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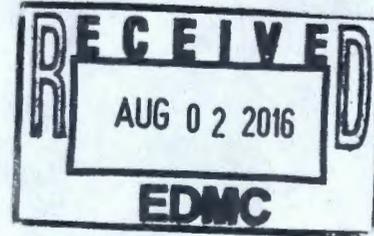
OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

JUL 29 2016

16-ECD-0031

Ms. Alexandra K. Smith, Program Manager
Nuclear Waste Program
Washington State
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354



Ms. Smith:

JULY 2016 QUARTERLY REPORT FOR THE STATE OF WASHINGTON VS. U.S. DEPARTMENT OF ENERGY, CASE NO. 08-5085-RMP, FOR WASTE TREATMENT AND IMMOBILIZATION PLANT CONSTRUCTION AND STARTUP ACTIVITIES AND TANK RETRIEVAL ACTIVITIES – MARCH 11, 2016, THROUGH JUNE 30, 2016

This letter transmits the U.S. Department of Energy July 2016 Quarterly Report (Attachment) under Section IV-C-1 of the subject referenced Consent Decree, for the period of March 11, 2016, through June 30, 2016. Pursuant to the Consent Decree, this report provides the status and progress made during the reporting period.

As requested by Washington State Department of Ecology, copies of the directives given to contractors for work required by the Consent Decree are also attached. Due to the change from semi-annual to quarterly reporting, directives from November 2015, through June 2016, are included.

If you have any questions, please contact William F. Hamel, Assistant Manager, Waste Treatment and Immobilization Plant Project, (509) 376-6727, or Thomas W. Fletcher, Assistant Manager, Tank Farms Project, (509) 376-3434.

Kevin W. Smith
Manager

ECD:BRT

Attachment

cc: See page 2

Ms. Alexandra K. Smith
16-ECD-0031

-2-

JUL 29 2016

cc w/attach:

K. Niles, Oregon Energy
BNI Correspondence

TPA Administrative Record

WRPS Correspondence

cc w/o attach:

R.S. Skeen, CTUIR

S.L. Dahl, Ecology

J.J. Lyon, Ecology

J.D. McDonald, Ecology

J.B. Price, Ecology

C.L. Whalen, Ecology

D.A. Faulk, EPA

S.E. Hudson, HAB

R.A. Kaldor, MSA

R.E. Piippo, MSA

G. Bohnee, NPT

R. Buck, Wanapum

R. Jim, YN

D. Rowland, YN

**Attachment
16-ECD-0031
(117 Pages Excluding Cover Sheet)**

**Report and
WTP Direction Letters**

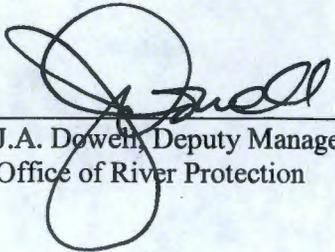
**July 2016 Quarterly Report for State of Washington vs.
U.S. Department of Energy, Case No. 2:08-cv-05085-RMP, for the
Waste Treatment and Immobilization Plant Construction and
Startup Activities and Tank Retrieval Activities**

March 11, 2016, through June 30, 2016



**OFFICE OF
RIVER PROTECTION**
United States Department of Energy

**2440 Stevens Center Place
Richland, Washington 99352
Office of River Protection**



J.A. Dowell, Deputy Manager
Office of River Protection

7/29/16
Date

Consent Decree 08-5085-FVS and Consent Decree 2:08-CV-5085-RMP
Quarterly Report (March 11, 2016, through June 30, 2016)
Project Earned Value Management System Reflects up to May 2016 Information

| Topic | Page |
|--|-------------|
| ACRONYMS AND ABBREVIATIONS | II |
| INTRODUCTION | 1 |
| TANK FARM ACTIONS AND MILESTONES | 1 |
| SINGLE-SHELL TANK RETRIEVAL PROGRAM | 2 |
| TANK WASTE RETRIEVAL WORK PLAN STATUS..... | 6 |
| WASTE TREATMENT AND IMMOBILIZATION PLANT PROJECT | 10 |
| MILESTONES..... | 12 |
| PRETREATMENT FACILITY | 18 |
| HIGH-LEVEL WASTE FACILITY..... | 24 |
| LOW-ACTIVITY WASTE FACILITY | 27 |
| BALANCE OF FACILITIES | 30 |
| ANALYTICAL LABORATORY | 33 |
| WRITTEN DIRECTIVES | 35 |
| RETRIEVAL LABOR HOURS | 37 |
| SPARE REBOILER REQUIREMENT STATUS..... | 38 |

Acronyms and Abbreviations

| | |
|---------|---|
| BCP | baseline change proposal |
| BNI | Bechtel National, Inc. |
| BOF | Balance of Facilities |
| C5V | C5 ventilation system |
| CGD | commercial grade dedication |
| CV | cost variance |
| DFLAW | direct-feed low-activity waste |
| DOE | U.S. Department of Energy |
| Ecology | Washington State Department of Ecology |
| EIR | external independent review |
| EMF | effluent management facility |
| EPC | engineering, procurement, and construction |
| ERSS | extended reach sluicer system |
| FY | fiscal year |
| HAMTC | Hanford Atomic Metal Trades Council |
| HEPA | high-efficiency particulate air |
| HLW | High-Level Waste (Facility) |
| HPAV | hydrogen in piping and ancillary vessels |
| ITT | Integrated Technical Team |
| LAB | Analytical Laboratory |
| LAW | Low-Activity Waste (Facility) |
| LBL | Low-Activity Waste Facility, Balance of Facilities, and Analytical Laboratory |
| LOE | level of effort |
| MARS-V | Mobile Arm Retrieval System-Vacuum |
| ORP | U.S. Department of Energy, Office of River Protection |
| PDSA | preliminary documented safety analysis |
| PJM | pulse-jet mixer |
| PM | U.S. Department of Energy, Office of Project Management, Oversight, and Assessments |
| PT | Pretreatment (Facility) |
| RLD | Radioactive Liquid Waste Disposal System |
| SCBA | self-contained breathing apparatus |
| SHSV | standard high solids vessel |
| SV | schedule variance |
| WRPS | Washington River Protection Solutions LLC |
| WTP | Waste Treatment and Immobilization Plant |

Introduction

The U.S. Department of Energy (DOE) is submitting the following information to satisfy its obligation to provide “a written report documenting WTP construction and startup activities and tank retrieval activities” as required by Section IV-C-1 of the Amended Consent Decree in *State of Washington vs. United States Department of Energy*, Case No. 2:08-CV-5085-RMP (March 11, 2016) and Second Amended Consent Decree, same case (April 12, 2016).

The project and facility progress is based on the period March 11, 2016, through June 30, 2016.

The budget and cost information in this report is based on the period October 1, 2015, through May 31, 2016.

Due to the change from semiannual reporting to quarterly reporting, written directives from November 1, 2015, through June 30, 2016, have been included with this report. This ensures that the timeframe from the last reporting period is covered.

Tank Farm Actions and Milestones

| Number | Title | Due Date | Status |
|-------------------|--|------------|-------------|
| <i>Actions</i> | | | |
| D-16E-01 | DOE must purchase by December 31, 2016, a spare A-E-1 ¹ reboiler for the 242-A Evaporator. | 12/31/2016 | On Schedule |
| D-16E-02 | Have a spare A-E-1 ¹ reboiler available by December 31, 2018. | 12/31/2018 | On Schedule |
| <i>Milestones</i> | | | |
| D-16B-03 | Of the 12 SSTs referred to in B-1 and B-2, complete retrieval of tank waste in at least 5. | 12/31/2020 | On Schedule |
| D-16B-01 | Complete retrieval of tank waste from the following remaining SSTs in WMA-C: C-102, C-105, and C-111. | 03/31/2024 | On Schedule |
| D-16B-02 | Complete retrieval of tank wastes from the following SSTs in Tank Farms A and AX: A-101, A-102, A-104, A-105, A-106, AX-101, AX-102, AX-103, and AX-104. Subject to the requirements of Section IV-B-3 DOE may substitute any of the identified 9 SSTs and advise Ecology accordingly. | 03/31/2024 | On Schedule |

¹ The Consent Decrees referred to the 242-A reboiler as “A-E-1”; the correct designation is “E-A-1”.

Ecology = Washington State Department of Ecology. WMA-C = C Farm waste management area.

SST = single-shell tank.

Single-Shell Tank Retrieval Program

The following addresses the amended CD 2:08-CV-5085-RMP dated April 12, 2016, Items IV-C.1.a-d for the tank retrieval activities.

Quarterly Statement: Tank retrieval activities have complied with milestones already come due as of the date of this report. There are no missed milestones that may affect compliance with other milestones.

Facility Project Director: Tom Fletcher

Facility Operations Activity Manager: Chris Kemp

Accomplishments during the Reporting Period

- Completed post-retrieval sampling of Tank C-102
- Obtained Tank 241-C-105 in-process sample to better understand tank constituents and physical properties and how best to employ a third retrieval technology and complete the final 100 series tank in Waste Management Area C
- Completed removal of legacy ancillary equipment from Tank 241-C-105 pits A and C in preparation for placement of a third retrieval technology using extended reach sluicer
- Performed the investigation survey request to support the containment box, rotary union, and hoses removal for C-105
- Removed hose-in-hose transfer lines between the portable instrument valve box and containment box for C-105
- Reached the limits of technology on the third retrieval technology at Tank 241-C-111
- Completed post-retrieval sampling of Tank 241-C-111
- Installed the ingress/egress trailers and underground utilities for the Waste Management Area A/AX (A/AX) change trailers
- Installed A/AX bathroom/change trailers and access control entry system stations
- Excavated and installed the West Electrical/Telecommunications system for the AX air and water service building
- Received and inspected the sump pump assembly and discharge for AX-102 and AX-104
- Completed duct work installation from portable exhauster POR126 to AX tanks (with exception of tie-in)
- Shipped AX-102 and AX-104 cover blocks for disposal
- Completed pit cleanout of Tank 241-AX-102, 02A pit
- Completed removal of Building AX-80
- Completed removal of above-grade portion of Building AX-2707.

Accomplishments Expected in the Next Three Months

- Submit retrieval data report for 241-C-102
- Negotiate contract proposal for installing and performing the third retrieval technology at Tank C-105
- Complete Tank C-105 Mobile Arm Retrieval System-Vacuum (MARS-V) containment box disassembly
- Complete Tank C-105 modified sluicing system design
- Issue Tank C-111 retrieval completion certification
- Complete procurement of the water services building to support A/AX
- Complete AX ventilation installation and readiness/turnover at portable exhauster POR126
- Complete cleanout of Tank 241-AX-104 pits 04A and 04D, and initiate debris removal from pit 04C
- Complete cleanout of Tank 241-AX-102 pits 02D and 02B, and initiate debris removal from pit 02C
- Complete AX-2707 fencing and gate upgrades
- Complete A/AX infrastructure (water and utilities) design
- Complete Tanks 241-AX-102 and 241-AX-104 extended reach sluicer system (ERSS) procurement
- Complete A Farm ventilation design.

Issues Encountered during the Reporting Period

The DOE mission to retrieve five tanks under milestone D-16B-03 by December 31, 2020, is on schedule. Currently C-102 is retrieved, C-111 is field complete (retrieval completion certification will be issued in August 2016), and C-105 is expected to be field complete by September 2017. The construction and placement of retrieval equipment at AX-102 and AX-104 has been negatively impacted by the need to deploy a third retrieval technology at C-105, which is the remaining C Farm tank retrieval, a planning contingency to be able to complete some construction field work in AX Farm without self-contained breathing apparatus (SCBA) in 2016, which has not been realized, and ongoing vapor concerns to workers both inside and outside of the tank farm boundary. Retrieval of AX-102 and AX-104 is now slated to start in January 2019 and installation of retrieval equipment in AX-101 and AX-103 will be slipped into 2018 and 2019. These factors are causing a slip to internal AX-102 and AX-104 tank retrieval start dates by 6 months to January 2019, but are within the “float” to complete per milestones D-16B-02 and D-16-B-01. During the reporting period, C Farm tank retrieval operations experienced a significant number of field impacts due to failed equipment and tank conditions. The MARS-V retrieval system for Tank 241-C-105 failed in September 2015 and required the retrieval team to complete a system engineering evaluation to assist with developing alternatives and determining a path forward. The system engineering evaluation determined the best alternative to retrieving

the remaining waste in the tank was to proceed with implementing a third technology as provided within the Consent Decree. Implementing a third technology requires partial disassembling of the MARS-V retrieval system and installation of two ERSS retrieval systems.

During the planning to remove the MARS-V, radiological surveying indicated higher than expected levels of radiation, which will require additional worker protection steps. The Washington River Protection Solutions LLC (WRPS) engineering organization has been tasked to develop alternative plans/safeguards prior to disassembling the containment box and arm. Additional engineering and planning will likely delay the disassembly of the MARS-V by at least a month. ERSS equipment required to support the third technology is in fabrication, installation is expected to start in February 2017, and retrieval operations are planned to resume by July 2017.

In October 2015, a significant leak was observed within the slurry pump at Tank 241-C-111, which required a pump replacement and delayed completing retrieval operations until March 2016. Post retrieval sampling was recently completed in June and project team members are currently working to complete the retrieval completion certification report by August 2016 and release the retrieval data report by July 2017.

In preparation for start of retrieval at AX-102 and AX-104, field activities (including electrical installation, ventilation installation, tank riser excavation, cleaning out legacy "pits," and ancillary building demolition) have progressed slower than the original plan due to implementation of Tank Vapor Assessment Team controls for vapor concerns of the workforce, and encountering higher than expected contamination levels in near surface soils during excavation. Additional personnel resources have been required to support monitoring, surveying, and planning which were not originally budgeted or planned. WRPS has hired additional monitoring and surveying resources to support field crews and construction activities. Construction personnel continue to resequence activities to maximize productivity and minimize schedule slips as a result of these unexpected and unplanned activities. These issues will have some schedule impact but will not impact retrieval completion dates for Tank Waste Retrieval Projects B-1 through B-3 due to managed schedule "float."

Issues Expected in the Next Three Months

There are a limited number of critical resources (trained and available construction craft and support personnel) available to continue field activities related to Tank 241-AY-102 ERSS installation, Tank 241-C-105 ERSS installation, preparations for retrieval equipment installation at AX Farm, and other adjacent tank farm activities. Project teams will continue to identify and evaluate critical resources to determine availability within the local area and best approach to maximize utilization.

In addition, summer weather and vapor impacts are expected to reduce work productivity and extend field activities. WRPS with DOE support will continue to schedule day-shift construction activities and not implement a graveyard or tropical shift due to previous years' experience and limited support from personnel who would be impacted by working an alternate shift. All personnel working inside fenced tank farms are required to use a SCBA. Utilizing SCBA's for all work activities requires additional planning and reduced personnel efficiency completing

critical tasks. These limitations include requiring additional field time to complete an activity due to the heavy and bulky SCBA equipment, individuals have specific differences in time duration using either one-half hour or one-hour capacity breathing air bottles and significant ergonomics impacts while completing work. The increased SCBA usage will also impact crew efficiency to support personnel required to refill breathing air bottles and cleaning respirators and related safety equipment. WRPS continues to evaluate solutions to reducing the cycle time to replenish supplies and equipment. C Farm and AX Farm are also limited to the number of worker entries due to location of the ingress and egress trailers and cool down tents.

On July 11, 2016, the Hanford Atomic Metal Trades Council (“HAMTC”), a labor organization composed of various unions working at Hanford, issued a “stop work” requiring mandatory use of supplied air within the perimeter fence lines of both single- and double-shell tank farms. This letter also included six other demands HAMTC expected WRPS to implement immediately. On July 21, 2016, the Washington State Attorney General and Citizens (Local Union 598 and Hanford Challenge) filed motions for preliminary injunction in federal court seeking, among other things, all work inside the perimeter fences of any tank farm is performed while wearing *mandatory* supplied air. DOE and WRPS are currently evaluating near-term and long-term impacts of these actions though at this time we have not determined the effect, if any, on Consent Decree milestones.

Funding limitations could potentially limit field activities within AX Farm, which would result in deferring tank preparation activities into fiscal year (FY) 2017 and FY 2018. Due to the prior technical challenges related to completing retrievals at Tank 241-C-102, Tank 241-C-111, and the current modifications to Tank 241-C-105, it is likely funding needed to complete Tank 241-AX-102 and Tank 241-AX-104 farm retrieval system installation will be required through FY 2018 with retrieval operations starting in FY 2019 to meet milestone D-16B-03 by December 31, 2020. DOE Office of River Protection (ORP) was originally targeting these tanks to be completed by the end of September 2018.

Actions Initiated or Taken to Address Potential Schedule Slippage

AX Farm is planning on working nine additional shifts (overtime/weekends) to recover portable exhaustor POR126 ventilation installation field activities. Operation of portable exhaustor POR126 provides active ventilation to AX Farm, which is needed to remove in-tank equipment including legacy pumps and long length probes. Construction crews are currently working to remove above-tank equipment and debris, in-tank equipment removal is expected to start later this year. Other projects will continue to evaluate overtime and weekends to recover weather and SCBA-related schedule slips.

Tank Waste Retrieval Work Plan Status

| Tank | TWRWP | Expected Revisions | First Retrieval Technology | Second Technology | Third Technology |
|--------|----------------------|--------------------|-----------------------------|---|--|
| AX-101 | RPP-RPT-58932, Draft | Initial Approval | Sluicing with ERSS | High-Pressure Water deployed with ERSS | - |
| AX-102 | RPP-RPT-58933, Draft | Initial Approval | Sluicing with ERSS | High-Pressure Water deployed with ERSS | - |
| AX-103 | RPP-RPT-58934, Draft | Initial Approval | Sluicing with ERSS | High-Pressure Water deployed with ERSS | - |
| AX-104 | RPP-RPT-58935, Draft | Initial Approval | Sluicing with ERSS | High-Pressure Water deployed with ERSS | - |
| C-101 | RPP-22520, Rev. 8 | Complete | Modified Sluicing with ERSS | High-Pressure Water deployed with the ERSS | - |
| C-102 | RPP-22393, Rev. 7 | Complete | Modified Sluicing with ERSS | High-Pressure Water deployed with the ERSS | - |
| C-104 | RPP-22393, Rev. 7 | Complete | Modified Sluicing | Chemical Retrieval Process complete per 13-TF-0018 | - |
| C-105 | RPP-22520, Rev. 8 | Third Technology | MARS-V | MARS-V-High Pressure Water Spray | TBD |
| C-107 | RPP-22393, Rev. 7 | Complete | MARS-S | MARS-S-High Pressure Water Spray | Water Dissolution |
| C-108 | RPP-22393, Rev. 7 | Complete | Modified Sluicing | Chemical Retrieval Process complete per 13-TF-0025 | - |
| C-109 | RPP-21895, Rev. 5 | Complete | Modified Sluicing | Chemical Retrieval Process complete per 13-TF-0037 | - |
| C-110 | RPP-33116, Rev. 3 | Complete | Modified Sluicing | Mechanical Waste Conditioning with an In-Tank Vehicle | High Pressure Water |
| C-111 | RPP-37739, Rev. 2 | Complete | Modified Sluicing | High pressure water using the ERSS | Chemical Dissolution Process with ERSS |

| Tank | TWRWP | Expected Revisions | First Retrieval Technology | Second Technology | Third Technology |
|-------------|----------------------|---------------------------|-----------------------------------|----------------------------|-------------------------|
| C-112 | RPP-22393, Rev. 7 | Complete | Modified Sluicing | Chemical Retrieval Process | - |

ERSS = extended reach sluicing system.

MARS = Mobile Arm Retrieval System.

S = sluicing.

TBD = to be determined.

TWRWP = Tank Waste Retrieval Work Plan.

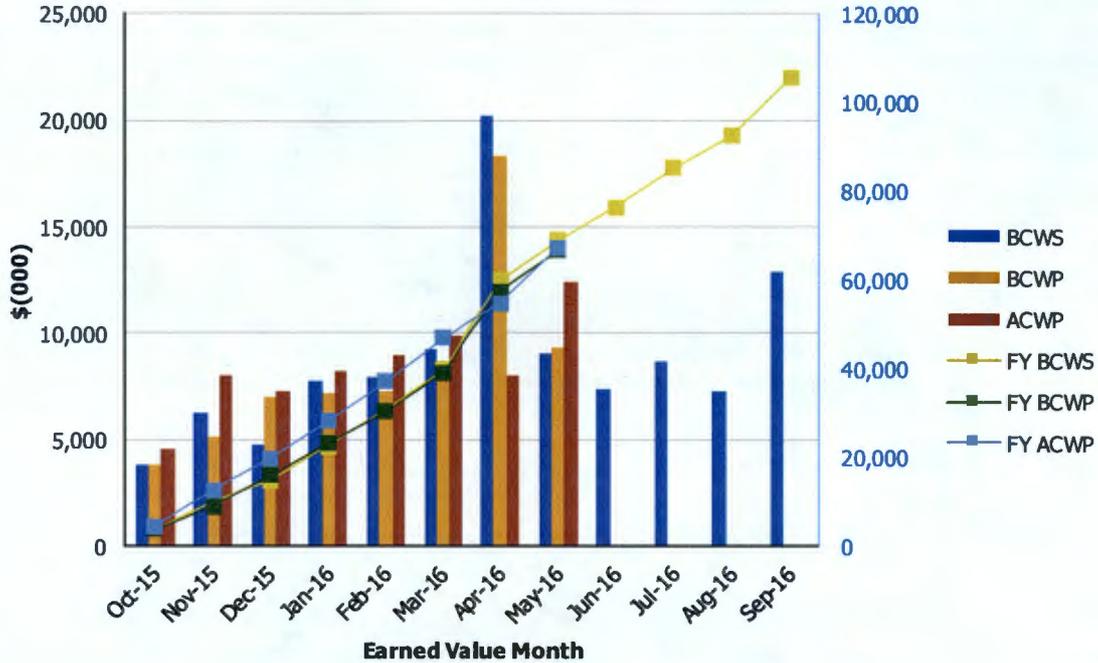
V = vacuum.

Tank Waste Retrieval Work Plan Accomplishments Expected in the Next Three Months

- Finalize and obtain Washington State Department of Ecology (Ecology) approval of AX Farm tank waste retrieval work plans
- Modify RPP-22520, 241-C-101 and 241-C-105 Tanks Waste Retrieval Work Plan to include a third technology for Tank C-105 retrieval—Draft Tank Waste Retrieval Work Plan modification submitted to Ecology for review in April 2016.

Tank Farms ORP-0014
Retrieve and Close SST's 5.02

EVMS Monthly and Fiscal Year Values



| Earned Value Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|--------------------|----------|----------|----------|------|------|-----------|----------|----------|--------|--------|
| Oct 2015 | \$3,770 | \$3,814 | \$4,560 | 1.01 | 0.84 | \$3,770 | \$3,814 | \$4,560 | 1.01 | 0.84 |
| Nov 2015 | \$6,282 | \$5,131 | \$8,006 | 0.82 | 0.64 | \$10,052 | \$8,946 | \$12,566 | 0.89 | 0.71 |
| Dec 2015 | \$4,769 | \$6,970 | \$7,255 | 1.46 | 0.96 | \$14,821 | \$15,915 | \$19,821 | 1.07 | 0.80 |
| Jan 2016 | \$7,702 | \$7,214 | \$8,233 | 0.94 | 0.88 | \$22,522 | \$23,130 | \$28,053 | 1.03 | 0.82 |
| Feb 2016 | \$7,948 | \$7,288 | \$8,959 | 0.92 | 0.81 | \$30,470 | \$30,417 | \$37,012 | 1.00 | 0.82 |
| Mar 2016 | \$9,249 | \$8,693 | \$9,857 | 0.94 | 0.88 | \$39,719 | \$39,111 | \$46,869 | 0.98 | 0.83 |
| Apr 2016 | \$20,237 | \$18,288 | \$8,046 | 0.90 | 2.27 | \$59,956 | \$57,399 | \$54,916 | 0.96 | 1.05 |
| May 2016 | \$9,013 | \$9,299 | \$12,417 | 1.03 | 0.75 | \$68,970 | \$66,698 | \$67,333 | 0.97 | 0.99 |
| Jun 2016 | \$7,403 | | | | | \$76,373 | | | | |
| Jul 2016 | \$8,720 | | | | | \$85,092 | | | | |
| Aug 2016 | \$7,264 | | | | | \$92,356 | | | | |
| Sep 2016 | \$12,900 | | | | | \$105,256 | | | | |

| | | | | | |
|-----|-----------|-----------|-----------|------|------|
| CTD | \$661,447 | \$651,925 | \$677,305 | 0.99 | 0.96 |
|-----|-----------|-----------|-----------|------|------|

ACWP = actual cost of work performed.
 BCWP = budgeted cost of work performed.
 BCWS = budgeted cost of work scheduled.
 CPI = cost performance index.

CTD = contract to date.
 EVMS = earned value management system.
 FY = fiscal year.
 SPI = schedule performance index.

Earned Value Management System Quarterly Analysis

The third quarter **unfavorable** schedule variance (SV) of **(\$2,219K)** is due to:

- Field activities related to A/AX Farm retrieval system infrastructure installation, which have progressed slower than planned due to implementation of controls for vapor concerns and encountering higher than expected contamination levels. This variance is not expected to impact Consent Decree milestones B-1 through B-3 significantly because there is adequate “float” in ORP’s retrieval schedule planning.

The third quarter **favorable** cost variance (CV) of \$5,960K is due to:

- Contract Modification 373 (vapor impact for FY 2015) was implemented during April, which resulted in a point adjustment to FY 2015 work scope impacted by tank farm vapors. This adjustment provided cost relief to control accounts affected/impacted by vapors and additional health and safety controls (SCBA). This variance is a positive for cost resources needed to complete Consent Decree milestones B-1 through B-3.

Waste Treatment and Immobilization Plant Project

Federal Project Director: Bill Hamel

Deputy Federal Project Director: Joni Grindstaff

The following addresses the amended CD 2:08-CV-5085-RMP dated April 12, 2016, Items IV-C.1.a-d and f for the Waste Treatment and Immobilization Plant construction and startup activities.

Quarterly Statement: The Waste Treatment and Immobilization Plant (WTP) Project has complied with milestones already come due as of the date of this report. There are no missed milestones that may affect compliance with other milestones.

The WTP Project currently employs approximately 3,017 full-time equivalent contractor (Bechtel National, Inc. [BNI]) and subcontractor personnel. This includes 573 craft, 430 non-manual, and 140 subcontractor full-time equivalent personnel working at the WTP construction site (all facilities).

In October 2012, the percent-complete values for the Pretreatment (PT) and High-Level Waste (HLW) facilities were frozen at the September 2012 rate. Construction, procurement, and production engineering activities were placed on hold for the PT Facility and significantly slowed down for the HLW Facility. In August 2014, the U.S. Department of Energy (DOE) approved continuation of production engineering activities for the HLW Facility. Subsequently, DOE has approved the fiscal year (FY) 2015 and FY 2016 2-Year Interim Work Plan. In April 2015, a 3-Year Interim Work Plan for the PT Facility was implemented emphasizing prioritization of technical issue resolution activities. The WTP Project is focused on resolving the PT Facility technical issues and finalizing the HLW Facility design.

For the project to manage to the direct-feed low-activity waste (DFLAW) initiative, the project is required to update the Performance Baseline to reflect the new work activities. As a capital asset project, WTP has been following DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets* for development, review, and approval of the baseline change. In addition, the new work requires a change to BNI's contract with the DOE Office of River Protection (ORP). The WTP team has been working with BNI to negotiate the changes in work scope into the contract.

The new contract and baseline schedule requires BNI to deliver the Low-Activity Waste (LAW) Facility for hot commissioning in December 2021. This contract deliverable requires the Effluent Management Facility (EMF), upgrades to the Balance of Facilities (BOF), the Analytical Laboratory (LAB), and the integrated efforts at tank farms to also be coordinated.

The WTP Project continues to focus on completion of the LAW Facility, BOF, and LAB (collectively known as LBL, including DFLAW and LBL facility services). As of May 2016, LBL facilities were 48 percent complete, design and engineering was 73 percent complete, procurement was 64 percent complete, construction was 64 percent complete, and startup and commissioning was 10 percent complete.

Accomplishments during the Reporting Period

- The Baseline Change Proposal (BCP) for LBL/DFLAW was submitted to the DOE Office of Project Management, Oversight, and Assessments (PM) for review.
- An External Independent Review (EIR) led by PM was conducted in two phases. The first EIR review focused on the new scope in the BCP, which was conducted in September 2015. The second EIR phase focused on the cost and schedule and was conducted in May 2016. The EIR is required to support the approval process of the new BCP for the LBL/DFLAW initiative.

Accomplishments Expected Next Reporting Period

- Contract negotiations with BNI to definitize the new LBL/DFLAW scope into the contract have been ongoing and are expected to be completed by the end of the fiscal year.
- ORP will present the new BCP to the Chief Executive for Project Management seeking approval of the LBL/DFLAW BCP for the WTP Project.

Issues Encountered during the Reporting Period

- Discussions on the BCP with the PM organization and Headquarters' U.S. Department of Energy, Office of Environmental Management have taken longer than expected.
 - *Impact:* Approval of the BCP will take longer than planned.
 - *Actions initiated or taken to address potential schedule slippage:*
 - The WTP Federal Project Director has made frequent visits to DOE Headquarters to brief on the contents of the BCP to increase the level of understanding of the work scope.
 - The project will continue to measure progress using the Internal Forecast baseline, which reflects the same plan as is outlined in the BCP.
- Contract negotiations with BNI have taken longer than expected.
 - *Impact:* Delay in awarding contract modification for LBL.
 - *Actions initiated or taken to address potential schedule slippage:* Weekly meetings with the negotiation team are being held with specific topics remaining to gain alignment.

Issues Expected in the Next Three Months

- Headquarters' review of proposed baseline changes have taken longer than expected. Approval decisions on proposed baseline changes could be delayed until early 2017.
 - *Impact:* Approval of the BCP will take longer than planned.
 - *Actions initiated or taken to address potential schedule slippage:* ORP continues to seek approval of the BCP.

- Contract negotiations with BNI have taken longer than expected.
 - *Impact:* Delay in awarding contract modification for LBL.
 - *Actions initiated or taken to address potential schedule slippage:* Weekly meetings with the negotiation team are being held with specific topics remaining to gain alignment.

Milestones

| Milestone | Title | Due Date | Status |
|---|--|------------|-------------|
| Waste Treatment and Immobilization Plant Project | | | |
| D-00A-06 | Complete Methods Validations | 06/30/2032 | On Schedule |
| D-00A-17 | Hot Start of Waste Treatment Plant | 12/31/2033 | On Schedule |
| D-00A-01 | Achieve Initial Plant Operations for WTP | 12/31/2036 | On Schedule |
| Pretreatment Facility | | | |
| D-00A-19 | Complete Elevation 98' Concrete Floor Slab in PT Facility | 12/31/2031 | On Schedule |
| D-00A-13 | Complete Installation of Pretreatment Feed Separation Vessels | 12/31/2031 | On Schedule |
| D-00A-14 | PT Facility Construction Substantially Complete | 12/31/2031 | On Schedule |
| D-00A-15 | Start PT Facility Cold Commissioning | 12/31/2032 | On Schedule |
| D-00A-16 | PT Facility Hot Commissioning Complete | 12/31/2033 | On Schedule |
| High-Level Waste Facility | | | |
| D-00A-20 | Complete Construction of Structural Steel to 14' in HLW Facility | 12/31/2010 | Complete |
| D-00A-21 | Complete Construction of Structural Steel to 37' in HLW Facility | 12/31/2012 | Complete |
| D-00A-02 | HLW Facility Construction Substantially Complete | 12/31/2030 | On Schedule |
| D-00A-03 | Start HLW Facility Cold Commissioning | 06/30/2032 | On Schedule |
| D-00A-04 | HLW Facility Hot Commissioning Complete | 12/31/2033 | On Schedule |
| Low-Activity Waste Facility | | | |
| D-00A-07 | LAW Facility Construction Substantially Complete | 12/31/2020 | On Schedule |
| D-00A-08 | Start LAW Facility Cold Commissioning | 12/31/2022 | On Schedule |
| D-00A-09 | LAW Facility Hot Commissioning Complete | 12/31/2023 | On Schedule |
| Balance of Facilities | | | |
| D-00A-12 | Steam Plant Construction Complete | 12/31/2012 | Complete |

| Milestone | Title | Due Date | Status |
|------------------------------|---|------------|----------|
| Analytical Laboratory | | | |
| D-00A-05 | LAB Construction Substantially Complete | 12/31/2012 | Complete |

BOF = balance of facilities.

HLW = high-level waste.

LAB = analytical laboratory.

LAW = low-activity waste.

PT = pretreatment.

WTP = Waste Treatment and Immobilization Plant.

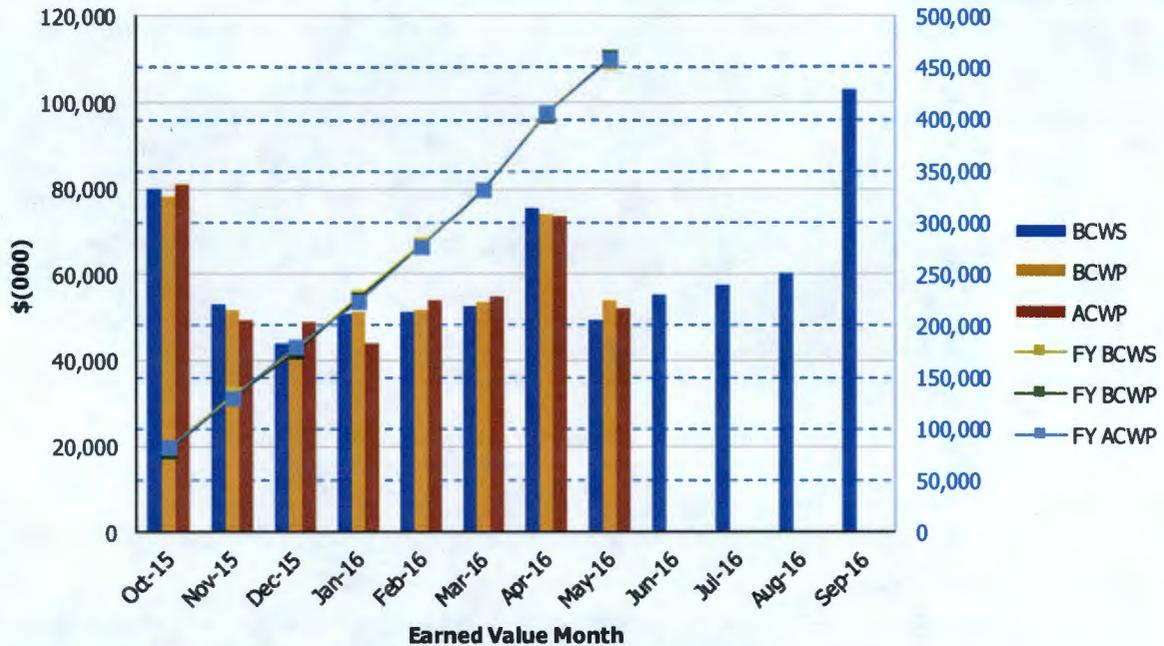
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data

Data as of: May 2016

Waste Treatment Plant (WTP) Project

EVMS Monthly and Fiscal Year Values



| Earned Value Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|--------------------|-----------|----------|----------|------|------|-----------|-----------|-----------|--------|--------|
| Oct 2015 | \$79,800 | \$78,230 | \$81,000 | 0.98 | 0.97 | \$79,800 | \$78,230 | \$81,000 | 0.98 | 0.97 |
| Nov 2015 | \$52,815 | \$51,614 | \$49,184 | 0.98 | 1.05 | \$132,615 | \$129,844 | \$130,184 | 0.98 | 1.00 |
| Dec 2015 | \$43,659 | \$44,505 | \$48,853 | 1.02 | 0.91 | \$176,275 | \$174,348 | \$179,037 | 0.99 | 0.97 |
| Jan 2016 | \$50,515 | \$51,167 | \$43,662 | 1.01 | 1.17 | \$226,790 | \$225,515 | \$222,699 | 0.99 | 1.01 |
| Feb 2016 | \$51,349 | \$51,492 | \$54,112 | 1.00 | 0.95 | \$278,139 | \$277,007 | \$276,811 | 1.00 | 1.00 |
| Mar 2016 | \$52,395 | \$53,645 | \$54,896 | 1.02 | 0.98 | \$330,533 | \$330,653 | \$331,707 | 1.00 | 1.00 |
| Apr 2016 | \$75,610 | \$74,244 | \$73,679 | 0.98 | 1.01 | \$406,144 | \$404,897 | \$405,387 | 1.00 | 1.00 |
| May 2016 | \$49,478 | \$53,800 | \$51,914 | 1.09 | 1.04 | \$455,622 | \$458,697 | \$457,300 | 1.01 | 1.00 |
| Jun 2016 | \$55,060 | | | | | | | | | |
| Jul 2016 | \$57,385 | | | | | | | | | |
| Aug 2016 | \$60,515 | | | | | | | | | |
| Sep 2016 | \$102,850 | | | | | | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| PTD | \$9,555,385 | \$9,538,243 | \$9,475,103 | 1.00 | 1.01 |
|-----|-------------|-------------|-------------|------|------|

ACWP = actual cost of work performed.
 BCWP = budgeted cost of work performed.
 BCWS = budgeted cost of work scheduled.
 CPI = cost performance index.

CTD = contract to date.
 EVMS = earned value management system.
 FY = fiscal year.
 SPI = schedule performance index.

| Performance Tracking | SV (\$x1,000) | CV (\$x1,000) |
|-------------------------------|-------------------|------------------|
| Cumulative (through May 2016) | (\$17,142) | \$63,141 |
| Fiscal Year 2016 to-date | \$3,075 | \$1,396 |
| Current Reporting Period | \$4,207 | \$1,200 |

CV = cost variance.

SV = schedule variance.

Earned Value Management System Analysis

The March-April-May **favorable** schedule variance (SV) of \$4,207K is primarily due to the following:

- March 2016 – Favorable SV of \$1,251K:** The PT Facility was favorable \$1.0M. The Test Completion Team was favorable \$1.0M due to the acceleration of the engineering, procurement, and construction (EPC) platform modifications, recovery of 16-foot vessel fabrication schedule, and the decommissioning of RLD-8T approximately 10 weeks ahead of schedule. LBL was favorable \$0.7M. Plant Equipment was favorable \$1.4M due to the recovery of a material milestone with receipt of the LAW butterfly valves, and the completion of the passive gas analyzers engineering milestone, ahead of schedule. Plant Operations was unfavorable **(\$0.5M)** due to understaffing in discrete training development activities. The HLW Facility was unfavorable **(\$0.6M)** due to construction subcontracts liner plate installation performing work in earlier periods.
- April 2016 – Unfavorable SV of (\$1,366K):** The HLW Facility was unfavorable **(\$0.8M)** due to construction subcontracts liner plate installation performing work in earlier periods, and HVAC (heating, ventilation, and air-conditioning) designers being redistributed to support higher WTP priorities. LBL was unfavorable **(\$0.5M)**. Plant operations was unfavorable **(\$0.5M)** due to understaffing in discrete training development activities. Construction was unfavorable **(\$0.4M)** due to civil and electrical bulk materials arriving later than scheduled. Startup was unfavorable **(\$0.2M)** due to progress challenges in procedures and testing due to the lack of test criteria. Design engineering was favorable \$0.5M due to a realignment of activities in controls and instrumentation schedule.
- May 2016 – Favorable SV of \$4,322K:** The HLW Facility was favorable \$3.9M. Construction and engineering were each favorable \$1.9M due to implementation of trend 24590-WTP-IFT-PC-16-0067, *HLW FY16 EPC Execution Alignment in Support of Higher WTP Project Priorities* (includes a point adjustment). LBL was favorable \$0.4M. Primary contributors are LBL construction favorable \$1.0M, due to LAW favorable progress for the Q pen seals support work and for the fire protection subcontractor, which installed significant portions of bulk restraints on +48-foot and +3-foot elevations ahead of plan; and LBL plant equipment favorable \$0.2M, primarily due to pressure transmitter engineering milestones completing earlier than planned. These are offset by LBL plant operations unfavorable **(\$0.5M)**, due to progress on discrete training and procedures development unfavorable due to understaffing, as well as, other direct cost activities not

being executed per the plan; and LBL design engineering unfavorable **(\$0.3M)**, largely due to an earnings methodology misalignment, which will be corrected in June business, as well as delay in nuclear safety hazard analysis causing downstream impacts.

The March-April-May favorable cost variance (CV) of \$1,200K is primarily due to the following:

- **March 2016 – Unfavorable CV of (\$1,251K):** LBL was unfavorable **(\$2.7M)**. Engineering design and support was unfavorable **(\$1.2M)** due to job hour performance on mechanical systems post issued for construction revisions driven by the volume of comments, datasheet quantity increase not yet trended, compounded by unfavorable resource mix. Due to complexities in the work, the thermal catalytic oxidizer and melter drawings experienced unfavorable performance from additional labor hours. The support functions were unfavorable **(\$0.7M)** due to project controls CLIN 1.0 certification efforts requiring extensive research to answer questions from external review teams. Procurement has increased resources to support project initiatives related to quality verification documents, commercial grade dedication (CGD), and material requisitions and new awards. Plant operations was unfavorable **(\$0.3M)** due to overstaffing in BOF to prepare for site power and systems turnover. Startup was unfavorable **(\$0.3M)** due to a measuring and testing equipment order payment scheduled for a previous period. The PT Facility was favorable \$0.6M. The technical teams were favorable \$0.5M due to cost efficiencies in discrete work related to T6 optimization efforts and T7 vessel structural analysis and standard high-solids vessel (SHSV) design efforts. The Test Completion Team was favorable \$0.4M due to positive performance related to EPC platform modifications and decommissioning RLD-8T approximately 10 weeks ahead of schedule. Nuclear Safety Engineering was unfavorable **(\$0.2M)** due to a correction of duplicated performance taken on the previous period. The HLW Facility was favorable \$0.5M. Construction was favorable \$0.4M due to skill mix, staffing underruns in level of effort (LOE) accounts, and favorable performance in steel and liner support.
- **April 2016 – Favorable CV of \$565K:** Project Services was favorable \$1.4M. General and other services was favorable \$2.7M due to Information Systems and Technology equipment/software and office furniture being deferred to later months, and receipt of lease reimbursement costs for the material handling facility. Construction was unfavorable **(\$1.4M)** due to a reversal of a back-charge for Hirschfeld Steel, which was a charging error in subcontracts and will be corrected in the next month. HLW Facility was favorable \$1.0M. Construction was favorable \$1.0M due to skill mix, staffing underruns in LOE accounts, recovery of the Hirschfeld Steel back-charge, and favorable performance in steel and liner support. PT Facility was favorable \$0.2M. Construction was favorable \$0.2M due to the delay in receipt of equipment, which was planned as LOE work. LBL was unfavorable **(\$2.8M)**. The support functions were unfavorable **(\$1.2M)** due to Project Controls CLIN 1.0 certification efforts supporting external review teams. Procurement has increased resources to support project initiatives related to quality verification documents, CGD, and material requisitions and new awards. Engineering Design Agency was unfavorable **(\$0.9M)** due to job hour performance on mechanical systems planned revisions driven by unfavorable resource mix and higher than planned supervision. Construction Craft Distribs was unfavorable **(\$0.8M)** due to

early execution of the DFLAW site modifications to support EMF construction. Engineering support was unfavorable **(\$0.4M)** due to higher than planned training hours due to procedural updates and new hires, and additional support needed to construction on the melters.

- **May 2016 – Favorable CV of \$1,886K:** Project Services was favorable \$1.6M. This was due to engineering favorable \$0.5M, primarily corrections being completed for relocation charges; general/other services favorable \$0.7M, primarily due the Information Systems and Technology equipment and software deferred to later months and other miscellaneous Project Services labor under runs; procurement favorable \$0.2M – primarily due to open positions for FY 2016; and construction favorable \$0.2M, primarily due to a favorable nonlabor variance and positive labor usage variance and reversal or erroneous charges for last month on construction distribs, subcontracts, and bulk materials. HLW Facility was favorable \$0.2M, which was due to staffing deployment for field non-manual occurring sooner than planned.

WTP Project Cumulative through May 2016

Through May 2016, the cumulative to-date WTP Project SV was a negative **(\$17.1M)**, and the cumulative to-date WTP Project CV was a positive \$63.1M. The cumulative to-date SV and CV is based on the progress of the LBL internal forecast.

Pretreatment Facility

Federal Project Director: Bill Hamel

Facility Federal Project Director: None

As of September 2012, the Pretreatment (PT) Facility was 56 percent complete overall, with engineering design 85 percent complete, procurement 56 percent complete, construction 43 percent complete, and startup and commissioning 3 percent complete.

U.S. Department of Energy (DOE) continues to focus on resolving technical issues, performing hazards analyses, and completing safety evaluations for process systems in accordance with the revised PT Facility 3-Year Interim Work Plan. As required by the Amended Consent Decree, the status of the five outstanding technical issues (preventing potential hydrogen build-up, preventing criticality, ensuring control of the pulse-jet mixers [PJM], protecting against possible erosion and corrosion, and ensuring ventilation balancing) are addressed below.

Quarterly Statement: There are no missed milestones that may affect compliance with other milestones.

Accomplishments during the Reporting Period

- DOE Office of River Protection (ORP) accepted Bechtel National, Inc. (BNI)-issued plutonium particulate criticality safety evaluation engineering study in support of resolving the technical issue related to criticality.
- BNI provided hydrogen in piping and ancillary vessels (HPAV) basis of design change package to ORP for approval. ORP has provided comments back to BNI for resolution.
- BNI submitted HPAV Preliminary Documented Safety Analysis (PDSA) Change Package to ORP for approval – comments were provided to BNI. ORP is awaiting resubmittal of the HPAV PDSA Change Package.
- BNI issued Erosion/Corrosion Sliding Bed Report to ORP for approval. The report is under review by ORP at this time.
- Standard high-solids vessel (SHSV) was delivered and installed at Atkins Engineering Laboratory.
- ORP accepted the Waste Treatment and Immobilization Plant (WTP) Criticality Safety Evaluation Report, pending conditions of approval.

Accomplishments Expected in the Next Three Months

- Issue and transmit to ORP Engineering Study – Proposed Controls for Hydrogen Events in PT Facility, Rev. 0
- ORP approval of HPAV PDSA Change Package
- Issue PJM Controls Phase 3 test software requirements

- Finalize erosion/corrosion simulant basis, Newtonian/Non-Newtonian document, and simulant for one-quarter jet impingement and pipe loop testing.

Issues Encountered during the Reporting Period

- The resolution of the hydrogen and criticality technical issues has been delayed due to complexity of completing engineering studies and calculations and integrating engineering conclusions with safety control strategies.
 - *Impact:* The schedule has been delayed for the hydrogen and criticality technical issues.
 - *Actions initiated or taken to address potential schedule slippage:* Revisions to work products were required to support resolution of the PT Facility hydrogen and criticality technical issues, with Bechtel Nuclear Safety and Engineering beginning to take a lead role in ensuring the technical adequacy and quality of work products produced as part of the hydrogen and criticality technical issues. Weekly discussions continue with ORP team members, Bechtel Nuclear Safety and Engineering, and PT Facility area project manager to mitigate any possible delays.
- The completion of erosion/corrosion activities are being deferred to focus resources to complete hydrogen and criticality technical issues.
 - *Impact:* PT Facility risk assessment for erosion/corrosion and design bases erosion wear calculation per basis of design for erosion wear to determine design margin and proposed design has been delayed.
 - *Actions initiated or taken to address potential schedule slippage:* Standing up erosion/corrosion Integrated Technical Team (ITT) is expected to enhance the decision making process and increase resources; thus provide the much needed support to the completion of corrosion of piping, vessels and PJM nozzles, plugging and wear of process piping, and other erosion/corrosion scope.

Issues Expected in the Next Three Months

- A design review of the proposed SHSV design needs to be completed by BNI.
 - *Impact:* Potential delays in completing SHSV design testing efforts.
 - *Actions initiated or taken to address potential schedule slippage:* A design review for the SHSV is necessary and has been identified by the ITT. Efforts are being planned and are expected to be incorporated via change control process in the near term.
- WTP PT Facility budgets could be impacted.
 - *Impact:* Technical issue resolution activities could have impacts to cost and schedule.
 - *Actions initiated or taken to address potential schedule slippage:* PT Facility integrated project team will continue to provide weekly status updates to risks/opportunities and remain open with ORP senior staff. Internal risk workshops are planned to support any possible mitigations, which would enable additional cost savings and reduce schedule risks. The PT Facility area project manager has

developed and will continue to use a number of project management tools (e.g., Technical Improvement Project Performance sheet, schedule analysis reports) to align project staff, report project performance, and ensure visibility of required work.

Status of Outstanding WTP Technical Issues

The WTP project has made sustained progress on resolution of the five technical issues. ORP expects to attain resolution and closure of the two nuclear safety technical issues, “Preventing Potential Hydrogen Build-Up” and “Preventing Criticality,” by the end of 2016. Work will continue past 2016 on resolving the remaining three issues. ORP has worked with BNI to develop closure packages for each technical issue, defining work scope, required deliverables, and technical issue closure criteria.

Status for each of the five technical issues is provided below:

- ***Preventing Potential Hydrogen Build-Up:***
 - Issue: This issue encompasses two separate but related hydrogen risks: (1) Risk of combustion in vessel headspace due to hydrogen accumulation; and (2) risk of HPAV that could lead to a hydrogen deflagration or detonation in a piping system.
 - Progress:
 - Hydrogen in Vessels: BNI has produced a draft Engineering Study with supporting calculations to document a proposed hydrogen control strategy consisting of both preventive and mitigative controls. The analysis and calculations include the impact of decay heat, process changes, and assumptions on hydrogen generation rate and consequences. ORP has been conducting in-process reviews of BNI’s study, calculations, and proposed hydrogen controls. BNI is expected to formally deliver the engineering study and calculations to DOE in early August 2016, and subject to final DOE review and approval, will provide the analysis and documentation needed to close this issue.
 - HPAV: BNI submitted a draft HPAV PDSA Change Package to ORP for review – ORP comments were provided to BNI. ORP is awaiting resubmittal of the HPAV PDSA Change Package anticipated to be in early August 2016. The HPAV PDSA Change Package will also be accompanied with a Basis of Design Change Notice and Safety Requirements Document Change Notice. The combination of the HPAV PDSA, Basis of Design Change Notice, and Safety Requirements Document changes, once approved, will allow for ORP to approve a path forward for design and nuclear safety basis development and close this technical issue.
- ***Preventing Criticality:***
 - Issue: A total of 16 Hanford waste tanks may contain plutonium particles of size and density prone to settling in a WTP process vessel in a configuration that could result in an inadvertent criticality event.

- Progress: BNI submitted a revision to the WTP Criticality Safety Evaluation Report in March 2016. ORP reviewed and approved the Criticality Safety Evaluation Report revision with four conditions of approval via a safety evaluation report in June 2016. ORP has also reviewed and accepted an updated engineering study evaluating the potential heavy plutonium particulate in the PT Facility, facility design basis. ORP has requested DOE's Criticality Safety Support Group to independently review the criticality documentation and provide guidance to ORP to support future updating of criticality safety documentation for the WTP. The Criticality Safety Support Group review will be completed in the fourth quarter 2016, which will support an ORP decision on closure of this technical issue.
- ***Ensuring Control of the Pulse Jet Mixers:***
 - Issue: Concern with adequacy of PJM and PJM controls to adequately mix high solids slurries in PT Facility process vessels
 - Progress: Construction of a full-scale vessel test facility in Richland, Washington, was completed in the summer of 2014. The facility was designed to be reconfigurable in order to test two different PJM vessel configurations at full scale. The test facility also supports in-facility simulant preparation in smaller "shim" tanks.

The PJM vessel testing program is divided into three major test campaigns. The first test campaign to demonstrate functionality of the PJM control system was successfully conducted at the full-scale vessel test facility between August 2014 and December 2015 using a vessel prototypical of a radioactive liquid waste disposal vessel from the WTP's High-Level Waste (HLW) Facility. The first test campaign was divided into a Phase 1 program using fluids with lightly loaded solids, and a Phase 2 program, which challenged the PJM control system to execute its design functions with simulant conditions that reflect the full range of fluids and slurries anticipated to be processed in the PT Facility. Testing results demonstrated successful control of the PJMs.

ORP is evaluating a revised design for PJM vessels to be used to mix high solids containing wastes in the PT Facility termed the SHSV design. The second campaign consisted of informational testing of select prototypic features of the SHSV in a reduced scale test facility at a subcontractor laboratory in Richland, Washington. This testing informed decision making on selection of different mixing system configurations for the planned SHSV. This test campaign was completed in March 2015.

The third test campaign is planned to test the complete qualification testing of a PJM vessel at full-scale using a prototype SHSV design. The SHSV prototype was designed, fabricated, and delivered to the full-scale vessel test facility in July 2016. The test plans for the third campaign will be finalized and approved in the fourth quarter calendar year 2016. The SHSV testing is planned to be conducted in the full scale vessel test facility starting as early as December 2016 and targeted to complete by the end of 2017.

- ***Protecting against Possible Erosion and Corrosion:***
 - ***Issue:*** Uncertainties exist in waste feed characteristics and ability to meet 40-year service life; requiring confirmation erosion/corrosion design basis, including margin, through testing and analysis.
 - ***Progress:***
 - A testing program to provide the technical information to underpin the design basis for erosion and corrosion is being implemented.
 - A pipe loop test platform to evaluate wear in piping is complete and the test plan is in final development. This testing is focused on confirming the design basis for wear in piping systems caused by transfer of slurries.
 - Laboratory scale corrosion testing to assess localized corrosion material degradation mechanisms is underway. This testing involves immersion of small metal samples in fluids representing anticipated WTP chemistries. Material degradation mechanisms being evaluated include pitting, crevice cracking, and stress cracking.
 - Preparation of bench scale jet impingement test equipment apparatus is in progress. This test platform will be used to evaluate erosion wear from the impinging PJM jets in process vessels.
- ***Ensuring Ventilation Balancing:***
 - ***Issue:*** There are multiple technical challenges associated with the HLW Facility and PT Facility ventilation system, including ventilation balancing to ensure cascading airflows from lower to higher contaminated areas and performance of high-efficiency particulate air (HEPA) filters.
 - ***Progress:***
 - Resolution of this technical issue requires completing engineering/nuclear safety assessments to ensure the PT Facility ventilation system meets performance requirements, and testing of HEPA filters to ensure filters can withstand environmental conditions and loading during normal and off-normal operating conditions.
 - The PJM vessel offgas treatment system design is being reviewed in conjunction with resolution of other technical issues to determine that safety and functional performance requirements can be met. The PT and HLW facility confinement ventilation systems are being evaluated separately for overall requirements to support facility operations.
 - Significant progress is being made in HEPA filter design and qualification testing. Several filter designs are under consideration and are on parallel tracks for testing and qualification. Testing consists of ASME AG-1 testing at subcontracted test facilities and qualification testing specific to WTP design requirements at Mississippi State University. At least one of the filter designs has passed all of the initial screening tests to date and will begin formal qualification testing in the

third or fourth quarter of calendar year 2016. The filter testing is on-track to support the Low-Activity Waste (LAW) Facility startup schedule.

High-Level Waste Facility

Federal Project Director: Bill Hamel

Facility Federal Project Director: Wahed Abdul

High-Level Waste (HLW) Facility activities are being performed in accordance with the fiscal year (FY) 2015 and FY 2016, 2-Year Interim Work Plan. Currently, the facility is working under a limited construction and procurement authorization. Efforts are focused on completing activities required to obtain full-production authorization by the U.S. Department of Energy (DOE), including developing longer-term work plans.

Quarterly Statement: There are no missed milestones that may affect compliance with other milestones.

Accomplishments during the Reporting Period

- Five engineering studies on the melter handling system, C5 ventilation system (heating, ventilation, and air-conditioning), waste generation and export capability, and Phase I of the HLW melter offgas treatment process system, have been completed in support of resolving HLW Design and Operability vulnerabilities. Phase 1 of the melter offgas engineering study is evaluating options for system changes to improve operability of the system. Phase II is a follow-on study that performs detailed evaluations of the potential changes from the Phase I study to recommend design changes and associated permit changes. The Washington State Department of Ecology (Ecology) has been provided copies of the studies and has been briefed on the results of Phase 1 study.
- Design of the portions of the radioactive liquid waste disposal system (RLD) (Phase II) beyond the vessel design is in progress following incorporation of the recently approved RLD preliminary documented safety analysis (PDSA) change package. Material procurement and fabrication has been released for vessel RLD-8, with vessel RLD-7 release soon to follow. Vessel fabrication was delayed in order to execute additional analysis of RLD vessels 7 and 8 recommended by the Bechtel National, Inc. (BNI) Independent Expert Review Team. BNI and the DOE Office of River Protection (ORP) developed a risk mitigation strategy to allow vessel fabrication to continue during completion of the analysis. Installation of these two vessels allows the concrete placements over the wet process cell to be completed, which supports installation of the facility roof.
- Process hazard analysis has been completed and preparation of the facility PDSA update to align design and the safety basis has begun, with the expected submission to ORP in November 2016.
- Multiple high-efficiency particulate air (HEPA) filter media designs are planned to be tested to ensure the qualified filters support the needs for the HLW Facility, along with the Low-Activity Waste (LAW) Facility, the Balance of Facilities (BOF), and the Analytical Laboratory (LAB) (collectively known as LBL, including LBL facility services). Testing of the full-scale filter designs at Mississippi State University is ongoing. One of the Porvair filter designs tested at full-scale has been promising,

exceeding bounding normal and off-normal conditions with significant margin. NQA-1 qualification testing of this design is planned to start in August. Fabrication of the new filter design has been a challenge due to the complexity of the filter and the capability of the vendor fabrication. To improve production, the filter supplier has moved to a larger facility, improved equipment, and streamlined fabrication to ensure schedule adherence. Qualification testing of existing Flanders filters has begun. Development of other alternative HEPA filter designs is ongoing, with the fabrication of the successful filters for the NQA-1 testing is the priority.

Accomplishments Expected in the Next Three Months

- Engineering studies for the radioactive solid waste handling system, HLW canister decontamination handling system, and HLW melter cave support handling system are planned to be completed in the next three months. Key engineering studies to disposition HLW Design and Operability vulnerabilities are planned to be completed by the end of the 2016.
- Preparation of the facility PDSA update to align design and the safety basis has begun, with the expected submission to ORP in November 2016.
- NQA-1 qualification testing of this design is planned to start in August.
- Facility completion plan, one of the key documents required for the full authorization of the HLW construction is under development by BNI for completion by September. Facility completion plan will document the strategy and deliverables for meeting the authorization requirements. In addition, it will provide the strategy for completion of the HLW design and construction, as well as a plan for development of the revised baseline.

Issues Encountered during the Reporting Period

- Funding for HLW Facility has been constrained due to higher priority LBL work within the Waste Treatment and Immobilization Plant (WTP), which has resulted in limited engineering resources to perform production work. Limited construction is continuing with the concrete placements at 58-foot elevation, installation of support steel, and crane rails in the melter caves. Roof flashing at the interface between the annex and the main facility has been completed, thereby rain-proofing the annex. An important project objective is to weather-in the HLW Facility. Due to funding limitations, design and construction is limited such that getting a roof and siding on the facility is not expected in the near term
 - *Impact:* Delay in completing HLW engineering studies and redesign activities.
 - *Actions initiated or taken to address potential schedule slippage:*
 - Continue discussing the funding needs for the WTP Project including the remaining engineering, procurement, and construction (EPC) work at the HLW Facility and Pretreatment (PT) Facility to ensure funds are made available.
 - Evaluating funding alternatives and planning scenarios to define additional scope that could be performed if increased funding becomes available. Developing

5-year, near-term plan including development of a HLW Facility completion plan to ensure engineering is developing a backlog of construction work to be performed.

Issues Expected in the Next Three Months

- Funding for the HLW Facility has been constrained due to higher priority LBL work within WTP, which has resulted in limited engineering resources to perform production work.
 - *Impact:* The schedule for completing the HLW Facility could be at risk.
 - *Actions initiated or taken to address potential schedule slippage:* Continue discussing the funding needs for the WTP Project including the remaining EPC work at HLW and PT facilities to ensure the funds are made available.

Low-Activity Waste Facility

Federal Project Director: Bill Hamel

Facility Federal Project Director: Jeff Bruggeman

As of May 2016, the Low-Activity Waste (LAW) Facility was 55 percent complete overall, with engineering design 76 percent complete, procurement 72 percent complete, construction 80 percent complete, and startup and commissioning 6 percent complete.

Milestones associated with the commissioning of LAW are on schedule.

Quarterly Statement: There are no missed milestones that may affect compliance with other milestones.

Accomplishments during the Reporting Period

- The permit to set the thermal catalytic oxidizer became effective on June 20, 2016, and the sections of the thermal catalytic oxidizer were set in their final location on the 48-foot (+48 foot) elevation
- First placements of castable refractory were made on gas barrier lid #2
- Installed 540 linear feet of process piping
- Installed 2,060 linear feet of conduit and pulled 30,100 linear feet of cable
- Installed 232 process area penetration seals
- Melter #1 gas barrier lid was placed on the melter and welding of the lid continues
- Public review comment period regarding the Dangerous Waste Permit submitted to the Washington State Department of Ecology (Ecology) for the LAW melters commenced on July 11, 2016.

Accomplishments Expected in the Next Three Months

- Complete installation of the thermal catalytic oxidizer on the +48 foot elevation.
- Complete the welding of the gas barrier lid onto melter #1.
- Complete placement of melter #2 lid castable refractory.
- Perform additional welds required on the melter shield lids and melter base to support seismic analysis.
- Complete the radiographic testing on the caustic scrubber vessel.
- The 45-day public review comment period for the Dangerous Waste Permit for the LAW melters will conclude in late August. Bechtel National, Inc. (BNI); U.S. Department of Energy (DOE), Office of River Protection (ORP), and Ecology will work to resolve all comments received.

Issues Encountered during the Reporting Period

- Project team has been evaluating concerns about the controls associated with the LAW C5 ventilation system (C5V) as it provides a safety function for the offgas system that prevents noxious gas from the melter from harming the facility workers.
 - *Impact:* The LAW C5V may require significant redesign for purposes of safety classification.
 - *Action initiated or taken to address potential schedule slippage:* Develop a safety control strategy for loss of LAW melter plenum vacuum due to offgas system failure that will not require significant modifications to C5V.
 - Conduct high-efficiency particulate air (HEPA) filter testing to demonstrate C5V HEPA filters can withstand combined temperature and humidity conditions in the event of offgas failure (i.e., C5V must handle melter offgas stream).
 - Conduct an engineering study to evaluate common mode failures between LAW melter offgas and C5V systems; and to determine capacity, durability, and survivability of C5V during offgas failure event. This study was completed on May 26, 2016.
 - Develop DOE-STD-3009, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*, compliant control strategy for loss of melter plenum vacuum that does not require (or minimizes) C5V redesign
- An ongoing issue for the project has been the concern about how BNI has managed its commercial grade dedication (CGD) program.
 - *Impact:* This puts at risk some of the equipment purchased that performs a specific safety function in the LAW Facility. The consequence of identified CGD deficiencies are:
 - Material requisitions with vendors will need to be revised or re-established to incorporate the new CGD documentation and test requirements.
 - CGD plans produced by both vendors and the Waste Treatment and Immobilization Plant (WTP) will be required to be updated; additional documentation and testing will be required to meet the updated CGD plans; where test results or documentation cannot demonstrate items meet the required critical characteristics, items will need to be re-purchased to replace existing equipment.
 - *Actions initiated or taken to address potential schedule slippage:*
 - Additional personnel will be added to the CGD group and these personnel will work on both WTP generated and vendor generated CGD packages to update the CGD plans and documentation to meet current customer expectations.
 - New staff and/or subcontractors will be added to provide subject matter expertise and oversight to enhance the CGD program.
 - Every effort will be made to qualify existing items to the new CGD plans. They may involve modifying existing requisitions or reopening closed material

requisitions to upgrade the CGD plans and provide additional documentation and testing of items, or generating new material requisitions to purchase replacement equipment that cannot be qualified.

- Nuclear safety documents being developed by BNI during the design phase (preliminary documented safety analysis [PDSA]) and the scheduled activities for the final documented safety analysis have been taking longer than planned.
 - *Impact:* Delay in DOE approval of the Documented Safety Analysis could impact some early LAW commissioning activities.
 - *Actions initiated or taken to address potential schedule slippage:* The project team has been hosting workshops with the nuclear safety teams from BNI and ORP to outline expectations and come to a common understanding of document development deliverables.

Balance of Facilities

Federal Project Director: Bill Hamel

Facility Federal Project Director: Jason Young

As of May 2016, the Balance of Facilities (BOF) was 58 percent complete overall, with engineering design 78 percent complete, procurement 77 percent complete, construction 85 percent complete, and startup and commissioning 17 percent complete. Design of the Effluent Management Facility (EMF) was 50 percent complete.

Quarterly Statement: There are no missed milestones that may affect compliance with other milestones.

BOF will provide services and utilities to support operation of the main production facilities: Pretreatment (PT), High-Level Waste (HLW), Low-Activity Waste (LAW), and the Analytical Laboratory (LAB). BOF facilities are designed to support operation of the entire Waste Treatment and Immobilization Plant (WTP) and construction is complete for the majority of BOF systems. To improve operational flexibility and support WTP operations in a direct-feed, low-activity-waste (DFLAW) configuration, additional construction and facility modifications are required. Operational flexibility improvements to the BOF include:

- Design and construction of an EMF to concentrate effluents from the LAW Facility, allow transfer of secondary effluent stream to the Liquid Effluent Retention Facility/Effluent Treatment Facility, and provide a low point drain for potential contaminated systems during DFLAW operations.
- The addition of a fourth rotary screw air compressor to the chiller compressor plant and piping reconfigurations to optimize operations at a reduced facility output level.
- Modifications to steam plant piping and equipment to optimize operations at a reduced facility output level.
- Construction of a fenced area to separate the portion of WTP actively operating in a DFLAW configuration from the ongoing construction activities for the HLW and PT facilities.
- Improved isolation capabilities for BOF systems to maintain safe control and isolation within the DFLAW operations area.

Accomplishments during the Reporting Period

- The U.S. Department of Energy (DOE), Office of River Protection (ORP) approved the initial Preliminary Documented Safety Analysis (PDSA) for the EMF on March 21, 2016.
- An EMF design walkthrough was held for Washington State Department of Ecology (Ecology) engineers and permit writers on April 12 and 13, 2016, to provide additional details and answer questions in support of upcoming EMF secondary containment permit submittal.

- Bechtel National, Inc. (BNI) submitted the EMF secondary containment permit to Ecology and ORP for informal review on June 21, 2016.
- BNI completed initial excavation, placed the mudmat, and began rebar installation for the EMF basemat.
- BNI awarded the contract for procurement of the additional rotary screw compressor required for the chiller compressor plant during DFLAW operations.

Accomplishments Expected in the Next Three Months

- Informal review of the EMF Secondary Containment Permit will continue throughout the upcoming quarter in support of a formal submittal in the October 2016 timeframe. BNI continues to work with ORP and Ecology to resolve comments that arise during the informal review.
- Preparations for placement of the EMF basemat will continue with additional rebar and formwork being positioned.
- BNI will energize WTP switchgear from the permanent power supply and complete energized testing in support of DFLAW. Key steps going forward are completion of the direct-current electrical system testing, building de-energization to support an authority having jurisdiction inspection, and the final pre-energization testing of the medium-voltage electrical system. After all system testing and inspections have been completed to support energization, the physical energization activity will be coordinated with Mission Support Alliance, LLC and scheduled on a weekend to minimize the number of personnel and distractions during this initial energization event. Energization of the WTP switchgear building will occur in August 2016.
- To mitigate project impacts from energization delays, BNI is leasing a temporary diesel generator. The generator will arrive at the WTP site and supply power in support of nonradioactive liquid waste disposal system testing throughout the upcoming quarter. This temporary electrical equipment will remain available until the BOF switchgear building is ready to support testing activities.
- BNI will award the procurement of the EMF evaporator.
- The 60 percent design review of the EMF will be held in August and include representative from BNI, ORP, and Ecology.

Issues Encountered during the Reporting Period

- The EMF PDSA approval process exceeded BNI's planned schedule duration due to document quality and review process challenges.
 - *Impact:* The PDSA comment and approval process did not significantly alter downstream documents so no cascading schedule impacts were recognized.
 - *Action initiated or taken to address potential schedule slippage:* To prevent reoccurrence and any potential schedule delays during the 60- to 75-percent PDSA

review several meetings between ORP and BNI have been held to clarify expectations.

- Deficient material conditions within the WTP switchgear, delays in equipment procurement, test equipment certification issues, and incomplete test procedures delayed initial energization from the permanent power supply until August 2016.
 - *Impact:* Energization of the BOF switchgear building and startup testing activities for the nonradioactive liquid waste disposal system facility are being delayed.
 - *Actions initiated or taken to address potential schedule slippage:*
 - Lessons learned from these occurrences have been passed on to the group preparing for energization of the BOF switchgear building.
 - BNI is leasing a temporary diesel generator to supply power in support of nonradioactive liquid waste disposal system testing.
 - Types of issues identified in the WTP switchgear building are influencing the scope of ongoing system walkdowns in other facilities.

Issues Expected in the Next Three Months

- Deficient material conditions within the BOF switchgear and incomplete test procedures could delay energization from the WTP switchgear building.
 - *Impact:* Delayed testing of BOF switchgear systems results in delayed power distribution to BOF facilities and extends the need for temporary diesel generator services to support startup testing.
 - *Action initiated or taken to address potential schedule slippage:*
 - Deficient material conditions similar to those discovered in WTP switchgear are being identified and addressed.
 - Breakers for the 4160V and 480V distribution systems are being refurbished by the manufacturer.
 - Test procedure preparation is being prioritized.

Analytical Laboratory

Federal Project Director: Bill Hamel

Facility Federal Project Director: Jennifer Sands

The Analytical Laboratory (LAB) will support Waste Treatment and Immobilization Plant (WTP) operations by analyzing samples of waste feed, vitrified waste, and effluent streams from the WTP processing facilities. As of May 2016, the LAB was 60 percent complete overall, with engineering design 78 percent complete, procurement 88 percent complete, construction 94 percent complete, and startup and commissioning 12 percent complete.

Quarterly Statement: There are no missed milestones that may affect compliance with other milestones.

Accomplishments during the Reporting Period

- Bechtel National, Inc. (BNI) performed the acceptance walkdown of the heating, ventilation, and air-conditioning subcontract scope consisting of duct supports, expansion joints, and instrumentation ports
- Subcontractor for architectural finishes began the final wall and floor coatings
- BNI completed turnover of the fire service water system.

Accomplishments Expected in the Next Three Months

- Complete turnover of the test engineers workstation from construction to startup for system testing
- Complete LAB system walkdowns in support of direct-feed low-activity waste (DFLAW) modifications.

Issues Encountered during the Reporting Period

- The amount of coolant in the air conditioning system servicing the test engineer's workstation area created a potential asphyxiation hazard.
 - *Impact:* The occupancy certificate needed to allow startup testing and operation of the test engineer's workstation cannot be issued.
 - *Action initiated or taken to address potential schedule slippage:*
 - BNI has identified a potential design change to the system, which will reduce the amount of coolant needed to operate the system and mitigate the hazard.
 - A temporary air conditioning alternative is being evaluated for short-term use.

Issues Expected in the Next Three Months

- The design solution for the air conditioning unit for the air conditioning system servicing the test engineer's workstation area will not be ready to support occupancy.
 - *Impact:* There is the potential to delay system turnover and startup testing.
 - *Action initiated or taken to address potential schedule slippage:* Temporary air conditioning will have to be placed in service.
- The current configuration of the LAB C5 ventilation system (C5V) will not support DFLAW operations.
 - *Impact:* Modifications to the LAB C5V will be required.
 - *Action initiated or taken to address potential schedule slippage:*
 - Walkdowns are being performed to determine the most efficient way to bypass the C5V during DFLAW operations.
 - Evaluations are in progress to determine the extent of modification required.

Written Directives

The following addresses the amended CD 2:08-CV-5085-RMP dated April 12, 2016, Item IV-C.1.e.

Due to the change from semiannual reporting to quarterly reporting, written directives from November 1, 2015, through June 30, 2016, have been included with this report. This ensures the timeframe from the last reporting period is covered.

No written directives were issued to the Washington River Protection Solutions LLC (WRPS) for Consent Decree-related work at the tank farms during the reporting period.

Fifteen letters of direction were issued to Bechtel National, Inc. (BNI) during the reporting period. The letters are listed below and copies are attached:

- 15-WTP-0195, "Contract No. DE-AC27-01RV14136 – Pretreatment Facility Suspended Purchase Orders," dated December 23, 2015
- 16-CPM-0072, "Contract No. DE-AC27-01RV14136 – Direction on U.S. Department Of Energy Orders and Directives," dated May 18, 2016
- 16-CPM-0085, "Contract No. DE-AC27-01RV14136 – Transmittal of Contract Modification No. 371 – Change Order to Conduct Supplementary Analysis of Vessels RLD-VSL-00007 and RLD-VSL-00008 Beyond the Waste Treatment and Immobilization Plant Code of Record, and Modify the RLD-VSL-00007 and RLD-VSL-00008 Vessel Design," dated May 20, 2016
- 16-CPM-0088, "Contract No. DE-AC27-01RV14136 – Transmittal of Contract Modification No. 372 – Revision to the Not-to-Exceed Value for the Funding Limitation Established in the Change Order for Full-Scale Vessel and Proof-of-Concept Testing Beyond RLD-8, Previously Incorporated in Modification 358," dated May 26, 2016
- 16-ECD-0010, "Contract No. DE-AC27-01RV14136 – Revised Direction for State of Washington Waste Discharge Permit ST000451," dated March 2, 2016
- 16-NSD-0021, "Contract No. DE-AC27-01RV14136 – Response to Bechtel National, Inc. Proposed Revisions to Waste Treatment and Immobilization Plant Contract, Section C, Standard 9, Nuclear Safety," dated May 16, 2016
- 16-NSD-0025, "Contract No. DE-AC27-01RV14136 – Transmittal of Level 2 Assessment Report S-16-NSD-RPPWTP-005, *Nuclear Safety Division Assessment of Bechtel National, Inc. Condition of Approvals Process and Closure*," dated June 27, 2016
- 16-WTP-0010, "Contract No. DE-AC27-01RV14136 – High-Level Waste Facility Path to Full Authorization and Revised Baseline," dated January 28, 2016
- 16-WTP-0011, "Contract No. DE-AC27-01RV14136 – Acceptance of Completion of Direct Feed Low-Activity Waste Interim Milestone DF-02," dated January 25, 2016
- 16-WTP-0029, "Contract No. DE-AC27-01RV14136 – Transmittal of the U.S. Department Of Energy, Office of Inspector General, Audit Report OAI-M-16-06,

Dated February 2016, and Request for Actions to Address Recommendations,” dated February 22, 2016

- 16-WTP-0032, “Contract No. DE-AC27-01RV14136 – Transmittal of Direction to Perform a Review of Procurement and Property Management Policies and Procedures,” dated February 22, 2016
- 16-WTP-0033, “Contract No. DE-AC27-01RV14136 – Approval of Contract Deliverable 3.7, “24590-BOF-PI-50-0001, Rev. 8, RPP-WTP Plot Plan,”” dated February 22, 2016
- 16-WTP-0055, “Contract No. DE-AC27-01RV14136 - Contract Deliverable 1.6 Baseline Risk Plan Approval,” dated April 6, 2016
- 16-WTP-0063, “Contract No. DE-AC27-01RV14136 – Acceptance of Completion of the Direct Feed Low-Activity Waste Interim Milestone DF-03 – DFLAW Safety Basis Change Package,” dated April 12, 2016
- 16-WTP-0088, “Contract No. DE-AC27-01RV14136 – High-Level Waste and Pretreatment Facility Planning Scenario Guidance,” dated May 23, 2016
- 16-WTP-0127, “Contract No. DE-AC27-01RV14136 – Direction to Transmit an Update of Bechtel National, Inc. Actions Taken on Eleven Deficiencies Identified in Defense Nuclear Facilities Safety Board, Staff Issue Report “Waste Treatment and Immobilization Plant Quality Assurance Review [2016-078],”” dated June 20, 2016.

Retrieval Labor Hours

The following addresses the amended CD 2:08-CV-5085-RMP dated April 12, 2016, Item IV-C.1.g.

Federal Project Director: Tom Fletcher

Facility Operations Activity Manager: Chris Kemp

Labor Hours Expended on Self Contained Breathing Apparatus (May and June)

| | SCBA Direct Labor Hours | SCBA Task Based Hours ¹ | Total SCBA Hours (Direct and Task) | Total 2F SST Retrieval Hours ² | Total Percent on SCBA | Detrimental Impacts ³ |
|--------------|-------------------------|------------------------------------|------------------------------------|---|-----------------------|----------------------------------|
| C Farm | 4,154 | 5,030 | 9,184 | 59,643 | 15% | - |
| A/AX Farm | 6,489 | 22,020 | 28,509 | 53,002 | 54% | - |
| Total | 10,643 | 27,050 | 37,693 | 112,644 | 33% | - |

1 Task based hours include employees for the following companies: North Point Electrical Contracting Inc., Geophysical Survey Inc., Fowler General Construction, American Electric, BNL Technical Services, and Intermech Inc.

2 Hours include Engineering and Project Management accounts.

3 Detrimental impacts are presented as the number of days in which a stop work related to SCBA use prevented field operations from continuing. It is limited to SCBA stop works only and excludes vapor impacts (i.e., AOP-15 events).

SCBA = self-contained breathing apparatus.

SST = single-shell tank.

Spare Reboiler Requirement Status

The following addresses the amended CD 2:08-CV-5085-RMP dated April 12, 2016, Item IV-C.1.h.

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Jeremy Johnson

Description of activity and progress made for the spare E-A-1 reboiler for the 242-A Evaporator, including a description of cost and schedule performance:

- Since issuance of the March 11, 2016, amended Consent Decree, the U.S. Department of Energy (DOE) has provided Bechtel National, Inc. (BNI) with funding to accelerate the planned fiscal year (FY) 2017 work to design and procure the spare E-A-1 reboiler. DOE Office of River Protection (ORP) authorized Washington River Protection Solutions LLC (WRPS) to proceed by awarding a not-to-exceed contract action. WRPS is currently underway generating a procurement specification for the new spare 242-A Evaporator reboiler. The current procurement strategy is to award a design/build procurement contract with a vendor by November 20, 2016.
- Efforts continue in regard to the generation of a functions and requirements evaluation document; WRPS engineering has completed the failure mode and effects analysis document. An expression of interest was submitted Tuesday, April 19 to solicit responses from NQA-1, ASME Section 8 design and build fabrication vendors. Responses to the expression of interest were due May 30, 2016. A technical evaluation of the 242-A Evaporator process steam has been completed. Results of the technical evaluation support the use of 304L, stainless steel for the fabrication of the reboiler. A design specification is also being generated for the new spare 242-A Evaporator reboiler. This specification will be attached to a statement of work submitted to the request for proposal to solicit a design/build vendor.



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

DEC 23 2015

15-WTP-0195

Mr. J.M. St. Julian
Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mr. St. Julian:

**CONTRACT NO. DE-AC27-01RV14136 – PRETREATMENT FACILITY SUSPENDED
PURCHASE ORDERS**

- References:
1. BNI letter from L.W. Baker to R.L. Dawson, ORP, "Concurrence Requested for Four Suspended Pretreatment Facility Purchase Orders," CCN: 278762, dated September 23, 2015.
 2. BNI letter from L.W. Baker to W.F. Hamel, ORP, "Basis for Suspension of 56 Pretreatment Facility Purchase Orders," CCN: 278761, dated September 23, 2015.
 3. ORP letter from R.L. Dawson and W.F. Hamel to M.G. McCullough, BNI, "Pretreatment Facility Suspended Purchase Orders," 15-WTP-0039, dated August 20, 2015.
 4. BNI letter from J.M. St. Julian to W.F. Hamel, ORP, "Pretreatment Facility Suspended Purchase Orders," CCN: 270724, dated January 9, 2015.

The U.S. Department of Energy, Office of River Protection, Waste Treatment and Immobilization Plant (WTP) is reaffirming the August 20, 2015 letter (Reference 3) that the recommendations on procurement suspension appear reasonable.

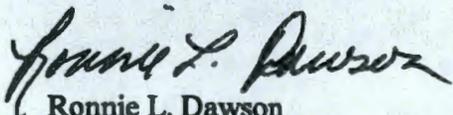
Bechtel National, Inc. (BNI) is reminded that it has full responsibility for the Waste Treatment Plant from the transition of an existing Conceptual Design through the completion of transition to the future Operations Contractor. As part of this responsibility, BNI is required to evaluate, award, and manage subcontracts in order to effectively manage project cost and ensure the efficient use of public resources.

Mr. J.M. St. Julian
15-WTP-0195

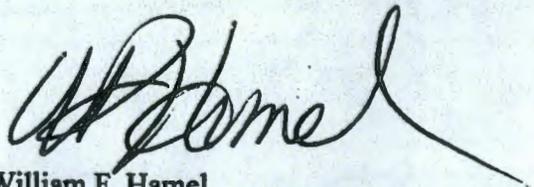
-2-

DEC 23 2015

If you have any questions, please contact me, or you may contact Daniel P. Knight, WTP,
Project Controls Officer, at (509) 373-4143.



Ronnie L. Dawson
Contracting Officer



William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:DPK

cc: BNI Correspondence



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

MAY 18 2016

16-CPM-0072

Ms. L.W. Baker, Business Services Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

CONTRACT NO. DE-AC27-01RV14136 – DIRECTION ON U.S. DEPARTMENT OF ENERGY ORDERS AND DIRECTIVES

- References:
1. BNI letter from L.W. Baker to R.L. Dawson, ORP, "DOE Orders and Directives," CCN: 283282, dated April 15, 2016.
 2. BNI document 24590-WTP-CCP-MGT-14-001, 2014, *LBL Completion Proposal*, Rev. 2, Bechtel National, Inc., Richland, Washington.

The purpose of this letter is to respond to Reference 1. Bechtel National, Inc., (BNI) requested U.S. Department of Energy (DOE) direction on DOE Orders and Directives prior to completion of contract modifications for the Low-Activity Waste Facility (LAW), Balance of Facilities, and Analytical Laboratory (collectively known as LBL), and for the Direct-Feed Low-Activity Waste modification.

DOE provides direction to BNI for DOE Orders as follows:

- DOE concurs with BNI that the DOE Orders listed in Table A, attached to this letter, are part of the contract modification incorporating the *LBL Completion Proposal* (Reference 2). DOE will incorporate the DOE Orders listed in Table A into List B of the subject Prime Contract with the LBL contract modification. Costs for the listed DOE Orders and Directives are also included in the modification incorporating Reference 2.
- DOE concurs with BNI that the Orders included in Table B of the attachment will be incorporated in future modifications of the subject contract.
- DOE concurs with BNI that the orders in Table C of the attachment are to be excluded from the subject contract at this time.

Ms. L.W. Baker
16-CPM-0072

-2-

MAY 18 2016

In regards to DOE completion of Phase One Integrated Safety Management System (ISMS) that is planned to occur following full implementation of safety programs and prior to the start of LAW cold commissioning, separate correspondence will be provided to identify specific ISMS planning dates.

If you have any questions, please contact me at (509) 376-5583.



Ronald E. Cone Jr.
Contracting Officer

CPM:REC

Attachment

cc w/attach:
BNI Correspondence Control

**Attachment
to
16-CPM-0072**

**U.S. Department of Energy (DOE) Orders
and Directives Recommendations
(total pages including this cover sheet, 3)**

U.S. Department of Energy (DOE) Orders and Directives Recommendations

Table A - DOE Orders and Directives Included in the LBL Completion Proposal

| DOE Order | Title | Recommendation Source |
|---------------------|--|-------------------------|
| DOE O 458.1, Chg. 2 | Radiation Protection of the Public and the Environment | LBL Completion Proposal |
| DOE-0223 | RL Emergency Plan Implementing Procedures | LBL Completion Proposal |
| DOE-0336 | Hanford Site Lockout/Tag out | LBL Completion Proposal |
| DOE-0343 | Hanford Site Wide Stop Work Order Procedure | LBL Completion Proposal |
| DOE-0346 | Hanford Site Fall Protection Program (HSFPP) | LBL Completion Proposal |
| DOE-0352 | Hanford Site Respiratory Protection Program (HSRPP) | LBL Completion Proposal |
| DOE-0359 | Hanford Site Electrical Safety Program (HSESP) | LBL Completion Proposal |
| DOE-0360 | Hanford Site Confined Space Procedure (HSCSP) | LBL Completion Proposal |
| DOE/RL-2002-12 | Hanford Radiological Health and Safety Document | LBL Completion Proposal |
| DOE-0355 | Hanford Standardized HAZWOPER Training Program Description | CCN 271623 |

Table B - DOE Orders Requiring Contract Modification - In Progress

| DOE Order | Title | Recommendation Source |
|---------------------|-------------------------------------|-----------------------|
| DOE O 205 .1B | DOE Cyber Security Management | CCN 276479 |
| DOE O 460.1C | Packaging and Transportation Safety | CCN 276479 |
| DOE O 422.1, Chg. 1 | Conduct of Operations | CCN 276479 |
| DOE O 436.1 | Departmental Sustainability | CCN 277124 |
| DOE O 420.1C | Facility Safety | CCN 276975 |

Table C - DOE Orders and Directives Excluded

| DOE Order | Title | Recommendation Source |
|--------------|---|-------------------------|
| DOE O 470.4A | Safeguards and Security Program | LBL Completion Proposal |
| DOE O 471.6 | Information Security | LBL Completion Proposal |
| DOE-0344 | Hanford site Excavating, Trenching and Shoring Procedure (HSETSP) | LBL Completion Proposal |
| DOE O 130.1 | Budget Formulation Process | LBL Completion Proposal |
| DOE-0342 | Hanford Site Chronic Beryllium Disease Prevention Program (CBDPP) | LBL Completion Proposal |

References

24590-WTP-CCP-MGT-14-001, 2014, *LBL Completion Proposal*, Rev. 2, Bechtel National, Inc., Richland, Washington.

CCN: 271623, 2015, "Estimate for Implementation of DOE Directive DOE-0355, *Hanford Standardized HAZWOPER Training Program Description*," (external letter to K.W. Smith, Office of River Protection) from L.W. Baker, Bechtel National, Inc., Richland, Washington, March 4.

CCN: 276479, 2015, "BNI's Response to DOE's Intent to Revise Contract Section J, Attachment E, List of Applicable Directives (List B-DEAR 970.5204.78), to Meet the Strategic Objective of Contract Alignment," (external letter to R.L. Dawson, Office of River Protection) from L.W. Baker, Bechtel National, Inc., Richland, Washington, October 16.

CCN: 276975, 2015, "Response to ORP's Intent to Revise Contract Section J, Attachment E, 'List of Applicable Directives (List B-DEAR 970.5204.78,' Partially Implement DOE Order 420.1C, *Facility Safety*, to support Successful Operations (Hot Commission Phase Only)," (external letter to R.L. Dawson, Office of River Protection) from L.W. Baker, Bechtel National, Inc., Richland, Washington, November 13.

CCN: 277124, 2015, "BNI Impact Analysis for Implementation of DOE O 436.1, Departmental Sustainability," (external letter to R.L. Dawson, Office of River Protection) from L.W. Baker, Bechtel National, Inc., Richland, Washington, June 26.



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

MAY 20 2016

16-CPM-0085

Ms. L.W. Baker, Business Services Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF CONTRACT MODIFICATION NO. 371 – CHANGE ORDER TO CONDUCT SUPPLEMENTARY ANALYSIS OF VESSELS RLD-VSL-00007 AND RLD-VSL-00008 BEYOND THE WASTE TREATMENT AND IMMOBILIZATION PLANT CODE OF RECORD, AND MODIFY THE RLD-VSL-00007 AND RLD-VSL-00008 VESSEL DESIGN.

Reference: BNI letter from L.W. Baker to R.L. Dawson, ORP, "Impact of Direction to Evaluate Recommendations from the Bechtel National, Inc. Chartered Independent Expert Review Team on Design and Fabrication of Vessels RLD-VSL-00007 and RLD-VSL00008," CCN: 278606, dated March 31, 2016.

The purpose of this letter is to transmit a signed original of Contract Modification No. 371. The modification directs Bechtel National, Inc. to conduct supplementary vessel analysis with respect to High Level Waste Facility black cell vessels RLD-VSL-00007 and RLD-VSL-00008, per recommendation of the Independent Expert Review Team, modify the design of these vessels as necessary, and incorporate fabrication risk mitigation strategies. The modification establishes a not-to-exceed (NTE) value of \$1,500,000 for the change order.

BNI is requested to provide notification to the Contracting Officer at which time the total costs are expected to reach 75 percent of the NTE value as detailed in the enclosed contract modification.

If you have any project-related questions, please contact William F. Hamel at (509) 438-1176. For contract-related questions, please contact Ron Cone at (509) 376-5583.

A handwritten signature in blue ink that reads "Ronald E. Cone Jr." in a cursive style.

Ronald E. Cone Jr.
Contracting Officer

CPM:REC

Attachment

cc w/attach:
BNI Correspondence Control

**Attachment
to
16-CPM-0085**

**Contract Modification No. 371
(total pages including this cover sheet, 7)**

| | | | | |
|---|---|--|--|--------------------------------|
| AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT | | 1. CONTRACT ID CODE | PAGE 1 | OF PAGES 6 |
| 2. AMENDMENT/MODIFICATION NO. 371 | | 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) | CODE | |
| 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 | |
| | | <input checked="" type="checkbox"/> | 10B. DATED (SEE ITEM 13) December 11, 2000 | |
| CODE 396A5 | FACILITY CODE 153392068 | | | |
| 11. THIS ITEM APPLIES TO AMENDMENTS OF SOLICITATIONS | | | | |
| <input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers <input type="checkbox"/> is extended. <input type="checkbox"/> 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 checked="" type="checkbox"/> | Clause I.82, FAR 52.243-2 Changes - Cost Reimbursement (AUG 1987) - Alternate III (APR 1984) | | | |
| <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 type="checkbox"/> | C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO THE AUTHORITY OF: | | | |
| <input type="checkbox"/> | D. OTHER (Specify type of modification and authority) | | | |
| E. IMPORTANT: Contractor <input checked="" type="checkbox"/> is not, <input type="checkbox"/> 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) | | 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) | | |
| | | Ronald E Cone Jr. Contracting Officer | | |
| 15B. CONTRACTOR OFFEROR | 15C. DATE SIGNED | 16B. UNITED STATES OF AMERICA BY  | 16C. DATE SIGNED 5-20-16 | |
| _____ (Signature of person authorized to sign) | | _____ (Signature of Contracting Officer) | | |

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Continued)

Purpose of Modification:

The purpose of this modification is to make the following changes:

1. Section C, *Statement of Work*, is revised to conduct supplementary Vessel Analysis with respect to the High Level Waste Facility black cell vessels RLD-VSL-00007 and RLD-VSL-00008, per recommendation of the Independent Expert Review Team (IERT), modify the design of these vessels as necessary, and incorporate fabrication risk mitigation strategies.

This change is based on ORP letter from R.L. Dawson and W.F. Hamel, ORP-WTP, J.M. St. Julian, BNI, "Direction to Evaluate Recommendations from the Bechtel National, Inc. Chartered Independent Expert Review Team on Design and Fabrication of Vessels RLD-VSL-00007 and RLD-VSL-00008," 15-WTP-0099, dated September 2, 2015. In this letter, BNI is directed to evaluate the IERT recommendations in the vessels RLD-VSL-00007 and RLD-VSL-00008 and modify the vessel design as necessary.

2. The Contractor is directed to proceed with the work scope in Section C, *Statement of Work, Standard 3 Design*, and paragraph (j) below. The contractor is authorized to incur costs up to a not-to-exceed (NTE) value of \$1,500,000 consistent with the other contract terms and conditions and pending definitization of this change.
3. Negotiations will commence within 90 days of the date of this change order. A bi-lateral modification definitizing this change order shall be executed as soon as possible after the date of the change order, not to exceed 180 days.
4. The Contractor shall provide change order accounting in accordance with Clause I.83, FAR 52.243-6, Change Order Accounting (APR 1984).
5. This modification does not add additional funds to the contract. Accordingly, work under the contract, such as that described herein, must be performed within the amount of funds which have been incrementally allotted to the contract in accordance with clause B.2, *Obligation and Availability of Funds and Contract Value*, and clause I.66, FAR 52.232-22 Limitation of Funds (Apr 1984).

Modification Description

1. Section C, *Statement of Work, Standard 3 Design*, is revised to incorporate the following language:
(j) Supplemental analysis of HLW vessels RLD-VSL-00007 and RLD-VSL-00008:

Conduct supplementary analysis of vessels RLD-VSL-00007 and RLD-VSL-00008 beyond the WTP Code of Record and modify the RLD-VSL-00007 and RLD-VSL-00008 vessel design as follows:

- (1) Perform supplementary structural analysis to the requirement of ASME BPVC Section VIII, Division 2 (2013), specifically:
 - a. Perform Fatigue Analysis using Structural Stress method (SSM).
 - b. Perform Buckling analysis (both global and local)
 - c. Modify the design, including all applicable models, drawings, calculations, and purchase orders as a result of the supplementary analysis.
 - (2) Revise the process and the mechanical cyclic calculations to reduce the number of vessel Pulse Jet Mixer (PJM) operations to mitigate the risk of design changes to the ongoing fabrication.
 - (3) Increase the PJM shell thickness, as necessary, to mitigate the risk of buckling failure.
2. A Not-to-Exceed value of \$1,500,000 is hereby established. As a result, the table in Section B, *Supplies or Services and Prices/Costs*, Section B.2, *Obligation and Availability of Funds and Contract Value*, paragraph (c) is revised as follows:
- The Total Estimated Contract Cost (TECC) is increased by \$1,500,000, from \$10,854,733,790 to \$10,856,233,790.
 - The Total Estimated Contract Price (TECP) is increased by \$1,500,000, from \$11,492,600,886 to \$11,494,100,886.
3. Section B, *Supplies or Services and Prices/Costs*, is updated to make the following change:
- a. The table in Section B, *Supplies or Services and Prices/Costs*, Contract Clause B.2, *Obligation and Availability of Funds and Contract Value*, paragraph (c) is deleted in its entirety and replaced in full as follows:

Cost:

| | | | |
|-----|---|--------------|--------------------------------|
| A | Total Estimated Contract Cost (TECC) through Mod 371 | | <u>\$10,856,233,790</u> |
| B | Total Estimated Contract Cost (350) | | |
| B.1 | CLIN 2: DFLAW Facility Modifications (350) | TBD | |
| | SUB-CLIN 2.1: DFLAW Design (Target Cost) | \$75,000,000 | \$42,568,556 * |

Revised Total Estimated Contract Cost through **Mod 371**

\$10,898,802,346

Fee:

| | | |
|---|--|---------------|
| A | Final Fee Determination – Pre-Mod No. A143 | \$102,622,325 |
|---|--|---------------|

| | | | |
|---|---|---------------|---------------|
| B | Maximum Available Award Fee (See Table B-2-B-1) | | \$105,676,215 |
| | B.1 Project Management Incentive | \$63,630,997 | |
| | B.2 Cost Incentive | \$36,647,560 | |
| | B.3 REA Settlement | \$5,397,658 | |
| C | Schedule Incentive Fee | | \$227,000,000 |
| | C.1 Activity Milestone Completion | \$173,000,000 | |
| | C.2 Facility Milestone Completion | \$54,000,000 | |
| D | Operational Incentive Fee | | \$91,000,000 |
| | D.1 Cold Commissioning | \$45,000,000 | |
| | D.2 Hot Commissioning | \$46,000,000 | |
| E | Enhancement Incentive Fee | | \$60,000,000 |
| | E.1 Enhanced Plant Capacity | \$15,000,000 | |
| | E.2 Sodium Reduction | \$15,000,000 | |
| | E.3 Enhanced Plant Turnover | \$15,000,000 | |
| | E.4 Sustained Production Achievement | \$15,000,000 | |
| F | Performance-Based Incentive for DFLAW Design Completion (350) | | \$9,000,000 |

Total Maximum Available Fee (346) (350) (369)

\$595,296,540

Total Estimated Contract Price (TECP) (371)

\$11,494,100,886

* Sub-CLIN 2.1 DFLAW (Target Cost) amount decreased by total amount of Change Orders 329, 330 & 339 (\$32,431,444) definitized in Modification 350. \$75,000,000 - \$32,431,444 = \$42,568,556.

4. Contract Section J, *List of Attachments*, Attachment J, *Advance Understanding on Costs*, Table 13-B, *Not-to-Exceeds Not Included in Modification No. A143 Definitization (M155)*, is deleted in its entirety and replaced in full as follows:

| 13-B. Not-To-Exceeds Not Included in Modification No. A143 Definitization (M155) | | |
|--|--|---------------------------------|
| DOCUMENT ID. | TITLE | DEFINITIZATION MODIFICATION NO. |
| BCP-24590-06-02279 | Expansion of DWP Requirements (permit Modifications) (M122) (M130) | A193 |
| ORP 08-NSD-011 (05/20/08) (CCN 179512) TN 24590-06-03487 | ORP Direction to Implement New Preliminary Safety Analysis Report (PSAR) Updates (M136) | A164 |
| ORP 08-NSD-057 (10/09/08) (CCN 188218) TN 24590-06-03752 | Direction to Implement New Safety Classification Process for the Waste Treatment and Immobilization Plant (WTP) (M141) | 276 |
| ORP 08-NSD-059 (10/15/08) (CCN 188217) TN 24590-06-03753 | Direction to Implement New Justification for Continued Design, Procurement, and Installation (JCDPI) (M152) | A164 |

| | | |
|--|---|---------------|
| Modification M090 & 09-AMD-205 (07/18/08) (CCN 202423) TN 24590-06-02145 & -02381 | Direction to Implement DOE 205.1A, Cyber Security Management Program (M155) | 217 |
| Modification M154 TN 24590-06-04133 | Direction to Implement Pretreatment Engineering Platform (PEP) dry layup (M155) | A167 |
| Modification M196 BCP 24590-06-04489 BCP 24590-06-04784 BCP 24590-06-05085 | Direction to Implement Multiple Operational Readiness Strategy (218) | 282 |
| Modification M196 BCP 24590-06-04853 ORP 10-AMD-139 (05/06/10; CCN 218244) | Direction to Implement CXP Equipment Option (218) | 317 |
| Modification 221 ORP 11-WTP-219 (06/17/11; CCN 236247); Modification 247 ORP 11-WTP-437 (12/01/11; CCN 242351); Modification 264 ORP 12-WTP-0109 (03/15/12; CCN 245985); Modification 286 ORP 12-WTP-317 (09/24/12) | Direction to Proceed with Large Scale Testing (MOD 221, MOD 247, MOD 264, MOD 286) | 299 - Partial |
| Modification 273 | Direction to participate in the Hanford Site Organizational Climate and Safety Conscious Work Environment (SCWE) Survey | 290 |
| Modification 245 ORP 11-WTP-429 | Direction to proceed with the implementation of DOE Order (O) 420.1B, <i>Facility Safety</i> , Chapter V, <i>Systems Engineer Program</i> . (245) | 276 |
| Modification 300 ORP 13-CPM-0099 (05/06/13); Mod 304 ORP 13-CPM-0133 (06/05/13); Modification 313 ORP 13-CPM-0299 (11/25/13) | Direction to Proceed with Full Scale Vessel Testing Program in lieu of the existing Computational Fluid Dynamics and Large Scale Vessel testing Program as a Design Verification Tool (300, 304, 313) | |
| Modification 329 ORP 14-CPM-0172 | Direction to proceed with Section C, Statement of Work, Standard 3 Design, paragraph (i) Design of BOF Utility Modifications | 350 |
| Modification 330 ORP 14-CPM-0181 | Direction to proceed with Section C, Statement of Work, Standard 3 Design, paragraph (j) Design of BOF Effluent Management Facility | 350 |

| | | |
|--|--|-----|
| Modification 334 ORP 14-CPM-0228, ORP 15-CPM-0300 (358) | Direction to proceed with Pretreatment Facility vessel mixing design verification. | |
| Modification 339 ORP 15-CPM-0008 | Direction to proceed with Section C, Statement of Work, Standard 3 Design, paragraph (k) Design of Balance of Facilities Underground and Site-Wide Modifications necessary to support the Direct Feed of LAW (DFLAW) | 350 |
| Modification 342 ORP 15-CPM-0064, ORP 16-CPM 0012 (364) | Direction to proceed with the implementation of DOE Order (O) 433.1B, Maintenance Management Program for DOE Facilities and DOE/RL-92-36, Hoisting and Rigging Manual. (342) | |
| Modification 344 ORP 15-CPM-0092 | Direction to proceed with initiation of procurement of BOF modifications and LAW Valve Vault materials to support DFLAW; add Interface Control Documents 30 and 31 | |
| Modification 348 ORP 15-CPM-0128 | Direction to proceed with initiation of BOF isolation construction to support DFLAW | |
| Modification 349 ORP 15-CPM-0136 | Direction to proceed with the implementation of DOE Order (O) 414.1D, CRD, Chg. 1, Quality Assurance. (349) | |
| Modification 354 ORP 15-CPM-0195 | Direction to proceed with procurement of Effluent Management Facility (EMF) equipment and effluent transfer lines and limited EMF construction (354) | |
| Modification 371 ORP-CPM-0085 | Conduct supplementary analysis of vessels RLD-VSL-00007 and RLD-VSL-00008 beyond the WTP Code of Record and modify the RLD-VSL-00007 and RLD-VSL-00008 vessel design. | |

6. All other terms and conditions remain unchanged.

(End of Modification)



OFFICE OF RIVER PROTECTION
P.O. Box 450, MSIN H6-60
Richland, Washington 99352

MAY 26 2016

16-CPM-0088

Ms. L.W. Baker, Business Services Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF CONTRACT MODIFICATION NO. 372 – REVISION TO THE NOT-TO-EXCEED VALUE FOR THE FUNDING LIMITATION ESTABLISHED IN THE CHANGE ORDER FOR FULL-SCALE VESSEL AND PROOF-OF-CONCEPT TESTING BEYOND RLD-8, PREVIOUSLY INCORPORATED IN MODIFICATION 358

The purpose of this letter is to transmit a signed original of Contract Modification No. 372. The modification increases the not-to-exceed (NTE) value for Full-Scale Vessel and Proof-of-Concept testing from \$51,750,000 by \$22,500,000 to \$74,250,000 consistent with the other contract terms and conditions and pending definitization of this change.

Bechtel National, Inc. is requested to provide notification to the Contracting Officer at which time the total costs are expected to reach 75 percent of the NTE value as detailed in the attached contract modification.

If you have any project-related questions, please contact Daniel P. Knight at (509) 373-4143. For contract-related questions, please contact Ronald E. Cone at (509) 376-5583.

A handwritten signature in blue ink that reads "George F. Champlain".

George F. Champlain
Contracting Officer

CPM:REC

Attachment

cc w/attach:
BNI Correspondence Control

**Attachment
to
16-CPM-0088**

**Contract Modification No. 372
(total pages including this cover sheet, 7)**

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE PAGE OF PAGES
1 6

2. AMENDMENT/MODIFICATION NO. **372**
3. EFFECTIVE DATE (M/D/Y) **See Block 16C**
4. REQUISITION/PURCHASE REQ. NO. 5. PROJECT NO. (If applicable)

6. ISSUED BY CODE 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) CODE

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)
**Bechtel National, Inc.
2435 Stevens Center Place
Richland, WA 99354**
9A. AMENDMENT OF SOLICITATION NO.
9B. DATED (SEE ITEM 11)
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.
Clause I.82, FAR 52.243-2 Changes - Cost Reimbursement (AUG 1987) - Alternate III (APR 1984)
 - 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).
 - 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 ___ 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)
16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
**Ronald E. Cone Jr.
Contracting Officer**
15B. CONTRACTOR/OFFEROR
(Signature of person authorized to sign)
15C. DATE SIGNED
16B. UNITED STATES OF AMERICA
BY **Ronald E. Cone**
(Signature of Contracting Officer)
16C. DATE SIGNED
5-26-16

The purpose of this modification is as follows:

1. Issue a revision for the Not To Exceed (NTE) value established in the change order for full-scale vessel and proof-of-concept testing beyond vessel RLD-8 incorporated in modification 358 as follows:
 - a. The Contractor is authorized to incur costs up to a NTE value that is changed from \$51,750,000 by \$22,500,000 to **\$74,250,000** consistent with the other contract terms and conditions and pending definitization of this change. The NTE only applies to paragraph (h)(2) Pretreatment Vessel Mixing Design Verification.
 - b. Contractor shall continue following change order accounting in accordance with Clause I.83, FAR 52.243-6, Change Order Accounting (APR 1984).
 - c. This modification does not add additional funds to the contract. Accordingly, work under the contract, such as that described herein, must be performed within the amount of funds which have been incrementally allotted to the contract in accordance with clause B.2, *Obligation and Availability of Funds and Contract Value*, and clause I.66, FAR 52.232-22 Limitation of Funds (Apr 1984).

Modification Description:

1. A Not-to-Exceed value of \$74,250,000 is hereby established. As a result, the table in Section B, *Supplies or Services and Prices/Costs*, Section B.2, *Obligation and Availability of Funds and Contract Value*, paragraph (c) is revised as follows:
 - The Cost Category (A) Total Estimated Contract Cost (TECC) is increased by \$22,500,000 from \$10,856,233,790 to \$10,878,733,790.
 - The revised Total Estimated Contract Cost (TECC) is increased by \$22,500,000 from \$10,898,802,346 to \$10,921,302,346
 - The Total Estimated Contract Price (TECP) is increased by \$22,500,000 from \$11,494,100,886 to \$11,516,600,886.

2. The table in Section B, *Supplies or Services and Prices/Costs*, Contract Section B.2 *Obligation and Availability of Funds and Contract Value*, paragraph (a), is deleted in its entirety and replaced in full as follows:

Cost:

| | | | |
|-----|---|--------------|--------------------------------|
| A | Total Estimated Contract Cost (TECC) through Mod 372 | | <u>\$10,878,733,790</u> |
| B | Total Estimated Contract Cost (350) | | |
| B.1 | CLIN 2: DFLAW Facility Modifications (350) | TBD | |
| | SUB-CLIN 2.1: DFLAW Design (Target Cost) | \$75,000,000 | \$42,568,556 * |

Revised Total Estimated Contract Cost through Mod 372

\$10,921,302,346

Fee:

| | | | |
|-----|---|---------------|---------------|
| A | Final Fee Determination – Pre-Mod No. A143 | | \$102,622,325 |
| B | Maximum Available Award Fee (See Table B-2-B-1) | | \$105,676,215 |
| B.1 | Project Management Incentive | \$63,630,997 | |
| B.2 | Cost Incentive | \$36,647,560 | |
| B.3 | REA Settlement | \$5,397,658 | |
| C | Schedule Incentive Fee | | \$227,000,000 |
| C.1 | Activity Milestone Completion | \$173,000,000 | |
| C.2 | Facility Milestone Completion | \$54,000,000 | |
| D | Operational Incentive Fee | | \$91,000,000 |
| D.1 | Cold Commissioning | \$45,000,000 | |
| D.2 | Hot Commissioning | \$46,000,000 | |
| E | Enhancement Incentive Fee | | \$60,000,000 |
| E.1 | Enhanced Plant Capacity | \$15,000,000 | |
| E.2 | Sodium Reduction | \$15,000,000 | |
| E.3 | Enhanced Plant Turnover | \$15,000,000 | |
| E.4 | Sustained Production Achievement | \$15,000,000 | |
| F | Performance-Based Incentive for DFLAW Design Completion (350) | | \$9,000,000 |

Total Maximum Available Fee (346) (350) (369)

\$595,298,540

Total Estimated Contract Price (TECP) (372)

\$11,516,600,886

* Sub-CLIN 2.1 DFLAW (Target Cost) amount decreased by total amount of Change Orders 329, 330 & 339 (\$32,431,444) definitized in Modification 350. \$75,000,000 - \$32,431,444 = \$42,568,556.

3. Contract Section J, *List of Attachments*, Attachment J, *Advance Understanding on Costs*, Table 13-B, *Not-to-Exceeds Not Included in Modification No. A143 Definitization (M155)*, is deleted in its entirety and replaced in full as follows:

| 13-B. Not-To-Exceeds Not Included in Modification No. A143 Definitization (M155) | | |
|--|--|---------------------------------|
| DOCUMENT ID. | TITLE | DEFINITIZATION MODIFICATION NO. |
| BCP-24590-06-02279 | Expansion of DWP Requirements (permit Modifications) (M122) (M130) | A193 |
| ORP 08-NSD-011 (05/20/08) (CCN 179512) TN 24590-06-03487 | ORP Direction to Implement New Preliminary Safety Analysis Report (PSAR) Updates (M130) | A164 |
| ORP 08-NSD-057 (10/09/08) (CCN 188218) TN 24590-06-03752 | Direction to Implement New Safety Classification Process for the Waste Treatment and Immobilization Plant (WTP) (M141) | 276 |
| ORP 08-NSD-059 (10/15/08) (CCN 188217) TN 24590-06-03753 | Direction to Implement New Justification for Continued Design, Procurement, and Installation (JCDPI) (M152) | A164 |
| Modification M090 & 09-AMD-205 (07/18/08) (CCN 202423) TN 24590-06-02145 & -02381 | Direction to Implement DOE 205.1A, Cyber Security Management Program (M155) | 217 |
| Modification M154 TN 24590-06-04133 | Direction to Implement Pretreatment Engineering Platform (PEP) dry layup (M155) | A167 |
| Modification M196 BCP 24590-06-04489 BCP 24590-06-04784 BCP 24590-06-05085 | Direction to Implement Multiple Operational Readiness Strategy (218) | 282 |
| Modification M196 BCP 24590-06-04853 ORP 10-AMD-139 (05/06/10; CCN 218244) | Direction to Implement CXP Equipment Option (218) | 317 |
| Modification 221 ORP 11-WTP-219 (08/17/11; CCN 236247); Modification 247 | Direction to Proceed with Large Scale Testing (MOD 221, MOD 247, MOD 264, MOD 286) | 299 - Partial |

| | | |
|---|---|------------|
| <p>ORP 11-WTP-437 (12/01/11; CCN 242351); Modification 264 ORP 12-WTP-0109 (03/15/12; CCN 245985); Modification 286 ORP 12-WTP-317 (09/24/12)</p> | | |
| <p>Modification 273</p> | <p>Direction to participate in the Hanford Site Organizational Climate and Safety Conscious Work Environment (SCWE) Survey</p> | <p>290</p> |
| <p>Modification 245 ORP 11-WTP-429</p> | <p>Direction to proceed with the implementation of DOE Order (O) 420.1B, <i>Facility Safety</i>, Chapter V, <i>Systems Engineer Program</i>. (245)</p> | <p>276</p> |
| <p>Modification 300 ORP 13-CPM-0099 (05/06/13); Mod 304 ORP 13-CPM-0133 (06/05/13); Modification 313 ORP 13-CPM-0299 (11/25/13)</p> | <p>Direction to Proceed with Full Scale Vessel Testing Program in lieu of the existing Computational Fluid Dynamics and Large Scale Vessel testing Program as a Design Verification Tool (300, 304, 313)</p> | |
| <p>Modification 329 ORP 14-CPM-0172</p> | <p>Direction to proceed with Section C, Statement of Work, Standard 3 Design, paragraph (i) Design of BOF Utility Modifications</p> | <p>350</p> |
| <p>Modification 330 ORP 14-CPM-0181</p> | <p>Direction to proceed with Section C, Statement of Work, Standard 3 Design, paragraph (j) Design of BOF Effluent Management Facility</p> | <p>350</p> |
| <p>Modification 334 ORP 14-CPM-0228, ORP 15-CPM-0300 (358) 18- CPM-0088 (372)</p> | <p>Direction to proceed with Pretreatment Facility vessel mixing design verification.</p> | |
| <p>Modification 339 ORP 15-CPM-0008</p> | <p>Direction to proceed with Section C, Statement of Work, Standard 3 Design, paragraph (k) Design of Balance of Facilities Underground and Site-Wide Modifications necessary to support the Direct Feed of LAW (DFLAW)</p> | <p>350</p> |
| <p>Modification 342 ORP 15-CPM-0064, ORP 16-CPM 0012 (364)</p> | <p>Direction to proceed with the implementation of DOE Order (O) 433.1B, Maintenance Management Program for DOE Facilities and DOE/RL-92-36, Hoisting and Rigging Manual. (342)</p> | |
| <p>Modification 344 ORP 15-CPM-0092</p> | <p>Direction to proceed with initiation of procurement of BOF modifications and LAW Valve Vault materials to support DFLAW; add Interface Control Documents 30 and 31</p> | |
| <p>Modification 348 ORP 15-CPM-0128</p> | <p>Direction to proceed with initiation of BOF isolation construction to support DFLAW</p> | |

| | | |
|-------------------------------------|---|--|
| Modification 349 ORP 15-CPM-0136 | Direction to proceed with the implementation of DOE Order (O) 414.1D, CRD, Chg. 1, Quality Assurance. (349) | |
| Modification 354 ORP 15-CPM-0195 | Direction to proceed with procurement of Effluent Management Facility (EMF) equipment and effluent transfer lines and limited EMF construction (354) | |
| Modification 371 ORP-CPM-0085 | Conduct supplementary analysis of vessels RLD-VSL-00007 and RLD-VSL-00008 beyond the WTP Code of Record and modify the RLD-VSL-00007 and RLD-VSL-00008 vessel design. | |

4. All other terms and conditions remain unchanged.

(End of Modification)



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

MAR 02 2016

16-ECD-0010

Ms. L.W. Baker, Business Services Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

CONTRACT NO. DE-AC27-01RV14136 – REVISED DIRECTION FOR STATE OF WASHINGTON WASTE DISCHARGE PERMIT ST0004511

This letter rescinds the previously issued letter 15-ECD-0049.

This letter is to inform Bechtel National, Inc. (BNI) regarding the Washington State Department of Ecology (Ecology) interpretation of Waste Discharge Permit ST0004511 (ST4511) issued by the State of Washington pursuant to the States' permitting program found at WAC 173-216.

BNI is hereby directed to manage its activities in accordance with Ecology interpretation that the permit applies to applicable releases of raw or potable water on the ground or into the soil column from facilities or other physical systems that BNI manages or controls on the Hanford Site. Notifications and reporting of releases from raw and potable water systems when discharge volumes specified in the permit are exceeded or permit conditions otherwise require notifications or reporting shall be made in a manner compliant with the applicable permit notification and reporting requirements.

In addition to notification directions listed in the permit, when there is an upset condition in accordance with Permit Condition S8, a notification to Ecology Yakima Central Region Office Emergency Report Tracking System, (509) 575-2490 is required.

The U.S. Department of Energy, Richland Operations Office is leading ongoing discussions with Ecology to modify ST4511 to remove ambiguities. The concerns of your office and other contractors regarding the implementation of this permit have been presented and discussed with Ecology. You will be notified when there are any changes to the permit or to the Best Management Practices Plan for this permit.

Ms. L.W. Baker
16-ECD-0010

-2-

MAR 02 2016

If you have any questions, please contact me, or your staff may contact Rana L. Evans, Environmental Compliance Division, (509) 376-7889.



George F. Champlain
Contracting Officer

ECD:RLE

cc: M.G. McCullough, BNI
E.A. Winkleman, BNI
BNI Correspondence



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

MAY 16 2016

16-NSD-0021

Ms. L. W. Baker, Business Services Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mr. Baker:

**CONTRACT NO. DE-AC27-01RV14136 – RESPONSE TO BECHTEL NATIONAL, INC.
PROPOSED REVISIONS TO WASTE TREATMENT AND IMMOBILIZATION PLANT
CONTRACT, SECTION C, STANDARD 9, NUCLEAR SAFETY**

Reference: BNI letter from L.W. Baker to R.L. Dawson, ORP, "BNI Proposed Revisions to WTP Contract, Section C, Standard 9, Nuclear Safety," CCN: 284102, dated April 19, 2016.

The U.S. Department of Energy, Office of River Protection (ORP), Waste Treatment and Immobilization Plant has reviewed and concurs with Bechtel National, Inc.'s (BNI) proposed revision to the Waste Treatment and Immobilization Plant Contract, Section C, Standard 9, Nuclear Safety provided in the Reference.

As indicated in the referenced letter, BNI is developing an implementation plan to execute the revised Standard 9. ORP will work closely with BNI in the development of a mutually agreed upon final version of the implementation plan. Please submit the draft implementation plan for ORP approval within two weeks of the receipt of this letter. After ORP approval of the implementation plan, a contract modification incorporating Standard 9 will be executed.

If you have any questions, please contact me, or your staff may contact John P. Harris, Director, Nuclear Safety Division, (509) 376-8128.

Handwritten signature of Ronnie L. Dawson in black ink.

Ronnie L. Dawson
Contracting Officer

Handwritten signature of William F. Hamel in black ink.

William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

NSD:MGA

cc: R.T. Brock, BNI
BNI Correspondence



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

JUN 27 2016

16-NSD-0025

Mr. J.M. St. Julian
Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mr. St. Julian:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF LEVEL 2 ASSESSMENT REPORT S-16-NSD-RPPWTP-005, *NUCLEAR SAFETY DIVISION ASSESSMENT OF BECHTEL NATIONAL, INC. CONDITION OF APPROVALS PROCESS AND CLOSURE*

This letter transmits the U.S. Department of Energy, Office of River Protection (ORP), Nuclear Safety Division review of Bechtel National, Inc. (BNI) Condition of Approvals (COA) Process and Closure. The assessment is documented in report S-16-NSD-RPPWTP-005 (Attachment 1). The assessment team determined that BNI has a mature and an adequate process for tracking and dispositioning COAs. There were no findings, opportunities for improvement, or assessment follow-up items as a result of this assessment. At the completion of this assessment, the number of open COAs were in balance between ORP and BNI. Attachment 2 is an agreed upon listing of all COAs going back to 2000, providing status (open or closed) of each COA along with respective closure documentation. Presently there are 42 open COA's going back to 2004, with the newest from 2016. Of the 42 open COAs, there are 14 legacy COAs (COAs older than 2010). Research performed by BNI and ORP shows that closure documentation was not often completed.

BNI is directed to make an evaluation with respect to the open legacy COAs; and either submit documentation that the COA conditions have been met and can be closed; or state why the COA should remain open and when the anticipated actions to close the COA will be completed. The goal is to close legacy COAs with documentation, for record purposes before the end of this calendar year. Please provide a closure plan within 45 days of the date on this ORP letter.

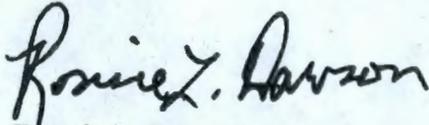
The action taken herein is considered to be within the scope of work of the existing contract and does not authorize the Contractor to incur any additional costs (either direct or indirect) or delay delivery to the Government. If the Contractor considers that carrying out this action will increase contract/project costs or delay of delivery, the Contractor shall promptly notify the Contracting Officer orally, confirming and explaining the notification in writing within ten (10) calendar days, and otherwise comply with the requirements of the Contract clause I.84 FAR 52.243-7, – "Notification of Changes (APR 1984)." Following submission of the written notice of impacts, the Contractor shall await further direction from the Contracting Officer.

JUN 27 2016

Mr. J.M. St. Julian
16-NSD-0025

-2-

If you have any questions, please contact me, or your staff may contact John P. Harris, Director, Nuclear Safety Division, (509) 376-8128.



Ronnie L. Dawson
Contracting Officer



William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

NSD:FAF

Attachments: (2)

cc w/attachs:
BNI Correspondence

**Attachment 1
to
16-NSD-0025**

**Nuclear Safety Division Assessment of
Bechtel National, Inc. Condition of Approvals Process and Closure**

(total number of pages, 4)

**U.S. Department of Energy
Office of River Protection**

Assessment Report Number: S-16-NSD-RPPWTP-005

Division Performing the Assessment: Nuclear Safety Division

Integrated Assessment Schedule Number: 16344

Title of Assessment: Bechtel National, Inc. Condition of Approvals Process and Closure

Dates of Assessment: March 28 to April 11, 2016

Assessment Team Members: Frank A. Felix, Nuclear Safety Division,
U.S. Department of Energy, Office of River Protection

George Wallace, Nuclear Safety Division,
U.S. Department of Energy, Office of River Protection

Purpose:

The objective of this assessment was to evaluate the contractor's documented process for tracking and managing any conditions of approval (COA), as well as closure and disposition of all outstanding COAs given to the Waste Treatment and Immobilization Plant (WTP) contractor.

Scope: The assessment team evaluated the status and disposition of all outstanding COAs given to WTP contractors in accordance with the requirements of DOE-STD-1104-2014, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*.

Method:

The assessment involved Nuclear Safety team members performing procedure reviews and interviews with contractor personnel to validate the process as outlined in DOE-STD-1104-2014.

Lines-of-Inquiry:

As stated in 10 CFR 830.202(c) (3), "Nuclear Safety Management," "Safety Basis," contractors are required to incorporate in the safety basis any changes, conditions, or hazard controls

directed by the U.S. Department of Energy (DOE), Office of River Protection (ORP).
10 CFR 830.207 (d), "DOE Approval of Safety Basis," of the rule states that:

...a contractor may not begin operation of the facility or modification prior to the issuance of a safety evaluation report in which DOE approves the safety basis for the facility or modification.

Documenting COAs in the safety evaluation report (SER) provides a way to address inadequacies in the proposed safety basis amendment not significant enough to warrant rejection of the safety basis change, but which need to be addressed.

To ensure adequate tracking and closure of COAs, this assessment shall verify a documented process is in place to:

- Track COAs to closure (including any required compensatory measures)
- Notify ORP when a COA has been satisfied
- Manage COAs until they are closed.

Source/Reference Documents:

Plans and Implementing Procedures/Documents

- MGT-PM-PL-02, *Safety Management Functions, Responsibilities, and Authorities for the U.S. Department of Energy, Office of River Protection*, Rev. 13, dated March 8, 2016
- TRS-OA-IP-01, *Integrated Assessment Process*, Rev. 9, dated January 19, 2016
- DOE-STD-1104-2014, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*, dated December 2014
- 24590-WTP-3DG-W1OT-00001, *WTP Nuclear Safety Analysis Design Guide*, Rev. 1, dated July 29, 2015.

Documents Reviewed

The following procedures were reviewed during the assessment:

- 24590-WTP-GPG-RAMS-MS-0103, *Action Tracking System (ATS)*, Rev. 0, dated April 27, 2015
- 24590-WTP-3DP-G04B-00022, *Licensing Documents*, Rev. 4, dated July 29, 2015
- 24590-WTP-GPP-PADC-006, *Correspondence Preparation and Control*, Rev. 9, dated August 13, 2015
- 24590-WTP-PD-RACA-CR-0100, *Corrective Action Management Program Description*, Rev. 0, dated December 22, 2014
- ORP memorandum from J.P. Harris to R.G. Hastings, ORP, "Fiscal Year 2015 Nuclear Safety Division Self-Assessment," 15-NSD-0030, dated September 29, 2015.

Results:

As stated in 10 CFR 830.202(c) (3), contractors are required to incorporate in the safety basis any changes, conditions, or hazard controls directed by DOE. Section 830.207 (d) of the rule states:

A contractor may not begin operation of the facility or modification prior to the issuance of an SER in which DOE approves the safety basis for the facility or modification.

Documenting directed changes and COAs in the SER provides a way to address inadequacies in the safety basis not significant enough to warrant rejection of the safety basis, but which need to be addressed.

Bechtel National, Inc. (BNI) has established a mature process for tracking, verifying closure, and notifying ORP on the status of COAs. The COA process is defined in BNI Procedure 24590-WTP-3DG-W1OT-00001, *WTP Nuclear Safety Analysis Design Guide*. Any COAs identified in the SER are entered and tracked through the WTP Corrective Action Management Program. The Corrective Action Management Program is governed by 24590-WTP-PD-RACA-CR-0100, *Corrective Action Management Program Description*, Rev 0.

As part of this assessment, the team reviewed M-15-NSD-INTERNAL-001, *Nuclear Safety 2015 Management Self-Assessment*. The primary objective of this management self-assessment was to evaluate the status and disposition of the COAs given to the respective contractors. From the 2015 review, it was established that 217 COAs were given to BNI; of these 217 COAs, there were 68 for which documentation could be located during the timeframe of the assessment showing them to be closed, leaving 149 for which no documentation was located. The 2015 management self-assessment was meant to be the first step in a series of follow-on activities necessary to track down undocumented COAs and determine their status.

Results from the assessment show BNI having a total of 42 open COAs with the oldest from 2004 and the newest from 2016. The reason for these 14 (COAs older than 2010) legacy COAs; is due to ORP having a lack of a uniform tracking system which has since been corrected; Nuclear Safety Division restructuring and renaming through time; and ORP Nuclear Safety personnel who were knowledgeable about the COA's having moved on to other positions or out of ORP. ORP Nuclear Safety is working with BNI to get these legacy COAs closed either by actual completion of the original COA with submittal of closure documentation or by letter requesting closure by stating the need for the COA has been overcome by changes in priorities, strategy, or project direction.

During the assessment an additional 325 were discovered in the BNI system; all of these are closed with supporting documentation proving closure. The attached spreadsheet lists all the COAs.

Conclusion:

The ORP assessment team determined BNI has a mature and an adequate process for tracking and positioning COAs. There were no findings, opportunities for improvement, or assessment

follow-up items as a result of this assessment. At the completion of this assessment, the number of open COAs were in balance between ORP and BNI.

Another result of the 2015 management self-assessment was to establish a common naming scheme for COAs. This scheme is now defined in Nuclear Safety's implementing procedure. COAs are numbered using the following numbering convention:

NSD SER Letter Number - COA - Number (example, 16-NSD-0012-COA - 01)

Assessor: Frank A. Felix Date: 16 Jun 16

Assessor: M. J. Walker Date: 6/16/16

Nuclear Safety Division Director: John J. ... Date: 6-20-16

**Attachment 2
to
16-NSD-0025**

Bechtel National, Inc. Status of Conditions of Approval as of 10 May 2016

(total number of pages, 8)

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|---|--|----------|----------------|-------------|-------------|------------------|---|
| | 2004 | 04-WTP-208 | Approval of the ABAR is based upon completion of testing and using the test results to update the hazards analysis and identify controls, as necessary. Procurement of the carbon bed is allowed except for the active ITS equipment for controlling a carbon. | ABAR COA 24590-WTP-SE-ENS-03-1261 | | COA-03-1261-02 | Open | | | |
| 13 | 2006 | 06-WED-020 | Response To Bechtel National, Inc. (BNI) Closure Letter For The Condition Of Acceptance (COA) Of Safety Criteria (SC)-III And IV Piping For The Waste Treatment And Immobilization Plant (WTP) Preliminary Safety Analysis Report (PSAR). Based on the above, the COA is not closed. In order to support the higher allowances proposed, BNI is requested to provide: COA 1. Tabulation, by seismic category, of piping and pipe supports load demand equations, load combinations and respective acceptance criteria, including rationale for the adopted criteria, delineating the BNI proposal. The tabulation shall also include the criteria for piping design validation for the corroded wall case. The purpose of the tabulation is to provide assurance that the proposed allowable stresses correspond to appropriate load case. | ORP rejected proposed stress tolerances. | WTP | COA No. 1 | Open | N/A | N/A | Last documentation was CCN 149985 submitted to ORP. Need ORP response letter. |
| 14 | 2006 | 06-WED-020 | Response To Bechtel National, Inc. (BNI) Closure Letter For The Condition Of Acceptance (COA) Of Safety Criteria (SC)-III And IV Piping For The Waste Treatment And Immobilization Plant (WTP) Preliminary Safety Analysis Report (PSAR). Based on the above, the COA is not closed. In order to support the higher allowances proposed, BNI is requested to provide: COA 2. An assessment of the extent of piping and pipe supports already designed to the unacceptable proposed design criteria, and how the existing design will be reconciled. | ORP rejected proposed stress tolerances. | WTP | COA No. 2 | Open | N/A | N/A | Last documentation was CCN 149985 submitted to ORP. Need ORP response letter. |
| 27 | 2007 | 07-WTP-163 | Response To Notification Of Change Concerning Condition Of Acceptance (COA) Related To The Preliminary Fire Safety Analysis COA No. 16 of the CAA requires that: "By the next PSAR update, the Contractor will revise the preliminary fire hazards analyses (PFHAs) to incorporate analytical techniques, within the limits of fire modeling software, to quantitatively characterize and evaluate moderate to severe hazard areas/scenarios as defined in the PFHA, including the resulting impact to fire barriers, suppressions system and other potentially important safety systems. The analytical methods utilized in the revised PFHA documents will consider room geometry, ventilation, rate of heat released, types and arrangement of combustibles to predict fire duration, fire severity, flashover potential, upper gas layer temperature and resulting effects to key fire protection features including but not limited to, suppression systems, fire barriers, and protection of critical process/safety equipment." | Notification of CAP (open) | WTP | COA No. 16 | Open | N/A | N/A | CCN 160242 (07-WTP-163) did not find referenced COA in BNI database from either this letter or the source document CCN 144842 (06-WTP-093). |
| 35 | 2007 | 07-WTP-206 | Extension Request For An Authorization Basis Amendment Request (ABAR) Condition Of Acceptance (COA). COA No. 3: BNI will perform a test of intermittently operated PJMs in Newtonian vessels with high solids content to confirm that the required mixing time to release hydrogen is one hour or less by June 30, 2007. In the event that the required mixing time is greater than 1 hour, notify ORP in a revised ABAR of the impact of the increase. | Extension COA No. 3 | WTP | COA No. 3 | Open | 6/30/2007 | 9/30/2008 | BNI database shows open, COA ID# 358, line 181 |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|--|---|----------|-----------------------|-------------|-------------|------------------|--|
| 95 | 2008 | 08-NSD-016 | COA 35, ABAR 04-0 146 COA: As a Condition of Approval of this ABAR, BNI committed to verify by testing that the mixing process defined in the SER Section 3.1, item 2, subitem 2 (Credited Transfer and Mixing Control) will be effective in mixing non-Newtonian fluids introduced into RLD-VSL-00008 and changing it via dilution into a Newtonian fluid. This verification will occur prior to or during cold commissioning of the HLW facility. - HLW | Open ABAR COAs from 2008 PSAR Update Review | WTP | COA No. 35 | Open | N/A | N/A | Open, CCN 284093 submitted to close. BNI COA ID# 218, line 169. |
| 122 | 2008 | 08-NSD-016 | Prior to cold commissioning, the Contractor must develop and include a basis for the frequency and locations of periodic flushing (if needed) of vent lines to prevent ammonium nitrate buildup and determine the need for inspection ports (was COA #3 in ORP/OSR-2002-18, Rev. 3, Appendix B). | 08-NSD-016 - ORP/WTP-2008-02 (COA #24) | WTP | COA No. No. 24 | Open | 10/1/2016 | 9/23/2016 | Open in BNI database, BNI COA ID# 289, line 114 & BNI COA ID# 151, line 288. |
| 131 | 2008 | 08-WTP-013 | COA #2: BNI must ensure that piping connected to the headspace of vessels located within the CSV confinement boundary or the PVV/PVP system, excluding the PVV/PVP piping/ductwork itself, either: 1. Is SC and SC-I from the CSV boundary up to and including an isolation device that will be closed by the seismic switch or a normally closed manual valve, 2. Ensures that, if a full circumferential break occurs in a C2/C3 area, the PVV/PVP and CSV systems ensure there will still be a positive inflow through the broken pipe into the CSV area or into the equipment (e.g., vessel) in the CSV area, or 3. Includes another control/SSC that ensures there is no outflow in the event of a full circumferential break in the C2/C3 area. For any piping that DOEs not implement item 1, BNI will document this in the PT PSAR at the next scheduled update. A Part 1 Safety Evaluation may be used to implement changes per item 2. An ABAR will be required if BNI finds it necessary to identify changes per item 3. Any required Authorization Basis changes will be approved prior to the issuance of the piping design drawings for construction and prior to installation of this piping if issued for construction drawings already exist. | ABAR COA 24590-WTP-SE-ENS-06-0077 | WTP | COA-06-0077-02 | Open | N/A | N/A | Open in BNI database BNI COA# 375, line 201. |
| 136 | 2008 | 08-WTP-081 | Extension Requests For Five Conditions Of Acceptance (Coa) For The Waste Treatment And Immobilization Plant (Wtp) Preliminary Safety Analysis Report (Psar) 2006 Update. COA No. 23 (described in Reference 2): "The Contractor must complete the analysis of the release rate and ammonia concentration by March 31, 2004 (was COA #2 in ORP/OSR-2002-18, Rev. 3, Appendix B). This COA was revised as follows: "The analysis of ammonia release rate and concentration will be closed when ORP approves ABAR 24590-WTP-SE-ENS-05-0084, Implementation of Hydrogen Controls for Pretreatment Facility Vessels. Also, by December 31, 2006, the Contractor must develop an administrative control program to ensure that ammonia concentration from the waste feed to the WTP site will not exceed 0.04 molar." | COA No. 23, Extension COA No. 11, ABAR 24590-WTP-SE-ENS-05-0091 (Open) COA No. 9 ABAR 24590-WTP-SE-ENS-04-041 (Open) COA No. 1 ABAR 24590-WTP-SE-ENS-04-0218 (Open) COA No. 2 ABAR 24590-WTP-SE-ENS-04-081 (Open) | WTP | COA No. 23, Extension | Open | 3/31/2004 | N/A | CCN 177541 (08-WTP-081), no COAs opened or closed. 09-NSD-027 for 11. |
| 137 | 2009 | 09-NSD-034 | COA 1: The Contractor must use DOE-STD-3009, Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analysis, Chapter 6 as the guide to include criticality safety information such as criticality concerns and limits, and criticality controls into Chapter 6 of the General Information PDSA consistent with previous direction. This format and content is also consistent with the SRD, Appendix G. The WTP CSER will no longer be considered a stand-alone AB document, but instead will be a technical support document to the PDSA. | 1 (CSER) | WTP | COA No. 1 (CSER) | Open | 2/10/2010 | 1/31/2016 | BNI database shows COA open, BNI COA ID 399, line 203. |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|---|----------|----------|-----------------|-------------|-------------|------------------|--|
| 158 | 2009 | 09-NSD-034 | COA 2: The Contractor will evaluate the use of a second criticality compliant sampling point located at the Permeate Collection Vessels (UFP-VSL-00062A/00062B/00062C) before permeate is released to the Cs IX columns for those waste feed batches with Pu/metal loadings high enough to approach the limit of CSL 8.1 in order to analyze wash/leach effects of dissolved Pu carryover. CSL compliance should use a Pu mass loading as an alternative to CSL 8.4 as the criteria to ensure that wash/leach effects in the ultrafiltration process adequately account for Pu and metal absorber carryover in the permeate. | 2 (CSER) | WTP | COA No.2 (CSER) | Open | 2/28/2011 | 1/31/2016 | BNI database shows COA open, BNI COA ID 400, line 209. |
| 159 | 2009 | 09-NSD-034 | COA 3: The Contractor will consider identifying a compliance sampling point (PT13) at the HLW Feed Blending Vessel (HLPVSL-00028) in order to verify that the Pu/metal loadings meets CSL 8.1 prior to releasing the waste to the HLW facility. | 3 (CSER) | WTP | COA No.3 (CSER) | Open | 2/28/2011 | 1/31/2016 | BNI database shows COA open, BNI COA ID 401, line 210. |
| 160 | 2009 | 09-NSD-034 | COA 4: The Contractor will clearly identify all CSL compliant and confirmatory sampling points in diagrams and descriptions in the WTP CSER, including Section 8.0: Criticality Safety Limits and Controls. It is not clear in the CSER where there are sampling points other than the waste feed receipt vessels. Table 4-6 only provides a summary of vessels where criticality samples may be drawn. Along with identifying all sampling points, the CSER should also identify the need for clarity and robustness in the sampling program, as recommended by review documented in CCN 211306 and CCN193547, DOE Criticality Safety Support Group - Review of the Waste Treatment and Immobilization Plant (WTP) Preliminary Criticality Safety Evaluation Report (CSER). RE: 24590-WTP-ATS-QAIS-09-0762 | 4 (CSER) | WTP | COA No.4 (CSER) | Open | 12/17/2010 | 1/31/2016 | BNI database shows COA open, BNI COA ID 402, line 204. |
| 161 | 2009 | 09-NSD-034 | COA 5: A lack of justification for CSL 8.3 for estimation of the maximum Pu concentration using WTPCLs and an assessment of worst-case or contingent conditions in the CSER, indicates that Pu concentration is so far below the calculated Pu concentration SSL indicates that no credible events could possibly exceed subcritical limits. The margin between CSL 8.3 and its SSL is by a factor of nearly 500. DOE DOE does not believe that CSL 8.3 is warranted as a TSR level control required for criticality safety in WTP. The Contractor is requested to eliminate CSL 8.3 as a TSR level control or provide appropriate justification to ORP for its retention. | 5 (CSER) | WTP | COA No.5 (CSER) | Open | 2/28/2011 | 1/31/2016 | BNI database shows COA open, BNI COA ID 403, line 205. |
| 162 | 2009 | 09-NSD-034 | COA 6: The Contractor should re-evaluate the need for CSL 8.4 as a TSR level control. DOE DOE does not find an adequate justification for using CSL 8.4 for controlling criticality with a TSR control. Estimation of maximum Pu concentration using WTPCLs of high Pu waste feed batches indicates that Pu concentration is far below the concentration SSL. Processes that may dissolve Pu in the liquid portion of the waste (e.g., wash/leach) will result in Pu/metal loadings far below CSL 8.4. Additionally, acid additions that are discussed in the contingency conditions (CSER, Section 7) indicate that no credible events would exceed subcritical limits. | 6 (CSER) | WTP | COA No.6 (CSER) | Open | 2/28/2011 | 1/31/2016 | BNI database shows COA open, BNI COA ID 404, line 206. |
| 163 | 2009 | 09-NSD-034 | COA 7: The Contractor will evaluate and include uncertainty in the BBI estimates to assess the likelihood of violating CSLs instead of simply providing point estimates for waste feed batches (vectors) as shown in CSER Figures 4-1 through 4-4. | 7 (CSER) | WTP | COA No.7 (CSER) | Open | 2/28/2011 | 1/31/2016 | BNI database shows COA open, BNI COA ID 405, line 207. |
| 164 | 2009 | 09-NSD-034 | COA 8: The Contractor will review the DOE CSSG assessment report on the WTP CSER and formally respond to each recommendation and opportunity for improvement (not already discussed in the SER) after careful assessment and provide ORP recommendations for inclusion into the CSER. | 8 (CSER) | WTP | COA No.8 (CSER) | Open | 3/4/2010 | 1/31/2016 | BNI database shows COA open, BNI COA ID 406, line 208. |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|--|-------------------------|----------|------------------------|-------------|-------------|------------------|---|
| 173 | 2009 | 09-NSD-044 | COA 43. BNI will develop a plan and schedule coordinated with ORP within 30 days for resolution of the uncertainties identified in Section 2.7 of the PDSA Addendum and any additional issues that may arise during the resolution process. Issue resolution will be pursued in accordance with that plan as updated to provide the technical basis necessary to support the design process and for inclusion in the facility Documented Safety Analysis. Until the applicable uncertainties identified in Section 2.7 of the Addendum are resolved, BNI will not reclassify affected SS controls to non-safety. | COA No. 3 (open) | WTP | COA No. 3 | Open | | | BNI ATS was closed with BNI submittal of CCN 206930. COA #3 was broken into 9 subsections. Actual closure information not recorded. ORP letter CCN 232533 (11-NSD-021) states that all but COA 3.6 remains open. Did not find any information that 3.6 was closed. BNI COA ID# 389, line 214. |
| 200 | 2010 | 10-NSD-041 | EXTENSION REQUEST FOR CONDITION OF ACCEPTANCE (COA) NO. 4 FOR THE PRELIMINARY CRITICALITY SAFETY EVALUATION REPORT COA No. 4: The Contractor will clearly identify all CSL [criticality safety limit compliant and confirmatory sampling points in diagrams and descriptions in the WTP CSER [Criticality Safety Evaluation Report], including Section 8.0: Criticality Safety Limits and Controls. It is not clear in the CSER where there are sampling points other than the waste feed receipt vessels. Table 4-6 only provides a summary of vessels where criticality samples may be drawn. | COA No. 4 (extension) | WTP | COA No. 4 | Open | | | BNI database shows open, BNI COA ID# 402, line 204. |
| 208 | 2011 | 11-NSD-011 | EXTENSION REQUEST FOR TWO CONDITIONS OF ACCEPTANCE (COA) FOR THE WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) PRELIMINARY SAFETY ANALYSIS REPORT 2005 UPDATE COA No. 28 reads as follows: *BNI will perform a test of intermittently operated PJMs [Pulse Jet Mixer] in Newtonian vessels with high solids content to confirm that the required mixing time to release hydrogen is one hour or less by June 30, 2007. In the event that the required mixing time is greater than 1 hour, notify ORP in a revised ABAR [Authorization Basis Amendment Request] of the impact of the increase. | COA No. 28 (extension) | WTP | COA No. 28 (extension) | Open | 12/31/2011 | | BNI database shows open, BNI COA ID# 358, line 181 Duplicate of lines 24, 83, 109, 117 and 184 |
| 211 | 2011 | 11-NSD-021 | COA #1: BNI will update the PDSA to incorporate the PDSA Addendum and the major contributors to DID. BNI will submit the updated PDSA for approval no later than January 2012. COA #1 will be closed when an SER is issued by DOE approving the updated PDSA. Until COA #1 is closed, any safety basis submittals for ORP approval shall include an evaluation of the possible impact on the pending PDSA submittal of the proposed decision considering the PDSA Addendum limitations (i.e., mitigated analyses are not provided, control selection is not explicitly justified relative to the preferred hierarchy, some functional classifications have not been updated, and worker safety, chemical hazards, and major contributors to Defense in Depth are not addressed). | COA #1 (PT Addendum R3) | WTP | COA No. 1 | Open | 1/31/2012 | 12/18/2016 | BNI database shows open, BNI COA ID# 409, line 224 |
| 212 | 2011 | 11-NSD-021 | COA #2: BNI will identify the major contributors to DID that warrant SS functional classification in the PT facility and submit them via letter for DOE concurrence no later than September 2011. COA #2 will be closed when DOE responds via letter accepting the major contributors to DID for inclusion in the updated PDSA (COA #1). | COA #2 (PT Addendum R3) | WTP | COA No. 2 | Open | 9/30/2011 | 12/18/2016 | BNI database shows open, BNI COA ID# 410, line 225 |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|---|--|----------|------------|-------------|-------------|------------------|--|
| 215 | 2011 | 11-NSD-076 | APPROVAL OF EXTENSION REQUEST FOR CONDITION OF ACCEPTANCE (COA) NO. 2 FOR THE CONDITIONAL APPROVAL OF THE PRETREATMENT PRELIMINARY DOCUMENTED SAFETY ANALYSIS (PDSA) ADDENDUM CONTROL STRATEGY CHANGE PACKAGE COA No. 2 reads as follows: BNI will identify the major contributors to DID that warrant SS functional classification in the PT facility and Submit them via letter for DOE concurrence no later than September 2011. COA #2 will be closed when DOE responds via letter accepting the major contributors to DID for inclusion in the updated PDSA (COA #1). | COA NO. 2 | WTP | COA NO. 2 | Open | 9/30/2011 | 11/30/2011 | BNI database shows open, BNI COA ID# 410, line 225 |
| 217 | 2011 | 11-NSD-080 | REJECTION OF REQUESTED CLOSURE OF CONDITION OF ACCEPTANCE (COA) 35 FOR AUTHORIZATION BASIS AMENDMENT REQUEST (ABAR) 24590-WTP-SE-ENS-04-0146 | COA No. 35 rejected (open) | WTP | COA No. 35 | Open | | | Open, CCN 284093 submitted to close. BNI COA ID# 218, line 169. |
| 218 | 2011 | 11-NSD-089 | APPROVAL OF EXTENSION REQUEST FOR CONDITION OF ACCEPTANCE (COA) NO. 2 FOR THE CONDITIONAL APPROVAL OF THE PRETREATMENT (PT) PRELIMINARY DOCUMENTED SAFETY ANALYSIS (PDSA) ADDENDUM CONTROL STRATEGY CHANGE PACKAGE | COA NO. 2 (extension) | WTP | COA NO. 2 | Open | 11/30/2011 | 12/30/2012 | BNI database shows open, BNI COA ID# 410, line 225 |
| 220 | 2012 | 12-NSD-0015 | As part of this approval [ABAR 24590-WTP-SE-ENS-12-0171, Revision 1], ORP directs BNI to submit a tailored version of IEEE-387-1995 consistent with the NRC issued DC/COL-15G-021 to ORP for review within 45 days of the date of this letter. Any changes to this tailoring required by ORP will be incorporated into the PDSAs along with the approved changes to the ABAR. COA No. 28 reads as follows: "BNI will perform a test of intermittently operated PJMs (pulse jet mixers) in Newtonian vessels with high solids content to confirm that the required mixing time to release hydrogen is one hour or less by June 30, 2007. In the event that the required mixing time is greater than 1 hour, notify ORP in a revised ABAR of the impact of the increase (was COA 05-0084-03 in 06-WTP- 156)." | (ABAR) 05-0084 COA NO. 28 | WTP | COA No. 28 | Open | 12/30/2011 | 12/30/2012 | BNI database shows open, BNI COA ID# 358, line 181 The COA associated with IEEE-387 is also open BNI COA ID# 415, line 227 This is really two separate COAs. |
| 221 | 2012 | 12-NSD-0016 | APPROVAL OF EXTENSION REQUEST FOR PRETREATMENT (PT) AUTHORIZATION BASIS CONTROL STRATEGY CHANGE PACKAGE CONDITION OF ACCEPTANCE (COA) NO. 1 COA No. 1 reads as follows: "BNI will update the PDSA [Preliminary Documented Safety Analysis] to incorporate the PDSA Addendum and the major contributors to DID [Defense in Depth]. BNI will submit the updated PDSA for approval no later than January 2012. COA #1 will be closed when an SER [Safety Evaluation Report] is issued by DOE approving the updated PDSA. Until COA #1 is closed, any safety basis submittal for ORP approval shall include an evaluation of the possible impact on the pending PDSA submittal of the decision considering the PDSA Addendum limitations (i.e., mitigated analyses are not provided, control selection is not explicitly justified relative to the preferred hierarchy, some functional classifications have not been updated, and worker safety, chemical hazards, and major contributors to Defense in Depth are not addressed)." | COA No. 1 (extension to Feb. 2013) was disapproved | WTP | COA No. 1 | Open | 1/1/2012 | 2/1/2013 | BNI database shows open, BNI COA ID# 409, line 224 |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|---|--|----------|------------|-------------|-------------|------------------|--|
| 223 | 2012 | 12-NSD-0024 | DISPOSITION OF THE HANDFORD TANK WASTE TREATMENT AND IMMOBILIZATION PLANT (WTP) AUTHORIZATION BASIS CONDITIONS OF ACCEPTANCE (COA) COA No. 1 from ABAR 24590-WTP-SE-ENS-10-0051, Revision 1, which requires BNI to provide updated Design Basis Event (DBE) analysis before downgrading the classification of the High-Level Waste (HLW) Facility High Efficiency Mist Eliminators will remain open pending development of a defensible value for the volumetric entrainment coefficient so that melter offgas releases, process vessel overflows, and seismic DBEs do not challenge the CSV High Efficiency Particulate Filters or the HLW Melter Offgas Treatment and Process Vessel Ventilation System filters operability or capability. | | WTP | COA No.1 | Open | N/A | N/A | BNI database shows open, BNI COA ID# 409, line 224 |
| 228 | 2013 | 10-NSD-013 | BNI will prepare and obtain DOE approval of PDSA changes for HPAV design, extending the fragmentation conclusions drawn for PTF only in the PDSA Addendum, and supporting use of the new SRD criteria for HLW. The prior criteria are superseded and cannot be used. HPAV design for HLW is contingent upon approval of the HLW PDSA change. | ABAR COA 24590-WTP-SE-ENS-09-0120 | WTP | COA No. 1 | Open | 7/31/2010 | 6/30/2016 | BNI database shows open, BNI COA ID# 391, line 223 |
| 230 | 2014 | 14-NSD-0009 | APPROVAL OF EXTENSION REQUEST FOR CONDITION OF ACCEPTANCE AUTHORIZATION BASIS AMENDMENT REQUEST 24590-WTP-ENS-05 0084 CONDITION OF ACCEPTANCE NO. 28 FOR THE WASTE TREATMENT AND IMMOBILIZATION PLANT PRELIMINARY SAFETY ANALYSIS REPORT 2008 UPDATE COA No. 28 reads as follows: BNI will perform a test of intermittently operated P/JMs (pulse jet mixers) in Newtonian vessels with high solids content to confirm that the required mixing time to release hydrogen is one hour or less by June 30, 2007. In the event that the required mixing time is greater than 1 hour, notify ORP in a revised ABAR of the impact of the increase (was COA 05-0084-03 in 06-WTP-156). | COA No.28 (Extension to 12/31/16) OPEN | WTP | COA No.28 | Open | 12/31/2006 | 12/31/2016 | BNI database shows open, BNI COA ID# 358, line 181 Duplicate of lines 24, 83, 109, 117, 184 and 193 |
| 234 | 2016 | 16-NSD-0011 | The contractor will revise document 24590-WTP-CSER-NS-16-0001, Regulatory Deliverable 9.1 - Criticality Safety Evaluation Report for Direct Feed to the Low-Activity Waste Facility, Rev. 0, to provide the necessary and complete documentation of criticality safety related to the Effluent Management Facility, consistent with the criticality safety program as required by DOE O 420.1B, Facility Safety and submit for ORP approval. Additionally, the contractor will review the contract requirements document in DOE O 420.1 B and support documents to ensure compliance with DOE's requirements for criticality safety evaluations. | COA No. 1 | WTP | COA No. 1 | Open | | | BNI database shows open, BNI COA ID# 416, line 230 |
| 235 | 2016 | 16-NSD-0011 | Bechtel National, Inc. (BNI) is directed to submit a Low-Activity Waste (LAW) PDSA Change Package to include the following changes and updates: <i>Complete and incorporate the planned design and operational safety improvements identified in Section 3.3.2.3.4 of the LAW PDSA Change Package, Appendix B.</i> | COA No. 2 | WTP | COA No. 2 | Open | | | BNI database shows open, BNI COA ID# 417, line 231 |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|---|-----------|----------|------------|-------------|-------------|------------------|--|
| 236 | 2016 | 16-NSD-0011 | Bechtel National, Inc. (BNI) is directed to submit a Low-Activity Waste (LAW) PDSA Change Package to include the following changes and updates: <i>In accordance with Waste Treatment and Immobilization Plant Contract Section C Standard 9, submit the LAW PDSA update(s) when sufficient project design exists to close and incorporate the LAW PDSA Appendix B planned design and operational safety improvements; the project design should be at least 60 percent complete and no more than 75 percent complete at the time of submittal. Planned design and operational safety improvements Section 4.3.3.4(b) and 4.3.3.4(i) may be submitted separately for ORP review and approval.</i> | COA No. 2 | WTP | COA No. 2 | Open | | | BNI database shows open, BNI COA ID# 417, line 231 |
| 237 | 2016 | 16-NSD-0011 | Resolution of errors and inconsistencies within the LAW PDSA Change Package, along with the required changes to specific pages: The page changes in Appendix C shall be incorporated into the submitted LAW PDSA before being issued. | COA No.3 | WTP | COA No. 3 | Open | | | BNI database shows open, BNI COA ID# 418, line 232 |
| 239 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Amend the wording in Section 4.3.25.1 to remove the reference to the deleted Table 3A-1.1 and replace it with a correct reference. Table 3A-11 was moved from the BOF PDSA to the General Information PDSA as Table 3A-4.</i> | COA No. 1 | WTP | COA No. 1 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |
| 240 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Amend Change 14 to restore the reference to the Limiting Conditions for Operation, Sections 5.5.12.2 and 5.5.12.3, which were moved from the BOF PDSA Sections 5.5.3 and 5.5.4. The reference to these sections was erroneously deleted.</i> | COA No. 2 | WTP | COA No. 2 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |
| 241 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Restore deleted sentence "The safety duct bank has been determined to be SC-II to ensure that cables remain functional during and after a seismic event." to Section 2.8.1.6.</i> | COA No. 3 | WTP | COA No. 3 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |
| 242 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Restore deleted text "The diesel generator area consists of three diesel generators (two SC turbine powered emergency generators and one not safety reciprocating piston diesel engine powered standby generator), two SC three diesel fuel oil storage vessels and one not safety diesel fuel oil storage tank, and ..." to Section 2.8.1.7.</i> | COA No. 4 | WTP | COA No. 4 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |
| 243 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Complete Change 20 to include complete reference citations from the BOF PDSA.</i> | COA No. 5 | WTP | COA No. 5 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |
| 244 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Amend Change 28 as follows: * Delete the text: "The controls for these generators are in the BOF PDSA and TSAs." * Amend text, "No further development of this system is provided in this chapter," to read: "Development of the system description and associated requirements will be provided in a future revision of this PDSA."</i> | COA No. 6 | WTP | COA No. 6 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |
| 245 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0042, for the High-Level Waste PDSA: <i>Amend the reference to the BOF technical safety requirement operability requirements in Section 5.5.12.2 to the high-level waste technical safety requirement operability requirements.</i> | COA No. 7 | WTP | COA No. 7 | Open | | | BNI database shows open, BNI COA ID# 419, line 228 |

COA Review 2000-2015

| Count | Year | Letter Number | Subject | Comments | Facility | COA Number | Open/Closed | Target Date | Target Extension | Documentation Closing the COA |
|-------|------|---------------|--|-----------|----------|------------|-------------|-------------|------------------|--|
| 246 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0046, for the General Information PDSA: <i>Restore the following deleted text to Section 2.8.1.1.3: "Standby electrical power consists of 13.8-kV, non-safety, diesel generator backed, switchgear located in the BOF 13.8-kV switchgear building, which provides power to the HLW and LAW facilities. This diesel backed power source is utilized to provide power to the melter support systems during a prolonged loss of offsite power."</i> | COA No. 1 | WTP | COA No. 1 | Open | | | BNI database shows open, BNI COA ID# 420, line 229 |
| 247 | 2016 | 16-NSD-0003 | 24590-WTP-SBCP-ENS-14-0046, for the General Information PDSA: <i>Restore the following deleted text to Section 2.8.1.1.5: "DC power systems provide 125V DC power for medium voltage switchgear control and DC motors, as needed. DC power is available from battery banks which are kept on a continuous float charge by dedicated battery chargers."</i> | COA No. 2 | WTP | COA No. 2 | Open | | | BNI database shows open, BNI COA ID# 420, line 229 |



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

JAN 28 2016

16-WTP-0010

Mrs. Margaret McCullough, Project Director
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mrs. McCullough:

CONTRACT NO. DE-AC27-01RV14136 – HIGH-LEVEL WASTE FACILITY PATH TO FULL AUTHORIZATION AND REVISED BASELINE

References: See Page 5.

The U.S. Department of Energy (DOE), Office of River Protection previously authorized Bechtel National, Inc. (BNI) to proceed with transition period activities and limited procurement and construction on the Waste Treatment and Immobilization Plant High-Level Waste (HLW) Facility in accordance with the conditions established in Reference 1. Reference 1 authorized limited procurement and construction in accordance with the *Plan for Evaluation and Decision to Proceed for the High-Level Waste Facility* (Reference 2) and provided the initial authorization to proceed, known as Decision 1, which approved specific transition period activities. Approvals previously granted by DOE for the continuation of specific procurement and construction activities remain in effect (Reference 3).

This letter provides additional clarification for returning the HLW Facility to full production through a two-phase process for the second decision (Decision 2) described in Reference 2. During the ongoing transition period, BNI must continue to resolve design issues and maintain alignment of the updated HLW Facility design with the nuclear safety basis.

Returning the HLW Facility to full production requires additional DOE decisions, defined as Decisions 2A and 2B, as detailed below (the attachment shows an illustration of proposed key activities for these decisions):

- **Decision 2A: Authorization to Resume HLW Procurement and Construction in Accordance with Updated Safety Basis.**

This decision allows BNI to resume procurement and construction of HLW Facility structures, systems, and components in accordance with the implementation of updated design and nuclear safety processes, performance of design reviews, resolution of project and design issues, and ensuring alignment of the design with an approved safety basis.

Criteria to achieve Decision 2A (target September 30, 2017):

- ✓ Complete the following BNI management actions as noted in the DOE authorization to proceed letter of August 19, 2014 (Reference 1):
 - Implement systems engineering program in accordance with the *Systems Engineering Management Plan* to guide the completion of design activities.
 - Implement updated design and nuclear safety processes, plans, and procedures to ensure design completion effectiveness.
 - Implement engineering, procurement, and construction process gates desk instruction to address reliability validation process forward and backward pass reviews of work, and support a determination on continued wall/slab placements.
 - Implement quality engineer review process to ensure adequate implementation of the revised design process.
 - Closure of applicable Priority Level 1 finding corrective actions and condition reports.
- ✓ BNI submittal and DOE approval of an updated preliminary documented safety analysis incorporating applicable control strategy recommendations as noted in the *HLW Safety Design Strategy (SDS) - PDSA Gap Analysis Report*.
- ✓ Complete development of initial system design descriptions for required systems, and the disposition of design and operability issues and comments.
- ✓ Complete HLW-related actions defined in the BNI Managed Improvement Plan for Priority Level 1 findings. Residual actions to be detailed in the HLW Facility Completion Plan document described on Pages 3 and 4.
- ✓ Complete HLW Facility engineering studies identified in the BNI action plan and risk mitigation actions for the HLW Facility design and operability review issues (References 4 and 6).
- ✓ Implement improved BNI nuclear safety, engineering, and design review processes that include DOE approval of HLW Facility safety basis changes, and specify requirements for performance of design reviews prior to procurement of new equipment.
- ✓ BNI submittal and DOE approval of a *HLW Facility Completion Plan* (as described below) that defines the strategy for development of a revised lifecycle performance baseline for the HLW Facility.

BNI shall adhere to the limited conditions of authorization for procurement and construction identified in Reference 1 until Decision 2A authorization.

- **Decision 2B: Approval of a Revised HLW Facility Performance Baseline and Contract Modification.**

This decision results in the implementation of a revised performance baseline that is aligned with a modified WTP contract, allowing effective execution and monitoring of all remaining HLW Facility activities.

Criteria to achieve Decision 2B (date to be determined):

- ✓ Complete all criteria established for Decision 2A.
- ✓ DOE concurrence of the design solutions for HLW Facility modifications to resolve design and operability issues to support the development of a new performance baseline.
- ✓ On direction from the contracting officer, BNI to submit a performance baseline change proposal for all HLW Facility engineering, procurement, construction, and commissioning activities, and proposed contract modifications.
- ✓ DOE approval of a new HLW Facility performance baseline and contract modifications.

HLW Facility Completion Plan Requirements

The HLW Facility has been working under recurring 2-year plans since 2013 and does not have an integrated baseline plan for completing the facility. The current transition plan (Reference 5) established scope, schedule, and budget requirements through fiscal year (FY) 2016 and extends partially into FY 2017. This period was established to ensure priority was placed on resolving HLW design issues. As indicated in Reference 1, progress continues to be made in resolving design issues and establishing work processes to align the HLW Facility design and safety basis.

BNI is directed to prepare a *HLW Facility Completion Plan* to establish the strategy for (1) completing activities necessary to obtain Decisions 2A and 2B; (2) performing full production activities for completing design and construction; and (3) developing a revised performance baseline of the full engineering, procurement, construction, and commissioning scope of the HLW Facility. The HLW Facility Completion Plan shall provide an integrated logical path forward for incorporation of design changes, safety basis updates, design reviews, procurement, construction completion (prioritizing weathering-in of the facility), and rebaseline development actions. The precise content of this plan, including DOE decisions and interface requirements, will be established by the HLW Integrated Project Team during its development.

The HLW Facility Completion Plan shall be submitted by August 31, 2016, to align with the work plan schedule beyond FY 2016. The HLW Facility Completion Plan will include, but not be limited to, the following topical areas:

- Details of Decisions 2A and 2B requirements and the plan for achieving the decisions.

- Plan for integrating design changes resulting from the engineering studies (e.g., high-efficiency particulate air, HLW melter offgas treatment process, C5V ventilation system, mechanical handling, etc.) and disposition of design and operability issues.
- System design completion priorities supporting the facility critical path considering a smooth transition of construction craft from the Low-Activity Waste Facility and the Effluent Management Facility.
- Incorporation of design changes, procurement, and construction activities planned in a strategic and logical sequence.
- Facility preventative and preservation maintenance activities.
- Identification of DOE decisions, approvals, and interface requirements.
- Plan for development of a revised performance baseline.

Plan for Activities Beyond FY 2016

DOE acknowledges receipt of the BNI HLW Engineering, Procurement, and Construction Transition Plan (Reference 5) and recognizes that BNI has been managing the transition period activities consistent with this plan, including documentation of changes through an internal forecast trend process. BNI shall continue to work in accordance with the Transition Plan, until the HLW Facility Completion Plan is approved by DOE.

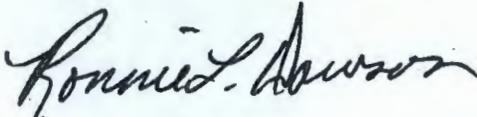
In parallel with development of the HLW Facility Completion Plan, BNI shall update the HLW internal forecast plan documenting the scope, cost, and schedule of work to be performed beyond FY 2016. HLW Facility work performed beyond FY 2016 shall use a 2-year or longer 'rolling wave' planning window supported by long-range planning until the revised performance baseline is approved. This iterative approach to planning will incorporate the results of design and nuclear safety issue resolutions into the internal forecast plan and be connected with out-year procurement, construction, and commissioning activities. The long-range plan shall be consistent with the HLW Facility Completion Plan and will form the foundation for a revised performance baseline.

Mrs. Margaret McCullough
16-WTP-0010

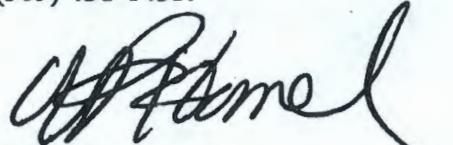
-5-

JAN 28 2016

If you have any questions, please contact Wahed Abdul, HLW Facility Federal Project Director, Waste Treatment and Immobilization Plant, at (509) 438-0455.



Ronnie L. Dawson
Contracting Officer



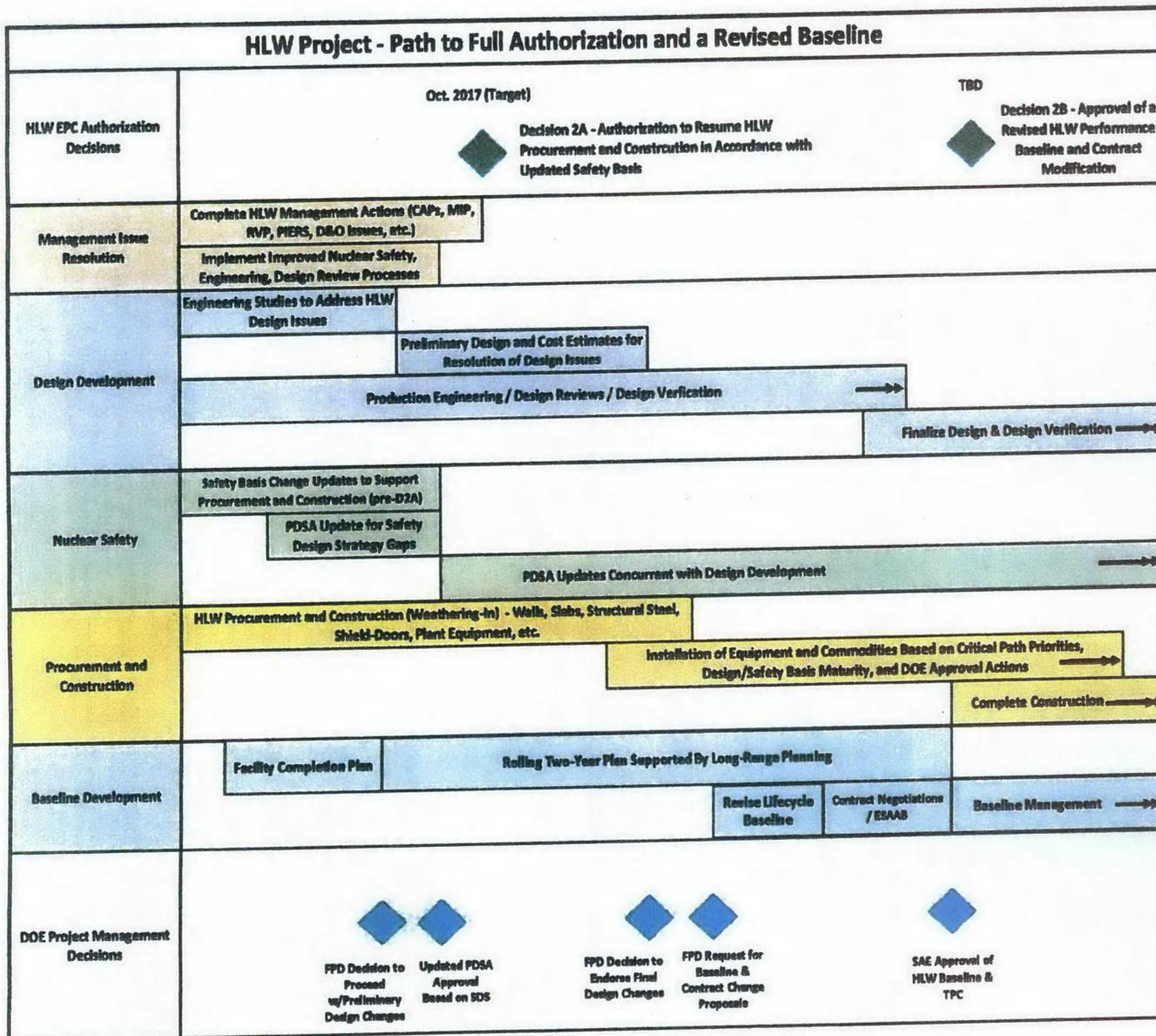
William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:WA

Attachment

cc w/attach:
BNI Correspondence

- References:
1. ORP letter from R.L. Dawson and W.F. Hamel to M.G. McCullough, BNI, "Authorization to Proceed with High-Level Waste Facility Production Engineering, and Conditional Procurement and Construction," 14-WTP-0162, dated August 19, 2014.
 2. ORP letter from R.L. Dawson and W.F. Hamel to M.G. McCullough, BNI, "Support to the U.S. Department of Energy (DOE) to Evaluate the Readiness to Proceed for the Waste Treatment and Immobilization Plant (WTP) High-Level Waste (HLW) Facility," 13-WTP-0206, dated October 25, 2013.
 3. ORP letter from W.F. Hamel to M.G. McCullough, BNI, "Authorization for Continuation of High-Level Waste Procurement Activities," 15-WTP-0028, dated March 11, 2015.
 4. BNI letter from M.G. McCullough to W.F. Hamel, "Release of Limited Activities to Support the Authorization to Proceed with High-Level Waste Facility Engineering, Procurement, and Construction Activities," CCN: 257006, dated August 22, 2014.
 5. BNI letter from J.M. St Julian to W.F. Hamel, ORP, "Submission of the High-Level Waste Facility Engineering, Procurement, and Construction Transition Plan, Rev. 0," CCN: 272472, dated November 26, 2014.
 6. ORP letter from R.L. Dawson and W.F. Hamel to M.G. McCullough, BNI, "High-Level Waste Facility Action Plan Recommendations for Confinement Ventilation and Waste Handling Risk Mitigation," 14-WTP-0251, dated December 31, 2014.





OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

JAN 25 2016

16-WTP-0011

Ms. L.W. Baker, Business Services Manager
Business Services
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

CONTRACT NO. DE-AC27-01RV14136 – ACCEPTANCE OF COMPLETION OF DIRECT FEED LOW-ACTIVITY WASTE INTERIM MILESTONE DF-02

Reference: BNI letter from L.W. Baker to W.F. Hamel, ORP, "Notification of Completion of the DFLAW DF-02 Interim Milestone," CCN: 268874, dated December 24, 2015.

On December 24, 2015, Bechtel National, Inc. (BNI) notified the U.S. Department of Energy, Office of River Protection (ORP) that Direct Feed Low-Activity Waste (DFLAW) Interim Milestone DF-02, "EMF Hazard Analysis and 30% Design Review" had been completed. ORP has reviewed the information provided and concurs that BNI has completed DFLAW Interim Milestone DF-02.

ORP approves completion of the milestone and authorizes BNI to invoice for the milestone completion value of \$500,000. For tracking purposes, it is requested that a separate invoice be submitted for this milestone.

If you have any questions, please contact George F. Champlain, Contracting Officer, (509) 376-6678, Bill Hamel, Assistant Manager/Federal Project Director, (509) 376-6727, or your staff may contact Jason Young, Federal Project Director, Analytical Laboratory and Balance of Facilities, (509) 376-0375.

Handwritten signature of George F. Champlain in blue ink.

George F. Champlain
Contracting Officer

Handwritten signature of William F. Hamel in black ink.

William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:JDY

cc: BNI Correspondence



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
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FEB 22 2016

16-WTP-0029

Mr. J.M. St. Julian
Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mr. St. Julian:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF THE U.S. DEPARTMENT OF ENERGY, OFFICE OF INSPECTOR GENERAL, AUDIT REPORT OAI-M-16-06, DATED FEBRUARY 2016, AND REQUEST FOR ACTIONS TO ADDRESS RECOMMENDATIONS

The U.S. Department of Energy (DOE), Office of River Protection (ORP) is providing Bechtel National, Inc. (BNI) with the attached subject DOE Office of Inspector General (OIG) audit report OAI-M-16-06, *Corrective Action Program at the Waste Treatment and Immobilization Plant*. This audit report contains three specific issues: 1) Some issues not being managed and tracked in the corrective action management program (CAMP); 2) Corrective actions not being implemented in a timely manner; and 3) Concerns with BNI following through on implementing prior CAMP improvement initiatives. The DOE OIG recommended three actions be taken to ensure BNI addresses the three issues. Within 60 days, ORP directs BNI to provide ORP with a plan that will implement the BNI actions described in Attachment 3 of the subject OIG audit report.

Specifically, BNI is directed to perform a review of past external and self-assessments, technical issues, improvement initiatives, and actions that may be inappropriately tracked in other action tracking systems, such as BNI's Action Tracking System and the technical issues database. Any open conditions adverse to quality identified during these reviews shall be entered, tracked, and addressed in the BNI CAMP. BNI shall implement a CAMP prioritization process that ensures actions are taken to address conditions adverse to quality that may impact or have the potential to impact higher priority work. BNI shall also continue its efforts to address timeliness issues and reduce the backlog of condition reports and, if needed to address high priority issues, to increase resources allocated to the backlog.

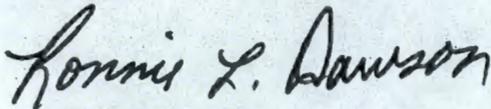
As indicated in Attachment 3 of the OIG audit report, ORP initially expected this action would be completed by the end of March 2016. However, with the delay in issuing the subject OIG report, this action may take longer and BNI shall provide a realistic completion date for the actions.

Mr. J.M. St. Julian
16-WTP-0029

-2-

FEB 22 2016

If you have any questions, please contact Jim McCormick-Barger, Manager, WTP Performance Assurance, (509) 376-0409.



Ronnie L. Dawson
Contracting Officer

WTP:JWM

Attachment

cc w/attach:
BNI Correspondence



William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

Attachment

16-WTP-0029

**Audit Report: Correction Action Program at the Waste Treatment
and Immobilization Plant**

Pages 17 (Including Coversheet)



U.S. Department of Energy
Office of Inspector General
Office of Audits and Inspections

AUDIT REPORT

Corrective Action Program at the Waste Treatment and Immobilization Plant

Consistent with standing Office of Inspector General (OIG) policy, the attached report is provided for your action/information prior to being released publicly. As such, the report should not be discussed or distributed outside the Department prior to public release. Generally, the report will be released to the public by posting it on the OIG Web site 2 to 3 days after it is provided to management. Please refer to the OIG Web site (<http://www.energy.gov/ig/calendar-year-reports>) to ensure that the report has been posted prior to discussing/distributing the report outside the Department.

OAI-M-16-06

February 2016

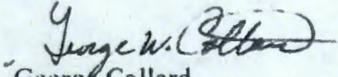


Department of Energy
Washington, DC 20585

February 1, 2016

**MEMORANDUM FOR THE ASSISTANT SECRETARY FOR ENVIRONMENTAL
MANAGEMENT**

FROM:


George Collard
Deputy Inspector General
for Audits and Inspections
Office of Inspector General

SUBJECT:

INFORMATION: Audit Report on the "Corrective Action Program at
the Waste Treatment and Immobilization Plant"

BACKGROUND

The Waste Treatment and Immobilization Plant (WTP), when complete, will be the world's largest radioactive waste treatment plant, with an approved budget of \$12.3 billion. Its mission is to treat and vitrify the majority of the 56 million gallons of radioactive and chemical waste at the Hanford Site near Richland, Washington. Bechtel National, Inc., (Bechtel) is the contractor responsible for the design, construction, and commissioning of the WTP. Bechtel's contract requires it to establish and implement effective programs for reporting and resolving safety and quality problems, an essential element in creating a safety conscious work environment. The WTP project and the Bechtel contract are administered by the Department of Energy's (Department's) Office of River Protection (ORP).

According to Bechtel's Corrective Action Management Program, the *Integrated Issues Management Policy* establishes the Corrective Action Management Program as the primary issues management program for documenting and resolving conditions adverse to quality identified at the WTP. The program is used to manage adverse conditions, technical issues, as well as other issues, recommendations, and suggestions for improvement. The program also provides a mechanism to document issues and initiate the process for evaluating, correcting, and verifying resolution of issues. A condition report is generated to document issues in the corrective action program, which is managed through a graded process based on the significance of the issue. An effective corrective action program promotes prompt identification of issues and appropriate evaluation, tracking, trending, and correction in a timely manner. Given the complexity and cost of the WTP, we initiated this audit to determine whether WTP's corrective action program was effective in managing and resolving issues.

RESULTS OF AUDIT

The WTP corrective action program was not fully effective in managing and resolving issues. Specifically, we discovered the following:

- In some instances, issues were not managed and tracked in the corrective action program, as required. For example, several significant technical issues related to Inadequate Design of Mixing System were managed outside of the corrective action program and were closed before the overall issue was resolved. Inadequate performance of mixing systems at WTP could lead to nuclear criticality accidents, explosions of flammable gases, and mechanical failures of process vessel components. Management asserted that although these issues were originally managed under an alternative, routine issue action tracking system, they are now managed under the corrective action program.
- Corrective actions had not been implemented in a timely manner. Specifically, Bechtel did not meet any of its goals related to timeliness for the corrective action program. The average age of condition reports was 315 days, well above the target cycle time of 100 days. In addition, apparent cause evaluations exceeded the 45-day target, and root cause evaluations exceeded the 60-day target. Furthermore, the average age of corrective actions significantly exceeded established performance goals.
- Bechtel failed to follow through on implementing prior corrective action program improvement initiatives. For example, one prior improvement initiative was updated several times from 2008 through 2010, but was discontinued in October 2010. Focus on this issue began again in September 2014, but actions remain to be completed. Another initiative related to condition report cycle time was begun in 2011; however, this initiative was not implemented.

Our findings are consistent with ORP's October 2013 audit of Bechtel's Quality Assurance Program. ORP found major weaknesses in Bechtel's corrective action program and concluded that the program was not implemented in accordance with contract requirements. Specifically, ORP's review noted examples of failures to identify conditions adverse to quality, as well as inadequate condition report classification, corrective action planning and verification, and closure of condition reports. Some of the examples ORP identified potentially posed a threat to health and safety. Consequently, ORP issued two Priority Level 1 findings, the most adverse, directing Bechtel to develop Corrective Action Plans to address the two findings identified in ORP's audit report. The first finding was that Bechtel's overall Quality Assurance Program was not fully effective. The second finding was that Bechtel's Corrective Action Program was ineffective.

In addition to the specific Corrective Action Plans written in response to the findings, ORP directed Bechtel to develop an integrated, comprehensive Managed Improvement Plan to address the Level 1 findings and issues identified by ORP and other external reviewers. Accordingly, by March 2014, Bechtel had issued an extensive Managed Improvement Plan and two Corrective Action Plans to begin implementing corrective actions and improvements. ORP management informed us that not all approved corrective action plans have been implemented, and ORP had not yet verified implementation for key Priority Level 1 findings. During our audit, we confirmed ORP's findings and identified several other concerns involving timeliness of corrective actions and follow-through of prior improvement initiatives that may benefit from management's attention, as well.

Issues Managed Outside of the Corrective Action Program

We identified issues that were managed and tracked outside of the corrective action program, including significant technical issues. Some issues identified through external assessments, self-assessments, and reports by workers were being managed through other processes such as the Action Tracking System (ATS) and the technical issues database. The ATS is to be used to track routine actions, and the technical issues database is to be used to track technical issues; however, according to Bechtel procedures, these systems should not be used in lieu of the corrective action program.

Tracking Issues in ATS

Significant technical issues identified in an external review were managed through the ATS instead of the corrective action program. However, the issues were closed in ATS before they were actually resolved. Two examples of significant technical issues that were closed despite the fact that not all actions were completed were Inadequate Design of Mixing Systems and Mixing Vessel Erosion. While the issues were technically closed, we noted that Bechtel continued to work on these issues after the closure packages were closed. For example, Bechtel committed to completing small-scale testing in the closure package for the Inadequate Design issue after it was closed in 2010. The Department and Bechtel continue to work these technical issues through an agreed-upon path determined by the Secretary of Energy and a team of experts.

We also found that a major technical issue related to Inadequate Design of Mixing Systems was closed in 2010 without all needed actions being completed. This technical issue contained multiple ATS actions, some of which have been closed. However, the overall issue had not been resolved. According to a closure package for this issue, Bechtel and ORP identified that small-scale testing would need to be performed to determine with sufficient confidence that the vessels in the mixing system would comply with mixing requirements. At the time this package was closed, design confirmation had not been completed for the vessels, and there were unverified assumptions used to demonstrate vessel capability. Again, while the issues were closed, we found that since 2012, the inadequate mixing design issue has continued to be worked as a technical issue by a team comprised of Department and Bechtel personnel.

Another significant technical issue related to Mixing Vessel Erosion was managed outside of the corrective action program and was closed in 2008. However, the overall issue has yet to be resolved. Subsequent to the closure of this issue, in 2011, the Defense Nuclear Facilities Safety Board identified that the WTP project team had performed experimental testing to close the issue and validate the wear model. The Board further stated that the scope of that testing was limited and the results were flawed. Consequently, according to the Defense Nuclear Facilities Safety Board, experimental testing does not validate the relationships and assumptions used to establish the design wear rates. The Board also noted that inadequate wear allowances for vessels could result in component failures, which jeopardizes safety functions and could stop waste processing for indefinite periods, resulting in significant extensions in the time required to accomplish the facility mission. During the Board's review of wear allowance issues, the Department began developing a course of action to address wear design issues at the WTP. Subsequently, a plan agreed upon by the Secretary of Energy and his team in 2012 identified Mixing Vessel Erosion

as a technical issue, and additional actions are currently underway. Management asserted that although these issues were originally managed under an alternative, routine issue action tracking system, they are now managed under the corrective action program.

Tracking Issues in Technical Issues Database

Bechtel used a technical issues database to track and close technical issues but did not always use the corrective action program to fully address the adverse safety or quality conditions, as required. Specifically, 15 of 45 technical issues we reviewed were not entered into the corrective action program, or the entry did not fully address the adverse condition. For example, one technical issue described a capacity modification needed for the demineralized water system; however, the issue was not entered into the corrective action program. In another example, a technical issue identified by an external assessment team noted that a spare melter should be assembled when the plant goes into operation to minimize risks associated with premature melter failure. This technical issue was also not entered into the corrective action program.

Tracking Self-Assessment Issues

Issues identified through Bechtel's self-assessments were not always entered into the corrective action program, as required. We found that 15 out of 30 self-assessments identified safety or quality issues. However, condition reports were not generated or the issues were addressed outside of the corrective action process through the ATS. For example, 2 self-assessments conducted in 2012 on welding records identified a total of 22 welding record issues between them. In another example, a 2012 self-assessment identified numerous issues with piping and instrumentation diagrams for the High Level Waste facility pipeline and nozzle drawings. However, no condition reports were generated for these self-assessments.

Implicit in each of these examples, circumventing or not fully adhering to corrective action program requirements increases the risk that technical conditions adverse to quality will not be fully addressed or resolved. If managed through the corrective action program, verification of corrective actions and objective evidence to support closing an issue would be required, preventing closure until the issue is fully addressed.

Timeliness of Corrective Actions

Bechtel had not implemented corrective actions or conducted cause evaluations in a timely manner, and backlogs of condition reports grew between August 2013 and August 2014. Moreover, Bechtel was not meeting any of its corrective action management goals related to timeliness. For example:

- As of August 2014, 10 of 13 apparent cause evaluations exceeded the 45-day target, and all 3 ongoing root cause/common cause evaluations were above the 60-day target.
- Bechtel's average condition report age has steadily increased. In August 2013, the average age of a condition report was 212 days; however, in August 2014, the average

age increased to 315 days. Both are significantly over the target cycle time of 100 days or fewer. Furthermore, in August 2013, there were 1,109 open condition reports, and in August 2014 there were 1,257 open reports.

- The age of corrective actions, known as the condition report action age, also showed a steady upward trend that significantly exceeded established performance goals. The following chart breaks down the average ages of different types of corrective actions as of August 2013 and August 2014, and it also provides Bechtel's goal for each corrective action type.

| Average Age of Corrective Actions | | | |
|--|------------------------------------|------------------------------------|------------------------------|
| Type of Actions | Avg. Days as of August 2013 | Avg. Days as of August 2014 | Performance Goal/Days |
| Non-remedial | 198 | 252 | 55 |
| Remedial | 165 | 275 | 150 |
| Interim | 227 | 471 | 30 |
| Investigative | 181 | 285 | 45 |
| Corrective Actions | 207 | 229 | 90 |

Bechtel's July 2014 common cause analysis determined that Bechtel management did not prioritize work resources to adequately address the number of condition reports being generated. It also concluded that the corrective action program work did not carry the same weight as work related to engineering, procurement, construction, and commissioning. Bechtel's Managed Improvement Plan, which was issued in March 2014, called for elimination of the condition report backlog by October 2015. However, in an October 2015 Managed Improvement Plan Health Check report on Corrective Action Program backlogs, Bechtel reported that the backlog had continued to increase.

Follow-through of Prior Improvement Initiatives

Weaknesses with Bechtel's corrective action program has been reported for years. Although Bechtel has acknowledged these weaknesses and developed multiple improvement plans, in several cases these initiatives were not fully implemented or sustained. For example:

- In August 2008, Bechtel developed the *WTP Corrective Action Program Improvement Implementation Plan* to help drive excellence in implementing WTP's corrective action program. As improvements were realized and opportunities were identified, the plan was updated. The plan was updated several times from 2008 through 2010, but it was then discontinued in October 2010.
- In 2011, Bechtel issued the *Lean Report for the WTP PIER System Cycle Time and Effort Process Improvement Project*. However, this initiative had not been implemented as of July 2014.

- In 2013, Bechtel issued the *MAIC Report for the PIP to Reduce the Cycle Time for Issuing a PIRB-Approved Apparent Cause Evaluation on the WTP Project*, but it did not reduce the apparent cause evaluation cycle time and still had four remaining actions to be completed as of July 2014.

Furthermore, Bechtel does not always classify condition reports at the appropriate significance level. In a 2014 Bechtel self-assessment, Bechtel determined that 41 percent of the condition reports entered into the corrective action program needed to be reclassified to a higher significance level to align with established criteria. Classification of significance levels had been identified in prior assessments reported in 2011 and 2012, yet this issue continued to recur.

Path Forward

In August 2014, Bechtel began 10 initiatives in direct response to issues associated with the corrective action program, including replacing its old corrective action tracking and control system with a new system in December 2014. Bechtel also revised 12 procedures related to the corrective action program, including procedures pertaining to cause analysis, condition report initiation, and condition report effectiveness review. In addition, resources were increased to enable effective implementation of the corrective action program, and efforts were undertaken to improve training, work off the backlog of corrections actions, and change the quality culture.

Although it is too early to draw conclusions on the efficacy of the corrective actions already initiated, the actions taken by both Department and Bechtel personnel represent important steps to improve these processes. However, we remain concerned about the corrective action program because of its importance and Bechtel's past history of ineffective improvement plans. We noted that Bechtel identified weaknesses in "safety culture" in 2014, including problems with following its own procedures, weaknesses in training, and concerns about management not valuing a rigorous corrective action program. Furthermore, the Department did not ensure that all technical issues and issues identified through self-assessments were entered into the corrective action program. Finally, the Department did not ensure that previous Bechtel initiatives to address corrective action program implementation problems were fully implemented or sustained.

RECOMMENDATIONS

Construction of the \$12.3 billion WTP is an extremely complex project posing numerous difficult technical challenges. Accordingly, an effective corrective action program is essential to ensure that important quality and safety issues are resolved in a timely manner. Given the issues identified in this report and the fact that Bechtel had not always fully implemented or sustained corrective action improvement plans or recommended actions, we recommend that the Assistant Secretary for Environmental Management direct the Manager, Office of River Protection, to ensure that Bechtel take the necessary action to effectively manage and resolve issues with its corrective action program, to include:

Fully implementing the 16 items in the Managed Improvement Plan related to the corrective action program as well as fully implementing the corrective action plan associated with findings U-13-QAT-RPPWTP-001-F01 and U-13-QAT-RPPWTP-001-F02;

1. Entering all issues in the corrective action program, as required by implementing procedures and the Quality Assurance Manual; and
2. Placing a stronger emphasis on implementing corrective actions/cause analyses in a timely manner and significantly reducing the backlog of condition reports.

MANAGEMENT RESPONSE

Management concurred with each of the report's recommendations and indicated that corrective actions had been initiated or were planned to address the identified issues. In particular, the Department's Office of Environmental Management (Environmental Management) prepared an oversight strategy and schedule for the WTP Managed Improvement Plan and other corrective action plans. To date, Environmental Management has completed 18 assessments in this area, with approximately 50 more planned through end of calendar year 2016. Environmental Management will periodically revisit the oversight strategy and schedule to ensure that the combination of the oversight and the Priority Level 1 corrective action plan assessments specifically assesses the implementation and effectiveness of the 16 Managed Improvement Plan actions. In addition, Environmental Management will transmit the final Office of Inspector General audit report to Bechtel and direct Bechtel to perform a review of past external and self-assessments, technical issues, improvement initiatives, and actions that may be inappropriately tracked in other action tracking systems. This will ensure that conditions adverse to quality are appropriately identified and entered into its Corrective Action Management Program for tracking, addressing, and verifying that the conditions are adequately addressed. Furthermore, Environmental Management will require that a prioritization process is implemented to ensure actions are taken to address conditions adverse to quality that may impact or have the potential to impact higher priority work. Environmental Management will also direct Bechtel to continue its efforts to address timeliness issues and reduce the backlog of condition reports and, if needed to address high priority issues, to increase resources allocated to the backlog.

AUDITOR COMMENTS

Management's comments and planned corrective actions were responsive to our recommendations. Management's comments are included in Appendix 3.

Attachments

cc: Deputy Secretary
Chief of Staff
Manager, Office of River Protection

OBJECTIVE, SCOPE, AND METHODOLOGY

OBJECTIVE

The objective of this audit was to determine whether the Waste Treatment and Immobilization Plant corrective action program was effective in managing and resolving issues.

SCOPE

We performed this audit from September 2014 to February 2016, at the Department of Energy's (Department's) Office of River Protection and Bechtel National, Inc., (Bechtel) in Richland, Washington. The audit was conducted under the Office of Inspector General project number A14RL062.

METHODOLOGY

To accomplish the audit objective, we:

- Researched and reviewed Department guidance related to corrective action/resolution;
- Researched and reviewed Bechtel policies and procedures related to corrective action management;
- Analyzed corrective action timeliness metrics;
- Reviewed external audits;
- Reviewed External Flowsheet Review Team issues;
- Obtained and reviewed the Managed Improvement Plan related to the corrective action program;
- Reviewed all 50 Technical Issue Evaluation Sheets (TIES) developed by Bechtel. The TIES contained technical issue summary sheets evaluated as being high significance. After a review of the 50 TIES, we identified 45 distinct technical issue summary sheets due to duplicate technical issue summary sheets being shown on TIES;
- Judgmentally sampled self-assessments conducted from 2012 through 2014. We reviewed the title of each self-assessment from a list of all self-assessments provided by Bechtel National and judgmentally selected 30 self-assessments to review further, based on the significance of the issue being assessed;
- Analyzed Project Issue Evaluation Reports; and
- Held discussions with officials from the Department's Office of River Protection and Bechtel National.

We conducted this performance audit in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our conclusions based on our audit objective. Accordingly, we assessed significant internal controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed the Department's implementation of the *GPR Modernization Act of 2010* as it relates to our audit objective and found that the Department had established performance measures applicable to Bechtel's corrective action program.

Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We did not rely on computer-processed data to achieve the objective of our audit.

We held an exit conference with the Department on December 11, 2015.

PRIOR REPORTS

- Audit Report on *Integrated Safety Management at the Office of River Protection* (OAS-L-10-07, July 2010). The audit found that the Office of River Protection had not always ensured that effective integrated safety management systems were maintained by its contractor. Even though its own reviews and those performed by external oversight organizations revealed a number of problems with contractor safety systems, the Office of River Protection had not always ensured that corrective actions were effective and that predictive analyses such as trending of findings were performed.
- Audit Report on *The Office of Civilian Radioactive Waste Management's Corrective Action Program* (DOE/IG-0736, August 2006). The audit found that the Corrective Action Program was not meeting all its goals for identifying, tracking, and resolving all conditions adverse to quality or safety that could affect the license application process. Specifically, the audit found conditions that had been reported in other tracking systems, in line management self-assessment reports, and by external review groups that had not been included in the Corrective Action Program system but should have been. Furthermore, corrective actions developed to respond to these conditions were not always timely and effective in resolving the problems identified.

MANAGEMENT COMMENTS



Department of Energy
Washington, DC 20585

NOV 30 2015

MEMORANDUM FOR RICKEY R. HASS
DEPUTY INSPECTOR GENERAL FOR AUDITS
AND INSPECTIONS
OFFICE OF INSPECTOR GENERAL

FROM: MONICA C. REGALBUTO *Monica C. Regalbuto*
ASSISTANT SECRETARY
FOR ENVIRONMENTAL MANAGEMENT

SUBJECT: Management Response to the Office of Inspector General Draft
Audit Report "Corrective Action Program at the Waste
Treatment and Immobilization Plant"

The Office of Environmental Management (EM) appreciates the opportunity to review the Office of Inspector General (OIG) draft audit report regarding whether the Waste Treatment and Immobilization Plant (WTP) Project's corrective action program was effective in managing and resolving issues. EM considers a robust corrective action program to be vital to the successful design, procurement, and construction of WTP. EM agrees with, and has already begun taking appropriate actions to address OIG's recommendations as presented in the draft audit report.

As mentioned in the OIG's draft audit report, the Office of River Protection's (ORP's) October 2013 audit of Bechtel's Quality Assurance Program identified two Priority Level 1 findings describing significant concerns with the effectiveness of Bechtel's corrective action and quality assurance programs. The issues identified in the OIG draft audit report mirror many of the issues previously identified in EM audits.

As a result of these findings, in October of 2013, ORP directed Bechtel to develop corrective action plans and an integrated comprehensive Managed Improvement Plan (MIP) to address all systemic quality assurance program and implementation issues. WTP senior contractor management continues to be actively involved with the implementation of the MIP and the closure of the corrective actions associated with Bechtel's quality assurance and corrective action programs.

As a result of this effort, Bechtel has strengthened the WTP Project's nuclear safety and quality culture. Bechtel has also further leveraged independent external oversight and assistance to enhance the implementation of the MIP through monitoring the successful closure of corrective actions and associated findings.

However, consistent with EM's expectations, and as recommended in OIG's draft audit report, additional actions to improve the WTP corrective action program are prudent.



Attached is a summary of the actions completed thus far. In addition, I will direct the Manager, Office of River Protection to ensure that Bechtel take necessary actions to effectively manage and resolve issues with its corrective action program to address OIG's recommendations.

If you have any questions, please contact me or Mr. Kenneth G. Picha, Jr., Deputy Assistant Secretary for Tank Waste and Nuclear Material, at (202) 586-2003.

Attachment

Attachment - Management Response to the Recommendations of the Office of Inspector General Draft Report on "Corrective Action Program at the Waste Treatment and Immobilization Plant"

Recommendations:

The Department of Energy (DOE) Office of Inspector General (OIG) draft audit report contains three specific recommendations with respect to Bechtel National, Inc.'s (Bechtel's) corrective action program, which are listed below. The DOE Office of Environmental Management (EM) agrees with these recommendations and provides a summary of the actions completed thus far as well as additional steps planned to address the recommendations.

- 1. Fully implement the 16 items in the Managed Improvement Plan related to the corrective action program as well as fully implement the corrective action plan associated with findings U-13-QAT-RPPWTP-001-F01 and U-13-QAT-RPPWTP-001-F02.**

On October 28, 2013, the Office of River Protection (ORP) issued letter 13-ORP-0281 and audit report U-13-QAT-RPPWTP-001, *Bechtel National, Inc. Quality Assurance Program Requirements 3, 4, 7, 8, 15, and 16*, to Bechtel. The audit report identified significant performance issues associated with implementation of Bechtel's quality assurance and corrective action programs and cited two Priority Level 1 findings regarding the lack of effectiveness of these programs. As a result of these findings, in letter 13-ORP-0281, ORP directed Bechtel to develop corrective action plans for each Priority Level 1 finding, and an integrated comprehensive Management Improvement Plan (MIP) to address all systemic quality assurance program and implementation issues.

EM staff have been and will continue to monitor Bechtel's actions to implement both the Priority Level 1 finding corrective action plans and the MIP. Assessment reports have been and will continue to be issued documenting implementation of the Priority Level 1 finding corrective action plans. Once all corrective actions have been completed and EM has verified that they have been adequately implemented, EM will perform an effectiveness review (approximately 6 months after all corrective actions have been completed) to verify that the actions to address the findings are effective.

In addition, EM prepared an oversight strategy and schedule for the WTP MIP and other corrective action plans (Memo 15-WTP-0027, dated June 4, 2015). To date, EM has completed 18 assessments in this area, with approximately 50 more planned through end of calendar year 2016. EM will periodically revisit this oversight strategy and schedule to ensure that the combination of the oversight and the Priority Level 1 corrective action plan assessments specifically assesses the implementation and effectiveness of the 16 MIP actions. EM verification of these 16 MIP actions and the corrective action plans for audit findings U-13-QAT-RPPWTP-001-F01 and U-13-QAT-RPPWTP-001-F02 is expected to be completed by end of 3rd quarter of fiscal year (FY) 2016, and will be documented in assessment, audit, or surveillance reports.

2. Enter all issues in the corrective action program, as required by implementing procedures and the Quality Assurance Manual.

As part of its Corrective Action Management Program (CAMP) improvements, Bechtel has revised relevant procedures and conducted a formal requirement flowdown tracing from the Quality Assurance Manual Policy Q-16.1 *Corrective Action*, and the contractor requirements within DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*. EM subsequently verified that the revised CAMP procedures were aligned with these contractual requirements. These revised procedures, along with recent enhancements to Bechtel's Action Tracking System Guide, clearly define conditions requiring entry into the CAMP.

EM will transmit the final OIG audit report to Bechtel and direct Bechtel to perform a review of past external and self-assessments, technical issues, improvement initiatives, and actions that may be inappropriately tracked in other action tracking systems, such as the Action Tracking System and the technical issues database. This will ensure that conditions adverse to quality are appropriately identified and entered into its CAMP for tracking, addressing, and verifying that the conditions are adequately addressed. Bechtel will be directed to complete this task by the end of 2nd quarter FY 2016.

Following completion of this review, EM will perform an assessment of this effort, including reviewing the actions taken by Bechtel to verify that conditions adverse to quality were adequately entered into its CAMP. This EM review is expected to be completed by the end of 3rd quarter FY 2016.

3. Place a stronger emphasis on implementing corrective actions/cause analyses in a timely manner and significantly reducing the backlog of condition reports.

To address the underlying safety concern associated with this OIG recommendation, EM will require Bechtel that a prioritization process is implemented to ensure actions are taken to address conditions adverse to quality that may impact or have the potential to impact higher priority work. EM will also direct Bechtel to continue its efforts to address timeliness issues and reduce the backlog of condition reports and, if needed to address high priority issues, to increase resources allocated to the backlog. Bechtel will be required to implement this direction by the end of 2nd quarter FY 2016.

EM expects to perform an assessment of the effectiveness of Bechtel's efforts to prioritize and/or improve the overall timeliness of its implementation of corrective actions and reduce condition report backlog by the end of 4th quarter FY 2016.

FEEDBACK

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Office of Inspector General (IG-12)
Department of Energy
Washington, DC 20585

If you want to discuss this report or your comments with a member of the Office of Inspector General staff, please contact our office at (202) 253-2162.



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

FEB 22 2016

16-WTP-0032

Mr. J.M. St. Julian
Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mr. St. Julian:

**CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF DIRECTION TO PERFORM
A REVIEW OF PROCUREMENT AND PROPERTY MANAGEMENT POLICIES AND
PROCEDURES**

Reference: OIG Final Audit Report, "Procurement of Parts and Materials for the Waste Treatment and Immobilization Plant at the Hanford Site," (DOE-OIG-16-03), dated November 17, 2015.

This letter provides direction to Bechtel National, Inc. (BNI) to perform a review of procurement and property management policies and procedures. This letter requires BNI to take necessary actions to ensure these policies and procedures address requirements and are being appropriately implemented, including addressing issues identified in the Reference. BNI will also submit a corrective action plan, while working with the U.S. Department of Energy, Office of River Protection, to specifically address the Office of Inspector General's improvement recommendations. BNI will provide quarterly updates to the Office of River Protection on the responsive corrective actions until verified as closed.

If you have any questions, please contact me, or you may contact Dennis A. Brown, Director, Project Controls Division, at (509) 376-4441.

Handwritten signature of Ronnie L. Dawson in black ink.

Ronnie L. Dawson
Contracting Officer

Handwritten signature of William F. Hamel in black ink.

William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:EPM

cc:

L.W. Baker, BNI
M.O. Blake, BNI
M.W. Costas, BNI
F.R. Salaman, BNI
BNI Correspondence



OFFICE OF RIVER PROTECTION

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

FEB 22 2016

16-WTP-0033

Ms. L.W. Baker
Business Services Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

**CONTRACT NO. DE-AC27-01RV14136 – APPROVAL OF CONTRACT
DELIVERABLE 3.7, “24590-BOF-P1-50-0001, REV 8, RPP-WTP PLOT PLAN”**

Reference: BNI letter from L.W. Baker to W.F. Hamel, ORP, “Contract Deliverable 3.7 - Transmittal of 24590-BOF-P1-50-00001, Rev 8, RPP-WTP Plot Plan,” CCN: 268876, dated January 20, 2016.

The purpose of this letter is to approve Contract Deliverable 3.7, “24590-BOF-P1-50-00001, Rev 8, RPP-WTP Plot Plan,” as requested by Bechtel National, Inc. in the above reference.

If you have questions or need additional information, please contact Jason D. Young at (509) 376-0375, or the undersigned at (509) 372-0098.

Ronnie L. Dawson
Contracting Officer

WTP:JDY

cc: BNI Correspondence



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APR - 6 2016

16-WTP-0055

Mr. J.M St. Julian
Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mr. St Julian:

CONTRACT NO. DE-AC27-01RV14136 - CONTRACT DELIVERABLE 1.6 BASELINE RISK PLAN APPROVAL

Reference: BNI letter from J.M. St. Julian to W.F. Hamel, ORP, "Contract Deliverable 1.6 Baseline Risk Plan Submittal, CCN: 276217, dated March 3, 2016.

Deliverable 1.6, Baseline Risk Plan, document number 24590-WTP-PL-MGT-07-0004, Rev. 9 has been reviewed and is approved as submitted. Receipt is acknowledged of the partial list of uncertainties in estimating total project cost included in the referenced letter. No technical or entitlement reviews of the listed uncertainties will be made unless or until a formal request for equitable adjustment is received from Bechtel National, Inc.

If you have any questions, please contact me, or your staff may contact Dennis A. Brown, WTP Project and Controls Division Director, at (509) 376-4441.

Handwritten signature of Ronnie L. Dawson in black ink.

Ronnie L. Dawson
Contracting Officer

Handwritten signature of William F. Hamel in black ink.

William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:REC

cc:
J.S. Treadwell, LUCAS
BNI Correspondence



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APR 12 2016

16-WTP-0063

Ms. L.W. Baker, Business Services Manager
Business Services
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. Baker:

**CONTRACT NO. DE-AC27-01RV14136 – ACCEPTANCE OF COMPLETION OF THE
DIRECT FEED LOW-ACTIVITY WASTE INTERIM MILESTONE DF-03 – DFLAW
SAFETY BASIS CHANGE PACKAGE**

Reference: BNI letter from L.W. Baker to R.L. Dawson, ORP, "Notification of Completion of the DFLAW Interim Milestone DF-03 – DFLAW Safety Basis Change Package," CCN: 286015, dated March 31, 2016.

On March 31, 2016, Bechtel National, Inc. notified the U.S. Department of Energy, Office of River Protection that Direct Feed Low-Activity Waste Interim Milestone DF-03, "DFLAW Safety Basis Change Package" had been completed. The Office of River Protection has reviewed the information provided and concurs that Bechtel National, Inc. has completed Direct Feed Low-Activity Waste Interim Milestone DF-03.

ORP approves completion of the milestone and authorizes BNI to invoice for the milestone completion value of \$500,000. For tracking purposes, it is requested that a separate invoice be submitted for this milestone.

If you have any questions, please contact George F. Champlain, Contracting Officer, (509) 376-6678, Bill Hamel, Federal Project Director (509) 376-6727, or your staff may contact Jason Young, Federal Project Director, Analytical Laboratory and Balance of Facilities, (509) 376-0375.

Handwritten signature of George F. Champlain in blue ink.

George F. Champlain
Contracting Officer

Handwritten signature of William F. Hamel in black ink.

William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:JDY

cc: BNI Correspondence



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MAY 23 2016

16-WTP-0088

Mrs. Margaret McCullough, Project Director
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Mrs. McCullough:

CONTRACT NO. DE-AC27-01RV14136 – HIGH-LEVEL WASTE AND PRETREATMENT FACILITY PLANNING SCENARIO GUIDANCE

- References:
1. ORP letter from R.L. Dawson and W.F. Hamel to M.G. McCullough, BNI, "High-Level Waste Facility Path to Full Authorization and Revised Baseline," 16-WTP-0010, dated January 28, 2016.
 2. ORP letter from G.F. Champlain and W.F. Hamel to M.G. McCullough, BNI, "Direction to Revise Planning and Requirements to Support Resolution of Technical Issues with the Pretreatment Facility," 15-WTP-0050, dated May 21, 2015 (Reissued).

The U.S. Department of Energy (DOE), Office of River Protection has provided guidance to Bechtel National, Inc. (BNI) for returning the High-Level Waste (HLW) Facility to full production, including development of a *Facility Completion Plan* and preparation of a facility work plan using a 2-year or longer "rolling window" (Reference 1). Similarly, DOE has also provided requirements and direction to revise planning to support resolution of technical issues with the Pretreatment (PT) Facility and to develop a three year work plan (Reference 2).

This letter provides additional guidance to be used in the development of the near-term plans for the HLW and PT Facilities. Along with the development of a Fiscal Year (FY) 2017 work plan, BNI is directed to prepare a minimum of an additional 3-Year planning scenario for each facility for FY 2018 through FY 2020 by July 1, 2016. These planning scenarios shall be developed in accordance with the *Amended Consent Decree State of Washington v. U.S. Department of Energy* [Case No. 08-5085-RMP, Appendix A (March 11, 2016)] while maintaining the priorities identified in the above references.

Planning Scenarios shall utilize the planning estimate guidance provided below for accomplishing these milestones. The planning estimate guidance does not consider the utilization of carryover for the Pretreatment facility. The Department expects BNI to allocate the necessary carryover as outlined in the current Internal Forecast.

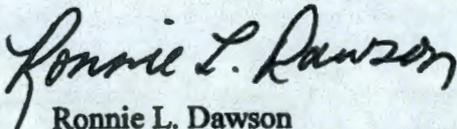
HLW and PT Planning Estimate Guidance through FY 2020 (\$M)

| Facility | FY17 | FY18 | FY19 | FY20 |
|---------------------------|------|-------|-------|-------|
| High-Level Waste Facility | \$65 | \$100 | \$120 | \$140 |
| Pretreatment Facility | \$97 | \$125 | \$150 | \$200 |

Note: Dollars include the BNI associated allocation of Project Services.

BNI efforts currently underway on the HLW and PT Facilities shall continue, taking into consideration the schedule and funding information noted in references 1 and 2.

If you have any questions related to the HLW Facility, please contact Wahed Abdul, HLW Facility Federal Project Director, Waste Treatment and Immobilization Plant, at (509) 438-0455, and for questions related to the Pretreatment Facility, please contact Dan Knight, Acting Pretreatment Facility Federal Project Director, Waste Treatment and Immobilization Plant, at (509) 373-4143.



Ronnie L. Dawson
Contracting Officer



William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:WA

cc: BNI Correspondence



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JUN 20 2016

16-WTP-0127

Ms. M.G. McCullough, Project Director
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Ms. McCullough:

CONTRACT NO. DE-AC27-01RV14136 – DIRECTION TO TRANSMIT AN UPDATE OF BECHTEL NATIONAL, INC. ACTIONS TAKEN ON ELEVEN DEFICIENCIES IDENTIFIED IN DEFENSE NUCLEAR FACILITIES SAFETY BOARD, STAFF ISSUE REPORT “WASTE TREATMENT AND IMMOBILIZATION PLANT QUALITY ASSURANCE REVIEW [2016-078]”

- References:
1. ORP letter from W.F. Hamel to M.G. McCullough, BNI, “Transmittal of Defense Nuclear Facilities Safety Board, Staff Issue Report ‘Waste Treatment and Immobilization Plant Quality Assurance Review [2016-078],’” 16-WTP-0082, dated May 12, 2016.
 2. ORP letter from W.F. Hamel to M.G. McCullough, BNI, “Addressing 11 Deficiencies Identified in Defense Nuclear Facilities Safety Board Staff Issue Report ‘Waste Treatment and Immobilization Plant Quality Assurance Review [2016-078],’” 16-WTP-0114, dated June 7, 2016.
 3. BNI letter from J.M. St. Julian to W.F. Hamel, ORP, “Response to Request for Condition Report Numbers Associated with Deficiencies Identified in the DNFSB Quality Assurance Review at WTP,” CCN: 289294, dated June 10, 2016.

This letter provides direction to Bechtel National, Inc. to transmit an updated report, due July 7, 2016, of the actions taken towards closure of the 11 Condition Reports listed in Reference 3, as of July 5, 2016.

Ms. M.G. McCullough
16-WTP-0127

-2-

JUN 20 2016

The action taken herein is considered to be within the scope of work of the existing contract and does not authorize the Contractor to incur any additional costs (either direct or indirect) or delay delivery to the Government. If the Contractor considers that carrying out this action will increase contract/project costs or delay of delivery, the Contractor shall promptly notify the Contracting Officer orally, confirming and explaining the notification in writing within ten (10) calendar days, and otherwise comply with the requirements of the Contract clause 1.84 FAR 52.243-7, -- "Notification of Changes (APR 1984)." Following submission of the written notice of impacts, the Contractor shall await further direction from the Contracting Officer.

If you have any questions, please contact me, or you may contact Dennis A. Brown, Director, Project Controls Division, at (509) 376-4441.



William F. Hamel
Assistant Manager, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:EPM

cc:

M.W. Costas, BNI
F.R. Salaman, BNI
J.M. St. Julian, BNI
J.L. Evans, NWNDS
BNI Correspondence