deploy an annual anti-phishing training program for users to include, but not limited to annual training, awareness campaigns.
- Test all users quarterly utilizing simulated phishing attacks that include spoofed emails.
- Implement more frequent anti-phishing training and exercises for users in sensitive roles, such as systems administration, or at heightened risk of attack.
- Include anti-phishing in the pre-logon and annual cybersecurity refresher briefings and/or in specialized anti-phishing training that is required annually.
- Capture and report quarterly results of simulated phishing attacks to include, at a minimum, the metrics required for FISMA reporting and any additional required by the CIO.
- Schedule and hold at least two phishing awareness campaigns and/or events annually.

Removable Media Security (DOE ITC 18-03)

- Add "Property of US Govt. tags" to all removable media (including USB flash/thumb drives) and include "marking of removable media" in end user training
- Label removable media as OOU where appropriate and include "OUO marking" in end user training materials
- Implement formal tracking (e.g., HelpDesk tickets) for all thumb drive requests
- Prohibit the use of portable storage devices in organizational information systems when such devices have no identifiable owner
- Update our training and policy to incorporate "not allowing non-governmental information to be stored on DOE issued removable media".

C.8.1.01.01 Network Access

The Contractor may negotiate Network Access with the INL contractor for IT services if located within INL facilities or off-site. If Contractor is located off-site from the INL, the Contractor will incur installation and all related connectivity costs. If Contractor is on-site, the INL contractor provides and maintains basic data service to the existing data jacks within the protected network based on the number and location of connections in service at the time of turnover in accordance with negotiated or established rates. Costs

associated with minor moves and relocations within existing EM facilities may be provided by the INL contractor at established rates.

If the Contractor negotiates access to the INL Network, the Contractor shall comply with the INL Cyber Security requirements and processes. The INL contractor may provide firewall operation, intrusion detection, antivirus management, SPAM filtering and associated engineering with any potential negotiated costs to the Contractor. The Contractor will reimburse the INL contractor for licensing and support costs as applicable via the necessary Interface Agreement. All Contractor equipment connected to the protected INL Intranet shall meet INL computer architecture requirements to ensure continued network integrity.

Services provided by DOE-HQ IT services such as connectivity to DOENet and Entrust licenses will be provided by the INL contractor. The Contractor will reimburse the INL contractor via the necessary Interface Agreement.

C.8.1.01.02 Computer Operations

The INL contractor may provide logical “de-militarized zone” (DMZ) space. The Contractor shall follow cyber security rules and change control processes for systems residing in the DMZ. The Contractor shall self-supply network servers or negotiate for services from the INL contractor. The Contractor shall self-supply business management, e-mail, and work control systems, as desired. The Contractor shall provide remote access to allow the Department of Energy access to information, within the scope of this contract, within the Contractor’s firewall.

C.8.1.01.03 Multifactor Authentication Implementation

The Contractor’s shall work towards achieving and maintaining 100% MFA compliance with exceptions that include Industrial Control Systems (ICS), non-Windows systems (e.g., UNIX), and other systems that cannot technically accommodate MFA by September 30, 2016. The appropriate amount of card readers shall be installed to achieve this objective.

C.8.1.02 Records Management and Document Control

The Contractor shall manage and serve as the Record Custodian for all records (regardless of media) generated/received in the performance of the Contract and those from the NRC License Contractor in accordance with 44 U.S.C. 21; 44 U.S.C. 29; 44 U.S.C. 31; 44 U.S.C. 33; 44 U.S.C. 36; 36 CFR Chapter XII, Subchapter B, *Records Management*; DOE O 243.1B, Records Management Program, applicable NRC requirements (NRC License Contractor records), any other DOE requirements as directed by the CO and an approved Records Management Plan (see Section J, Attachment J-2, List of Deliverables).

This scope also includes maintaining Vendor Data, Correspondence control, Scientific and Technical Information (STI), and Technical Library Subscriptions.

C.8.1.02.01 Electronic Records (including emails)

The Contractor shall develop and implement records management controls to ensure that the identification, maintenance and disposition of all records (regardless of media), including electronic, email and records turned over by the NRC License contractor, are managed utilizing an Electronic Records Management System (ERMS) in accordance with Federal and DOE requirements and guidelines for all records, including historical and subcontractor records.

The Contractor shall develop and implement a process to ensure electronic records submitted to Records Management, have been scanned to meet NARA requirements. All records (regardless of media) must be scheduled, arranged, and cutoff by collections (e.g., case file, project, chronologically, numerically, alphabetically, etc.) for proper disposition in accordance with the NARA-approved DOE Records Disposition Schedules.

C.8.1.02.02 Audiovisual Records

The Contractor shall ensure the creation, maintenance, and storage of audiovisual records are in accordance with 36 CFR 1235.42, 36 CFR 1237, and up-to-date NARA requirements/guidance.

C.8.1.02.03 Vital Records Program

The Contractor shall develop and implement a vital records program and maintain an up-to-date vital records inventory in accordance with 36 CFR § 1223, Managing Vital Records, and DOE O 243.1B, Records Management Program.

C.8.1.02.04 Records Ownership

Except for those defined as Contractor-owned (in accordance with DEAR 970.5204-3, "Access to and Ownership of Records," see Section I), all records (see 44 U.S.C. 3301, Definition of Records, for the statutory definition of a record) acquired or generated by the Contractor (and subcontractors) in the performance of this Contract including, but not limited to, records from a predecessor contractor (if applicable) and records described by the Contract as being maintained in Section H clause *Privacy Act Systems of Records* shall be the property of the Government.

C.8.1.02.05 Creation/Receipt

The Contractor shall develop and implement recordkeeping requirements that reflect adequate and proper documentation of all Contractor (and subcontractor) records generated / received (regardless of media) in the performance of the contract, as well as those created/received by the NRC License Contractor as required by Federal regulations found in 36 CFR, Chapter XII, Subchapter B, *Records Management*.

C.8.1.02.06 Electronic Information Systems

The Contractor shall manage records contained in electronic information systems by incorporating recordkeeping controls into the system or export the records into the ERMS in accordance with 36 CFR Part 1236, Electronic Records Management. The Contractor must design and implement migration strategies to counteract hardware and software dependencies of electronic records whenever the records must be maintained and used beyond the life of the information system in which the records are originally created and captured. The Contractor shall provide a list of all Electronic Information Systems to DOE annually utilizing the format provided by DOE (see Section J, Attachment J-2, List of Deliverables).

C.8.1.02.07 Inventory and File Plan

The Contractor shall develop and maintain up-to-date records inventories, file plans and systems that provide for the identification, location, arrangement, assignment of disposition authority and retrieval of all categories (record series) of records created and received in performance of this contract and those by the NRC License Contractor (see Section J, Attachment J-2, List of Deliverables).

C.8.1.02.08 Maintenance

The Contractor shall ensure the proper arrangement, disposition authority assignment and maintenance/preservation of all records created and received in performance of this contract and those by the NRC License Contractor.

C.8.1.02.09 Quality Assurance Records

The Contractor shall ensure records identified as Quality Assurance records under American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) National Quality assurance (NQA)-1 are categorized (lifetime/non-permanent); managed in accordance with NQA-1 and 36 CFR Chapter XII, Subchapter B; and are maintained for traceability to the applicable item, activity or facility.

C.8.1.02.10 Privacy Act Records

The Contractor shall ensure records that contain personal information retrieved by name, or another personal identifier are maintained in Privacy Act Systems of Records, in accordance with FAR 52.224-2, Privacy Act, and DOE O 206.1, DOE Privacy Program.

C.8.1.02.11 Classified Records

The Contractor shall protect and handle classified information and critical information in accordance with applicable laws, regulations, policies, and directives. Classified documents may be processed electronically so long as the computer systems meet all

classified security requirements. Until the required computer systems are available to copy, log, process, transmit, and/or store classified documents, they shall be processed as hard copy. See Section C.8.2, Safeguards and Security.

C.8.1.02.12 Records Requests

The Contractor shall respond to National Archives and Records Administration (NARA) data calls and DOE requested information for the Freedom of Information Act (FOIA), the Privacy Act, the former worker medical screening program, the Chronic Beryllium Disease Prevention Program, congressional inquiries, legal discoveries and other record requests by completing the proper searches and providing responsive documents

The Contractor shall respond to Energy Employee Occupational Compensation Act (EEOICPA) requests by performing the proper searches and providing responsive documents to the INL Contractor within the required response times. The Contractor shall track the activities under EEOICPA and submit monthly financial reports to the INL contractor. The Contractor shall respond to any other inquiries and perform special projects as required by EEOICPA.

C.8.1.02.13 Records Disposition

The Contractor shall document its disposition process, which shall include processing of all records to storage (e.g., on-site, FRC) and the destruction process for records and information content (Section J, Attachment J-2, List of Deliverables). The Contractor shall disposition all records, including historical and those transferred from the NRC License Contractor in accordance with NARA-approved DOE Records Disposition Schedules and applicable federal laws and regulations. Disposition activities include scanning to electronic (permanent records), transferring of papers records to a Federal Records Center (FRC), maintaining electronically in an ERMS and/or destroying once retention has been met and proper approves obtained.

C.8.1.02.14 Document Control

The Contractor shall develop, implement and maintain sound document control systems and processes to ensure efficient tracking, retrieval, revision control and distribution of documents, including drawings.

C.8.1.02.15 Records Storage Program

The Contractor shall operate the INL Records Storage Facility (IF-663) and provide record management services including transferring, storing, maintaining records; and dispositioning inactive records. Management of non-ICP records shall be addressed in interface agreements on a cost reimbursable basis. The INL contractor is the landlord of this facility.

The Contractor shall operate and maintain electronic records storage.

C.8.1.03 Information Operations Research Center (IORC) Relocation

The Contractor shall remove computer and network equipment from the Information Operations and Research Center and relocate the ICP Core data center to the Engineering Research Office Building by May 31, 2021. The Contractor shall work with the INL Contractor as needed to ensure a timely relocation.

C.8.1.04 Bod 19-02, Vulnerability Remediation Requirements for Internet-Accessible Systems is incorporated as follows:

The Contractor shall comply with Binding Operational Directive (BOD) 19-02, Vulnerability Remediation Requirements for Internet-Accessible Systems, dated April 29, 2019. Per Fluor Idaho letter CCN 323830, dated July 1, 2019, there is no cost impact for this BOD. The Department recognizes that the Contractor will need to review the forthcoming EM-issued Site Cybersecurity Program Plan (CSPP) for any impacts and work towards developing a site CSPP appropriately.

C.8.1.05 Replacement/Upgrade of Existing Information Technology Equipment

The Contractor shall upgrade the ICP Core existing Information Technology (IT) equipment and maintain a suitable lifecycle for the equipment to support the missions. This change specifically involves replacing/upgrading existing computers (desktops/laptops) and necessary enterprise Microsoft software licensing and other necessary licensing and maintenance to support the hardware.

The Contractor shall estimate a plan to replace the computers that will be greater than three (3) years of age (and of life) at contract completion. These target systems will be replaced year over year at an agreed upon rate until contract end. This plan will support continuing DOE EM mission needs as well as support the DOE EM-HQ FY19-22 information technology strategic plan.

C.8.1.06 Upgrade/Replacement of Existing Network and Data Center Equipment (Phase 1)

The Contractor shall complete the following Phase 1 (EROB) scope:

- a. Furnish, install, configure, and test servers and related network equipment to replace equipment previously identified in the IORC Data Center Relocation contract modification (Mod 132), where the previously identified equipment will be End of Life at the completion of the ICP Core Contract:
 1. Virtual Servers
 2. Database Servers
 3. Physical Servers
 4. Storage Arrays
 5. VoIP Phone Server
 6. VPN Firewall

7. Cyber Security Logging Server
 - b. Furnish (no installation) Phase 2 servers, to replace equipment that will be End of Life upon completion of the ICP Core Contract:
 1. Physical Servers

In addition, the Contractor shall upgrade the existing Dell Avamar back-up system, comprised of a primary town (EROB) subsystem and a Disaster Recovery subsystem at the site, and include a 60-month maintenance agreement.

C.8.1.07 ICP Core Server and Network Refresh (Phase 2)

The Contractor shall complete the following Phase 2 (Network discovery, network design, and non-EROB servers) scope:

- A. Network discovery and design
 1. Obtain comprehensive knowledge of Fluor Idaho's current network including inventories, locations and design.
 2. Obtain multiple potential network designs to upgrade the existing network.
 3. Review the various designs with the purpose of selecting one for presentation to DOE-ID and future implementation.
- B. Non-EROB Server Implementation – deploy 11 servers (purchased in Phase 1).

C.8.2 General Management and Administration Services

C.8.2.01 Project Management/Support/Administration

The Contractor shall perform Project Management support and administration in accordance with Section H Clause, *Integrated Work Control Systems and Reporting Requirements* and Section H Clause *Earned Value Management System*.

This scope shall also include the following internal Contractor activities as necessary to successfully execute the contract: Idaho Falls Office Space, Employee Concerns, Internal Audit, Communications, General Counsel/Legal, Project Planning and Integration, Project Controls, Project Management, Finance and Accounting, Payroll and Benefits, Human Resources, Procurement, Labor Relations, Subcontracting, Materials Receiving and Distribution, Liability Insurance Programs, insurance premiums, etc.

C.8.2.02 Safeguards and Security

The Contractor will be provided Safeguard and Security (S&S) services by the INL Contractor. The level of S&S services provided by the INL Contractor to the ICP Core Contractor will be consistent with the requirements included in the INL contract, see <http://www.id.doe.gov/doi/id/INLContract/INLHomepage.html>, as approved by the Officially Designated Federal Security Authority (ODFSA), and in accordance with the Site Security Plan [see Exhibit C-25, *INL Site Security Plan (OUO)*]. The Contractor shall coordinate with the INL contractor to adopt and update the INL Site Security Plan within 90 days after the contract effective date. Any changes to INL Contractor requirements and Departmental directives will be

evaluated and any costs impacts associated with requirement changes or changes in level of services requested will be borne by the program office (e.g., EM, NE) whose activities are affected by the changes.

Costs for repairs to the security systems and components located within the security buildings will be borne by the INL Contractor. However, costs for repairs or upgrades to security systems and components that feed into the site-wide Central Alarm Station at INTEC (CPP-1674) shall be borne by the respective user organization (e.g., EM, NE).

The Contractor shall provide resources, materials, and programs to provide appropriate levels of protection against unauthorized access, theft, diversion, loss of custody of accountable nuclear material, espionage, loss or theft of classified matter, loss or theft for Government property, and other hostile acts that may cause unacceptable adverse impacts on national security or the health and safety of DOE and Contractor employees, the public, or the environment. This applies to buildings and areas for which the Contractor is responsible, including TMI-2. The Contractor shall perform the Safeguards and Security activities listed below, in addition to those addressed in the INL Site Security Plan, in order to provide these necessary resources, materials, and programs. These activities shall be included in the Contractor's target cost and shall include, but are not limited to:

- (a) Program Management: The Contractor maintains personnel and resources for safeguards and security. The Contractor shall ensure its security assets and activities comply with the INL Site Security Plan.
- (b) Foreign National Visits/Assignments (through INL contractor system): Foreign National Visits/Assignments are initiated by the Contractor through the Foreign Access Central Tracking System (IFACTS) database. The INL contractor provides foreign national visit and assignment security support to the Contractor.
- (c) Information Security Oversight: The Contractor shall ensure all documents are reviewed and approved for public release. The Contractor is responsible to ensure all internal documents are reviewed for classification as necessary. The INL contractor provides classification services to the Contractor.
- (d) Classified Matter Protection and Control (CMPC):
 - (1) The INL contractor provides CMPC training to the Contractor as required.
 - (2) The Contractor shall ensure that all personnel handling classified matter receive required training.
 - (3) The Contractor shall develop and implement appropriate systems for protection of classified matter.
- (e) Security Incidents/Inquiries: The Contractor shall conduct initial assessments of security incidents and make final determinations regarding security infractions to Contractor personnel. The INL contractor conducts all formal security incident inquiries and develops reports for submittal to DOE.
- (f) Physical Security: The Contractor shall ensure services provided by the INL contractor meet applicable DOE requirements and inform both the INL contractor and the CO of changes in needed services and issues with the services provided.
- (g) Security Systems (locks-keys/alarms/access controls, classified storage areas, badge readers): The Contractor shall be responsible for all locks and keys. The Contractor shall

- be responsible for new alarms, cameras, and access control equipment for new projects. The INL contractor provides scheduled maintenance, alarm testing, and system upgrades.
- (h) Operations Security (OPSEC): The Contractor shall provide appropriate project personnel to support its own OPSEC program and participate as a member of the INL site wide OPSEC working group. The Contractor shall conduct OPSEC reviews of projects and facilities as required by DOE orders referenced herein. The INL contractor manages the INL site wide OPSEC program.
 - (i) Classification/Declassification/Unclassified Controlled Information: The Contractor shall nominate personnel and maintain Derivative Classifiers (DCs) as necessary to support operational programs in coordination with the INL classification office. The INL classification program provides training and classification services to the Contractor.
 - (j) Nuclear Material Control and Accountability (NMC&A): The Contractor shall maintain a Nuclear Material Representative (NMR) and appoint Material Balance Area Custodians (MBACs) as necessary. The INL contractor provides all necessary training to the Contractor MBACs, conducts nuclear material inventories, and maintains nuclear material inventory records of nuclear materials and core NMC&A project support.
 - (k) Facility Data Approval Record & Contract Security Classification Specification (FDAR/CSCS): The Contractor shall perform all FDAR/CSCS requirements.
 - (l) Foreign Ownership, Control, or Influence (FOCI) processing: The Contractor shall maintain all FOCI requirements as necessary.
 - (m) Visitor Control/Vehicle Access: The Contractor shall utilize the INL site wide visitor access control process and comply with vehicle access controls. The INL contractor provides visitor controls services to the Contractor.
 - (n) Personnel Security: The Contractor shall be responsible for pre-employment background investigation for all new hire and sub-contractor personnel. Individuals that require a clearance are subject to an Office of Personnel Management (OPM) background investigation. The INL contractor provides personnel security services to the Contractor. The Contractor shall promptly prepare and submit applications for security clearances, for adjudication by DOE-ID, as required for work under this contract.
 - (o) Coordination and liaison with DOE security organizations and DOE contractor security organizations, including the protective force of the INL contractor: The Contractor shall coordinate security service requests with the INL contractor and shall ensure appropriate coordination and liaison with the DOE security organization.

The Contractor shall coordinate with the INL protective force for non-routine activities (e.g. security support for road outages, construction security escorts, on-site transportation security escorts, involuntary separations, increased security checks, and other requests as deemed necessary by the Contractor).

The Contractor shall provide Identity, Credential and Access Management in compliance with DOE Order 206.2, Identity, Credential, and Access Management (ICAM). This includes issuance of Homeland Security Presidential Directive (HSPD)-12 badge credentials for all qualified Contractor personnel, cleared and uncleared, and implementation of the necessary capabilities to provide access to Federal facilities or systems. A proposed HSPD-12 Badge Implementation Plan shall be submitted to DOE for approval within 30 days after the Contract Effective Date.

C.8.2.03 Public Affairs/Stakeholder Relations

The Contractor shall provide public affairs services in accordance with DEAR 952.204-75 *Public Affairs* that include but are not limited to: stakeholder and oversight organization support, media relations, tours, visits, access to documents. The Contractor shall provide necessary technical support to DOE and participate in stakeholder activities at the direction of the Contracting Officer.

C.8.2.04 Property Management

The Contractor shall manage all government property utilized under this contract. As of the contract effective date the Contractor shall accept the transfer of and accountability for government property and equipment, including special nuclear material. This requirement includes government property in the possession or control of subcontractors. The Contractor shall establish and maintain a system, in accordance with Section I clause FAR 52.245-1 *Government Property* and DOE Order 580.1A, Department of Energy Personal Property Management Program, to manage Government property in its possession. The Contractor Personal Property Management System shall be submitted to DOE for review and approval within 90 days of the contract effective date (see Section J, Attachment J-2). All Government Furnished Property (GFP) under this contract is furnished on an “as is/ where is” basis.

The Contractor shall coordinate with the INL contractor to identify new acquisitions (both capitalized equipment purchases and construction projects) to financially capitalize the property. The Contractor shall identify equipment and facilities that are disposed of to ensure timely financial write-off of the assets balance in the INL contractor accounting records.

The Contractor shall disposition personal property in accordance with the Personal Property Management Program, DOE Order 580.1A, and Federal Property Management Regulation 41 CFR Part 102-36, Disposition of Excess Personal Property.

The Contractor shall disposition classified equipment and material in accordance with the requirements of DOE O 580.1A.

The Contractor shall identify, control, and disposition high-risk property in accordance with DOE Order 580.1A. The Contractor shall identify, control, and disposition Automatic Data Processing Equipment in accordance with DOE O 580.1A and DOE Order 205.1C, Department of Energy Cyber Security Program. The Contractor shall disposition nuclear-related or proliferation sensitive property in accordance with the requirements of DOE O 580.1A.

The Contractor shall develop and maintain a program for the acquisition, maintenance, and operation of equipment. The program shall comply with any and all applicable federal laws and regulations, state and local laws, and property management requirements.

C.8.2.04.01 Real Property Services

The Contractor shall comply with DOE O 430.1B Change 2, “Real Property Asset Management,” for the acquisition, management and disposition of real property assets. The Contractor shall input and maintain all data required to be included in the Facility Information Management System (FIMS).

C.8.2.04.02 Personal Property

The Contractor shall manage all personal property assigned/Government Furnished Equipment (GFE) in accordance with DOE O 580.1A, Department of Energy Personal Property Management Program. The Contractor shall also routinely input data and maintain the Property Information Database System (PIDS). A list of Government Furnished Equipment is included as Exhibit C-24.

C.8.2.04.03 Replacement of Government Furnished Property

The replacement of Government Furnished Property for which title shall pass to and vest in the Government shall be the responsibility of the Contractor. The Contractor shall assume the risk of any loss, damage, or destruction of Government Furnished Property in accordance with FAR 52.245-1, Government Property.

C.8.2.05 Phase Out and Closeout Activities

The Contractor recognizes that the work and services covered by this contract are vital to the DOE mission and must be maintained without interruption, both at the commencement and the expiration of this Contract (also see Section H clause *Transition to Follow-On Contract (Post 2020)*).

C.8.2.05.01 Phase Out Activities

- (a) The Contractor shall submit a Phase-Out Transition Plan to include its approach to adequately phase-out all Contract activities. The Phase-Out Transition Plan shall be submitted in accordance with this PWS and Section J, Attachment J-2, List of Contract Deliverables/Submittals, at least 60 days prior to the end of the contract period.
- (b) The Contractor shall perform those activities that are necessary to transition the work under this contract to a successor Contractor in a manner that (1) ensures that all work for which the Contractor is responsible under the contract is continued without disruption; (2) provides for an orderly transfer of resources, responsibilities, and accountability from the Contractor; and (3) provides for the ability of the Contractor to perform the work in an efficient, effective, and safe manner.
- (c) The Phase-Out Transition Plan shall include a proposed date by which the Contractor will assume responsibility from the outgoing contractor. The outgoing contractor will maintain full responsibility for such work until assumption thereof by the Contractor.

Execution of the proposed plan or any part thereof shall be accomplished in accordance with the CO's direction and approval.

- (d) The Phase-Out Transition Plan shall also include a schedule of major activities, and address as a minimum:
- A training and orientation program for the successor contractor to cover the complete scope of work covered by the Contract and other specific requirements associated with work efforts at the Idaho site;
 - Communication process among DOE, the Contractor, assigned subcontractors, incumbent employees, and the successor contractor and/or subcontractors;
 - Identification of key transition issues and milestones;
 - Identification of a transition team (inclusive of consultants and teaming members, if any);
 - Approach to minimizing impacts on continuity of operations;
 - Dispute resolution;
 - Transition of programs, plans and projects;
 - Transition and/or modification of necessary permits, which shall include list of permits and purpose.
 - Transition of existing management and operating systems, plans, procedures, programs (e.g., Worker Safety and Health plan, QA plan, ISMS program, Occupational Radiation Protection Program, Waste Management Program, Records Management Program, etc.);
 - Transition of all Contract responsibilities, functions, and activities;
 - Transition of all interface control documents; and
 - Transition of any other documents or records that would be required for a successor contractor to adequately and efficiently perform.

Upon DOE approval of the Phase-Out Transition Plan, the Contractor shall complete the activities described in the plan by the end date of the contract.

C.8.2.05.02 Close Out Activities

- (a) The Contractor shall submit a Closeout Plan to document the necessary steps the Contractor shall take to adequately closeout the contract. The Closeout Plan shall include a schedule of major activities, and address at a minimum:
- Identification of all contract deliverables submitted and accepted. The Contractor shall include date submitted, DOE acceptance date (if applicable) and status of any remaining open deliverables;
 - Status of all requirements (complete and incomplete) under this contract;
 - Identification of all subcontracts along with status of each subcontract's settlement and final payment. The Contractor shall identify for each subcontract under this contract whether final invoices have been paid, date of final payment, current status of settlement, and any other outstanding issues related to final settlement and payment of subcontracts;
 - Disposition of Government property and equipment, including special nuclear material;

- Status of activities performed in accordance with the Contractor's Records Management Close-Out or Transition Plan
 - Status of the final invoice and any incurred cost audit; and
 - Status of the final Contractor Performance Assessment Report System (CPARS) report.
- (b) The Closeout Plan shall be submitted in accordance with this PWS and Section J, Attachment J-2, List of Contract Deliverables/Submittals, at least 60 days prior to the end of the contract period. Final payment may be withheld by DOE until all of the necessary activities are completed by the Contractor.

Upon completion of the contract, a final modification will be executed to officially close out the contract. A final release statement will be included in the closeout modification where the Contractor discharges the Government, its officers, agents and employees from all liabilities, obligations and claims under the contract.

C.8.2.06 Mandatory and Optional Site Services

The Contractor shall purchase mandatory site services from the INL contractor, as listed in Exhibit C-2 *List of Mandatory and Optional Site Services*, for the contract performance period, in accordance with the interface agreements established in C.2.1.01. Optional services identified in Exhibit C-2, or other optional services as agreed to by the parties, are available to the Contractor for purchase from the INL contractor as the Contractor deems necessary for the contract performance period, in accordance with the interface agreements established in C.2.1.01.

In the event the Contractor determines that some of the mandatory services may be obtained from more cost-effective sources of supply, the Contractor shall notify DOE of its proposal to utilize other sources. DOE approval will be obtained prior to changing mandatory service providers.

C.8.3 Environment, Safety, Health and Quality

C.8.3.01 Defense Nuclear Facility Safety Board

The Contractor shall conduct activities in accordance with those DOE commitments to the DNFSB which are contained in implementation plans and other DOE correspondence to the DNFSB. The Contractor shall support preparation of DOE responses to DNFSB issues and recommendations which affect or can affect contract work. Based on Contracting Officer direction, the Contractor shall fully cooperate with the DNFSB and provide access to such work areas, personnel, and information as necessary. The Contractor shall maintain a document process consistent with the DOE manual on interface with the DNFSB. The Contractor shall be accountable for ensuring that subcontractors adhere to these requirements.

C.8.3.02 Regulatory Interaction and Environmental Services

The Contractor is authorized to negotiate with regulatory agencies as specified in the regulatory interface protocol, and subject to DOE approval. The Contractor shall work with DOE, regulatory agencies, and other INL entities and contractors to reach collective agreements on interface protocols; keep the *Environmental Regulatory Structure and Interface Protocol for the ICP Core Contractor* (Exhibit C-6) updated; and follow the protocol.

The Contractor shall maintain an environmental monitoring, analysis, and assessment program, to detect impacts of EM operations and to comply with DOE orders, regulations, and agreement requirements. The Contractor shall coordinate its monitoring and surveillance program with the INL contractor to prevent duplication of monitoring efforts and ensure the INL site monitoring program is technically based and adequate to identify impacts from operations. The environmental monitoring program shall provide for on-site effluent monitoring; both on- and off-site environmental surveillance to measure both radiological and non-radiological constituents; and both on- and off-site erosion control monitoring, as required for specific contractor operations. Monitoring and surveillance includes both the continuous recording of data and the collecting of soil, sediment, water, air, and other samples at specific times. Evaluation and analysis of such data will be performed, as requested. Further, the Contractor shall install additional or modify existing monitoring locations as required or requested by DOE and/or regulatory agencies. The Contractor shall also conduct other monitoring, sampling, or inspection work as required by existing or future agreements with DOE or regulatory agencies.

The Contractor shall operate and maintain the existing Hydrogeologic Data Repository and the Comprehensive Well Inventory database. The Contractor shall provide full access to all site contractors and DOE, as needed.

The Contractor shall assume applicable responsibilities, in accordance with the Endangered Species Act, for candidate species on the INL, e.g., the sage grouse and pygmy rabbit, and for the Candidate Conservation Agreement with the U.S. Fish and Wildlife Service.

The Contractor shall support DOE for the purpose of complying with the Natural Resource Damage Assessment requirements under Section 107(a) and 120(a) of CERCLA.

The Contractor shall sample and report the results for the drinking water systems at INTEC and RWMC in compliance with the Safe Drinking Water Act.

The Contractor shall, early in the planning stage of any proposed activity that may trigger agency compliance with the National Environmental Policy Act (NEPA), inform DOE in writing of the proposed action. For proposed CERCLA actions, NEPA values must be addressed to the extent practicable and documentation of how those values are addressed shall be provided to the NEPA Compliance Officer before the action proceeds. All information submitted to DOE by the Contractor shall be presented in a manner and extent that allows DOE to comply with NEPA requirements and to make a NEPA determination. The proposed activity may not proceed until all NEPA requirements have been satisfied. The proposed activity shall be compliant with DOE NEPA published at 10 CFR 1021, National Environmental Policy Act Implementing Procedures

and the DOE's NEPA/CERCLA Policy. The Contractor shall adhere to all requirements and conditions, including the implementation of mitigation measures, identified in any applicable NEPA decision document or categorical exclusion upon which a NEPA determination is based.

C.8.3.03 Permits and Compliance Documents

The Contractor shall maintain and comply, including reapplications as necessary, with all applicable site environmental permits and compliance documents including, but not limited to:

- RCRA permits;
- Air permits;
- Waste Water Recycle and Reuse permits;
- Site Treatment Plan under the Federal Facility Compliance Act;
- Notice of Noncompliance Consent Order, dated April 1992 et seq;
- Federal Facility Agreement and Consent Order (FFA/CO), dated December 1991;
- Idaho Settlement Agreement, dated October 1995; and
- Agreement to Implement, dated July 1, 2008 per the U.S. District Court Order dated, May 25, 2006.
- DOT Hazardous Material Regulations (HMR) per 49 CFR 107.105.

A list of environmental permits is provided as Exhibit C-1, *List of Current Environmental Permits Applicable to EM INL Site Work Scope*.

The Contractor shall be the lead on site-wide issues related to RCRA and the Idaho Hazardous Waste Management Act (HWMA) and implementing regulations; Federal Facilities Compliance Act (FFCA) Site Treatment Plan; and CERCLA under the FFA/CO. For those compliance areas, the Contractor shall complete and submit (after appropriate coordination with all involved Idaho Site entities) site-wide level regulatory reports, site-wide consent order and agreement tracking and closure information, and site-wide permit applications (including permitting operations or facilities included in the Site Treatment Plan). The Contractor is not responsible for facility-specific regulatory compliance, record keeping, and permit applications at facilities it does not manage.

Facility-specific issues or actions related to current or ongoing facility-specific permit applications, releases to the environment, and compliance issues are the responsibility of the contractor managing the facility.

C.8.3.03.01 Certifications

The Contractor shall provide a written certification statement attesting that information DOE is requested to sign was prepared in accordance with applicable requirements. The Contractor shall include the following certification statement in the submittal of such materials to DOE:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that

qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

The certification statement shall be signed by the individual authorized to sign such certification statements submitted to federal or state regulatory agencies under the applicable regulatory program.

C.8.3.04 Environmental Support to INL Contractor

Since the INL contractor has the site-wide coordination role for all regulatory programs except RCRA and CERCLA, the Contractor shall provide the INL contractor with the appropriate information, data (certified if necessary), and support necessary to complete its site-wide functions including, but not limited to, the following areas:

- Site-wide air emission applications, permits, and reporting per the Clean Air Act and the Idaho implementing regulations; and reporting per the National Emission Standards for Hazardous Air Pollutants (NESHAPs).
- Site-wide monitoring, surveillance, and reporting for liquid effluents, drinking water, storm water, and groundwater to demonstrate compliance with the Clean Water Act, Safe Drinking Act, and other water quality requirements.
- Soils, air, and biota surveillances and monitoring to determine the impact of operations on the environment and natural resources.
- Site-wide compliance reports, data, and records required by the Toxics Substance Control Act, Federal Insecticide, Fungicide and Rodenticide Act, Emergency Planning and Community Right to Know Act, and cultural resource management laws and regulations.
- National Environmental Policy Act (NEPA) actions
- Input to the Annual Site Environmental Report shall be provided annually to the designated DOE environmental surveillance, education, and research contractor.
- Asbestos notifications for renovations

C.8.3.05 Worker Safety and Health

The Contractor shall comply with all applicable safety and health requirements set forth in 10 CFR 851, Worker Safety and Health Program. The Contractor shall develop, implement, and maintain a written Worker Safety and Health Plan (WSHP) which shall describe the Contractor's method for complying with and implementing the applicable requirements of 10 CFR 851. The Worker Safety and Health Plan (WSHP) shall be submitted for approval at least 30 days prior to contract effective date. The WSHP must be approved by DOE by the contract effective date. The approved WSHP shall be implemented prior to the start of work. In performance of the work, the Contractor shall provide a safe and healthful workplace, and must comply with its approved WSHP and all applicable Federal and state environmental, health, and safety regulations. The Contractor shall take all reasonable precautions to protect the environment,

health, and safety of its employees, DOE personnel, and members of the public. The Contractor shall take all necessary and reasonable steps to minimize the impact of its work on DOE functions and employees. When more than one contractor works in a shared workplace, the Contractor shall coordinate with the other contractors to ensure roles, responsibilities, and worker safety and health provisions are clearly delineated.

In December 2017, a technical amendment to 10 CFR 851 was published, effective January 17, 2018. As a result, the Contractor developed an implementation plan for the 10 CFR 851 Technical Amendment. The implementation plan established a phased implementation approach. The Contractor shall keep DOE-ID informed of any planned changes to the technical amendment implementation approach.

The Contractor shall immediately report all job-related injuries and/or illnesses which occur in any DOE facility to the Contracting Officer's Representative. Upon request, the Contractor shall provide a copy of occupational safety and health self-assessments and/or inspections of work sites for job hazards for its DOE facilities to the Contracting Officer's Representative.

The Contracting Officer will notify the Contractor, in writing, of any noncompliance with the terms of this section, plus the corrective action to be taken. After receipt of such notice, the Contractor shall immediately take corrective action.

In the event that the Contractor fails to comply with the terms and conditions of this section, the Contracting Officer may, without prejudice to any other legal or contractual rights, issue a stop work order halting all or any part of the work. Thereafter, a start order for resumption of the work may be issued at the discretion of the Contracting Officer. The Contractor shall not be entitled to an equitable adjustment of the Contract amount or extension of the performance schedule on any stop work order issued under this special Contract requirement.

The Contractor shall maintain medical records of former workers and make them available for health effects studies as requested by DOE. Medical records shall be maintained in accordance with 10 CFR 851 and any other applicable codes, laws, requirements or regulations.

The Contractor shall obtain, review and maintain a Material Safety Data Sheet (MSDS) in a readily accessible manner for each hazardous material (or mixture containing a hazardous material) ordered, delivered, stored or used; and maintain an accurate inventory and history of use of hazardous materials at each use and storage location. The MSDS shall conform to the requirements of 29 CFR 1910.1200(g) and FAR 52.223-3, Hazardous Material Identification and Material Safety Data.

The Contractor shall complete the following Occupational Safety and Health Administration (OSHA) Walking-Working Surfaces scope:

Modify the existing walking working surfaces to bring facilities into compliance with the current 10 CFR 851 requirements. This scope includes replacement of stairs, railings, ladders and platforms through design, procurement and installation of infrastructure listed in Appendix I, *Rev 1 of RPT-1649 – Walking and Working Surfaces Assessment Report*, incorporated by contract

Modification 198. This scope includes categories “A” and “B” for INTEC, IWTU and SSF; ICDF and RWMC are excluded (with the exception of actual costs already incurred or accrued).

1. Category A (Stairs) – Modification of stairs that have improper width or tread dimensions; installation of any additional required handrails; installation of toe-boards for missing guardrail systems; installation of guardrails at loading areas to replace currently installed chains; and transitions to ladders inside of utility tunnel access points which do not have platforms. This work will require engineering, purchasing, fabrications, and installation (as a minimum).
2. Category B – Types of equipment that can be used/installed after procurement. New or replacement items including mobile ladder stands, mobile ladder platforms, swing gates, grab bars and hatchway protective systems (including standard guardrails and gates). This scope will require purchase and installation of equipment (as a minimum).

The Contractor shall purchase Environmental-Industrial Hygiene equipment/instrumentation as detailed in the deliverables list attached (Attachment C.8.3.05-1).

C.8.3.06 Occupational Medical Program (OMP)

The Contractor shall provide for its employees an OMP in compliance with 10 CFR 851. The Contractor may purchase this service from the INL contractor. A documented section in the WHSP describing the Contractor’s OMP is required. 10 CFR 851 Appendix A specifies the written requirements of the OMP program that the WHSP must address. At a minimum, the WHSP for DOE approval needs to provide sufficient information or reference to another document (e.g., procedure, other) which describes the Contractor’s (and its subcontractors’) planned implementation of the OMP program in Appendix A, Section 8.

C.8.3.07 Integrated Safety Management System (ISMS)

The Contractor shall establish and maintain a single ISMS program as required by Section I clause DEAR 970.5223-1, *Integration of Environment, Safety and Health into Work Planning and Execution*. The ISMS program shall ensure that safety and environmental protection considerations are integrated throughout the entire work planning and execution process (including subcontracts as appropriate) and shall extend through the execution of individual work packages where job-site safety is ensured for each worker. The Contractor shall ensure that the principles of ISMS serve as the foundation of the implementing mechanisms for work at the site. A comprehensive Environmental Management System (EMS) based upon the ISO14001 EMS standard must be integrated into the ISMS. The EMS shall include measures to address federal sustainability requirements in compliance with DOE Order 436.1, *Departmental Sustainability* and other applicable DOE Orders referenced herein, and the DOE Strategic Sustainability Performance Plan. The EMS shall be certified to the ISO14001 standard by an accredited independent registrar within 12 months after contract effective date (June 1, 2017). The Contractor shall ensure workers are involved in work planning and integrate the concepts of continuous improvement into work activities, including the use of independent certifications (e.g., the International Organization for Standardization (ISO) and Voluntary Protection Program (VPP) Star).). The Contractor shall submit a compliant ISMS program description document for

DOE review and approval and be prepared for Phase I verification within-eight months after contract effective date (February 1, 2017). The Contractor shall be prepared for Phase II verification within 12 months after contract effective date (June 1, 2017). Once the ISMS Phase II verification is completed, the Contractor shall annually review ISMS performance and provide an annual ISMS Declaration report to DOE within 30 days following the end of each Government fiscal year. DOE may provide guidance for the content of this annual Declaration report (as received from DOE HQ). The Contractor may establish a separate EMS Description document that is complementary to the ISMS Description to facilitate ISO14001 certification.

C.8.3.08 Safety Culture

The Contractor shall establish and maintain a strong safety culture as required by DOE's Nuclear Safety Policy (DOE P 420.1) and Integrated Safety Management Policy (DOE P 450.4A). The Contractor shall also implement effective employee concerns programs. DOE's Employee Concern Program (DOE O 442.1B) and Differing Professional Opinion Process (DOE O 442.2) encourage the free and open expression of employee concerns. The Contractor shall set the expectation that employees have not only the right to raise concerns, but also the responsibility to raise concerns, and that they can do so without fear of retaliation. The Contractor shall take action to proactively address, or demonstrate adequate and effective response to, chilling effect. The Contractor shall also demonstrate evidence of immediate, adequate and effective mitigation of substantiated allegations of harassment, intimidation, retaliation, and/or discrimination (for engagement in protected activity). The Contractor shall establish and maintain a strong safety culture and Safety Conscious Work Environment (SCWE), in accordance with Departmental expectations and the Integrated Safety Management System (Department of Energy Acquisition Regulation (DEAR) clause at 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution.*), specifically focusing on the three Safety Focus Areas of Leadership, Employee Engagement, and Organizational Learning.

C.8.3.09 Emergency Management

The Contractor shall provide the necessary personnel, support, resources, facilities, and access in order to maintain an Emergency Management program that is integrated into a single site-wide program operated by the INL contractor, and coordinated with other DOE ID prime contractors as documented in contractors' Interface Agreements. The Contractor shall submit the Emergency Management Program for DOE approval at least 30 days prior to contract effective date. The Contractor shall ensure their Emergency Management Program, including any requirements for TMI-2 (PLN-1610), is in place by the contract effective date. The Contractor shall also assist the NRC Licensed Facility contractor by providing necessary personnel to adequately support the NRC Licensed Facility contractor's emergency management needs, as agreed to in the Memorandum of Understanding between the Contractor and the NRC contractor, dated January 12, 2017, or as amended. The Emergency Management program shall be compliant with DOE O 151.1D, Comprehensive Emergency Management System, or its successor directives, and any other relevant directives, laws, etc. The Emergency Management program shall be adequate to analyze, plan, and respond to the hazards that are introduced, present, transported, or collocated with the facilities operated by the contractor. General

requirements shall include the development and implementation of a Comprehensive Emergency Management System designed to:

- Minimize the consequences of all emergencies involving or affecting facilities and activities (including transportation operations/activities);
- Protect the health and safety of all workers and the public from hazards associated with site operations and those associated with decontamination, decommissioning, and environmental restoration;
- Prevent damage to the environment; and
- Promote effective and efficient integration of all applicable policies, recommendations, and requirements, including Federal interagency emergency plans.

In order to maintain a compliant program, the Contractor shall provide and maintain adequate facilities, personnel, and other resources necessary to maintain a compliant program and shall provide at least the following:

- Facilities that have the power, communications, monitoring, equipment, and furnishings for Emergency Control Centers (ECCs) at RWMC and INTEC and alternate ECC(s) for RWMC and INTEC. Office space for emergency planners or hazards assessors that may be permanently housed in or in close proximity to the ECC shall also be furnished.
- Personnel that can staff a 24/7 cadre of Emergency Response Organization (ERO) filling necessary command and control and support positions in the ECCs, On Scene, and in the Emergency Operations Center (EOC). This includes an Emergency Action Manager (EAM) for each major site facility (RWMC and INTEC), along with other positions in an approved emergency plan. In addition to responding to actual events, ERO personnel shall be trained, maintain qualifications, and conduct drills and exercises necessary to be proficient.
- Physical access to facilities and access to databases, personnel, or other information sources necessary for hazards assessors to conduct emergency planning hazards surveys and assessments. This shall include a notification process prior to introduction, removal, or relocation of hazardous material, or changes in processes that have the potential to change hazardous material release characteristics. Notification of issues or changes relating to the Unresolved Safety Question/Potential Inadequacy of Safety Analysis (USQ/PISA) process and documented safety basis is also required.
- A senior management personnel position with the authority to act in an advisory and coordination capacity in the EOC for emergencies or drills involving contractor facilities.
- A public affairs liaison position with the authority to coordinate on press releases, press conferences, or other emergency public information functions for emergencies or drills involving contractor facilities.
- Operations, technical, or labor personnel to provide mitigation of hazardous material releases or control of facility processes that will minimize releases. These personnel may also act in a support role with the INL site-wide fire department or other response personnel.
- A recovery manager and any other personnel necessary to form a recovery team and perform the recovery functions required under emergency management. The

appointment of a recovery manager, and the facility turnover when an emergency is terminated will normally be the transition back to operations under contractor control.

- Resources necessary to perform corrective actions for issues identified in drills, exercises, operational emergencies, self-assessments, or external assessments (e.g. DOE-ID, DOE-HQ, HSS, IG, etc.).
- Time for all facility personnel to be trained in emergency response actions that are necessary for general employees (e.g., take shelter, evacuate, etc.), along with additional time for some facility personnel who will perform as area wardens for evacuation and personnel accountability purposes.

The Contractor shall prepare, submit for DOE approval, and execute the approved Continuity of Operations Plan per DOE Order 150.1A, Continuity Programs. The Contractor shall submit the Continuity of Operations Plan for DOE approval at least 30 days prior to contract effective date.

C.8.3.10 Radiological Assistance Program (RAP)

The Contractor shall support the National Nuclear Security Administration (NNSA) RAP with separate funding provided by DOE through the NNSA. Upon request by DOE, the Contractor shall provide Radiological Control Technicians, Radiological Control Supervisors and other support personnel as deemed necessary by DOE to support requests for assistance during radiological emergencies or other events/activities requiring radiological expertise. The Contractor agrees to allow personnel supporting RAP to be appropriately trained in accordance with DOE requirements, and further agrees to provide for the storage and security of any DOE supplied equipment. The Contractor shall supplement response activities with Project equipment and vehicles when needed, if available, and maintain/develop all required plans, procedures and reports.

C.8.3.11 Quality Assurance

The Contractor shall develop, implement, assess, and continuously improve the Quality Assurance Program (QAP) in accordance with DOE Order 414.1D, Admin Change 1, *Quality Assurance*, Attachment 2, *Contractor Requirements Document (CRD)*; the EM QAP, EM-QA-001; associated DOE directives (i.e. Policies, Guides, Manuals, and Orders) and Section H.33, *Quality Assurance System*. The QAP shall be submitted to DOE for approval within 30 days of the NTP and DOE approval will be documented prior to the contract effective date.

The Contractor shall develop and implement a comprehensive Issues Management System for the identification, assignment of significance category, and processing of quality or safety-related issues identified within the Contractor's organization in accordance with DOE Order 414.1D, Admin Change 1, *Quality Assurance*, Attachment 2, *Contractor Requirements Document*; the EM *Quality Assurance Program*, EM-QA-001; associated DOE directives referenced herein (i.e. Policies, Guides, Manuals, and Orders) and Section H.33, *Quality Assurance System*.

C.8.3.12 Radiation Protection

Consistent with 10 CFR 835, Occupational Radiation Protection and the Departmental Implementing Guides, the Contractor shall conduct site activities in compliance with a DOE approved Radiation Protection Program (RPP) to control internal and external dose from occupational radiation exposure and minimize the spread of contamination. The As Low As Reasonably Achievable (ALARA) process shall be applied to EM program activities. The Contractor shall, at the NTP, adopt the existing RPP or submit a proposed RPP that must be approved by DOE prior to contract effective date. If adopting the existing RPP, a revision to the RPP shall be submitted to DOE within 180 days of contract effective date.

The Contractor shall purchase a Department of Energy Laboratory Accreditation Program (DOELAP) accredited external and internal dosimetry services from the INL contractor, see Exhibit C-2, *List of Mandatory and Optional Site Services*. All dosimetry records will be maintained in a single database by the INL contractor.

The Contractor shall purchase Sentinel license seats and radiation protection equipment as detailed in the deliverables list attached (Attachment C.8.3.12-1) and complete the associated training.

This scope includes procurement of the radiation protection items requested (Attachment C.8.3.12-1), along with software development that will allow real time data entry of radiation protection field data such as air samples, radiation levels, contamination levels, etc. Also, specific training shall be provided to several radiological engineers to enhance their knowledge and capabilities of the equipment and software.

In addition, the Contractor shall dispose of the antiquated equipment/instruments being taken out of service and purchase recommended spare parts for future maintenance and repairs for the new equipment/instruments.

C.8.3.13 Nuclear Safety

The Contractor shall establish and maintain a Nuclear Safety Program in compliance with 10 CFR 830, Subpart B, and relevant directives, and consistent with relevant guides, and standards. The Contractor shall ensure that the structure of requirements to achieve nuclear safety is based on sound principles such as defense in depth, redundancy of protective measures, robust technical competence in operations and management oversight, and compliance with DOE Directives embodying nuclear safety requirements. The Contractor shall maintain authorization basis documents. The Contractor shall, at the NTP, adopt the existing Unreviewed Safety Question (USQ) process, or submit a proposed USQ process to DOE that must be approved prior to contract effective date. Any changes to the established Unreviewed Safety Question process shall require DOE approval. The Contractor shall ensure that all nuclear facilities are maintained and operated within the DOE approved safety bases. The Contractor shall comply with DOE requirements for nuclear facility start of operations and re-start of operations as required by DOE Order 425.1D Admin Change 1, Verification of Readiness to Startup or Restart Nuclear Facilities.

C.8.3.14 Criticality Safety

The Contractor shall establish and maintain a Criticality Safety Program in compliance with 10 CFR 830.204(b)(6), and relevant directives, guides, and standards identified in this contract. The Contractor shall, at the NTP, adopt existing Criticality Safety Program (CSP) plans and procedures, or submit a proposed CSP to DOE that must be approved prior to contract effective date. Any changes made to the Criticality Safety Program require DOE approval.

C.8.3.15 Environmental Sustainability

The Contractor shall assist the DOE through direct participation and other support in achieving the DOE's sustainability goals as required by DOE Order 436.1, *Departmental Sustainability*; and the DOE Strategic Sustainability Performance Plan.

The Contractor shall consider, to the extent practical, Green and Sustainable Remediation (GSR) and Innovative Technology practices in all phases of this PWS and to implement such practices when they reduce costs, expedite project schedules, minimize risk, and maximize effectiveness.

The Contractor shall develop and implement internal policies to calculate and track greenhouse gas emissions following Federal guidelines and annually report a comprehensive inventory of absolute greenhouse gas emissions, including specific scope 3 (indirect) emissions, in accordance with DOE greenhouse gas (GHG) reporting requirements. The Contractor shall assist DOE toward reducing scope 1&2 GHG emissions by 50% and scope 3 by 25% by 2025 from the 2008 baseline.

The Contractor shall implement the *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* issued by the Environmental Protection Agency (EPA), see website: http://www.epa.gov/oaintrnt/documents/epa_swm_guidance.pdf.

The Contractor shall manage its vehicle fleet to reduce fleet related GHG/mile releases, and follow DOE fleet guidance as provided by the CO.

The Contractor shall assist the DOE in meeting the pollution prevention and waste diversion goals through source reduction and, as determined to be cost effective and consistent with DOE sustainability goals, through diversion from disposal of non-hazardous solid wastes and construction and demolition materials and debris.

The Contractor shall assist the DOE in meeting its high-performance sustainable building design, construction, operation and management, maintenance, and deconstruction goals as follows:

- Pursue cost-effective, innovative strategies, such as highly reflective and vegetated roofs, to minimize consumption of energy, water, and materials and to contribute to efforts to bring existing facilities into compliance with the 2016 Guiding Principles Sustainable Buildings (Guiding Principles).

- Manage existing building systems to reduce the consumption of energy, water, and materials, and identify alternatives to renovation that reduce existing assets' deferred maintenance costs in accordance with the Energy Independence and Security Act.
- Identify opportunities to consolidate and dispose of existing assets, optimize the performance of the DOE's real-property portfolio, and reduce associated environmental impacts.
- Assist the DOE in ensuring that current and new Federal buildings and Federal buildings undergoing major renovations reduce their fossil fuel-generated energy consumption (baseline 2015) by 2.5% annually, collective for all goal subject buildings under DOE Idaho control.
- Ensure that new buildings or major renovations meet the 2016 Guiding Principles unless a waiver is obtained through the DOE Acquisition Executive.
- Ensure that new building leases or renegotiation of existing leases include energy efficiency criteria as a source selection factor and a requirement of lessors to disclose GHG emissions, or energy consumption if only a portion of the building is leased.

The Contractor shall ensure major replacements of installed equipment, renovation or expansion of existing space, employ the most energy efficient designs, systems, equipment, and controls that are life-cycle cost effective (documented analyses shall be provided to DOE on request), and ensure such activities contribute to compliance with the Guiding Principles.

The Contractor shall designate a facility energy manager and complete building energy and water evaluations every four years for each facility according to the Energy Independence and Security Act, Section 432. The Contractor shall use Energy Star Portfolio Manager rating tool to record energy and water audits and sustainability performance information. The Contractor shall ensure that facility energy managers commission equipment and establish Operations and Maintenance (O&M) plans for measuring, verifying, and reporting energy and water savings.

The Contractor shall assist the DOE in advancing sustainable acquisition for products and services and shall:

- Incorporate electronics stewardship and best management practice;
- Establish and implement policies to enable power management, duplex printing, and other energy-efficient or environmentally preferable features on all eligible agency electronic products;
- Employ environmentally sound practices with respect to the agency's disposition of all agency excess or surplus electronic products;
- Implement best management practices for energy-efficient management of servers and Federal data centers;

The Contractor shall assist the DOE to achieve sustainable environmental management by:

- Ensuring the EMS, required in section C.8.3.07 of this contract, incorporates objectives and measurable targets that contribute to the achievement of the sustainability goals of the DOE strategic Sustainability Performance Plan;
- Developing or contributing to development of an annual INL Site Sustainability Plan; and

- Establishing and implementing activities to submit data and reports required to demonstrate DOE progress towards achieving sustainability goals.

C.8.3.16 Other

This scope also includes the following: Training Programs, Sample and Analysis Management (SAM) Core Services, Chemical Management Services, Hoisting and Rigging, Welding Qualification Program, Weld Test Lab, and Calibration Services.

C.8.4 General Facility Management

The Contractor shall provide office space for approximately 15 DOE personnel in CPP-663, and 10 DOE personnel in WMF-658. The Contractor shall also provide office space at INTEC for two NRC contractor personnel responsible for the NRC licensed facility. Office space shall include areas for information technologies, communications, administrative functions (e.g., records storage, conference room, office supply storage) and access to storage for, and use of, classified materials.

The Contractor shall provide services that include, but are not limited to: locksmith services, bus service, cafeteria operations, fleet operations and maintenance within RWMC and INTEC (with the exception of general facility maintenance and custodial services as described in C.3.1.01 and C.3.2.01), custodial services and non-radioactive solid waste disposal, daily mail, space planning and utilization, and moving of furniture and equipment for all EM facilities within this PWS. This scope also includes materials and services for maintaining print shop capability, copiers, and graphics.

The Contractor shall assume responsibility for the Technical Support Buildings (TSB) and Technical Support Annex (TSA) lease and property taxes located in Idaho Falls (Foote Road), with the exception of janitorial services provided via a separate DOE prime contract. The Contractor shall provide office space for the DOE Inspector General (IG) including installation of high panels and rolling cages for the DOE IG's evidence area, and current INL contractor at TSB-TSA.

C.8.5 DOE-ID Support Activities

The Contractor shall provide support services to DOE which include, but are not limited to: IT developer support, wireless service, records management, copier services, printing/graphics, DOE office moves, and DOE training. These support services for DOE personnel are in addition to the Information Management activities and Office Space and Custodial Services that the Contractor shall perform per C.8.1 and C.8.4.

C.8.6 Defined Benefit Pension Plan Costs (CLIN 00005)

Per Section B.7, the Contractor shall use designated Defined Benefit Pension Plan funding to reimburse the INL contractor for the ICP Core share of the current Defined Benefit Pension Plan for incumbent (grandfathered) employees and retirees.

The Contractor as a sponsor of the Idaho National Laboratory Employee Retirement Plan (INLERP) will be reimbursed under CLIN 00005 for pension contributions in the amounts necessary to ensure that the plan is funded to meet the annual minimum requirement under ERISA, as amended by the Pension Protection Act (PPA) of 2006 or as otherwise directed by the Department of Energy. However, reimbursement for pension contributions above the annual minimum contribution required under ERISA, as amended by the PPA, shall require prior approval of the Contracting Officer and will be considered on a case by case basis. Reimbursement amounts will take into consideration all pre-funding balances and funding standard carryover balances.

C.8.7 INCUMBENT(S) CONTRACT CLOSE-OUT

The Contractor shall support all remaining close-out activities of the incumbent contractors (Idaho Cleanup Project and Advanced Mixed Waste Treatment Project). This includes, but not limited to, filing W-2s, 1099s, 940s, 941s, final 5500s, and all Affordable Care Act forms; preparing the Fiscal Year 2016 Incurred Cost Submittals and supporting the DOE Cost Incurred audit; dispositioning assigned and open subcontracts and purchase orders, except interagency agreements, by closing all remaining obligations/liabilities to include necessary procurement and/or financial transactions to close the subcontracts and purchase orders; and providing other miscellaneous support activities, as necessary.

C.8.8 DOE Office of Environmental Management Support (CLIN 00003)

Provide subject matter expert, including travel, for reviewing of regulatory findings and corrective actions related to DOE onsite low-level waste facilities.

C.8.9 Coronavirus Disease 2019 (COVID-19) Management

The Contractor shall continue to perform mitigation efforts for COVID-19 pandemic impacts in accordance with Section 7.0 *Allowability of Costs* of Section J, Attachment J-13 *Coronavirus Disease 2019 (COVID-19) Pandemic Advance Agreement (Revision 11)*.

C.9.0 DELIVERABLES

See Section J, Attachment J-2, List of Contract Deliverables/Submittals. All deliverables provided under this Contract, including implementing policies, plans, and procedures, shall be the property of the Government for present and future use without any proprietary data limitations.

C.10.0 LIST OF EXHIBITS

Exhibit No.	PWS Section	Title
C-1	C.2.0 C.8.3.03	List of Current Environmental Permits Applicable to EM INL Site Work Scope

C-2	C.2.0 C.8.2.06 C.8.3.12	List of Mandatory and Optional Site Services (Amendment No. 2)
C-3	C.3.0 C.3.1 C.3.2.01	List of ICP Core EM Buildings and Structures
C-4	C.3.1 C.3.2.01	ICP Core Utility Systems for INTEC and RWMC (Amendment No. 2)
C-5	C.3.2.02 C.3.2.03 C.3.2.04	List of INTEC Infrastructure Upgrades Projects
C-6	C.4.0 C.5.2 C.8.3.02	Environmental Regulatory Structure and Interface Protocol for the ICP Core Contractor
C-7	C.5.0	ISA Inventory of CH-TRU Waste (IDC Definitions)
C-8	C.5.0 C.5.1	ISA Inventory of CH-TRU Waste
C-9	C.5.0 C.5.3	ISA and Non-ISA Inventory of RH-TRU Waste (Lot 1-9) (Amendment No. 2)
C-10	C.5.4	NNPP Pieces, Parts, and Fines (PPF) Inventory (Lot 10)
C-11	C.5.3.06 C.5.3.07	Lot 11 - Legacy RH-M/LLW
C-12	C.5.3.06 C.5.3.08	Lot 12 - Newly Generated RH TRU and MTRU Waste
C-13	C.5.0	Standard Waste Container Volume Assumptions
C-14	C.5.1.03	CH-TRU Waste Inventory To Be Retrieved
C-15	C.5.5.03 C.5.5.04	Inventory of Legacy Excess Radioactive/Hazardous Materials
C-16	C.5.5.03	Inventory of Sodium Component Maintenance Shop (SCMS) Backlog
C-17	C.5.7	CH-TRU Storage Facility Technical and Functional Requirements
C-18	C.7.1.01 C.7.1.03	Spent Nuclear Fuel Inventory and Plot Plans for CPP-603, CPP-749, and CPP-2707 (OUO)
C-19	C.7.1.01 C.7.1.03	EBR-II Spent Nuclear Fuel Description Document (OUO)
C-20	C.7.1.01	INTEC Spent Nuclear Fuel Description Document (OUO)
C-21	C.7.1.02	FRR/DRR Spent Nuclear Fuel Potential Sources
C-22	C.7.2	Listing of NRC Documents Applicable to ICP Core
C-23	C.7.3	Memoranda of Agreement (MOA) for Naval Spent Nuclear Fuel Transfers and Disposition (OUO)
C-24	C.8.2.04	Government Furnished Equipment
C-25	C.8.2.02	INL Site Security Plan (OUO)
C-26	C.5.5.01	U-233 Waste Located In Storage at INTEC
C-27	Various	Section C - TBD Scope Items (subject to funding availability) per Mod 253