

# Office of River Protection Consent Decree Monthly Report

## Monthly Reporting Period January 1–January 31, 2020<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> The narrative descriptions of progress in this report cover the reporting period. Information outside the reporting period may also be included for purposes of providing continuity or useful context. Information may be repeated in multiple sections of this report for continuity and clarity. Earned Value Management System data and descriptions cover the period through December 2019.

<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

AoA	analysis of alternatives
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
PPR	Project Peer Review
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
<b>Fiscal Year 2026</b>				
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		At Risk <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		At Risk <sup>3</sup>
D-00A-14 Interim	PT Facility Construction Substantially Complete	12/31/2031		At Risk <sup>3</sup>
D-00A-19 Interim	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2031		At Risk <sup>3</sup>
D-00A-03 Interim	Start HLW Facility Cold Commissioning	06/30/2032		At Risk <sup>3</sup>

Milestone	Title	Due Date	Completion Date	Status
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		At Risk <sup>3</sup>
<b>Fiscal Year 2034</b>				
D-00A-04 Interim	HLW Facility Hot Commissioning Complete	12/31/2033		At Risk <sup>3</sup>
D-00A-16 Interim	PT Facility Hot Commissioning Complete	12/31/2033		At Risk <sup>3</sup>
D-00A-17	Hot Start of WTP	12/31/2033		At Risk <sup>3</sup>
<b>Fiscal Year 2037</b>				
D-00A-01	Achieve Initial Plant Operations for the WTP	12/31/2036		At Risk <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 Ecology and attorneys from the Washington State Office of the Attorney General on August 30, 2018, to discuss the retrieval challenges and issues with the condition of tanks A-104 and A-105. Since August 2018, DOE has had several discussions with Ecology on this topic.

<sup>3</sup> 19-ORP-0007, 2019, “Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085).”

DOE = U.S. Department of Energy.

PT = pretreatment.

Ecology = Washington State Department of Ecology.

SST = single-shell tank.

HLW = high-level waste.

WTP = Waste Treatment and Immobilization Plant.

LAW = low-activity waste.

## **Consent Decree Reports/Reviews**

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

Due: Forty-five days following each calendar year quarter  
(February 14, May 15, August 14, and November 14).

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

**Technical Lead:** 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 five	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 Ecology and attorneys from the Washington State Office of the Attorney General on August 30, 2018, to discuss the retrieval challenges and issues with the condition of tanks A-104 and A-105. Since August 2018, DOE has had several discussions with Ecology on this topic.

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-102 waste retrieval operations with sluicing and high pressure water (first and second retrieval technologies) and initial volume displacement measurements
- Installed Tank AX-104 Pit B extended reach sluicer system into tank
- Installed Tank AX-104 Pit A slurry pump into tank
- Completed Tank A-103 03C saltwell screen removal
- Completed Tank A-101 1C Pit stuck shield plug core drilling in preparation for air inlet station installation
- Completed Tank A-106 Riser 2 thermocouple removal (removable upper section)
- Completed A Tank Farm ventilation system cold operational acceptance testing.

Ongoing Activities:

- Continue Tank AX-102 first and second technology retrieval completion report preparation
- Continue Tank AX-104 installation and testing of waste retrieval equipment
- Continue Tank AX-103 installation of electrical and support infrastructure
- Continue Tank AX-101 removal of long-length equipment
- Installation of A Tank Farm ventilation system:
  - Install control systems for the exhauster
  - Remove cover blocks, clean pits, and thermocouple trees from risers (to connect the ventilation system)
  - Continue installation of duct riser assemblies, air inlet stations, and testing
- Initiated a series of activities at Tank A-101 for the removal of cover blocks, cleaning of pits, and removal of long-length equipment in preparation for future retrieval equipment installation.

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

- Remove Tank AX-101 Pit D Riser 24 pump
- Remove Tank AX-101 Pit B Riser 01B pump
- Complete lowering of A-106 Riser 2 damaged (not removable) thermocouple section
- Complete installation of A Tank Farm ventilation system duct riser assembly and inlet stations.

**Issues:**

- Reduced worker efficiencies associated with use of supplied air continues to impact work in the tank farms. The use of full-face air purifying respirators has been approved for use in the AX Tank Farm during operation of exhausters (POR126/POR127). Mandatory use of supplied air respirators is required when the AX Tank Farm exhausters are not operating or during retrieval operations.
- The U.S. Department of Energy (DOE) is engaged in ongoing analysis of retrieval challenges and 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> The U.S. Department of Energy met with the Washington State Department of Ecology and attorneys from the Washington State Office of the Attorney General on August 30, 2018, to discuss the retrieval challenges and issues with the condition of Tanks A-104 and A-105. The U.S. Department of Energy has had several discussions with the Washington State Department of Ecology on this topic since August 2018.

- The as-found condition of existing abandoned equipment in AX and A Tank Farms has affected DOE's ability to remove the equipment efficiently and is affecting the cost and schedule.
  - Removal of Tank A-103 R2 thermocouple required a duration of 209 days to complete. The lower section of the thermocouple was damaged and could not be removed. Unique tooling was required to lower the remaining section to the tank bottom.
  - Removal of Tank A-101 R2 thermocouple required the top sections to be removed in two sections and the remaining third section to be lowered to the tank bottom.
  - Removal of Tank A-106 R2 thermocouple will require removal in sections, with the lower section left in the tank.
  - A stuck shield plug in Tank A-101 01C Pit will require an alternative method (core drilling) to tie in the ventilation system.
  - A stuck shield plug in Tank AX-102 02B Pit prevented the installation of the planned third extended reach sluicer.
- On December 3, 2018, the Washington State Department of Ecology (Ecology) sent the DOE Office of River Protection (ORP) and Richland Operations Office a letter (18-NWP-177) regarding the Hanford Site ambient air boundary. Ecology expressed its concern that the ambient air boundary appears to have changed because of increased public access to parts of the Hanford Site. DOE, Ecology, and the Washington State Department of Health have met several times to attempt to develop a shared understanding of existing conditions and a path forward.
- On January 28, 2019, ORP received a Washington River Protection Solutions LLC letter (WRPS-1900243), outlining potential impacts to tank retrievals at A and AX Tank Farms, due to a lack of Ecology regulatory approval associated with exhausters in the 241-A and 241-AX Tank Farms. On March 4, 2019, DOE transmitted WRPS-1900243 to ensure Ecology was aware of potential impacts to A and AX Tank Farm retrievals and possibly associated Consent Decree milestones, if Ecology does not approve a pending notice of construction application in the near future. DOE is continuing to evaluate the information in the letter, as well as whether amendment of the Consent Decree (including potential invocation of "force majeure" provisions) or other actions may be necessary. Retrieval of Tank AX-102 began on August 31, 2019, with the exhausters running at 1,000 standard cubic feet per minute. DOE will continue to assess retrieval performance at this airflow rate due to the potential for fogging at various stages of the retrieval process that may affect schedule.
- On April 18, 2019, Ecology provided a notice of incompleteness determination for the A and AX Tank Farms (19-NWP-063). ORP provided a response on May 14, 2019 (19-ECD-0038), which justified that the original application met the regulations and asked Ecology to continue processing the application. ORP submitted a revised application on October 31, 2019 (19-ECD-0080), to provide supplemental information to address Ecology's comments.

## 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:

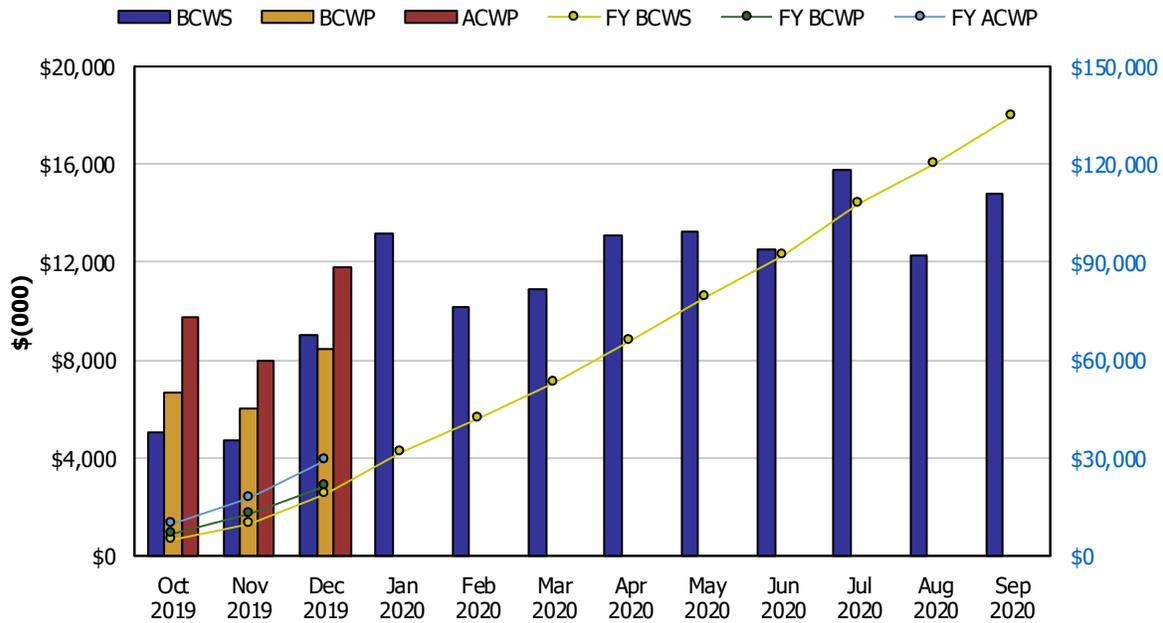
- None.

Earned Value Data: Fiscal Year 2020

December-19

**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 2019	\$5,039	\$6,662	\$9,772	1.32	0.68	\$5,039	\$6,662	\$9,772	1.32	0.68
Nov 2019	\$4,722	\$6,050	\$7,940	1.28	0.76	\$9,761	\$12,712	\$17,711	1.30	0.72
Dec 2019	\$9,040	\$8,482	\$11,822	0.94	0.72	\$18,801	\$21,193	\$29,534	1.13	0.72
Jan 2020	\$13,201			0.00	0.00	\$32,003			0.00	0.00
Feb 2020	\$10,151			0.00	0.00	\$42,153			0.00	0.00
Mar 2020	\$10,855			0.00	0.00	\$53,008			0.00	0.00
Apr 2020	\$13,093			0.00	0.00	\$66,101			0.00	0.00
May 2020	\$13,247			0.00	0.00	\$79,348			0.00	0.00
Jun 2020	\$12,504			0.00	0.00	\$91,851			0.00	0.00
Jul 2020	\$15,784			0.00	0.00	\$107,636			0.00	0.00
Aug 2020	\$12,238			0.00	0.00	\$119,873			0.00	0.00
Sep 2020	\$14,791			0.00	0.00	\$134,665			0.00	0.00

CTD	\$1,103,063	\$1,082,535	\$1,148,316	0.98	0.94
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- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- CTD = contract to date.
- EVMS = earned value management system.
- FY = fiscal year.
- SPI = schedule performance index.

**Retrieve and Close Single-Shell Tanks (5.02)<sup>4</sup>**

The December 2019 unfavorable schedule variance (SV) of (\$558,300) was primarily due to:

- Retrieval of waste from Tank AX-102 slowed as operations approached the limits of technology for both the first and second retrieval technologies.
- Delays occurring in Tank AX-101 and Tank AX-103 dome electrical work due to ongoing equipment removal activities pushing the electrical scope out.

The December 2019 unfavorable cost variance (CV) of (\$3,340,400) was primarily due to:

- Several unsuccessful attempts to remove a stuck riser shield plug in Tank A-101 Pit C resulting in the need to core drill through the shield plug. Crews completed a mockup and drilled a pilot hole to determine the depth of the shield plug.
- Crews having to cut the deteriorated and splayed thermocouple in Tank A-101 Riser 2 and lower the damaged bottom section into the tank, using the same method developed during the removal of a thermocouple in Tank A-103.
- The need for design verification, mockups, and testing in order to retro fit the Tank AX-104 extended reach sluicer systems with chem-joints to prevent leaking during operations, as was experienced with the Purex connector in Tank AX-102.
- The need to install fiber optic lines for the A Tank Farm ventilation system, which were not part of the original baseline estimate. The original plan assumed the use of a wireless communication system. However, after an engineering and security review, the wireless system was deemed not acceptable due to the potential for signal interruptions due to weather or other aerial work in the tank farms.

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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:* Mat Irwin

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	At Risk <sup>1</sup>
D-00A-01	Achieve Initial Plant Operations for WTP	12/31/2036	At Risk <sup>1</sup>

<sup>1</sup> 19-ORP-0007, 2019, "Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085)."

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 December 2019, DFLAW modifications for the WTP Project were 86 percent complete, engineering design was 97 percent complete, procurement was 98 percent complete, and construction was 77 percent complete. As of December 2019, total LBL facilities were 81 percent complete, engineering design was 97 percent complete, procurement was 97 percent complete, construction was 94 percent complete, and startup and commissioning was 50 percent complete.

At the request of DOE, the U.S. Army Corps of Engineers conducted a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving certain milestones established by the Amended Consent Decree for the High-Level Waste (HLW) and Pretreatment (PT) facilities. The analysis indicated there is a low probability that DOE can meet the milestones for constructing and commissioning these facilities established by the Amended Consent Decree under the current funding profile.

The DOE Office of Project Management conducted an independent assessment of the U.S. Army Corps of Engineers report. As noted previously, the Office of Project Management's assessment concluded the U.S. Army Corps of Engineers' analyses were generally accurate, although not sufficiently detailed for budget purposes, and they potentially understate the funding needed to complete the HLW and PT facilities on the schedule established by the Amended Consent Decree.

As previously noted, Ecology sent ORP and the Richland Operations Office a letter (18-NWP-177) on December 3, 2018, regarding the Hanford Site ambient air boundary. Ecology expressed its concern that the ambient air boundary appears to have changed because of increased public access to parts of the Hanford Site. DOE, Ecology, and the Washington State Department of Health have met several times to attempt to develop a shared understanding of existing conditions and a path forward.

ORP held initial meetings with the WTP HLW Treatment Analysis of Alternatives (AoA) contractor team in June 2019, with Ecology participation. The purpose of the AoA is to identify and evaluate a broad set of alternatives to meet the mission need; analyze the life-cycle cost, schedule, and risks associated with each alternative; and present the evaluation results to DOE leadership, pursuant to the requirements of DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*.

Membership on the DOE AoA Steering Committee was revised in July 2019 to include senior-level representation from DOE's Office of Project Management, Office of Cost Estimating and Program Evaluation, Office of the Chief Financial Officer, Office of Environmental Management, and Acquisition and Project Management for the National Nuclear Security Administration.

ORP approved the *Waste Treatment and Immobilization Plant High-Level Waste Treatment Analysis of Alternatives Study Plan* (Rev. 3). The Study Plan was updated to incorporate comments from new Steering Committee members to include the method, approach, and schedule to be used in conducting an independent AoA for the identified mission need.

On September 4, 2019, DOE notified Ecology that there is a serious risk DOE may be unable to meet milestones for the HLW and PT facilities in the Amended Consent Decree.<sup>5</sup> The notification stated:

...it is appropriate, out of an abundance of caution, to provide this notice of serious risk as described in the Amended Consent Decree ... Specifically, the Department is providing notice of a "serious risk ... that DOE may be unable to meet" Milestones A-1 and A-17 (Waste Treatment Plant), Milestones A-2 to A-4 (HLW Facility), and A-13 to A-16 and A-19 (PT Facility) of that Decree. With respect to the "preliminary recovery plan" required by the Amended Consent Decree, completion of the AoA is the first and most critical aspect of that plan. The steps that follow the completion of the AoA will be determined based on the final report's conclusions and the Department's consultations with Ecology.<sup>6</sup>

Pursuant to Section IV-C-3(b) of the Amended Consent Decree<sup>7</sup>, as requested by Ecology in a letter dated September 25, 2019, DOE staff met with Ecology on October 16, 2019, to answer questions Ecology had concerning the serious risk as well as to discuss mitigation options, cooperative solutions, and problem-solving opportunities.

The Office of Project Management conducted a Project Peer Review (PPR) of the WTP Project in late November 2019. The PPR focused on DFLAW programs and projects for delivering waste from tanks, pretreating the waste to remove radioactive cesium and solids, vitrifying the

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<sup>5</sup> 19-ORP-0007, 2019, "Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085)."

<sup>6</sup> Footnotes 3 and 4 were omitted from this quote.

<sup>7</sup> *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (March 11, 2016).

low-activity waste, treating effluent waste from the LAW Facility, and disposing of the treated effluent wastes. The PPR team also reviewed infrastructure projects needed to provide essential services to all facilities that will play a role in the DFLAW program. The PPR team issued its final report to ORP in December 2019. ORP is still in the process of reviewing the recommendations included in the final report.

As of January 26, 2020, 72 percent of the WTP scoped systems supporting DFLAW have been turned over from the Construction organization to the Startup organization. In addition, Plant Management has accepted handover of 47 percent of the WTP scoped systems supporting DFLAW from the Startup organization.

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

- The AoA team held an onsite working session January 14 through 16, 2020. The AoA team worked to finalize alternative flowsheets, sketches, diagrams, and descriptions, which will be incorporated into the AoA report. The AoA team also received additional technical and cost modeling results from the modeling team. An Ecology observer attended.
- ORP participated in Leadership Forum meetings with Ecology and the U.S. Environmental Protection Agency on January 10, 2020, and January 17, 2020, to discuss the tank waste mission and high-level waste treatment approaches.
- Other significant accomplishments during the prior month are noted in project reports for the PT Facility, HLW Facility, LAW Facility, BOF, and LAB.

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

- The AoA team is planning onsite working sessions February 11 through 13, 2020, and February 25 through 27, 2020. The AoA team expects to receive the final modeling results during these working sessions and will begin the qualitative risk analysis on the various alternatives. An Ecology observer will be invited to participate in the onsite working sessions.
- ORP expects to continue the Leadership Forum meetings with Ecology and the U.S. Environmental Protection Agency to discuss the tank waste treatment mission and high-level waste treatment approaches.
- ORP expects to receive DOE Headquarters approval of the DOE AoA *Steering Committee Charter* (Rev. 2), modified to reflect changes to the Steering Committee membership. The charter describes the functions, responsibilities, and authorities of committee members responsible for providing oversight of the performance of the AoA team.
- Other significant planned activities in the next month are noted in project reports for the PT Facility, HLW Facility, LAW Facility, BOF, and LAB.

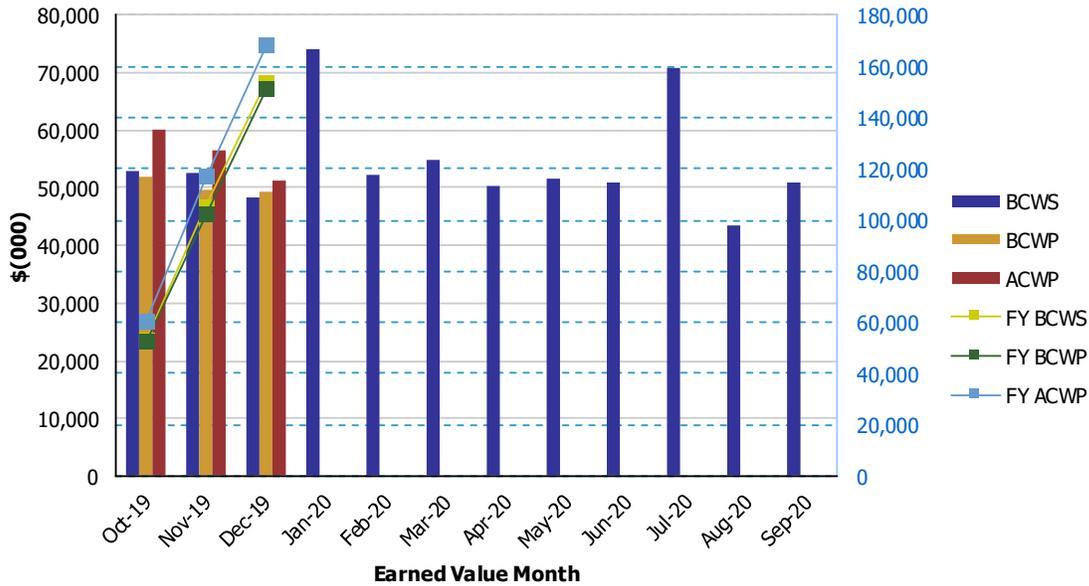
**EXC-01a: Fiscal Year Cost and Schedule Report**

Data Set: FY 2020 Earned Value Data

Data as of: December 2019

**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 2019	\$52,863	\$52,079	\$60,216	0.99	0.86	\$52,863	\$52,079	\$60,216	0.99	0.86
Nov 2019	\$52,457	\$49,780	\$56,387	0.95	0.88	\$105,320	\$101,859	\$116,603	0.97	0.87
Dec 2019	\$48,219	\$49,369	\$51,429	1.02	0.96	\$153,538	\$151,228	\$168,032	0.98	0.90
Jan 2020	\$73,970									
Feb 2020	\$52,216									
Mar 2020	\$54,725									
Apr 2020	\$50,437									
May 2020	\$51,468									
Jun 2020	\$50,900									
Jul 2020	\$70,975									
Aug 2020	\$43,417									
Sep 2020	\$50,973									

PTD	\$12,031,767	\$11,929,288	\$11,917,763	0.99	1.00
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- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
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## Project Schedule and Cost Variance Performance (\$x1,000)

Performance Tracking	SV	CV
Current Period (December 2019)	\$1,150	(\$2,060)
Fiscal Year 2020 to-date	(\$2,311)	(\$16,805)
Cumulative (through December 2019)	(\$102,478)	\$11,478

CV = cost variance.

SV = schedule variance.

For the December 2019 Earned Value Management System reporting period, a net favorable SV of approximately \$1.1 million was reported, primarily due to the following:

- DFLAW Construction reported a favorable SV due to schedule recovery in piping installation in the C5 process area and installation of the pre-engineered buildings and HVAC (heating, ventilation, and air-conditioning) system.
- HLW Facility Engineering reported a favorable SV due to advancement in the design of the melter process system, melter offgas treatment system, and the safety evaluation of the melter offgas system.

For the December 2019 Earned Value Management System reporting period, a net unfavorable CV of approximately (\$2.1) million was reported, primarily due to the following:

- LBL Facility Services reported an unfavorable CV due to increased labor overtime support and training to support direct project workscope.
- DFLAW Construction reported an unfavorable CV due to additional nightshifts and extended work weeks needed for the installation of piping and electrical equipment in congested areas.

## 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	At Risk <sup>1</sup>
D-00A-13	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-OOOO1A/1B	12/31/2031	At Risk <sup>1</sup>
D-00A-14	PT Facility Construction Substantially Complete	12/31/2031	At Risk <sup>1</sup>
D-00A-15	Start PT Facility Cold Commissioning	12/31/2032	At Risk <sup>1</sup>
D-00A-16	PT Facility Hot Commissioning Complete	12/31/2033	At Risk <sup>1</sup>

<sup>1</sup> 19-ORP-0007, 2019, "Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085)."

PT = pretreatment.

The PT Facility is intended to separate radioactive tank waste into high-level waste and low-activity waste fractions and transfer each waste type to the respective 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 Bechtel National, Inc. (BNI) completed resolution of all the technical issues identified in the Third Order Regarding Motions to Modify Consent Decrees<sup>8</sup>.

In addition, ORP and BNI completed resolution of technical issues not included in the Third Order Regarding Motions to Modify Consent Decrees (i.e., T6 in relation to design redundancy and in-service inspection, and T7 in relation to seismic ground motion criteria changes in 2005). ORP notified BNI in July 2019 that it concurred with BNI's determination that the PT Facility's technical issues have been resolved.<sup>9</sup>

<sup>8</sup> *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (March 11, 2016) (ECF-221).

<sup>9</sup> 19-WTP-0078, "Contract No. DE-AC27-01RV14136 – Concurrence on the Resolution of Technical Issues (T1 – T8) for the Waste Treatment and Immobilization Plant Pretreatment Facility," July 16, 2019.

**Significant Accomplishments during the Prior Month:**

- BNI continued to manage suspended plant equipment purchase orders to reduce storage and suspension cost and evaluate ways to reduce project procurement liability.
- BNI continued to implement 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 continue to manage suspended plant equipment purchase orders to reduce storage and suspension cost and evaluate ways to reduce project procurement liability.
- BNI is expected to continue to implement ongoing asset maintenance at the PT Facility to protect equipment and structures and ensure design documents are maintained.

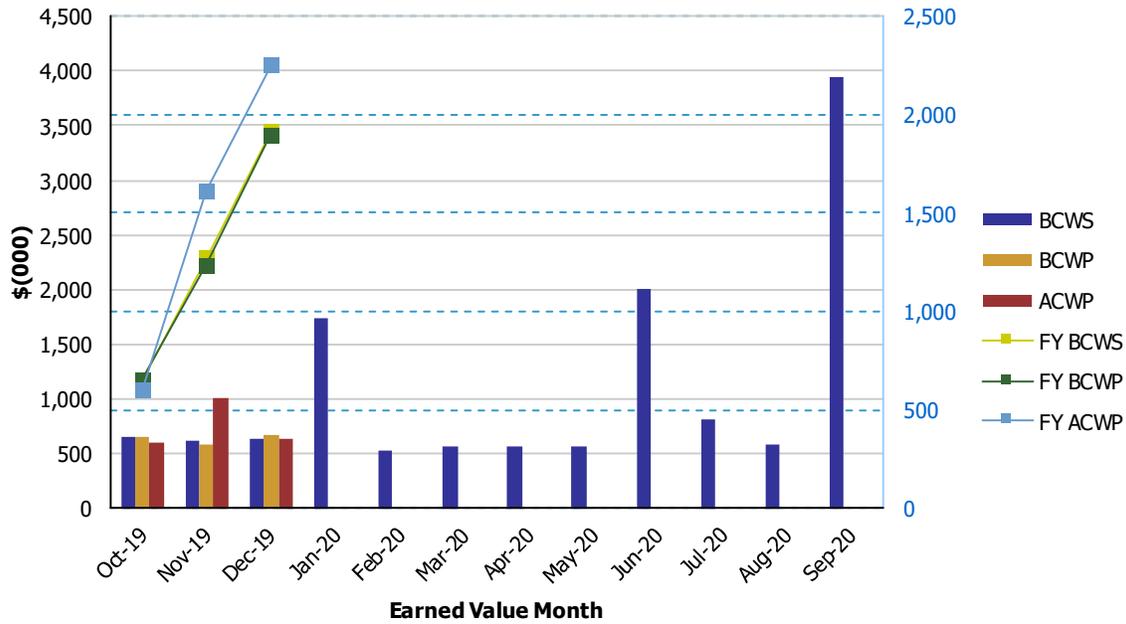
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data

Data as of: December 2019

**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 2019	\$647	\$651	\$597	1.01	1.09	\$647	\$651	\$597	1.01	1.09
Nov 2019	\$622	\$584	\$1,015	0.94	0.58	\$1,270	\$1,235	\$1,612	0.97	0.77
Dec 2019	\$640	\$663	\$636	1.04	1.04	\$1,910	\$1,898	\$2,249	0.99	0.84
Jan 2020	\$1,739									
Feb 2020	\$536									
Mar 2020	\$561									
Apr 2020	\$567									
May 2020	\$566									
Jun 2020	\$1,998									
Jul 2020	\$817									
Aug 2020	\$574									
Sep 2020	\$3,937									

PTD	\$3,514,990	\$3,513,038	\$3,450,154	1.00	1.02
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- 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	At Risk <sup>1</sup>
D-00A-03	Start HLW Facility Cold Commissioning	06/30/2032	At Risk <sup>1</sup>
D-00A-04	HLW Facility Hot Commissioning Complete	12/31/2033	At Risk <sup>1</sup>

<sup>1</sup> 19-ORP-0007, 2019, "Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085)."

HLW = high-level waste.

The HLW Facility is intended to 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.

Engineering staff have been transitioning to HLW Facility design activities as they complete their DFLAW/LBL activities based on the availability of funds.

In March 2019, DOE awarded the AoA contract for the high-level waste treatment mission. The purpose of the AoA is to identify all viable options to meet mission needs and reduce risk, while providing decision-quality analysis and results to inform the acquisition authority and other stakeholders of all the alternatives to meet both Departmental and Environmental Management policy requirements. Additional information regarding the AoA process is included in the WTP section at the beginning of this report.

**Significant Accomplishments during the Prior Month:**

- BNI issued the 60-percent design review report for the HLW Facility melter feed process system.
- BNI continued to manage suspended plant equipment purchase orders to reduce storage and suspension costs and evaluate ways to reduce project procurement liability.
- BNI continued to implement asset maintenance at the HLW Facility to protect equipment and structures and ensure design documents are maintained.
- Fabrication is complete for radioactive liquid waste disposal system vessels 7 and 8 (i.e., RLD-7 and RLD-8). RLD-7 was delivered to the BNI Material Handling Facility on January 5, 2020. The vendor is finishing quality verification documents on RLD-8 and is now expected to ship RLD-8 by the end of March 2020. 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:**

- BNI is expected to continue to perform engineering design activities on key mechanical and process systems for the HLW Facility. Priority systems for FY 2020 include the design of the HLW Facility melter feed process and the primary offgas process systems.
- BNI is expected to continue to manage suspended plant equipment purchase orders to reduce storage and suspension costs and evaluate ways to reduce project procurement liability.
- BNI is expected to continue to implement ongoing asset maintenance at the HLW Facility to protect equipment and structures and ensure design documents are maintained.

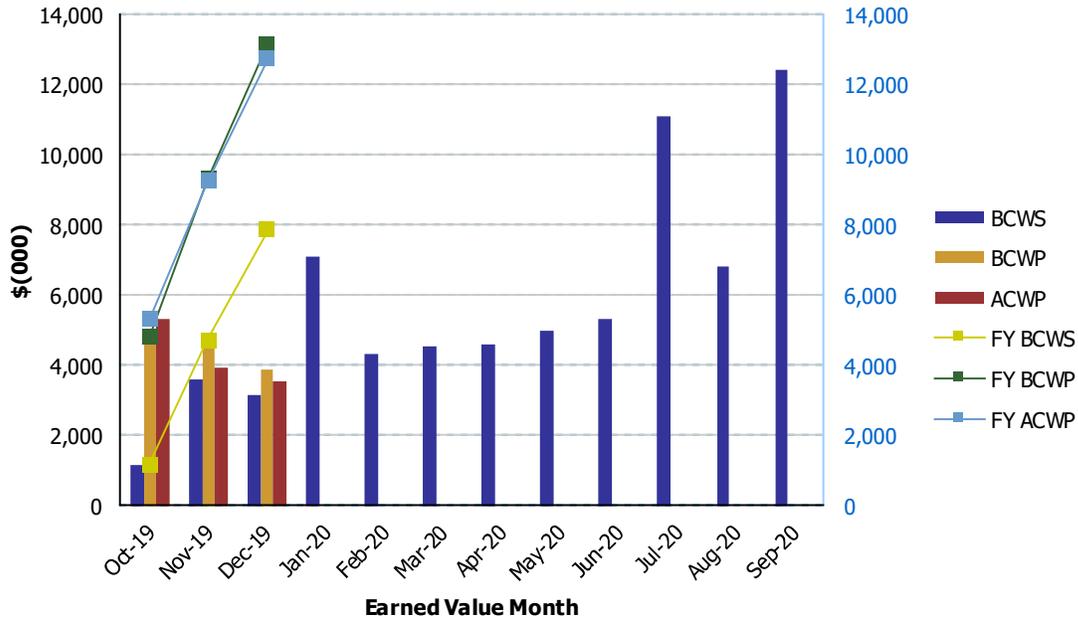
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data

Data as of: December 2019

**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 2019	\$1,158	\$4,792	\$5,293	4.14	0.91	\$1,158	\$4,792	\$5,293	4.14	0.91
Nov 2019	\$3,569	\$4,519	\$3,943	1.27	1.15	\$4,727	\$9,311	\$9,236	1.97	1.01
Dec 2019	\$3,124	\$3,852	\$3,521	1.23	1.09	\$7,851	\$13,163	\$12,757	1.68	1.03
Jan 2020	\$7,103									
Feb 2020	\$4,294									
Mar 2020	\$4,541									
Apr 2020	\$4,599									
May 2020	\$4,986									
Jun 2020	\$5,294									
Jul 2020	\$11,108									
Aug 2020	\$6,826									
Sep 2020	\$12,412									

PTD	\$2,511,601	\$2,511,585	\$2,460,559	1.00	1.02
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## Low-Activity Waste Facility<sup>10</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 December 2019, the LAW Facility was 82 percent complete overall, engineering design was 97 percent complete, procurement was 100 percent complete, construction was 99 percent complete, and startup and commissioning was 34 percent complete.

Recent BNI efforts at the LAW Facility have focused on implementing design changes against the approved safety basis, and completion of procurement and construction activities. Additionally, Construction is walking down completed systems with the Startup organization in support of turnover for testing and subsequent handover to the Plant Management organization for facility commissioning.

To date, 94 percent of LAW Facility systems have been turned over from Construction to the Startup organization. In addition, Plant Management has accepted handover of 38 percent of the LAW Facility systems from the Startup organization.

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<sup>10</sup> 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.

**Significant Accomplishments during the Prior Month:**

- BNI Construction completed turnover of the following LAW Facility systems to the Startup organization:
  - Melter process system (LMP-L-01)
  - Melter process system (LMP-L-02).
- BNI Construction continued completion activities for LAW Facility systems.
- BNI's Startup organization continued testing of LAW Facility systems.

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

- BNI Construction expects to continue completing walkdowns on various systems in support of turning those systems over to the Startup organization.
- BNI's Startup organization expects to continue handing over LAW Facility systems to Plant Management.

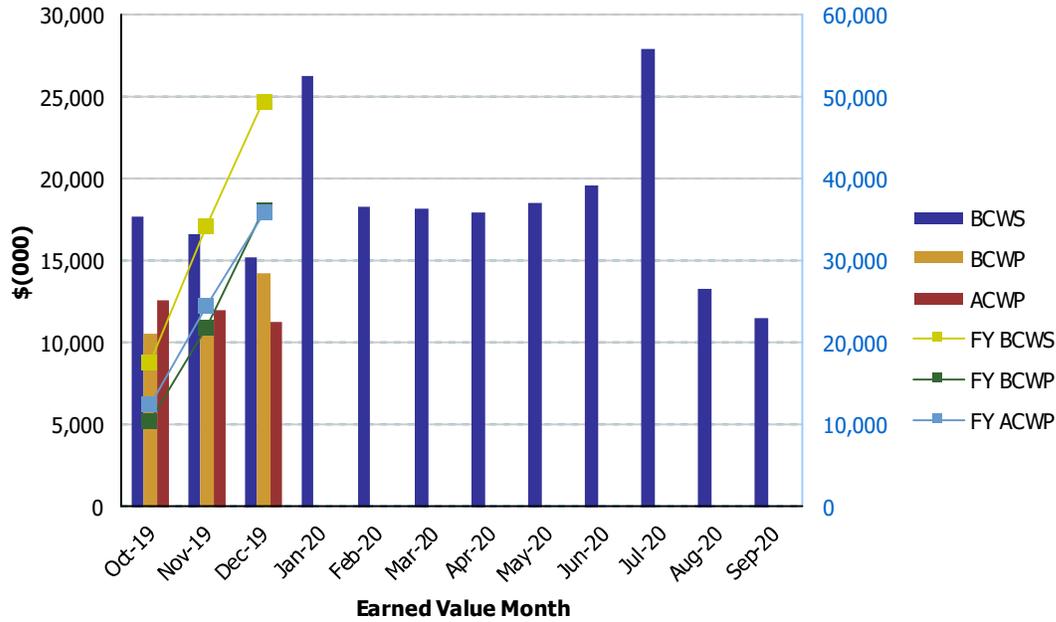
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data

Data as of: December 2019

**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 2019	\$17,656	\$10,507	\$12,532	0.60	0.84	\$17,656	\$10,507	\$12,532	0.60	0.84
Nov 2019	\$16,594	\$11,356	\$11,977	0.68	0.95	\$34,250	\$21,863	\$24,509	0.64	0.89
Dec 2019	\$15,259	\$14,260	\$11,290	0.93	1.26	\$49,509	\$36,123	\$35,799	0.73	1.01
Jan 2020	\$26,265									
Feb 2020	\$18,324									
Mar 2020	\$18,176									
Apr 2020	\$17,964									
May 2020	\$18,511									
Jun 2020	\$19,586									
Jul 2020	\$27,943									
Aug 2020	\$13,356									
Sep 2020	\$11,495									

PTD	\$2,334,175	\$2,277,938	\$2,278,832	0.98	1.00
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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 December 2019, BOF was 88 percent complete overall, engineering design was 97 percent complete, procurement was 100 percent complete, construction was 94 percent complete, and startup and commissioning was 72 percent complete. Design of the Effluent Management Facility (EMF) was 100 percent complete.

BNI Engineering efforts were focused on supporting EMF construction and providing field support for BOF startup activities. Construction efforts were focused on the installation of EMF siding, piping, and electrical commodities. Startup testing continued for systems in the steam plant and the standby diesel generator.

All BOF utility and process systems, excluding EMF, have been turned over from Construction to the Startup organization. In addition, 91 percent of the BOF systems have been handed over from the Startup organization to Plant Management. BNI is working to complete construction activities and turn over the scoped systems in EMF to support early startup testing activities.

### Significant Accomplishments during the Prior Month:

- BNI procured permanent equipment to support monthly load testing for the standby diesel generator.
- BNI completed weathering in the EMF.
- BNI continued testing and tuning of the steam plant boilers.
- BNI initiated the glass former system dry runs.
- BNI continued installation of siding, piping, and electrical commodities at EMF.
- BNI continued to pull the cables between the powerhouse and EMF.
- BNI continued excavating around the EMF for installation of transfer piping.

### Significant Planned Activities in the Next Month:

- BNI is expected to continue the glass former system dry runs.
- BNI is expected to continue installation of process piping and electrical commodities in EMF.

- BNI's Startup and Plant Management organizations are expected to continue to focus on ensuring BOF air, water, and power systems are ready for operations.

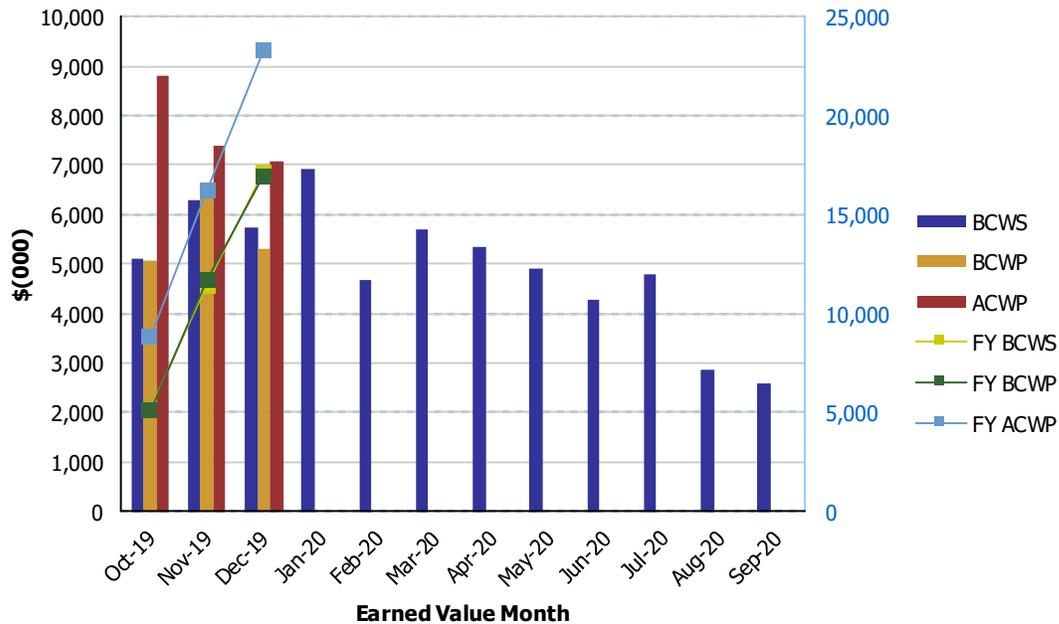
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data

Data as of: December 2019

**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 2019	\$5,103	\$5,056	\$8,817	0.99	0.57	\$5,103	\$5,056	\$8,817	0.99	0.57
Nov 2019	\$6,296	\$6,582	\$7,383	1.05	0.89	\$11,399	\$11,638	\$16,200	1.02	0.72
Dec 2019	\$5,729	\$5,305	\$7,071	0.93	0.75	\$17,128	\$16,943	\$23,271	0.99	0.73
Jan 2020	\$6,928									
Feb 2020	\$4,691									
Mar 2020	\$5,689									
Apr 2020	\$5,337									
May 2020	\$4,917									
Jun 2020	\$4,270									
Jul 2020	\$4,804									
Aug 2020	\$2,863									
Sep 2020	\$2,584									

PTD	\$932,117	\$919,876	\$959,784	0.99	0.96
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## 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 December 2019, the LAB was 84 percent complete overall, engineering design was 98 percent complete, procurement was 100 percent complete, construction was 100 percent complete, and startup and commissioning was 53 percent complete.

To date, all of the LAB systems have been handed over from the Startup organization to Plant Management organization. Activities in the LAB were focused on component and system startup testing, operational testing, and refurbishment of multiple LAB systems. Procedure and methods development continued at the offsite laboratory facility, and BNI continued to install and tune analytical equipment in the LAB.

### Significant Accomplishments during the Prior Month:

- BNI continued installation of analytical equipment and tuning of equipment enclosure ventilation systems.
- BNI began preparations for methods validation following equipment tuning.
- BNI began preparations for commissioning of the high purity gas systems.
- BNI Plant Management continued maintenance and operation of LAB systems.
- BNI performed multiple system operability reviews in preparation for integrated system operations.
- BNI began shutting down offsite method validation activities in preparation for a permanent move to the LAB.

### Significant Planned Activities in the Next Month:

- BNI's Plant Management organization expects to fill and pressurize the high-purity gas systems to support upcoming commissioning activities.
- BNI is expected to continue component and system startup testing, operational testing, and refurbishment of multiple LAB systems.

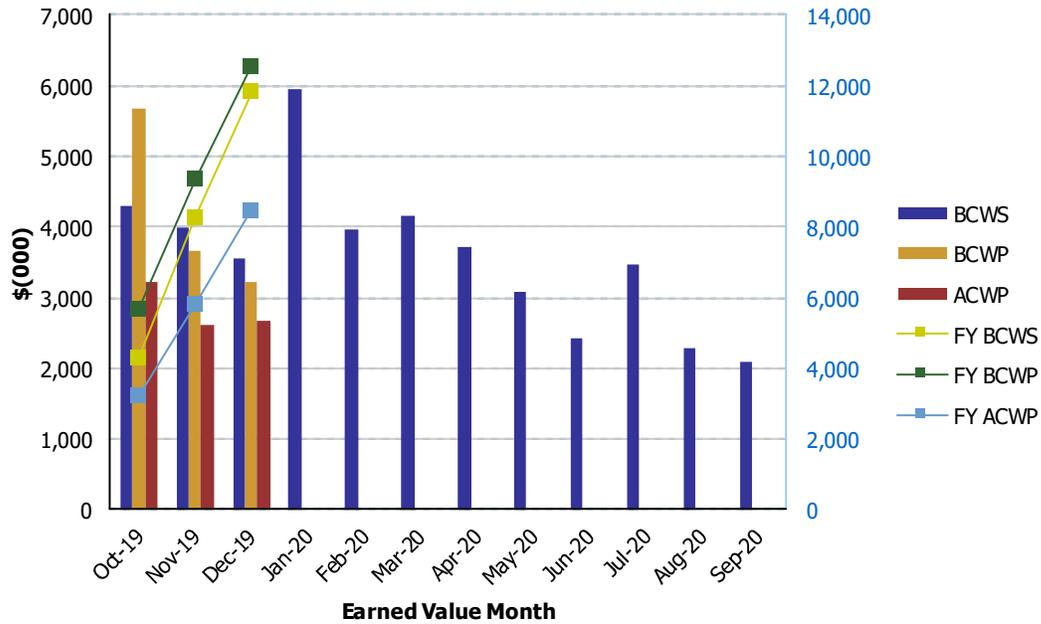
### EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data

Data as of: December 2019

**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 2019	\$4,297	\$5,683	\$3,222	1.32	1.76	\$4,297	\$5,683	\$3,222	1.32	1.76
Nov 2019	\$3,984	\$3,669	\$2,604	0.92	1.41	\$8,281	\$9,352	\$5,826	1.13	1.61
Dec 2019	\$3,549	\$3,228	\$2,666	0.91	1.21	\$11,830	\$12,580	\$8,492	1.06	1.48
Jan 2020	\$5,943									
Feb 2020	\$3,964									
Mar 2020	\$4,161									
Apr 2020	\$3,706									
May 2020	\$3,076									
Jun 2020	\$2,421									
Jul 2020	\$3,465									
Aug 2020	\$2,271									
Sep 2020	\$2,086									

PTD	\$455,683	\$447,993	\$431,933	0.98	1.04
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|---|--|
| ACWP = actual cost of work performed.   | EVMS = earned value management system. |
| BCWP = budgeted cost of work performed. | FY = fiscal year.                      |
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## Waste Treatment Plant Project Percent Complete Status (Table)

Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status  
Through December 2019

(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	2,277.2	1,862.0	82%	590.1	573.2	97%	342.9	342.2	100%	753.0	742.1	99%	580.2	199.9	34%	11.1	4.6	41%
Balance of Facilities	786.0	688.6	88%	156.7	152.0	97%	60.8	60.8	100%	304.9	285.3	94%	263.1	190.0	72%	0.5	0.5	100%
Analytical Lab	482.1	403.5	84%	94.7	92.4	98%	60.5	60.4	100%	166.1	165.6	100%	157.8	84.2	53%	2.9	0.8	28%
Direct Feed LAW	432.7	370.8	86%	110.7	107.2	97%	72.4	71.0	98%	240.0	185.5	77%	0.0	0.0	0%	9.6	7.1	74%
LBL Facility Services	742.5	514.4	69%	0.0	0.0	0%	71.1	57.5	81%	106.1	104.7	99%	309.1	182.3	59%	256.2	169.9	66%
<b>Total LBL</b>	<b>4,720.4</b>	<b>3,839.2</b>	<b>81%</b>	<b>952.2</b>	<b>924.8</b>	<b>97%</b>	<b>607.6</b>	<b>592.0</b>	<b>97%</b>	<b>1,570.0</b>	<b>1,483.2</b>	<b>94%</b>	<b>1,310.3</b>	<b>656.4</b>	<b>50%</b>	<b>280.4</b>	<b>182.9</b>	<b>65%</b>
Project Services	908.7	708.2	78%	92.5	88.2	95%	65.6	53.8	82%	101.0	91.0	90%	7.5	3.8	50%	642.1	471.4	73%
<b>Total Project Services</b>	<b>908.7</b>	<b>708.2</b>	<b>78%</b>	<b>92.5</b>	<b>88.2</b>	<b>95%</b>	<b>65.6</b>	<b>53.8</b>	<b>82%</b>	<b>101.0</b>	<b>91.0</b>	<b>90%</b>	<b>7.5</b>	<b>3.8</b>	<b>50%</b>	<b>642.1</b>	<b>471.4</b>	<b>73%</b>
<b>Total LBL, DFLAW &amp; Project Services</b>																		
	5,629.1	4,547.4	81%	1,044.7	1,013.0	97%	673.2	645.8	96%	1,671.0	1,574.2	94%	1,317.8	660.2	50%	922.5	654.3	71%
<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>14,351.9</b>	<b>10,512.6</b>	<b>73%</b>	<b>3,217.8</b>	<b>2,961.9</b>	<b>92%</b>	<b>2,238.7</b>	<b>1,770.6</b>	<b>79%</b>	<b>4,558.6</b>	<b>3,339.0</b>	<b>73%</b>	<b>2,076.3</b>	<b>803.4</b>	<b>39%</b>	<b>2,260.6</b>	<b>1,637.8</b>	<b>72%</b>

Source: Preliminary WTP Contract Performance Report - Format 1, Data for December 2019

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 (zPSA), as shown on the CPR Format 1, is not added to LBL for percent complete purposes.

**Table 1 Administrative Record Metadata**

<b>Milestone Number or Facility Identification</b>	<b>Title</b>
D-00A-07	LAW Facility Construction Substantially Complete
D-00A-08	Start LAW Facility Cold Commissioning
D-00A-09	LAW Facility Hot Commissioning Complete
D-00B-01D	C-105 Submit Retrieval Completion Certification
D-00B-00-01	Submit Revised TWRWP Prior to Initiating Installation of Equipment
D-00B-00-02	Submit TWRWP to Ecology
D-00C-02DH	Submit to Ecology & State of Oregon Monthly Summary Report
D-16B-03	Of the 12 SSTs Referred to in B-1 and B-2, Complete Retrieval of Tank Wastes in at Least 5
H-0-8	Waste Treatment and Immobilization Plant (WTP)
S-2-3	Double-Shell Tank System (DST) & 204-AR Waste Unloading Station
S-2-4	Single-Shell Tank System (SST)

LAW = Low-Activity Waste (Facility).

TWRWP = tank waste retrieval work plan.