

Office of River Protection Consent Decree Monthly Report

Monthly Reporting Period
December 1–December 31, 2020¹

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 November 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.

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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 |
| 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 | TBD ^{1,2} | | 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 | TBD ^{1,2} | | On Schedule |
| Fiscal Year 2023 | | | | |
| D-00A-08 Interim | Start LAW Facility Cold Commissioning | TBD ^{1,2} | | On Schedule |
| Fiscal Year 2024 | | | | |
| D-00A-09 Interim | LAW Facility Hot Commissioning Complete | TBD ^{1,2} | | On Schedule |
| 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 | TBD ^{1,2} | | On Schedule/Under Analysis ³ |
| Fiscal Year 2031 | | | | |
| D-00A-02 Interim | HLW Facility Construction Substantially Complete | 12/31/2030 | | At Risk ⁴ |
| Fiscal Year 2032 | | | | |
| D-00A-13 Interim | Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-OOOO1A/1B | 12/31/2031 | | At Risk ⁴ |
| D-00A-14 Interim | PT Facility Construction Substantially Complete | 12/31/2031 | | At Risk ⁴ |
| D-00A-19 Interim | Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility | 12/31/2031 | | At Risk ⁴ |

| Milestone | Title | Due Date | Completion Date | Status |
|-------------------------|----------------------------------------------|------------|-----------------|----------------------|
| D-00A-03 Interim | Start HLW Facility Cold Commissioning | 06/30/2032 | | At Risk ⁴ |
| 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 ⁴ |
| Fiscal Year 2034 | | | | |
| D-00A-04 Interim | HLW Facility Hot Commissioning Complete | 12/31/2033 | | At Risk ⁴ |
| D-00A-16 Interim | PT Facility Hot Commissioning Complete | 12/31/2033 | | At Risk ⁴ |
| D-00A-17 | Hot Start of WTP | 12/31/2033 | | At Risk ⁴ |
| Fiscal Year 2037 | | | | |
| D-00A-01 | Achieve Initial Plant Operations for the WTP | 12/31/2036 | | At Risk ⁴ |

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

² On December 10, 2020, the United States District Court, Eastern District of Washington issued an order modifying the Amended Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-05085-RMP on the basis that COVID-19 constitutes a force majeure event. The order established a method for calculating an extension of the B-2, B-3, A-7, A-8, and A-9 milestones in order to offset work interruptions due to COVID-19.

³ 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.

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

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, 2020.

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: Brian Harkins (Acting)

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 | TBD ^{1,2} | 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 | TBD ^{1,2} | On Schedule/Under Analysis ³ |

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

² On December 10, 2020, the United States District Court, Eastern District of Washington issued an order modifying the Amended Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-05085-RMP on the basis that COVID-19 constitutes a force majeure event. The order established a method for calculating an extension of the B-2, B-3, A-7, A-8, and A-9 milestones in order to offset work interruptions due to COVID-19.

³ 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.

COVID-19 = coronavirus disease 2019.

SST = single-shell tank.

DOE = U.S. Department of Energy.

WMA-C = C Tank Farm waste management area.

Ecology = Washington State Department of Ecology.

On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing coronavirus disease 2019 (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 I. 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 added COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities.

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

The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that was performing portable work via telework generally continued to telework. The majority of the workforce performing nonportable work returned to the site by September 30, 2020, to progress work activities leveraging established COVID-19 controls.

On December 9, 2020, DOE and the state of Washington filed a joint motion to amend the Consent Decree, and on December 10, 2020, the United States District Court, Eastern District of Washington issued an order modifying the Amended Consent Decree in *State of Washington v. Brouillete, et al.* on the basis that COVID-19 constitutes a force majeure event. The order established a method for calculating an extension of the B-2, B-3, A-7, A-8, and A-9 milestones to offset work interruptions due to COVID-19. 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 to the Consent Decree, and if other actions may be necessary.

Since March 24, 2020, when moving 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 following highlights some examples of tank farm impacts continuing or having occurred in December 2020:

- Continuing COVID-19 impacts:
 - Equipment exposure to a radiation field longer than planned, during the COVID-19 delays, may have resulted in equipment damage. Tank AX-104 waste retrieval equipment will undergo operational acceptance testing prior to the start of retrieval operations.
 - The contract tracing process executed by the occupational medical service provider has resulted in approximately 50 to 70 workers in a quarantined status each day during the reporting period. COVID-19 facility cleaning/decontamination protocols are in place and implemented when a potential facility exposure is identified. These activities require the temporary evacuation and isolation of work areas for cleaning.

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.

- Potential exposure of workers to COVID-19, and the need for quarantining when exposures are assessed as possible by contact tracing, impacts the execution of fieldwork. The temporary loss of crewmembers being quarantined out of an abundance of caution, made some work crews short staffed. If no qualified individuals were available, the work was delayed until qualified personnel became available. Remaining crewmembers were reassigned when possible to other available work tasks. The unpredictable nature of losing (single or multiple) personnel due to quarantining makes it difficult to plan and to fully assess the impacts to the project schedule and cost.
- COVID-19 impacts continue to be evaluated and schedule adjustments will occur based on state/federal recommendations and inefficiencies associated with COVID-19 social distancing controls that significantly impact pre-job briefings, donning/doffing durations, and in-farm work area ingress/egress access.
- December 2020 COVID-19 impacts:
 - COVID-19 controls to ensure social distancing have necessarily impacted the efficiency of pre-job briefings, donning/doffing durations, and in-farm work area ingress/egress access. Work continues on the additional trailers and tents being installed to mitigate inefficiencies while continuing to ensure social distancing requirements are met.
 - Multiple work areas throughout the tank farms were evacuated, sanitized, and reevaluated for occupancy allowance following the COVID-19 facility cleaning/decontamination protocols. This process occurred on 62 occasions during this reporting period.
 - Fieldwork was impacted during December when members of work crews were quarantined as a result of the contact tracing process. Available crewmembers were reassigned, when possible, to replace the quarantined individuals.

Significant Accomplishments during the Prior Month:

Completed Accomplishments:

- Completed Tank AX-104 readiness activities.
- Started Tank AX-104 waste retrieval operations.
- Installed Tank AX-103 03B pit sluicer.

Ongoing Activities:

- Work continued on the development of a Tank AX-102 third retrieval technology practicability evaluation. The alternative mechanical retrieval options study was completed, which in addition to the completed chemical analysis of the Tank AX-102 post retrieval samples, will support the request to forgo a third retrieval technology in Tank AX-102.
- Continue AX-104 waste retrieval operations.

- Continued work on the Tank AX-101 on-dome electrical system installation.
- Continued Tank AX-103 waste retrieval system installation, sluicers, pump, hose-in-hose transfer lines.
- Continued Tank A-101 equipment (A-01H pump) removal activities.
- Continued new trailer and tent installation to mitigate COVID-19 social distancing impacts.

Significant Planned Activities in the Next Month:

- Install the AX-103 03D pit sluicer.

Issues:

- There is an ongoing risk that waste retrieval operations at Tank AX-104 will be impacted if members of a crew are found either positive for COVID-19 or quarantined as a precaution due to potential close contact with someone that has tested positive. Mitigation actions to protect the workers have been put in place, such as the rigorous adherence to COVID-19 protocols, to protect the workforce while also ensuring operational continuity.
- Work restrictions related to the COVID-19 pandemic are expected to continue into the next reporting period.
- DOE is engaged in ongoing analysis of challenges and condition issues associated with the retrievals of 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; therefore, negative impacts to the cost and schedule are being realized.
 - Removal of Tank A-103 riser 2 thermocouple required a duration of 209 days (planned 83 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 to be lowered to the tank bottom. This activity was originally planned for 83 days, but the actual duration was 235 days.

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.

- Removal of Tank A-106 riser 2 thermocouple was removed in sections, with the lower section left in the tank. Removal of the thermocouple was planned for 113 days, but required 246 days.
- A stuck shield plug in Tank A-101 01C Pit required an alternative method (core drilling) to tie in the ventilation system. Removal of the shield plug was expected to require 12 days, but was completed in 31 days.
- A stuck shield plug in Tank AX-102 02B Pit prevented the installation of the planned third extended reach sluicer system. Eighty days were expended (planned 12 days) on the attempts to remove the plug, until it was decided the plug could not be removed and to retrieve Tank AX-102 with two extended reach sluicer systems.
- On April 18, 2019, the Washington State Department of Ecology (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: Brian Harkins (Acting)

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:

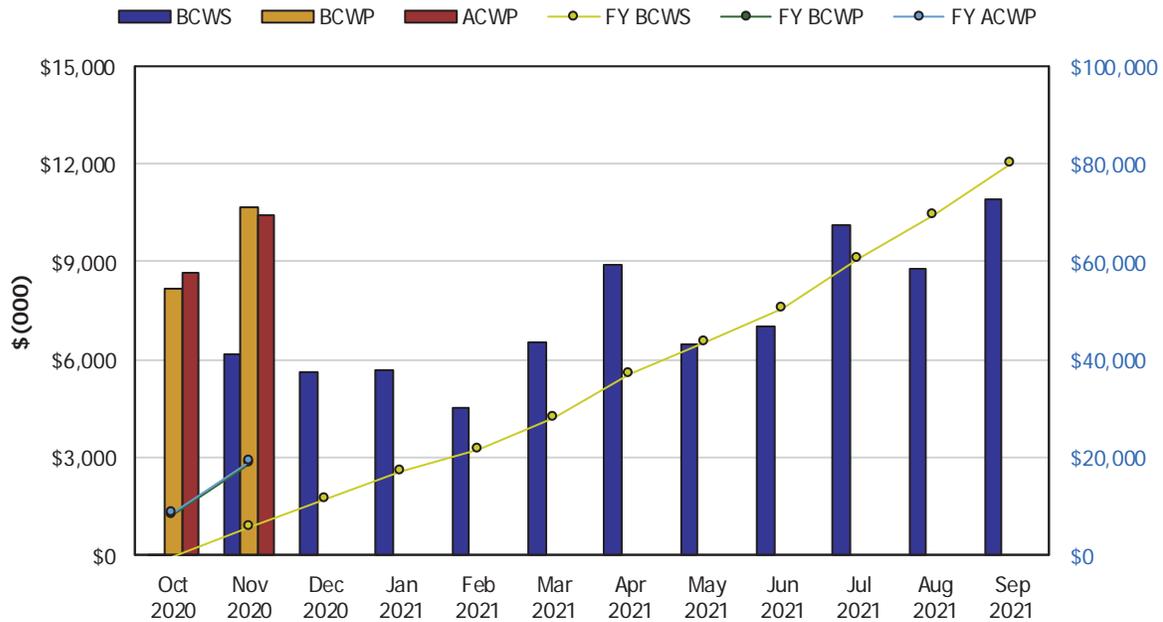
- None.

Earned Value Data: Fiscal Year 2021

November-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 2020 | (\$362) | \$8,176 | \$8,653 | -22.56 | 0.94 | (\$362) | \$8,176 | \$8,653 | -22.56 | 0.94 |
| Nov 2020 | \$6,177 | \$10,692 | \$10,435 | 1.73 | 1.02 | \$5,815 | \$18,867 | \$19,088 | 3.24 | 0.99 |
| Dec 2020 | \$5,605 | | | | | \$11,419 | | | | |
| Jan 2021 | \$5,647 | | | | | \$17,066 | | | | |
| Feb 2021 | \$4,498 | | | | | \$21,564 | | | | |
| Mar 2021 | \$6,531 | | | | | \$28,095 | | | | |
| Apr 2021 | \$8,881 | | | | | \$36,976 | | | | |
| May 2021 | \$6,493 | | | | | \$43,469 | | | | |
| Jun 2021 | \$6,994 | | | | | \$50,463 | | | | |
| Jul 2021 | \$10,115 | | | | | \$60,578 | | | | |
| Aug 2021 | \$8,757 | | | | | \$69,335 | | | | |
| Sep 2021 | \$10,891 | | | | | \$80,226 | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| CTD | \$1,223,625 | \$1,195,074 | \$1,250,350 | 0.98 | 0.96 |
|-----|-------------|-------------|-------------|------|------|

| | | | |
|------|-----------------------------------|-----|------------------------------|
| ACWP | = actual cost of work performed | CM | = current month |
| BCWP | = budgeted cost of work performed | CTD | = contract to date |
| 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 November favorable schedule variance (SV) of \$4,514,300 was primarily due to the following:

- Schedule performance recovery for completion of the TX Tank Farm evapotranspiration basin storm water drainage collection system.
- Schedule performance recovery for completing installation and testing of the AX-104 waste retrieval system. Both construction acceptance testing and operations acceptance testing were completed in November.
- Progress on the cleanout of Tank A-101 H Pit is ahead of schedule, due to resources transitioning from other work.

The November favorable cost variance (CV) of \$256,900 was primarily due to the following:

- Costs associated with COVID-19 cleaning protocols in support of work setting up new change trailers were transferred to a separate account specifically for the collection of COVID-19 cost impacts.

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 November 2020, DFLAW modifications for the WTP Project were 96 percent complete, engineering design was 99 percent complete, procurement was 100 percent complete, and construction was 94 percent complete. As of November 2020, total LBL facilities were 89 percent complete, engineering design was 99 percent complete, procurement was 99 percent complete, construction was 98 percent complete, and startup and commissioning was 66 percent complete.

In 2018, at DOE’s request, the U.S. Army Corps of Engineers conducted a parametric analysis of 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 a low probability that DOE could meet construction and commissioning milestones for these facilities as established by the Amended Consent Decree under the current funding profile. The DOE Office of Project Management subsequently conducted an independent assessment of the U.S. Army Corps of Engineers report.

Based on the review, on September 4, 2019, DOE notified Ecology that there was 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

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

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 Decree⁸, 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.

DOE set up the WTP HLW Treatment Analysis of Alternatives (AoA) contractor team in June 2019. 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*. DOE and Ecology staff have been participating in the AoA team plans, discussions, and review of reports. 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 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 report *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. Rather than provide detailed comments, Ecology communicated some “significant” broader concerns via a letter (20-NWP-107, dated June 11, 2020) to Tom Fletcher. On August 3, 2020, DOE sent a letter to Ecology (20-ORP-0015) providing additional time to provide comments, but Ecology deferred to comment. In October 2020, the AoA Steering Committee directed that an additional alternative be analyzed during the AoA process. In November 2020, DOE briefed Ecology on the status of the AoA. In December 2020, the AoA team began working on the new alternative.

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, 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

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).

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

On December 9, 2020, the Department of Energy and the State of Washington filed a Joint Motion to Amend the Consent Decree, and on December 10, 2020, the United States District Court, Eastern District of Washington issued an order modifying the Amended Consent Decree in *State of Washington v. Brouillete, et al.* on the basis that COVID-19 constitutes a force majeure event. The order established a method for calculating an extension of the B-2, B-3, A-7, A-8, and A-9 milestones to offset work interruptions due to COVID-19. 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 to the Consent Decree, and if other actions may be necessary.

The Hanford Site transitioned to Phase 2 beginning August 31, 2020, which remobilized Building Trades back into the field 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 experienced numerous impacts related to restrictions or requirements based on COVID-19.

The following highlights some examples of WTP impacts continuing or having occurred in December 2020:

- Continuing COVID-19 impacts:
 - Social distancing requirements reduce the number of workers allowed in a given area at the same time and decreases the number of tasks that can be performed in parallel.
 - Engineering and management personnel are primarily working remotely. Communications through remote means, such as the use of meeting software and electronic devices, are not as efficient as traditional face-to-face communications and slows the resolution of issues that arise.

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.

- COVID-19 facility cleaning/decontamination protocols are in place and implemented when a potential facility exposure is identified. These activities require the temporary evacuation and isolation of work areas for cleaning.
- December 2020 COVID-19 impacts:
 - Cleaning of the LAW Facility control room is being performed on a daily basis to minimize potential spread of COVID-19.
 - Multiple work areas throughout the WTP site were evacuated, sanitized, and reevaluated for occupancy allowance following the COVID-19 facility cleaning/decontamination protocols. This process occurred on 37 occasions during this reporting period.

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.

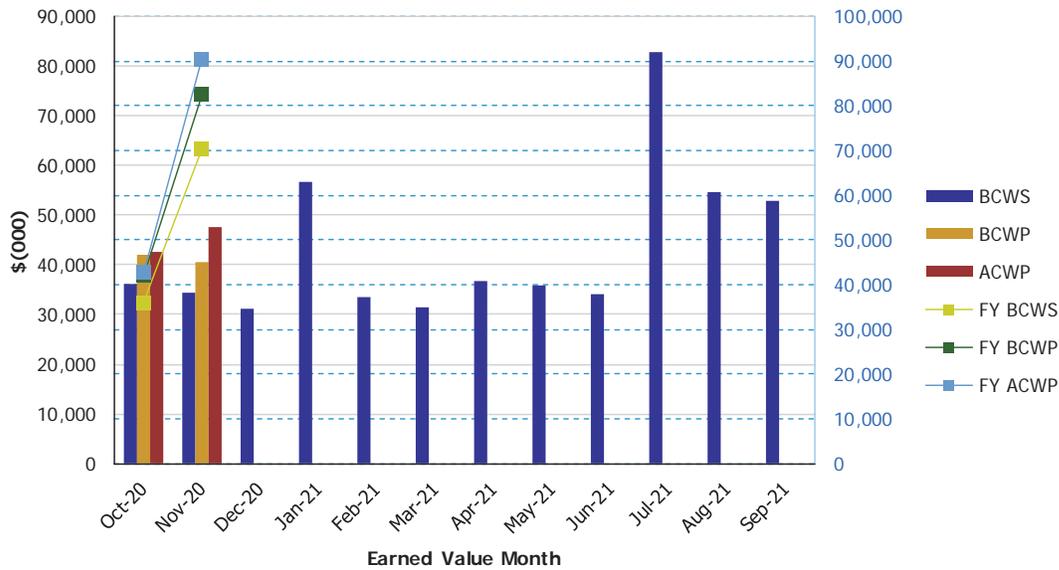
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: November 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 2020 | \$36,025 | \$41,999 | \$42,736 | 1.17 | 0.98 | \$36,025 | \$41,999 | \$42,736 | 1.17 | 0.98 |
| Nov 2020 | \$34,416 | \$40,510 | \$47,648 | 1.18 | 0.85 | \$70,441 | \$82,509 | \$90,385 | 1.17 | 0.91 |
| Dec 2020 | \$31,106 | | | | | | | | | |
| Jan 2021 | \$56,771 | | | | | | | | | |
| Feb 2021 | \$33,541 | | | | | | | | | |
| Mar 2021 | \$31,567 | | | | | | | | | |
| Apr 2021 | \$36,672 | | | | | | | | | |
| May 2021 | \$35,773 | | | | | | | | | |
| Jun 2021 | \$34,161 | | | | | | | | | |
| Jul 2021 | \$82,764 | | | | | | | | | |
| Aug 2021 | \$54,705 | | | | | | | | | |
| Sep 2021 | \$52,899 | | | | | | | | | |

| | | | | | |
|-----|--------------|--------------|--------------|------|------|
| PTD | \$12,564,710 | \$12,434,663 | \$12,457,406 | 0.99 | 1.00 |
|-----|--------------|--------------|--------------|------|------|

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

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

| Performance Tracking | SV | CV |
|------------------------------------|-------------|------------|
| Current Period (November 2020) | \$6,094 | (\$7,138) |
| Fiscal Year 2021 to-date | \$12,068 | (\$7,875) |
| Cumulative (through November 2020) | (\$130,047) | (\$22,743) |

CV = cost variance.

SV = schedule variance.

For the November 2020 earned value management system reporting period, a net favorable SV of approximately \$6.1 million was reported, primarily due to the following:

- LAW Facility reported a favorable SV due to completion of Plant Management and Startup organization training, punchlist items, spare melter procurement correction, work package reviews, and testing activities scheduled in prior periods.
- BOF reported a favorable SV due to completion of Phase II site paving and system/component testing activities scheduled in prior periods.
- DFLAW reported a favorable SV due to completion of construction activities for electrical, piping, concrete, architectural, and subcontracted work associated with insulation and pen-seals work scheduled in prior periods.

The favorable SV was offset by:

- HLW Facility continued to report an unfavorable SV due to structural analysis of the melter taking longer than planned. Additionally, civil-related software validation and ventilation system calculations are behind schedule.

For the November 2020 earned value management system reporting period, a net unfavorable CV of approximately (\$7.1 million) was reported, primarily due to the following:

- DFLAW reported an unfavorable CV due to additional efforts to complete Effluent Management Facility (EMF) construction activities that were behind schedule.
- BOF reported an unfavorable CV due to higher demands for Plant Management activities associated with preventative and corrective maintenance, operations support, and aging and obsolete equipment purchases.
- LBL Facility Services reported an unfavorable CV due to civil and electrical bulk procurements being higher than planned.
- Project Services reported an unfavorable CV due to numerous cost corrections and COVID-19 impacts, including deep cleaning and other labor and materials required for safety and social distancing measures.

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 Decrees¹⁰.

Design and Construction of the PT Facility remain on hold. The results of the ongoing AoA will inform the path forward on the PT Facility. Key ongoing activities include maintenance of the facility and discussions with vendors regarding suspended procurements in order to reduce liabilities.

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

Significant Accomplishments during the Prior Month:

- Completed vendor negotiations for termination of two additional priority two purchase orders (for a total of 15 of 37) that have been in suspension, to reduce the procurement liabilities
- Completed demobilization of the heating, ventilation, and air-conditioning contractor for the PT Facility and the WTP site, reducing procurement liability.

Ongoing Activities:

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

Significant Planned Activities for the Next Month:

- None.

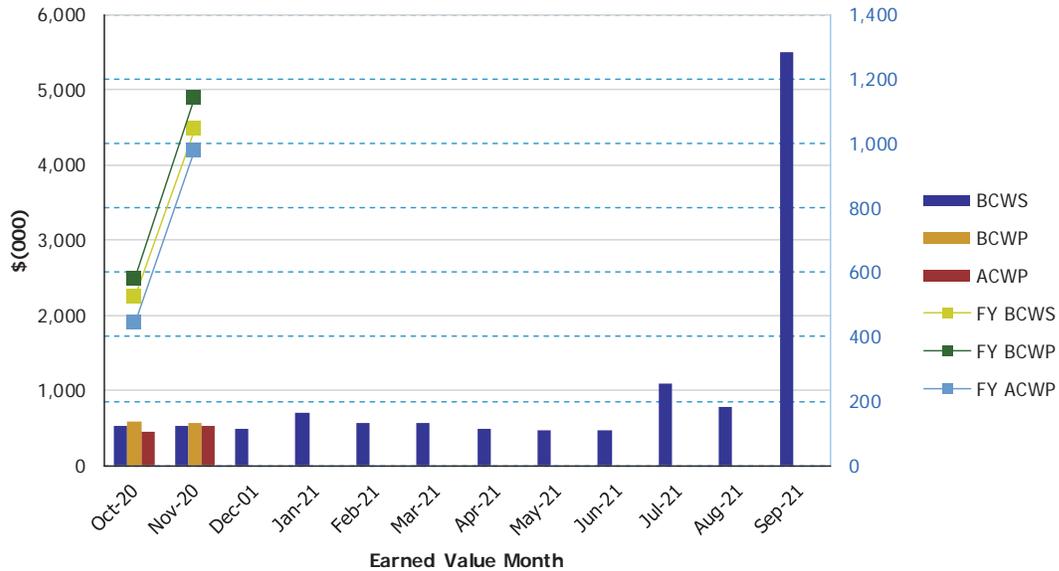
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: November 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 2020 | \$525 | \$582 | \$445 | 1.11 | 1.31 | \$525 | \$582 | \$445 | 1.11 | 1.31 |
| Nov 2020 | \$521 | \$562 | \$536 | 1.08 | 1.05 | \$1,046 | \$1,143 | \$981 | 1.09 | 1.17 |
| Dec 1901 | \$489 | | | | | | | | | |
| Jan 2021 | \$710 | | | | | | | | | |
| Feb 2021 | \$561 | | | | | | | | | |
| Mar 2021 | \$570 | | | | | | | | | |
| Apr 2021 | \$484 | | | | | | | | | |
| May 2021 | \$471 | | | | | | | | | |
| Jun 2021 | \$467 | | | | | | | | | |
| Jul 2021 | \$1,093 | | | | | | | | | |
| Aug 2021 | \$777 | | | | | | | | | |
| Sep 2021 | \$5,509 | | | | | | | | | |

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|-----|-------------|-------------|-------------|------|------|
| PTD | \$3,527,514 | \$3,525,575 | \$3,458,058 | 1.00 | 1.02 |
|-----|-------------|-------------|-------------|------|------|

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

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.

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. System designs for completing preliminary design (60 percent) and detailed design (90 percent) reviews, and updating the hazards analysis and safety basis based on the updated design are the key ongoing activities. Additionally, because of the revision of the natural phenomena hazards that increased the ashfall criteria significantly, strategy and planning activities for developing the path forward for the updated ashfall criteria are being conducted to minimize the potential impact to the project.

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:

- Successfully completed the feasibility assessments for the emergency operational management approach to support the increased ashfall criteria to reduce the potential cost impact to the project significantly.

Ongoing Activities:

- Continue to advance system designs and hazard analysis for key mechanical and process systems
- Continue activities to formalize the path forward for the updated (increased) ashfall criteria
- Continue to manage suspended plant equipment purchase orders to reduce storage and suspension costs and to evaluate ways to reduce procurement liability
- Continue to implement asset maintenance at the HLW Facility to protect equipment and structures and to ensure design documents are maintained.

Significant Planned Activities in the Next Month:

- None.

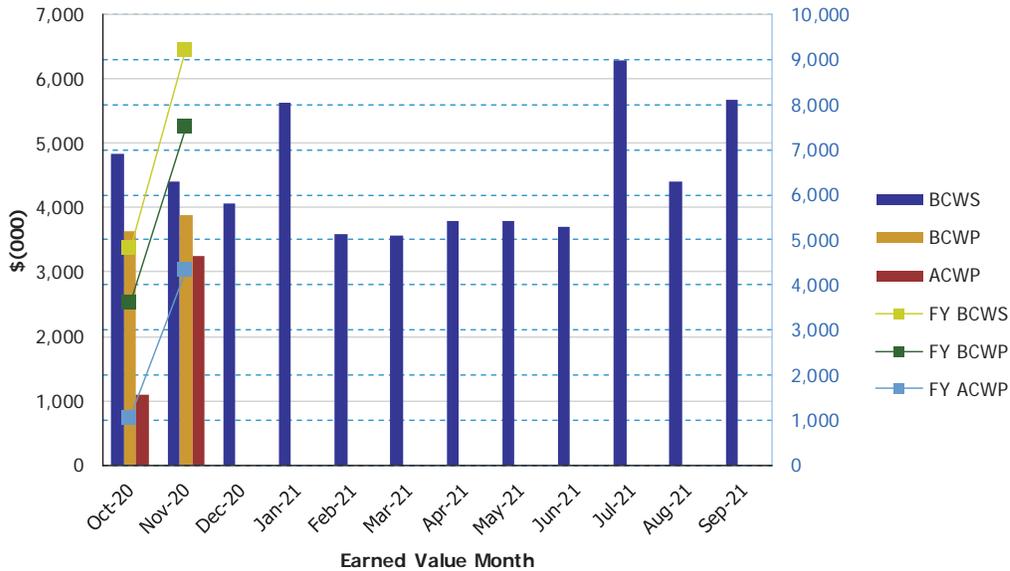
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: November 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 2020 | \$4,834 | \$3,625 | \$1,086 | 0.75 | 3.34 | \$4,834 | \$3,625 | \$1,086 | 0.75 | 3.34 |
| Nov 2020 | \$4,412 | \$3,894 | \$3,255 | 0.88 | 1.20 | \$9,246 | \$7,519 | \$4,341 | 0.81 | 1.73 |
| Dec 2020 | \$4,057 | | | | | | | | | |
| Jan 2021 | \$5,628 | | | | | | | | | |
| Feb 2021 | \$3,584 | | | | | | | | | |
| Mar 2021 | \$3,557 | | | | | | | | | |
| Apr 2021 | \$3,799 | | | | | | | | | |
| May 2021 | \$3,795 | | | | | | | | | |
| Jun 2021 | \$3,699 | | | | | | | | | |
| Jul 2021 | \$6,287 | | | | | | | | | |
| Aug 2021 | \$4,404 | | | | | | | | | |
| Sep 2021 | \$5,686 | | | | | | | | | |

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|-----|-------------|-------------|-------------|------|------|
| PTD | \$2,572,467 | \$2,567,769 | \$2,507,083 | 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 Facility¹¹

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Jason Young

| Milestone | Title | Due Date | Status |
|-----------|--------------------------------------------------|------------------|-------------|
| D-00A-07 | LAW Facility Construction Substantially Complete | TBD ¹ | On Schedule |
| D-00A-08 | Start LAW Facility Cold Commissioning | TBD ¹ | On Schedule |
| D-00A-09 | LAW Facility Hot Commissioning Complete | TBD ¹ | On Schedule |

¹ On December 10, 2020, the United States District Court, Eastern District of Washington issued an order modifying the Amended Consent Decree in *State of Washington v. Brouillete, et al.*, No. 2:08-cv-05085-RMP on the basis that COVID-19 constitutes a force majeure event. The order established a method for calculating an extension of the B-2, B-3, A-7, A-8, and A-9 milestones in order to offset work interruptions due to COVID-19.

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 November 2020, the LAW Facility was 87 percent complete overall, with engineering design 99 percent complete, procurement 100 percent complete, construction 100 percent complete, and startup and commissioning 53 percent complete. Construction has been completed and startup testing initiated for all LAW Facility systems. Startup testing has been completed for 40 percent of LAW Facility systems, and custody of these systems has been transferred to the Plant Management organization for operations.

¹¹ 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:

- None.

Ongoing Activities:

- The Startup organization continued punch list resolution and system testing for the LAW Facility.

Significant Planned Activities in the Next Month:

- None.

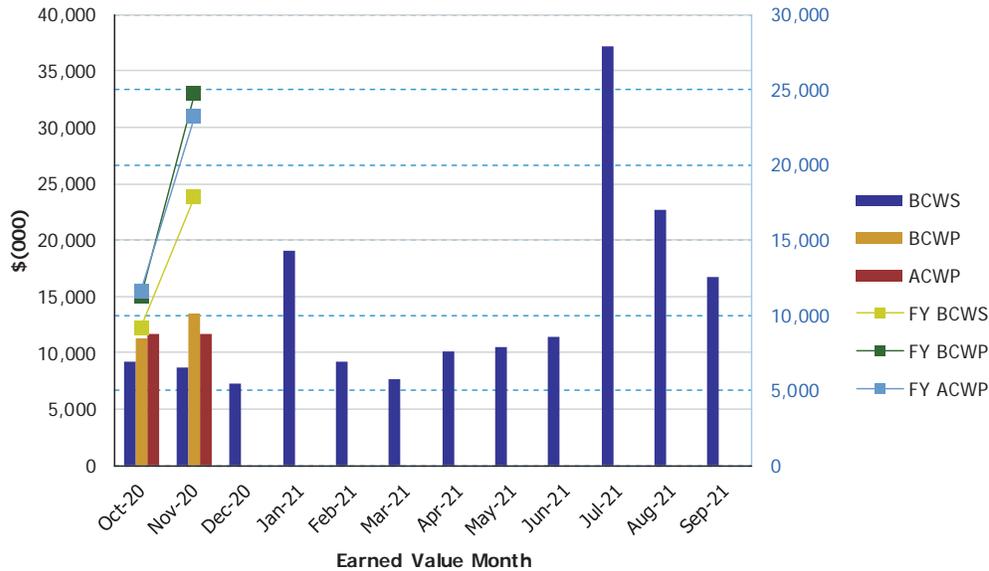
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: November 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 2020 | \$9,179 | \$11,279 | \$11,623 | 1.23 | 0.97 | \$9,179 | \$11,279 | \$11,623 | 1.23 | 0.97 |
| Nov 2020 | \$8,741 | \$13,539 | \$11,640 | 1.55 | 1.16 | \$17,920 | \$24,819 | \$23,262 | 1.38 | 1.07 |
| Dec 2020 | \$7,330 | | | | | | | | | |
| Jan 2021 | \$19,037 | | | | | | | | | |
| Feb 2021 | \$9,238 | | | | | | | | | |
| Mar 2021 | \$7,670 | | | | | | | | | |
| Apr 2021 | \$10,161 | | | | | | | | | |
| May 2021 | \$10,451 | | | | | | | | | |
| Jun 2021 | \$11,392 | | | | | | | | | |
| Jul 2021 | \$37,187 | | | | | | | | | |
| Aug 2021 | \$22,661 | | | | | | | | | |
| Sep 2021 | \$16,788 | | | | | | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| PTD | \$2,591,808 | \$2,496,598 | \$2,497,911 | 0.96 | 1.00 |
|-----|-------------|-------------|-------------|------|------|

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

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 November 2020, BOF was 93 percent complete overall, engineering design was 99 percent complete, procurement was 100 percent complete, construction was 97 percent complete, and startup and commissioning was 84 percent complete. Design of EMF was 100 percent complete.

BOF has completed construction and startup testing for all systems, and custody of these systems has been transferred to the Plant Management organization for operations. System operation and maintenance, operator training, and procedure refinement continues as BNI prepares for increased BOF demands to support LAB operation and LAW Facility system testing.

Significant Accomplishments during the Prior Month:

- The Startup organization completed handover of the glass former storage system (GFR-B-01) to the Plant Management organization for operations.
- Construction completed handover of the remaining EMF systems to the Startup organization for testing.

Ongoing Activities:

- Startup continued system testing in EMF.
- Engineering continued to support EMF system startup testing.
- Plant Management continued to troubleshoot and repair ongoing issues with air and water systems in the Chiller Compressor Plant.
- Plant Management continued operations, testing, and tuning of the Steam Plant.

Significant Planned Activities in the Next Month:

- None.

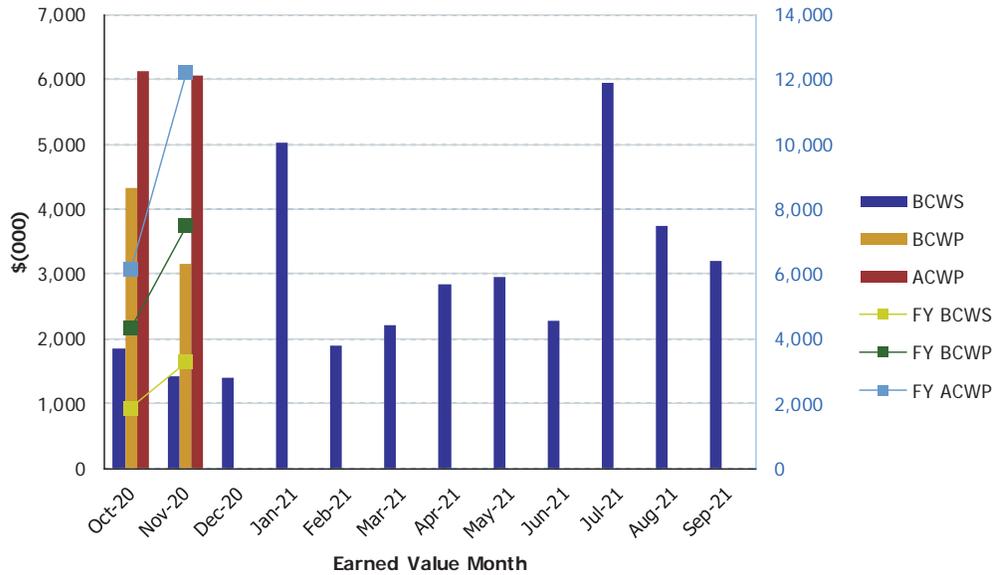
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: November 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 2020 | \$1,862 | \$4,325 | \$6,133 | 2.32 | 0.71 | \$1,862 | \$4,325 | \$6,133 | 2.32 | 0.71 |
| Nov 2020 | \$1,417 | \$3,155 | \$6,071 | 2.23 | 0.52 | \$3,279 | \$7,480 | \$12,204 | 2.28 | 0.61 |
| Dec 2020 | \$1,390 | | | | | | | | | |
| Jan 2021 | \$5,036 | | | | | | | | | |
| Feb 2021 | \$1,903 | | | | | | | | | |
| Mar 2021 | \$2,218 | | | | | | | | | |
| Apr 2021 | \$2,850 | | | | | | | | | |
| May 2021 | \$2,947 | | | | | | | | | |
| Jun 2021 | \$2,282 | | | | | | | | | |
| Jul 2021 | \$5,958 | | | | | | | | | |
| Aug 2021 | \$3,731 | | | | | | | | | |
| Sep 2021 | \$3,208 | | | | | | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| PTD | \$1,024,430 | \$1,012,505 | \$1,083,922 | 0.99 | 0.93 |
|-----|-------------|-------------|-------------|------|------|

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

Analytical Laboratory

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Jason Young

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

LAB = analytical laboratory.

The LAB will support WTP operations by analyzing feed, vitrified waste, and effluent streams. As of November 2020, the LAB was 92 percent complete overall, engineering design was 99 percent complete, procurement was 100 percent complete, construction was 100 percent complete, and startup and commissioning was 74 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 has completed an operational readiness assessment and is working to increase staffing and improve workflow to support facility operations.

Significant Accomplishments during the Prior Month:

- DOE approved completion of contract milestone B-5, “LAB Readiness to Operate.”

Ongoing Activities:

- BNI is revising the layout and positioning of analytical equipment in the fume hood to improve sample analysis workflow and incorporate lessons learned during the method development process.
- BNI has started the process for recruiting and hiring additional LAB technicians.

Significant Planned Activities in the Next Month:

- None.

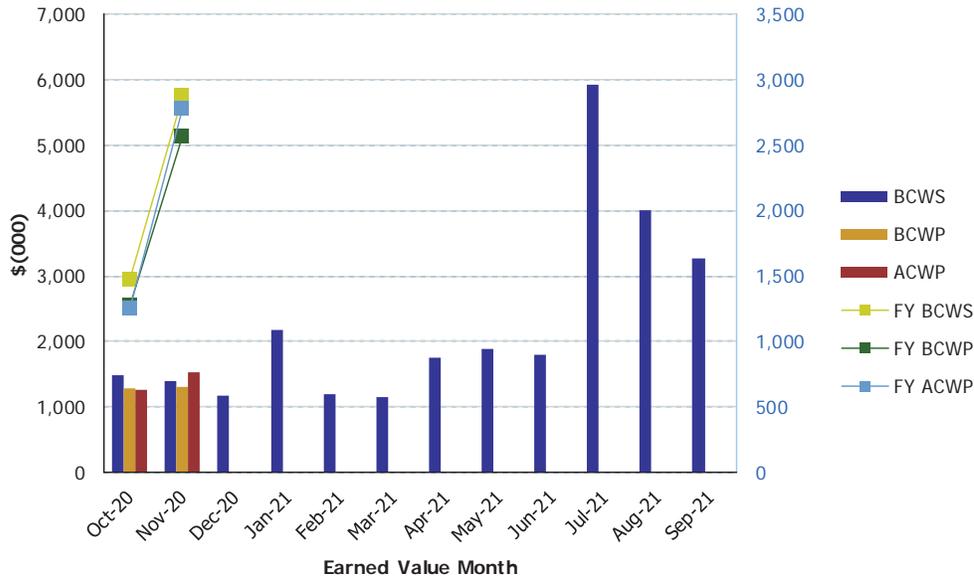
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: November 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 2020 | \$1,479 | \$1,280 | \$1,257 | 0.87 | 1.02 | \$1,479 | \$1,280 | \$1,257 | 0.87 | 1.02 |
| Nov 2020 | \$1,403 | \$1,295 | \$1,532 | 0.92 | 0.85 | \$2,882 | \$2,575 | \$2,788 | 0.89 | 0.92 |
| Dec 2020 | \$1,160 | | | | | | | | | |
| Jan 2021 | \$2,172 | | | | | | | | | |
| Feb 2021 | \$1,194 | | | | | | | | | |
| Mar 2021 | \$1,156 | | | | | | | | | |
| Apr 2021 | \$1,758 | | | | | | | | | |
| May 2021 | \$1,881 | | | | | | | | | |
| Jun 2021 | \$1,806 | | | | | | | | | |
| Jul 2021 | \$5,921 | | | | | | | | | |
| Aug 2021 | \$4,005 | | | | | | | | | |
| Sep 2021 | \$3,267 | | | | | | | | | |

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|-----|-----------|-----------|-----------|------|------|
| PTD | \$495,347 | \$491,022 | \$467,205 | 0.99 | 1.05 |
|-----|-----------|-----------|-----------|------|------|

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

Waste Treatment Plant Project Percent Complete Status (Table)

Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status
Through November 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 | | |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------|------------|----------------------------------------|----------------------------------------|------------|----------------------------------------|----------------------------------------|------------|----------------------------------------|----------------------------------------|------------|------------------------------------------------|----------------------------------------|------------|----------------------------------------------------------|----------------------------------------|------------|
| | 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 |
| Facilities | 2,286.4 | 1,996.6 | 87% | 590.8 | 583.1 | 99% | 342.9 | 342.5 | 100% | 753.5 | 750.9 | 100% | 587.4 | 313.3 | 53% | 11.9 | 6.7 | 57% |
| Low-Activity Waste | 784.6 | 732.1 | 93% | 157.3 | 154.4 | 98% | 60.8 | 60.8 | 100% | 308.1 | 298.6 | 97% | 258.0 | 217.8 | 84% | 0.5 | 0.5 | 100% |
| Balance of Facilities | 471.5 | 431.6 | 92% | 94.9 | 94.4 | 99% | 60.5 | 60.5 | 100% | 166.1 | 166.0 | 100% | 147.1 | 109.5 | 74% | 2.9 | 1.3 | 43% |
| Analytical Lab | 433.4 | 417.8 | 96% | 110.9 | 110.0 | 99% | 72.4 | 72.4 | 100% | 240.6 | 227.2 | 94% | 0.0 | 0.0 | 0% | 9.5 | 8.2 | 87% |
| Direct Feed LAW | 777.2 | 631.1 | 81% | 0.0 | 0.0 | 0% | 70.5 | 65.0 | 92% | 107.2 | 106.7 | 100% | 345.2 | 246.3 | 71% | 254.4 | 213.1 | 84% |
| Total LBL | 4,753.1 | 4,209.2 | 89% | 953.8 | 941.9 | 99% | 607.0 | 601.1 | 99% | 1,575.4 | 1,549.4 | 98% | 1,337.7 | 886.9 | 66% | 279.2 | 229.8 | 82% |
| Project Services | 919.4 | 783.5 | 85% | 97.2 | 91.8 | 94% | 63.0 | 57.1 | 91% | 101.0 | 94.2 | 93% | 7.5 | 5.6 | 75% | 650.6 | 534.8 | 82% |
| Total Project Services | 919.4 | 783.5 | 85% | 97.2 | 91.8 | 94% | 63.0 | 57.1 | 91% | 101.0 | 94.2 | 93% | 7.5 | 5.6 | 75% | 650.6 | 534.8 | 82% |
| Total LBL, DFLAW & Project Services | 5,672.5 | 4,992.6 | 88% | 1,051.1 | 1,033.7 | 98% | 670.0 | 656.2 | 98% | 1,676.4 | 1,643.6 | 98% | 1,345.2 | 892.6 | 66% | 929.8 | 764.6 | 82% |
| 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% | 463.5 | 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 | 14,395.3 | 10,957.8 | 76% | 3,224.2 | 2,982.6 | 93% | 2,235.5 | 1,785.0 | 80% | 4,564.0 | 3,408.4 | 75% | 2,103.7 | 1,035.8 | 49% | 2,267.9 | 1,748.1 | 77% |

Source: Preliminary WTP Contract Performance Report - Format 1, Data for November 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 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 (pssa), 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-02DS | 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.