AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

2. AMENDMENT/MODIFICATION NO. M183
3. EFFECTIVE DATE (MOY*) See Block 16C
4. REQUISITION/PURCHASE REQ. NO. N/A
5. PROJECT NO. (if applicable)

U.S. Department of Energy Office of River Protection P. O. Box 460, MS H6-60 Richland, WA 99352

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)
Bechtel National, Inc.
2435 Stevens Center Place
Richland, WA 99354

9. AMENDMENT OF SOLICITATION NO.

9A. AMENDMENT OF SOLICITATION NO. 

9B. DATED (SEE ITEM 11)

10. MODIFICATION OF CONTRACT/OVER NO.

10A. MODIFICATION OF CONTRACT/ORDER NO.
DE-AC27-01VR14136

10B. DATED (SEE ITEM 13)
December 11, 2000

CODE 396A5 FACILITY CODE 153392068

11. THIS ITEM 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 DATE AND HOUR 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 amendment and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (if required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/OVER NO. AS SET FORTH 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/OVER IS MODIFIED TO REFLECT ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.). SET FORTH IN ITEM 14, PURSUANT TO AUTHORITY OF FAR 42.103(b).

☒ C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO THE AUTHORITY OF:

☐ D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 2 copies to the issuing office.

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

See following page(s)

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

15A. NAME AND TITLE OF SIGNER (Type or print)
Frank M. Russo
Project Director

15B. CONTRACTOR/PROPOSER

ORIGINAL SIGNED BY

15C. DATE SIGNED
1/1/2011

15D. DATE SIGNED

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
Ashley T. Morris
Contracting Officer

16B. DATE SIGNED

16C. DATE SIGNED

STANDARD FORM 30 (REV. 10-83)
Prepared by GSA
FAR (48 CFR) 52.243
Purpose of Modification:

The purpose of this modification is to update Section C, *Statement of Work*, to incorporate changes resulting from the External Flowsheet Review Team (EFRT) vessel assessments, which addressed M3 vessel mixing issues. The changes described herein are implemented at no additional cost.

Description of Modification:


   **FROM:**

   The Pretreatment Facility shall have the feed-forward capability for a nominal 240,000 gallons of feed lag storage for HLW vitrification facility operations, based upon the facility design capacity, while being capable of receiving without interruption no less than 160,000 gallons of HLW feed per batch. HLW feed batch receipt facilities shall be designed to allow receipt without interruption to waste feed processing.

   **TO:**

   The Pretreatment Facility shall have the feed-forward capability for a nominal 240,000 gallons of feed lag storage for HLW vitrification facility operations, based upon the facility design capacity, while being capable of receiving without interruption no less than 145,000 (M183) gallons of HLW feed per batch. HLW feed batch receipt facilities shall be designed to allow receipt without interruption to waste feed processing.


   **FROM:**

   8.2.2.1  **Composition:** The HLW slurry will contain a mixture of liquids (Envelopes A, B, or C) and solids (Envelope D). The compositional range of the liquid fraction is defined in Specification 7, *Low-Activity Waste Envelopes Definition*. For liquid fractions with a sodium molarity of less than three (3), the liquid shall be treated as if 3 molar sodium were present for fee certification purposes. The *Radioactive Material Concentration* specification contained in Specification 7.2.2.2 does not apply to Envelope A, B, or C liquids. The composition range of the Envelope D unwashed solids is given in Tables TS-8.1, TS-8.2 and TS-8.3, and TS-8.4. The feed concentration will be between 10 and 200 grams of unwashed solids/liter, except for feeds from waste Tanks AZ-101 and AZ-102, where minimum-solids content does not apply.

   Compositions for Envelope D unwashed solids (Tables TS-8.1, TS-8.2 and TS-8.3, and TS-8.4) are defined in terms of elemental or anion concentrations and radionuclide activities per 100 grams equivalent non-volatile waste oxides. The non-volatile waste oxides include sodium oxide and silicon oxide.
The HLW feed components identified in Tables TS-8.1, TS-8.2, and TS-8.3 are waste components important to establishing the waste oxide loading in the HLW glass. Only these components have concentration limits, which will be used to provide the basis for certification that the HLW feed is within specification limits.

The HLW feed components identified in Table TS-8.4 are also important to HLW glass production. The concentrations of these components in the waste are not expected to exceed the maximum values listed in Table TS-8.4. Information on these components will be provided to support product and process qualification but will not be used as a basis for determining if the feed meets specification requirements.

All HLW feed (soluble and insoluble components) will meet the Tank Farm Operations specifications given in OSD-T-151-00007 (except for free hydroxide), the Tank Waste Remediation System Final Safety Analysis Report (HNF-SD-WM-SAR-067), and Technical Safety Requirements (HNF-SD-WM-TSR-006, Revision 1-D) as applicable. The radiochemical inventory of the waste feed at the time of delivery shall be compared to the specification limits to assess compliance.

Trace quantities of unspecified radionuclides, chemicals, and other impurities may be present in the waste feed. Feed will be delivered by pipeline in batches. Limits apply to the total retrievable contents of waste from a feed tank. Some elements, components, and isotopes are determined by calculation and not analytic measurement.

The HLW feed provided will not contain a visible separate organic layer.

The HLW waste provided will generate gases due to radiolysis including hydrogen and ammonia at a nearly constant rate and nearly uniform composition. The Contractor is responsible for the management of changes in gas release rate and distribution resulting from their waste processing activities.

Applicable dangerous waste codes are identified in the Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, December 21, 1999). Multi-source leachate (F039) is included as a waste derived from non-specific source wastes F001 through F005.

TO:

8.2.2.1 Composition: The HLW slurry will contain a mixture of liquids (Envelopes A, B, or C) and solids (Envelope D). The compositional range of the liquid fraction is defined in Specification 7, Low-Activity Waste Envelopes Definition. For liquid fractions with a sodium molarity of less than three (3), the liquid shall be treated as if 3 molar sodium were present for feed certification purposes. The Radioactive Material Concentration specification contained in Specification 7.2.2.2 does not apply to Envelope A, B, or C liquids. The composition range of the Envelope D unwashed solids is given in Tables TS-8.1, TS-8.2 and TS-8.3, and TS-8.4. The feed concentration will be between 10 and 200 grams of unwashed solids/liter, except for feeds from waste Tanks AZ-101 and AZ-102, where minimum-solids content does not apply. The feed delivery batch size will be such that, after receipt in WTP and blending with pre-existing receipt tank contents, the concentration will not exceed a linear range of 107 grams of
unwashed solids/liter at 0.1 molar sodium up to 144 grams/liter at 7 molar sodium (M183).

Compositions for Envelope D unwashed solids (Tables TS-8.1, TS-8.2 and TS-8.3, and TS-8.4) are defined in terms of elemental or anion concentrations and radionuclide activities per 100 grams equivalent non-volatile waste oxides. The non-volatile waste oxides include sodium oxide and silicon oxide.

The HLW feed components identified in Tables TS-8.1, TS-8.2, and TS-8.3 are waste components important to establishing the waste oxide loading in the HLW glass. Only these components have concentration limits, which will be used to provide the basis for certification that the HLW feed is within specification limits.

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All HLW feed (soluble and insoluble components) will meet the Tank Farm Operations specifications given in OSD-T-151-00007 (except for free hydroxide), the Tank Waste Remediation System Final Safety Analysis Report (HNF-SD-WM-SAR-067), and Technical Safety Requirements (HNF-SD-WM-TSR-006, Revision 1-D) as applicable. The radiochemical inventory of the waste feed at the time of delivery shall be compared to the specification limits to assess compliance.

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Applicable dangerous waste codes are identified in the Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, December 21, 1999). Multi-source leachate (F039) is included as a waste derived from non-specific source wastes F001 through F005.

FROM:

7.2.2.1 Composition: This specification lists the concentration limits for the LAW Envelopes A, B, and C feed to be transferred by DOE to the Contractor for LAW services in Tables TS-7.1, Low-Activity Waste Chemical Composition, Soluble Fraction Only, and TS-7.2, Low-Activity Waste Radionuclide Content, Soluble Fraction Only. The concentration limits apply to the soluble fraction only. The Na concentration limits for the LAW feeds are identified below.

<table>
<thead>
<tr>
<th>Waste Feed</th>
<th>Na (mole per liter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Envelope A, B, C</td>
<td>4 – 10</td>
</tr>
<tr>
<td>AZ-101 Supernatant</td>
<td>2 – 5</td>
</tr>
<tr>
<td>HLW Slurry and other HLW Liquids (Defined in Specification 8, High-Level Waste Envelope Definition)</td>
<td>0.1 – 10</td>
</tr>
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</table>

The LAW feeds may contain up to 3.8 weight percent (wt%) solids. Solids are defined as the product of centrifuging the LAW feed, separating and drying the solids, and removing the dissolved solids contribution. The insoluble fraction characterization will include measurements of Al, Cr, Fe, Mn, Na, P, S, Si, U, TIC, TOC, 60Co, 50Sr, 99Tc, 137Cs, 154Eu, 239,240Pu, 241Am, and total alpha concentrations. Trace quantities of unspecified radionuclides, chemicals, and other impurities may be present in the waste feed.

All LAW feed (soluble and insoluble components) will meet the Tank Farm Operations specifications given in OSD-T-151-00007 (except for free hydroxide), the Tank Waste Remediation System Final Safety Analysis Report, and Technical Safety Requirements, as applicable.

The radiochemical inventory of the LAW feed at the time of delivery shall be compared to the specification limits to assess compliance. The specifications for 60Co, and 154Eu shall apply at the time of delivery for ILAW immobilization.

The LAW feed provided shall not contain a visible separate organic phase.

The LAW feed provided will generate gases, including hydrogen and ammonia, at a nearly constant rate and a nearly uniform composition. The Contractor is responsible for the management of changes in gas release rate and distribution resulting from their waste processing activities.

Dangerous waste codes are identified in the Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, December 21, 1999). Multi-source leachate (F039) is included as a waste derived from non-specific source wastes F001 through F005.
7.2.2.1 Composition: This specification lists the concentration limits for the LAW Envelopes A, B, and C feed to be transferred by DOE to the Contractor for LAW services in Tables TS-7.1, Low-Activity Waste Chemical Composition, Soluble Fraction Only, and TS-7.2, Low-Activity Waste Radionuclide Content, Soluble Fraction Only. The concentration limits apply to the soluble fraction only. The Na concentration limits for the LAW feeds are identified below.

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</tbody>
</table>

*The feed delivery batch size shall be such that, after receipt in WTP and blending with pre-existing receipt tank contents, the sodium molarity will not exceed 7 (M183).

The LAW feeds may contain up to 3.8 weight percent (wt%) solids and will be delivered to the WTP after there has been sufficient settling time to ensure solids that settle faster than 0.03 ft/min have settled below the transfer location within the tank farms feed tank (M183). Solids are defined as the product of centrifuging the LAW feed, separating and drying the solids, and removing the dissolved solids contribution. The insoluble fraction characterization will include measurements of Al, Cr, Fe, Mn, Na, P, Si, U, TIC, TOC, ⁶⁵⁷Co, ⁹⁰Sr, ⁹⁰Tc, ¹³⁷Cs, ¹⁵⁴Eu, ²³⁹²⁴⁰Pu, ²⁴ⁱAm, and total alpha concentrations. Trace quantities of unspecified radionuclides, chemicals, and other impurities may be present in the waste feed.

All LAW feed (soluble and insoluble components) will meet the Tank Farm Operations specifications given in OSD-T-151-00007 (except for free hydroxide), the Tank Waste Remediation System Final Safety Analysis Report, and Technical Safety Requirements, as applicable.

The radiochemical inventory of the LAW feed at the time of delivery shall be compared to the specification limits to assess compliance. The specifications for ⁶⁵⁷Co, and ¹⁵⁴Eu shall apply at the time of delivery for ILAW immobilization.

The LAW feed provided shall not contain a visible separate organic phase.

The LAW feed provided will generate gases, including hydrogen and ammonia, at a nearly constant rate and a nearly uniform composition. The Contractor is responsible for the management of changes in gas release rate and distribution resulting from their waste processing activities.

Dangerous waste codes are identified in the Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, December 21, 1999). Multi-source leachate (F039) is included as a waste derived from non-specific source wastes F001 through F005.
Contractor's Statement of Release: In consideration of the Modification agreed to herein as complete equitable adjustment, 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 changes as noted in this modification.

All other terms and conditions remain unchanged.

(End of Modification)