

2. AMENDMENT/MODIFICATION NO. 472	3. EFFECTIVE DATE (M/D/Y) See Block 16C	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
---	---	----------------------------------	--------------------------------

6. ISSUED BY U.S. Department of Energy Office of River Protection P. O. Box 450, MS H6-60 Richland, WA 99352	7. ADMINISTERED BY (If other than Item 6)
--	---

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code) Bechtel National, Inc. 2435 Stevens Center Place Richland, WA 99354	<input type="checkbox"/>	9A. AMENDMENT OF SOLICITATION NO.
	<input type="checkbox"/>	9B. DATED (SEE ITEM 11)
	<input checked="" type="checkbox"/>	10A. MODIFICATION OF CONTRACT/ORDER NO. DE-AC27-01RV14136
		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)

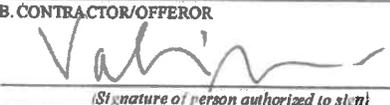
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS SET FORTH IN ITEM 14.

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.
<input type="checkbox"/>	
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER 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 43.103(b).
<input checked="" type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO THE AUTHORITY OF: FAR 43.103 Types of Contract Modifications (a) Bilateral - Mutual Agreement of the Parties
<input type="checkbox"/>	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.)
 Reference Continuation 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) Valerie McCain Project Director	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Ronald E. Cone, Jr. Contracting Officer
15B. CONTRACTOR/OFFEROR  <i>(Signature of person authorized to sign)</i>	15C. DATE SIGNED 13-January, 2020
16B. UNITED STATES OF AMERICA BY  <i>(Signature of Contracting Officer)</i>	16C. DATE SIGNED 1-13-2020

The purpose of this modification is as follows:

The purpose of this modification is to incorporate DOE-STD-1228-2019, *Preparation of Documented Safety Analysis for Hazard Category 3 DOE Nuclear Facilities* (herein DOE Standard 1228-2019), which describes an acceptable methodology for preparing a Documented Safety Analysis for hazard category 3 nuclear facilities. This Standard is a DOE-approved methodology for meeting the requirements in Title 10 of the Code of Federal Regulations (CFR) Part 830, *Nuclear Safety Management*, Subpart B, Safety Basis Requirements. The changes are as follows:

- Revise Section C, *Statement of Work*, C.6 Standard 9, to delete specific reference to "DOE-STD-3009-94 CN3, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, and to add required deliverables for a Chemical Safety Management Program should the contractor elect to implement DOE-STD-1228-2019 for any hazard category 3 nuclear facility.
- Add DOE-STD-1228-2019 to Contract Section J, List of Attachments, Attachment E, List of Applicable Directives.

This modification authorizes Bechtel National Inc. (BNI) to complete Phase 1 implementation of DOE-STD-1228-2019 only (as defined below), until such time as the contractor is subsequently able to define the proposed activities and the associated cost-benefit for follow-on phases, which would potentially modify the existing, approved safety controls for chemical hazards.

Any future implementation activities beyond Phase 1 for optimization of the chemical hazard controls under DOE control in the Chemical Safety Management Program Description will require BNI to submit for approval the: 1) technical basis for the proposed change, 2) proposed changes to the Chemical Safety Management Program Description, and 3) associated contract modification proposal with a cost-benefit analysis.

BNI has agreed that incorporating the DOE Standard 1228 – 2019 will not impact contract price or schedule for Phase 1 implementation. As part of incorporating DOE Standard 1228-2019, BNI will provide deliverables to support proceeding to Phase 2 implementation.

Phase 1 implementation of DOE-STD-1228-2019 is defined as follows:

Development and Implementation of a revised safety basis that implements DOE-STD-1228 and DOE chemical hazard screening guidance. Phase 1 includes the initial transition of chemical hazard controls from the Low Activity Waste (LAW) Facility safety basis to a chemical safety management program under 10 CFR § 851, *Worker Safety and Health Program*. The scope of Phase 1 includes activities such as:

- Revision to the LAW Facility safety basis to implement DOE-STD-1228 in a Documented Safety Analysis (DSA) and Technical Safety Requirement (TSR) that transfers existing chemical hazard controls for implementation under 10 CFR § 851 where appropriate.

- Implementation of the approved LAW Facility safety basis through the operational readiness review and to the end of the contract, including revisions to the safety evaluation and unreviewed safety question processes.
- Development of a Chemical Safety Management Program Description (CSMPD) that implements Risk Based Process Safety (AIChE 2007) and the chemical hazard controls transferred from the current LAW Facility safety basis.
- Implementation of the approved CSMPD that includes: revisions to all necessary operating, maintenance, administrative, and engineering procedures and program documents; training and qualification; revisions to the "Ready to Operate" sequence of activities; and, revisions to management assessment and implementation verification, and readiness plans and activities.
- Revision and implementation of changes to the BNI Quality Assurance Program, including the graded approach.
- Revisions to procurement procedures and the procurements arising from the changing Structures, Systems, and Components (SSC) designation from safety significant to chemical safety, including changes to commercial grade dedication.
- Revisions to startup and commissioning approaches and procedures due to changing SSC designation from safety significant to chemical safety.
- Development of a management of change process that preserves ORP change control authority as specified in the approved CSMPD and management of change process.
- Implementation of the management of change process through the duration of the contract period.

Phase 1 does not include future optimization of the chemical hazard controls under DOE control since the benefit of these revisions are yet to be quantified.

Modification Description:

1. Contract Section C, *Statement of Work*, C.6 Standard 9 heading is updated to show changes in modification 472.

Nuclear Safety (Table C.5-1.1, Deliverable 9.1) (257) (293) (384) (417) (450) (472)

2. Contract Section C, *Statement of Work*, C.6 Standard 9 paragraph (a) is revised as follows:
 - (a) The Contractor's safety basis documents and maintenance process shall be developed and implemented to comply with the specific nuclear safety requirements established in 10 CFR 830, Subpart B, *Safety Basis Requirements*, ~~DOE STD 3009 94 CN3, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses~~, and the ORP technical direction on nuclear safety methodology as reflected in the approved Implementation Plan documented in item (h).
3. Contract Section C, *Statement of Work*, C.6 Standard 9 paragraph (b) is revised as follows:

- (b) The Contractor shall prepare and submit to DOE for review and approval the nuclear safety-related deliverables required by 10 CFR 830, Subpart B, as well as the following:
- (1) Safety Evaluation Process procedure,
 - (2) Change Packages for PDSA (previously known as Authorization Basis Amendment Requests), DSA, or TSR, which require DOE approval as defined in the Safety Evaluation Process procedure,
 - (3) An Implementation Plan to manage PDSAs and to develop, review, and implement DSAs and TSRs,
 - (4) DSA specific Implementation Plans, and
 - (5) A Criticality Safety Program Description Document.
 - (6) In cases where DOE-STD-1228-2019 is applied by the Contractor, then a Chemical Safety Management Program Description (CSMPD), a chemical hazard management of change process, and a CSMPD Implementation Plan to manage and implement the CSMPD.

The Contractor shall prepare and submit to DOE for information the following:

- (7) An annual letter summarizing the changes made to each PDSA, DSA, and TSR in the previous 12 months,
- (8) Quarterly listings of Safety Evaluation and Unreviewed Safety Question screenings, determinations, PISA evaluations, and PDSA, DSA, and TSR changes, and
- (9) Criticality Safety Evaluations thirty (30) days prior to their approval by the Contractor.

4. The table in paragraph (b) in Contract Section J, *List of Attachments*, Attachment E, *List of Applicable Directives*, is revised as follows:

DOE O 426.2, CRD	04/21/10	Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities (310)	Contract Clause C.3(f)(6) (321) Refer to Note 8 (310)
DOE O 225.1B, CRD	03/04/11	Accident Investigations (310)	Refer to Note 9 (310)
DOE-STD-3009	1994	Preparation Guide for DOE Nonreactor Nuclear Facility Safety Analysis Reports (Change Notice 3, March 2006) (029, 152, 321)	Contract Clause C.6, Standard 9, paragraph 2 (324) DELETED (472)
DOE-STD-1228	2019	Preparation of Documented Safety Analysis for Hazard Category 3 Nuclear Facilities (472)	Contract Clause C.6, Standard 9, paragraph 2 (472)
DOE-HDBK-1092-2013, Appendix D	07/2013	DOE Electrical Safety Handbook. Refer to Note 15 (353)	The order is effective regardless of comment above at (b)

DOE-STD-1195	09/2016	Design of Safety Significant Safety Instrumented Systems Used at DOE Non-Reactor Nuclear Facilities (384)	Implement clause 11.4 (inclusive of subclauses 11.4.1 through 11.4.9) of International Electrotechnical Commission (IEC) standard 61511-1 (Edition 2.0) concurrent with DOE-STD-1195-2011 as a means of achieving Safety Integrity Level – 2 (SIL-2) for low demand simple Safety Instrumented Functions without requiring redundancy, particularly with respect to final control devices such as valves. (384)
--------------	---------	---	---

5. **Contractor's Statement of Release:** In consideration of the Modification 472, agreed to herein as complete equitable adjustment for the Phase 1 incorporation of DOE Standard 1228 – 2019, *Preparation of Documented Safety Analysis for Hazard Category 3 Nuclear Facilities*, 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 the modification. This Release does not affect the rights of the Parties under the List of Exclusions in Contract Section J, Attachment J, Sub-Attachment C, List of Exclusions from Release and Waiver of Claims Modification 384.
6. All other terms and conditions remain unchanged.

(End of Modification)