AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0081	See Block 16C		

6. ISSUED BY CODE 00701

Idaho Operations
U.S. Department of Energy
Idaho Operations
1955 Fremont Avenue
Idaho Falls ID 83415

7. ADMINISTERED BY *(If other than Item 6)* CODE 00701

Idaho Operations
U.S. Department of Energy
Idaho Operations
1955 Fremont Avenue
MS 1221
Idaho Falls ID 83415

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

FLUOR IDAHO, LLC
Attn: AMANDA JORDAN
1070 RIVERWALK DRIVE, SUITE 201
IDAHO FALLS ID 83402

CODE 968795604 FACILITY CODE

(x) 9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

x 10A. MODIFICATION OF CONTRACT/ORDER NO. DE-EM0004083

10B. DATED *(SEE ITEM 13)* 02/04/2016

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Section I.100 Changes--Cost Reimbursement (Aug 1987) Alt II and III (Apr 1984)
	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not. ☒ is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

DUNS Number: 968795604
Please refer to the continuation pages incorporated as part of this modification. The Contractor is directed to continue operations in accordance with contract Section B.2.
Payment:
OR for Idaho
U.S. Department of Energy
Oak Ridge Financial Service Center
P.O. Box 6017
Oak Ridge TN 37831
FOB: Destination
Period of Performance: 06/01/2016 to 05/31/2021
Continued ...

Except as provided herein, all terms and conditions of the document referenced in Item 9 A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*	16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*
Director, Prime Contracts	Maria M. Mitchell-Williams
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED 5/9/18
16B. UNITED STATES OF AMERICA *(Signature of Contracting Officer)*	16C. DATE SIGNED 5.9.18

NSN 7540-01-152-8070
Previous edition unusable

STANDARD FORM 30 (REV. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

NAME OF OFFEROR OR CONTRACTOR
FLUOR IDAHO, LLC

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	Change Item 00001 to read as follows(amount shown is the total amount):				
00001	Target ICP-Core DOE Mission Work Line item value is: $1,427,388,584.00 Incrementally Funded Amount: $865,546,424.89				1,427,388,584.00
	The Total Contract Value is increased by $1,818,689 from $1,546,732,789 to $1,548,551,478. See continuation pages below for details.				

This modification is being made under the authority of the contract clause Section I.100, *Changes – Cost Reimbursement (AUG 1987) - Alternate II and III (APR 1984).* This bilateral contract modification revises work scope in CLIN-1 Section 7.0 for Spent Nuclear Fuel Management due to a change in security requirements.

The following changes are hereby made to the contract:

1. SECTION B.2 CONTRACT COST AND FEE SCHEDULE is revised as follows:

CLIN-1: Target ICP Core DOE Mission Work Scope (Base) is revised to incorporate the change stated above.

The Direct Target Cost is increased by $1,610,172 from $737,143,488 to $738,753,660.

The Indirect Target Cost is unchanged at $259,865,377.

The Total Target Cost is increased by $1,610,172 from $997,008,865 to $998,619,037.

The Cost Incentive (Target) is increased by $453,730 from $16,790,158 to $17,243,887.
**Note: Cost incentive (Target) was calculated in the following manner: $79,704 (4.95% of the increased target cost) + $374,026 (fee realigned from SM-5)

The Cost Incentive (Maximum) is increased by $1,187,031 from $43,925,764 to 45,112,795. The overall CLIN-1 Max Fee, including milestones and performance fee, is correspondingly increased by $208,517 from $129,112,648 to $129,321,165.
**Note: Cost Incentive (Maximum) was calculated in the following manner: $208,517 (12.95% of the increased target cost) + $978,514 (fee realigned from SM-5)

Schedule Milestone – 5 (SM-5) is also reduced by $978,514 from $4,818,514 to $3,840,000. Therefore, the net increase in fee is $208,517 ($1,187,031 - $978,514).

In addition, the following changes were made to Schedule Milestone – 5 (SM-5) and Schedule Milestone – 6 (SM-6):

- SM-5 completion date is now one date and has been moved to the end of the contract (5/31/2021).
    - $0 SM-5 fee can be earned until 70% of the 1,840 bottles are transferred.
    - Starting at Bottle # 1,288 (70% of 1,840), the Contractor will earn $6,956.52 per bottle for the remaining 552 bottles until 1,840 is complete, for a total maximum fee available of $3,840,000 under SM-5.
    - After 1,840 bottles Fluor Idaho can earn $950 per bottle transferred, with no increase to the target cost.
- SM-6 completion date is now one date and has been moved to the end of the contract (5/31/2021).
    - $0 SM-6 fee can be earned until 80% of the 1,000 ATR elements are transferred.

- Starting at element # 800 (80% of 1,000), the Contractor earns $10,951.17 per element for the remaining 200 elements until 1,000 is complete, for a total maximum fee available of $2,190,234 under SM-6.

Summary:

The Total Contract Value, including options, is increased by $1,818,689 from $1,546,732,789 to $1,548,551,478.
The attached B.2(c) Fee Model has been updated to reflect the adjustment to CLIN-1.

[Next Page]

B.2(c) Table				
CLIN 00001- TARGET ICP-CORE DOE MISSION WORK (BASE)				
	Target Cost	Max Fee	Target Fee	Total Price
Direct Target Cost w/ ID Spt (No Options Included)	738,753,660	129,321,165		1,127,940,202
Indirect Target Cost w/o ID Spt (Total Pool, PWS C.8)	259,865,377			
	998,619,037			
Target Fee			49,431,642	
Subtotal Milestone-Shedule & Performance Fee (B.3(d))		84,208,370		
Subtotal Incremental Cost Incentive Fee		45,112,795		
Cost Incentive Breakout				
Cost Incentive (Max)		45,112,795		12.95%
Cost Incentive (Target)			17,243,887	4.95%
CLIN 00002 - TARGET ICP CORE NNPP PPF WORK SCOPE				
	Target Cost	Max Fee	Target Fee	Total Price
Navy (Pieces, Parts and Fines - 102 Cans)	47,162,415	6,107,533	2,334,540	53,269,948
Milestone-Shedule & Performance		5,136,375	1,963,325	
Cost Incentive (Max)		971,158	371,215	
CLIN 00003 - NON-TARGET ICP CORE WORK SCOPE				
	Estimated Cost	Fee		Total Price
Total Non-Target Work Scope (See Contracting Officer for Breakout)	24,911,231	1,342,954		26,254,185
CLIN 00004- CONTRACT TRANSITION PERIOD				
Transition	6,811,889	0		6,811,889
CLIN 00005 - DEFINED BENEFIT PENSION PLAN COSTS				
Pension	70,900,000	0		70,900,000
CLIN 00006 INTEGRATED WASTE TREATMENT UNIT (IWTU) OPERATIONS AND TURNOVER				
	Estimated Cost	Max Fee	Fee Gal	Total Price
IWTU Ops (C.6.1)	44,307,931	5,538,491	$ 6.53	$ 49,846,422
	Estimated Cost	Fee		
IWTU Phase 1 - Process Assessment (C.6.1.1) (Fixed Fee)	19,331,848	956,926		$ 20,288,774
IWTU Phase 2 - Technical Issue Resolution (C.6.1.2) (Milestone Fee)	66,553,245	5,523,919		$ 72,077,164
Total (Excluding C.6.1 IWTU Ops)	**$ 85,885,093**	**$ 6,480,845**		**$ 92,365,938**
Total Contract Cost (Excluding Options)				
	Contract Cost	Max Fee	Target Fee	Total Price
	1,278,597,596	148,790,988	51,766,182	1,427,388,584
Total Contract Cost (Includes Options)				
Priced Options	Target Cost	Max Fee	Target Fee	Total Price
00001a - GrndWtr Monitoring Wells / CFA Landfill	773,962	100,228	38,311	874,190
00001b - GrdWtr Monitoring Wells/TAN Rem	676,966	87,667	33,510	764,633
00001c - Legacy Excess Radioactive/Haz Materials	24,747,535	3,204,806	1,225,003	27,952,341
00001d - RCRA Closure of AMWTP Facilities	30,476,158	3,946,662	1,508,570	34,422,820
00001e - Additional Temporary Storage	6,548,465	848,026	324,149	7,396,491
00001f - RH TRU Lot 11 Option Work (Definitized by Modification 048)	-	-	-	-
00001g - RH TRU Lot 12 Option Work	12,341,796	1,598,263	610,919	13,940,059
00001h - RH TRU Lot 11 GFY 2020 Option Work	19,099,074	2,473,330	945,404	21,572,404
00001i - RH TRU Lot 11 GFY 2021 Option Work	12,607,309	1,632,647	624,062	14,239,956
Total Options	107,271,265	13,891,629	5,309,928	121,162,894
Total Contract Cost (Includes Options) and Max Fee	1,385,868,861	162,682,617	57,076,110	1,548,551,478
Contract Performance Ceiling (B.6)				
Contract Performance Ceiling	1,212,933,270			

NOTE: Fixed Fee values from CLIN-3 and CLIN-6 are included in the max fee value for the total contract cost and total contract cost including options.

No other changes to B.2(c).

2. **SECTION B.6(a)(2) CONTRACT PERFORMANCE CEILING** is revised as follows:

   The current Contract Performance Ceiling (CPC) is increased by $1,818,689 from $1,211,114,581 to $1,212,933,270.

3. **SECTION C.7.0 SPENT NUCLEAR FUEL MANAGEMENT** is revised in its entirety as follows:

   See attachment 1.

4. **CONTRACTOR'S STATEMENT OF RELEASE:** In consideration of the modification agreed to herein as a complete equitable adjustment for the directed change identified in this modification, and in accordance with contract Section I.100 52.243-2 Changes—Cost Reimbursement Alt II and III, the Contractor hereby releases the Government from any and all liability under this contract for further equitable adjustments attributable to such facts or circumstances giving rise to the proposal for adjustment. The total price of the equitable adjustment for CLIN-1 is an increase of $1,818,689 (direct cost of $1,610,172 and max fee of $208,517).

No other changes to the contract terms and conditions.

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 **a**nd Fuel **St**orage (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.

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

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.

MOD 032 - 03/16/17
The negotiated target cost increase to CLIN-1 is $5,765,761 with a target fee of $285,405 and a max fee of $746,666. This S&M amount was realigned from CLIN 3 to CLIN-1.

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, upon receipt, shall receive, prepare, and place into dry storage in CPP-603 one SNF shipment from these sources per full Government fiscal year. A list of potential receipt sources is provided in Exhibit C-21, *FRR/DRR Spent Nuclear Fuel Potential Sources.*

The Contractor shall inspect the SNF at the generating reactor, perform criticality and thermal analyses to determine transport and storage configurations, and maintain the security chain of custody from the placement of the SNF in a Contractor provided basket. The transport of SNF from the generating reactor to INTEC is not a Contractor function for DRR SNF. However, for FRR SNF, the Contractor may be requested to arrange transportation of SNF after the SNF arrives in the U.S. 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 provide all materials and equipment necessary to support this activity.

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

The Contractor shall transfer 1,840 bottles of EBR II SNF to MFC for treatment by the INL contractor at the Fuel Conditioning Facility (FCF) and for storage at RSWF. 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. Additional empty, but previously used, liners are available after this contract period and will require additional actions before being utilized for EBR fuel storage, such as inspections and refurbishment. Therefore, the Contractor shall refurbish 40 previously used storage liners within RSWF to prepare them for use to store EBR II SNF. The HFEF-6 cask may be used to transfer fuel from CPP-666 to the RSWF.

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.

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 receive 10 shipments in FY 2021 for placement into dry storage in CPP-603 by the end of the contract period of performance.

The Contractor shall complete all necessary safety basis evaluations and document revisions to accommodate this scope. The Contactor 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 transfer 1000 ATR SNF elements from CPP-666 into dry storage in CPP-603. 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.7.2 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 perform 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 in accordance with TPR-7066 "*Periodic Horizontal Storage Module (HSM)Monitoring, DSC Sampling, and Filter Housing Leak Tests*".

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

(2) Perform a radiation survey at the vent of each DSC in accordance with TPR – 7066 "*Periodic HSM Monitoring, DSC Sampling, and Filter Housing Leak Tests*".

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

(3) Sample the gas inside each DSC containing spent fuel in accordance with TPR – 7066 "*Periodic HSM Monitoring, DSC Sampling, and Filter Housing Leak Tests*".

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

(4) Replace the HEPA filter or the DSC after DSC purge is complete as necessary in accordance with TPR – 7069 "*DSC Purging and HEPA Filter Change out*".

Periodicity of Performance: As necessary

(5) Perform sampling in accordance with MCP-2955 "*ISFSI Radiological Environmental Monitoring Program*" that includes:
   a. Monthly airborne radioactivity sampling within the Independent Spent Fuel Dry Storage Installations (ISFSI) perimeter fence.
   b. Direct radiation monitoring with Optical Stimulated Luminescent dosimeters (OSLs) placed along the ISFSI perimeter fence.
   c. Periodic loose surface radioactive contamination monitoring adjacent to each DSC vent and purge port and each HSM drain line.

(6) Perform aging management activities in accordance with PLN – 4493 "Three Mile Island Unit 2 Independent Spent Fuel Storage Installation Aging Management Program". This will include, but is not be limited to:
   a. Remote visual inspection of DSC, DSC support structure, and DSC Over pack Support Structure in HSM in accordance with TPR-7855 "Remote Visual Inspection of HSM, DSC, And DSC Support Structure".
   b. Annual concrete surface monitoring program as recommended and/or documented in EDF-8465, EDF-8903, EDF-9565, and EDF-9897.
   c. Repair of deteriorated concrete and cracks as necessary recommended in EDF-8465, EDF-8903, and EDF-9516.
   d. Protection against water intrusion recommended in EDF-8465 including sealing and eliminating bolt hole voids (EDF-9516) and application of surface sealer (EDF-9516).
   e. Nondestructive examination recommended in EDF-8903.
   f. Remote visual inspection of HSM in accordance with TPR-7855 "Remote Visual Inspection of HSM, DSC, And DSC Support Structure".

MOD 056 – 10/11/17
The negotiated direct target cost under CLIN-1 is $17,851 with a target fee of $884 and a max fee of $2,312.

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.

MOD 032 – 3/16/17

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 Flourinel 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.

MOD 032 – 03/16/17
~~*The negotiated estimated direct cost under CLIN-3 is $678,707 with a fixed fee of $33,596.*~~
The negotiated estimated cost increase to CLIN-3 is $10,758,328 with a fixed fee increase of $532,537. This results in a current revised estimated cost of $18,197,776 and revised fixed fee of $900,790.

MOD 051 – 08/31/17
Per agreement between DOE-ID and Fluor Idaho, a reconciliation to the total CLIN-3 estimated cost and corresponding fixed fee is warranted based on Mod 32, dated March 16, 2017 (Navy Replan)

The estimated direct cost under CLIN-3 is increased by $15,000 with a fixed fee of $743.

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.

The negotiated estimated direct cost under CLIN-3 is $1,175,070 with a fixed fee of $58,166.

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*.

The negotiated estimated direct cost under CLIN-3 is $5,449,933 with a fixed fee of $163,495(3%), a milestone fee of $109,000(2%), and a cost incentive fee of $109,000(2%) for a total fee of $381,495.

MOD 053 - 09/21/17
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.

The value of above deleted scope is $(163,470) direct cost.

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)

The value of above added scope is $82,145 direct cost.

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

The total value of the added and deleted scope stated above is a credit to DOE of $81,325 direct cost. CLIN-3 will be adjusted by this amount along with the corresponding fee of $5,693 (7% split between fixed fee, schedule incentive, and cost incentive).

MOD 051 – 08/31/17
C.7.5 USGS Reactor Fuel Selection, Inspection, and Packing is incorporated and includes the additional scope as follows:

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*, 10-01-08Edition.
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: Flour 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.

The negotiated direct cos under CLIN-3 is $289,609 with a fixed fee of $21,431.

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.