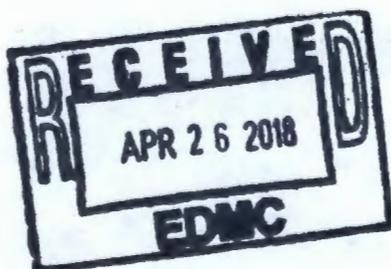


**FINAL**

Office of River Protection  
Consent Decree  
Monthly Report  
April<sup>1</sup> 2018



**Consent Decree, *State of Washington v. Dept. of Energy*, No: 08-5085-FVS (October 25, 2010)**  
**Amended Consent Decree, *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP**  
**(March 11, 2016)**  
**Second Amended Consent Decree, *State of Washington v. Dept. of Energy*,**  
**No: 2:08-CV-5085-RMP (April 12, 2016)<sup>2</sup>**

---

<sup>1</sup> Except where otherwise expressly stated, the narrative descriptions of progress in this report cover the period through March 31, 2018. Earned Value Management System data and descriptions cover the period through February 28, 2018; this includes the facility completion percentage estimates included at various locations in the Waste Treatment and Immobilization Plant section.

<sup>2</sup> The cited consent decrees are between the State of Washington and U.S. 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.

TOPIC ..... PAGE

ACRONYMS AND ABBREVIATIONS .....2

CONSENT DECREE MILESTONE STATISTICS/STATUS .....3

CONSENT DECREE REPORTS/REVIEWS .....5

SPARE REBOILER REQUIREMENT STATUS.....6

SINGLE-SHELL TANK RETRIEVAL PROGRAM .....7

TANK WASTE RETRIEVAL WORK PLAN STATUS.....10

WASTE TREATMENT AND IMMOBILIZATION PLANT PROJECT .....13

PRETREATMENT FACILITY .....19

HIGH-LEVEL WASTE FACILITY .....23

LOW-ACTIVITY WASTE FACILITY .....27

BALANCE OF FACILITIES .....30

ANALYTICAL LABORATORY .....33

WASTE TREATMENT PLANT PROJECT PERCENT COMPLETE STATUS (TABLE) 35



**Acronyms and Abbreviations**

BNI	Bechtel National, Inc.
BOF	Balance of Facilities
C#V	ventilation system for potential contamination zones C#
CV	cost variance
DFLAW	direct-feed low-activity waste
DOE	U.S. Department of Energy
DSA	documented safety analysis
Ecology	Washington State Department of Ecology
EMF	Effluent Management Facility
EVMS	Earned Value Management System
FY	fiscal year
HLW	High-Level Waste (Facility)
LAB	Analytical Laboratory
LAW	Low-Activity Waste (Facility)
LBL	Low-Activity Waste Facility, Balance of Facilities, and Analytical Laboratory
ORP	U.S. Department of Energy, Office of River Protection
PT	Pretreatment (Facility)
SCBA	self-contained breathing apparatus
SHSV	standard high-solids vessel
SV	schedule variance
USACE	U.S. Army Corps of Engineers
WTP	Waste Treatment and Immobilization Plant

**Consent Decree Milestone Statistics/Status**

<b>Milestone</b>	<b>Title</b>	<b>Due Date</b>	<b>Completion Date</b>	<b>Status</b>
<b>Fiscal Year 2021</b>				
D-00A-07 Interim	LAW Facility Construction Substantially Complete	12/31/2020		On Schedule
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		Notice given that a serious risk has arisen. See letter 16-ORP-0097 <sup>1</sup> .
<b>Fiscal Year 2023</b>				
D-00A-08 Interim	Start LAW Facility Cold Commissioning	12/31/2022		On Schedule
<b>Fiscal Year 2024</b>				
D-00A-09 Interim	LAW Facility Hot Commissioning Complete	12/31/2023		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		Notice given that a serious risk has arisen. See letter 16-ORP-0097 <sup>1</sup> .
<b>Fiscal Year 2031</b>				
D-00A-02 Interim	HLW Facility Construction Substantially Complete	12/31/2030		Under Analysis <sup>2</sup>
<b>Fiscal Year 2032</b>				
D-00A-13 Interim	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-00001A/1B	12/31/2031		On Schedule

Milestone	Title	Due Date	Completion Date	Status
D-00A-14 Interim	PT Facility Construction Substantially Complete	12/31/2031		Under Analysis <sup>2</sup>
D-00A-19 Interim	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2031		On Schedule
D-00A-03 Interim	Start HLW Facility Cold Commissioning	06/30/2032		Under Analysis <sup>2</sup>
D-00A-06 Interim	Complete Methods Validations	06/30/2032		On Schedule
<b>Fiscal Year 2033</b>				
D-00A-15 Interim	Start PT Facility Cold Commissioning	12/31/2032		Under Analysis <sup>2</sup>
<b>Fiscal Year 2034</b>				
D-00A-04 Interim	HLW Facility Hot Commissioning Complete	12/31/2033		Under Analysis <sup>2</sup>
D-00A-16 Interim	PT Facility Hot Commissioning Complete	12/31/2033		Under Analysis <sup>2</sup>
D-00A-17	Hot Start of WTP	12/31/2033		Under Analysis <sup>2</sup>
<b>Fiscal Year 2037</b>				
D-00A-01	Achieve Initial Plant Operations for the WTP	12/31/2036		Under Analysis <sup>2</sup>

<sup>1</sup> 16-ORP-0097, 2016, "State of Washington v. Moniz, Case No. 2:08-CV-5085-RMP (E.D. WA)," (external letter to M. Bellon, Washington State Department of Ecology), from K.W. Smith, U.S. Department of Energy, Office of River Protection, Richland, Washington, December 6.

<sup>2</sup> As described in the Pretreatment (PT) Facility and/or High-Level Waste (HLW) Facility sections, DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3 to 5 years, while DOE is focusing its efforts on bringing direct-feed low-activity waste into operation. Accordingly, certain milestones in this table are marked as "Under Analysis." As discussed in the PT Facility and HLW Facility sections, DOE asked the U.S. Army Corps of Engineers (USACE) to perform an initial parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2 states, "Hot Start of Waste Treatment Plant" means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory (LAB) and the Balance of Facilities) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

DOE = U.S. Department of Energy.  
 DFLAW = direct-feed low-activity waste  
 Ecology = Washington State Department of Ecology.  
 HLW = high-level waste.  
 LAW = low-activity waste.

PT = pretreatment.  
 SST = single-shell tank.  
 WMA-C = C Farm waste management area.  
 WTP = Waste Treatment and Immobilization Plant.

### **Consent Decree Reports/Reviews**

#### **D-16C-03 series, Submit to State of Washington and State of Oregon Quarterly Report**

Due: 45 days following after each calendar year quarter (due May 15, 2018).

Status: On Schedule.

#### **D-00C-02 series, Submit to State of Washington and State of Oregon Monthly Summary Reports**

Due: End of each month.

Status: On Schedule.

#### **D-006-00-B1, Provide State of Oregon notice of meetings in D-006-00-B, etc. no less than 30 days before they are scheduled**

Due: See below.

Status: On Schedule.

#### **D-006-00-B, Meet Approximately Every Three Years after Entry of Decree to review requirements of the Consent Decree**

Due: Approximately 3 years from March 16, 2017.

Status: On Schedule.

## Spare Reboiler Requirement Status

**Tank Farms Assistant Manager:** Glyn Trenchard

**Federal Program Manager:** Paul Hernandez

Milestone	Title	Due Date	Status
D-16E-02	Have available spare E-A-1 <sup>1</sup> reboiler for the 242-A Evaporator	12/31/2018	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."

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

- Washington River Protection Solutions LLC awarded a not-to-exceed design/build contract to ABW Technologies in the amount of \$461,000 for fabrication of a spare reboiler, with delivery prior to December 31, 2018. Total estimate at completion is \$776,000.
- Fabrication of the spare 242-A Evaporator reboiler is complete. The reboiler shell, tubes and tube sheet have been successfully hydro tested. ABW Technologies is currently completing the final document package required for delivery. Washington River Protection Solutions LLC remains on schedule to have a spare E-A-1 reboiler available for the 242-A Evaporator by December 31, 2018, as required by the Second Amended Consent Decree.

## Single-Shell Tank Retrieval Program

**Tank Farms Assistant Manager:** Glyn Trenchard

**Federal Program Manager:** Jeff Rambo

Milestone	Title	Due Date	Status
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	Notice given that a serious risk has arisen. See letter 16-ORP-0097 <sup>1</sup> .
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	Notice given that a serious risk has arisen. See letter 16-ORP-0097 <sup>1</sup> .

<sup>1</sup> 16-ORP-0097, 2016, "State of Washington v. Moniz, Case No. 2:08-CV-5085-RMP (E.D. WA)," (external letter to M. Bellon, Washington State Department of Ecology), from K. W. Smith, U.S. Department of Energy, Office of River Protection, Richland, Washington, December 6.

DOE = U.S. Department of Energy.  
 Ecology = Washington State Department of Ecology.  
 SST = single-shell tank.  
 WMA-C = C Tank Farm waste management area.

### Significant Accomplishments during the Prior Month:

#### Completed Accomplishments:

- Removed long-length equipment to support Tank C-105 post-retrieval sampling.
- Issued C-105 Tank Sampling and Analysis Plan for post-retrieval sampling.
- Completed two long-length equipment removal actions at Tank AX-102 and Tank AX-104 (AX02 Pit D-R1C saltwell screen and AX04 PitA-R5A sluicer).
- Completed all of the six A Tank Farm ventilation duct isolation seal loop verifications. As-built drawings show the existing ventilation ducts isolated with grout, no grout isolation has been found.
- Installed foundations for AX Tank Farm control trailers.

- Two stop works in March, related to use of self-contained breathing apparatus (SCBA) face masks, were resolved allowing tank farm work to resume.
- Completed installation of the ingress/egress tent at AN Tank Farm to support 20 hose-in-hose transfer line removals in fiscal year (FY) 2018.

Ongoing Activities:

- Continued installation of the caustic and water system piping and conduit from A-285 Building to the AX Tank Farm fence line.
- Continued installation of the electrical infrastructure inside AX Tank Farm to support waste retrieval activities.
- Continued fieldwork (excavations, reinforcing steel, concrete formwork) for the installation of the pads for A Tank Farm exhausters (POR518/519).

**Significant Planned Activities in the Next Month:**

- Remove legacy long-length equipment from Tank AX-102 and Tank AX-104:
  - AX04 Pit B-R14 pump
  - AX02 Pit C-R1A P200 pump
- Complete AX-101 Pit cleanout of AX01D and AX01A (as resources allow)
- Initiate Tank AX-103 Pit cleanout 03A
- Continue fieldwork (excavations, reinforcing steel, concrete formwork) for installation of the new A Tank Farm exhausters (POR518/519)
- Initiate isolation of the existing A Tank Farm ventilation ducting
- Complete installation of caustic and water piping system and conduit from 241-A-285 to A Tank Farm fence
- Complete four Tank C-105 well No. 30 post-retrieval gamma scans
- Complete Tank C-105 post-retrieval sampling for the retrieval data report
- Continue installation (underground conduit) of the AX Tank Farm retrieval control trailers
- Disconnect power from Tank C-105 raw water skids (C Tank Farm layout)
- Disconnect 27 Tank C-105 electrical skids (C Tank Farm layout).

**Issues:**

- Reduced worker efficiencies associated with mandatory use of supplied air continues to impact work in the tank farms.
- The two stop work issues which occurred in March were related to the condition of SCBA equipment. Additional staff have been certified to inspect and repair the

equipment, in conjunction with a process to increase specific identification of items of concern to the user.

**Tank Waste Retrieval Work Plan Status***Tank Farms Assistant Manager:* Glyn Trenchard*Federal Program Manager:* Jeff Rambo

Tank	TWRWP	Expected Revisions	Retrieval Technology		
			First	Second	Third
AX-101	RPP-RPT-58932, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
AX-102	RPP-RPT-58933, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
AX-103	RPP-RPT-58934, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
AX-104	RPP-RPT-58935, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
C-105	RPP-22520, Rev. 8	Complete	MARS-V	MARS-V High-Pressure Water Spray	Chemical Dissolution Process with ERSS

ERSS = extended reach sluicer system.

MARS-V = Mobile Arm Retrieval System-Vacuum.

TWRWP = tank waste retrieval work plan.

**Significant Accomplishments during the Prior Month:**

- None.

**Significant Planned Activities in the Next Month:**

- None.

**Issues:**

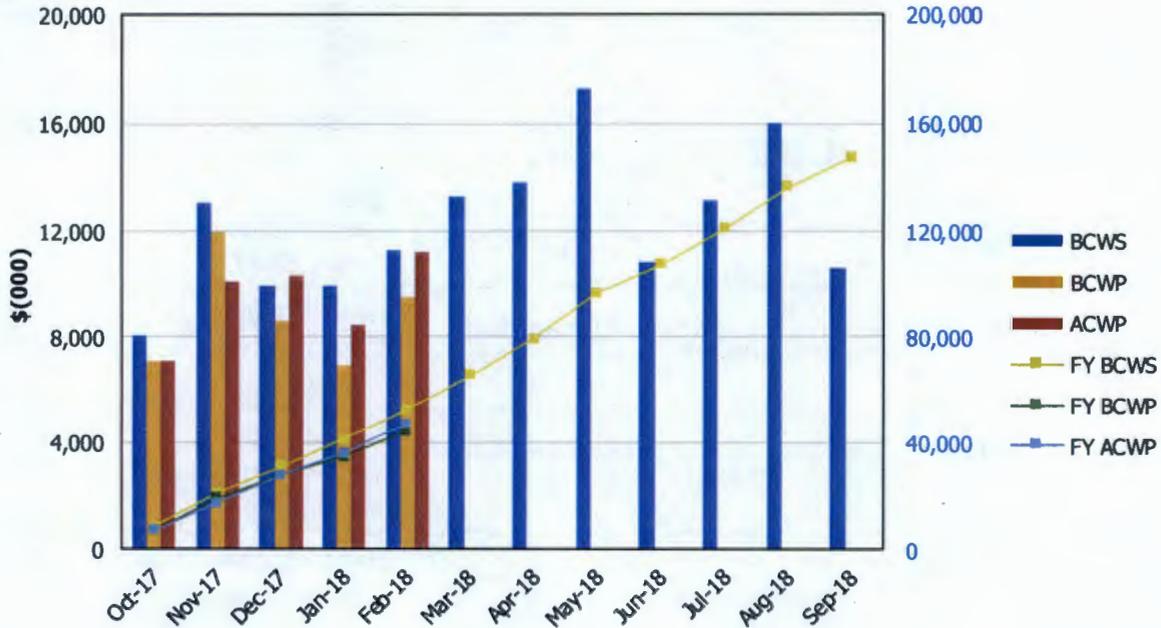
- None.

Earned Value Data: Fiscal Year 2018

February-18

**Tank Farms ORP-0014**  
**WBS 5.2 - Retrieve and Close SSTs**

EVMS Monthly and Fiscal Year Values



Earned Value Month

Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	\$8,053	\$7,119	\$7,127	0.88	1.00	\$8,053	\$7,119	\$7,127	0.88	1.00
Nov 2017	\$13,058	\$11,996	\$10,119	0.92	1.19	\$21,111	\$19,115	\$17,246	0.91	1.11
Dec 2017	\$9,964	\$8,572	\$10,318	0.86	0.83	\$31,075	\$27,686	\$27,563	0.89	1.00
Jan 2018	\$9,940	\$6,911	\$8,464	0.70	0.82	\$41,015	\$34,597	\$36,027	0.84	0.96
Feb 2018	\$11,310	\$9,456	\$11,225	0.84	0.84	\$52,326	\$44,053	\$47,252	0.84	0.93
Mar 2018	\$13,313					\$65,639				
Apr 2018	\$13,839					\$79,477				
May 2018	\$17,292					\$96,770				
Jun 2018	\$10,845					\$107,614				
Jul 2018	\$13,133					\$120,747				
Aug 2018	\$15,991					\$136,738				
Sep 2018	\$10,612					\$147,350				
<b>CTD</b>	<b>\$855,897</b>	<b>\$848,716</b>	<b>\$885,803</b>	<b>0.99</b>	<b>0.96</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.

**Retrieve and Close Single-Shell Tanks (5.02)<sup>3</sup>**

The February 2018 **unfavorable** schedule variance (SV) of (\$1,854,000) was due to:

- Tank C-105 third technology retrieval operations scheduled to be performed from December 2017 through February 2018 were completed ahead of schedule in November 2017. This unfavorable SV will show in the months of December 2017 through February 2018.
- Delays associated with unexpected site conditions related to the Tank AX-104 Pit 04B riser 14 pump removal. The pump was temporarily stuck when attempts were made to lift it out of the riser and required additional field preparation activities, including videos of current pump status and engineering evaluation of lifting techniques to provide a path forward for safe removal.

The February 2018 **unfavorable** cost variance (CV) of (\$1,767,000) was due to:

- Excavation costs continued to increase for the north area of the SX Tank Farm interim barrier because much of the area must be excavated by hand, by personnel wearing SCBA. Minimal machine excavation is allowed due to unknown ground interferences inside SX Tank Farm.
- Degradation of the existing pump in Tank AX-104 Pit 04B riser 14 has necessitated additional field preparation activities, including videos of current pump status and engineering evaluation of lifting techniques to provide a path forward for safe removal.
- Vapor and beryllium controls, which require specific personal protective equipment (e.g., SCBA and gloves), additional monitoring, sampling, and work package development, continue to impact the efficiency of personnel working in the tank farms.

---

<sup>3</sup> "Closure" activities are expressly excluded from the Consent Decree. See 2010 Consent Decree, Appendix C, first paragraph: "Processes not covered by a TWRWP (e.g., tank closure) are not established under this Consent Decree."

## Waste Treatment and Immobilization Plant Project

**Federal Project Director:** Tom Fletcher<sup>4</sup>

**Deputy Federal Project Director:** Joni Grindstaff

Milestone	Title	Due Date	Status
D-00A-06	Complete Methods Validations	06/30/2032	On Schedule
D-00A-17	Hot Start of Waste Treatment Plant	12/31/2033	Under Analysis <sup>1</sup>
D-00A-01	Achieve Initial Plant Operations for WTP	12/31/2036	Under Analysis <sup>1</sup>

<sup>1</sup> As described in the Pretreatment (PT) Facility and/or High-Level Waste (HLW) Facility sections, DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3 to 5 years, while DOE is focusing its efforts on bringing direct-feed low-activity waste into operation. Accordingly, certain milestones in this table are marked as "Under Analysis." As discussed in the PT Facility and HLW Facility sections, DOE asked the U.S. Army Corps of Engineers (USACE) to perform an initial parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2 states, "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory (LAB) and the Balance of Facilities) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

DOE = U.S. Department of Energy.

HLW = high-level waste.

PT = pretreatment.

WTP = Waste Treatment and Immobilization Plant.

The WTP Project continues to focus on completion of the Low-Activity Waste (LAW) Facility, Balance of Facilities (BOF), and Analytical Laboratory (LAB) (collectively known as LBL, including direct-feed LAW [DFLAW] and LBL facility services).

As of February 2018, DFLAW modifications for the WTP Project were 39 percent complete, engineering design was 77 percent complete, procurement was 25 percent complete, construction was 25 percent complete, and startup and commissioning was 0 percent complete. As of February 2018, total LBL facilities were 63 percent complete, engineering design was 88 percent complete, procurement was 73 percent complete, construction was 79 percent complete, and startup and commissioning was 26 percent complete.

The WTP Project has complied with milestones already come due as of the date of this report. There are no missed milestones that may affect compliance with other milestones.

### Significant Accomplishments during the Prior Month

- Significant accomplishments during the prior month are noted in project reports for the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility, LAW Facility, BOF, and LAB.

<sup>4</sup> Tom Fletcher was named Assistant Manager/Federal Project Director for the Waste Treatment and Immobilization Plant Project effective March 18, 2018, replacing Bill Hamel.

**Significant Planned Activities for the Next Month**

- Significant planned activities in the next month, are noted in project reports for the PT Facility, HLW Facility, LAW Facility, BOF, and LAB.
- ORP will continue to provide oversight of BNI progress on near-term actions, as recommended by the Project Performance Review, to improve confidence in the timely completion of design, procurement, construction, startup, and commissioning of the WTP facilities needed for DFLAW.

**Project Performance Review**

Nearly all of the Project Performance Review actions discussed in previous reports have been completed and implemented, or are in the process of implementation. The status of the ongoing near-term actions recommended by the Project Performance Review are listed below:

- BNI and ORP continue to discuss a strategy to complete an operational readiness review prior to the start of cold commissioning.
- BNI is expected to streamline WTP baseline change management processes (i.e., frequency and efficiency) to achieve baseline execution objectives. BNI provided ORP with a revised approach and a recommendation for its consideration, which is under review.
- BNI will continue to resolve and close “low-significance” and “find and fix” level C condition reports to eliminate the backlog of these condition reports as higher resource priorities allow.

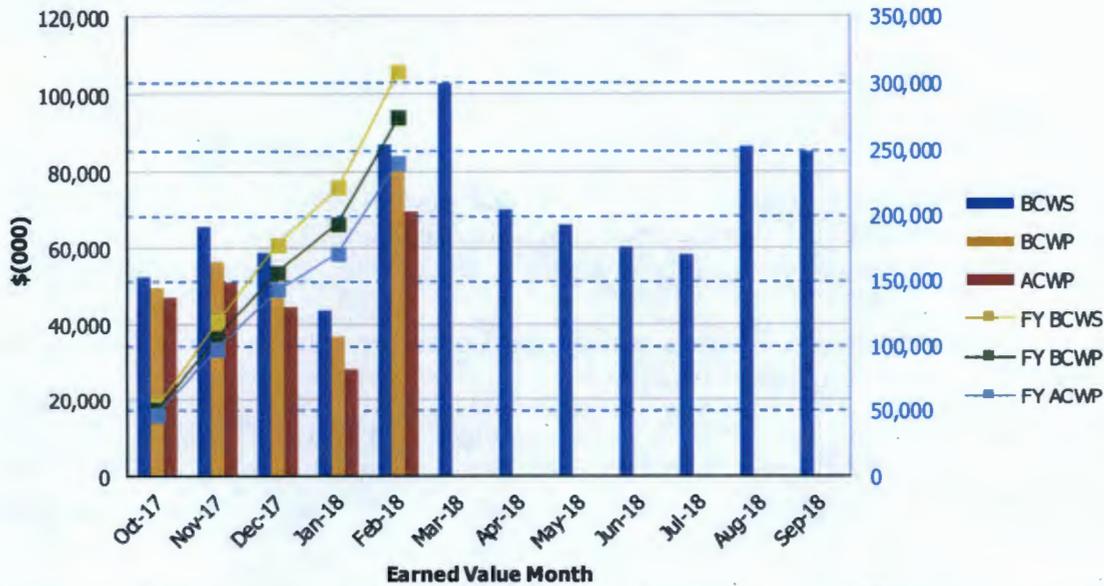
**EXC-01a: Fiscal Year Cost and Schedule Report**

Data Set: FY 2018 Earned Value Data

Data as of: February 2018

**River Protection Project  
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 2017	\$52,662	\$49,804	\$46,894	0.95	1.06	\$52,662	\$49,804	\$46,894	0.95	1.06
Nov 2017	\$65,935	\$56,513	\$51,026	0.86	1.11	\$118,597	\$106,317	\$97,920	0.90	1.09
Dec 2017	\$58,797	\$50,134	\$44,924	0.85	1.12	\$177,394	\$156,452	\$142,844	0.88	1.10
Jan 2018	\$43,622	\$36,665	\$28,076	0.84	1.31	\$221,016	\$193,117	\$170,920	0.87	1.13
Feb 2018	\$86,995	\$80,565	\$69,775	0.93	1.15	\$308,011	\$273,683	\$240,695	0.89	1.14
Mar 2018	\$102,969									
Apr 2018	\$69,899									
May 2018	\$65,992									
Jun 2018	\$60,334									
Jul 2018	\$58,502									
Aug 2018	\$86,614									
Sep 2018	\$85,308									

PTD	\$10,819,605	\$10,731,579	\$10,624,109	0.99	1.01
-----	--------------	--------------	--------------	------	------

- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- EVMS = earned value management system.
- FY = fiscal year.
- PTD = project to date.
- SPI = schedule performance index.

**Project Schedule and Cost Variance Performance** (\$x1,000)

<b>Performance Tracking</b>	<b>SV</b>	<b>CV</b>
Current Period (February 2018)	(\$6,430)	\$10,790
Fiscal Year 2018 to-date	(\$34,329)	\$32,987
Cumulative (through February 2018)	(\$88,026)	\$107,470

CV = cost variance.

SV = schedule variance.

**Earned Value Management System Analysis**

The Earned Value Management System (EVMS) is intended to provide a status of how the contractor is progressing against its planned work (i.e., 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 and has a favorable 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 completed in a month earlier than planned would be reported as a favorable SV for the month in which it was completed, but would be reported as an unfavorable SV in the month it was planned. The end result would be the overall cumulative SV netting out to zero over these months. Likewise, work completed late will recover an earlier reported unfavorable SV.

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

The SV and CV are reported for each monthly period, fiscal year to-date, 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 provides 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.

For the February 2018 EVMS reporting period, a net **unfavorable** SV of approximately (\$6.4 million) was reported (meaning that a net of \$6.4 million of February scheduled work did not get completed in February), primarily due to the following:

- LBL Commissioning continues to show an unfavorable SV due to a planned delay of staffing increases. The LBL staffing needs to support commissioning are being evaluated. The future staffing level of commissioning personnel will be based on the outcomes of the evaluation. This control account will continue to show a negative variance until

staffing levels in the budgeting tools are realigned with the commissioning execution plan via the baseline change control process.

- DFLAW Plant Material continues to report an unfavorable SV due to previous deferred procurement activities for waste transfer line piping. The majority of transfer line piping has been received on site and the remainder will arrive in the next two months.
- DFLAW Engineering reported an unfavorable SV due to late performance of engineering activities to support the Effluent Management Facility (EMF) calculation confirmation and design of the EMF electrical and instrumentation systems.
- DFLAW Construction reported an unfavorable SV due to a planned delay of installation for waste transfer line piping. Installation of the waste transfer line piping at this time would interfere with critical path construction activities at the EMF processing building. Installation of the waste transfer line piping will occur following bulk EMF construction. The monthly SV for these activities will continue until the budgeting tools are realigned with the construction execution plan via the baseline change control process.
- The HLW Facility Engineering reported an unfavorable SV because of delays in long-range planning, procurement, and concrete slab releases due to the HLW Facility's resources supporting higher WTP priorities.
- The HLW Facility Plant Equipment reported an unfavorable SV because of delays in vendor fabrication of mechanical handling cranes and the closed-circuit television prototype camera.
- The HLW Facility Plant Material reported an unfavorable SV because of vendor delays in completing fabrication of the remaining pipe spools.

For the February 2018 EVMS reporting period, a net **favorable** CV of approximately \$10.8 million was reported (meaning that it cost a net \$10.8 million less to perform the work completed in February than estimated), primarily due to the following:

- LBL Commissioning reported a favorable CV because current spending priorities are different than the existing plan. Revised plans are currently being developed for implementation so that commissioning activities will be aligned with the available spend plan.
- General/Other Services reported a favorable CV because of labor attrition and reduced labor costs due to positions not being filled as anticipated also contributed to a favorable CV.
- The HLW Facility Engineering and Facility Services reported a favorable CV due to level-of-effort resources supporting higher WTP priorities.
- The HLW Facility Plant Equipment reported a favorable CV as a result of determining that some previous accrued costs, which had been entered as "estimated actuals," were higher than the final cost payments made on equipment purchase orders now in closure. The favorable CV is the result of correcting the previous over accrual of cost in the February 2018 EVMS reporting period.

- The PT Facility Plant Equipment reported a favorable CV as a result of determining that some previous accrued costs, which had been entered as “estimated actuals,” were higher than the final cost payments made on equipment purchase orders now in closure. The favorable CV is the result of correcting the previous over accrual of cost in the February 2018 EVMS reporting period.
- Facility Services Construction reported an unfavorable CV because of increased hours from employee training and craft support, combined with early receipt of additional tools, equipment, and services charged against a level-of-effort account not planned for this month.
- The LAW Facility Construction reported an unfavorable CV because of ongoing scaffold builds and removals, combined with temporary construction removals and relocations to support completion of punch list work scope.

Through the current monthly reporting period, there are no SVs or CVs impacting existing Consent Decree milestones.

## Pretreatment Facility

**Federal Project Director:** Tom Fletcher

**Facility Federal Project Director:** Wahed Abdul

Milestone	Title	Due Date	Status
D-00A-18	Complete Structural Steel Erection Below Elevation 56' in PT Facility	12/31/2009	Complete
D-00A-19	Complete Elevation 98' Concrete Floor Slab Placements in PT Facility	12/31/2031	On Schedule
D-00A-13	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-00001A/1B	12/31/2031	On Schedule
D-00A-14	PT Facility Construction Substantially Complete	12/31/2031	Under Analysis <sup>1</sup>
D-00A-15	Start PT Facility Cold Commissioning	12/31/2032	Under Analysis <sup>1</sup>
D-00A-16	PT Facility Hot Commissioning Complete	12/31/2033	Under Analysis <sup>1</sup>

<sup>1</sup> As described in the Pretreatment (PT) Facility and/or High-Level Waste (HLW) Facility sections, DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3 to 5 years, while DOE is focusing its efforts on bringing direct-feed low-activity waste into operation. Accordingly, certain milestones in this table are marked as "Under Analysis." As discussed in the PT Facility and HLW Facility sections, DOE asked the U.S. Army Corps of Engineers (USACE) to perform an initial parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2 states, "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory (LAB) and the Balance of Facilities) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

DOE = U.S. Department of Energy.

HLW = high-level waste.

PT = pretreatment.

The PT Facility will separate radioactive tank waste into high-level waste and low-activity waste fractions and transfer each waste type to the respective vitrification facility for immobilization. As of September 2012, the PT Facility was 56 percent complete overall, engineering design was 85 percent complete, procurement was 56 percent complete, construction was 43 percent complete, and startup and commissioning was 3 percent complete. The physical percent complete analysis for the PT Facility was frozen in September 2012, pending development of a revised baseline to address technical and design issues.

ORP and BNI continue to work on resolving the remaining technical issues identified in the Third Order Regarding Motions to Modify Consent Decrees<sup>5</sup>, which includes<sup>6</sup>, “Ensuring Control of the Pulse Jet Mixers” (i.e., T4 in relation to pulse-jet mixer vessel mixing and control); “Protecting Against Possible Erosion and Corrosion” (i.e., T5 in relation to erosion/corrosion in piping and ancillary vessels); and “Ensuring Ventilation Balancing” (i.e., T8 in relation to facility ventilation/process offgas treatment).

Preliminary engineering work, documented previously in a BNI and ORP study, was completed and demonstrates how the standard high-solids vessel (SHSV) design can be implemented in the PT Facility (i.e., T6 in relation to design redundancy and in-service inspection). The engineering study showed that 16 SHSVs can be incorporated into the PT Facility, while meeting the PT Facility throughput contract requirements. Ecology was briefed on the design concept in February 2018.

### **Significant Accomplishments during the Prior Month**

- At the request of ORP, the U.S. Army Corps of Engineers (USACE) has been conducting a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related Consent Decree milestones in the event a decision is made to keep those facilities in preservation mode for another 3 to 5 years so as to allow DOE to focus funding and efforts on the completion of DFLAW commissioning.<sup>7</sup> Results from the USACE parametric analysis will be considered by ORP to support long-range planning options.
- BNI completed data analysis and documentation for the recently completed full-scale pulse-jet mixer mixing systems testing of the SHSV design prototype.
- ORP continued to work with BNI on completing documentation for the remaining technical issues described as T4, T5, T6, T7 (i.e., T7 in relation to seismic ground motion criteria changes around 2005), and T8.

---

<sup>5</sup> *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (March 11, 2016) (EDF-221).

<sup>6</sup> At the outset of U.S. Department of Energy’s identification of the technical issues, the issues were grouped into eight issues. During the litigation, some issues were combined with others into five groups of issues. Consequently, the descriptions of the issues listed above may be both different by number and somewhat different by description.

<sup>7</sup> The Explanatory Statement that accompanied the Consolidated Appropriations Act, 2018, contained the following provision:

*Office of River Protection.* – The agreement includes funding above the budget request to resume design and engineering work on the High-Level Waste Treatment Facility, to resolve the five remaining technical issues on the Pretreatment facility, to ensure compliance with 2016 Consent Decree and Tri-Party Agreement milestones, ... Not less than 90 days prior to the implementation of any changes to the current program of record for ... the Waste Treatment Plant, the Department shall submit to the Committee on Appropriations of both Houses of Congress a report that includes the technical justification and business case, any impact of such changes on the 2016 Consent Decree and Tri-Party Agreement, any necessary regulatory or permit changes by Washington or any other state, any necessary National Environmental Policy Act analysis, and any impact of such changes on site infrastructure.

Explanatory Statement at 47.

**Significant Planned Activities for the Next Month**

- ORP expects to receive an evaluation from the USACE (noted above) after it completes its parametric analysis of certain options and funding scenarios evaluating the likelihood of achieving PT- and HLW-related Consent Decree milestones in the event a decision is made to keep those facilities in preservation mode for another 3 to 5 years.
- A workshop is planned for April 11, 2018, to strategize and develop options to make progress on the PT Facility.
- BNI is expected to issue an update to the localized corrosion test basis document supporting closure of technical issue T5 and closure of the T5 corrective action plan by the end of April 2018.
- BNI is expected to issue the methodology for the vessel structural integrity verification supporting final resolution of technical issue T7 by the end of April 2018.
- The PT Facility is currently maintained in a preservation mode to protect equipment and structures and ensure that design documents are maintained, while the emphasis is placed on DFLAW/LBL activities. Work will continue on technical issue resolution related to the remaining technical issues, and progression of the conceptual design incorporating the SHSV test design prototype.
- ORP anticipates resolution of the remaining technical issues (noted above) with notification to the Defense Nuclear Facilities Safety Board in the July/August 2018 timeframe.

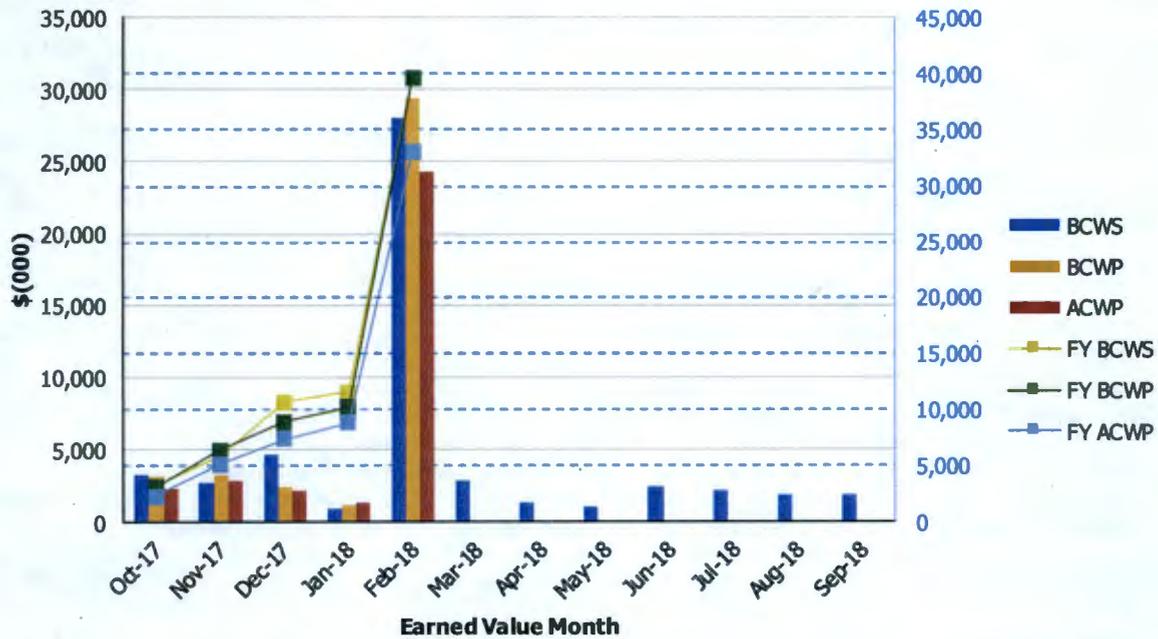
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: February 2018

**River Protection Project  
Pretreatment Facility (WBS 1.01)**

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 2017	\$3,230	\$3,129	\$2,345	0.97	1.33	\$3,230	\$3,129	\$2,345	0.97	1.33
Nov 2017	\$2,757	\$3,293	\$2,838	1.19	1.16	\$5,987	\$6,422	\$5,184	1.07	1.24
Dec 2017	\$4,691	\$2,502	\$2,204	0.53	1.14	\$10,678	\$8,924	\$7,387	0.84	1.21
Jan 2018	\$896	\$1,272	\$1,371	1.42	0.93	\$11,574	\$10,196	\$8,758	0.88	1.16
Feb 2018	\$28,072	\$29,440	\$24,268	1.05	1.21	\$39,647	\$39,635	\$33,026	1.00	1.20
Mar 2018	\$2,819									
Apr 2018	\$1,308									
May 2018	\$1,121									
Jun 2018	\$2,514									
Jul 2018	\$2,124									
Aug 2018	\$1,921									
Sep 2018	\$1,863									
<b>PTD</b>	<b>\$1,980,755</b>	<b>\$1,977,221</b>	<b>\$1,946,387</b>	<b>1.00</b>	<b>1.02</b>					

- |   |  |
|---|--|
| ACWP = actual cost of work performed.   | EVMS = earned value management system. |
| BCWP = budgeted cost of work performed. | FY = fiscal year.                      |
| BCWS = budgeted cost of work scheduled. | PTD = project to date.                 |
| CPI = cost performance index.           | SPI = schedule performance index.      |

## High-Level Waste Facility

**Federal Project Director:** Tom Fletcher

**Facility Federal Project Director:** Wahed Abdul

Milestone	Title	Due Date	Status
D-00A-20	Complete Construction of Structural Steel to Elevation 14' in HLW Facility	12/31/2010	Complete
D-00A-21	Complete Construction of Structural Steel to Elevation 37' in HLW Facility	12/31/2012	Complete
D-00A-02	HLW Facility Construction Substantially Complete	12/31/2030	Under Analysis <sup>1</sup>
D-00A-03	Start HLW Facility Cold Commissioning	06/30/2032	Under Analysis <sup>1</sup>
D-00A-04	HLW Facility Hot Commissioning Complete	12/31/2033	Under Analysis <sup>1</sup>

<sup>1</sup> As described in the Pretreatment (PT) Facility and/or High-Level Waste (HLW) Facility sections, DOE is considering an option to continue preservation and maintenance of the PT and HLW facilities for a period of 3 to 5 years, while DOE is focusing its efforts on bringing direct-feed low-activity waste into operation. Accordingly, certain milestones in this table are marked as "Under Analysis." As discussed in the PT Facility and HLW Facility sections, DOE asked the U.S. Army Corps of Engineers (USACE) to perform an initial parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2 states, "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory (LAB) and the Balance of Facilities) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

DOE = U.S. Department of Energy.  
 HLW = high-level waste.  
 PT = pretreatment.

The HLW Facility will receive the separated high-level waste concentrate from the PT Facility. This concentrate will be blended with glass formers, converted into molten glass in one of the two HLW Facility melters and then poured into cylindrical stainless steel canisters. After cooling, the canisters will be sealed and decontaminated before shipping to interim storage.

As of September 2012, the HLW Facility was 62 percent complete overall, engineering design was 89 percent complete, procurement was 81 percent complete, construction was 43 percent complete, and startup and commissioning was 4 percent complete. The physical percent complete analysis for the HLW Facility was frozen in September 2012, pending development of a revised baseline to address technical and design issues.

Work on the HLW Facility is being performed in accordance with the fiscal year (FY) 2017 through FY 2021 Interim Work Plan. Through FY 2017, BNI was working under a limited construction and procurement authorization, and BNI's efforts were focused on completing activities required to resume full-production engineering, procurement, and construction of the HLW Facility (i.e., DOE Decision 2A, "Authorization to Resume HLW Procurement and Construction"). To support the DOE Decision 2A objective, BNI submitted a facility completion

plan identifying the strategy for obtaining full-production authorization, which was approved by ORP.

As previously reported, BNI provided the final Design and Operability Disposition Report to ORP, summarizing the issue resolutions path forward. ORP reviewed all disposition comments for adequacy. Based on completion of the Design and Operability Disposition Report, BNI notified ORP it had completed the required criteria for DOE Decision 2A pending ORP approval of the updated HLW Preliminary Documented Safety Analysis (DSA) to align facility design with the nuclear safety basis. This was a primary focus of the ORP-chartered Safety Basis Review Team in FY 2017.

ORP approved Rev. 7 of the updated HLW Facility Preliminary DSA and issued a letter to BNI in FY 2017 indicating DOE Decision 2A criteria for authorization to resume HLW Facility procurement and construction activities have been met.

### **Significant Accomplishments during the Prior Month**

- At the request of ORP, the USACE has been conducting a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related Consent Decree milestones in the event a decision is made to keep those facilities in preservation mode for another 3 to 5 years so as to allow DOE to focus funding and efforts on the completion of DFLAW commissioning.<sup>8</sup> Results from the USACE parametric analysis will be considered by ORP to support long-range planning options.
- ORP and BNI staff participated in a workshop on March 8, 2018, to strategize and consider options for advancing the HLW Facility. The workshop focused on documenting scope changes resulting from design and nuclear safety updates, funding required to implement continued preservation and maintenance activities, and strategies for retaining core competencies. The path forward includes continued long-range planning and analysis around decisions needed to support HLW Facility completion milestones.
- BNI is continuing fabrication of RLD-7 and RLD-8 vessels. These vessels are located in the wet process cell and must be installed prior to concrete slab placement, which will support roof installation and building enclosure.

### **Significant Planned Activities in the Next Month**

- ORP expects to receive an evaluation from the USACE (noted above) after it completes its parametric analysis of certain options and funding scenarios evaluating the likelihood of achieving PT- and HLW-related Consent Decree milestones in the event a decision is made to keep those facilities in preservation mode for another 3 to 5 years.
- In accordance with the additional funding received for the HLW Facility in the Consolidated Appropriations Act, 2018, enacted on March 23, 2018, ORP is in the process of determining which additional activities could be performed at the HLW Facility in FY 2018. ORP will continue discussions with DOE Office of Environmental

---

<sup>8</sup> See footnote 7 above.

Management staff about the direction to provide BNI regarding engineering, procurement, and construction activities at the HLW Facility.

- Resources have been focused on higher priority DFLAW/LBL activities. The HLW Facility activities have focused on maintaining and protecting equipment and structures and ensuring design documents are maintained. This has resulted in limited engineering assets to perform production work and in construction curtailment.

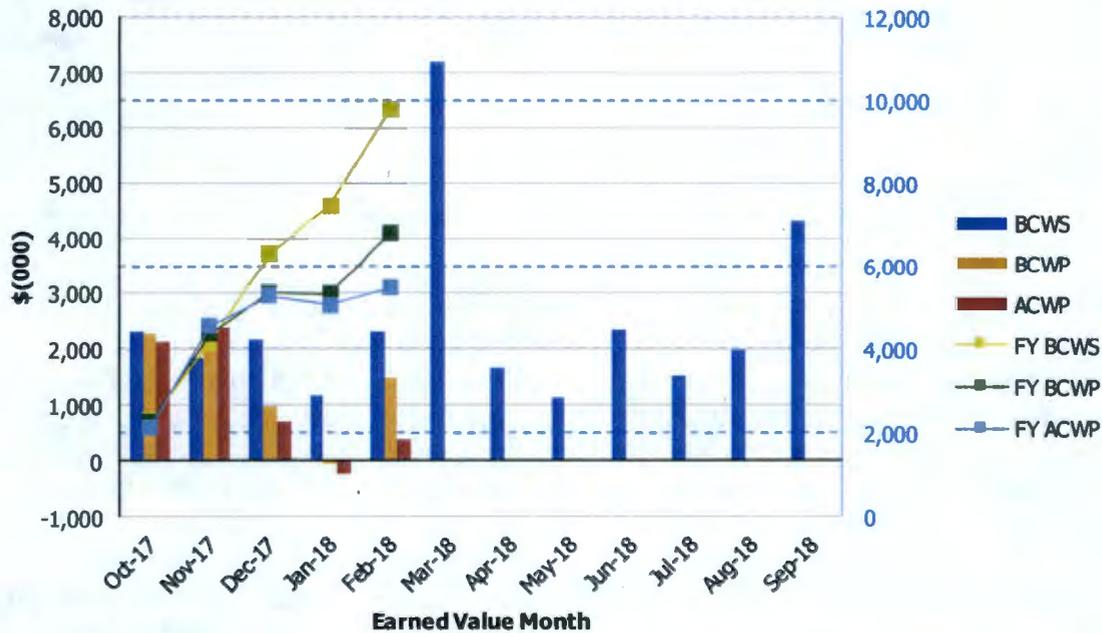
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: February 2018

**River Protection Project  
High-Level Waste Facility (WBS 1.03)**

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 2017	\$2,303	\$2,268	\$2,151	0.98	1.05	\$2,303	\$2,268	\$2,151	0.98	1.05
Nov 2017	\$1,848	\$2,091	\$2,396	1.13	0.87	\$4,151	\$4,360	\$4,547	1.05	0.96
Dec 2017	\$2,160	\$976	\$714	0.45	1.37	\$6,311	\$5,336	\$5,261	0.85	1.01
Jan 2018	\$1,164	(\$32)	(\$209)	-0.03	0.16	\$7,475	\$5,304	\$5,053	0.71	1.05
Feb 2018	\$2,310	\$1,477	\$396	0.64	3.72	\$9,785	\$6,780	\$5,449	0.69	1.24
Mar 2018	\$7,188									
Apr 2018	\$1,683									
May 2018	\$1,144									
Jun 2018	\$2,359									
Jul 2018	\$1,526									
Aug 2018	\$1,973									
Sep 2018	\$4,295									

PTD	\$1,342,457	\$1,338,915	\$1,313,841	1.00	1.02
-----	-------------	-------------	-------------	------	------

- |   |  |
|---|--|
| ACWP = actual cost of work performed.   | EVMS = earned value management system. |
| BCWP = budgeted cost of work performed. | FY = fiscal year.                      |
| BCWS = budgeted cost of work scheduled. | PTD = project to date.                 |
| CPI = cost performance index.           | SPI = schedule performance index.      |

## Low-Activity Waste Facility<sup>9</sup>

**Federal Project Director:** Tom Fletcher

**Facility Federal Project Director:** Wahed Abdul

Milestone	Title	Due Date	Status
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

LAW = low-activity waste.

The LAW Facility will process concentrated low-activity waste, which will be mixed with silica and other glass-forming materials. The mixture will be fed into the LAW Facility's two melters at a design capacity of 30 metric tons per day, heated to 2,100°F, and vitrified into glass. The 300-ton melters are approximately 20 feet by 30 feet and 16 feet high. The glass mixture will then be poured into stainless steel containers, which are 4 feet in diameter, 7 feet tall, and weigh more than 7 tons. These containers are anticipated to be disposed of on the Hanford Site in the Integrated Disposal Facility.

As of February 2018, the LAW Facility was 68 percent complete overall, engineering design was 89 percent complete, procurement was 82 percent complete, construction was 92 percent complete, and startup and commissioning was 16 percent complete.

### Significant Accomplishments during the Prior Month

- BNI formally submitted the LAW Facility DSA to ORP for approval on March 23, 2018. ORP is conducting a final review of the DSA and is developing the safety evaluation report for approval of the DSA.
- BNI construction completed the 8-week walkdowns of the following systems that support turnover to the Startup organization:
  - Heat trace electrical system
  - Fire detection and alarm system 1
  - Fire protection water system 1
  - Process control system 2
  - LAW container finishing handling system 1 and 2.

<sup>9</sup> Please note that discussions about the related Low-Activity Waste Pretreatment System and Tank-Side Cesium Removal are included in the monthly reports submitted under the *Hanford Federal Facility Agreement and Consent Order* (also known as the Tri-Party Agreement or TPA). Prior discussions are in reports archived in the Administrative Record.

- BNI construction completed the follow-on, 3-week walkdowns before turning the following systems over to the Startup organization:
  - Process control system 4
  - Chilled water system 1.
- BNI construction turned the following LAW Facility systems over to the Startup organization:
  - Fire detection and alarm system 2
  - Fire protection water system 2.
- BNI construction completed melter No. 1 modifications of the glass pour seal head for air lance installations and the insulation.
- BNI construction completed insulation of the thermal catalytic oxidizer.
- BNI awarded the contract for the truck bay canopy steel.

#### **Significant Planned Activities in the Next Month**

- ORP is expected to approve the LAW Facility DSA with the safety evaluation report by late April/early May 2018.
- BNI is expected to complete the requirements of contract milestone A-5, “Final LBL Physical Plant Complete,” and submit the documentation to ORP for review in late April/early May 2018, ahead of the contract milestone date of June 28, 2018.
- BNI construction is expected to turn the following systems over to the Startup organization:
  - Direct current electrical system – DCE-L-01
  - Instrument service air – ISA-0
  - Uninterruptible power electrical system 1
  - Low-voltage electrical (480/208/120 V) system 2
  - Chilled water system 2
  - Domestic (potable) water system.
- BNI is expected to issue the material requisition for purchase of the pressure safety valve for the sodium hydroxide reagent system.
- BNI is expected to issue the material requisition for purchase and award of the pressure sensor and alarm panel.
- BNI is expected to complete installation of the remaining melter system support equipment for melter No. 1 and melter No. 2.

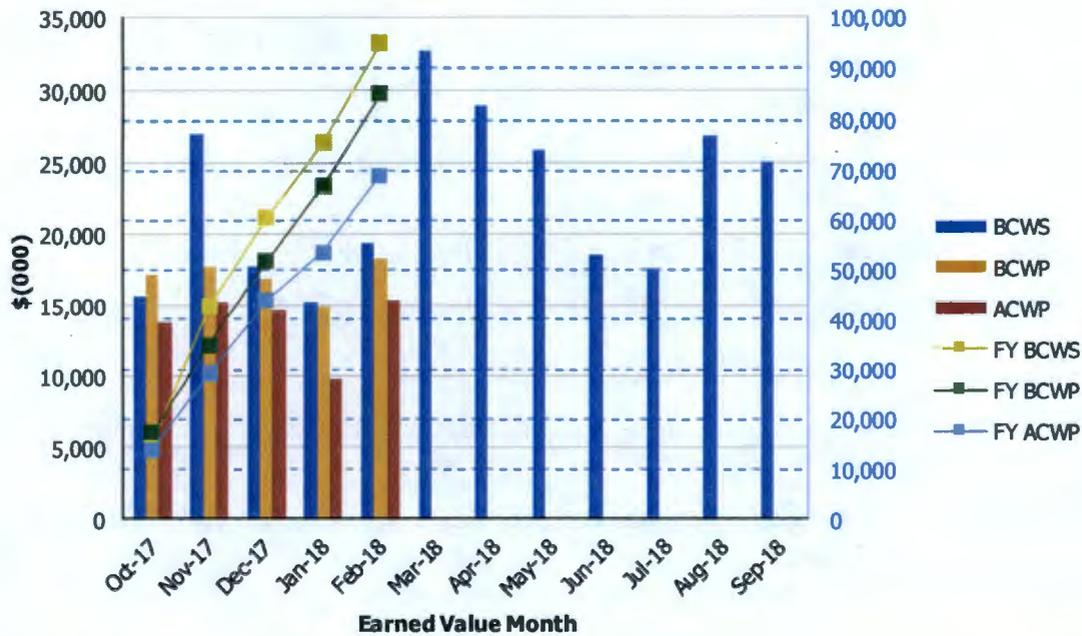
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: February 2018

**River Protection Project  
Low-Activity Waste Facility (WBS 1.02)**

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 2017	\$15,716	\$17,201	\$13,802	1.09	1.25	\$15,716	\$17,201	\$13,802	1.09	1.25
Nov 2017	\$27,014	\$17,698	\$15,292	0.66	1.16	\$42,730	\$34,898	\$29,095	0.82	1.20
Dec 2017	\$17,686	\$16,865	\$14,665	0.95	1.15	\$60,416	\$51,763	\$43,760	0.86	1.18
Jan 2018	\$15,226	\$15,023	\$9,821	0.99	1.53	\$75,641	\$66,786	\$53,580	0.88	1.25
Feb 2018	\$19,349	\$18,243	\$15,413	0.94	1.18	\$94,990	\$85,029	\$68,993	0.90	1.23
Mar 2018	\$32,774									
Apr 2018	\$29,016									
May 2018	\$25,884									
Jun 2018	\$18,527									
Jul 2018	\$17,607									
Aug 2018	\$26,934									
Sep 2018	\$25,161									

PTD	\$1,823,214	\$1,811,464	\$1,799,600	0.99	1.01
-----	-------------	-------------	-------------	------	------

- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- EVMS = earned value management system.
- FY = fiscal year.
- PTD = project to date.
- SPI = schedule performance index.

## Balance of Facilities

**Federal Project Director:** Tom Fletcher

**Facility Federal Project Director:** Jason Young

Milestone	Title	Due Date	Status
D-00A-12	Steam Plant Construction Complete	12/31/2012	Complete

BOF will provide services and utilities to support operation of the main production facilities: PT, HLW, LAW, and LAB. As of February 2018, BOF was 72 percent complete overall, engineering design was 92 percent complete, procurement was 84 percent complete, construction was 93 percent complete, and startup and commissioning was 37 percent complete. Design of the Effluent Management Facility (EMF) was 79 percent complete.

BNI Engineering efforts are focused on completion of the EMF design, supporting the EMF dangerous waste permit applications, supporting EMF procurement activities, and providing field support for BOF startup activities. Construction was focused on formwork and rebar installation to support placement of the EMF second-lift walls. These efforts will now shift to a focus on topping slab completion and utility rack placement. Startup testing continues for BOF systems. Functional testing is complete for the water treatment facility. The cooling tower facility is preparing for testing of the medium-voltage system and large cooling water pumps. The chiller compressor plant is preparing for medium-voltage testing in support of upcoming testing of the chill water pumps and rotary screw air compressors.

### Significant Accomplishments during the Prior Month

- ORP formally submitted the EMF equipment package No. 2 permit modification to Ecology and the 45-day public comment period began on March 5, 2018.
- EMF equipment permitting package No. 1 was approved by Ecology with an effective date of March 5, 2018.
- BNI placed the first section of the EMF second lift walls
- BNI continued preparations for placement of the remaining EMF topping slabs.
- BNI completed the turnover of the cooling tower medium-voltage system to support startup testing.

### Significant Planned Activities in the Next Month

- ORP and BNI are expected to submit the EMF equipment permitting package No. 3 to Ecology for formal review.
- BNI is expected to complete placement of the EMF low-point drain second-lift walls.
- BNI is expected to complete the placement of the EMF processing building second lift walls.
- BNI is expected to continue placement of the EMF topping slabs.

- BNI is expected to complete the functional testing of the Water Treatment Building.

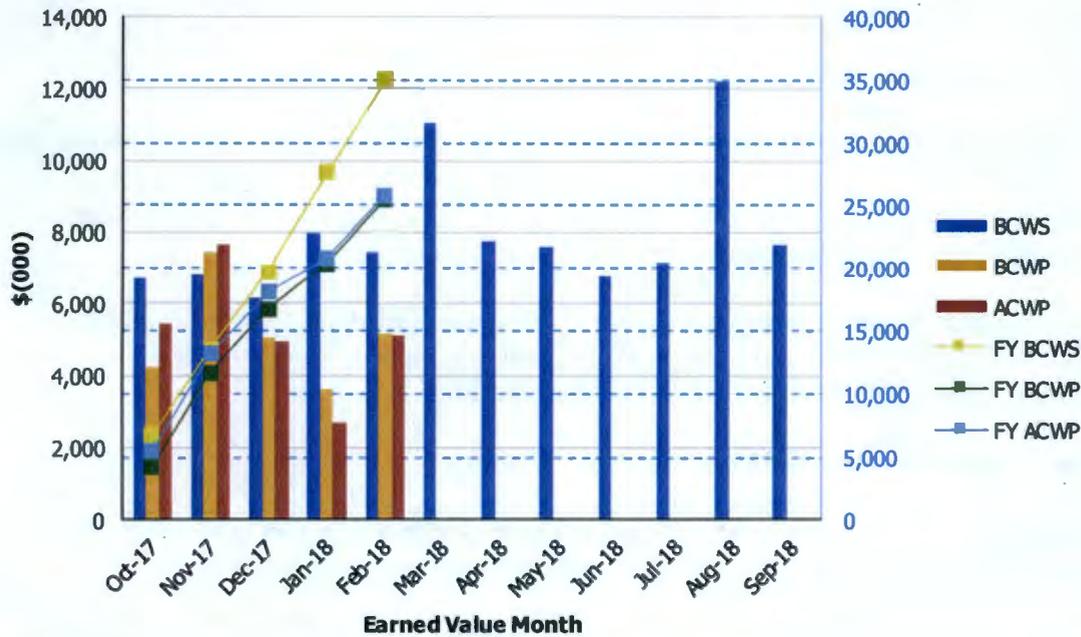
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: February 2018

**River Protection Project  
Balance of Facilities (WBS 1.05)**

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 2017	\$6,686	\$4,211	\$5,450	0.63	0.77	\$6,686	\$4,211	\$5,450	0.63	0.77
Nov 2017	\$6,823	\$7,436	\$7,658	1.09	0.97	\$13,509	\$11,647	\$13,108	0.86	0.89
Dec 2017	\$6,146	\$5,033	\$4,931	0.82	1.02	\$19,655	\$16,679	\$18,039	0.85	0.92
Jan 2018	\$7,999	\$3,629	\$2,707	0.45	1.34	\$27,654	\$20,308	\$20,746	0.73	0.98
Feb 2018	\$7,399	\$5,164	\$5,092	0.70	1.01	\$35,052	\$25,472	\$25,838	0.73	0.99
Mar 2018	\$11,059									
Apr 2018	\$7,742									
May 2018	\$7,614									
Jun 2018	\$6,751									
Jul 2018	\$7,152									
Aug 2018	\$12,229									
Sep 2018	\$7,640									

PTD	\$707,397	\$690,981	\$700,582	0.98	0.99
-----	-----------	-----------	-----------	------	------

- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- EVMS = earned value management system.
- FY = fiscal year.
- PTD = project to date.
- SPI = schedule performance index.

## Analytical Laboratory

**Federal Project Director:** Tom Fletcher

**Facility Federal Project Director:** Jason Young

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

LAB = analytical laboratory.

The LAB will support WTP operations by analyzing feed, vitrified waste, and effluent streams. As of February 2018, the LAB was 70 percent complete overall, engineering design was 89 percent complete, procurement was 89 percent complete, construction was 97 percent complete, and startup and commissioning was 26 percent complete.

Startup efforts are focused on turnover of LAB systems for startup testing. Personnel and equipment are moving into the temporary offsite laboratory space. This will allow methods development to occur in parallel with system startup testing.

### Significant Accomplishments during the Prior Month

- BNI established the temporary offsite laboratory space to support LAB methods development in parallel with LAB startup and commissioning activities.
- BNI has completed the turnover of 15 LAB systems for startup testing.

### Significant Planned Activities in the Next Month

- BNI will continue turnover of LAB systems and startup testing of systems as they become available.

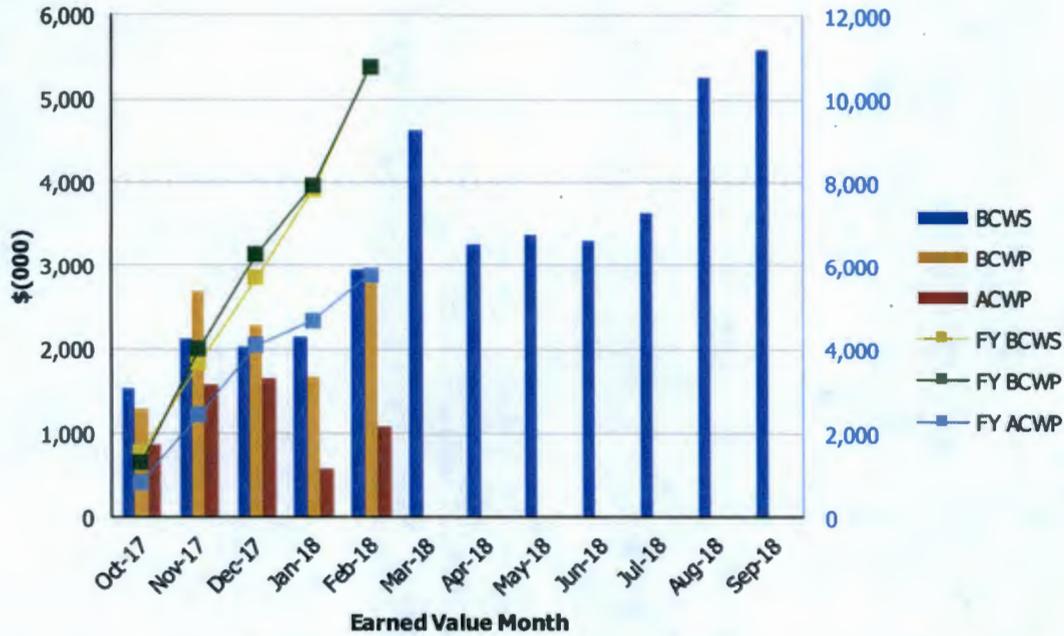
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: February 2018

**River Protection Project  
Analytical Laboratory (WBS 1.06)**

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 2017	\$1,538	\$1,298	\$861	0.84	1.51	\$1,538	\$1,298	\$861	0.84	1.51
Nov 2017	\$2,135	\$2,694	\$1,578	1.26	1.71	\$3,673	\$3,992	\$2,438	1.09	1.64
Dec 2017	\$2,029	\$2,286	\$1,660	1.13	1.38	\$5,702	\$6,278	\$4,098	1.10	1.53
Jan 2018	\$2,139	\$1,678	\$586	0.78	2.86	\$7,841	\$7,956	\$4,684	1.01	1.70
Feb 2018	\$2,950	\$2,806	\$1,082	0.95	2.59	\$10,791	\$10,762	\$5,766	1.00	1.87
Mar 2018	\$4,617									
Apr 2018	\$3,263									
May 2018	\$3,376									
Jun 2018	\$3,297									
Jul 2018	\$3,640									
Aug 2018	\$5,271									
Sep 2018	\$5,598									

PTD	\$371,999	\$368,619	\$349,884	0.99	1.05
-----	-----------	-----------	-----------	------	------

- |   |  |
|---|--|
| ACWP = actual cost of work performed.   | EVMS = earned value management system. |
| BCWP = budgeted cost of work performed. | FY = fiscal year.                      |
| BCWS = budgeted cost of work scheduled. | PTD = project to date.                 |
| CPI = cost performance index.           | SPI = schedule performance index.      |

### Waste Treatment Plant Project Percent Complete Status (Table)

**Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status Through February 2018**

(Dollars - Millions)	Overall Facility Percent Complete Unallocated Dollars			Design/Engineering Unallocated Dollars			Procurement Unallocated Dollars			Construction Unallocated Dollars			Startup & Plant Operations Unallocated Dollars			Project Management & Shared Services Unallocated Dollars		
	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete
<b>Facilities</b>																		
Low-Activity Waste	2,301.3	1,568.9	68%	558.3	497.9	89%	374.5	305.4	82%	714.2	654.3	92%	650.2	107.2	16%	4.0	4.0	100%
Balance of Facilities	755.8	547.0	72%	146.8	135.4	92%	72.2	60.9	84%	272.6	252.2	93%	263.8	98.1	37%	0.5	0.5	100%
Analytical Lab	497.8	350.2	70%	103.5	91.9	89%	66.4	58.9	89%	160.9	155.8	97%	166.5	43.1	26%	0.5	0.5	100%
Direct Feed LAW	409.2	159.5	39%	101.4	77.8	77%	66.2	16.5	25%	232.1	58.8	25%	0.0	0.0	0%	9.4	6.4	68%
LBL Facility Services	685.0	291.4	43%	0.0	0.0	0%	79.9	38.6	48%	135.8	73.4	54%	204.0	90.1	44%	265.4	89.3	34%
<b>Total LBL</b>	<b>4,649.1</b>	<b>2,917.0</b>	<b>63%</b>	<b>910.0</b>	<b>803.0</b>	<b>88%</b>	<b>659.2</b>	<b>480.3</b>	<b>73%</b>	<b>1,515.5</b>	<b>1,194.4</b>	<b>79%</b>	<b>1,284.6</b>	<b>338.5</b>	<b>26%</b>	<b>279.8</b>	<b>100.7</b>	<b>36%</b>
<b>Project Services</b>	<b>1,023.4</b>	<b>538.5</b>	<b>53%</b>	<b>130.9</b>	<b>75.2</b>	<b>57%</b>	<b>72.7</b>	<b>44.8</b>	<b>62%</b>	<b>109.1</b>	<b>80.7</b>	<b>74%</b>	<b>1.7</b>	<b>1.7</b>	<b>100%</b>	<b>709.1</b>	<b>336.1</b>	<b>47%</b>
<b>Total Project Services</b>	<b>1,023.4</b>	<b>538.5</b>	<b>53%</b>	<b>130.9</b>	<b>75.2</b>	<b>57%</b>	<b>72.7</b>	<b>44.8</b>	<b>62%</b>	<b>109.1</b>	<b>80.7</b>	<b>74%</b>	<b>1.7</b>	<b>1.7</b>	<b>100%</b>	<b>709.1</b>	<b>336.1</b>	<b>47%</b>
<b>Total LBL, DFLAW &amp; Project Services</b>	<b>5,672.6</b>	<b>3,455.5</b>	<b>61%</b>	<b>1,040.9</b>	<b>878.2</b>	<b>84%</b>	<b>731.9</b>	<b>525.1</b>	<b>72%</b>	<b>1,624.6</b>	<b>1,275.1</b>	<b>78%</b>	<b>1,286.3</b>	<b>340.2</b>	<b>26%</b>	<b>988.9</b>	<b>436.9</b>	<b>44%</b>
<b>PT/HLW/SS Percent Complete Status Frozen as of September 2012 (due to project rebaselining efforts)</b>																		
High-Level Waste	1,478.6	922.1	62%	364.4	325.2	89%	433.9	349.4	81%	561.1	243.2	43%	119.2	4.4	4%	n/a	n/a	n/a
Pretreatment	2,517.3	1,410.5	56%	761.7	645.8	85%	679.9	380.4	56%	890.0	378.6	43%	185.8	5.6	3%	n/a	n/a	n/a
Shared Services	4,726.9	3,632.6	77%	1,047.0	977.9	93%	451.7	395.0	87%	1,436.5	1,143.0	80%	453.5	133.2	29%	1,338.1	983.5	73%
<b>Total HLW/PT/SS</b>	<b>8,722.8</b>	<b>5,965.2</b>	<b>68%</b>	<b>2,173.1</b>	<b>1,948.9</b>	<b>90%</b>	<b>1,565.5</b>	<b>1,124.8</b>	<b>72%</b>	<b>2,887.6</b>	<b>1,764.8</b>	<b>61%</b>	<b>758.5</b>	<b>143.2</b>	<b>19%</b>	<b>1,338.1</b>	<b>983.5</b>	<b>73%</b>
Undistributed Budget	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Total WTP</b>	<b>14,395.4</b>	<b>9,420.7</b>	<b>65%</b>	<b>3,214.0</b>	<b>2,827.1</b>	<b>88%</b>	<b>2,297.4</b>	<b>1,649.9</b>	<b>72%</b>	<b>4,512.2</b>	<b>3,039.9</b>	<b>67%</b>	<b>2,044.8</b>	<b>483.4</b>	<b>24%</b>	<b>2,327.0</b>	<b>1,420.4</b>	<b>61%</b>

Source: Preliminary WTP Contract Performance Report - Format 1, Data for February 2018

Note: In September 2012, the LBL Replan was incorporated into the project OTB baseline resulting in increases/decreases to the LBL facility budgets, which correspondingly increased/decreased the facility/function to-date percent complete values. In October 2012, the PTHLW/SS Interim Work Plan was incorporated into the project OTB baseline resulting in decreases to the PTHLW/SS facility budgets, this was due to a work scope shift from the Distributed budget to UB. Percent Complete Values shown for PT, HLW and SS have been frozen with the September 2012 values due to the Interim Work Plan and budgets being moved into UB. UB value for the project for PTHLW/SS is \$2,014M. The percent complete values for the Total WTP are the current total LBL BCWP added to the frozen HLW/PT/SS BCWP values. In March 2014, Project Controls and Project Management work scope was moved out of Shared Services control accounts into the facilities with new control accounts being set up in the facilities. These will now be seen under Project Management/Shared Services by facility. The Shared Services PMB value has not been changed to reflect this change due to the freeze on HLW/PT and SS and the budgets remaining in UB. October 2014 data reflects the incorporation of Direct Feed LAW and the split of Shared Services into LBL Facility Services and Project Services. March 2016 LBL percent complete data is a total of LAW-BOF-LAB-DFLAW and LBL Facility Services. The Project Services Allocation account (zPSA), as shown on the CPR Format 1, is not added to LBL for percent complete purposes.