Office of River Protection
Consent Decree
Monthly Report

Monthly Reporting Period

August 1–August 31, 2020[1]

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)[2]

---

[1] 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 July 2020.

[2] 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.

TOPIC PAGE

Acronyms and Abbreviations

AoA	analysis of alternatives
BNI	Bechtel National, Inc.
BOF	Balance of Facilities
COVID-19	coronavirus disease 2019
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
HIHTL	hose-in-hose transfer line
HLW	High-Level Waste (Facility)
LAB	Analytical Laboratory
LAW	Low-Activity Waste (Facility)
LBL	Low-Activity Waste Facility, Balance of Facilities, and Analytical Laboratory
PT	Pretreatment (Facility)
SV	schedule variance
WTP	Waste Treatment and Immobilization Plant

Consent Decree Milestone Statistics/Status

Milestone	Title	Due Date	Completion Date	Status
Fiscal Year 2021				
D-00A-07 Interim	LAW Facility Construction Substantially Complete	12/31/2020		Amendment Proposed[4]
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[1]		Amendment Proposed[4]
Fiscal Year 2023				
D-00A-08 Interim	Start LAW Facility Cold Commissioning	12/31/2022		Amendment Proposed[4]
Fiscal Year 2024				
D-00A-09 Interim	LAW Facility Hot Commissioning Complete	12/31/2023		Amendment Proposed[4]
Fiscal Year 2026				
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[1]		Under Analysis[2]/ Amendment Proposed[4]
Fiscal Year 2031				
D-00A-02 Interim	HLW Facility Construction Substantially Complete	12/31/2030		At Risk[3]
Fiscal Year 2032				
D-00A-13 Interim	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-OOOO1A/1B	12/31/2031		At Risk[3]
D-00A-14 Interim	PT Facility Construction Substantially Complete	12/31/2031		At Risk[3]
D-00A-19 Interim	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2031		At Risk[3]
D-00A-03 Interim	Start HLW Facility Cold Commissioning	06/30/2032		At Risk[3]

Milestone	Title	Due Date	Completion Date	Status
D-00A-06 Interim	Complete Methods Validations	06/30/2032		On Schedule
Fiscal Year 2033				
D-00A-15 Interim	Start PT Facility Cold Commissioning	12/31/2032		At Risk[3]
Fiscal Year 2034				
D-00A-04 Interim	HLW Facility Hot Commissioning Complete	12/31/2033		At Risk[3]
D-00A-16 Interim	PT Facility Hot Commissioning Complete	12/31/2033		At Risk[3]
D-00A-17	Hot Start of WTP	12/31/2033		At Risk[3]
Fiscal Year 2037				
D-00A-01	Achieve Initial Plant Operations for the WTP	12/31/2036		At Risk[3]

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

[2] 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.

[3] 19-ORP-0007, 2019, "Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085)."

[4] Certain Consent Decree-related work at the Hanford Site has been interrupted since March 23, 2020, due to the COVID-19 pandemic. On May 21, 2020, the U.S. Department of Justice, on behalf of DOE, submitted a proposal to the State of Washington to amend the Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.) due to a Force Majeure event. ENV_DEFENSE-#919846, 2020, "Proposal to Amend Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.), Due to *Force Majeure* Event," (external letter to A.A. Fitz, Office of the Attorney General, Ecology Division), from A.D. Saylor, C.H. Kolman, and S. Shea, United States Department of Justice, Environmental Defense Section, Washington, D.C., May 21.

COVID-19 = coronavirus disease 2019.
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.
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: 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: Coronavirus disease 2019 (COVID-19)-affected – Scheduled for September 9, 2020.

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[1]	Amendment Proposed[3]
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[1]	Under Analysis[2]/ Amendment Proposed[3]

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

[2] 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.

[3] Certain Consent Decree-related work at the Hanford Site has been interrupted since March 23, 2020, due to the COVID-19 pandemic. On May 21, 2020, the U.S. Department of Justice, on behalf of DOE, submitted a proposal to the State of Washington to amend the Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.) due to a Force Majeure event. ENV_DEFENSE-#919846, 2020, "Proposal to Amend Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.), Due to *Force Majeure* Event," (external letter to A.A. Fitz, Office of the Attorney General, Ecology Division), from A.D. Saylor, C.H. Kolman, and S. Shea, United States Department of Justice, Environmental Defense Section, Washington, D.C., May 21.

COVID-19 = coronavirus disease 2019.
DOE = U.S. Department of Energy.
Ecology = Washington State Department of Ecology.
SST = single-shell tank.
WMA-C = C Tank Farm waste management area.

On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time the majority of the Hanford Site workforce transitioned to telework and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, region, and the environment.

On May 20, 2020, the U.S. Department of Energy (DOE) authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations continued and targeted mobilization and low-risk workscope, such as

implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

On May 21, 2020, the Department of Justice, on behalf of DOE, sent a letter to the Washington State Office of the Attorney General with a proposal to amend the Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.). The proposal included schedule extensions due to force majeure events associated with the COVID-19 pandemic.[3] DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the Consent Decree, and if other actions may be necessary.

The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work is expected to return to the site to progress work activities leveraging established COVID-19 controls. Entering Phase 2 will allow additional high value scope execution including in-farm fieldwork such as the Tank AX-101 B Pit saltwell screen removal and Tank A-101 standard hydrogen monitoring system removal. Approximately 57 workers will support the removal of these two pieces of long-length equipment.

Since March 24, 2020, when the site moved to the essential mission-critical operations posture due to COVID-19 concerns, the site has experienced numerous impacts related to COVID-19-based restrictions or requirements. The impacts generally fall within the following categories:

- Work interrupted or not done due to COVID-19 restrictions
- Additional work undertaken due to COVID-19 requirements
- Work inefficiencies related to COVID-19.

The following highlights some examples of impacts related to each category that has occurred at the site between March 24, 2020, through August 2020:

- Installation and testing of waste retrieval equipment in Tank AX-104 were unable to be performed due to COVID-19-related restrictions and requirements. Installation of electrical and support infrastructure for Tank AX-103 retrieval was unable to be performed due to COVID-19-related restrictions and requirements. Removal of long-length equipment from tanks AX-101 and A-101 was unable to be performed due to COVID-19-related restrictions and requirements.
- Installation and testing of waste retrieval electrical equipment in Tank AX-104 was interrupted through June 8, 2020, and since has been performed with inefficiencies due to COVID-19-related safety and health requirements. Installation of electrical and support infrastructure for Tank AX-103 retrieval was interrupted through June 8, 2020, and since has been performed with inefficiencies due to COVID-19-related restrictions and

[3] ENV_DEFENSE-#919846, 2020, "Proposal to Amend Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.), Due to *Force Majeure* Event," (external letter to A.A. Fitz, Office of the Attorney General, Ecology Division), from A.D. Saylor, C.H. Kolman, and S. Shea, United States Department of Justice, Environmental Defense Section, Washington, D.C., May 21.

requirements. Installation and testing of waste retrieval mechanical equipment in Tank AX-104 was interrupted through July 20, 2020, and since has been performed with inefficiencies due to COVID-19-related safety and health requirements. Removal of long-length equipment from tanks AX-101 and A-101 has been unable to be performed due to COVID-19-related restrictions and requirements.

- Equipment exposure to a radiation field longer than planned, during the COVID-19 delays, may have resulted in equipment damage. In order to determine if there has been equipment damage due to COVID-19-related work delays, some previously installed retrieval equipment will be tested before retrieval operations can resume. For example, testing of the first extended reach sluicer system installed in Tank AX-104 was required.
- Limited A and AX tank farms facility ingress/egress capacity. Change trailers having historical occupancies of 25 to 30 workers were limited to 8 workers to meet social distancing requirements.
- Training related to COVID-19, as well as the required qualifications training, are performed at the HAMMER (Hazardous Materials Management and Emergency Response) facility, which had to be reconfigured to meet social distancing requirement.
- Quarantines due to COVID-19 testing and potential exposures resulted in approximately 50 to 70 workers at a time being quarantined.
- Due to COVID-19 restrictions, workers were unable to attend required training and medical exams. For example, in mid-June, Washington River Protection Solutions LLC had a peak of over 200 employees who were delinquent on medical clearances required to conduct fieldwork.

Significant Accomplishments during the Prior Month:

Completed Accomplishments:

- Completed Tank AX-104 D Pit extended reach sluicer system installation
- Completed large hose-in-hose transfer line (HIHTL) hose barn and shield plate removal between AX Tank Farm and AP Tank Farm
- Completed A Tank Farm exhauster ventilation system and turnover to the Operations organization.

Ongoing Activities:

- Continued Tank AX-102 practicability evaluation preparation in support of the request to forego the third retrieval technology.
- Continued the procurement of the residual volume measurement system. The residual volume measurement system and camera / Computer Aided Design modeling system will be deployed to calculate the Tank AX-102 residual waste volume.
- Continued Tank AX-104 mechanical and electrical system installation, in preparation for construction acceptance testing, operations acceptance testing, readiness, and retrieval operations.

- Continued Tank AX-103 on-dome electrical system installation.
- Continued Tank AX-103 HIHTL system installation.
- Continue Tank AX-101 equipment removal activities.
- Continue Tank A-101 equipment removal activities.

Significant Planned Activities in the Next Month:

- Complete removal of AY Tank Farm to AP Tank Farm HIHTL (six sections) in support of future A Tank Farm HIHTL installation
- Complete AX-104 C and D Pit integrated system leak testing
- Complete Tank AX-101 B Pit saltwell screen removal
- Complete Tank A-101 standard hydrogen monitoring system removal.

Issues:

- 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).[4] 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 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 riser 2 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 riser 2 thermocouple required the top sections to be removed in two sections and the remaining third section was lowered to the tank bottom.
  - Removal of Tank A-106 riser 2 thermocouple was removed in sections, with the lower section left in the tank.
  - A stuck shield plug in Tank A-101 01C Pit required 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.

[4] 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.

- On January 28, 2019, DOE 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 Washington State Department of Ecology (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. While DOE was able to complete retrieval of Tank AX-102 to the limits of two technologies, DOE was unable to retrieve more than one tank at a time due to the limited airflow rate. 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). DOE provided a response on May 14, 2019 (19-ECD-0038), which set forth how the original application met the regulations and asked Ecology to continue processing the application. DOE submitted a revised application on October 31, 2019 (19-ECD-0080), to provide supplemental information to address Ecology's comments. DOE is able to resume work on this application now that the ambient air boundary issue is resolved.

Tank Waste Retrieval Work Plan Status

Tank Farms Assistant Manager: Rob Hastings

Federal Program Manager: Jeff Rambo

			Retrieval Technology		
Tank	**TWRWP**	**Expected Revisions**	**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.

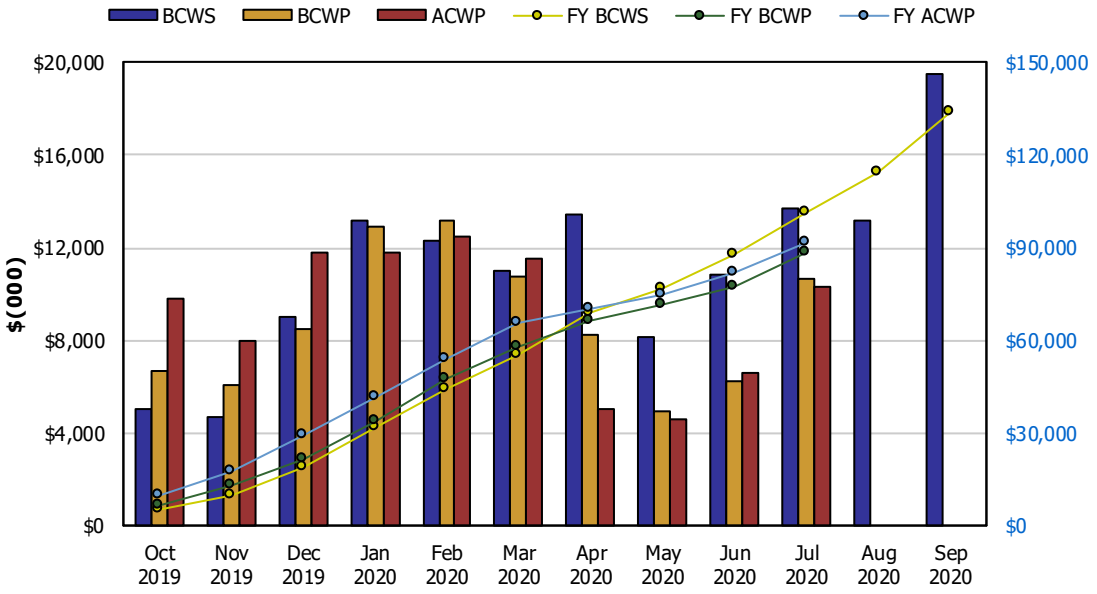
Issues:

- None.

Earned Value Data: Fiscal Year 2020 July-2020

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	$12,877	$11,828	0.98	1.09	$32,003	$34,070	$41,362	1.06	0.82
Feb 2020	$12,323	$13,174	$12,473	1.07	1.06	$44,326	$47,245	$53,834	1.07	0.88
Mar 2020	$10,984	$10,744	$11,497	0.98	0.93	$55,310	$57,989	$65,331	1.05	0.89
Apr 2020	$13,412	$8,230	$5,011	0.61	1.64	$68,722	$66,218	$70,343	0.96	0.94
May 2020	$8,123	$4,957	$4,623	0.61	1.07	$76,845	$71,175	$74,966	0.93	0.95
Jun 2020	$10,857	$6,262	$6,619	0.58	0.95	$87,702	$77,437	$81,585	0.88	0.95
Jul 2020	$13,648	$10,678	$10,292	0.78	1.04	$101,350	$88,115	$91,877	0.87	0.96
Aug 2020	$13,193			0.00	0.00	$114,543			0.00	0.00
Sep 2020	$19,496			0.00	0.00	$134,040			0.00	0.00

CTD	$1,185,612	$1,149,457	$1,210,659	0.97	0.95

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

Retrieve and Close Single-Shell Tanks (5.02)[5]

The July unfavorable schedule variance (SV) of ($2,970,000) is primarily due to the following:

- Delays in the receipt of procured equipment due to vendors having difficulty obtaining raw materials for fabrication of equipment due to COVID-19
- Delays in installation of the AX-104 retrieval system, due to COVID-19, have in turn delayed AX-104 retrieval operations
- Positive SV offsets due to delivery of AX-101 and AX-103 pit heaters and in-tank cameras and lights.

The July favorable cost variance (CV) of $386,400 is primarily due to the following:

- Efficiencies in construction closeout and demobilization activities in A Tank Farm. Rather than tearing down craft support stations and removing them from the tank farm at the completion of fiscal year 2019 carryover workscope, crews were able to relocate the stations elsewhere within the tank farm for future equipment removal activities, thereby saving the cost of transporting materials out of the tank farm and then transporting them back in later.

[5] "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[1]
D-00A-01	Achieve Initial Plant Operations for WTP	12/31/2036	At Risk[1]

[1] 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 July 2020, DFLAW modifications for the WTP Project were 94 percent complete, engineering design was 99 percent complete, procurement was 100 percent complete, and construction was 90 percent complete. As of July 2020, total LBL facilities were 86 percent complete, engineering design was 98 percent complete, procurement was 99 percent complete, construction was 97 percent complete, and startup and commissioning was 60 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. 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.

DOE 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.

DOE 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 AoA Steering Committee members to include the method, approach, and schedule to be used in conducting an independent AoA for the identified mission need.

The AoA team drafted the *Waste Treatment and Immobilization Plant High-Level Waste Treatment Analysis of Alternatives Final Report*, and submitted it to Ecology for review and comment. Ecology was provided 10 days to review the report; and, rather than provide detailed comments, communicated some "significant" broader concerns via a letter (20-NWP-107, dated June 11, 2020) to Tom Fletcher.

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.[6] 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.[7]

Pursuant to Section IV-C-3(b) of the Amended Consent Decree[8], 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.

On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time the majority of the Hanford Site workforce transitioned to telework and a limited number of workers reported to the site to

[6] 19-ORP-0007, 2019, "Discussion of Amended Consent Decree – State of Washington v. Perry (E.D. Wash. No. 2:08-CV-5085)."

[7] Footnotes 3 and 4 were omitted from this quote.

[8] *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (March 11, 2016).

perform activities necessary to maintain the site in a safe condition, protective of the community, region, and the environment.

On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

On May 21, 2020, the Department of Justice, on behalf of DOE, sent a letter to the Washington State Office of the Attorney General with a proposal to amend the Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.). The proposal included schedule extensions due to force majeure events associated with the COVID-19 pandemic.[9] DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the Consent Decree and if other actions may be necessary.

The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the WTP Project expects to have Building Trades back in the field in September with the majority of nonmanual workers continuing to telework to the degree workscope allows.

Since March 24, 2020, when the site moved to the essential mission-critical operations posture due to COVID-19 concerns, the site has experienced numerous impacts related to restrictions or requirements based on COVID-19. The impacts generally fall within the following categories:

- Work interrupted or not done due to COVID-19 restrictions
- Additional work undertaken due to COVID-19 requirements
- Work inefficiencies related to COVID-19.

The following highlights some examples of impacts related to each category occurring at the site between March 24, 2020, through August 2020:

- All fieldwork, with the exception of minimum monitoring of plant systems, was stopped beginning on March 24, 2020. All systems were placed in a safe shutdown configuration. Beginning on May 26, 2020, systems were inspected and slowly returned to functionality to systematically resume construction and testing. No critical path work was performed between March 24, 2020, and June 2020. Through the end of July, field staff increased up to 950 with a steady increase in construction activity, including resumption of steam plant and glass former testing and initial resumption of limited testing. Systems were not restored to a level to allow for consistent progress on the critical path, although some individual tasks were completed allowing for a few days of critical path work credit.
- To support remobilization in May 2020, training was provided to all staff for social distancing and use of face coverings, facilities were configured to promote social

[9] ENV_DEFENSE-#919846, 2020, "Proposal to Amend Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.), Due to *Force Majeure* Event," (external letter to A.A. Fitz, Office of the Attorney General, Ecology Division), from A.D. Saylor, C.H. Kolman, and S. Shea, United States Department of Justice, Environmental Defense Section, Washington, D.C., May 21.

distancing (e.g., conference rooms, bathrooms, common areas), increased disinfecting of high touch areas (e.g., door handles) was established, and installation of hand-washing stations completed. Prior to returning to fieldwork, staff continues to receive remobilization training and the controls established for initial remobilization are maintained, which limits work progress where high density is required to perform work in parallel.

- Social distancing requires reduced density of workers and more serial performance of fieldwork. The use of face coverings has a negative impact on communications and overall efficiency. Finally, the facilities have been reconfigured to reduce density and coordinate communications through remote means, such as the use of meeting software and electronic devices. Most of the work (e.g., LAW Facility 304G) during July was performed with limited staff and in a serial nature to control worker density. In addition, a crew was established, up to 30 percent, to perform work during back shift to support reduced density and allow for continued work progress. Approximately 25 percent of the normal craft work hours were logged for the month of July, compared to what was performed immediately prior to the partial stop work.
- For August, the project continued to increase the pace of construction and testing activities across the WTP site. The first safety instrumented function test was completed, troubleshooting of the melter power supply leaks was progressed, and comments were resolved on the major DOE approved deliverables (Conduct of Operations Matrix, Training Implementation Plan, Nuclear Material Maintenance Program, and Commissioning Plan). Inefficiencies due to the application of COVID-19 controls are expected to continue.

Significant Accomplishments during the Prior Month:

- 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:

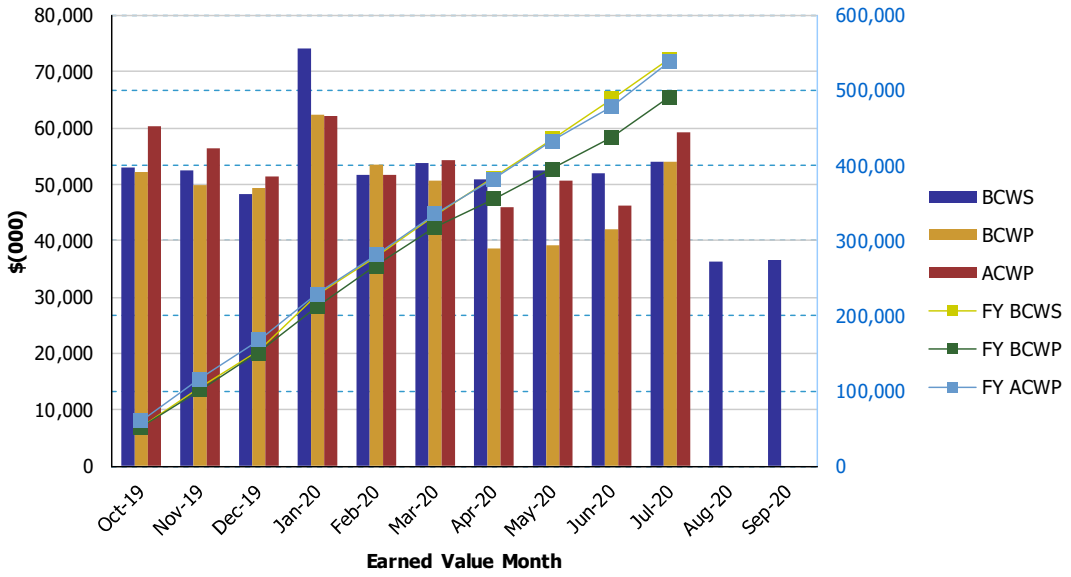
- Significant planned activities in the reporting period are noted in project reports for the PT Facility, HLW Facility, LAW Facility, BOF, and LAB.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data Data as of: July 2020

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	$74,007	$62,261	$62,070	0.84	1.00	$227,545	$213,489	$230,102	0.94	0.93
Feb 2020	$51,722	$53,420	$51,766	1.03	1.03	$279,267	$266,908	$281,867	0.96	0.95
Mar 2020	$53,763	$50,732	$54,238	0.94	0.94	$333,030	$317,640	$336,106	0.95	0.95
Apr 2020	$50,878	$38,578	$45,969	0.76	0.84	$383,908	$356,218	$382,075	0.93	0.93
May 2020	$52,452	$39,269	$50,645	0.75	0.78	$436,360	$395,487	$432,720	0.91	0.91
Jun 2020	$52,019	$42,059	$46,219	0.81	0.91	$488,379	$437,546	$478,940	0.90	0.91
Jul 2020	$53,942	$54,031	$59,260	1.00	0.91	$542,321	$491,577	$538,199	0.91	0.91
Aug 2020	$36,178									
Sep 2020	$36,675									

PTD	$12,420,549	$12,269,638	$12,287,930	0.99	1.00

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 (July 2020)	$89	($5,229)
Fiscal Year 2020 to-date	($50,744)	($46,622)
Cumulative (through July 2020)	($150,911)	($18,292)

CV = cost variance.
SV = schedule variance.

For the July 2020 earned value management system reporting period, a net favorable SV of approximately $0.1 million was reported, primarily due to the following:

- LAB reported a favorable SV due to the completion of maintenance training activities in July.
- DFLAW Construction reported a favorable SV due to completion of construction activities including subcontract work associated with coatings; heat trace; insulation and heating, ventilation, and air-conditioning previously behind schedule.
- BOF reported a favorable SV due to completing site paving activity previously behind schedule.

The favorable SV was offset by:

- LAW Facility unfavorable SV due to changes in the execution strategies for commissioning procurements, which are now being performed later than initially planned. Additionally, because of the Hanford Site Essential Mission-Critical Operations posture imposed due to COVID-19, many planned activities for Startup and Construction could not be performed.

For the July 2020 earned value management system reporting period, a net unfavorable CV of approximately ($5.2 million) was reported, primarily due to the following:

- Project Services reported significant unfavorable CV due to COVID-19 protocols related to the Hanford Site Essential Mission Critical Operation posture, change order accounting, and cost segregation of *Coronavirus Aid, Relief, and Economic Security Act*-related costs.
- BOF reported an unfavorable CV due to continued demand for nonradioactive waste disposal system waste water pumping under the GrayMar subcontract. This pumping was required due to high iron concentrations in the BOF nonradioactive liquid waste disposal tank.
- DFLAW Construction reported an unfavorable CV due to subcontracts costing more for coatings; heat trace; insulation; and heating, ventilation, and air-conditioning activities. Additionally, continued field nonmanual support needed to be maintained since construction activities are behind schedule.

The unfavorable CV offset by:

- LAW Facility favorable CV due to lower demands for system automation scope, which is planned as level of effort; efficiencies in development of LAW Facility training materials and administration of subsequent training and operations.
- HLW Facility Engineering reported favorable CV due to lower wage rate than budgeted and a 2020 rate rebill credit; efficient update of piping and instrumentation diagram and process data; and low relocation cost.

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

[1] 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.

DOE and Bechtel National, Inc. (BNI) completed resolution of all the technical issues identified in the Third Order Regarding Motions to Modify Consent Decrees[10].

In addition, DOE 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). DOE notified BNI in July 2019 that it concurred with BNI's determination that the PT Facility's technical issues have been resolved.[11]

[10] *State of Washington v. Dept. of Energy*, No: 2:08-CV-5085-RMP (March 11, 2016) (ECF-221).

[11] 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:

- Completed vendor negotiations for termination of 16 of the 17 priority 1 purchase orders that have been in suspension to reduce the procurement liabilities.

Significant Planned Activities for the Next Month:

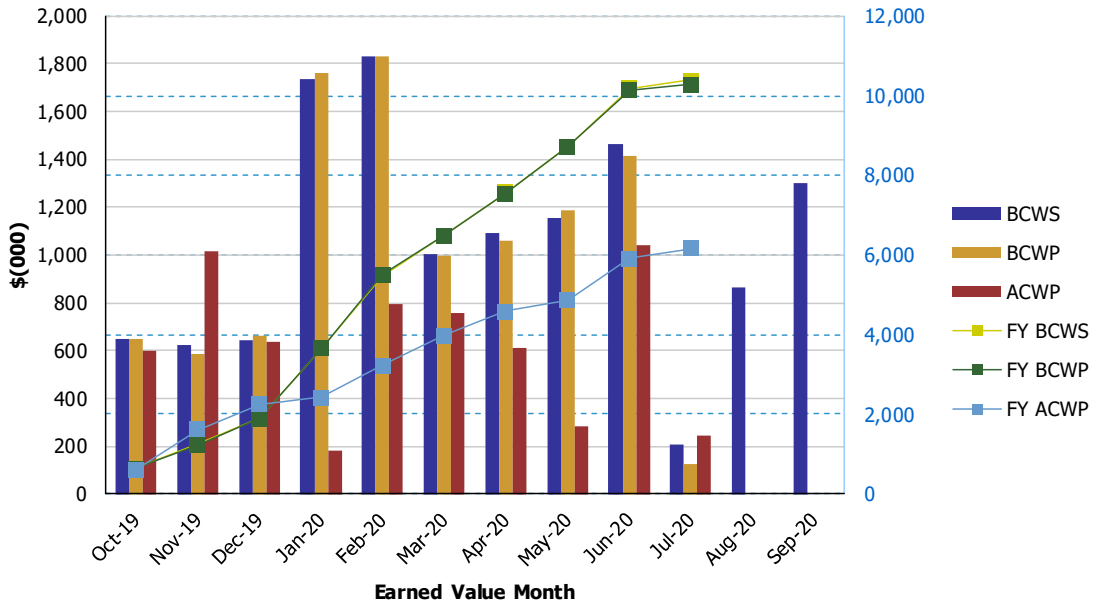
- Continue to manage suspended plant equipment purchase orders to reduce storage and suspension costs and evaluate ways to reduce project procurement liability.
- Continue to implement asset maintenance at the PT Facility to protect equipment and structures and to ensure design documents are maintained.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data Data as of: July 2020

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	$1,763	$179	1.01	9.87	$3,648	$3,661	$2,427	1.00	1.51
Feb 2020	$1,830	$1,830	$792	1.00	2.31	$5,479	$5,491	$3,220	1.00	1.71
Mar 2020	$1,000	$994	$758	0.99	1.31	$6,479	$6,485	$3,978	1.00	1.63
Apr 2020	$1,091	$1,059	$614	0.97	1.72	$7,569	$7,543	$4,592	1.00	1.64
May 2020	$1,155	$1,187	$283	1.03	4.20	$8,725	$8,730	$4,875	1.00	1.79
Jun 2020	$1,463	$1,416	$1,042	0.97	1.36	$10,188	$10,146	$5,917	1.00	1.71
Jul 2020	$207	$126	$247	0.61	0.51	$10,395	$10,272	$6,164	0.99	1.67
Aug 2020	$866									
Sep 2020	$1,298									

PTD	$3,523,475	$3,521,412	$3,454,069	1.00	1.02

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

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[1]
D-00A-03	Start HLW Facility Cold Commissioning	06/30/2032	At Risk[1]
D-00A-04	HLW Facility Hot Commissioning Complete	12/31/2033	At Risk[1]

[1] 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 would then 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 would then 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 was performed in accordance with the fiscal year 2017 through fiscal year 2021 Interim Work Plan, which was primarily for work associated with asset maintenance and key ongoing procurement activities. Since 2019, HLW Facility design activities have been ramping up as the engineering staff have been transitioning from 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 Headquarters and DOE Office of 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:

- Completed 60 percent design review of the HLW Facility melter process system in August 2020.

Significant Planned Activities in the Next Month:

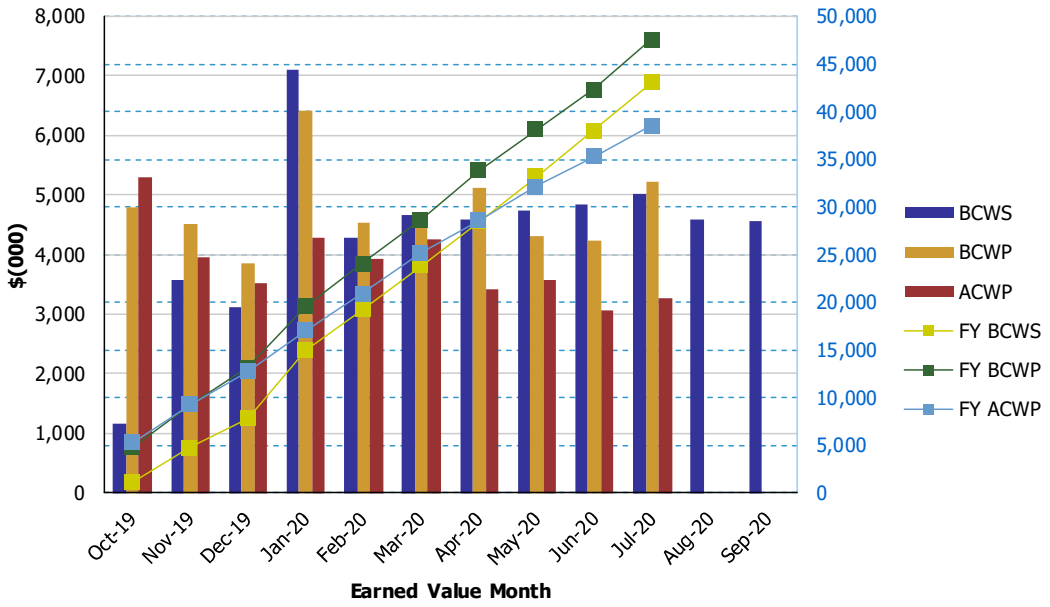
- Continue to perform engineering design activities and hazard analysis for key mechanical and process systems. Priority systems for fiscal year 2020 and early 2021 include the design of the HLW Facility melter feed process, primary offgas process, and ventilation systems.
- Continue to manage suspended plant equipment purchase orders to reduce storage and suspension costs and to evaluate ways to reduce project procurement liability.
- Continue to implement asset maintenance at the HLW Facility to protect equipment and structures and to ensure design documents are maintained.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data Data as of: July 2020

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	$6,418	$4,276	0.90	1.50	$14,954	$19,581	$17,033	1.31	1.15
Feb 2020	$4,294	$4,531	$3,931	1.06	1.15	$19,248	$24,113	$20,964	1.25	1.15
Mar 2020	$4,655	$4,595	$4,257	0.99	1.08	$23,903	$28,707	$25,221	1.20	1.14
Apr 2020	$4,595	$5,126	$3,414	1.12	1.50	$28,498	$33,833	$28,635	1.19	1.18
May 2020	$4,735	$4,309	$3,573	0.91	1.21	$33,234	$38,142	$32,207	1.15	1.18
Jun 2020	$4,833	$4,233	$3,052	0.88	1.39	$38,067	$42,374	$35,259	1.11	1.20
Jul 2020	$5,009	$5,230	$3,265	1.04	1.60	$43,076	$47,604	$38,524	1.11	1.24
Aug 2020	$4,580									
Sep 2020	$4,554									

PTD	$2,546,826	$2,546,026	$2,486,326	1.00	1.02

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

Low-Activity Waste Facility[12]

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Jason Young

Milestone	Title	Due Date	Status
D-00A-07	LAW Facility Construction Substantially Complete	12/31/2020	Amendment proposed[1]
D-00A-08	Start LAW Facility Cold Commissioning	12/31/2022	Amendment proposed[1]
D-00A-09	LAW Facility Hot Commissioning Complete	12/31/2023	Amendment proposed[1]

[1] Certain Consent Decree-related work at the Hanford Site has been interrupted since March 23, 2020, due to the COVID-19 pandemic. On May 21, 2020, the U.S. Department of Justice, on behalf of DOE, submitted a proposal to the State of Washington to amend the Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.) due to a Force Majeure event. ENV_DEFENSE-#919846, 2020, "Proposal to Amend Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-5085-RMP (E.D. Wash.), Due to *Force Majeure* Event," (external letter to A.A. Fitz, Office of the Attorney General, Ecology Division), from A.D. Saylor, C.H. Kolman, and S. Shea, United States Department of Justice, Environmental Defense Section, Washington, D.C., May 21.

COVID-19 = coronavirus disease 2019.
DOE = U.S. Department of Energy.
Ecology = Washington State Department of Ecology.
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 July 2020, the LAW Facility was 85 percent complete overall, with engineering design 98 percent complete, procurement 100 percent complete, construction 99 percent complete, and startup and commissioning 46 percent complete. BNI has completed construction and initiated startup testing for 96 percent of LAW Facility systems. BNI has completed startup testing for 39 percent of LAW Facility systems and custody of these systems has been transferred to the Plant Management organization for operations.

[12] 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:

- Completed handover of the chilled water system (CHW-L-01) to the Plant Management organization for operation
- Completed pressurization of the LAW Facility fire-water service system
- Startup organization completed deenergized testing of the LAW Facility melter process system.

Significant Planned Activities in the Next Month:

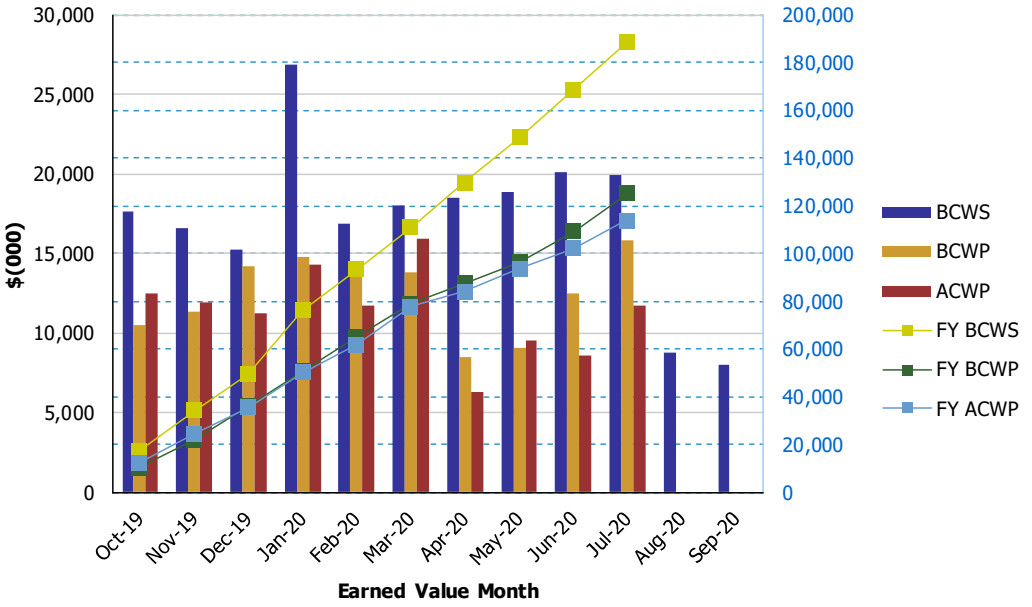
- Construction will continue completion activities for LAW Facility systems.
- Startup organization will continue testing of LAW Facility systems.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data Data as of: July 2020

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	$26,877	$14,761	$14,331	0.55	1.03	$76,386	$50,884	$50,130	0.67	1.02
Feb 2020	$16,880	$14,419	$11,727	0.85	1.23	$93,266	$65,303	$61,858	0.70	1.06
Mar 2020	$18,044	$13,801	$15,925	0.76	0.87	$111,310	$79,103	$77,783	0.71	1.02
Apr 2020	$18,469	$8,484	$6,307	0.46	1.35	$129,779	$87,588	$84,090	0.67	1.04
May 2020	$18,880	$9,045	$9,578	0.48	0.94	$148,659	$96,632	$93,668	0.65	1.03
Jun 2020	$20,112	$12,537	$8,592	0.62	1.46	$168,771	$109,169	$102,259	0.65	1.07
Jul 2020	$19,981	$15,861	$11,735	0.79	1.35	$188,753	$125,030	$113,995	0.66	1.10
Aug 2020	$8,771									
Sep 2020	$8,020									

PTD	$2,473,418	$2,366,846	$2,357,028	0.96	1.00

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.

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 July 2020, BOF was 92 percent complete overall, engineering design was 98 percent complete, procurement was 100 percent complete, construction was 95 percent complete, and startup and commissioning was 81 percent complete. Design of Effluent Management Facility (EMF) was 100 percent complete.

BOF has completed construction and initiated startup testing for all systems. BNI has completed startup testing for 94 percent of the BOF systems, and custody of these systems has been transferred to the Plant Management organization for operations.

Significant Accomplishments during the Prior Month:

- Completed installation and backfill of the piping between the EMF low-point drain and the tank farms low-activity waste feed interface point
- Completed handover of the medium voltage electrical system for the standby diesel generator (MVE-B-03) to the Plant Management organization for operations
- Completed flushing of the deionized water system (DIW-E-2, DIW-E-3, and DIW-E-4) in EMF
- Completed flushing of the potable water system (DOW-E-1, DOW-E-2, DOW-E-3, DOW-E-4, DOW-E-5, DOW-E-7, DOW-E-8, and DOW-E-9) in EMF
- Continued EMF system walkdowns to support turnover to the Startup organization.

Significant Planned Activities in the Next Month:

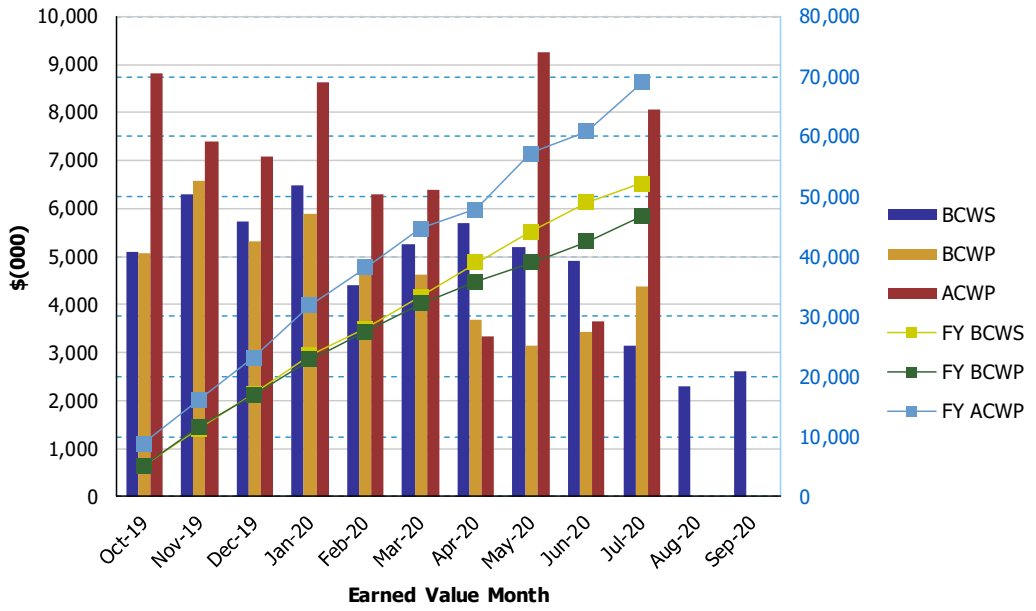
- Continue design support for EMF construction and BOF startup activities
- Continue EMF system walkdowns and startup testing
- Continue steam plant system testing
- Continued site road preparation and paving.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data Data as of: July 2020

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	$6,470	$5,888	$8,630	0.91	0.68	$23,598	$22,831	$31,901	0.97	0.72
Feb 2020	$4,392	$4,689	$6,304	1.07	0.74	$27,990	$27,520	$38,205	0.98	0.72
Mar 2020	$5,265	$4,631	$6,385	0.88	0.73	$33,256	$32,151	$44,590	0.97	0.72
Apr 2020	$5,698	$3,696	$3,341	0.65	1.11	$38,954	$35,847	$47,931	0.92	0.75
May 2020	$5,194	$3,159	$9,256	0.61	0.34	$44,148	$39,006	$57,188	0.88	0.68
Jun 2020	$4,909	$3,424	$3,657	0.70	0.94	$49,057	$42,430	$60,845	0.86	0.70
Jul 2020	$3,145	$4,386	$8,058	1.39	0.54	$52,202	$46,816	$68,903	0.90	0.68
Aug 2020	$2,311									
Sep 2020	$2,612									

PTD	$967,191	$949,749	$1,005,416	0.98	0.94

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.

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 July 2020, the LAB was 90 percent complete overall, engineering design was 99 percent complete, procurement was 100 percent complete, construction was 100 percent complete, and startup and commissioning was 70 percent complete.

The LAB has completed construction and startup testing for all LAB systems and custody of these systems has been transferred to the Plant Management organization for operations. BNI is working to resolve outstanding punch list items, progress procedure preparations, and perform methods validation activities in support of the transition to facility operations.

Significant Accomplishments during the Prior Month:

- Continued method validation activities.
- Identified modifications to improve performance by Plant Engineering, while evaluating airflow challenges with the fume hoods. The subcontract has been awarded and fume hood sash modifications to the fume hood sashes are upcoming.
- Completed commissioning for the high purity gas systems.
- Continued resolution of outstanding punchlist activities.

Significant Planned Activities in the Next Month:

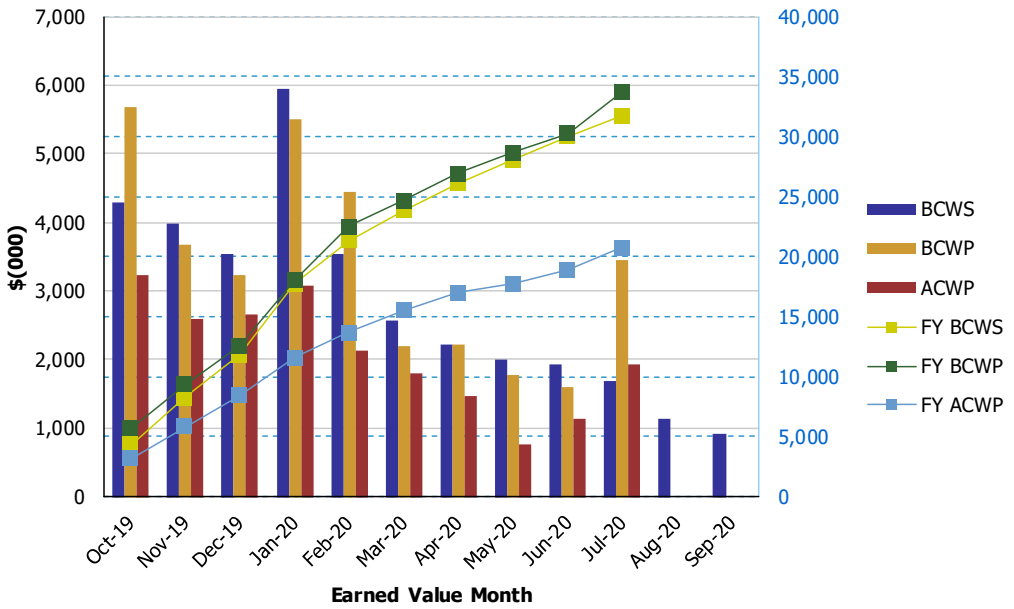
- Continue program and facility preparations for operation
- Continue to progress program implementation activities to support LAB readiness for operation.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2020 Earned Value Data Data as of: July 2020

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	$5,947	$5,495	$3,081	0.92	1.78	$17,778	$18,076	$11,573	1.02	1.56
Feb 2020	$3,548	$4,446	$2,136	1.25	2.08	$21,326	$22,522	$13,709	1.06	1.64
Mar 2020	$2,568	$2,191	$1,808	0.85	1.21	$23,894	$24,713	$15,517	1.03	1.59
Apr 2020	$2,221	$2,214	$1,462	1.00	1.51	$26,114	$26,928	$16,979	1.03	1.59
May 2020	$1,995	$1,772	$765	0.89	2.32	$28,110	$28,699	$17,744	1.02	1.62
Jun 2020	$1,930	$1,601	$1,136	0.83	1.41	$30,040	$30,301	$18,880	1.01	1.60
Jul 2020	$1,680	$3,445	$1,925	2.05	1.79	$31,719	$33,746	$20,805	1.06	1.62
Aug 2020	$1,141									
Sep 2020	$911									

PTD	$475,571	$469,159	$444,246	0.99	1.06

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 July 2020

(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		
Facilities	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
Low-Activity Waste	2,297.4	1,950.9	85%	590.1	580.1	98%	342.9	342.5	100%	753.5	747.8	99%	599.1	274.8	46%	11.9	5.7	48%
Balance of Facilities	784.9	718.4	92%	157.2	153.8	98%	60.8	60.8	100%	307.5	293.1	95%	259.0	210.2	81%	0.5	0.5	100%
Analytical Lab	472.3	424.7	90%	94.8	94.0	99%	60.5	60.5	100%	166.1	165.7	100%	148.0	103.4	70%	2.9	1.1	37%
Direct Feed LAW	432.2	404.2	94%	110.9	109.3	99%	72.4	72.2	100%	239.4	215.0	90%	0.0	0.0	0%	9.5	7.8	83%
LBL Facility Services	764.3	588.5	77%	0.0	0.0	0%	70.5	62.2	88%	107.2	105.8	99%	332.4	221.2	67%	254.3	199.2	78%
Total LBL	**4,751.1**	**4,086.7**	**86%**	**953.0**	**937.2**	**98%**	**607.0**	**598.2**	**99%**	**1,573.7**	**1,527.4**	**97%**	**1,338.4**	**809.6**	**60%**	**279.0**	**214.3**	**77%**
Project Services	909.5	758.3	83%	92.5	90.7	98%	63.4	56.0	88%	101.0	93.1	92%	7.5	5.0	67%	645.1	513.4	80%
Total Project Services	**909.5**	**758.3**	**83%**	**92.5**	**90.7**	**98%**	**63.4**	**56.0**	**88%**	**101.0**	**93.1**	**92%**	**7.5**	**5.0**	**67%**	**645.1**	**513.4**	**80%**
Total LBL, DFLAW & Project Services	**5,660.6**	**4,845.0**	**86%**	**1,045.5**	**1,027.9**	**98%**	**670.4**	**654.1**	**98%**	**1,674.7**	**1,620.5**	**97%**	**1,345.9**	**814.6**	**61%**	**924.1**	**727.8**	**79%**
PT/HLW/SS Percent Complete Status Frozen as of September 2012 (due to project rebaselining efforts)																		
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%
Total HLW/PT/SS	**8,722.8**	**5,965.2**	**68%**	**2,173.1**	**1,948.9**	**90%**	**1,565.5**	**1,124.8**	**72%**	**2,887.6**	**1,764.8**	**61%**	**758.5**	**143.2**	**19%**	**1,338.1**	**983.5**	**73%**
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
Total WTP	**14,383.4**	**10,810.2**	**75%**	**3,218.6**	**2,976.8**	**92%**	**2,235.9**	**1,778.9**	**80%**	**4,562.3**	**3,385.3**	**74%**	**2,104.4**	**957.8**	**46%**	**2,262.2**	**1,711.3**	**76%**

Source: Preliminary WTP Contract Performance Report - Format 1, Data for July 2020

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 facilties 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

Milestone Number or Facility Identification	Title
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-02DN	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)

Ecology = Washington State department of Ecology.
LAW = Low-Activity Waste (Facility).
TWRWP = tank waste retrieval work plan.