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FINAL

Office of River Protection Consent Decree Monthly Report July 2018[1]

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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) [2]

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

[2] The cited consent decrees are between the State of Washington and U.S. Department of Energy. For each of these decrees, there are companion, separate consent decrees with the State of Oregon, as Intervenor, under the same case numbers.

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Acronyms and Abbreviations

BCP	Baseline Change Proposal
BNI	Bechtel National, Inc.
BOF	Balance of Facilities
C#V	C# ventilation
CV	cost variance
DFLAW	direct-feed low-activity waste
DOE	U.S. Department of Energy
EMF	Effluent Management Facility
FY	fiscal year
HLW	High-Level Waste (Facility)
LAB	Analytical Laboratory
LAW	Low-Activity Waste (Facility)
LBL	Low-Activity Waste Facility, Balance of Facilities, and Analytical Laboratory
ORP	U.S. Department of Energy, Office of River Protection
PT	Pretreatment (Facility)
SV	schedule variance
USACE	U.S. Army Corps of Engineers
WTP	Waste Treatment and Immobilization Plant

Consent Decree Milestone Statistics/Status

Milestone	Title	Due Date	Completion Date	Status
Fiscal Year 2021				
D-00A-07 Interim	LAW Facility Construction Substantially Complete	12/31/2020		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	12/31/2020		Notice given that a serious risk has arisen. See letter 16-ORP-0097[1].
Fiscal Year 2023				
D-00A-08 Interim	Start LAW Facility Cold Commissioning	12/31/2022		On Schedule
Fiscal Year 2024				
D-00A-09 Interim	LAW Facility Hot Commissioning Complete	12/31/2023		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	03/31/2024		Notice given that a serious risk has arisen. See letter 16-ORP-0097[1].
Fiscal Year 2031				
D-00A-02 Interim	HLW Facility Construction Substantially Complete	12/31/2030		Under Analysis[2]
Fiscal Year 2032				
D-00A-13 Interim	Complete Installation of Pretreatment Feed Separation Vessels FEP-SEP-OOOO1A/1B	12/31/2031		On Schedule

Milestone	Title	Due Date	Completion Date	Status
D-00A-14 Interim	PT Facility Construction Substantially Complete	12/31/2031		Under Analysis[2]
D-00A-19 Interim	Complete Elevation 98 feet Concrete Floor Slab Placements in PT Facility	12/31/2031		On Schedule
D-00A-03 Interim	Start HLW Facility Cold Commissioning	06/30/2032		Under Analysis[2]
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		Under Analysis[2]
Fiscal Year 2034				
D-00A-04 Interim	HLW Facility Hot Commissioning Complete	12/31/2033		Under Analysis[2]
D-00A-16 Interim	PT Facility Hot Commissioning Complete	12/31/2033		Under Analysis[2]
D-00A-17	Hot Start of WTP	12/31/2033		Under Analysis[2]
Fiscal Year 2037				
D-00A-01	Achieve Initial Plant Operations for the WTP	12/31/2036		Under Analysis[2]

1 16-ORP-0097, 2016, "State of Washington v. Moniz, Case No. 2:08-CV-5085-RMP (E.D. WA)," (external letter to M. Bellon, Washington State Department of Ecology), from K.W. Smith, U.S. Department of Energy, Office of River Protection, Richland, Washington, December 6.

2 As discussed in the PT Facility and HLW Facility sections, DOE asked the U.S. Army Corps of Engineers (USACE) to perform a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2 states, "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory (LAB) and the Balance of Facilities) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

DOE = U.S. Department of Energy.
DFLAW = direct-feed low-activity waste.
Ecology = Washington State Department of Ecology.
HLW = high-level waste.
LAW = low-activity waste.
PT = pretreatment.
SST = single-shell tank.
WMA-C = C Tank Farm waste management area.
WTP = Waste Treatment and Immobilization Plant.

Consent Decree Reports/Reviews

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

Due: 45 days following after each calendar year quarter (due August 14, 2018).
Status: On Schedule.

D-00C-02 series, Submit to State of Washington and State of Oregon Monthly Summary Reports

Due: End of each month.
Status: On Schedule.

D-006-00-B1, Provide State of Oregon notice of meetings in D-006-00-B, etc. no less than 30 days before they are scheduled

Due: See below.
Status: On Schedule.

D-006-00-B, Meet Approximately Every Three Years after Entry of Decree to review requirements of the Consent Decree

Due: Approximately 3 years from March 16, 2017.
Status: On Schedule.

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

Due: December 31, 2016.
Status: Complete (November 15, 2016)

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

Due: December 31, 2018.
Status: Complete (May 8, 2018).

Single-Shell Tank Retrieval Program

Tank Farms Assistant Manager: Glyn Trenchard

Federal Program Manager: Jeff Rambo

Milestone	Title	Due Date	Status
D-16B-03	Of the 12 SSTs referred to in B-1 and B-2, complete retrieval of tank waste in at least 5	12/31/2020	Notice given that a serious risk has arisen. See letter 16-ORP-0097[1].
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.	03/31/2024	Notice given that a serious risk has arisen. See letter 16-ORP-0097[1].

[1] 16-ORP-0097, 2016, "State of Washington v. Moniz, Case No. 2:08-CV-5085-RMP (E.D. WA)," (external letter to M. Bellon, Washington State Department of Ecology), from K.W. Smith, U.S. Department of Energy, Office of River Protection, Richland, Washington, December 6.

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

Significant Accomplishments during the Prior Month:

Completed Accomplishments:

- Completed Tank AX-101 Pit cleanout of AX01D, AX01C.
- Completed removal of AX-103 R9G vapor probe.
- Completed grouting and shipment of AX-104 R5A sluicer.
- Completed Phase I of the installation of AX Tank Farms control trailers POR471 (AX-102/AX-104) and POR498 (AX-101/AX-103).
- RPP-RPT-60717, *Retrieval Completion Certification Report for Tank 241-C-105*, Rev. 00, was cleared for public release on June 7, 2018. RPP-RPT-60717 and the

subcertification was submitted to the Washington State Department of Ecology via letter 18-TF-0044, "The U.S. Department of Energy Office of River Protection Submits the Retrieval Completion Certification Report for Tank 241-C-105," dated June 28, 2018.

Ongoing Activities:

- Continue installation of the electrical infrastructure (power and control systems) inside the AX Tank Farm
- Continue to disconnect and remove hose-in-hose transfer lines in C Tank Farm and AN Tank Farm
- Continue C Tank Farm layup activities by disconnecting and disposing of portable power, heat trace and temperature monitoring, leak detection, water, and hydraulic systems
- Continue engineering evaluation of the high definition videos of Tanks A-104/A-105
- Continue Tank AX-101 Pit AX01A and Tank AX-103 Pit AX03A cleanout activities (the work is intermittent as resources allow)
- Continue installation of caustic and water system piping from A Tank Farm fence line to POR496
- Continue construction of A Tank Farm exhauster pads with the installation of electrical conduit, backfilling, and formwork for pads.

Significant Planned Activities in the Next Month:

- Remove long-length equipment from Tank AX-104:
  - AX04 Pit A-R5B pump
  - It has been determined that the safe removal of this pump, which is laying on the bottom of the tank in the waste, is not feasible. An alternative path forward has been developed, which will move the pump aside to allow for the installation of waste retrieval equipment.
- Grout and ship the Tank AX04 Pit B-R14 pump.
- Ship the Tank AX02 Pit C-R1A P 200 pump.
- Complete Tank AX-101/AX-103 Pit cleanout (AX03A, AX01C, and AX01D).
- Initiate Phase II of the AX-102/AX-104 Tanks control trailer installation (POR471)
- Initiate direct-push sampling of soil at Tank A-104 and Tank A-105. Direct-push characterization is a method utilizing a hydraulic ram to push steel pipe into the ground. It can install pipe in a vertical orientation or at an angle. This pipe can be used to obtain soil/water samples or install instrumentation.
- Disconnect power from raw water skids (C Tank Farm layup).
- Complete isolation and layup of the POR357 raw water skid (C Tank Farm layup).

- Disconnect 27 tank electrical skids (C Tank Farm layup).
- Disconnect power and cap the POR107 exhauster (C Tank Farm layup).

Issues:

- Reduced worker efficiencies associated with mandatory use of supplied air continues to impact work in the tank farms.

Tank Waste Retrieval Work Plan Status

Tank Farms Assistant Manager: Glyn Trenchard

Federal Program Manager: Jeff Rambo

			Retrieval Technology		
Tank	**TWRWP**	**Expected Revisions**	**First**	**Second**	**Third**
AX-101	RPP-RPT-58932, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
AX-102	RPP-RPT-58933, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
AX-103	RPP-RPT-58934, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
AX-104	RPP-RPT-58935, Rev. 1	Complete	Sluicing with ERSS	High-Pressure Water deployed with ERSS	–
C-105	RPP-22520, Rev. 8	Complete	MARS-V	MARS-V High-Pressure Water Spray	Chemical Dissolution Process with ERSS

ERSS = extended reach sluicer system.
MARS-V = Mobile Arm Retrieval System-Vacuum.
TWRWP = tank waste retrieval work plan.

Significant Accomplishments during the Prior Month:

- None.

Significant Planned Activities in the Next Month:

- None.

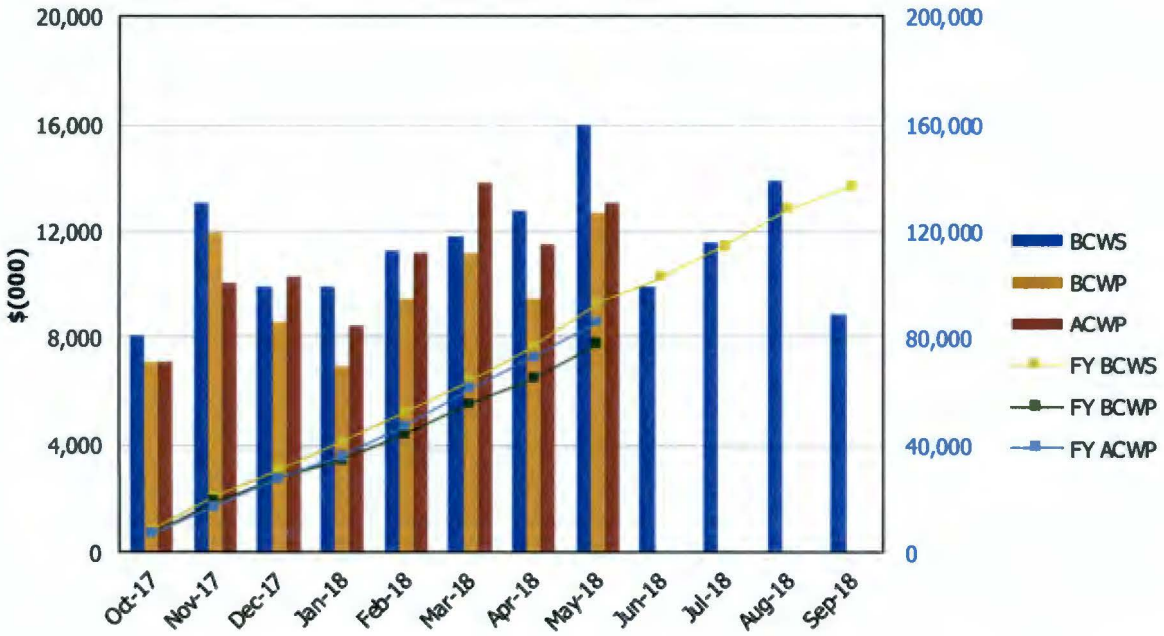
Issues:

- None.

Earned Value Data: Fiscal Year 2018 May-18

Tank Farms ORP-0014
WBS 5.2 - Retrieve and Close SSTs

EVMS Monthly and Fiscal Year Values



Earned Value Month

Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$8,053	$7,119	$7,127	0.88	1.00	$8,053	$7,119	$7,127	0.88	1.00
Nov 2017	$13,058	$11,996	$10,119	0.92	1.19	$21,111	$19,115	$17,246	0.91	1.11
Dec 2017	$9,964	$8,572	$10,318	0.86	0.83	$31,075	$27,686	$27,563	0.89	1.00
Jan 2018	$9,940	$6,911	$8,464	0.70	0.82	$41,015	$34,597	$36,027	0.84	0.96
Feb 2018	$11,310	$9,456	$11,225	0.84	0.84	$52,326	$44,053	$47,252	0.84	0.93
Mar 2018	$11,787	$11,248	$13,799	0.95	0.82	$64,113	$55,301	$61,051	0.86	0.91
Apr 2018	$12,763	$9,509	$11,495	0.75	0.83	$76,875	$64,810	$72,546	0.84	0.89
May 2018	$15,972	$12,694	$13,076	0.79	0.97	$92,848	$77,504	$85,622	0.83	0.91
Jun 2018	$9,930					$102,778				
Jul 2018	$11,605					$114,382				
Aug 2018	$13,914					$128,296				
Sep 2018	$8,893					$137,189				
CTD	$896,419	$882,167	$924,174	0.98	0.95					

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

Retrieve and Close Single-Shell Tanks (5.02)[3]

The May 2018 **unfavorable** schedule variance (SV) of ($3,278,100) was due to:

- Site preparation work for the southern portion of the SX Tank Farm interim barrier was delayed due to changes in facility requirements to house the work crew and support self-contained breathing apparatus bottle equipment handling. The subcontractor originally proposed a tent for the field crew, but during planning it was determined the original size was not sufficient, so a decision was made to order a trailer. Additionally, progress of grading activities was interrupted by numerous cathodic protection interferences.
- Excavation work for the installation of electrical conduit for the AX Tank Farm electrical backbone is experiencing higher than expected soil contamination requiring additional localized small diameter excavations to assist in the investigation of proposed alternate routes. Additionally, the contaminated soil must be monitored, containerized, and disposed.

The May 2018 **unfavorable** cost variance (CV) of ($382,000) was due to:

- Excavation work for the installation of electrical conduit for the AX Tank Farm electrical backbone is experiencing higher than expected soil contamination requiring additional potholing to assist in the investigation of proposed alternate routes. Additionally, contaminated soil must be monitored, containerized, and disposed.
- The coating material used on the AX Tank Farm water and caustic piping was found to be defective and had to be removed and reapplied.

[3] "Closure" activities are expressly excluded from the Consent Decree. See 2010 Consent Decree, Appendix C, first paragraph: "Processes not covered by a TWRWP (e.g., tank closure) are not established under this Consent Decree."

Waste Treatment and Immobilization Plant Project

Federal Project Director: Tom Fletcher

Deputy Federal Project Director: Vacant[4]

Milestone	Title	Due Date	Status
D-00A-06	Complete Methods Validations	06/30/2032	On Schedule
D-00A-17	Hot Start of Waste Treatment Plant	12/31/2033	Under Analysis[1]
D-00A-01	Achieve Initial Plant Operations for WTP	12/31/2036	Under Analysis[1]

[1] As discussed in this report, DOE asked the U.S. Army Corps of Engineers to perform a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving both PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2: "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory [LAB] and the Balance of Facilities [BOF]) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

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

The Waste Treatment and Immobilization Plant (WTP) Project continues to focus on completion of the Low-Activity Waste (LAW) Facility, Balance of Facilities (BOF), and Analytical Laboratory (LAB) (collectively known as LBL, including direct-feed LAW [DFLAW] and LBL facility services).

As of May 2018, DFLAW modifications for the WTP Project were 45 percent complete, engineering design was 78 percent complete, procurement was 38 percent complete, and construction was 31 percent complete. As of May 2018, total LBL facilities were 65 percent complete, engineering design was 89 percent complete, procurement was 77 percent complete, construction was 76 percent complete, and startup and commissioning was 31 percent complete.

The WTP Project has complied with milestones already come due as of the date of this report. There are no missed milestones that may affect compliance with other milestones.

[4] Joni Grindstaff was reassigned as Director of the Mission Integration Office, effective June 24, 2018.

Significant Accomplishments during the Prior Month

- In accordance with the additional funding received for the High-Level Waste (HLW) Facility in the *Consolidated Appropriations Act, 2018*, enacted on March 23, 2018, the U.S. Department of Energy (DOE), Office of River Protection (ORP) and Bechtel National, Inc. (BNI) continued the process to determine which additional activities could be undertaken or initiated in relation to the HLW Facility and in fiscal year (FY) 2018.
- 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

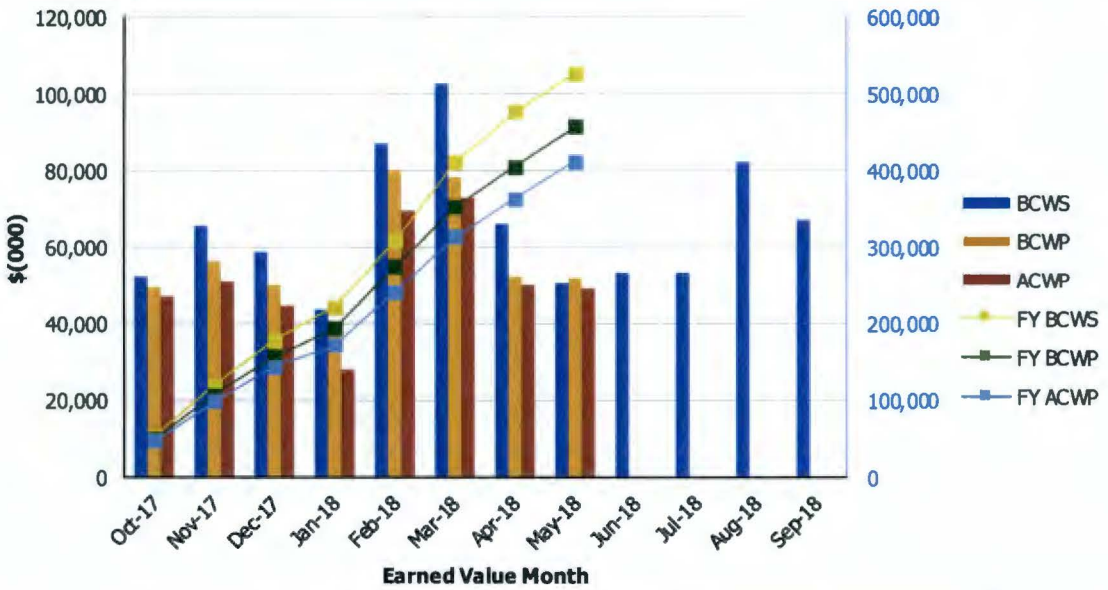
- In accordance with the additional funding received for the HLW Facility in the *Consolidated Appropriations Act, 2018*, enacted on March 23, 2018, ORP and BNI will continue the process to determine which additional activities could be undertaken or initiated in relation to the HLW Facility in FY 2018. ORP will also continue discussions with DOE's Office of Environmental Management about the direction to provide BNI regarding this facility.
- Significant planned activities in the next month, are noted in project reports for the PT Facility, HLW Facility, LAW Facility, BOF, and LAB.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data Data as of: May 2018

River Protection Project
Waste Treatment Plant (WTP) Project

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$52,662	$49,804	$46,894	0.95	1.06	$52,662	$49,804	$46,894	0.95	1.06
Nov 2017	$65,935	$56,513	$51,026	0.86	1.11	$118,597	$106,317	$97,920	0.90	1.09
Dec 2017	$58,797	$50,134	$44,924	0.85	1.12	$177,394	$156,452	$142,844	0.88	1.10
Jan 2018	$43,622	$36,665	$28,076	0.84	1.31	$221,016	$193,117	$170,920	0.87	1.13
Feb 2018	$86,995	$80,565	$69,775	0.93	1.15	$308,011	$273,683	$240,695	0.89	1.14
Mar 2018	$102,749	$78,481	$72,880	0.76	1.08	$410,760	$352,163	$313,575	0.86	1.12
Apr 2018	$65,995	$52,537	$50,050	0.80	1.05	$476,755	$404,701	$363,625	0.85	1.11
May 2018	$50,537	$52,199	$49,027	1.03	1.06	$527,292	$456,900	$412,653	0.87	1.11
Jun 2018	$53,606									
Jul 2018	$53,576									
Aug 2018	$82,110									
Sep 2018	$66,972									
PTD	$11,038,886	$10,914,796	$10,796,067	0.99	1.01					

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

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

Performance Tracking	SV	CV
Current Period (May 2018)	$1,662	$3,172
Fiscal Year 2018 to-date	($70,392)	$44,247
Cumulative (through May 2018)	($124,090)	$118,730

CV = cost variance.
SV = schedule variance.

Earned Value Management System Analysis

The Earned Value Management System is intended to provide a status of how the contractor is progressing against its planned work (i.e., schedule), and whether it is costing more or less to complete the work than planned. The project plan is measured by expressing the schedule in terms of dollars spread over the anticipated project duration, and then for each month, determining how much of the planned work was accomplished or "earned," as measured in equivalent dollars. If more work is accomplished than planned, then the project is ahead of schedule and has a favorable SV. Similarly, if less work is accomplished, the project is behind schedule and has an unfavorable SV. Accomplished work is reported in the month it was completed, which may not be when it was planned. For example, work completed in a month earlier than planned would be reported as a favorable SV for the month in which it was completed, but would be reported as an unfavorable SV in the month it was planned. The end result would be the overall cumulative SV netting out to zero over these months. Likewise, work completed late will recover an earlier reported unfavorable SV.

The CV measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume $10,000 of work was planned to-date, $8,000 was reported as being performed (earned), at an actual cost of $9,000. This work would be reported as being $2,000 behind schedule [a negative or unfavorable SV: $8,000–$10,000 = ($2,000)], and has cost $1,000 more [a negative or unfavorable CV: $8,000–$9,000 = ($1,000)] than was planned for completing that work scope. Likewise, a favorable or positive CV would be reported if it cost less to complete the work than the performed dollar value of the work.

The SV and CV are reported for each monthly period, fiscal year to-date, as well as for the project-to-date value. The monthly variances can fluctuate significantly (for reasons noted earlier), so the fiscal year or cumulative-to-date report provides a better indicator of the overall project completion status, and can give a reasonable projection of how the project will finish, based on the progress-to-date.

For the May 2018 Earned Value Management System reporting period, a net **favorable** SV of approximately $1.7 million was reported, primarily due to the following:

- LBL Plant Management (i.e., commissioning) continues to show an unfavorable SV due to a planned delay of staff increases. The LBL staffing needs to support commissioning are being evaluated. The future staffing level of commissioning personnel will be based on the outcomes of the evaluation. This control account will continue to show an unfavorable SV until staffing levels in the budgeting tools are realigned with the commissioning execution plan via the baseline change control process. This was partially addressed with implementation of Baseline Change Proposal (BCP) TN-18-0075, *DFLAW – Definitization of Optimization (Target) Plan Scope Impacts*, which added scope into the Performance Measurement Baseline to align with current work activities being executed in the forecast schedule.
- LAW Facility Plant Equipment reported an unfavorable SV primarily due to the active safety process gas analyzers procurement having completed in a prior period.
- LAW Facility Construction Craft reported an unfavorable SV due to underperformance associated with melter, instrumentation, and design evolution scope. This was offset by a favorable SV in LAW Facility construction subcontracts, including roofing for the truck bay canopy, procurement of export bay materials, installation of impart bay coiling doors, and installation of several final penetration seals.
- LAW Engineering reported a favorable SV due to implementation of BCP TN-18-0075.
- DFLAW Construction Craft reported a favorable SV due to implementation of BCP TN-18-0075, which transferred historical DFLAW site work scope to BOF site work.
- DFLAW Plant Equipment and Material reported a favorable SV tied to the Effluent Management Facility (EMF) evaporator, reboiler, and primary condenser fabrication completing delivery in May; early partial receipt of EMF centrifugal pumps and completion of vendor weld repairs in the EMF process vessels. The favorable SV was partially offset by continued slippage in delivery of coaxial pipe.
- DFLAW Engineering reported an unfavorable SV tied to implementation of BCP TN-18-0075.
- BOF Startup reported a favorable non-labor SV due to implementation of BCP TN-18-0040, *BOF - Reduction in Startup Diesel Fuel Oil Budget*, which returned some prior unspent scope to Management Reserve. This was offset by Startup labor due to delays in completing component testing in the glass former storage facility, steam plant facility, and system testing in the cooling tower.

For the May 2018 Earned Value Management System reporting period, a net **favorable** CV of approximately $3.2 million was reported, primarily due to the following:

- LBL Plant Management (i.e., commissioning) reported a favorable CV because current spending priorities are different than the existing plan. This resulted in temporary delays to procure and receive spare parts, procure and maintain software, purchase temporary

housing, and other support costs, as well as maintenance activities taking less time than anticipated and other labor rate and schedule related issues. Revised commissioning spend plans are currently being developed with implementation of BCP TN-18-0075.

- LAB Plant Management reported a favorable CV due to a delay in receipt of actual costs related to completing the plant service air system refurbishment in May and a delayed ramp up in training.
- DFLAW Construction Craft reported a favorable CV due to completion of excavations, EMF concrete walls, and basemats.
- HLW Facility Engineering, Waste Treatment Completion Company, and Facility Services reported a favorable CV due to level-of-effort resources supporting higher WTP priorities.

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

1. As discussed in this report, DOE asked the U.S. Army Corps of Engineers to perform a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving both PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2: "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory [LAB] and the Balance of Facilities [BOF] treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

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

The PT Facility will separate radioactive tank waste into high-level waste and low-activity waste fractions and transfer each waste type to the respective vitrification facility for immobilization. As of September 2012, the PT Facility was 56 percent complete overall, engineering design was 85 percent complete, procurement was 56 percent complete, construction was 43 percent complete, and startup and commissioning was 3 percent complete. The physical percent complete analysis for the PT Facility was frozen in September 2012, pending development of a revised baseline to address technical and design issues.

ORP and BNI continue to work on resolving the remaining technical issues identified in the Third Order Regarding Motions to Modify Consent Decrees[5], which includes[6], "Ensuring Control of the Pulse Jet Mixers" (i.e., T4 in relation to pulse-jet mixer vessel mixing and control); "Protecting Against Possible Erosion and Corrosion" (i.e., T5 in relation to erosion/corrosion in piping and ancillary vessels); and "Ensuring Ventilation Balancing" (i.e., T8 in relation to facility ventilation/process offgas treatment).

Preliminary engineering work, documented previously in a BNI and ORP study, was completed and demonstrates how the standard high-solids vessel design can be implemented in the PT Facility (i.e., T6 in relation to design redundancy and in-service inspection). The engineering study showed that 16 standard high-solids vessels can be incorporated into the PT Facility, while meeting the PT Facility throughput contract requirements. The Washington State Department of Ecology was briefed on the design concept in February 2018.

Significant Accomplishments during the Prior Month

- At the request of ORP, the U.S. Army Corps of Engineers (USACE) continued conducting a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related Consent Decree milestones.
- ORP continued to work with BNI on completing documentation for the remaining open technical issues described as T4, T5, and T7 (i.e., T7 in relation to seismic ground motion criteria changes around 2005).

Significant Planned Activities for the Next Month

- ORP expects to receive the final report from the USACE addressing questions ORP had following its initial review of the draft USACE parametric analysis (noted above). The USACE is expected to finalize and provide its analysis to DOE in July.
- DOE will evaluate the results from the USACE parametric analysis, the BNI workshops, and other information to assess the potential for achieving certain WTP Consent Decree milestones.
- ORP will continue discussions with DOE's Office of Environmental Management about the direction to provide BNI regarding engineering, procurement, and construction activities at the PT Facility.
- BNI will continue to focus on ongoing asset maintenance at the PT Facility to protect equipment and structures and ensure design documents are maintained. Work will continue on technical issue resolution related to the remaining technical issues.
- BNI is expected to issue an update to the localized corrosion test basis document supporting closure of technical issue T5 and closure of the T5 corrective action plan

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

[6] At the outset of U.S. Department of Energy's identification of the technical issues, the issues were grouped into eight issues. During the litigation, some issues were combined with others into five groups of issues. Consequently, the descriptions of the issues listed above may be both different by number and somewhat different by description.

during the third quarter of FY 2018 (originally planned for April 2018). Comment resolution on the T5 corrosion test report has taken longer than expected.

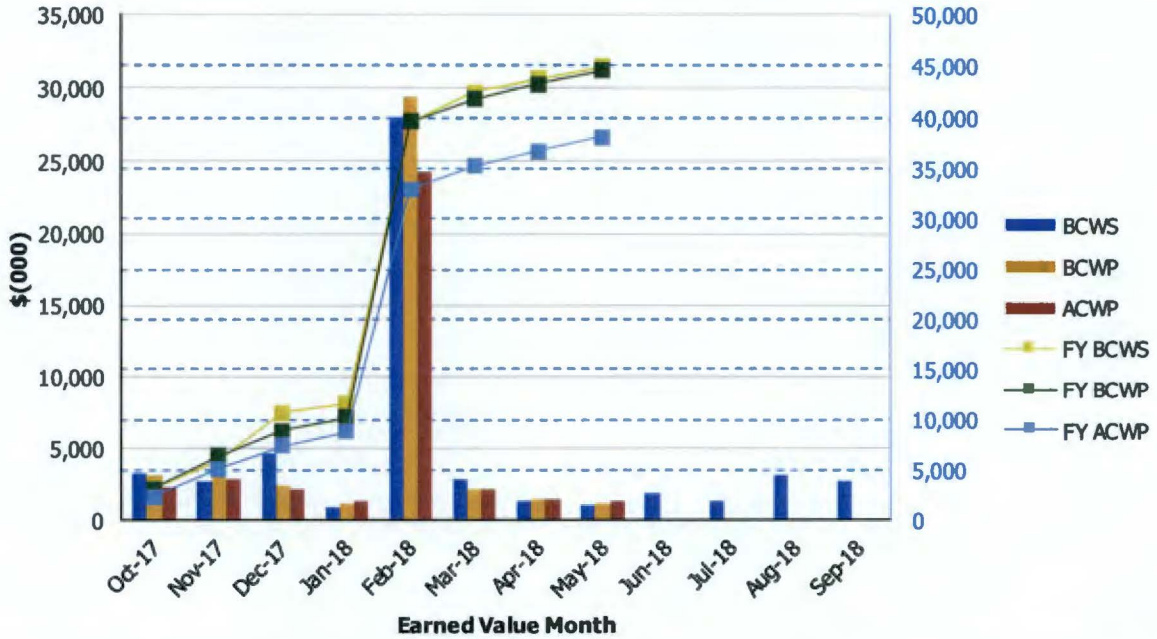
- BNI is expected to issue the methodology for the vessel structural integrity verification supporting final resolution of technical issue T7 during the third quarter of FY 2018 (originally planned for April 2018). Comment resolution has taken longer than expected.
- ORP anticipates resolution of the remaining technical issues (noted above) with notification to the Defense Nuclear Facilities Safety Board in the August/September 2018 timeframe. The resolution of the technical issues is likely to require significant design changes to the PT Facility.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data Data as of: May 2018

River Protection Project
Pretreatment Facility (WBS 1.01)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$3,230	$3,129	$2,345	0.97	1.33	$3,230	$3,129	$2,345	0.97	1.33
Nov 2017	$2,757	$3,293	$2,838	1.19	1.16	$5,987	$6,422	$5,184	1.07	1.24
Dec 2017	$4,691	$2,502	$2,204	0.53	1.14	$10,678	$8,924	$7,387	0.84	1.21
Jan 2018	$896	$1,272	$1,371	1.42	0.93	$11,574	$10,196	$8,758	0.88	1.16
Feb 2018	$28,072	$29,440	$24,268	1.05	1.21	$39,647	$39,635	$33,026	1.00	1.20
Mar 2018	$2,819	$2,143	$2,222	0.76	0.96	$42,466	$41,778	$35,248	0.98	1.19
Apr 2018	$1,308	$1,528	$1,494	1.17	1.02	$43,773	$43,306	$36,743	0.99	1.18
May 2018	$1,125	$1,268	$1,382	1.13	0.92	$44,898	$44,574	$38,125	0.99	1.17
Jun 2018	$1,933									
Jul 2018	$1,331									
Aug 2018	$3,155									
Sep 2018	$2,767									
PTD	$1,986,007	$1,982,159	$1,951,485	1.00	1.02					

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

High-Level Waste Facility

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Wahed Abdul

Milestone	Title	Due Date	Status
D-00A-20	Complete Construction of Structural Steel to Elevation 14′ in HLW Facility	12/31/2010	Complete
D-00A-21	Complete Construction of Structural Steel to Elevation 37′ in HLW Facility	12/31/2012	Complete
D-00A-02	HLW Facility Construction Substantially Complete	12/31/2030	Under Analysis[1]
D-00A-03	Start HLW Facility Cold Commissioning	06/30/2032	Under Analysis[1]
D-00A-04	HLW Facility Hot Commissioning Complete	12/31/2033	Under Analysis[1]

[1] As discussed in this report, DOE asked the U.S. Army Corps of Engineers to perform a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving both PT- and HLW-related milestones. DOE is considering milestones A-1 and A-17 as being "Under Analysis" because the definition of Section IV-A-2: "'Hot Start of Waste Treatment Plant' means the initiation of simultaneous operation of the Pretreatment (PT) Facility, High-Level Waste (HLW) Facility and Low-Activity Waste (LAW) Facility (including as needed the operations of the Analytical Laboratory [LAB] and the Balance of Facilities [BOF]) treating Hanford tank wastes and producing a waste glass product." Hence, if one of the five facilities is "Under Analysis," DOE is conservatively considering the WTP milestone as "Under Analysis."

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

The HLW Facility will receive the separated high-level waste concentrate from the PT Facility. This concentrate will be blended with glass formers, converted into molten glass in one of the two HLW Facility melters, and then poured into cylindrical stainless steel canisters. After cooling, the canisters will be sealed and decontaminated before shipping to interim storage.

As of September 2012, the HLW Facility was 62 percent complete overall, engineering design was 89 percent complete, procurement was 81 percent complete, construction was 43 percent complete, and startup and commissioning was 4 percent complete. The physical percent complete analysis for the HLW Facility was frozen in September 2012, pending development of a revised baseline to address technical and design issues.

Work on the HLW Facility is being performed in accordance with the FY 2017 through FY 2021 Interim Work Plan. Through FY 2017, BNI was working under a limited construction and procurement authorization, and BNI's efforts were focused on completing activities required to resume full-production engineering, procurement, and construction of the HLW Facility (i.e., DOE Decision 2A, "Authorization to Resume HLW Procurement and Construction"). To

support the DOE Decision 2A objective, BNI submitted a facility completion plan identifying the strategy for obtaining full-production authorization, which was approved by ORP.

As previously reported, BNI provided the final *Design and Operability Disposition Report* to ORP, summarizing the path forward for issue resolution. ORP reviewed all disposition comments for adequacy. Based on completion of the *Design and Operability Disposition Report*, BNI notified ORP it had completed the required criteria for DOE Decision 2A pending ORP approval of the updated HLW Facility Preliminary Documented Safety Analysis to align facility design with the nuclear safety basis. This was a primary focus of the ORP-chartered Safety Basis Review Team in FY 2017.

ORP approved Rev. 7 of the updated HLW Facility Preliminary Documented Safety Analysis and issued a letter to BNI in FY 2017 indicating DOE Decision 2A criteria for authorization to resume HLW Facility procurement and construction activities have been met.

Significant Accomplishments during the Prior Month

- In accordance with the additional funding received for the HLW Facility in the *Consolidated Appropriations Act, 2018*, enacted on March 23, 2018, ORP and BNI continued the process to determine which additional activities could be initiated at the HLW Facility in FY 2018. The plan included updating the System Design Descriptions and incorporating design changes that resulted from the updated HLW Facility Preliminary Documented Safety Analysis approved in September 2017. In addition, preparations for a rebaselining effort and the release of procurements were underway. ORP continued discussions with DOE's Office of Environmental Management about the direction to provide BNI regarding engineering, procurement, and construction activities at the HLW Facility.

  At the request of ORP, the USACE continued conducting a parametric analysis of certain options and funding scenarios to evaluate the likelihood of achieving PT- and HLW-related Consent Decree milestones.

- BNI continued fabrication of RLD-7 and RLD-8 vessels. These vessels are to be installed in the wet process cell prior to concrete slab placement. This activity supports roof installation and building enclosure.

Significant Planned Activities in the Next Month

- ORP expects to receive the final report from the USACE addressing questions ORP had following its initial review of the draft USACE parametric analysis (noted above). The USACE is expected to finalize and provide its analysis to DOE in July.
- DOE will evaluate the results from the USACE parametric analysis, the BNI workshops, and other information to assess the potential for achieving certain WTP Consent Decree milestones.
- In accordance with the additional funding received for the HLW Facility in the *Consolidated Appropriations Act, 2018*, enacted on March 23, 2018, ORP and BNI will continue to evaluate which additional activities could be initiated at the HLW Facility in

FY 2018. Engineering resources from DFLAW/LBL modifications will be transitioned to support production engineering efforts for the HLW Facility.

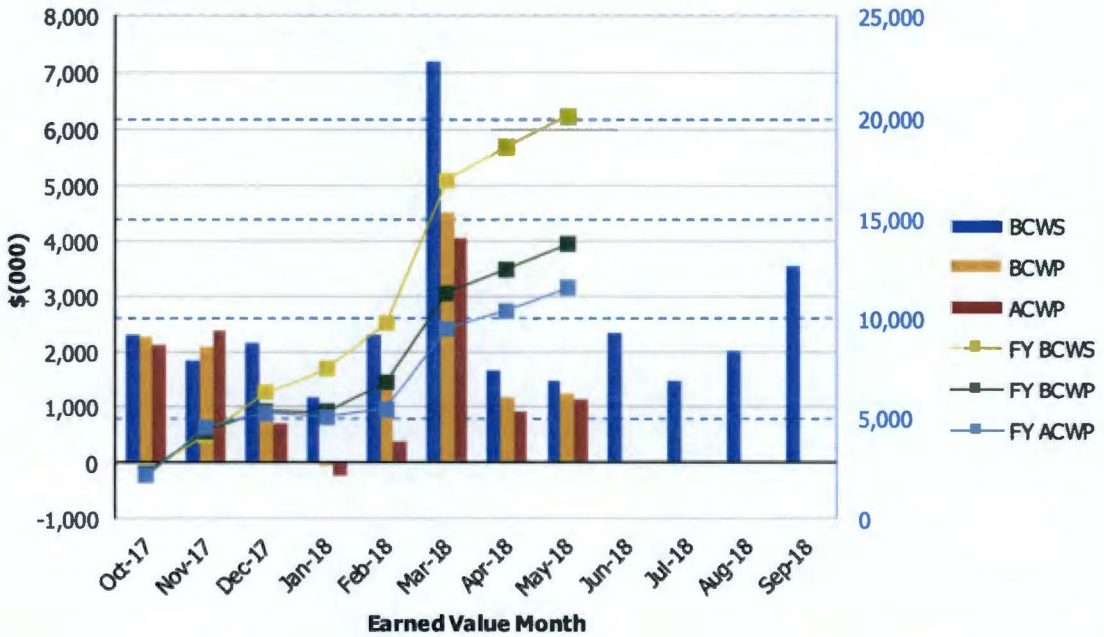
- ORP will continue discussions with DOE's Office of Environmental Management about the direction to provide BNI regarding engineering, procurement, and construction activities at the HLW Facility.
- BNI will continue to focus on ongoing asset maintenance at the HLW Facility to protect equipment and structures and ensure design documents are maintained.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data Data as of: May 2018

River Protection Project
High-Level Waste Facility (WBS 1.03)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$2,303	$2,268	$2,151	0.98	1.05	$2,303	$2,268	$2,151	0.98	1.05
Nov 2017	$1,848	$2,091	$2,396	1.13	0.87	$4,151	$4,360	$4,547	1.05	0.96
Dec 2017	$2,160	$976	$714	0.45	1.37	$6,311	$5,336	$5,261	0.85	1.01
Jan 2018	$1,164	($32)	($209)	-0.03	0.16	$7,475	$5,304	$5,053	0.71	1.05
Feb 2018	$2,310	$1,477	$396	0.64	3.72	$9,785	$6,780	$5,449	0.69	1.24
Mar 2018	$7,188	$4,514	$4,061	0.63	1.11	$16,974	$11,294	$9,510	0.67	1.19
Apr 2018	$1,684	$1,179	$916	0.70	1.29	$18,658	$12,473	$10,426	0.67	1.20
May 2018	$1,492	$1,240	$1,129	0.83	1.10	$20,150	$13,713	$11,555	0.68	1.19
Jun 2018	$2,354									
Jul 2018	$1,474									
Aug 2018	$2,035									
Sep 2018	$3,576									
PTD	$1,352,821	$1,345,848	$1,319,947	0.99	1.02					

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

Low-Activity Waste Facility[7]

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Wahed Abdul

Milestone	Title	Due Date	Status
D-00A-07	LAW Facility Construction Substantially Complete	12/31/2020	On Schedule
D-00A-08	Start LAW Facility Cold Commissioning	12/31/2022	On Schedule
D-00A-09	LAW Facility Hot Commissioning Complete	12/31/2023	On Schedule

LAW = low-activity waste.

The LAW Facility will process concentrated low-activity waste, which will be mixed with silica and other glass-forming materials. The mixture will be fed into the LAW Facility's two melters at a design capacity of 30 metric tons per day, heated to 2,100°F, and vitrified into glass. The 300-ton melters are approximately 20 feet by 30 feet and 16 feet high. The glass mixture will then be poured into stainless steel containers, which are 4 feet in diameter, 7 feet tall, and weigh more than 7 tons. These containers are anticipated to be disposed of on the Hanford Site in the Integrated Disposal Facility.

As of May 2018, the LAW Facility was 70 percent complete overall, engineering design was 90 percent complete, procurement was 83 percent complete, construction was 92 percent complete, and startup and commissioning was 20 percent complete.

Significant Accomplishments during the Prior Month

- ORP performed walkdowns and began reviewing the BNI supporting documentation for validation of BNI's completion of the interim contract Milestone A-5, "Final LBL Physical Plant Complete."
- BNI construction completed the follow-on, 3-week walkdowns before turning the following systems over to the Startup organization:
  - LAW container finishing handling system.

[7] Please note that discussions about the related Low-Activity Waste Pretreatment System and Tank-Side Cesium Removal are included in the monthly reports submitted under the *Hanford Federal Facility Agreement and Consent Order* (also known as the Tri-Party Agreement or TPA). Prior discussions are in reports archived in the Administrative Record.

- BNI construction completed turnover of the following LAW Facility systems over to the Startup organization:
  - Chilled water system 2
  - High pressure steam system 2
  - Demineralized water system 1
  - Instrument air system 3.
- BNI completed the balance of remaining cable and terminations.

Significant Planned Activities in the Next Month

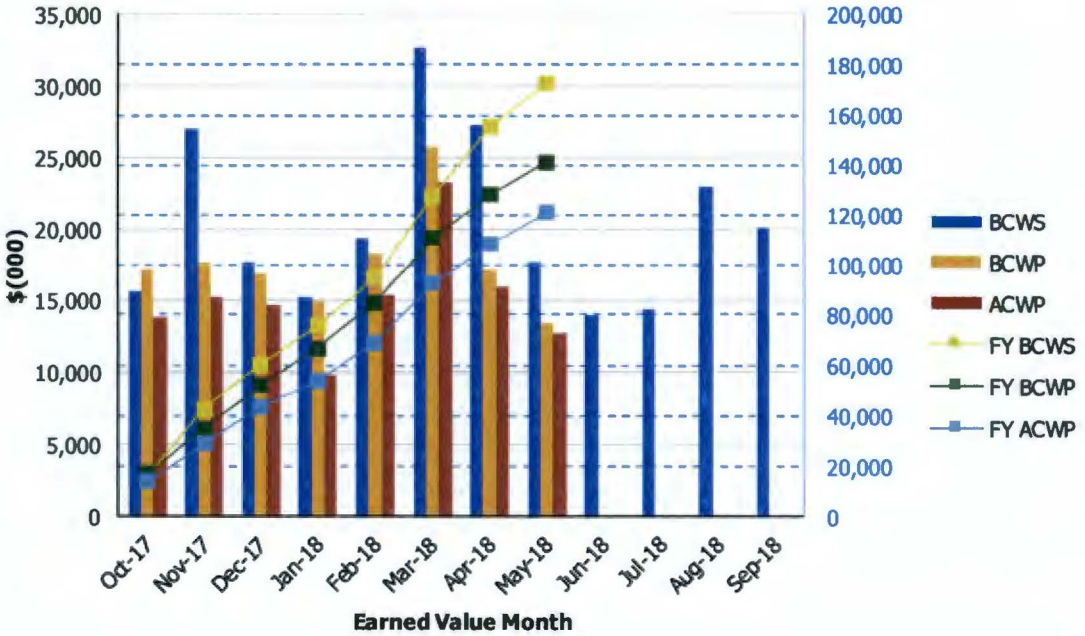
- ORP will complete review of the BNI supporting documentation (submitted by BNI on May 25, 2018) for validation of BNI's completion of the interim contract Milestone A-5, "Final LBL Physical Plant Complete."
- BNI construction is expected to turn the following systems over to the Startup organization:
  - Low voltage electrical system 2
  - Uninterruptible power electrical system 1
  - Facility network infrastructure system
  - Heat trace electrical system
  - Process control system 4
  - Fire detection and alarm system 1
  - Fire protection water system 1
  - Chilled water system 1
  - Process control system 2.
- BNI is expected to award the procurement for the communications electrical system.
- BNI is expected to award the procurement for the flow instruments purchase order.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data Data as of: May 2018

River Protection Project
Low-Activity Waste Facility (WBS 1.02)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$15,716	$17,201	$13,802	1.09	1.25	$15,716	$17,201	$13,802	1.09	1.25
Nov 2017	$27,014	$17,698	$15,292	0.66	1.16	$42,730	$34,898	$29,095	0.82	1.20
Dec 2017	$17,686	$16,865	$14,665	0.95	1.15	$60,416	$51,763	$43,760	0.86	1.18
Jan 2018	$15,226	$15,023	$9,821	0.99	1.53	$75,641	$66,786	$53,580	0.88	1.25
Feb 2018	$19,349	$18,243	$15,413	0.94	1.18	$94,990	$85,029	$68,993	0.90	1.23
Mar 2018	$32,761	$25,728	$23,335	0.79	1.10	$127,750	$110,757	$92,328	0.87	1.20
Apr 2018	$27,269	$17,227	$15,923	0.63	1.08	$155,019	$127,984	$108,251	0.83	1.18
May 2018	$17,765	$13,420	$12,803	0.76	1.05	$172,784	$141,405	$121,054	0.82	1.17
Jun 2018	$14,006									
Jul 2018	$14,360									
Aug 2018	$23,063									
Sep 2018	$20,095									
PTD	$1,901,008	$1,867,840	$1,851,661	0.98	1.01					

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

Balance of Facilities

Federal Project Director: Tom Fletcher

Facility Federal Project Director: Jason Young

Milestone	Title	Due Date	Status
D-00A-12	Steam Plant Construction Complete	12/31/2012	Complete

BOF will provide services and utilities to support operation of the main production facilities: PT, HLW, LAW, and LAB. As of May 2018, BOF was 70 percent complete overall, engineering design was 91 percent complete, procurement was 85 percent complete, construction was 81 percent complete, and startup and commissioning was 41 percent complete. Design of the EMF was 87 percent complete.

BNI Engineering efforts are focused on completion of the EMF design, supporting EMF procurement activities, and providing field support for BOF startup activities. Construction is focused on topping slab completion, grillage installation, protective coating application, and utility rack placement. Startup testing for BOF systems is focused on the cooling tower facility medium-voltage cooling water pumps and major equipment in the chiller compressor plant.

Significant Accomplishments during the Prior Month

- BNI completed installation of the EMF evaporator in the evaporator support tower.
- BNI completed turnover of the steam plant condensate system for startup testing.
- BNI completed installation of the EMF nitrate and caustic tanks.
- BNI completed grillage installation and topping slab placement for the evaporator feed vessel area.
- BNI continued protective coatings application throughout the EMF processing building.
- BNI continued grillage installation in the low-point drain tank area.
- Public comment period for the EMF equipment package No. 3 permit modification began on June 4, 2018.

Significant Planned Activities in the Next Month

- BNI Construction is expected to turn over the glass former (GFR-B-01) system for startup testing.
- BNI Construction is expected to turn over the ammonia reagent (AMR-B-01) system for startup testing.
- BNI expects to receive the standby diesel generator motor and generator set following refurbishment.

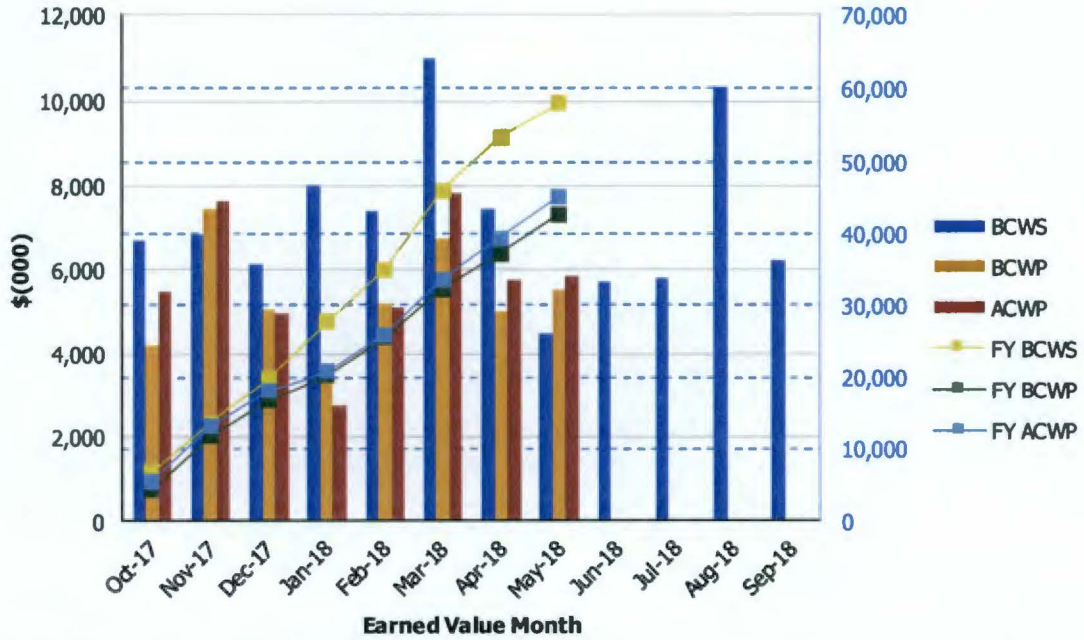
- BNI is expected to transfer operational custody of the WTP main switchgear building to the Plant Management organization.
- BNI is expected to transfer operational custody of the BOF switchgear building to the Plant Management organization.
- BNI is expected to transfer operational custody of the water treatment building to the Plant Management organization.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data Data as of: May 2018

River Protection Project
Balance of Facilities (WBS 1.05)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$6,686	$4,211	$5,450	0.63	0.77	$6,686	$4,211	$5,450	0.63	0.77
Nov 2017	$6,823	$7,436	$7,658	1.09	0.97	$13,509	$11,647	$13,108	0.86	0.89
Dec 2017	$6,146	$5,033	$4,931	0.82	1.02	$19,655	$16,679	$18,039	0.85	0.92
Jan 2018	$7,999	$3,629	$2,707	0.45	1.34	$27,654	$20,308	$20,746	0.73	0.98
Feb 2018	$7,399	$5,164	$5,092	0.70	1.01	$35,052	$25,472	$25,838	0.73	0.99
Mar 2018	$10,993	$6,722	$7,817	0.61	0.86	$46,045	$32,195	$33,655	0.70	0.96
Apr 2018	$7,447	$5,012	$5,759	0.67	0.87	$53,492	$37,207	$39,414	0.70	0.94
May 2018	$4,485	$5,514	$5,826	1.23	0.95	$57,976	$42,721	$45,240	0.74	0.94
Jun 2018	$5,724									
Jul 2018	$5,800									
Aug 2018	$10,332									
Sep 2018	$6,243									
PTD	$730,321	$708,229	$719,984	0.97	0.98					

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 2018, the LAB was 72 percent complete overall, engineering design was 90 percent complete, procurement was 90 percent complete, construction was 95 percent complete, and startup and commissioning was 31 percent complete.

Activities in the LAB are focused on system turnovers to begin startup testing of LAB systems. BNI is focused on completing the turnover of all LAB systems from construction to startup in 2018. To date, BNI has completed the turnover of 22 LAB systems for startup testing. BNI has relocated personnel and equipment into an offsite laboratory facility to perform analytical methods development. This allows methods development to occur in parallel with system startup testing. The installation of analytical equipment at the offsite facility has been completed and procedure development is in progress. The Test Engineers Workstation continues to support startup testing efforts for BOF, but some of these support services will begin transitioning to the LAW Annex as the LAW control room comes online.

Significant Accomplishments during the Prior Month

- BNI completed turnover of the C1 ventilation (C1V) system for startup testing.
- BNI completed turnover of the C5V system for startup testing.
- BNI completed turnover of the radioactive liquid waste disposal system for startup testing.
- BNI continued review of the analytical methods procedures.

Significant Planned Activities in the Next Month

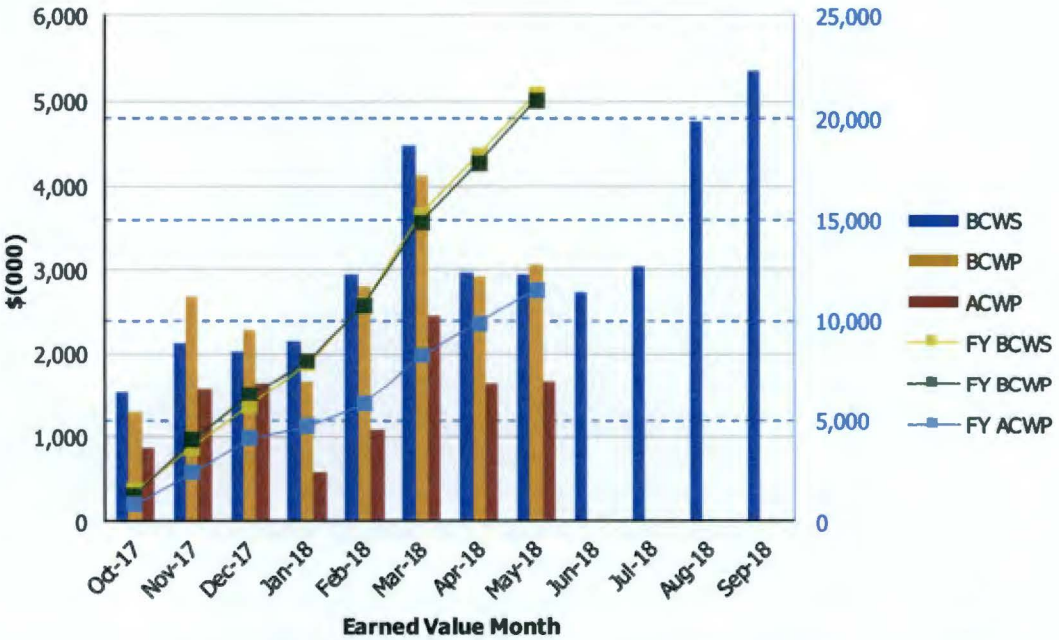
- BNI construction is expected to turn over the C3V system for startup testing.
- BNI construction is expected to turn over the C2V system for startup testing.
- BNI is expected to continue turnover of LAB systems and startup testing of systems as they become available.

EXC-01a: Fiscal Year Cost and Schedule Report

Data Set: FY 2018 Earned Value Data Data as of: May 2018

River Protection Project
Analytical Laboratory (WBS 1.06)

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2017	$1,538	$1,298	$861	0.84	1.51	$1,538	$1,298	$861	0.84	1.51
Nov 2017	$2,135	$2,694	$1,578	1.26	1.71	$3,673	$3,992	$2,438	1.09	1.64
Dec 2017	$2,029	$2,286	$1,660	1.13	1.38	$5,702	$6,278	$4,098	1.10	1.53
Jan 2018	$2,139	$1,678	$586	0.78	2.86	$7,841	$7,956	$4,684	1.01	1.70
Feb 2018	$2,950	$2,806	$1,082	0.95	2.59	$10,791	$10,762	$5,766	1.00	1.87
Mar 2018	$4,477	$4,134	$2,463	0.92	1.68	$15,268	$14,896	$8,229	0.98	1.81
Apr 2018	$2,966	$2,938	$1,649	0.99	1.78	$18,234	$17,833	$9,878	0.98	1.81
May 2018	$2,950	$3,067	$1,666	1.04	1.84	$21,184	$20,901	$11,544	0.99	1.81
Jun 2018	$2,739									
Jul 2018	$3,034									
Aug 2018	$4,782									
Sep 2018	$5,353									

PTD	$382,392	$378,757	$355,662	0.99	1.06

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

Waste Treatment Plant Project Percent Complete Status (Table)

Through May 2018

(Dollars - Millions)	Overall Facility Percent Complete Unallocated Dollars			Design/Engineering Unallocated Dollars			Procurement Unallocated Dollars			Construction Unallocated Dollars			Startup & Plant Operations Unallocated Dollars			Project Management & Shared Services Unallocated Dollars		
Facilities	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete	Performance Measurement Baseline (PMB)	Budgeted Cost of Work Performed (BCWP)	% Complete
Low-Activity Waste	2,307.1	1,625.3	70%	563.1	509.3	90%	374.1	309.9	83%	727.1	672.2	92%	638.8	129.8	20%	4.0	4.0	100%
Balance of Facilities	803.7	564.3	70%	150.2	137.3	91%	72.1	60.9	85%	316.1	257.2	81%	264.9	108.4	41%	0.5	0.5	100%
Analytical Lab	498.6	360.3	72%	103.1	92.6	90%	66.4	59.5	90%	164.9	156.8	95%	163.7	51.0	31%	0.5	0.5	100%
Direct Feed LAW	417.2	186.5	45%	107.0	83.5	78%	65.9	24.9	38%	232.4	71.2	31%	0.0	0.0	0%	11.8	7.0	59%
LBL Facility Services	713.9	322.8	45%	0.0	0.0	0%	69.1	42.4	61%	190.3	80.0	42%	206.4	100.1	49%	248.2	100.3	40%
Total LBL	4,740.6	3,059.2	65%	923.4	822.7	89%	647.6	497.6	77%	1,630.8	1,237.3	76%	1,273.8	389.4	31%	265.0	112.3	42%
Project Services	928.3	567.6	61%	91.9	78.5	85%	65.5	46.3	71%	106.5	82.7	78%	1.7	1.7	100%	662.7	358.4	54%
Total Project Services	928.3	567.6	61%	91.9	78.5	85%	65.5	46.3	71%	106.5	82.7	78%	1.7	1.7	100%	662.7	358.4	54%
Total LBL, DFLAW & Project Services	5,668.8	3,626.9	64%	1,015.3	901.2	89%	713.0	543.9	76%	1,737.3	1,320.0	76%	1,275.5	391.1	31%	927.7	470.7	51%
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	14,391.6	9,592.1	67%	3,188.4	2,850.1	89%	2,278.5	1,668.7	73%	4,624.9	3,084.8	67%	2,034.0	534.3	26%	2,265.8	1,454.2	64%

Source: Preliminary WTP Contract Performance Report - Format 1, Data for May 2018

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