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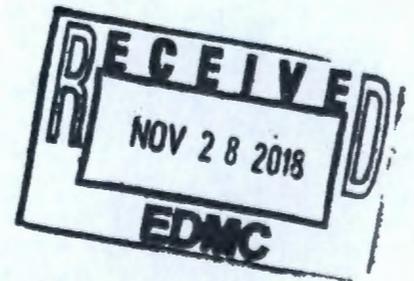
# Office of River Protection Consent Decree Monthly Report November 2018<sup>1</sup>

**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)**

**Third Amended Consent Decree, *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (October 12, 2018)<sup>2</sup>**



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<sup>1</sup> Except where otherwise expressly stated, the narrative descriptions of progress in this report cover the period through October 31, 2018. Earned Value Management System data and descriptions cover the period through September 30, 2018; this includes the facility completion percentage estimates included at various locations in the Waste Treatment and Immobilization Plant section.

<sup>2</sup> The consent decrees listed above are between the State of Washington and U.S. Department of Energy. For the first three of these decrees, there are similar separate decrees with the State of Oregon.

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## Acronyms and Abbreviations

BNI	Bechtel National, Inc.
BOF	Balance of Facilities
CV	cost variance
DFLAW	direct-feed low-activity waste
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EMF	Effluent Management Facility
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)
SV	schedule variance
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	06/30/2021 <sup>1</sup>		On Schedule
<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-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	09/30/2026 <sup>1</sup>		Under Analysis <sup>2</sup>
<b>Fiscal Year 2031</b>				
D-00A-02 Interim	HLW Facility Construction Substantially Complete	12/31/2030		Under Analysis <sup>3</sup>
<b>Fiscal Year 2032</b>				
D-00A-13 Interim	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-O0001A/1B	12/31/2031		Under Analysis <sup>3</sup>
D-00A-14 Interim	PT Facility Construction Substantially Complete	12/31/2031		Under Analysis <sup>3</sup>
D-00A-19 Interim	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2031		Under Analysis <sup>3</sup>

Milestone	Title	Due Date	Completion Date	Status
D-00A-03 Interim	Start HLW Facility Cold Commissioning	06/30/2032		Under Analysis <sup>3</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>3</sup>
<b>Fiscal Year 2034</b>				
D-00A-04 Interim	HLW Facility Hot Commissioning Complete	12/31/2033		Under Analysis <sup>3</sup>
D-00A-16 Interim	PT Facility Hot Commissioning Complete	12/31/2033		Under Analysis <sup>3</sup>
D-00A-17	Hot Start of WTP	12/31/2033		Under Analysis <sup>3</sup>
<b>Fiscal Year 2037</b>				
D-00A-01	Achieve Initial Plant Operations for the WTP	12/31/2036		Under Analysis <sup>3</sup>

<sup>1</sup> Third Amended Consent Decree, *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (October 12, 2018)

<sup>2</sup> As discussed in the joint motion to amend the Consent Decree filed on October 1, 2018, DOE is engaged in ongoing analysis of non-vapors-related retrieval challenges and tank condition issues associated with Tanks A-104 and A-105 (i.e., two of the nine tanks currently specified for retrieval under the B-2 Milestone). These issues are under analysis, and could require issuance of a "serious risk" notice or another request for amendment of the Consent Decree (including the B-2 Milestone). DOE met with the Washington State Department of Ecology on August 30, 2018, to discuss the retrieval challenges and tank conditions issues with Tanks A-104 and A-105.

<sup>3</sup> DOE received the U.S. Army Corps of Engineers' final report on its parametric analysis of certain options and funding scenarios used to evaluate the likelihood of achieving PT- and HLW-related milestones. Based on the results of this analysis, DOE considers the milestones for the HLW and PT facilities as "Under Analysis." DOE also considers milestones A-1 and A-17 as being "Under Analysis" because of the definition in Section IV-A-2: "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."

DOE = U.S. Department of Energy.

Ecology = Washington State Department of Ecology.

HLW = high-level waste.

LAW = low-activity waste.

PT = pretreatment.

SST = single-shell tank.

WMA-C = C Tank 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 each calendar year quarter (due November 14, 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.

### **D-16E-01, DOE must purchase by December 31, 2016 a spare E-A-1 reboiler for the 242-A Evaporator.**

Due: December 31, 2016.

Status: Complete (November 15, 2016).

### **D-16E-02, Have available spare E-A-1 reboiler for the 242-A Evaporator.**

Due: December 31, 2018.

Status: Complete (May 8, 2018).

## Single-Shell Tank Retrieval Program

**Tank Farms Assistant Manager:** Rob Hastings

**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	06/30/2021 <sup>1</sup>	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	Complete
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.	09/30/2026 <sup>1</sup>	Under Analysis <sup>2</sup>

<sup>1</sup> Third Amended Consent Decree, *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (October 12, 2018).

<sup>2</sup> As discussed in the joint motion to amend the Consent Decree filed on October 1, 2018, DOE is engaged in ongoing analysis of non-vapors-related retrieval challenges and tank condition issues associated with Tanks A-104 and A-105 (i.e., two of the nine tanks currently specified for retrieval under the B-2 Milestone). These issues are under analysis, and could require issuance of a "serious risk" notice or another request for amendment of the Consent Decree (including the B-2 Milestone). DOE met with the Washington State Department of Ecology on August 30, 2018, to discuss the retrieval challenges and tank conditions issues with Tanks A-104 and A-105.

DOE = U.S. Department of Energy.

SST = single-shell tank.

Ecology = Washington State Department of Ecology.

WMA-C = C Tank Farm waste management area.

### Significant Accomplishments during the Prior Month:

#### Completed Accomplishments:

- Completed Tank AX-104 hose-in-hose transfer line installation from the tank to the diversion box.
- Completed asbestos gasket abatement on thermocouples (AX-103 7A, AX-103 7D, and AX-101 7C), which passed the lift test.
- Completed riser investigation at Tank AX-101 and Tank AX-103.
- Two thermocouples are stuck in their risers; alternate riser locations will be used for the equipment installation.

- Completed placement of the A Tank Farm portable exhausters (POR518 and POR519) on the pad.
- Continued field activities for long-length equipment removals at Tank AX-103.

Ongoing Activities:

- Continue installation of the electrical infrastructure (power and control systems) inside the AX Tank Farm
- Continue field activities for long-length equipment removals at Tank AX-103
- Continue installation of retrieval equipment at Tank AX-102
- Continue direct-push sampling of soil at Tank A-104 and Tank A-105 (installation of two additional boreholes)
- Continue installation of caustic and water system piping from portable exhauster POR496 to the AX Tank Farm
- Continue Phase II of the AX-102/AX-104 tanks control trailer installation (portable exhausters POR471 and POR498)
- Continue installation of A Tank Farm ventilation system:
  - Install structural steel (decks, platforms, rails) for the exhausters
  - Install ventilation manifold supports
  - Remove thermocouple trees from risers (connections for ventilation system).

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

- Complete installation of electrical rack powder supply to portable exhauster POR496
- Complete installation of Tank AX-102 hose-in-hose transfer line from the tank to the diversion box
- Complete installation of AX-102 Pit 02C extended reach sluicer system
- Complete Tank AX-104 diversion box hose barn installation.
- Complete excavation from diversion box to pits 04A, B, C, and D
- Complete AX01A pit cleanout
- Complete conduit installations for east/west electrical system

**Issues:**

- Reduced worker efficiencies associated with mandatory use of supplied air continues to impact work in the tank farms.
- The U.S. Department of Energy (DOE) is engaged in ongoing analysis of non-vapors-related retrieval challenges and tank condition issues associated with Tanks A-104 and A-105 (i.e., two of the nine tanks currently specified for retrieval under

the B-2 Milestone).<sup>3</sup> These issues are under analysis and could require issuance of a “serious risk” notice or another request for amendment of the Consent Decree (including the B-2 Milestone).

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<sup>3</sup> As discussed in the joint motion to amend the Consent Decree filed on October 1, 2018, the U.S. Department of Energy is engaged in ongoing analysis of non-vapors-related retrieval challenges and tank condition issues associated with Tanks A-104 and A-105 (i.e., two of the nine tanks currently specified for retrieval under the B-2 Milestone). These issues are under analysis, and could require issuance of a “serious risk” notice or another request for amendment of the Consent Decree (including the B-2 Milestone). The U.S. Department of Energy met with the Washington State Department of Ecology on August 30, 2018, to discuss the retrieval challenges and tank conditions issues with Tanks A-104 and A-105.

## Tank Waste Retrieval Work Plan Status

*Tank Farms Assistant Manager:* Rob Hastings

*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	—

ERSS = extended reach sluicer system.

TWRWP = tank waste retrieval work plan.

### Significant Accomplishments during the Prior Month:

- None.

### Significant Planned Activities in the Next Month:

- None.

### Issues:

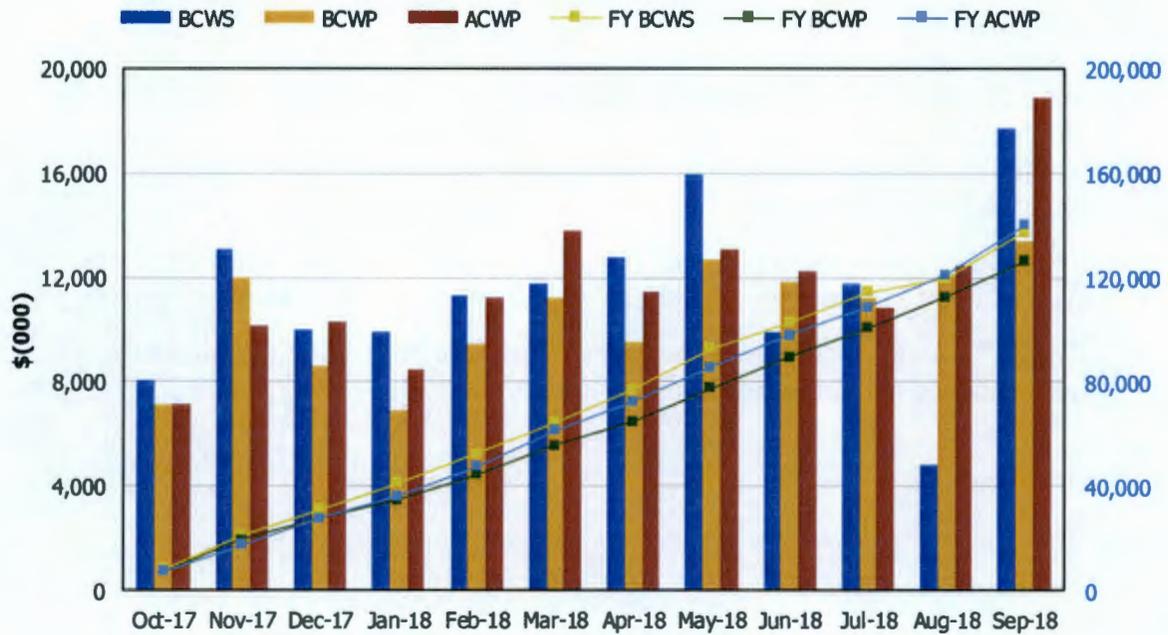
- None.

Earned Value Data: Fiscal Year 2018

September-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	\$11,787	\$11,248	\$13,799	0.95	0.82	\$64,113	\$55,301	\$61,051	0.86	0.91
Apr 2018	\$12,763	\$9,509	\$11,495	0.75	0.83	\$76,875	\$64,810	\$72,546	0.84	0.89
May 2018	\$15,972	\$12,694	\$13,076	0.79	0.97	\$92,848	\$77,504	\$85,622	0.83	0.91
Jun 2018	\$9,930	\$11,819	\$12,233	1.19	0.97	\$102,778	\$89,323	\$97,855	0.87	0.91
Jul 2018	\$11,803	\$11,257	\$10,812	0.95	1.04	\$114,581	\$100,580	\$108,667	0.88	0.93
Aug 2018	\$4,836	\$12,075	\$12,438	2.50	0.97	\$119,416	\$112,655	\$121,105	0.94	0.93
Sep 2018	\$17,752	\$13,412	\$18,841	0.76	0.71	\$137,168	\$126,068	\$139,946	0.92	0.90
<b>CTD</b>	<b>\$940,739</b>	<b>\$930,730</b>	<b>\$978,498</b>	<b>0.99</b>	<b>0.95</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>4</sup>**

The September 2018 **unfavorable** schedule variance (SV) of (\$4,339,600) was due to:

- A significant portion of the work for the SX Tank Farm interim barrier was to be performed in September; it was actually accomplished in August, resulting in negative performance in September.
- The September 2018 **unfavorable** cost variance (CV) of (\$5,428,700) was due to:
  - A significant amount of overtime was required to complete asphalt laying for the SX Tank Farm interim barrier.
  - Use of additional work crews and labor overtime to recover the schedule for the installation of infrastructure equipment in support of AX Tank Farm retrievals.
  - These CVs were negatively impacted by inefficiencies associated with the use of self-contained breathing apparatus.

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<sup>4</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

**Deputy Federal Project Director:** Vacant

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> DOE received the U.S. Army Corps of Engineers' final report on its parametric analysis of certain options and funding scenarios used to evaluate the likelihood of achieving PT- and HLW-related milestones. Based on the results of this analysis, DOE considers the milestones for the HLW and PT facilities as "Under Analysis." DOE also considers milestones A-1 and A-17 as being "Under Analysis" because of the definition in Section IV-A-2: "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."

DOE = U.S. Department of Energy.  
 HLW = high-level waste.  
 PT = pretreatment.  
 WTP = Waste Treatment and Immobilization Plant.

The Waste Treatment and Immobilization Plant (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 low-activity waste [DFLAW] and LBL facility services).

As of September 2018, DFLAW modifications for the WTP Project were 55 percent complete, engineering design was 87 percent complete, procurement was 53 percent complete, and construction was 40 percent complete. As of September 2018, total LBL facilities were 68 percent complete, engineering design was 92 percent complete, procurement was 81 percent complete, construction was 84 percent complete, and startup and commissioning was 33 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:

- The DOE Office of Project Management conducted an independent assessment of the U.S. Army Corp of Engineers' report in order to evaluate the assumptions, processes, rationale, and conclusions of the report. The Office of Project Management assessment is currently under internal review by DOE management.
- The DOE Office of River Protection (ORP) participated in two meetings with the Washington State Department of Ecology (Ecology) to discuss the tank waste mission and high-level waste approaches.

- ORP received the DFLAW replan schedule including an updated strategy and details for meeting the interim contract milestones, and associated internal baseline change proposal from Bechtel National, Inc. (BNI). The DFLAW replan schedule was implemented by BNI in October 2018.
- BNI completed an Integrated Safety Management System Phase 1 review of its commissioning programs. The review evaluated the BNI documentation that forms the basis of the programs, which will be used to commission WTP.
- Other 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.

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

- DOE will continue its evaluation of the U.S. Army Corp of Engineers' report, BNI presentations, DOE's Office of Project Management independent assessment of the report, and other relevant information to evaluate DOE's ability to achieve the HLW Facility construction substantially complete milestone and the PT Facility construction substantially complete milestone.
- ORP expects to meet with Ecology on a regular basis to continue to discuss the tank waste treatment mission and high-level waste approaches.
- Other significant planned activities in the next month are noted in project reports for the PT Facility, HLW Facility, LAW Facility, BOF, and LAB.

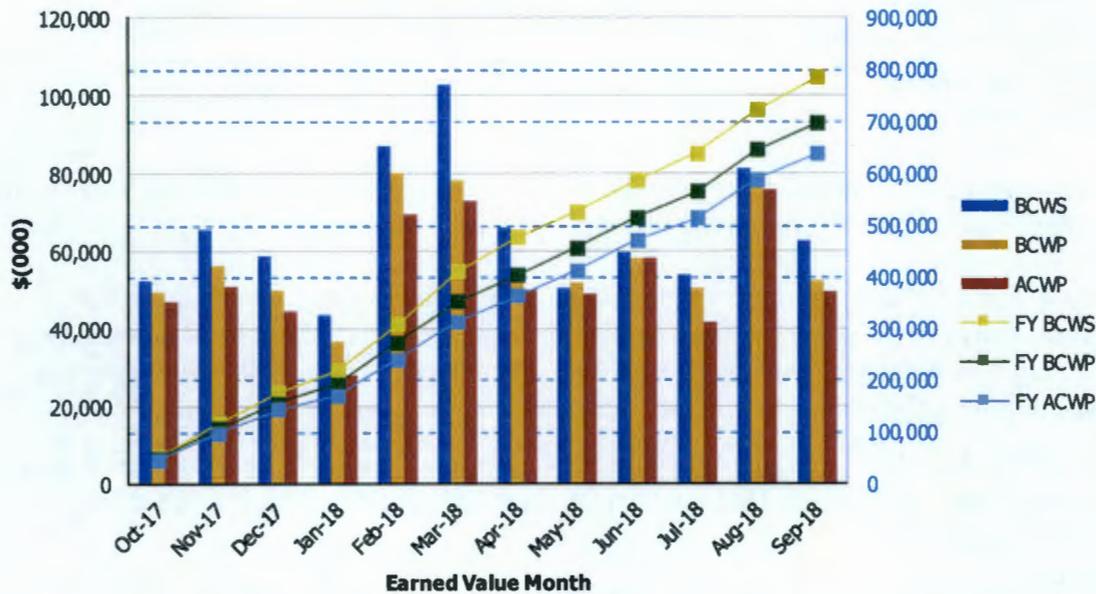
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: September 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	\$102,749	\$78,481	\$72,880	0.76	1.08	\$410,760	\$352,163	\$313,575	0.86	1.12
Apr 2018	\$65,995	\$52,537	\$50,050	0.80	1.05	\$476,755	\$404,701	\$363,625	0.85	1.11
May 2018	\$50,537	\$52,199	\$49,027	1.03	1.06	\$527,292	\$456,900	\$412,653	0.87	1.11
Jun 2018	\$59,842	\$58,499	\$58,483	0.98	1.00	\$587,134	\$515,399	\$471,135	0.88	1.09
Jul 2018	\$53,752	\$50,561	\$41,973	0.94	1.20	\$640,886	\$565,961	\$513,108	0.88	1.10
Aug 2018	\$81,376	\$79,255	\$76,035	0.97	1.04	\$722,262	\$645,216	\$589,143	0.89	1.10
Sep 2018	\$62,937	\$52,592	\$49,476	0.84	1.06	\$785,200	\$697,808	\$638,620	0.89	1.09
<b>PTD</b>	<b>\$11,296,794</b>	<b>\$11,155,705</b>	<b>\$11,022,034</b>	<b>0.99</b>	<b>1.01</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.      |

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

Performance Tracking	SV	CV
Current Period (September 2018)	(\$10,345)	\$3,116
Fiscal Year 2018 to-date	(\$87,391)	\$59,189
Cumulative (through September 2018)	(\$141,089)	\$133,672

CV = cost variance.

SV = schedule variance.

For the September 2018 Earned Value Management System reporting period, a net **unfavorable** SV of approximately (\$10.3 million) was reported, primarily due to the following:

- LAW Facility Plant Equipment reported an unfavorable SV due to a delay in the procurement of the programmable protection system. This resulted from independent testing, which determined a breaker in the system needed to be replaced. Purchasing is working with the vendor to mitigate the delays and recover the SV in November.
- LAW Facility Construction craft continues to report an unfavorable SV due to delays in starting the LAW Facility Documented Safety Analysis-related piping and electrical scope.
- LAW Facility Startup reported an unfavorable SV primarily attributed to delays in procedure development, which has been impacted by resource availability. Requisitions are in process for procedure writers.
- BOF Construction reported a favorable SV due to the heat trace, special protective coatings, and insulation subcontractor working ahead of schedule.
- BOF Startup reported an unfavorable SV due to system startup testing delays in the chiller compressor plant and ammonia facility, along with delayed delivery of diesel fuel oil. Turnover of the ammonia facility to Startup was delayed, which temporarily paused the schedule for testing.
- LAB Construction reported a favorable SV primarily related to the high purity gas subcontractor working ahead of schedule.
- LBL Plant Management (i.e., commissioning) continued to show an unfavorable SV due to a planned delay of staff increases. The evaluation of LBL staffing needs to support commissioning is now complete. These control accounts will begin to show the new staffing levels in the budgeting tools as a result of BNI implementing the DFLAW replan schedule in October 2018.

For the September 2018 Earned Value Management System reporting period, a net **favorable** CV of approximately \$3.1 million was reported, primarily due to the following:

- LBL Plant Management (i.e., commissioning) continued to report a favorable CV because current spending priorities are different from the existing baseline. Revised

commissioning spend plans have been incorporated into the DFLAW replan schedule and BNI's internal baseline change proposal, which was implemented in October 2018.

- LBL Facility Services reported a favorable CV due to the delayed procurement of communications equipment, now forecast for procurement by January 2019.
- DFLAW Construction reported a favorable CV due to concrete work scheduled for this reporting period being completed in an earlier reporting period.
- LAW Facility Startup reported an unfavorable CV due to equipment and component failures, which led to a test pause and retesting. In addition, level-of-effort work scope exceeded the plan for the reporting period.
- LAW Facility Engineering reported an unfavorable CV due to exceeding the punchlist baselined unit rates for more complex scope efforts (i.e., analytical limits, probability of failure on demand, setpoint calculations, etc.).

## 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	Under Analysis <sup>1</sup>
D-00A-13	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-00001A/1B	12/31/2031	Under Analysis <sup>1</sup>
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> DOE received the U.S. Army Corps of Engineers' final report on its parametric analysis of certain options and funding scenarios used to evaluate the likelihood of achieving PT- and HLW-related milestones. Based on the results of this analysis, DOE considers the milestones for the HLW and PT facilities as "Under Analysis." DOE also considers milestones A-1 and A-17 as being "Under Analysis" because of the definition in Section IV-A-2: "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."

DOE = U.S. Department of Energy.  
 HLW = high-level waste.  
 PT = pretreatment.  
 WTP = Waste Treatment and Immobilization Plant.

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, "Ensuring Control

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

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).<sup>6</sup>

Preliminary engineering work, documented previously in a BNI and ORP study, was completed and demonstrates how the standard high-solids vessel 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 standard high-solids vessels can be incorporated into the PT Facility, while meeting the PT Facility throughput contract requirements.

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

- BNI issued an update to the localized corrosion test basis document supporting closure of the technical issue T5 and closure of the T5 corrective action plan.
- ORP continued to work with BNI on completing final resolution documentation for the remaining open technical issues described as T4 and T5.
- BNI continued to focus on ongoing asset maintenance at the PT Facility to protect equipment and structures and ensure design documents are maintained.

#### **Significant Planned Activities for the Next Month:**

- BNI is expected to issue the calculation to validate the analytical method for requirements verification of installed low solids pulse-jet mixer vessels (i.e., T4 in relation to pulse-jet mixer vessel mixing and control) before the end of 2018.
- BNI will continue to focus on ongoing asset maintenance at the PT Facility to protect equipment and structures and ensure design documents are maintained. Work will continue on technical issue resolution related to the remaining technical issues.
- ORP intends to submit a planned resolution and recommend closure of technical issues T4 and T5 to the DNFSB in December 2018. The resolution of the technical issues is likely to require significant design changes to the PT Facility.

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<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.

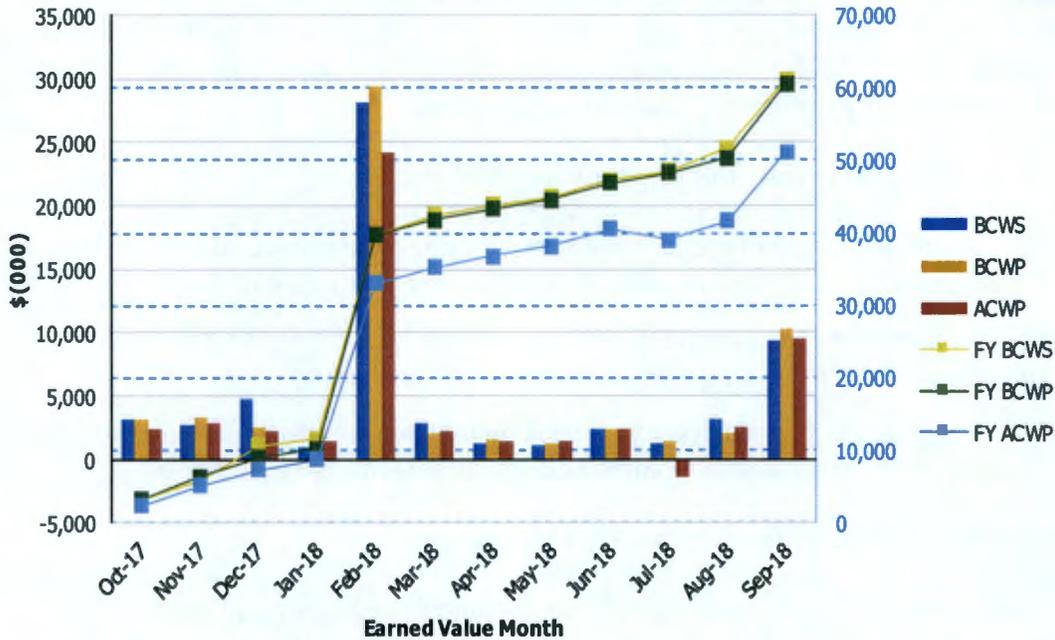
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: September 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	\$2,143	\$2,222	0.76	0.96	\$42,466	\$41,778	\$35,248	0.98	1.19
Apr 2018	\$1,308	\$1,528	\$1,494	1.17	1.02	\$43,773	\$43,306	\$36,743	0.99	1.18
May 2018	\$1,125	\$1,268	\$1,382	1.13	0.92	\$44,898	\$44,574	\$38,125	0.99	1.17
Jun 2018	\$2,364	\$2,366	\$2,353	1.00	1.01	\$47,262	\$46,939	\$40,477	0.99	1.16
Jul 2018	\$1,331	\$1,376	(\$1,416)	1.03	-0.97	\$48,593	\$48,315	\$39,061	0.99	1.24
Aug 2018	\$3,161	\$2,006	\$2,579	0.63	0.78	\$51,754	\$50,321	\$41,641	0.97	1.21
Sep 2018	\$9,398	\$10,278	\$9,499	1.09	1.08	\$61,152	\$60,599	\$51,140	0.99	1.18
<b>PTD</b>	<b>\$2,002,261</b>	<b>\$1,998,184</b>	<b>\$1,964,500</b>	<b>1.00</b>	<b>1.02</b>					

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|---|--|
| ACWP = actual cost of work performed.   | EVMS = earned value management system. |
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| 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> DOE received the U.S. Army Corps of Engineers' final report on its parametric analysis of certain options and funding scenarios used to evaluate the likelihood of achieving PT- and HLW-related milestones. Based on the results of this analysis, DOE considers the milestones for the HLW and PT facilities as "Under Analysis." DOE also considers milestones A-1 and A-17 as being "Under Analysis" because of the definition in Section IV-A-2: "'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."

DOE = U.S. Department of Energy.  
 HLW = high-level waste.  
 PT = pretreatment.  
 WTP = Waste Treatment and Immobilization Plant.

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, which initially was for work primarily associated with asset maintenance and key ongoing procurement activities. With the receipt of increased funding in FY 2018 (noted below), additional engineering workscope is being performed and is being planned for FY 2019 in anticipation of receiving engineering resources from DFLAW/LBL activities.

**Significant Accomplishments during the Prior Month:**

- BNI established a plan to continue development of limited engineering design products for FY 2019 based on carry-over funding from the HLW Facility in the *Consolidated Appropriations Act, 2018*, on which ORP concurred.
- ORP participated in two meetings with Ecology to discuss the tank waste mission and high-level waste approaches.
- BNI continued to focus on ongoing asset maintenance at the HLW Facility to protect equipment and structures and ensure design documents are maintained.
- BNI continued fabrication of RLD-7 and RLD-8 vessels to support expected delivery in FY 2019. These vessels are to be installed in the wet process cell to allow concrete slab placement above the wet cell. This activity supports roof installation and building enclosure.

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

- In accordance with the additional funding received for the HLW Facility in the FY 2018 congressional appropriation (noted above), BNI will continue to ramp-up engineering design activities on key mechanical and process systems for the HLW Facility in FY 2019 utilizing the carry-over of additional funds received in the FY 2018 appropriation. Engineering resources from DFLAW/LBL modifications, if available, will be transitioned to support production engineering efforts for the HLW Facility.
- ORP expects to meet with Ecology on a regular basis to continue to discuss the tank waste treatment mission and high-level waste approaches.
- BNI will continue to focus on ongoing asset maintenance at the HLW Facility to protect equipment and structures and ensure design documents are maintained.

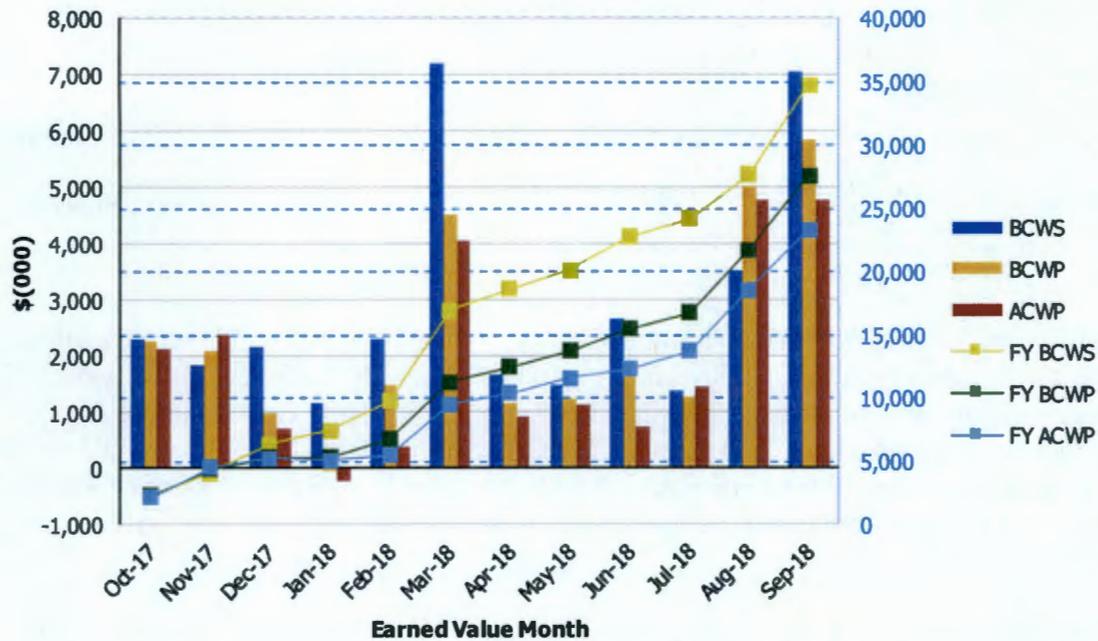
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: September 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	\$4,514	\$4,061	0.63	1.11	\$16,974	\$11,294	\$9,510	0.67	1.19
Apr 2018	\$1,684	\$1,179	\$916	0.70	1.29	\$18,658	\$12,473	\$10,426	0.67	1.20
May 2018	\$1,492	\$1,240	\$1,129	0.83	1.10	\$20,150	\$13,713	\$11,555	0.68	1.19
Jun 2018	\$2,659	\$1,743	\$745	0.66	2.34	\$22,809	\$15,456	\$12,300	0.68	1.26
Jul 2018	\$1,381	\$1,282	\$1,455	0.93	0.88	\$24,190	\$16,738	\$13,755	0.69	1.22
Aug 2018	\$3,523	\$5,009	\$4,775	1.42	1.05	\$27,712	\$21,747	\$18,530	0.78	1.17
Sep 2018	\$7,077	\$5,839	\$4,778	0.83	1.22	\$34,789	\$27,586	\$23,309	0.79	1.18
<b>PTD</b>	<b>\$1,367,460</b>	<b>\$1,359,720</b>	<b>\$1,331,701</b>	<b>0.99</b>	<b>1.02</b>					

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|---|--|
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| 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>7</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 September 2018, the LAW Facility was 73 percent complete overall, engineering design was 92 percent complete, procurement was 87 percent complete, construction was 94 percent complete, and startup and commissioning was 24 percent complete.

### Significant Accomplishments during the Prior Month:

- BNI completed development of the Specialized Requirements Verification Matrix process used to verify that systems, structures, and components meet the safety and quality functional requirements identified in the LAW Facility Documented Safety Analysis. Initial reviews of the Specialized Requirements Verification Matrix pilot program implemented in October 2018, demonstrated this process can be used to determine that commercial grade dedication evaluations performed by BNI are aligned with the approved LAW Facility Documented Safety Analysis.
- BNI received instrument tub fittings.

<sup>7</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's Startup organization accepted turnover of the following systems from the Construction organization:
  - Mechanical handling control system (MHJ-L-01)
  - Autosampling system (ASX-L-01)
  - Plant cooling water system (PCW-L-05)
  - Glass formers reagent system (GFR-L-01).
- BNI Construction completed the follow-on, 3-week walkdowns in support of turning the following systems and building areas over to the Startup organization:
  - LAW Facility melter handling system (LMH-L-01)
  - Radioactive solid waste handling system (RWH-L-01)
  - LAW Facility melter equipment support handling system (LSH-L-01)
  - Process and mechanical handling closed circuit TV system (PTJ-L-01).

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

- BNI Engineering is expected to complete its review of the following commercial grade dedication extent of condition priority 1 documents:
  - System design description for the LAW Facility primary offgas process
  - LAW Facility secondary offgas/vessel vent process system.
- BNI is expected to receive the following procurements from vendors:
  - Distribution panels and breakers
  - Refurbished LAW Facility melter No. 1 power supply
  - Safety-significant on/off valves integral solenoid and limit switch
  - Pressure safety valve for the sodium hydroxide reagent system
  - Delayed procurements expected last month are as follows:
    - Process gas analyzers and continuous emissions monitoring system
    - Safety-significant function temperature elements
    - Input switchgear cabinets for melter power supply.
- BNI Construction is expected to complete the 3-week walkdowns in support of turning the following systems over to the Startup organization:
  - C2 ventilation system (C2V-L-01)
  - Breathing service air system (BSA-L-01)
  - LAW Facility container pour handling system (LPH-L-01)
  - Plant cooling water system (PCW-L-01).
- BNI's Startup organization expects to accept the following systems and building areas turned over from the Construction organization:
  - Process and mechanical handling closed circuit TV system (PTJ-L-01)
  - LAW Facility container pour handling system (LPH-L-01)

- Following systems expected last month were delayed due to delays in completing construction punchlist items:
  - LAW Facility container receipt handling system (LRH-L-01)
  - LAW Facility container finishing handling systems 1 and 2 (LFH-L-01, LFH-L-02)
  - C5 ventilation system (C5V-L-01)
  - LAW Facility melter handling system (LMH-L-01)
  - Plant cooling water systems 3 and 4 (PCW-L-03 and PCW-L-04)
  - B20-L-07 (facility turnover postponed until completion of all construction activities).
- BNI's Operations organization expects to accept the following building area:
  - B20-L-06 – LAW Facility annex.

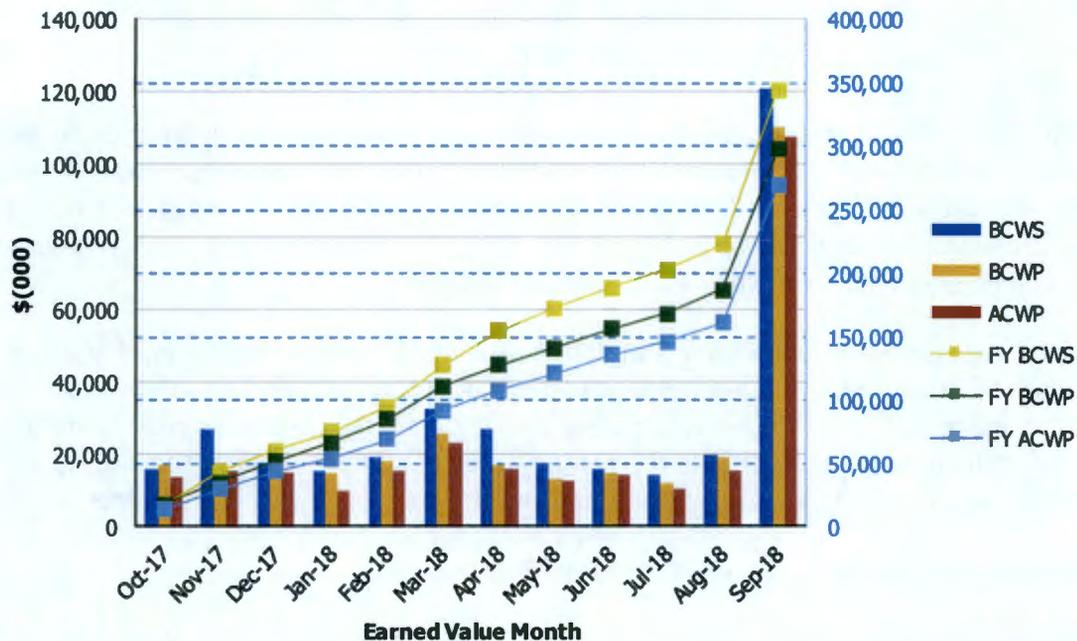
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: September 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	\$32,761	\$25,728	\$23,335	0.79	1.10	\$127,750	\$110,757	\$92,328	0.87	1.20
Apr 2018	\$27,269	\$17,227	\$15,923	0.63	1.08	\$155,019	\$127,984	\$108,251	0.83	1.18
May 2018	\$17,765	\$13,420	\$12,803	0.76	1.05	\$172,784	\$141,405	\$121,054	0.82	1.17
Jun 2018	\$16,038	\$14,943	\$14,382	0.93	1.04	\$188,822	\$156,348	\$135,437	0.83	1.15
Jul 2018	\$14,445	\$12,116	\$10,154	0.84	1.19	\$203,267	\$168,464	\$145,591	0.83	1.16
Aug 2018	\$19,975	\$19,028	\$15,442	0.95	1.23	\$223,242	\$187,492	\$161,033	0.84	1.16
Sep 2018	\$120,925	\$110,322	\$107,706	0.91	1.02	\$344,167	\$297,815	\$268,739	0.87	1.11
<b>PTD</b>	<b>\$2,072,391</b>	<b>\$2,024,250</b>	<b>\$1,999,346</b>	<b>0.98</b>	<b>1.01</b>					

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|---|--|
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## 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 September 2018, BOF was 75 percent complete overall, engineering design was 93 percent complete, procurement was 88 percent complete, construction was 84 percent complete, and startup and commissioning was 49 percent complete. Design of the Effluent Management Facility (EMF) was 95 percent complete.

BNI Engineering efforts are focused on completion of the EMF design, supporting EMF procurement activities, and providing field support for BOF startup activities. BNI Construction is focused on the installation of pipe rack; piping; heating, ventilation, and air-conditioning ducting; and cable tray within EMF. Startup testing for BOF systems remains focused on the cooling tower facility and major equipment in the chiller compressor and steam plants.

### Significant Accomplishments during the Prior Month:

- BNI completed the placement of the following major equipment items in the EMF C5 evaporator cell:
  - EMF evaporator and tower assembly
  - EMF evaporator primary reboiler
  - EMF evaporator feed filter and platform.
- BNI initiated the installation of structural steel to support the roof of the EMF C5 evaporator cell and initiated off-footprint construction of the roof assembly.
- BNI completed placement of the secondary reboiler in the EMF C3 secondary reboiler and condenser area.
- BNI completed installation of the roof for the EMF C3 secondary reboiler and condenser area, and installed the B-decking to support weathering in the area.
- BNI completed protective coatings application for the low-point drain vessel area.
- BNI completed turnover of the BOF low-voltage electrical system that supports the ammonia reagent system from Construction to Startup.

### Significant Planned Activities in the Next Month:

- BNI Construction expects to place the roof assembly over the EMF C5 evaporator cell.

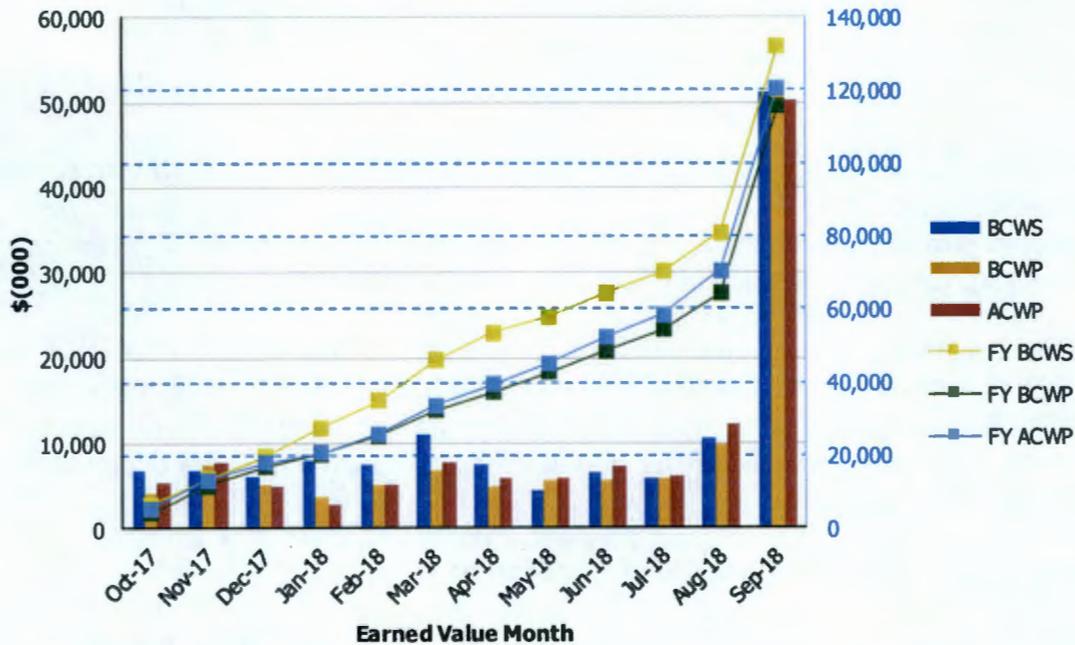
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: September 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	\$10,993	\$6,722	\$7,817	0.61	0.86	\$46,045	\$32,195	\$33,655	0.70	0.96
Apr 2018	\$7,447	\$5,012	\$5,759	0.67	0.87	\$53,492	\$37,207	\$39,414	0.70	0.94
May 2018	\$4,485	\$5,514	\$5,826	1.23	0.95	\$57,976	\$42,721	\$45,240	0.74	0.94
Jun 2018	\$6,515	\$5,700	\$7,228	0.87	0.79	\$64,492	\$48,421	\$52,468	0.75	0.92
Jul 2018	\$5,800	\$5,871	\$6,001	1.01	0.98	\$70,292	\$54,292	\$58,469	0.77	0.93
Aug 2018	\$10,572	\$9,813	\$12,154	0.93	0.81	\$80,864	\$64,105	\$70,622	0.79	0.91
Sep 2018	\$51,199	\$51,212	\$50,182	1.00	1.02	\$132,063	\$115,317	\$120,804	0.87	0.95
<b>PTD</b>	<b>\$804,407</b>	<b>\$780,826</b>	<b>\$795,549</b>	<b>0.97</b>	<b>0.98</b>					

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|---|--|
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| BCWP = budgeted cost of work performed. | FY = fiscal year.                      |
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| CPI = cost performance index.           | 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 September 2018, the LAB was 75 percent complete overall, engineering design was 92 percent complete, procurement was 90 percent complete, construction was 97 percent complete, and startup and commissioning was 36 percent complete.

Activities in the LAB are focused on system turnovers to begin startup testing of LAB systems. BNI is focused on completing the turnover of all LAB systems from Construction to Startup in 2018. To date, BNI has completed the turnover of 31 LAB systems for startup testing. BNI personnel continue work in the offsite laboratory facility on procedure development and analytical method validation.

### Significant Accomplishments during the Prior Month:

- BNI completed turnover of the following systems from Construction to Startup:
  - LAB bottled argon gas system
  - LAB bottled helium gas system
  - LAB bottled nitrogen gas system.
- BNI continued offsite activities to progress LAB procedure development and analytical method validation.

### Significant Planned Activities in the Next Month:

- BNI is expected to continue turnover of LAB systems and startup testing of systems as they become available.

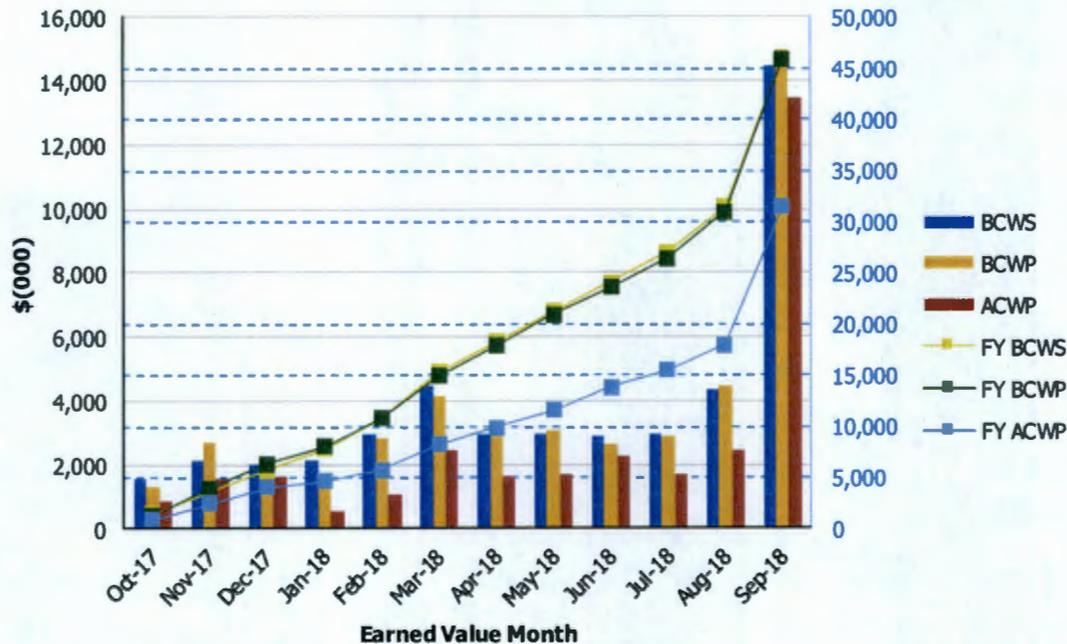
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data

Data as of: September 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	\$4,477	\$4,134	\$2,463	0.92	1.68	\$15,268	\$14,896	\$8,229	0.98	1.81
Apr 2018	\$2,966	\$2,938	\$1,649	0.99	1.78	\$18,234	\$17,833	\$9,878	0.98	1.81
May 2018	\$2,950	\$3,067	\$1,666	1.04	1.84	\$21,184	\$20,901	\$11,544	0.99	1.81
Jun 2018	\$2,876	\$2,656	\$2,242	0.92	1.18	\$24,060	\$23,557	\$13,786	0.98	1.71
Jul 2018	\$2,972	\$2,888	\$1,668	0.97	1.73	\$27,033	\$26,445	\$15,454	0.98	1.71
Aug 2018	\$4,367	\$4,458	\$2,471	1.02	1.80	\$31,399	\$30,903	\$17,924	0.98	1.72
Sep 2018	\$14,492	\$15,018	\$13,477	1.04	1.11	\$45,891	\$45,921	\$31,401	1.00	1.46
<b>PTD</b>	<b>\$407,099</b>	<b>\$403,777</b>	<b>\$375,519</b>	<b>0.99</b>	<b>1.08</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.      |

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

### Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status

Through September 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	2,291.0	1,681.4	73%	566.0	521.5	92%	366.9	318.5	87%	727.3	685.6	94%	626.8	151.9	24%	4.0	4.0	100%
Balance of Facilities	785.4	591.8	75%	149.5	139.8	93%	71.0	62.3	88%	315.3	266.1	84%	249.1	123.1	49%	0.5	0.5	100%
Analytical Lab	499.5	373.6	75%	102.9	94.2	92%	66.5	59.6	90%	164.7	159.4	97%	165.0	59.9	36%	0.5	0.5	100%
Direct Feed LAW	425.2	233.1	55%	108.6	94.3	87%	69.0	38.4	53%	238.0	94.8	40%	0.0	0.0	0%	11.6	7.6	65%
LBL Facility Services	755.2	368.5	49%	0.0	0.0	0%	69.3	46.8	68%	100.3	92.6	92%	326.2	114.9	35%	259.4	114.1	44%
<b>Total LBL</b>	<b>4,756.4</b>	<b>3,248.4</b>	<b>68%</b>	<b>927.1</b>	<b>849.8</b>	<b>92%</b>	<b>642.7</b>	<b>523.7</b>	<b>81%</b>	<b>1,543.5</b>	<b>1,298.5</b>	<b>84%</b>	<b>1,367.1</b>	<b>449.8</b>	<b>33%</b>	<b>276.0</b>	<b>126.7</b>	<b>46%</b>
Project Services	929.8	601.4	65%	92.3	81.6	88%	65.6	48.1	73%	106.6	85.4	80%	1.7	1.7	100%	663.6	384.6	58%
<b>Total Project Services</b>	<b>929.8</b>	<b>601.4</b>	<b>65%</b>	<b>92.3</b>	<b>81.6</b>	<b>88%</b>	<b>65.6</b>	<b>48.1</b>	<b>73%</b>	<b>106.6</b>	<b>85.4</b>	<b>80%</b>	<b>1.7</b>	<b>1.7</b>	<b>100%</b>	<b>663.6</b>	<b>384.6</b>	<b>58%</b>
<b>Total LBL, DFLAW &amp; Project Services</b>	<b>5,686.1</b>	<b>3,849.9</b>	<b>68%</b>	<b>1,019.3</b>	<b>931.4</b>	<b>91%</b>	<b>708.3</b>	<b>571.8</b>	<b>81%</b>	<b>1,650.0</b>	<b>1,383.9</b>	<b>84%</b>	<b>1,368.9</b>	<b>451.5</b>	<b>33%</b>	<b>939.6</b>	<b>511.3</b>	<b>54%</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>14,408.9</b>	<b>9,815.1</b>	<b>68%</b>	<b>3,192.4</b>	<b>2,880.3</b>	<b>90%</b>	<b>2,273.8</b>	<b>1,696.6</b>	<b>75%</b>	<b>4,537.6</b>	<b>3,148.7</b>	<b>69%</b>	<b>2,127.4</b>	<b>594.7</b>	<b>28%</b>	<b>2,277.7</b>	<b>1,494.8</b>	<b>66%</b>

Source: Preliminary WTP Contract Performance Report - Format 1, Data for September 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 PT/HLW/SS Interim Work Plan was incorporated into the project OTB baseline resulting in decreases to the PT/HLW/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 PT/HLW/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 (xPSA), as shown on the CPR Format 1, is not added to LBL for percent complete purposes.