

Office of River Protection Consent Decree Monthly Report

Monthly Reporting Period

June 1–June 30, 2021¹

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 May 2021.

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 |
| 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 | | Complete |
| 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 | | On Schedule |
| Fiscal Year 2024 | | | | |
| D-00A-09 Interim | LAW Facility Hot Commissioning Complete | TBD ¹ | | 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 |
| D-00A-03 Interim | Start HLW Facility Cold Commissioning | 06/30/2032 | | At Risk ⁴ |

| 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 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 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.

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

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),” (external letter to M.D. Bellon, Washington State Department of Ecology), from B.T. Vance, U.S. Department of Energy, Richland, Washington, September 4.

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: Delmar Noyes

Technical Lead: Becky Blackwell

| 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 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 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 on August 31, 2020. In Phase 2, the workforce that was performing portable work via telework generally continued to telework. The majority of the workforce whose work was not portable returned to the site incrementally through 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 June 2021:

- Continuing COVID-19 impacts:
 - COVID-19 impacts continued to be evaluated and schedule adjustments occurred based on state/federal recommendations and inefficiencies associated with COVID-19 social distancing controls. COVID-19 controls to ensure social distancing continue to impact the efficiency of prejob briefings, donning/doffing durations, and in-farm work area ingress/egress access. Installation of additional trailers has been completed to mitigate inefficiencies while continuing to ensure social distancing requirements are met.

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.

Significant Accomplishments during the Prior Month:Completed Accomplishments:

- Submitted the Tank AX-102 third retrieval technology practicability evaluation to the Washington State Department of Ecology (Ecology).

Ongoing Activities:

- Continued preparation of Tank AX-104 post first and second technology retrieval activities including preparation of a retrieval completion report for first and second technologies, post retrieval residual volume measurement system data evaluation, and post retrieval sampling
- Continued Tank AX-103 construction acceptance testing, system leak tests, and calibrations
- Continued Tank A-101 equipment removal activities in preparation for new retrieval equipment installation
- Continued the A Tank Farm electrical infrastructure installation.

Significant Planned Activities in the Next Month:

- Complete construction acceptance testing and operations acceptance testing in preparation for Tank AX-103 retrieval operations.

Issues:

- In June 2021, a potential inadequacy in the safety analysis on the use of double valve isolation valves in portable valve boxes and AN-06A pit was issued, impacting use of valves during waste transfers. The potential inadequacy in the safety analysis will require modification/removal of insulation around the double valve isolation valves to ensure they do not interfere with the ability of these valves to perform their safety function in the closed position.
- In May 2021, A Tank Farm electrical infrastructure installation was impacted because several members of a crew were found either positive for COVID-19 or quarantined as a precaution due to potential close contact with someone that had tested positive.
- In April 2021, camera installation and preparation for Tank AX-104 residual volume measurement system implementation were impacted because members of a crew were found either positive for COVID-19 or quarantined as a precaution due to potential close contact with someone that had tested positive.
- In January 2021, waste retrieval operations at Tank AX-104 were impacted because members of a crew were found either positive for COVID-19 or quarantined as a precaution due to potential close contact with someone that had tested positive.
- 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.
 - 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, 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. Another revised application has been prepared to address Ecology’s comments associated with the ambient air boundary and modeling conditions following resolution of the issue. DOE will submit the updated permit application when other higher priority air permitting work is complete.

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.

Tank Waste Retrieval Work Plan Status

Tank Farms Assistant Manager: Delmar Noyes

Federal Program Manager: Becky Blackwell

| 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:

- Continue drafting the Tank A-101 tank waste retrieval work plan.

Issues:

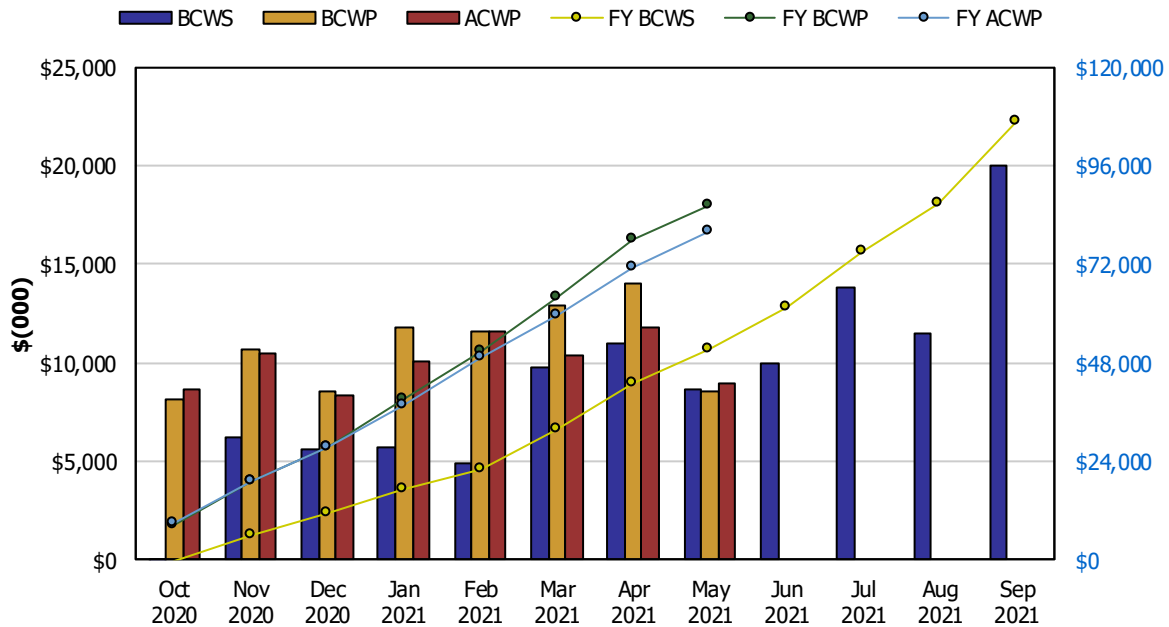
- None.

Earned Value Data: Fiscal Year 2021

May-2021

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 | \$8,581 | \$8,335 | 1.53 | 1.03 | \$11,419 | \$27,448 | \$27,423 | 2.40 | 1.00 |
| Jan 2021 | \$5,647 | \$11,788 | \$10,078 | 2.09 | 1.17 | \$17,066 | \$39,236 | \$37,501 | 2.30 | 1.05 |
| Feb 2021 | \$4,925 | \$11,619 | \$11,594 | 2.36 | 1.00 | \$21,991 | \$50,855 | \$49,094 | 2.31 | 1.04 |
| Mar 2021 | \$9,764 | \$12,911 | \$10,381 | 1.32 | 1.24 | \$31,755 | \$63,766 | \$59,475 | 2.01 | 1.07 |
| Apr 2021 | \$10,948 | \$14,033 | \$11,795 | 1.28 | 1.19 | \$42,702 | \$77,799 | \$71,270 | 1.82 | 1.09 |
| May 2021 | \$8,631 | \$8,585 | \$8,910 | 0.99 | 0.96 | \$51,333 | \$86,384 | \$80,181 | 1.68 | 1.08 |
| Jun 2021 | \$9,999 | | | | | \$61,332 | | | | |
| Jul 2021 | \$13,834 | | | | | \$75,166 | | | | |
| Aug 2021 | \$11,510 | | | | | \$86,676 | | | | |
| Sep 2021 | \$20,006 | | | | | \$106,682 | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| CTD | \$1,269,144 | \$1,262,591 | \$1,311,442 | 0.99 | 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 May unfavorable schedule variance (SV) of (\$0.05 million) was primarily due to the following:

- Under closure activities, delays in subgrade excavation of the southeast subgrade area of the TX Tank Farm interim surface barrier to resolve unexpected obstructions. Continuing delays due to COVID-19 have extended the duration for completing training of field personnel.

These unfavorable SVs have been partially offset by the following favorable SVs:

- Retrieval operations crews began transitioning from tank AX-104 to AX-103 for startup and readiness activities, which started 10 days early.
- Schedule recovery from efficient installation of the heater and thermocouple inside the AX-101/AX-103 diversion box (POR413).

The May unfavorable cost variance (CV) of (\$0.33 million) was primarily due to the following:

- Increased costs associated with COVID-19 safety procedures and guidelines, including cleaning and maintaining ingress/egress support for three cool down tents inside the tank farms and increased costs due to overtime use to maintain schedule dates.
- Additional costs for the removal and packaging of an abandoned underground condensate steam line discovered during excavation of an electrical conduit route in A Tank Farm. Work had to be paused to update the fieldwork package, and additional potholing and asbestos sampling/investigation were required to support removal of the steam line.

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)," (external letter to M.D. Bellon, Washington State Department of Ecology), from B.T. Vance, U.S. Department of Energy, Richland, Washington, September 4.

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 May 2021, DFLAW modifications for the WTP Project were 99 percent complete, engineering design was 100 percent complete, procurement was 100 percent complete, and construction was 98 percent complete. As of May 2021, total LBL facilities were 88 percent complete, engineering design was 100 percent complete, procurement was 97 percent complete, construction was 99 percent complete, and startup and commissioning was 67 percent complete.

In December 2020, Bechtel National, Inc. (BNI) performed a rebaseline of DFLAW and established a new Performance Measurement Baseline for the remaining activities. The rebaseline was done to ensure that the Performance Measurement Baseline represents the current work execution strategy. This allows better performance monitoring and management actions towards meeting the DFLAW milestones. The rebaseline also incorporated the following:

- Impacts from the partial stop work order for COVID-19 (incurred to-date) and some potential upcoming costs related to cleaning and sanitization
- Key corrective actions resulting from the June 2019 earned value management system surveillance.

The rebaseline is undergoing DOE independent review for formal approval.

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 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. The final draft of the AoA is in comment resolution.

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).

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 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.⁹

The Hanford Site transitioned to Phase 2 beginning on 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.

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 WTP impacts continuing or having occurred in June 2021:

- Continuing COVID-19 impacts:
 - Social distancing requirements reduced the number of workers allowed in a given area at the same time and decreased the number of tasks that could be performed in parallel.

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.

- Engineering and management personnel continued to primarily work 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 slowed the resolution of issues that arose.
- COVID-19 facility cleaning/decontamination protocols were in place and implemented when a potential facility exposure was identified. These activities required the temporary evacuation and isolation of work areas for cleaning.

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.

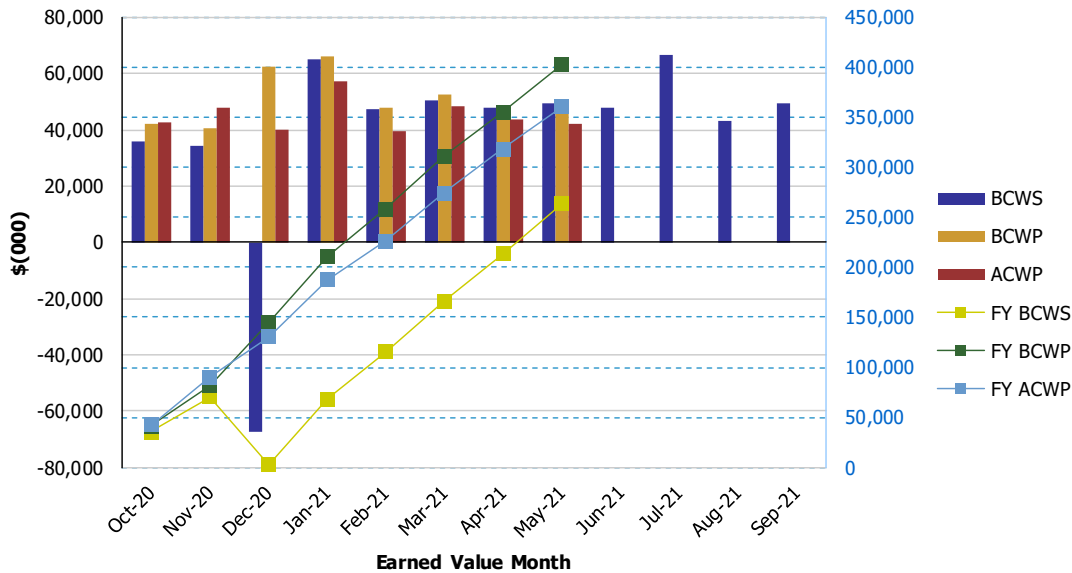
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: May 2021

**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 | (\$67,411) | \$62,636 | \$39,893 | -0.93 | 1.57 | \$3,030 | \$145,146 | \$130,278 | 47.90 | 1.11 |
| Jan 2021 | \$65,213 | \$66,117 | \$57,246 | 1.01 | 1.15 | \$68,243 | \$211,262 | \$187,524 | 3.10 | 1.13 |
| Feb 2021 | \$47,526 | \$47,770 | \$39,426 | 1.01 | 1.21 | \$115,769 | \$259,033 | \$226,950 | 2.24 | 1.14 |
| Mar 2021 | \$50,458 | \$52,645 | \$48,340 | 1.04 | 1.09 | \$166,227 | \$311,678 | \$275,290 | 1.88 | 1.13 |
| Apr 2021 | \$48,094 | \$43,846 | \$43,605 | 0.91 | 1.01 | \$214,322 | \$355,524 | \$318,895 | 1.66 | 1.11 |
| May 2021 | \$49,531 | \$47,586 | \$41,988 | 0.96 | 1.13 | \$263,852 | \$403,110 | \$360,883 | 1.53 | 1.12 |
| Jun 2021 | \$47,793 | | | | | | | | | |
| Jul 2021 | \$66,525 | | | | | | | | | |
| Aug 2021 | \$43,130 | | | | | | | | | |
| Sep 2021 | \$49,524 | | | | | | | | | |

| | | | | | |
|-----|--------------|--------------|--------------|------|------|
| PTD | \$12,758,121 | \$12,755,263 | \$12,727,904 | 1.00 | 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 (May 2021) | (\$1,945) | \$5,598 |
| Fiscal Year 2021 to-date | \$139,257 | \$42,227 |
| Cumulative (through May 2021) | (\$2,858) | \$27,359 |

CV = cost variance.

SV = schedule variance.

For the May 2021 earned value management system reporting period, a net unfavorable SV of approximately (\$1.9 million) was reported, primarily due to the following:

- LAW Facility reported an unfavorable SV due to several factors:
 - Delays in building siding penetration seals and the installation of the film coolers/bubblers
 - Spare melter procurements were completed earlier and accounted in the prior month
 - Completion of a lower number of punch list items than planned
 - Delays in testing by the melter heat-up support subcontractor due to delays in awarding subcontracts due to COVID-19 travel restrictions, which impeded site walkdowns by the vendors.

These unfavorable SVs have been partially offset by the following favorable SVs:

- DFLAW reported a favorable SV due to commencement of Phase III site paving in the current period, ahead of the plan, while BOF reported a favorable SV due to delay in commencement of Phase III paving, which was budgeted in prior periods.

For the May 2021 earned value management system reporting period, a net favorable CV of approximately \$5.6 million was reported, primarily due to the following:

- LAB reported a favorable CV due to efficiencies in laboratory technician training and a pending cost correction for laboratory technicians. Additionally, less support was needed for plant modifications than planned.
- BOF reported a favorable CV due to completion and demobilization of the fire protection construction subcontract and insulation costs less than planned. Additionally, preventative maintenance cost was also less than planned.
- HLW Facility reported a favorable CV due to favorable performance by engineering and nuclear safety for completion of multiple systems and facility hazards analysis. Additionally, wage rate has been less than planned.
- Project Services reported a favorable CV primarily due to timing differences between budget time-phasing and cost actualization of external computer services and hardware.

- DFLAW reported a favorable CV due to accrual adjustments for the heat trace subcontractor, which was overstated in the prior month. Additionally, completion of heating, ventilation, and air-conditioning installation and subcontractor demobilization cost less than planned.
- LBL Facility Services reported a favorable CV due to the freight budget not being utilized as initially planned, cost corrections for Bechtel Supplier Quality and Expediting, Inc. subcontracts were implemented this month, and the wage rate has been less than planned.

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)," (external letter to M.D. Bellon, Washington State Department of Ecology), from B.T. Vance, U.S. Department of Energy, Richland, Washington, September 4.

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 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:

- None.

Ongoing Activities:

- Continued to manage suspended plant equipment purchase orders to reduce storage and suspension costs and evaluate ways to reduce procurement liability
- Continued 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.

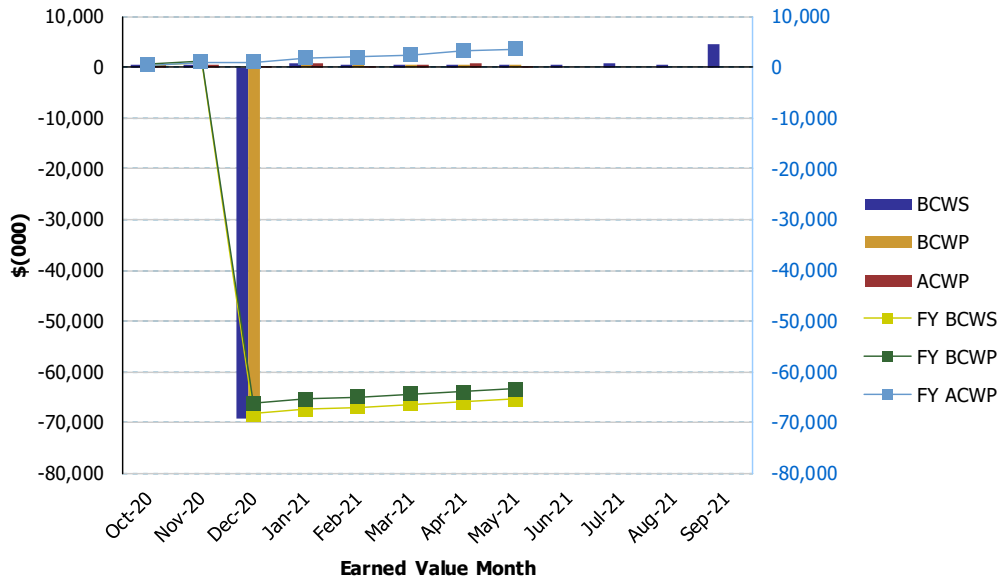
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: May 2021

**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 2020 | (\$69,364) | (\$67,426) | \$91 | 0.97 | -740.92 | (\$68,319) | (\$66,282) | \$1,072 | 0.97 | -61.85 |
| Jan 2021 | \$892 | \$888 | \$807 | 1.00 | 1.10 | (\$67,426) | (\$65,394) | \$1,878 | 0.97 | -34.81 |
| Feb 2021 | \$500 | \$491 | \$148 | 0.98 | 3.32 | (\$66,926) | (\$64,903) | \$2,026 | 0.97 | -32.03 |
| Mar 2021 | \$527 | \$510 | \$470 | 0.97 | 1.09 | (\$66,399) | (\$64,393) | \$2,496 | 0.97 | -25.80 |
| Apr 2021 | \$490 | \$479 | \$851 | 0.98 | 0.56 | (\$65,909) | (\$63,914) | \$3,347 | 0.97 | -19.09 |
| May 2021 | \$490 | \$496 | \$261 | 1.01 | 1.90 | (\$65,419) | (\$63,418) | \$3,608 | 0.97 | -17.58 |
| Jun 2021 | \$478 | | | | | | | | | |
| Jul 2021 | \$730 | | | | | | | | | |
| Aug 2021 | \$508 | | | | | | | | | |
| Sep 2021 | \$4,664 | | | | | | | | | |

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|-----|-------------|-------------|-------------|------|------|
| PTD | \$3,461,049 | \$3,461,014 | \$3,460,686 | 1.00 | 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.

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)," (external letter to M.D. Bellon, Washington State Department of Ecology), from B.T. Vance, U.S. Department of Energy, Richland, Washington, September 4.

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:

- Completed 60 percent design review of HLW Facility electrical power (medium-voltage electrical / low-voltage electrical / DC electrical) systems
- Completed development of multi-year work plan for the HLW Facility.

Ongoing Activities:

- Continued to advance system designs and hazard analysis for key mechanical and process systems
- Continued to upgrade melter structural design and incorporate potential design modifications
- Continued to manage suspended plant equipment purchase orders to reduce storage and suspension costs and to evaluate ways to reduce procurement liability
- Continued 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:

- Complete 90 percent design review of the HLW Facility plant cooling water system.

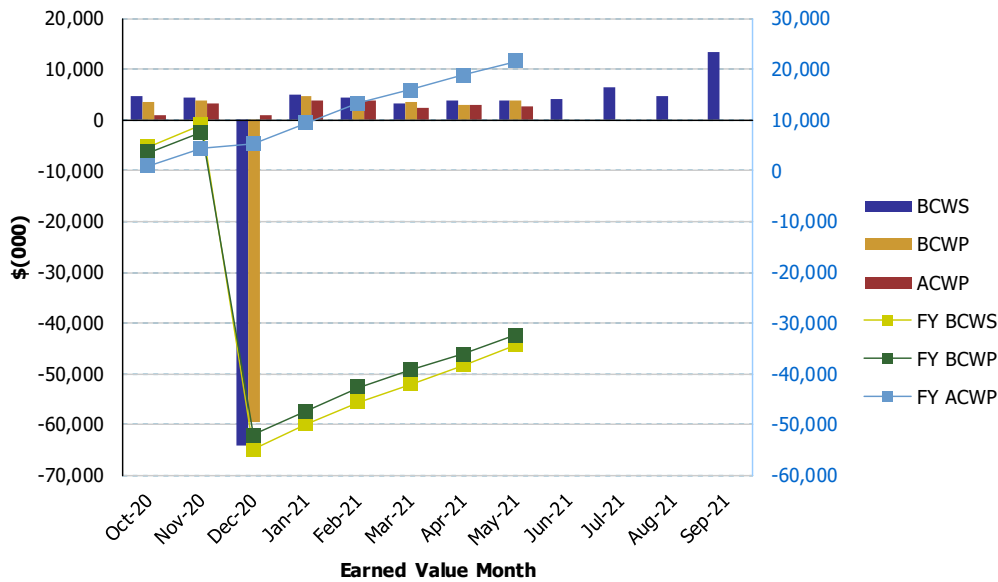
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: May 2021

**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 | (\$64,269) | (\$59,572) | \$1,114 | 0.93 | -53.47 | (\$55,023) | (\$52,052) | \$5,455 | 0.95 | -9.54 |
| Jan 2021 | \$5,079 | \$4,666 | \$3,991 | 0.92 | 1.17 | (\$49,944) | (\$47,387) | \$9,446 | 0.95 | -5.02 |
| Feb 2021 | \$4,465 | \$4,739 | \$3,923 | 1.06 | 1.21 | (\$45,479) | (\$42,648) | \$13,369 | 0.94 | -3.19 |
| Mar 2021 | \$3,356 | \$3,475 | \$2,559 | 1.04 | 1.36 | (\$42,123) | (\$39,173) | \$15,928 | 0.93 | -2.46 |
| Apr 2021 | \$3,836 | \$3,108 | \$2,959 | 0.81 | 1.05 | (\$38,287) | (\$36,065) | \$18,887 | 0.94 | -1.91 |
| May 2021 | \$3,964 | \$3,754 | \$2,740 | 0.95 | 1.37 | (\$34,323) | (\$32,311) | \$21,627 | 0.94 | -1.49 |
| Jun 2021 | \$4,040 | | | | | | | | | |
| Jul 2021 | \$6,565 | | | | | | | | | |
| Aug 2021 | \$4,670 | | | | | | | | | |
| Sep 2021 | \$13,495 | | | | | | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| PTD | \$2,528,898 | \$2,527,938 | \$2,524,369 | 1.00 | 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.

Low-Activity Waste Facility¹¹

Federal Project Director: Tom Fletcher

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.

Facility Federal Project Director: Jason Young

| Milestone | Title | Due Date | Status |
|------------------|--|------------------|---------------|
| D-00A-07 | LAW Facility Construction Substantially Complete | TBD ¹ | Complete |
| 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 May 2021, the LAW Facility was 89 percent complete overall, with engineering design 99 percent complete, procurement 100 percent complete, construction 100 percent complete, and startup and commissioning 59 percent complete. Construction has been completed and startup testing has been initiated for all LAW Facility systems. Startup testing has been completed for 64 percent of LAW Facility systems, and custody of these systems has been transferred to the Plant Management organization for operations.

Significant Accomplishments during the Prior Month:

- The Startup organization completed handover of LAW uninterruptible power electrical systems UPE-L-01, UPE-L-02, and UPE-L-03 to the Plant Management organization for operation.
- The Startup organization completed handover of LAW Facility primary offgas systems LOP-L-01 and LOP-L-02 to the Plant Management organization for operation.
- The Startup organization completed handover of LAW Facility breathing service air system BSA-L-01 to the Plant Management organization for operation.

Ongoing Activities:

- The Startup organization continued testing of the LAW Facility autosampling system.

- The Startup organization continued system testing including safety instrumented function tests.
- The Startup organization continued punch list resolution.

Significant Planned Activities in the Next Month:

- None.

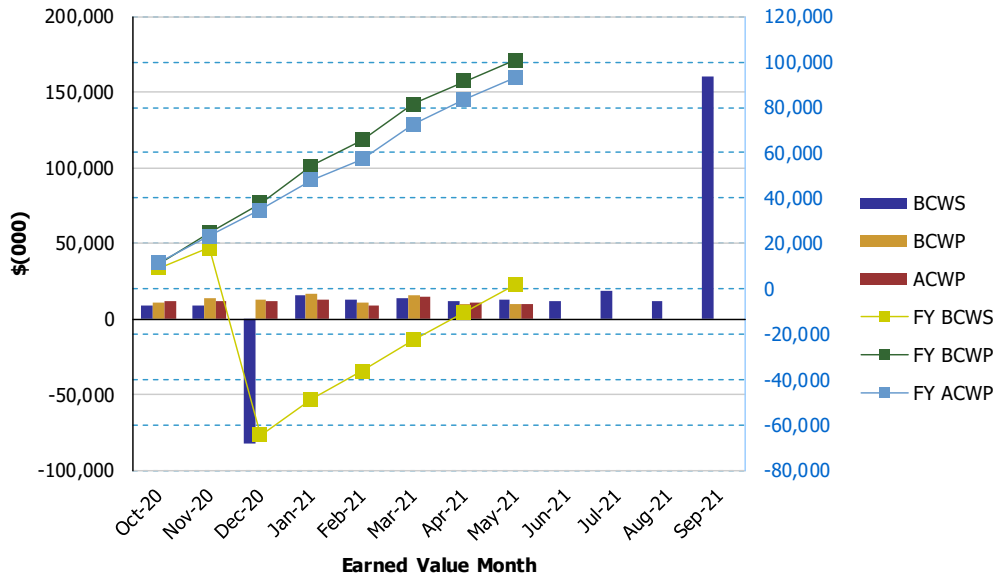
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: May 2021

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 | (\$82,327) | \$12,883 | \$11,570 | -0.16 | 1.11 | (\$64,407) | \$37,701 | \$34,833 | -0.59 | 1.08 |
| Jan 2021 | \$15,794 | \$16,518 | \$13,203 | 1.05 | 1.25 | (\$48,613) | \$54,219 | \$48,036 | -1.12 | 1.13 |
| Feb 2021 | \$12,430 | \$11,298 | \$9,274 | 0.91 | 1.22 | (\$36,183) | \$65,517 | \$57,309 | -1.81 | 1.14 |
| Mar 2021 | \$13,746 | \$15,922 | \$15,175 | 1.16 | 1.05 | (\$22,436) | \$81,440 | \$72,484 | -3.63 | 1.12 |
| Apr 2021 | \$11,966 | \$10,016 | \$10,898 | 0.84 | 0.92 | (\$10,470) | \$91,455 | \$83,382 | -8.73 | 1.10 |
| May 2021 | \$12,446 | \$9,651 | \$9,705 | 0.78 | 0.99 | \$1,975 | \$101,106 | \$93,087 | 51.18 | 1.09 |
| Jun 2021 | \$12,313 | | | | | | | | | |
| Jul 2021 | \$18,216 | | | | | | | | | |
| Aug 2021 | \$11,453 | | | | | | | | | |
| Sep 2021 | \$160,511 | | | | | | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| PTD | \$2,575,864 | \$2,572,886 | \$2,567,736 | 1.00 | 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.

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 May 2021, BOF was 95 percent complete overall, engineering design was 99 percent complete, procurement was 100 percent complete, construction was 99 percent complete, and startup and commissioning was 87 percent complete. Design of the Effluent Management Facility 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:

- None.

Ongoing Activities:

- The Plant Management organization initiated planning for steam system testing in Effluent Management Facility.
- The Plant Management organization continued testing and tuning for the Glass Former Facility.
- The Plant Engineering organization continued to support BOF and Effluent Management Facility system testing and tuning.
- The Plant Management organization continued to troubleshoot and repair ongoing issues with air and water systems in the Chiller Compressor Plant.
- The Plant Management organization continued operations, testing, and tuning of the Steam Plant.

Significant Planned Activities in the Next Month:

- None.

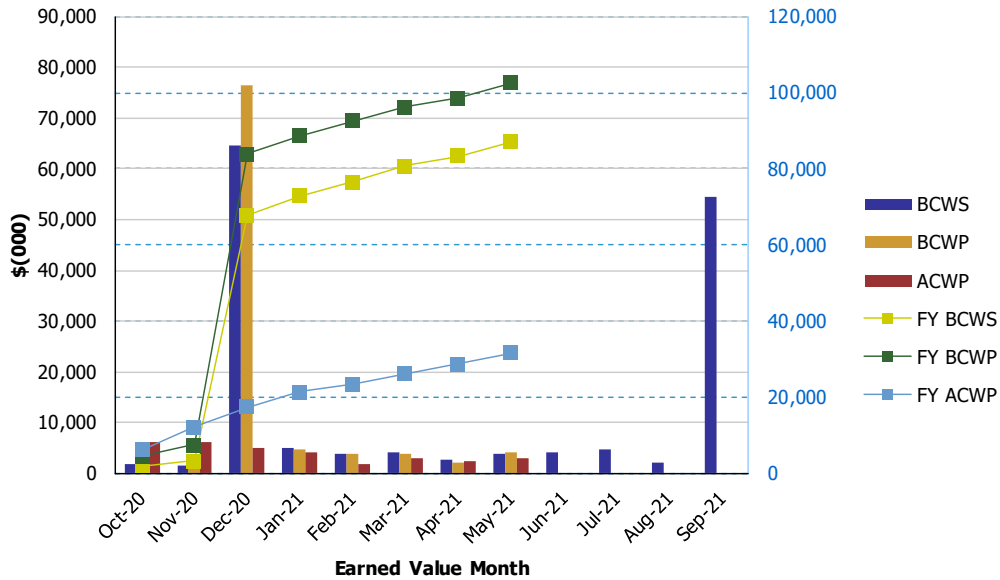
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: May 2021

**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 | \$64,539 | \$76,465 | \$5,047 | 1.18 | 15.15 | \$67,818 | \$83,945 | \$17,251 | 1.24 | 4.87 |
| Jan 2021 | \$5,073 | \$4,763 | \$4,242 | 0.94 | 1.12 | \$72,891 | \$88,708 | \$21,493 | 1.22 | 4.13 |
| Feb 2021 | \$3,710 | \$3,955 | \$1,801 | 1.07 | 2.20 | \$76,601 | \$92,663 | \$23,294 | 1.21 | 3.98 |
| Mar 2021 | \$4,163 | \$3,687 | \$2,938 | 0.89 | 1.25 | \$80,764 | \$96,349 | \$26,233 | 1.19 | 3.67 |
| Apr 2021 | \$2,628 | \$2,219 | \$2,511 | 0.84 | 0.88 | \$83,392 | \$98,568 | \$28,743 | 1.18 | 3.43 |
| May 2021 | \$3,826 | \$4,068 | \$2,905 | 1.06 | 1.40 | \$87,218 | \$102,637 | \$31,648 | 1.18 | 3.24 |
| Jun 2021 | \$3,970 | | | | | | | | | |
| Jul 2021 | \$4,723 | | | | | | | | | |
| Aug 2021 | \$2,037 | | | | | | | | | |
| Sep 2021 | \$54,615 | | | | | | | | | |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| PTD | \$1,108,370 | \$1,107,662 | \$1,103,367 | 1.00 | 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.

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 May 2021, the LAB was 91 percent complete overall, engineering design was 100 percent complete, procurement was 100 percent complete, construction was 100 percent complete, and startup and commissioning was 72 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:

- None.

Ongoing Activities:

- The Plant Management organization continued to support testing of the LAW Facility autosampling system.
- The Plant Management organization continued to focus on LAB workflow improvement.
- The Plant Management organization continued recruiting, hiring, and training personnel for LAB operations.

Significant Planned Activities in the Next Month:

- None.

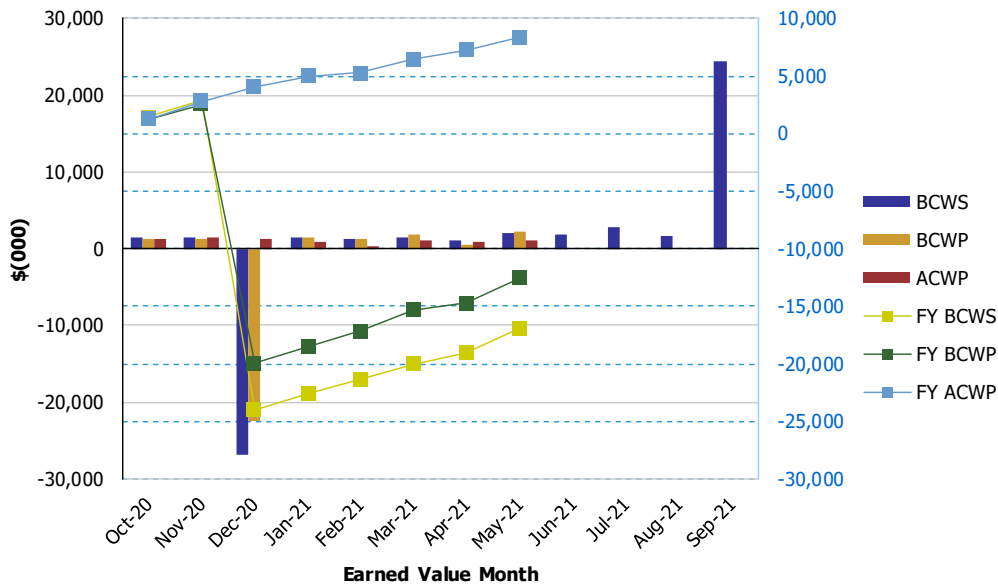
EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2021 Earned Value Data

Data as of: May 2021

**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 | (\$26,851) | (\$22,527) | \$1,291 | 0.84 | -17.45 | (\$23,969) | (\$19,952) | \$4,079 | 0.83 | -4.89 |
| Jan 2021 | \$1,399 | \$1,459 | \$894 | 1.04 | 1.63 | (\$22,570) | (\$18,492) | \$4,973 | 0.82 | -3.72 |
| Feb 2021 | \$1,198 | \$1,316 | \$323 | 1.10 | 4.07 | (\$21,372) | (\$17,176) | \$5,296 | 0.80 | -3.24 |
| Mar 2021 | \$1,378 | \$1,863 | \$1,144 | 1.35 | 1.63 | (\$19,995) | (\$15,314) | \$6,440 | 0.77 | -2.38 |
| Apr 2021 | \$1,000 | \$569 | \$841 | 0.57 | 0.68 | (\$18,995) | (\$14,745) | \$7,281 | 0.78 | -2.03 |
| May 2021 | \$2,098 | \$2,261 | \$1,095 | 1.08 | 2.06 | (\$16,897) | (\$12,484) | \$8,376 | 0.74 | -1.49 |
| Jun 2021 | \$1,893 | | | | | | | | | |
| Jul 2021 | \$2,726 | | | | | | | | | |
| Aug 2021 | \$1,612 | | | | | | | | | |
| Sep 2021 | \$24,406 | | | | | | | | | |

| | | | | | |
|-----|-----------|-----------|-----------|------|------|
| PTD | \$475,568 | \$475,963 | \$472,792 | 1.00 | 1.01 |
|-----|-----------|-----------|-----------|------|------|

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

Waste Treatment Plant Project Percent Complete Status (Table)

Waste Treatment Plant Project - (LBL/Project Services) Percent Complete Status
Through May 2021

| (Dollars - Millions) | Overall Facility Percent Complete 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 | | | | | | | | | | | | | | | | | | |
| Low-Activity Waste | 2,311.4 | 2,063.1 | 89% | 597.0 | 593.8 | 99% | 342.6 | 342.4 | 100% | 787.6 | 786.5 | 100% | 563.0 | 334.7 | 59% | 21.2 | 5.7 | 27% |
| Balance of Facilities | 867.3 | 821.2 | 95% | 159.7 | 158.8 | 99% | 60.6 | 60.6 | 100% | 325.7 | 322.1 | 99% | 320.8 | 279.2 | 87% | 0.5 | 0.5 | 100% |
| Analytical Lab | 453.5 | 413.6 | 91% | 92.6 | 92.3 | 100% | 60.1 | 60.1 | 100% | 170.6 | 170.6 | 100% | 124.2 | 89.0 | 72% | 6.0 | 1.5 | 26% |
| Direct Feed LAW | 503.4 | 496.7 | 99% | 114.3 | 114.3 | 100% | 79.0 | 79.0 | 100% | 300.1 | 294.5 | 98% | 0.3 | 0.3 | 82% | 9.7 | 8.7 | 90% |
| LBL Facility Services | 1,027.0 | 738.5 | 72% | 0.0 | 0.0 | 0% | 85.8 | 69.4 | 81% | 115.5 | 115.5 | 100% | 526.6 | 323.9 | 62% | 299.1 | 229.6 | 77% |
| Total LBL | 5,162.7 | 4,533.1 | 88% | 963.7 | 959.2 | 100% | 628.1 | 611.5 | 97% | 1,699.5 | 1,689.3 | 99% | 1,534.9 | 1,027.1 | 67% | 336.4 | 246.0 | 73% |
| Project Services | 979.0 | 835.0 | 85% | 95.8 | 90.6 | 95% | 59.1 | 54.1 | 92% | 96.5 | 92.8 | 96% | 15.5 | 10.6 | 68% | 712.1 | 586.9 | 82% |
| Total Project Services | 979.0 | 835.0 | 85% | 95.8 | 90.6 | 95% | 59.1 | 54.1 | 92% | 96.5 | 92.8 | 96% | 15.5 | 10.6 | 68% | 712.1 | 586.9 | 82% |
| Total LBL, DFLAW & Project Services | 6,141.7 | 5,368.1 | 87% | 1,059.5 | 1,049.8 | 99% | 687.2 | 665.6 | 97% | 1,796.0 | 1,782.0 | 99% | 1,550.5 | 1,037.7 | 67% | 1,048.5 | 832.9 | 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 | 14,864.5 | 11,333.3 | 76% | 3,232.6 | 2,998.7 | 93% | 2,252.7 | 1,790.4 | 79% | 4,683.6 | 3,546.8 | 76% | 2,309.0 | 1,180.9 | 51% | 2,386.6 | 1,816.4 | 76% |

Source: Preliminary WTP Contract Performance Report - Format 1, Data for May 2021

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

Table 1 Administrative Record Metadata

| 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-02DY | 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.