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(0074347H)

**OFFICE OF RIVER PROTECTION**

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

**OCT 31 2016**

16-ECD-0054

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

Ms. Smith:

**OCTOBER 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 – JULY 1, 2016, THROUGH SEPTEMBER 30, 2016**

This letter transmits the U.S. Department of Energy October 2016 Quarterly Report (Attachment) under Section IV-C-1 of the subject referenced Consent Decree, for the period of July 1, 2016, through September 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.

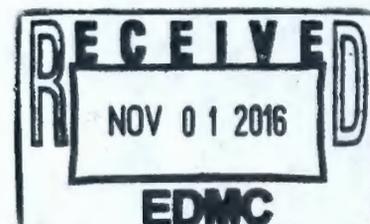
If you have any questions, please contact William F. Hamel, Assistant Manager, Waste Treatment and Immobilization Plant Project, (509) 376-6727, or Ben J. Harp, Assistant Manager, Tank Farms Project, (509) 376-1462.

Kevin W. Smith  
Manager

ECD:RLE

Attachment

cc: See page 2



Ms. Alexandra K. Smith  
16-ECD-0054

-2-

OCT 31 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-0054  
(82 Pages Excluding Cover Sheet)**

**Office of River Protection Quarterly Report,  
July 1, 2016, through September 30, 2016, and  
Waste Treatment and Immobilization Plant Direction Letters**

# Office of River Protection Quarterly Report

**July 1, 2016, through September 30, 2016**

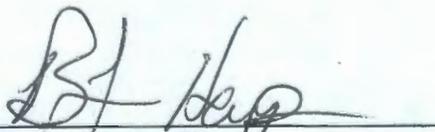
Consent Decree, *State of Washington v. Dept. of Energy*, Case No. 2:08-cv-05085-FVS (October 25, 2010)

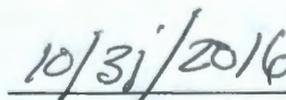
Amended Consent Decree, *State of Washington v. Dept. of Energy*, Case No. 2:08-CV-5085-RMP (March 11, 2016)

Second Amended Consent Decree, *State of Washington v. Dept. of Energy*, Case No. 2:08-5085-RMP (April 12, 2016)<sup>1</sup>



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

  
B.J. Harp, Acting Deputy Manager  
Office of River Protection

  
Date

<sup>1</sup> The cited consent decrees are between the State of Washington and Department of Energy. For each of these decrees, there are companion, separate consent decrees with the State of Oregon, as Intervenor, under the same case numbers.

**Project Earned Value Management System Reflects up to August 2016 Information**

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## Acronyms and Abbreviations

ALARA	as low as reasonably achievable
BCP	baseline change proposal
BNI	Bechtel National, Inc.
BOF	Balance of Facilities
C5V	C5 ventilation system
CGD	commercial grade dedication
CSER	Criticality Safety Evaluation Report
CSSG	Criticality Safety Support Group
CV	cost variance
D&O	design and operability
DFLAW	direct-feed low-activity waste
DNFSB	Defense Nuclear Facilities Safety Board
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
HVAC	heating, ventilation, and air-conditioning
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 narrative descriptions of progress in this report cover the period from July 1, 2016 to September 30, 2016. Earned Value Management-System data and descriptions cover the quarterly period ending August 31, 2016; this includes the facility completion percentage estimates included at various locations in the Waste Treatment and Immobilization section.

As Ecology has requested, written directives from July 1, 2016, through September 30, 2016, for work required by the Consent Decree have been included with this report.

## 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 <sup>1</sup> reboiler for the 242-A Evaporator.	12/31/2016	On Schedule
D-16E-02	Have a spare A-E-1 <sup>1</sup> 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

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

DOE = U.S. Department of Energy.

SST = single-shell tank.

Ecology = Washington State Department of Ecology.

WMA-C = C Farm waste management area.

## **Single-Shell Tank Retrieval Program**

**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**

- Removed and disposed 15 hose-in-hose transfer lines from C-Farm to Environmental Restoration Disposal Facility (ERDF)
- Prepared the C-102 Retrieval Data Report for submittal to the Washington State Department of Ecology (Ecology)
- Completed C-105 Proof of Concept for In-Tank Equipment (Mobile Arm Retrieval System-Vacuum [MARS-V] modification)
- Completed C-105 MARS-V disassembly to support slurry pump installation
- Removed C-105 C pit upper and lower cover blocks
- Submitted C-111 Retrieval Completion Certification report to Ecology
- Completed two additional AX Farm pit clean outs
- Completed AX Farm air and water service building exterior construction
- Completed POR126 and POR127 ventilation installation and initial testing
- Received AX-102 and AX-104 extended reach sluicer system (ERSS) and slurry pumps
- Completed AX Farm ingress and egress change trailers
- Prepared the AX-101 through AX-104 tank waste retrieval work plans for submittal to Ecology
- Completed the A Farm ventilation design.

### **Accomplishments Expected in the Next Three Months**

- Negotiate contract proposal for installing and performing the third retrieval technology at Tank C-105
- Complete Tank C-105 modified sluicing system design
- Clean and prepare C-105 A and C pits for ERSS installation
- Receive C-105 ERSS
- Completed AX Farm air and water service building major utilities installation
- Complete AX ventilation readiness/turnover at portable exhauster POR126 and POR127

- Complete the four remaining AX-102 and AX-104 pit cleanouts.

### **Issues Encountered during the Reporting Period**

At present, DOE is on schedule to meet Consent Decree milestone B-3 to retrieve at least 5 of the 12 SSTs listed in milestones B-1 and B-2 by December 31, 2020. DOE has already retrieved two of these 5 SSTs (C-102 and C-111) and DOE expects that tank C-105 will 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, was not realized, and ongoing vapor concerns continue to impact workers both inside and outside of the tank farm boundary. Retrieval of AX-102 and AX-104 is now expected to start in January 2019 and installation of retrieval equipment in AX-101 and AX-103 will be delayed 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.

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 was tasked to develop alternative plans/safeguards prior to disassembling the containment box and arm. Additional engineering and planning delayed the disassembly of the MARS-V by one month; however, trained personnel completed the required MARS-V disassembly in September 2016. The ERSS equipment required to support the third technology is currently being fabricated, installation is expected to start in January 2017, and retrieval operations are planned to resume by June 2017. WRPS personnel continue to evaluate methods to accelerate ERSS installation and potentially resume retrieval operations earlier than currently planned.

In preparation for start of retrieval at AX-102 and AX-104, field activities (including electrical installation, ventilation installation, cleaning out legacy “pits,” and ancillary building demolition) continues to progress 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 re-sequence activities to maximize productivity and minimize schedule slips as a result of these unexpected and unplanned activities. These issues will have some schedule impacts 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.

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 (Case 4:15-cv-05086-TOR) seeking, among other things, that all work inside the perimeter fences of any tank farm be performed while wearing *mandatory* supplied air. This stop work and interim measures associated with the motions for preliminary injunction has slowed and/or delayed field work at the AX and C farms. For example the AX-102 and AX-104 retrieval construction (removal of legacy/long length equipment) is affected by not being able to operate the tank-specific ventilation system. DOE and WRPS continue to evaluate 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. Due to the prior technical challenges related to completing retrievals at Tank 241-C-102 and Tank 241-C-111, and the current modifications to Tank 241-C-105, funding will be needed to complete Tank 241-AX-102 and Tank 241-AX-104 tank retrieval system(s) installation through FY 2018 with retrieval operations starting in FY 2019 to meet milestone D-16B-03 by December 31, 2020.

ORP submitted letter 16-TF-0102, “Status Update Related to Tank Farm Vapors,” on September 15, 2016, to make certain Ecology is aware of several recent events regarding the Hanford tank farms retrieval activities, to pass along relevant information, and provide updates on the status of ongoing processes related to those vapor events and their mitigation. Both ORP and WRPS are assessing these events for potential impacts to Consent Decree milestones.

### **Actions Initiated or Taken to Address Potential Schedule Slippage**

Exhauster POR126 and POR127 (redundant exhauster) ventilation installation activities were recently completed with the assistance of crews working overtime and additional weekend shifts; however, system testing and startup was not completed due to voluntary restraints associated with the motions for preliminary injunction prohibiting “waste disturbing activities” until November 24, 2016 or until the Court rules on the motions, whichever is earlier. Operation of portable AX Farm exhausters provide 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 in January 2017 pending the Court's decision on the motions for preliminary injunction. 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, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-102	RPP-RPT-58933, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-103	RPP-RPT-58934, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-104	RPP-RPT-58935, Rev. 0	In Progress	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	Chemical Dissolution Process with ERSS
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

Tank	TWRWP	Expected Revisions	First Retrieval Technology	Second Technology	Third Technology
C-111	RPP-37739, Rev. 2	Complete	Modified Sluicing	High pressure water using the ERSS	Chemical Dissolution Process with ERSS
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 during the Reporting Period

- AX Farm tank waste retrieval work plans were approved by Ecology and are going through final revision at ORP.
- Modification to RPP-22520, 241-C-101 and 241-C-105 Tanks Waste Retrieval Work Plan to include a third technology for Tank C-105 retrieval was approved by Ecology and is in process of being revised.

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

- None.

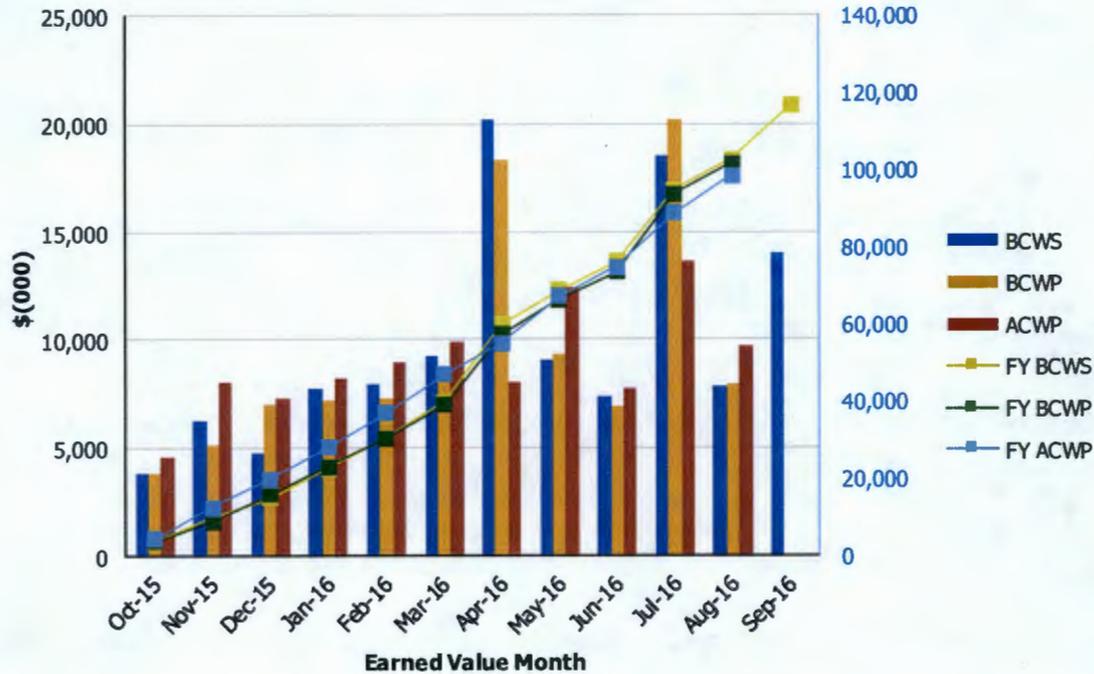
## EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2016

August-16

**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	\$7,387	\$6,885	\$7,713	0.93	0.89	\$76,357	\$73,584	\$75,045	0.96	0.98
Jul 2016	\$18,511	\$20,234	\$13,683	1.09	1.48	\$94,867	\$93,817	\$88,728	0.99	1.06
Aug 2016	\$7,831	\$7,971	\$9,736	1.02	0.82	\$102,698	\$101,788	\$98,464	0.99	1.03
Sep 2016	\$13,992					\$116,690				
<b>CTD</b>	<b>\$695,176</b>	<b>\$687,016</b>	<b>\$708,437</b>	<b>0.99</b>	<b>0.97</b>					

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 **favorable** schedule variance (SV) of \$1,864K is due to:

- **Schedule Recovery:** AX Farm procurements were previously re-planned due to field construction delays and funding challenges. The water supply demister and two ERSSs for AX-102/104 arrived in late July/early August. The four remaining ERSSs are scheduled to be delivered prior to the end of September. This positive variance continues to support the completion of projects B-1 and B-3 of the Consent Decree milestones.

The third quarter **favorable** cost variance (CV) of \$4,786K is due to:

- **Contract Modification 386 (FY 2016 Vapor Impacts Implementation)** was implemented during July, which resulted in a point adjustment for FY 2016 work scope that was or continues to be impacted by tank farm vapors. This adjustment provides cost relief to control accounts affected/impacted by vapors and required additional health and safety controls (SCBA).

## **Waste Treatment and Immobilization Plant Project**

**Federal Project Director:** Bill Hamel

**Deputy Federal Project Director:** Joni Grindstaff

**Quarterly Statement:** The Waste Treatment and Immobilization Plant (WTP) Project has complied with applicable 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 3,091 full-time equivalent contractor, (Bechtel National, Inc. ([BNI],)) and subcontractor personnel. This includes 625 craft, 471 non-manual, and 149 subcontractor full-time equivalent personnel working at the WTP construction site (all facilities).

The WTP Project continues to focus on completion of the Low-Activity Waste (LAW) Facility, Balance of Facilities (BOF), and the Analytical Laboratory (LAB) (collectively referred to as LBL, including direct-feed low-activity waste [DFLAW] and LBL facility services). As of August 2016, LBL facilities were 49 percent complete, design and engineering was 75 percent complete, procurement was 64 percent complete, construction was 66 percent complete, and startup and commissioning was 12 percent complete.

### **Accomplishments during the Reporting Period**

- The U.S. Department of Energy (DOE), Office of River Protection (ORP) provided several presentations to the Energy System Acquisition Advisory Board (ESAAB) for approval of the Baseline Change Proposal (BCP) for LBL/DFLAW by the Chief Executive for Project Management.

### **Accomplishments Expected Next Reporting Period**

- Contract negotiations with BNI to define and finalize the new LBL/DFLAW scope into the contract have been ongoing and are expected to be completed by the end of 2016.
- ORP expects to provide additional presentations to the ESAAB and Deputy Energy Secretary on the new BCP for LBL/DFLAW for the WTP Project.

### **Issues Encountered during the Reporting Period**

- DOE Headquarters' review of proposed baseline changes have taken longer than expected.
  - *Impact:* Approval of the BCP will take longer than planned.
  - *Actions initiated or taken to address potential BCP schedule slippage:* ORP continues to seek headquarters' approval of the BCP.
- The Department of Ecology conducted a rulemaking process during this period on Greenhouse Gas (GHG) emissions (WAC 173-442). This rule now applies to stationary sources at the Hanford Site. DOE submitted formal comments on the impacts of this rule

on July 22, 2016, and requested an exemption. Ecology adopted the rule on September 15, 2016, with an effective date of October 17, 2016, and denied DOE's exemption request.

- Because the WTP meets the criteria for a covered stationary source, this new rule will apply once it becomes operational, requiring a reduction in greenhouse gas (GHG) emissions or the acquisition of emissions reductions from other covered parties. WTP does not meet any of the current exemption criteria for stationary sources. Under this new rule, the compliance threshold starts for covered facilities with baseline GHG emissions of 100,000 metric tons of carbon dioxide equivalents (CO<sub>2</sub>e) or more. The compliance thresholds start to take effect in 2017 and become more restrictive over time as shown below:
  - 2017 thru 2019: 100,000 metric tons CO<sub>2</sub>e or more
  - 2020 thru 2022: 95,000 metric tons CO<sub>2</sub>e or more
  - 2023 thru 2025: 90,000 metric tons CO<sub>2</sub>e or more
  - 2026 thru 2028: 85,000 metric tons CO<sub>2</sub>e or more
  - 2029 thru 2031: 80,000 metric tons CO<sub>2</sub>e or more
  - 2032 thru 2034: 75,000 metric tons CO<sub>2</sub>e or more
  - 2035 and later: 70,000 metric tons CO<sub>2</sub>e or more
- *Impact:* For the DFLAW configuration, emissions are estimated to be approximately 75,000 metric tons of CO<sub>2</sub>e per year. DFLAW emissions plus other Hanford Site GHG emissions (approximately 15,000 MT CO<sub>2</sub>e for 2015) will eventually put the Hanford Site over the CO<sub>2</sub>e threshold requiring compliance with the Clean Air Rule. At full operations, the WTP will burn approximately 13.4 million gallons of diesel fuel per year with an estimated 136,000 metric tons of CO<sub>2</sub>e emissions per year.
- *Actions initiated or taken to address potential project schedule slippage:* DOE is continuing to evaluate the impacts resulting from this rule on the WTP Project which could include significant reductions on plant operations.

#### **Issues Expected in the Next Three Months**

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

## Milestones

Milestone	Title	Due Date	Status
<b>Waste Treatment and Immobilization Plant Project</b>			
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
<b>Pretreatment Facility</b>			
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
<b>High-Level Waste Facility</b>			
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
<b>Low-Activity Waste Facility</b>			
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
<b>Balance of Facilities</b>			
D-00A-12	Steam Plant Construction Complete	12/31/2012	Complete
<b>Analytical Laboratory</b>			
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.

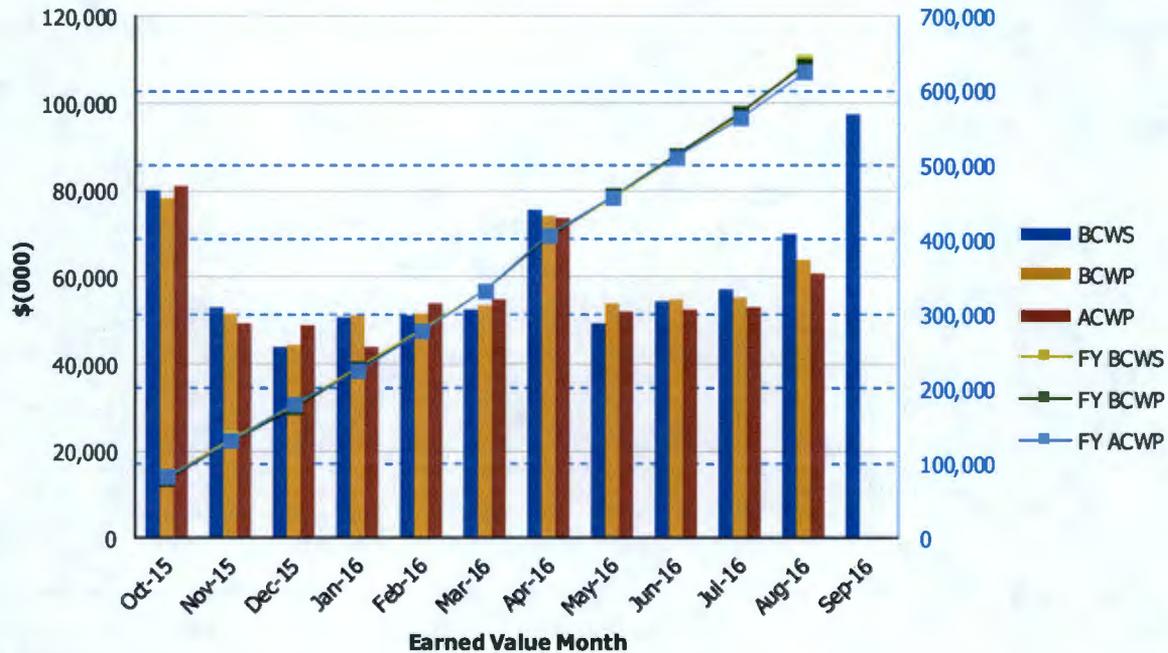
## EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2016 Earned Value Data

Data as of: August 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	\$54,203	\$54,759	\$52,382	1.01	1.05	\$509,825	\$513,456	\$509,682	1.01	1.01
Jul 2016	\$56,934	\$55,273	\$52,892	0.97	1.05	\$566,759	\$568,728	\$562,574	1.00	1.01
Aug 2016	\$69,800	\$64,085	\$60,594	0.92	1.06	\$636,559	\$632,814	\$623,168	0.99	1.02
Sep 2016	\$97,626									

PTD	\$9,736,323	\$9,712,360	\$9,640,970	1.00	1.01
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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.

<b>Performance Tracking</b>	<b>SV (\$x1,000)</b>	<b>CV (\$x1,000)</b>
Cumulative (through Aug 2016)	(-\$23,962)	\$71,390
Fiscal Year 2016 to-date	(-\$3,745)	\$9,646
Current Reporting Period	(-\$6,821)	\$8,250

SV = schedule variance.

CV = cost variance.

### **Earned Value Management System (EVMS) Analysis**

The EVMS is intended to provide a status of how the contractor is progressing against its planned work (aka - schedule), and whether it is costing more or less to complete the work than planned. The project plan is measured by expressing the schedule in terms of dollars spread over the anticipated project duration, and then for each month, determining how much of the planned work was accomplished or “earned,” as measured in equivalent dollars. If more work is accomplished than planned, then the project is ahead of schedule or has a favorable schedule variance (SV). Similarly, if less work is accomplished, the project is behind schedule and has an unfavorable SV. Accomplished work is reported in the month it was completed, which may not be when it was planned. For example, work that is completed in an earlier month would be reported as a favorable SV for that month but would be reported as an unfavorable SV in the month it was planned, so that the overall cumulative SV would net out to zero over these months. Likewise, work completed late will recover an earlier reported unfavorable SV.

The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume that \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000 behind schedule (a negative or unfavorable SV: \$8,000 - \$10,000), and has cost \$1,000 more (a negative or unfavorable CV: \$8,000 - \$9,000) than was planned for completing that work scope. Likewise, a favorable CV would be reported if it cost less to complete the work than the performed dollar value of the work.

The schedule and cost variances are reported for each monthly period, as well as for the project-to-date value. The monthly variances can fluctuate significantly (for reasons noted earlier), so the fiscal year or cumulative-to-date report will give a better indicator of the overall project completion status, and can give a reasonable projection of how the project will finish, based on the progress-to-date.

During the June-July-August timeframe, the project did not complete the equivalent of \$6.8 million of planned work due to the following reasons:

- **June 2016 – Favorable SV of \$556K (i.e., completed about \$0.6 million more work than planned):**
  - The LBL/DFLAW team completed about \$1.4 million more work than was planned. This resulted from: the “Active Safety Process Gas Analyzers” milestone being completed early; DFLAW engineering being able to accelerate completion of calculations, datasheets, and support to procurement; and LBL

plant operations working maintenance activities ahead of schedule. However, this was offset by about \$0.5 million of planned work that did not get completed, related to: reliability of the vacuum truck; receipt of less materials than planned; and delays in writing procedures for the water treatment building, cooling tower facility, and chiller facility.

- The HLW Facility construction team reported unfavorable progress of \$0.4 million against planned work because the June planned work had already been reported as completed in prior months.
- **July 2016 – Unfavorable SV of (-\$1,662K) (i.e., did not complete about \$1.7 million of planned work):**
  - The LBL/DFLAW team did not complete about \$3.0 million of planned work. This resulted from the \$3.5 million award for Q Flowmeter procurement being delayed and engineering work being delayed by the completion of the PDSA. To offset these delays, LBL plant operations was able to recover some planned procedures/training work scope and received a shipment of office furnishings, and LBL construction completed some planned work ahead of schedule related to terminations of heat traces and an insulation subcontract.
  - Overall, the PT team completed an additional \$1.5 million of work than planned. The test completion team completed about \$0.7 million more work than planned related to vessel delivery and test platform modifications, and being able to take credit for delivered pipe and steel. In offset however, there were delays in comment resolution on the test matrix, finalization of the pipe loop simulant recipe, hiring an AREVA subject matter expert, and changed strategies for completing software development.
- **August 2016 – Unfavorable SV of (-\$5,715K) (i.e., did not complete about \$5.7 million of planned work):**
  - LBL has an overall unfavorable SV of \$3.1 million. LBL construction has an unfavorable variance of \$2.0 million due primarily to a delay in subcontractor work to install Heat Trace and Insulation on pipes lines to support DFLAW, as well as a delay in the settlement with a subcontractor to cover unexpected costs of maintaining its temporary trailer on the construction site while the subcontractor work is being rescheduled. LBL engineering has an unfavorable variance of \$1.0 million because of delays in development of the Preliminary Documented Safety Analysis (PDSA), which has delayed procurements because the PDSA must be in alignment with the design prior to awarding these procurements. In addition, engineering is behind in completing revised drawings for the planned steam plant modifications.
  - HLW has an overall unfavorable variance of \$1.2 million. Plant equipment has an unfavorable variance of \$0.9 million due primarily to delays in completing equipment drawings. In addition, construction has an unfavorable variance of \$0.2 million due to piping work completed in prior periods, and the liner plate subcontractor demobilization taking longer than planned.

The June-July-August **favorable** cost variance (CV) of **\$8,250K** (i.e., it cost \$8.25 million less to do the performed work than planned) is primarily due to the following:

- **June 2016 – Favorable CV of \$2,377K:**

- Project Services (PS) reported a cost underrun of \$1.5 million, due in part to engineering corrections related to relocation charges and early completion of process engineering work; project and business management labor cost underruns for relocation and subcontracts, and other miscellaneous labor underruns; Procurement not being able to fill open staff positions for FY 2016; construction labor underruns and reversal of incorrect charges from last month related to construction distributed support, subcontracts, and bulk materials.
- LBL reported a cost underrun of \$1.2 million for the month. This resulted from a plant operations underrun of \$0.9 million associated with BOF performance related to maintenance activities, such as inspection, refurbishments, and staffing additions later than planned; startup underrun by \$0.5 million, primarily due to slower hiring of staff additions than planned; construction underrun by \$0.4 million, primarily due to construction materials purchased slower than planned. Other overrun offsets of about \$0.6 million are due to additional project management support for oversight of startup and site energization; procurement-apportioned labor charges from Project Services above planned value; and nuclear safety engineering support for LAW higher than planned for comment resolution related to the process hazard analysis and development of the process hazard analysis summary table.
- PT reported a cost overrun of \$0.4 million for the month. Nuclear safety engineering overran by \$0.3 million, primarily due to increased support for deliverables for T1 through T3.

- **July 2016 – Favorable CV of \$2,381K:**

- Project Services reported a cost underrun of \$1.2 million, related to a General/Other services underrun of \$0.8 million, due to less project and business management cost for relocation and subcontracts, and other miscellaneous labor underruns; a Procurement underrun of \$0.3 million, due to backfilled and new positions that remain open; and a construction underrun of \$0.1 million, due to an underrun in construction subcontract cost, and use of less labor hours than planned.
- LBL reported an overall underrun of \$0.9 million for the month, related to an LBL construction underrun of \$0.8 million, due to the termination of the insulation subcontract, recognizing earnings for work completed earlier, and an underrun in completed pipe and conduit seals subcontractor installation work.
- HLW reported an overall underrun of \$0.5 million for the month, related to an engineering underrun of \$0.3 million, for an accrual adjustment for duplicated engineering subcontract cost; and a construction underrun of \$0.1 million, for staffing deployment for field non-manual occurring sooner than planned.

- **August 2016 – Favorable CV of \$3,492K:**

- LBL has an overall favorable cost variance of \$2.3 million. LBL engineering has a favorable variance of \$3.9 million due to lower than planned labor costs. This is offset by an LBL construction unfavorable variance of \$1.0 million, which is due primarily to the early delivery of the majority of EMF rebar, which was originally planned to be delivered over the course of the year.
- Project Services has a favorable variance of \$0.9 million. General/Other Services has a favorable variance of \$0.6 million and procurement has a favorable variance of \$0.3 million, each due to staffing being under planned levels.

Through the current quarterly reporting period, there are no schedule or cost variances impacting current Consent Decree milestones.

### **WTP Project Cumulative through August 2016**

Through August 2016, the WTP Project is behind the planned expenditure schedule by \$23.9M, but has underrun the performed work by \$71.4M. The cumulative to-date schedule and cost variances are reported against the LBL Internal Forecast, which is based on the BNI LBL/DFLAW rebaseline BCP. At this time, there are no schedule or cost variances impacting current Consent Decree milestones.

## **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.

ORP continues to focus on resolving technical issues, performing hazards analyses, and completing safety evaluations for process systems in accordance with the revised PT Facility Three-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) is described below.

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

### **Accomplishments during the Reporting Period**

- BNI provided the hydrogen in piping and ancillary vessels (HPAV) Preliminary Document Safety Analysis (PDSA) Change Package to ORP for review and approval.
- BNI provided a re-assessment of the hydrogen control strategy for Pulse Jet Mixed Vessel in Pretreatment. This study, along with the HPAV PDSA, will be used in the resolution of the technical issue on hydrogen in vessels and piping.
- BNI received the Standard High Solids Vessel (SHSV) prototype from the fabrication contractor and installed this vessel in the Atkins Engineering Laboratory on July 14, 2016. Following vessel placement, BNI started installation of support scaffolding and began connection of piping and instrumentation.
- ORP and BNI approved the SHSV Test Plan and provided a briefing on the Test Plan to Ecology staff on September 22, 2016.
- BNI completed an initial design review of the SHSV plant vessel.
- BNI completed concrete placement for the Simulant Storage Facility which will be used to produce simulant for the SHSV qualification testing.

### **Accomplishments Expected in the Next Three Months**

- Testing of the SHSV prototype will be initiated in December 2016 following final piping and instrument installation. The first phase of testing will be focused on pulse-jet mixer control testing.
- The following issues identified by the Defense Nuclear Facility Safety Board will be resolved: Hydrogen in piping and vessels, Criticality in vessels, and Spray Leak methodology. These issues were identified in the DNFSB, 26<sup>th</sup> Annual Report to

Congress March 2016. Resolution of these issues is important to support ORP's decision to resume production engineering in the Pretreatment Facility.

### **Issues Encountered during the Reporting Period**

- The resolution of the hydrogen in vessels and piping has required additional analysis based on comments from DOE. These comments included clarification of the hierarchy of preventative and mitigated controls needed to support design finalization. Comments are being addressed and the engineering study will be finalized in the fourth quarter 2016.
  - *Impact:* The project schedule is not affected by the timeline to resolve the additional DOE comments because the schedule is paced by the completion of testing on the SHSV which is planned for completion in Fiscal Year (FY) 2018.
  - *Actions initiated or taken to address potential project schedule slippage:* Revisions to the engineering and safety basis documentation for the PT Facility hydrogen and criticality technical issues are progressing. Weekly discussions continue with ORP team members, Bechtel Nuclear Safety and Engineering, and PT Facility area project manager to mitigate any possible future delays.

### **Issues Expected in the Next Three Months**

- WTP PT Facility budgets could be reduced based on the requirement to provide additional funding to support the DFLAW initiative.
  - *Impact:* It is not anticipated at this time that a potential budget reduction would affect DOE's ability to achieve Consent Decree milestones.
  - *Actions initiated or taken to address potential project schedule slippage:* The PT Facility integrated project team will re-assess work priorities based on available funding. Internal risk workshops and an assessment of budget priorities and required work plans will be conducted to mitigate any potential budget impacts. The PT Facility area project manager has developed and will continue to use a number of project management tools to ensure efficient use of budget resources.

### **Status of Outstanding WTP Technical Issues**

ORP expects to resolve and close 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.

The 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

hydrogen in piping and ancillary vessels (HPAV) that could lead to a hydrogen deflagration or detonation in a piping system.

– Progress:

- Hydrogen in Vessels: BNI delivered the engineering study with supporting calculations on August 24, 2016 to document the proposed hydrogen control strategy for vessels consisting of both preventive and mitigation controls. The analysis and calculations include the impact of decay heat, process changes, and assumptions on hydrogen generation rate and consequences. ORP is conducting its formal review of BNI's study, calculations, and proposed hydrogen controls; and has also solicited comments from DOE Headquarters and Defense Nuclear Facilities Safety Board (DNFSB) staff. Once the ORP and external stakeholder reviews have been completed and comments resolved, ORP will work with BNI to issue a documentation package to close this technical issue.

HPAV: BNI submitted the HPAV PDSA Change Package and supporting calculations to ORP for formal review and approval on July 29, 2016. ORP is conducting its formal review of this PDSA Change Package and supporting documents; and has also solicited comments from DOE Headquarters and DNFSB staff on those documents. BNI is currently developing a Basis of Design Change Notice and Safety Requirements Document Change Notice to address HPAV considerations to be consistent with the PDSA Change Package. The combination of the HPAV PDSA, Basis of Design Change Notice, and Safety Requirements Document changes, once approved, will provide ORP with the appropriate basis for approving the path forward for HPAV design and nuclear safety basis development, thus resolving and closing this technical issue.

• ***Preventing Criticality:***

- Issue: A total of 16 Hanford waste tanks may contain plutonium particles of the size and density that makes them 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 (CSER) in March 2016. ORP reviewed and approved the CSER revision with four conditions of approval in June 2016. BNI submitted an update to the CSER to resolve the four conditions of approval in late September 2016. ORP is currently reviewing the updated CSER. ORP has also reviewed and accepted an updated engineering study evaluating the potential heavy plutonium particulates in the PT Facility, facility design basis. DOE's Criticality Safety Support Group (CSSG) held a meeting at ORP during the week of July 25, 2016 to perform an independent review of the WTP criticality documentation. The CSSG will issue a report from their review in the fourth quarter 2016, which will support an ORP decision on closure of the criticality technical issue.

• ***Ensuring Control of the Pulse Jet Mixers:***

- Issue: Concern with adequacy of pulse-jet mixers (PJM) and PJM controls to adequately mix high solids slurries in PT Facility process vessels.

– Progress:

As ORP has previously reported, BNI is completing a three-phased test program to demonstrate the ability of PJM vessels to adequately mix high-solids slurries in the PT Facility. The first test campaign to demonstrate functionality of the PJM control systems was successfully completed between March 2014 and December 2015. The second test campaign, consisting of informational testing to select design features for the planned standard high-solids vessel (SHSV) design was successfully completed in March 2015.

The third test campaign consists of 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. Other physical modifications, including constructing a simulant mixing and storage facility, are ongoing in preparation for the third test campaign. BNI is expected to issue the SHSV test plan for ORP review and approval in early November 2016. The SHSV testing is planned to be conducted in the full scale vessel test facility with a target to complete testing by the end of calendar year 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. Pipe loop testing is expected to start as early as February 2017.
- Laboratory scale corrosion testing to assess localized corrosion material degradation mechanisms started in August 2016. 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.
- Test platform shakedown 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.
- 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. That filter design has now successfully completed Nuclear Quality Assurance-1 (NQA-1) qualification testing at Mississippi State University for the LAW Facility (LAW). Qualification testing for the HLW Facility specific requirements will be completed by the end of 2016.

## **High-Level Waste Facility**

**Federal Project Director:** Bill Hamel

**Facility Federal Project Director:** Wahed Abdul

Work on the High-Level Waste (HLW) Facility is now being performed in accordance with the new FY 2017 – FY 2021 Five-Year Interim Work Plan, although the contractor is still working under a limited construction and procurement authorization. The WTP contractor is currently focusing its efforts on completing activities required to obtain full-production authorization from DOE. In addition, the contractor is developing a facility completion plan (FCP) to identify the strategy for completing engineering, procurement, and construction of this facility.

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

### **Accomplishments during the Reporting Period**

- Completed three additional engineering studies this quarter in support of resolving HLW Design and Operability (D&O) vulnerabilities including the Melter Cave Support Handling System (HSH), Radioactive Solid Waste Handling System (RWH) and the Canister Decontamination Handling System (HDH). BNI is continuing to develop phase II of the HLW Facility melter off-gas treatment process (HOP)/process vessel vent (PVV) engineering study to evaluate the options from the Phase I study to improve HLW Facility operability. Ecology has been provided copies of the Phase 1 HLW Melter Off-Gas Processing System (HOP) study (24590-HLW-ES-ENG-15-008) and has been briefed on its results during a special topics discussion held on July 19, 2016.
- Completed full-scale high-efficiency particulate air (HEPA) filter testing of remote-change filter to support the HLW and PT facilities ventilation and off-gas needs.
- Authorized vendor to begin material procurement and fabrication for vessel RLD-7.
- Issued an engineering study detailing the potential addition of a melter assembly building/airlock and an additional import/export dock for waste handling to address secondary waste and immobilized waste bottle-neck concerns.

### **Accomplishments Expected in the Next Three Months**

- The Phase II HOP engineering study is planned to be completed by the end of 2016. Over the past 6 months, BNI developed approximately 10 key engineering studies that have been effective in the disposition of HLW D&O vulnerabilities by establishing the pathway to resolve HLW Facility design and operational issues. The disposition of all HLW D&O issues will be completed in early 2017.
- Design of the remaining portions of the radioactive liquid disposal (RLD) system (Phase II) is in progress following incorporation of the recently approved RLD Preliminary Documented Safety Analysis (PDSA) Change Package. Material procurement and fabrication has been authorized for vessel RLD-8, with vessel RLD-7 authorization to proceed with fabrication expected by the end of the calendar year. Vessel fabrication is

being delayed in order to complete the ongoing additional analysis of RLD vessels 7 and 8 recommended by the Bechtel National, Inc. (BNI) Independent Expert Review Team. BNI and ORP developed a risk mitigation strategy to allow vessel fabrication to continue, but not be completed, during completion of the analysis. Installation of these two vessels allows the concrete slab to be placed over the wet process cell in support of installation of the facility roof and weathering of the facility.

- Preparation of the HLW Facility PDSA update to align design and the safety basis is proceeding, with the expected submission of a draft document to ORP in November 2016.
- Continue civil build-out of the HLW Facility focusing on building enclosure.
- Update of the HLW Facility PDSA is in progress and will align design with the nuclear safety basis. The submission of the draft PDSA to ORP is expected by the end of 2016.
- Complete HEPA filter media designs. These filter designs were evaluated 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). Nuclear Quality Assurance-1 (NQA-1) qualification testing of the full-scale filter designs at Mississippi State University is ongoing. All testing of the filter "Design 4" for the safe-change housings have been completed successfully. Testing for the remote-change filters are ready to start, once fabricated by the vendor.
- Submission of the HLW Facility completion plan to ORP is expected by the end of calendar year 2016. This is a key strategy document that provides the strategy, approach, and key deliverables required for DOE to authorize full release of procurement and construction of the HLW Facility. In addition, this plan provides the strategy for development of the revised performance baseline.

### **Issues Encountered during the Reporting Period**

- Funding for the HLW Facility continues to be constrained due to higher priority LBL work within the WTP, which has resulted in limited engineering resources to perform production work. Limited construction is continuing with concrete placements at the 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 installing a roof and siding on the facility is not expected in the near term
  - *Impact:* Delay in completing HLW Facility redesign activities.
  - *Actions initiated or taken to address potential project schedule slippage:*
    - Continue to discuss the funding needs for the WTP Project with DOE headquarters, including the remaining engineering, procurement, and construction (EPC) work at the HLW Facility.

- Evaluating funding alternatives and planning scenarios to define additional scope that could be performed if increased funding becomes available.

#### **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 and construction resources to perform production work.
  - *Impact:* The project schedule for completing the HLW Facility could be at risk.
  - *Actions initiated or taken to address potential project schedule slippage:* Continue to discuss the funding needs for the WTP Project with DOE headquarters, including the remaining EPC work at the HLW Facility to ensure funds are made available.

## **Low-Activity Waste Facility**

**Federal Project Director:** Bill Hamel

**Facility Federal Project Director:** Jeff Bruggeman

As of August 2016, the Low-Activity Waste (LAW) Facility was 56 percent complete overall, with engineering design 78 percent complete, procurement 72 percent complete, construction 81 percent complete, and startup and commissioning 7 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**

- Thermal catalytic oxidizer (TCO) assembly was welded in place in its final location on the 48-foot (+48 foot) elevation.
- Started LAW Secondary Off-gas/Vessel Vent Process System pipe tie-ins between TCO and ammonia skid.
- Both melters gas barrier lids were placed on the melter and welding completed.
- The bubbler in melter #1 was temporarily installed to verify proper fit-up of melter shield lid.
- Started non-destructive examination on Wet Electrostatic Precipitator (WESP) vessels.
- The 45-day public review comment period for the Dangerous Waste Permit for the LAW Facility melters concluded on September 30, 2016. Bechtel National, Inc. (BNI); U.S. Department of Energy (DOE), Office of River Protection (ORP), and Ecology are working to resolve all comments received.
- Installed 410 linear feet of process piping.
- Installed 1,940 linear feet of conduit and pulled 44,080 linear feet of cable.
- Installed 94 process area penetration seals.

### **Accomplishments Expected in the Next Three Months**

- Weld shield lids onto the melters.
- Evaluate preliminary hazard category calculation for LAW.
- Perform additional melter base welds to support seismic analysis.
- Develop hazard identification checklist, what-if tables and process hazard analysis events for accident scenarios to support preliminary documented safety analysis (PDSA) update development.
- Complete non-destructive examination on WESP vessels.

- Install melter off-gas caustic scrubber vessel.

### **Issues Encountered during the Reporting Period**

- No new issues were encountered during the reporting period.

### **Issues Expected in the Next Three Months**

- 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 project schedule slippage:*
    - Additional personnel have been added to the CGD group and these personnel are working 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 have been 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 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 project 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.

- 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 off-gas system that prevents noxious gas from the melter from harming the facility workers.
  - *Impact:* The LAW C5V may require redesign for purposes of safety classification.
  - *Action initiated or taken to address potential project schedule slippage:* Develop a safety control strategy for loss of LAW melter plenum vacuum due to off-gas 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 off-gas failure (i.e., C5V must handle melter off-gas stream).
    - Review an engineering study to evaluate common mode failures between LAW melter off-gas and C5V systems; and to determine capacity, durability, and survivability of C5V during off-gas 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

## **Balance of Facilities**

**Federal Project Director:** Bill Hamel

**Facility Federal Project Director:** Jason Young

As of August 2016, the Balance of Facilities (BOF) was 60 percent complete overall, with engineering design 80 percent complete, procurement 76 percent complete, construction 87 percent complete, and startup and commissioning 19 percent complete. Design of the Effluent Management Facility (EMF) was 60 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). The BOF 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**

- Bechtel National, Inc. (BNI) energized WTP switchgear from the permanent power supply on September 17, 2016. Successful and safe energization of WTP switchgear represents the WTP Projects' first step in the transition from construction to commissioning and operations.
- A 60 percent design review of the EMF was held on August 22 through 24, 2016. The review was led by BNI with oversight and participation by the U.S. Department of

Energy (DOE), Office of River Protection (ORP) and representatives from the Washington State Department of Ecology (Ecology).

- Rebar and formwork placement continues for the EMF and BNI has started placement of the rebar to support stem walls as part of the basemat.
- The subcontractor for soldier pile placement is on site and beginning work. These construction aids are needed to allow safe excavation of the low point drain section of the EMF.
- To mitigate project impacts from energization delays, BNI provided a temporary power supply for nonradioactive liquid waste disposal system to support energized component testing.

#### **Accomplishments Expected in the Next Three Months**

- Formal submittal of the EMF Secondary Containment Permit.
- BOF switchgear (Building 91) will complete testing required for energization from the WTP switchgear (Building 87).
- Initial startup testing activities will begin in the Water Treatment Facility.
- Preparations for placement of the EMF basemat will continue.
- BNI will award the procurement of the EMF evaporator.

#### **Issues Encountered during the Reporting Period**

- Ecology's review of the Draft EMF Secondary Containment Permit has taken longer than planned. BNI submitted the Draft EMF Secondary Containment Permit for informal review on June 21, 2016. Comment resolution has exceeded the project schedule duration planned for this activity.
  - *Impact:* BNI cannot submit the formal permit as planned in the WTP project schedule, resulting in delays to the DFLAW critical path that are not anticipated at this time to affect DOE's ability to achieve Consent Decree milestones.
  - *Actions initiated or taken to address potential WTP project schedule slippage:*
    - Discussions with Ecology continue on comments to the Draft Secondary Containment Permit.
    - Strategic discussions with Ecology continue on options for the permitting needs at EMF that will help recover schedule.
- Deficient material conditions within the Building 87, delays in equipment procurement, test equipment certification issues, and incomplete test procedures delayed initial energization of the permanent power supply from April 2016 until September 2016.
  - *Impact:* Energization of the Building 91 and startup testing activities for the power distribution to other BOFs is being delayed.

- *Actions initiated or taken to address potential project schedule slippage:*
  - Lessons learned from these occurrences have been passed on to the group preparing for energization of the BOF Switchgear Building 91.
  - BNI has supplied a temporary power supply connection to support nonradioactive liquid waste disposal system (NLD) testing.
  - Electrical equipment issues identified in the WTP Switchgear Building 87 are influencing the scope of ongoing system walkdowns in other facilities.

### **Issues Expected in the Next Three Months**

- If delays to the formal submittal of the EMF Secondary Containment Permit continue, the start of construction for EMF will slip.
  - *Impact:* Continued delays to the start of EMF construction will result in continued impacts to the WTP Project critical path that are not anticipated at this time to affect DOE's ability to achieve Consent Decree milestones.
  - *Actions initiated or taken to address potential project schedule slippage:*
    - BNI is looking for opportunities to accelerate non-permit affected activities.
    - BNI continues to look for opportunities to accelerate comment resolution and facilitate submittal of the EMF Secondary Containment Permit to ORP for certification and transmittal to Ecology.
    - BNI is developing alternative approaches to the current permit process to streamline future permitting activities.
- If similar conditions in Building 87 occur for Building 91, such as deficient material conditions and incomplete test procedures, distribution of power to the rest of the BOF will be delayed.
  - *Impact:* Delayed testing of BOF switchgear systems delayed power distribution to the Cooling Tower Facility as well as its availability to support component testing in other BOF.
  - *Actions initiated or taken to address potential project schedule slippage:*
    - Delays to the energized testing of the nonradioactive liquid waste disposal system and Water Treatment Facility can be mitigated via a temporary power supply. However, the large electrical load of the cooling tower pumps requires energization from the permanent power supply via Building 91.
    - Breakers refurbishment for the 4160V and 480V distribution systems continue.
    - 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 August 2016, the LAB was 61 percent complete overall, with engineering design 80 percent complete, procurement 88 percent complete, construction 95 percent complete, and startup and commissioning 13 percent complete.

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

### **Accomplishments during the Reporting Period**

- BNI completed turnover of the process control water and fire protection water systems to startup in support of the test engineers' workstation.
- BNI completed turnover of the test engineers' workstation from construction to startup for system testing.
- BNI completed the C5V system operations engineering study in a direct-feed low-activity waste configuration.
- BNI completed LAB system walkdowns in support of DFLAW modifications.

### **Accomplishments Expected in the Next Three Months**

- BNI to issue the temporary laboratory space request for proposal, which allows for earlier laboratory methods development and training to ensure laboratory staff are ready at the start of commissioning.
- BNI to load software and begin testing control and monitoring systems in the test engineers' workstation to support the non-radioactive liquid waste disposal system functional tests.
- BNI to receive replacement heating, ventilation, air-conditioning (HVAC) condenser.

### **Issues Encountered during the Reporting Period**

- The amount of coolant in the air conditioning system servicing the test engineers' workstation area created a potential asphyxiation hazard
  - *Impact:* The occupancy certificate needed to allow startup testing and operation of the test engineers' workstation cannot be issued
  - *Action initiated or taken to address potential project schedule slippage:*
    - BNI has procured a replacement HVAC condenser that uses a lower volume of refrigerant eliminating the asphyxiation hazard. It should be installed in time so that no temporary alternative will be needed.

- 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 project schedule slippage:*
    - Walkdowns were performed by BNI to determine the most efficient way to bypass the C5V during DFLAW operations.
    - BNI completed the engineering study and selected a recommended approach which is under review by the U.S. Department of Energy (DOE), Office of River Protection (ORP).

#### **Issues Expected in the Next Three Months**

- There is a potential the radioactive material handling hoods in the LAB which are currently ventilated by the C3V system may have C5V airborne contamination levels.
  - *Impact:* Modifications to the LAB hood ventilation may be required
  - *Action initiated or taken to address potential project schedule slippage:*
    - BNI is in the process of developing a path forward which will be identified in a condition report and as a risk to the baseline. That path forward will include at least a safety analysis and an as low as reasonably achievable (ALARA) Design Review.

## Written Directives

Written directives from July 1, 2016, through September 30, 2016, have been included with this report.

Three letters of direction were issued to Washington River Protection Solutions LLC (WRPS) during the reporting period. The letters are listed below and copies are attached:

- 16-CPM-0103, "Contract No. DE-AC27-08RV14800 – Stop Work Order Issued on July 11, 2016," dated July 12, 2016
- 16-TF-0082, "Contract No. DE-AC27-08RV14800 – Impact Analysis Related to Stop Work Order Issued on July 11, 2016," dated July 25, 2016
- 16-TF-0101, "Contract No. DE-AC27-08RV14800 – Clarification of Washington River Protection Solutions LLS Response to Impact Analysis Related to Stop Work Order, issued on July 11, 2016," dated September 8, 2016.

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

- 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-CPM-0111, "Contract No. DE-AC27-01RV14136 – Transmittal of Contract Modification No. 375 – Change Order to Update the Natural Phenomena Hazards Assessment by Generating a Revised Site-Specific Response Analysis and Design Response Spectra," dated August 9, 2016
- 16-CPM-0127, "Contract No. DE-AC27-01RV14136 – Transmittal of Contract Modification No. 376," dated August 23, 2016
- 16-NSD-0035, "Contract No. DE-AC27-01RV14136 – Approval of Preliminary Documented Safety Analysis Change Packages in Support of the Balance of Facilities Realignment to the General Information and the Facility Specific Preliminary Documented Safety Analysis," dated August 26, 2016.

## Retrieval Labor Hours

*Federal Project Director:* Tom Fletcher

*Facility Operations Activity Manager:* Chris Kemp

### Labor Hours Expended on Self Contained Breathing Apparatus (July - September)

	SCBA Direct Labor Hours	SCBA Subcontractor Hours <sup>1</sup>	Total SST Operation Hours	Total Hours <sup>2</sup>	Total Percent on SCBA	Detrimental Impacts <sup>3</sup>
C Farm	8,371	3,640	12,011	76,175	16%	23
A/AX Farm	4,506	6,060	10,566	71,854	15%	23
<b>Total</b>	<b>12,877</b>	<b>9,700</b>	<b>22,577</b>	<b>148,029</b>	<b>15%</b>	<b>23</b>

<sup>1</sup> Subcontractor hours include labor hours from subcontractors including; North Point Electrical Contracting Inc., Geophysical Survey Inc., Fowler General Construction, American Electric, BNL Technical Services, and Intermech Inc.

<sup>2</sup> Includes all labor hours that supported SST farms in retrieval including support outside farm fence (Engineering, Project Management and other support accounts)

<sup>3</sup> 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 Re-boiler 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 re-boiler 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 Washington River Protection Solutions LLC (WRPS) with funding to accelerate the planned fiscal year (FY) 2017 work to design and procure the spare E-A-1 re-boiler. DOE Office of River Protection (ORP) authorized WRPS to proceed by awarding a not-to-exceed contract action. The current procurement strategy is to award a design/build procurement contract with a vendor no later than December 21, 2016.
- Proposals for the design/build of the new spare 242-A Evaporator reboiler have been received by procurement. The technical evaluation of the proposals will be performed on Wednesday, October 5, 2016. Upon completion of the technical evaluation a vendor will be selected for award.



**OFFICE OF RIVER PROTECTION**

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

**JUL 12 2016**

16-CPM-0103

Ms. Katie Downing, Contracts Manager  
Washington River Protection Solutions LLC  
2425 Stevens Center Place  
Richland, Washington 99354

Ms. Downing:

**CONTRACT NO. DE-AC27-08RV14800 – STOP WORK ORDER ISSUED ON JULY 11, 2016**

The purpose of this letter is to request that Washington River Protection Solutions LLC provide a preliminary analysis to the U.S. Department of Energy, Office of River Protection, by no later than July 25, 2016, in regards to the stop work order issued on July 11, 2016. This analysis shall include, as a minimum, the potential impacts (cost, schedule, and scope) to meeting the Tank Operations contract deliverables. Also, include any impacts to Consent Decree milestones, AY-102 work activities, and implementation of the recommendations from the Tank Vapor Assessment Team.

A handwritten signature in black ink, appearing to read "Wade E. Hader".

Wade E. Hader  
Contracting Officer

CPM:WEH

cc: WRPS Correspondence



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

16-TF-0082

**JUL 25 2016**

Ms. Katie Downing, Contracts Manager  
Washington River Protection Solutions LLC  
2425 Stevens Center Place  
Richland, Washington 99354

Ms. Downing:

**CONTRACT NO. DE-AC27-08RV14800 – IMPACT ANALYSIS RELATED TO STOP WORK ORDER ISSUED ON JULY 11, 2016**

Reference: WRPS letter from K.A. Downing to W.E. Hader, ORP, "Washington River Protection Solutions LLC Response to the Stop Work Order Issued on July 11, 2016," WRPS-1602413 R1, dated July 21, 2016.

The purpose of this letter is to request that Washington River Protection Solutions LLC (WRPS) provide additional analysis to the U.S. Department of Energy (DOE), Office of River Protection (ORP) in regards to the Hanford Atomic Metal Trades Council directed stop work order issued to WRPS on July 11, 2016. ORP has reviewed the preliminary WRPS analysis provided (Reference), and requests that WRPS provide a more detailed analysis to include the impacts through the contract period (Option Period 2 ending September 30, 2018) and any projected impacts toward the progress needed to meet existing DOE commitments.

As part of the analysis, please include a specific break out of the impacts of mandatory supplied air within all tank farms combined with expanded vapor control zones not less than 200 feet outside the tank farm fence line for periods of waste disturbing activities.

In regards to any impacts to the Fiscal Year 2016 Performance Based Incentives or the Option 2 Contract Cost Proposal, ORP will evaluate those impacts at a later date.

Please forward the detailed analysis to ORP no later than August 10, 2016.

  
Wade E. Hader  
Contracting Officer

TF:GDT

cc:  
A.D. Basche, WRPS  
R.E. Gregory, WRPS  
M.A. Lindholm, WRPS  
WRPS Correspondence



**OFFICE OF RIVER PROTECTION**

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

16-TF-0101

**SEP 08 2016**

Ms. Katie A. Downing, Contracts Manager  
Washington River Protection Solutions LLC  
2425 Stevens Center Place  
Richland, Washington 99354

Ms. Downing:

**CONTRACT NO. DE-AC27-08RV14800 – CLARIFICATION OF WASHINGTON RIVER PROTECTION SOLUTIONS LLC RESPONSE TO IMPACT ANALYSIS RELATED TO STOP WORK ORDER ISSUED ON JULY 11, 2016**

- References:
1. WRPS letter from K.A. Downing to W.E. Hader, ORP, "Washington River Protection Solutions LLC Response to the Impact Analysis Related to Stop Work Order Issued on July 11, 2016," WRPS-1602413 R2, dated August 11, 2016 (reissued September 7, 2016).
  2. WRPS letter from K.A. Downing to W.E. Hader, ORP, "Washington River Protection Solutions LLC Response to the Stop Work Order Issued on July 11, 2016," WRPS-1602413 R1, dated July 21, 2016.

The purpose of this letter is to request that Washington River Protection Solutions LLC (WRPS) provide clarification to the U.S. Department of Energy (DOE), Office of River Protection (ORP) in regards to Reference 1. Although the analysis WRPS submitted in Reference 1 is helpful, it raises some additional questions that must be addressed so that DOE can better understand the impacts, for example, resulting from workers wearing self-contained breathing apparatus (SCBA) in single-shell tank (SST) farms, double-shell tanks farms, and overall tank operations.

ORP understands that the evaluation and response is still evolving. ORP has reviewed the WRPS analysis provided and requests that WRPS provide clarification/additional information on the following:

- Impacts to Base Operations and your ability to achieve the schedule necessary to timely retrieve waste from the SSTs in accordance with existing schedules and WRPS's contract. Identify any mitigation measures that could ensure that existing SST retrieval schedules will not be adversely impacted (while continuing to meet nuclear safety basis requirements).
- Key assumptions and specifics used in creating the *Consent Decree/TPA Milestone Impacts* table presented in Reference 2 Enclosure 3, in particular with respect to the Low-Activity Waste Facility Hot Commissioning dates. ORP is not able to adequately reconcile the information presented in this table without a better understanding of the underlying assumptions and priorities.

SEP 08 2016

Katie A. Downing  
16-TF-0101

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- Impacts to the Tank Vapors Assessment Team Implementation Plan Phase 1 and Phase 2 activities resulting from the continued use of supplied air.
- WRPS' expectation of the schedule for completion of SST retrievals if no additional funds are received to mitigate the impacts of increased SCBA use according to the Hanford Atomic Metal Trades Council (HAMTC) demands and the August 31, 2016, Memorandum of Agreement between HAMTC and WRPS.
- Activities performed by other Hanford Contractors that are impacted by SCBA use within the tank farm boundaries (that were not included in Reference 1) that could impact Base Operations or WRPS's ability to complete SST retrievals in accordance with existing schedules and WRPS's contract. Describe the effect on work to be performed and the projected amount of funding that WRPS believes is necessary to carry out any such activities.
- Evaluate and discuss other considerations that would give DOE a more informed view of the short term and potential long term impacts including an update based upon the August 31, 2016, Memorandum of Agreement between HAMTC and WRPS.

In responding to this request, include the data based on your current contract period (with extension through fiscal year 2018) and then extrapolate that pace/level of operations/funding through 2024. Please forward the clarification to the above questions to ORP no later than October 5, 2016.



Wade E. Hader  
Contracting Officer

TF:TWF

cc:

A.D. Basche, WRPS  
R.E. Gregory, WRPS  
M.A. Lindholm, WRPS  
WRPS 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 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.

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 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.

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. H. Wall Date: 6/16/16

Nuclear Safety Division Director: [Signature] 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			
11	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.
11	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.
17	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).
13	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
86	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, Rem 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-2002-1B, 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 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-1 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 DOE's 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-2002-1B, 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.
157	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 C1 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 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 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 BNI 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
216	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-ISG-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
228	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 overblows, 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
240	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 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).	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
116	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
117	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
118	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-11 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
119	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
121	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
121	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
143	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
144	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 TSRs." " 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
145	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

**AUG 09 2016**

16-CPM-0111

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. 375 – CHANGE ORDER TO UPDATE THE NATURAL PHENOMENA HAZARDS ASSESSMENT BY GENERATING A REVISED SITE-SPECIFIC RESPONSE ANALYSIS AND DESIGN RESPONSE SPECTRA**

The purpose of this letter is to transmit a signed original of Contract Modification No. 375. The modification directs Bechtel National, Inc. to generate a revised site-specific response analysis and design response spectra incorporating Hanford site-wide Probabilistic Seismic Hazard Analysis report from PNNL, dated November 21, 2014. The modification establishes a not-to-exceed (NTE) value of \$400,000 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% 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) 376-6727. For contract-related questions, please contact Katie Mair at (509) 376-4427.

A handwritten signature in black ink that reads "Katie Mair".

Katie Mair  
Contracting Officer

CPM:KAM

Attachment

cc w/attach:  
BNI Correspondence Control

**Attachment  
to  
16-CPM-0111**

**Contract Modification 375**

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. CONTRACT ID CODE \_\_\_\_\_ PAGE **1** OF **6** PAGES

2. AMENDMENT/MODIFICATION NO. **375** 3. EFFECTIVE DATE (M/D/Y) **See Block 16C** 4. REQUISITION/PURCHASE REQ. NO. \_\_\_\_\_ 5. PROJECT NO. (If applicable) \_\_\_\_\_

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

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

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 1.82, 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 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)  
**Katie Mair**  
**Contracting Officer**

15B. CONTRACTOR/OFFEROR \_\_\_\_\_ 15C. DATE SIGNED \_\_\_\_\_ 16B. UNITED STATES OF AMERICA  
 BY Katie Mair 16C. DATE SIGNED **8/9/16**  
 (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 update the Natural Phenomena Hazards (NPH) Assessment by generating a revised site-specific response analysis and design response spectra for WTP incorporating Hanford site-wide Probabilistic Seismic Hazard Analysis (PSHA) report from PNNL, dated November 21, 2014.

This change is based on ORP letter from W.F. Hamel, ORP-WTP to J.M. St. Julian, BNI, "Scope of work for generating revised WTP (and associated sites) specific response analysis and design response spectra using 2014 probabilistic seismic hazard analysis report data," 15-WTP-0052, dated April 8, 2015.

2. The Contractor is directed to proceed with the work scope in Section C, *Statement of Work, Standard 3 Design*, paragraph k below. The contractor is authorized to incur costs up to a not-to-exceed (NTE) value of \$400,000 consistent with the other contract terms and conditions and pending definitization of this change.
3. Contractor shall submit a proposal within 90 days of the date of this change order. Negotiations will commence within 120 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:

(k) Generation of a revised site-specific response analysis and design response spectra for WTP as follows: (375)

(1) Perform a detailed review of the PNNL Probabilistic Seismic Hazard Analysis (PSHA) calculation and data package.

- (2) Generate site soil amplification functions and develop updated horizontal and vertical response spectra at ground surface using approach 3 of NUREG/CR 6728.
- (3) Ensure software used for this assessment have documented verification and validation (V&V).

A Not-to-Exceed value of \$400,000 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:

- Item (A) Total Estimated Contract Cost (TECC) is increased by \$400,000, from \$10,878,733,790 to \$10,879,133,790.
- The Revised Total Estimated Contract Cost (including A & B) is increased by \$400,000, from \$10,921,302,346 to \$10,921,702,346.
- The Total Estimated Contract Price (TECP) is increased by \$400,000, from \$11,516,600,886 to \$11,517,000,886.

2. 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.3, *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 <b>Mod 375</b>		<b><u>\$10,879,133,790</u></b>
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 *
	<b>Revised Total Estimated Contract Cost through Mod 375</b>		<b><u>\$10,921,702,346</u></b>

**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) (375)

**\$11,517,000,886**

\* 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 (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 layout (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) 16-CPM-0088 (372)	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	350

	and Site-Wide Modifications necessary to support the Direct Feed of LAW (DFLAW)	
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.	
Modification 375 ORP-CPM-0111	Update the Natural Phenomena Hazards (NPH) Assessment by generating a revised site-specific response analysis and design response spectra for WTP incorporating Hanford site-wide Probabilistic Seismic Hazard Analysis (PSHA) report from PNNL, dated November 21, 2014. (375)	

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

**AUG 23 2016**

16-CPM-0127

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. 376

The purpose of this letter is to transmit an executed original of the subject modification. This modification revises Contract Section C, Statement of Work, and Section J, List of Attachments. The updated conformed contract sections can be accessed from the U.S. Department of Energy, Office of River Protection website.

If you have any questions regarding this contract action, please contact me at (509) 376-4427.

A handwritten signature in black ink that reads "Katie Mair".

Katie A. Mair  
Contracting Officer

CPM:KAM

Attachment

cc w/attach:  
BNI Correspondence

Attachment  
to  
16-CPM-0127

Contract Modification 376

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

2. AMENDMENT/MODIFICATION NO. <b>376</b>		3. EFFECTIVE DATE (M/D/Y) <b>See Block 16C</b>	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
6. ISSUED BY <b>U.S. Department of Energy Office of River Protection P. O. Box 450, MS H6-60 Richland, WA 99352</b>		7. ADMINISTERED BY (If other than Item 6)	CODE	

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)  <b>Bechtel National, Inc. 2435 Stevens Center Place Richland, WA 99354</b>	<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. <b>DE-AC27-01RV14136</b>
	<input checked="" type="checkbox"/>	10B. DATED (SEE ITEM 11) <b>December 11, 2000</b>

CODE **396A5** FACILITY CODE **153392068**

**11. THIS ITEM APPLIES TO AMENDMENTS OF SOLICITATIONS**

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

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

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

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO AUTHORITY OF FAR 43.103(b).
<input checked="" type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO THE AUTHORITY OF: Clause L82, FAR 52.243-2 Changes - Cost Reimbursement (AUG 1987) - Alternate III (APR 1984)
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

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

**14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCP section headings, including solicitation/contract subject matter where feasible.)**  
 See following page(s)  
 Period of Performance: 12/11/2000 to 8/15/2019

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) <b>Margaret G. McCullough Project Director</b>		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) <b>Katie A. Mair Contracting Officer</b>	
15B. CONTRACTOR/OFFEROR <i>Margaret G. McCullough</i> <small>(Signature of person authorized to sign)</small>	15C. DATE SIGNED <b>7/22/16</b>	16B. UNITED STATES OF AMERICA BY <i>Katie Mair</i> <small>(Signature of Contracting Officer)</small>	16C. DATE SIGNED <b>8/22/16</b>

**Purpose of Modification:**

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

1. Section C, Statement of Work, is revised to remove Cross References that were affected by deleting DOE/RL-88-21 from Section J, List of Attachments, Attachment E(b) - List of Applicable Directives.
2. Section J, List of Attachments, is revised as follows:
  - a. Attachment E(b) - List of Applicable Directives is revised to delete DOE/RL-88-21.
  - b. Attachment F - Key Personnel, is revised to update the list of key personnel.

These changes are performed under the authority provided by Contract Clause I.82, FAR 52.243-2 *Changes - Cost Reimbursement (AUG 1987) - Alternate III (APR 1984)* at no additional cost to the Government.

**Description of Modification:**

1. Section C, Statement of Work, is revised to remove Cross References that were affected by deleting DOE/RL-88-21 as follows:
  - a. Standard 7(e)(4)(vi)(B) is revised as follows:

- (B) Dangerous Waste Permit Application (Table C.5-1.1, Deliverable 7.5): Prepared as a chapter to the *Dangerous Waste Portion of the Resource Conservation and Recovery Act Permit for the Treatment, Storage and Disposal of Dangerous Waste at the Hanford Facility* (Permit No. WA 7890008967).

Dangerous Waste Codes are identified in ~~the Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, October 4, 1986)~~ Part III, Operating Group 12, DST System/204 AR Waste Unloading Station, Dangerous Waste Permit Application Part A Form. The Contractor facilities shall be permitted to assure that the facility may manage and treat all waste codes applicable to the Hanford Double-Shell Tank system, ~~except for ignitable and reactive waste codes, D001 and D003, that will not be present in direct feed LAW pursuant to ICD-30.~~

The Contractor shall develop and implement a plan for DOE review and approval for revising the Dangerous Waste Permit Application and obtaining the final status permit modification. The plan shall be developed in cooperation with DOE and the regulatory agencies. The Contractor shall revise the Dangerous Waste Permit Application (Table C.5-1.1, Deliverable 7.5), support the dangerous waste permitting process, and work with the regulatory agencies and DOE to obtain final status under the Dangerous Waste Regulations to support WTP construction and commissioning activities. Construction of the treatment facility may commence prior to a final status permit being issued provided the regulatory agencies agree.

b. Section C.8, Specification 7.2.1.4, DELETE as follows:

~~7.2.1.4 DELETED (376) DOE/RL-88-21, Revision 10, December 21, 1999, Double-Shell Tank Unit Permits Application, U.S. Department of Energy, Richland Operations Office, Richland, Washington.~~

c. Section C.8, Specification 7.2.2.1, the last paragraph is revised as follows:

Dangerous waste codes are identified in Part III, Operating Group 12, DST System/204 AR Waste Unloading Station, Dangerous Waste Permit Application Part A Form, the ~~Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, December 21, 1999)~~, Multi-source leachate (F039) is included as a waste derived from non-specific source wastes F001 through F005.

d. Section C.8, Specification 8.2.1.4, DELETE as follows:

~~8.2.1.4 DELETED (376) DOE/RL-88-21, Revision 10, December 21, 1999, Double-Shell Tank Unit Permits Application, U.S. Department of Energy, Richland Operations Office, Richland, Washington.~~

e. Specification 8.2.2.1, the last paragraph is revised as follows:

Applicable dangerous waste codes are identified in Part III, Operating Group 12, DST System/204 AR Waste Unloading Station, Dangerous Waste Permit Application Part A Form, the ~~Double-Shell Tank System Unit Permit Application (DOE/RL-88-21, December 21, 1999)~~, Multi-source leachate (F039) is included as a waste derived from non-specific source wastes F001 through F005.

2. Section J, List of Attachments, is revised as follows:

- a. Attachment E(b) List of Applicable Directives is revised to delete DOE/RL-88-21. Attachment E, table (b) is revised as follows:

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
<del>06-AMD-050 (CGN 144548)</del>		DELETED (310)	
<del>DOE/RL-88-21</del>	<del>10/01/96 12/21/99</del>	<del>Double-Shell Tank Unit Permit Application DELETED (376)</del>	<del>Contract Clause C.6, Standard 7(e)(4)(vi)(B) &amp; Contract Clause C.8, Specification 7, 7.2.1.4 and 7.2.2.1; Specification 8, 8.2.1.4 and 8.2.2.1 (M175)</del>
DOE/EM-0093	12/96	Waste Acceptance Product Specifications	Contract Clause C.8, Specification 1, 1.2.1.4

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
		for Vitrified High Level Waste Forms (WAPS) Revision 2 (M114)	and 1.2.2.1.1 (M175)
DOE/RL-94-02, Rev 6 (336)	06/2014 (336)	Hanford Emergency Management Plan (A197)(310) (Revision 6, June 2014) (336)	Contract Clause C.6, Standard 4(j) and Standard 7(e)(1) Table S7-1 (M175) (A197) (336)
DOE M 140.1-1B, CRD	03/30/01	Interface with Defense Nuclear Facilities Safety Board.	Contract Clause C.4 (d) (M175)
DOE O 142.3A, CRD	10/14/10	Unclassified Foreign Visits and Assignments Program. (M047) (M124) (204)	The order is effective regardless of comment above at (b) (M175)
DOE O 205.1A, CRD		DELETED (M194)	
DOE M 205.1-2		DELETED (M175)	
DOE M 205.1-5, CRD		DELETED (M194)	
DOE M 205.1-6, CRD		DELETED (M194)	
DOE M 205.1-7, CRD		DELETED (M194)	
DOE M 205.1-8, CRD		DELETED (M194)	
DOE O 206.1, CRD	01/16/09	DOE Privacy Program (235)	The order is effective regardless of comment above at (b). Contractor shall implement in accordance with CCN 231161 (321)
DOE O 206.2, CRD	02/19/13	Identity, Credential, and Access Management (307)	The order is effective regardless of comment above at (b) (307)
DOE O 210.2A, CRD	04/8/11	DOE Corporate Operating Experience Program (M077) (310)	Contract Clause H.49 (M175) Refer to Note 10 (310)

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
DOE O 221.1A, CRD	04/19/08	Reporting Fraud, Waste, and Abuse to the Office of Inspector General. (M133)	Refer to Note 3 (M175)
DOE O 221.2A, CRD	02/25/08	Cooperation with the Office of Inspector General. (M133)	Refer to Note 3 (M175)
DOE O 226.1B, CRD	04/25/11	Implementation of Department of Energy Oversight Policy (M069) (M108)(310)	Contract Clause H.46 (M175) Refer to Note 11 (310)
DOE O 231.1B, CRD (363)	6/27/2011	Environment, Safety, and Health Reporting (M033) (310)	Contract Clause C.6, Standard 1(d)(6) (M175) (310)
DOE M 231.1-1A, Change 2, CRD (332)		DELETED (332)	
DOE M 231.1-2, CRD		DELETED (256)	
SCRD M 231.1-2		DELETED (256)	
SCRD O 232.2 Admin. Change 1 (332)	8/30/11	Occurrence Reporting and Processing of Operations Information, Revision 1 (268)	Contract Clause C.6, Standard 1(d)(5) and (6). Contractor shall implement in accordance with CCN 269738 (332)
HFID 232-1B		DELETED (256)	
DOE N 234.1, CRD		DELETED (310)	
DOE O 241.1, CRD		DELETED (310)	
DOE/RW- 0333P	10/01/08	Quality Assurance Requirements and Description for the Civilian Radioactive Waste Management Program (QARD) – Revision 20 (M099) (M134)	Contract Clause C.6, Standard 2(a)(2)(v), Standard 5(d), and Standard 7(e)(3)(ii)(A) and Contract Clause C.8, Specification 1, 1.2.1.7, 1.2.2.1.1, and 1.3 (M175)
DOE O 350.1, Chg 3, CRD	02/23/10	Contractor Human Resource Management Program (M171) (M175)	Contract Clause H.37 (M175)

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
DOE/RW-0351	5/31/07	Waste Acceptance System Requirements Document (WASRD) - Revision 5 (M114)	Contract Clause C.6, Standard 2(a)(3)(vii)(E) and Standard 6(c)(2) and Contract Clause C.8, Specification 1, 1.2.1.3 and 1.2.2.1.1 (M175)
DOE O 413.3A, CRD		DELETED (271)	
DOE M 413.3-1		DELETED (271)	
DOE O 413.3B, CRD	11/29/10	Program and Project Management for the Acquisition of Capital Assets. Refer to Note 7 for implementation (271).	Contract Clause C.3, paragraph (b), subparagraph (1), item (ix), C.6, Standard 1, opening paragraph, (a), (b)(3) and (c)(1) and Standard 5(a)(6) and (k).
DOE O 414.1C, CRD	06/17/05	Quality Assurance (M066)	Contract Clause C.6, Standard 7(e)(3)(i) & (iv) (M175)
DOE 414.1D, CRD, Chg 1 (349)	05/08/13 (349)	Quality Assurance (349)	The order is effective regardless of comment above at (b) and implemented in accordance with Note 14. (349)
DOE O 420.1C, CRD, Chg 1, Chapter V	02/27/15	Facility Safety (Partial Implementation Only Chapter V. Cognizant System Engineer Program) (369)	The order is effective regardless of comment above at (b). Implemented for LBL commissioning only in accordance with CCN 276975.
DOE O 422.1, CRD	06/29/10	Conduct of Operations (207)	The notice is effective regardless of comment above at (b). Contractor shall implement consistent with CCN 229138.

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
DOE O 425.1D, Chg 1, CRD	04/16/10	Verification of Readiness to Start Up or Restart Nuclear Facilities (M033) (A190)(310)	Contract Clause C.6, Standard 5(a)(5), (c)(6), (e)(2), (f)(ii), and (g) (M175) (310). Contractor shall implement in accordance with CCN 281821 (363)
DOE O 433.1B, CRD (363) Admin Chg 1 (342)	04/21/10 (342)	Maintenance Management Program for DOE Nuclear Facilities (342)	The order is effective regardless of comment above at (b) and implemented in accordance with Note 13. (342)
DOE O 435.1, Chg 1, CRD	08/28/01	Radioactive Waste Management.	Implementation of this DOE CRD using the graded approach; approved by 05-WED- 047; CCN 136281 satisfies the comment above at (b). (M130) (M175) (278)
DOE M 435.1-1	07/09/99	Radioactive Waste Management Manual	Contract Clause C.8, Specification 2, 2.2.1.13, 2.2.2.23, & 2.4 (M175)
DOE M 441.1-1, CRD	03/07/08	Nuclear Material Packaging	The manual is effective regardless of comment above at (b) (M130) (M175)
DOE O 442.2, CRD	07/29/11	Differing Opinions for Technical Issues Involving Environment, Safety, and Health (271)	The order is effective regardless of comment above at (b) and implemented as described in CCN 246747.
DOE O 442.1A & Supplemente d Rev. 3 CRD (332)	06/06/01	Department of Energy Employee Concerns Program (A029) (293)	The order is effective regardless of comment above at (b) (M175) and implemented as described in CCN 249676. (293) Contractor shall implement in accordance with CCN 266683. (332)

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
DOE M 442.1-1 CRD		DELETED (271)	
DOE M 450.4-1, CRD		DELETED (310)	
DOE M 470.4-1, CRD	08/26/05	Safeguards and Security Program Planning and Management (M136) (M171)	Refer to Note 1 (M175)
DOE M 470.4-2A, GRD		DELETED (310)	
DOE M 470.4-4A	01/16/09	Information Security Manual (M145)	Refer to Note 2 (M175)
DOE O 471.3, CRD	4/9/03	Identifying and Protecting Official Use Only Information (M087)	Contract Clause H.50 (M175)
DOE M 471.3-1, Chg 1, CRD	4/9/03	Manual for Identifying and Protecting Official Use Only Information (M087) (310)	Contract Clause H.50 (M175) Refer to Note 12 (310)
DOE O 475.1, CRD	12/10/04	Counterintelligence Program (M071)	Contract Clause C.6, Standard 8(c) (M175)
DOE/RW- 0511, Volume I, Rev. 4	03/07/20 08	Integrated Interface Control Document (IICD), High-Level Radioactive Waste and U.S. Department of Energy and Naval Spent Nuclear Fuel to the Civilian Radioactive Waste Management System (M114)	Contract Clause C.8, Specification 1,1.2.1.5 and 1.2.2.1.1 (321)
DOE O 551.1D, CRD	04/02/12	Official Foreign Travel. Refer to Note 4. (M141) (M175) (283)	Contract Clause I.109 (M175). Implemented in accordance with CCN 243970, 12-WTP-0272 (CCN 251792) and Note 4. (283)(363)
DOE-HDBK- 1092-2004, Appendix A	12/2004	DOE Electrical Safety Handbook. Refer to Note 6 (209)	The order is effective regardless of comment above at (b).
RL/REG- 2000-04		DELETED (215)	

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
<del>DOE/ORP-2000-06</del>		Deleted through Contract Modification M082 (M175)	
<del>DOE STD 3008</del>		DELETED (310)	
<del>DOE O 5480.20A, Change 1, CRD</del>		DELETED (310)	
SCSP	5/9/06	Richland Regional Office Site Counterintelligence Support Plan Hanford Site - Bechtel National, Inc. (M071)	Contract Clause C.6, Standard 8(c) (M175)
<del>DOE-0364</del>		DELETED (366)	
HNF-EP-0063	02/01/11	Hanford Site Solid Waste Acceptance Criteria (310)	The order is effective regardless of comment above at (b).
DOE/RL-92-36 (342)	11/18/14	Hanford Site Hoisting and Rigging Manual (342)	The order is effective regardless of comment above at (b) and implemented in accordance with Note 13.
DOE/RL-2001-36, Rev 1E, Appendix I.7	05/01/11	ILAW Special Packaging Authorization of the Hanford Site-wide Transportation Safety Document (310)	Implemented per C.8, Specification 2, 2.2.1.21 and 2.2.2.10. (293)
DOE O 151.1C, CRD	11/02/05	Comprehensive Emergency Management System (310)	Implemented in accordance with DOE/RL-94-02.
DOE O 473.3, CRD	06/29/11	Protection Program Operations (310)	The order is effective regardless of comment above at (b).
DOE O 426.2, CRD	04/21/10	Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities (310)	Contract Clause C.3(f)(6) (321), Refer to Note 8 (310)
DOE O 225.1B, CRD (363)	03/04/11	Accident Investigations (310)	Refer to Note 9 (310)

DOCUMENT NUMBER	DATE	TITLE	CROSS REFERENCE
DOE STD 3009	1994	Preparation Guide for DOE Nonreactor Nuclear Facility Safety Analysis Reports (Change Notice 3, March 2006) (A029) (M152) (321)	Contract Clause C.6, Standard 9, paragraph 2. (321)
DOE-HDBK-1092-2013, Appendix D	07/2013	DOE Electrical Safety Handbook. Refer to Note 15 (353)	The order is effective regardless of comment above at (b).

b. Attachment F – Key Personnel, is revised to update the list of key personnel as follows:

- James Tibble will replace Thomas Hughes as Manager of Quality
- Thomas Hughes will replace Mark Johnson as Manager of Production Engineering

The table in Attachment F is revised as follows:

<u>Key Position</u>	<u>Current Employee</u>
(M110) (M130) (M133) (M147) (M152) (M158) (A164) (M181) (206) (208) (242) (261) (276) (291) (303) (308) (332) (336) (353)	
Project Director	Margaret McCullough
Project Manager	Joseph St. Julian
Manager of Design, Operations & Integration	Alan Dobson
Manager of Environment, Safety & Health	Phillip Worley
Manager of Nuclear Safety Engineering	Robert (R.T.) Brock
Manager of Quality	<del>Thomas Hughes</del> James Tibble
Plant Operations Manager	Ken Wells
Project Technical Director & Design Authority	Ian Milgate
Manager of Production Engineering	<del>Mark Johnson</del> Thomas Hughes

**Contract No. DE-AC27-01RV14136**  
**Modification No. 376**  
**SF-30 Continuation**

<b>Manager of Construction</b>	<b>Danny Hydrick</b>
<b>Business Services Manager</b>	<b>Lori Baker</b>

**3. All other terms and conditions remain unchanged.**

**(End of Modification)**



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

16-NSD-0035

**AUG 26 2016**

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

Mrs. McCullough:

**CONTRACT NO. DE-AC27-01RV14136 – APPROVAL OF PRELIMINARY DOCUMENTED SAFETY ANALYSIS CHANGE PACKAGES IN SUPPORT OF THE BALANCE OF FACILITIES REALIGNMENT TO THE GENERAL INFORMATION AND THE FACILITY SPECIFIC PRELIMINARY DOCUMENTED SAFETY ANALYSIS**

- References:
1. ORP letter from K.W. Smith to M.G. McCullough, BNI, "Approval of Preliminary Documented Safety Analysis Change Packages in Support of the Balance of Facilities Realignment to the General Information and the Facility Specific Preliminary Documented Safety Analysis," 16-NSD-0003, dated February 25, 2016.
  2. BNI letter from M.G. McCullough to K.W. Smith, ORP, "Resolutions for Conditions of Approval and Directed Change in Support of the Balance of Facilities Realignment to the General Information and the Facility Specific Preliminary Documented Safety Analysis," CCN: 284104, dated June 13, 2016.

By Reference 1, the U.S. Department of Energy, Office of River Protection transmitted its approval of Preliminary Documented Safety Analysis (PDSA) Change Packages associated with the Balance of Facilities (BOF) realignment subject to nine identified Conditions of Approval (COA) and one directed change.

These nine COAs are broken down to the following: seven COAs for Safety Basis Change Package 24590-WTP-SBCP-ENS-14-0042, *Transfer of Information from BOF Volume PDSA to the HLW Volume (DFO and ETG Systems)*; and two COAs for Safety Basis Change Package 24590-WTP-SBCP-ENS-14-0046, *Transfer of Information from BOF Volume (24590-WTP-PSAR-ESH-01-002-50) to the General Information Volume (24590-WTP-PSAR-ESH-01-002-01)*.

AUG 26 2016

Mrs. Margaret McCullough  
16-NSD-0035

-2-

The directed change required a review of the scope of structures, systems, and components; with multiple facility impacts and justification of the facility assignment by the BOF realignment. 24590-WTP-RPT-ENS-12-004, Rev. 2, Report, *Realignment of BOF PDSA Systems*, dated November 18, 2014, satisfies this required review, providing guidance on which systems are removed from the BOF PDSA and which facility PDSA will gain the respective lead responsibility.

Reference 2 submitted the resolutions for the COAs and the Direct Change from Reference 1 to Office of River Protection for review. Each COA change was validated as being correct in each of the aforementioned PDSAs. A review of the Directed Change was also conducted to verify that there are no safety class or safety significant components in either the BOF PDSA or in the General PDSA.

Bechtel National, Inc. can consider the COAs and Directed Change closed with receipt of this letter, please update your COA tracking database.

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.

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

NSD:FAF

  
Kevin W. Smith  
Manager

cc: BNI Correspondence