

Office of River Protection



Monthly Reporting Period

May 1–May 31, 2019¹

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 April 2019.

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Acronyms and Abbreviations

CV	cost variance
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
ETF	Effluent Treatment Facility
FY	fiscal year
HFFACO	<i>Hanford Federal Facility Agreement and Consent Order</i> (HFFACO and TPA are used interchangeably throughout this report)
IQRPE	independent, qualified, registered, professional engineer
LERF	Liquid Effluent Retention Facility
ORP	U.S. Department of Energy, Office of River Protection
SST	single-shell tank
SV	schedule variance
TPA	Tri-Party Agreement
TSCR	tank-side cesium removal
WMA	waste management area
WRPS	Washington River Protection Solutions LLC

Administrative Items/Milestone Status

Milestone	Title	Due Date	DOE PM	Status
Prior Years				
M-062-45-T01	Complete Negotiations 6-Months After Last Issuance of System Plan	04/30/2015	R. Bang	In Abeyance
M-062-45-ZZ	Negotiate a One-Time Supplemental Treatment Selection	04/30/2015	R. Bang	In Abeyance
M-062-45-ZZ-A	Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones	04/30/2015	R. Bang	In Abeyance
M-047-07	CD-1 for Secondary Liquid Waste Treatment and CR for CD-2 to Ecology	03/31/2016	J.A. Diediker	In Abeyance
M-090-13	CD-1 for Interim Hanford Storage Project and CR for CD-2 to Ecology	03/31/2016	J.A. Diediker	In Abeyance
M-062-31-T01	Complete Final Design & Submit RCRA Part B Permit Mod Request for Enhanced WTP & Supplemental Treatment	04/30/2016	R. Bang	In Abeyance
M-062-32-T01	Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements	04/30/2018	R. Bang	In Abeyance
Fiscal Year 2019				
M-062-01AL	Submit Semi-Annual Project Compliance Report to Ecology	01/31/2019	B.R. Trimberger	Complete
M-062-01AM	Submit Semi-Annual Project Compliance Report to Ecology	07/31/2019	B.R. Trimberger	On Schedule

Milestone	Title	Due Date	DOE PM	Status
M-045-56O	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2019	R.A. Lobos	On Schedule
M-045-91E3	Provide SST Farms Dome Deflection Surveys Every 2 Years to Ecology	09/30/2019	D.M. Stewart	On Schedule
M-045-59	Control Surface Water Infiltration Pathways as Needed	TBD ¹	R.A. Lobos	On Schedule
M-045-62	Submit the Draft Tier 3 Closure Plan with Corrective Measures in Phase 2 CMIP for WMA-C	TBD ¹	R.A. Lobos	On Schedule
M-045-83	Complete the Closure of WMA-C by Completing Closure Activities Specified in the Tier 2 Closure Plan	TBD ¹	R.A. Lobos	On Schedule
Fiscal Year 2020				
M-062-40G	Select a Minimum of 3 Scenarios	10/31/2019	K.W. Burnett	On Schedule
M-045-92V	Complete Construction of Barriers 1 (North) and 2 (South) and Expansion Barrier in 241-SX Farm	10/31/2019	R.A. Lobos	On Schedule
M-045-92W	Submit to Ecology Design for Barrier 3 in 241-TX Farm	10/31/2019	R.A. Lobos	On Schedule
M-045-92AC	Submit to Ecology for Approval a Maintenance and Performance Monitoring Plan for Interim Barriers	10/31/2019	R.A. Lobos	On Schedule

Milestone	Title	Due Date	DOE PM	Status
M-045-92X	Barrier 3 in 241-TX Farm Design Approved by Ecology	01/31/2020	R.A. Lobos	On Schedule
M-062-01AN	Submit Semi-Annual Project Compliance Report to Ecology	01/31/2020	B.R. Trimberger	On Schedule
M-062-01AO	Submit Semi-Annual Project Compliance Report to Ecology	07/31/2020	B.R. Trimberger	On Schedule
M-045-56P	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2020	R.A. Lobos	On Schedule

¹ To be established in accordance with the date identified in the M-045-82 Tier 2 closure plan.

CD-1/-2 = critical decision-1/-2.

CMIP = corrective measures implementation work plan.

CR = change request.

DOE = U.S. Department of Energy.

Ecology = Washington State Department of Ecology.

Mod = modification.

PM = project manager.

RCRA = *Resource Conservation and Recovery Act*.

SST = single-shell tank.

TBD = to be determined.

WTP = Waste Treatment and Immobilization Plant.

WMA-C = C Tank Farm waste management area.

System Plan

Responsible Assistant Manager:	TBD
Federal Program Manager:	Kaylin Burnett
Ecology Project Manager:	Dan McDonald, Jeff Lyon

Significant Past Accomplishments

- The U.S. Department of Energy (DOE), Office of River Protection (ORP); U.S. Environmental Protection Agency; and Washington State Department of Ecology (Ecology) have been in negotiations related to M-062-45 Milestone since September 2016. The parties have agreed on multiple occasions that it was prudent to extend the completion of the negotiations. DOE and Ecology met on October 30, 2018, to discuss, amongst other things, the M-062-45 Milestone and DOE's mark-up of Ecology's proposal. DOE and Ecology agreed to meet regularly to continue these discussions and have agreed to additional extensions of the negotiations until June 14, 2019. The DOE Office of Environmental Management received a letter from the Director of Ecology dated May 29, 2019, that set forth a proposal for concluding the System Plan negotiations and entering into negotiations aimed at putting the parties "on a holistic path forward" to address Hanford tank waste.

Significant Planned Actions in the Next Six Months

- Continue negotiations of the M-062-45 Milestone and related milestones using information from the ORP-11242, *River Protection Project System Plan*, Rev. 8.
- Ecology and ORP will continue discussions to develop scenarios for System Plan, Rev. 9, due October 31, 2019.

Issues

- None.

Acquisition of New Facilities

Tank Farms Assistant Manager: Rob Hastings
Deputy Federal Project Director: Janet Diediker
Ecology Project Manager: Dan McDonald, Jeff Lyon

The current status for all projects listed below is:

- In Abeyance. Decision document 2016-005, *Hanford Federal Facility Agreement and Consent Order Interagency Management Integration Team (IAMIT) Decision/Determination/Action Agreement*, signed August 22, 2016, requires addressing this milestone with the negotiations supporting M-062-45 Milestone. Negotiations began on September 8, 2016.

M-047-07 CD-1 for Secondary Liquid Waste Treatment and CR² for CD-2 to Ecology

Due: March 31, 2016.

M-090-13 CD-1 for Interim Hanford Storage Project and CR for CD-2 to ECY³

Due: March 31, 2016.

M-090-00 Acquire/Modify Facilities for Storage of First Two Years of IHLW⁴ from the WTP⁵ Operations

Due: December 31, 2036.

M-047-00 Completion of Work for Management of Secondary Waste from the WTP

Due: To Be Determined.

Significant Past Accomplishments

- See the “System Plan” section above for updates related to the M-062-45 Milestone negotiations.

Significant Planned Actions in the Next Six Months

- See the “System Plan” section above for updates related to the M-062-45 Milestone negotiations.

Issues

- None.

² Tri-Party Agreement change request.

³ ECY denotes Washington State Department of Ecology.

⁴ IHLW denotes immobilized high-level waste.

⁵ WTP denotes Waste Treatment and Immobilization Plant.

Supplemental Treatment and Part B Permit Applications

Tank Farms Assistant Manager: Rob Hastings
Federal Project Director: Ricky Bang
Ecology Project Manager: Dan McDonald

The current status for each of the projects listed below, unless noted differently, is:

- In Abeyance. Decision document 2016-005, signed August 22, 2016, requires addressing this milestone with the negotiations supporting M-062-45 Milestone. Negotiations began on September 8, 2016.

M-062-45-T01 Complete Negotiations 6-Months after Last Issuance of System Plan

Due: April 30, 2015.

M-062-45-ZZ Negotiate a One-Time Supplemental Treatment Selection

Due: April 30, 2015.

M-062-45-ZZ-A Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones

Due: April 30, 2015.

M-062-31-T01 Complete Final Design and Submit RCRA⁶ Part B Permit Modification Request for Enhanced WTP & Supplemental Treatment

Due: April 30, 2016.

M-062-32-T01 Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements

Due: April 30, 2018.

M-062-33-T01 Complete Construction of Supplemental Treatment Vitrification Facility and/or WTP Enhancements

Due: April 30, 2021.

M-062-45-XX Complete Negotiations to Resolve Future Disputes M-062-45, Paragraphs 4 and 5

Due: December 31, 2021.

Status: On Schedule.

⁶ RCRA denotes *Resource Conservation and Recovery Act*.

M-062-34-T01 Complete Hot Commissioning of Supplemental Treatment Vitrification Facility and/or WTP Enhancements

Due: December 30, 2022.

M-062-21 Annually Submit Data Which Demonstrates Operation of the WTP at a Rate Sufficient to Meet M-062-00

Due: February 28, 2023.

Status: At risk.

M-062-00 Complete Pretreatment Processing and Vitrification of HLW⁷ and LAW⁸ Tank Wastes

Due: December 31, 2047.

Status: At risk.

Significant Past Accomplishments

- See the “System Plan” section above for updates related to the M-062-45 Milestone negotiations.

Significant Planned Actions in the Next Six Months

- See the “System Plan” section above for updates related to the M-062-45 Milestone negotiations.

Issues

- None.

⁷ HLW denotes high-level waste.

⁸ LAW denotes low-activity waste.

Tank-Side Cesium Removal System

Tank Farms Assistant Manager: Rob Hastings
Federal Project Manager: Sahid Smith
Ecology Project Manager: Dan McDonald

This section only covers the Tank Farms Project scope of the direct-feed low-activity waste mission. Please refer to the Consent Decree monthly report for the Waste Treatment and Immobilization Plant Project scope pertaining to direct-feed low-activity waste.

Significant Past Accomplishments

- The TSCR system 90-percent design review was initiated April 2019. (Note the review is still in progress and will be completed in June 2019.)
- The tank farm infrastructure upgrades system 90-percent design review was completed in May 2019.
- The waste feed delivery system 90-percent design review was completed in May 2019.

Significant Planned Actions in the Next Six Months

- The TSCR spent ion exchange column storage pad 90-percent design review is projected to begin in June 2019.
- The TSCR system and supporting infrastructure (Tank Farm Upgrades and waste feed deliver) design is projected to be completed in July 2019.
- TSCR technology testing is projected to be completed in July 2019:
 - Tall column testing
 - Batch contact test
 - Gas generation testing with ion exchange media
 - Ion exchange media drying test.
- The TSCR system fabrication is projected to be completed in September 2019.
- The TSCR system factory acceptance testing is projected to begin in October 2019.

Issues

- Since April 2018, DOE and Ecology have been engaged in discussions on the potential regulatory significance of the TSCR emissions. Ecology has expressed a concern about permitting a system that sends air emissions or ventilation to a double-shell tank or single-shell tank (SST). Based on recent discussions, and to address Ecology's concerns, ORP is developing and evaluating potential options for sampling and monitoring TSCR emissions vented to the AP Tank Farm.
- On December 3, 2018, Ecology sent ORP and the DOE Richland Operations Office a letter (18-NWP-177, "Hanford Site Ambient Air Boundary Concerns") regarding the

Hanford Site ambient air boundary. Ecology expressed its concern that the ambient air boundary appears to have changed as a result of increased public access to parts of the Hanford Site. DOE, Ecology, and the Washington State Department of Health have met several times to attempt to develop a shared understanding of existing conditions and a path forward.

242-A Evaporator Status

Tank Farms Assistant Manager: Rob Hastings
Federal Program Manager: Paul Hernandez
Ecology Project Manager: Jeff Lyon

The 242-A Evaporator campaign strategy for fiscal year (FY) 2019 is in the following table:

Fiscal Year	Campaign No.	Feed Source	Slurry Tank	Comments
2019	EC-10	102-AW	102-AW	A cold run followed by a short hot run will be performed at 242-A Evaporator while efforts to install new transfer lines from 242-A Evaporator to 241-AW Tank Farm are in progress. This maintains 242-A Evaporator staff proficiency, cycles idle equipment, and allows for new equipment testing. This work effort is scheduled for June 2019.

Significant Past Accomplishments

- Installed rebuilt PB-1 Pump

Significant Planned Actions in the Next Six Months

- Establish future campaign and outage scheduling
- Perform campaign EC-10 prior to June 26, 2019
- Continue design efforts related to installation of new slurry transfer lines from 242-A Evaporator to AW Tank Farm
- Retest the recently installed PB-1 pump during the EC-10 campaign
- Procure new PB-1 and PB-2 replacement pumps
- Prepare 242-A Evaporator air instrument dryer upgrade design
- Prepare 60-percent design for 242-A Evaporator transfer line replacement.

Issues

- None.

Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Tank Farms Assistant Manager: Rob Hastings
Federal Program Manager: Richard Valle
Ecology Project Manager: Stephanie Schleif

The Liquid Effluent Retention Facility (LERF) liquid levels, inventory, and received waste are shown in the table below. Volumes in the table are estimated. Tanker shipment volumes are estimated by multiplying the number of shipments by the capacity of the tanker being used.

	242AL-42 (Basin 42)	242AL-43 (Basin 43)	242AL-44 (Basin 44)
Total Volume (as of June 3, 2019)	~6.04 Mgal	~6.29 Mgal	~0.68 Mgal

Waste Received			
AZ-301 Condensate	-	-	-
MWT-31 and 34 Leachate	-	~61,600 gal	-
Other (325 RPS, SWLL, WESF)	-	~3,100 gal	-

Total fiscal year 2019 volume processed (as of June 3, 2019): approximately 980,000 gallons.

gal	=	gallon.	SWLL	=	Solid Waste Landfill Lysimeter.
Mgal	=	million gallons.	WESF	=	Waste Encapsulation and Storage Facility.
MWT	=	mixed waste trench.			
RPS	=	Radioactive Process Sewer (Pacific Northwest National Laboratory).			

Significant Past Accomplishments

- Completed replacement of the three surge pumps and their associated equipment
- Initiated waste processing of LERF Basin 42 effluent through Effluent Treatment Facility (ETF).

Significant Planned Actions in the Next Six Months

- Initiate ETF cleanout activities at the completion of LERF Basin 42 processing.
- Complete upgrade of the backup power source for the Treated Effluent Disposal Facility pump station 2 to provide a connection for a portable generator.
- Begin preparations for the LERF Basin 44 cover replacement project. Upgrades to the leachate system for each LERF basin will also be performed in FY 2019.

- Begin fieldwork to upgrade facility stairs and ladders to improve personnel safety and ergonomics.
- Complete work planning to support repairs to the ETF verification tank B to replace the interior protective epoxy coating. Each of the three verification tanks will be repaired over the next three years (one per fiscal year).
- Receive peroxide decomposer vessel procurements (e.g., new stainless steel tanks, catalytic media) to support the system upgrade project in FY 2019.
- Complete work planning to support upgrading the ETF rough filter and hoist to reduce processing down-time and worker exposure.

Issues

- None.

Tank System Update

Tank Farms Assistant Manager: Rob Hastings
Federal Program Manager: Dustin Stewart
Ecology Project Manager: Jeff Lyon, Nina Menard

Reports are identified as completed (internal access only) or released (external access).

Double-Shell Tank Integrity

Significant Past Accomplishments

- The annual comprehensive inspection of Tank AY-101 annulus was completed in January 2019. Engineering is reviewing the inspections. The previous annulus visual inspection was completed in January 2018.
- Ultrasonic testing inspections were completed for the following tanks in FY 2019:
 - 241-AP-107
 - 241-AP-108
 - 241-AP-108 (air slots inspection)
 - 241-AN-102 (air slots inspection).
- Completed enhanced annulus visual inspection in FY 2019:
 - 241-AN-101
 - 241-AN-102
 - 241-AN-103
 - 241-AN-104
 - 241-AN-105
 - 241-AN-106
 - 241-AN-107
 - 241-AZ-101
 - 241-AZ-102.

Significant Planned Actions in the Next Six Months

- Ultrasonic testing inspections are planned for the following tanks in FY 2019:
 - 241-AN-102 (ongoing)
 - 241-AP-102 (annulus floor ultrasonic testing only; air slot inspection)
 - 241-AP-106 (annulus floor ultrasonic testing only; air slot inspection)
- Procure/Design annulus floor cleaning technology in FY 2019 to clean the annulus floor of Tank AY-101
- Procure a design of a primary tank bottom volumetric inspection system to be deployed into the annulus of double-shell tanks and used to characterize regions of the primary tank bottom
- Procure and install a retractable corrosion monitoring probe in Tank AY-101.

Issues

- None.

Single-Shell Tank Integrity**Significant Past Accomplishments**

- Visual inspections were completed for the following tanks in FY 2019:
 - 241-B-102
 - 241-B-103
 - 241-BX-104
 - 241-B-110
 - 241-B-111
 - 241-B-112
 - 241-SX-114
 - 241-U-106
 - 241-U-109.

Significant Planned Actions in the Next Six Months

- Visual inspections are planned for the following tanks in FY 2019:
 - 241-SX-115
 - 241-U-101
 - 241-T-103
 - 241-T-108
 - 241-T-202
 - 241-TY-106
- Perform the following three miscellaneous underground storage tank visual camera inspections in FY 2019:
 - Catch tank 204-AR-TK-1
 - 241-A-302-A
 - 242-A-302-B
- Perform TFC-ENG-CHEM-D-42, *Tank Leak Assessment Process*, on the following tanks in FY 2019:
 - 241-T-101 (completed)
 - 241-T-103 (ongoing).

Issue

- None.

Independent Qualified Registered Professional Engineer Activities

- Double-shell tank (DST) system:
 - RPP-RPT-58441, *Double-Shell Tank System Integrity Assessment Report (DSTAR)*, Rev. 1, was completed in 2016.
 - The independent, qualified, registered, professional engineer (IQRPE) recommended the next double-shell tank system integrity assessment report be completed in 10 years.
- Single-shell tank (SST) system:
 - Completed M-045-9II Milestone report RPP-IQRPE-50028, *Single-Shell Tank System Structural Integrity Assessment Report*, in 2018.
 - The IQRPE recommended the next SST structural integrity assessment be completed in 16 years. Ecology transmitted letter 19-NWP-009, “Single-Shell Tank Structural Integrity Assessment, RPP-IQRPE-50028,” on January 16, 2019. The letter noted Ecology’s agreement with the IQRPE’s 16 year recommendation. DOE is reviewing a Tri-Party Agreement (TPA) change control form to establish new milestones based on recommendations from the IQRPE and Ecology.
- 242-A Evaporator:
 - Completed RPP-RPT-60098, *242-A Evaporator System Integrity Assessment Report*, Rev. 0 in 2018.
 - The IQRPE recommended the next 242-A Evaporator system integrity assessment be completed in 15 years. Ecology transmitted letter 18-NWP-114, “Department of Ecology’s (Ecology’s) Comment on the 242-A Evaporator System Integrity Assessment Report, RPP-RPT-60098, Revision 0,” on July 19, 2018. The letter noted Ecology’s disagreement with the IQRPE’s 15 year recommendation. The Hanford Sitewide Permit, Rev. 8C currently provides for 242-A Evaporator system integrity assessments on a frequency of 10 years, and ORP will continue to comply with the permit condition.
- ETF:
 - The IQRPE provided a Rev. A draft of report RPP-RPT-60098 for the ETF to Washington River Protection Solutions LLC (WRPS) personnel to review and comment on. A follow-up meeting was held to discuss WRPS’ comments and identify additional information needs. Ongoing technical support was provided to the IQRPE for the integrity assessment, including providing operator rounds taken during operation, structural calculations, seismic calculations, and component drawings.
- 219-S Tank system:
 - WRPS awarded the contract for the 219-S integrity assessment project to Meier Architecture Engineering.
 - As part of the 219-S assessment, the 24-hour static leak test was successfully performed on tanks 101 and 104 on September 13, 2018, and September 5, 2018,

respectively. Tank 102 was successfully leak tested on May 7, 2019, completing the leak testing work needed for the assessment. The work package, WO 350279, for the internal and external visual inspections of the tanks and associated piping has been drafted and is under review.

In-Tank Characterization and Summary

Tank Farms Assistant Manager: Rob Hastings
Federal Program Manager: Dustin Stewart
Ecology Project Manager: Jeff Lyon

Reports Completed or Released

For May 2019, the following reports were completed (internal access only) or released (external access):

- Completed:
 - RPP-RPT-48774, *Derivation of Best-Basis Inventory for Tank 241-SY-101 as of April 1, 2019*, Rev. 3
 - RPP-RPT-59918, *Derivation of Best-Basis Inventory for Tank 241-BX-104 as of April 1, 2019*, Rev. 1
 - RPP-RPT-59037, *Derivation of Best-Basis Inventory for Tank 241-B-112 as of April 1, 2019*, Rev. 1
 - RPP-RPT-59033, *Derivation of Best-Basis Inventory for Tank 241-B-103 as of April 1, 2019*, Rev. 1
 - RPP-PLAN-63054, *Tank 241-AZ-101 Grab Sampling and Analysis Plan – Fiscal Year 2019*, Rev. 0
 - WRPS-1901533, *Test Plan for the Electrochemical Corrosion Testing of Samples from the 2019 Tank 241-AY-101 Core Sampling*
- Released:
 - HNF-EP-0182, *Waste Tank Summary Report for Month March 31, 2019*, Rev. 375
 - HNF-EP-0182, *Waste Tank Summary Report for Month April 30, 2019*, Rev. 376

Tank Sampling

Significant Past Accomplishments

For May 2019, the following tank sampling was conducted:

- Tank 241-AN-107 grab sampling was completed May 7, 2019. Ten samples were received at the 222-S Laboratory.
- Tank 241-AZ-101 grab sampling was completed May 29, 2019. Six samples were received at the 222-S Laboratory.

Significant Planned Actions in the Next Six Months

Future tank sampling is scheduled to be performed as identified below:

- Tank 241-AY-101 core sampling is planned for June 2019.
- Tank 241-AW-102 grab sampling is planned for July 2019.
- Tank 241-AN-102 grab sampling is planned for August 2019
- Tank 241-C-301 catch tank grab sampling is planned for September 2019.
- Tank 241-A-104 sampling using the off riser sampling system is planned for September 2019.

Issues

- None.

Best-Basis Inventory Updates**Significant Past Accomplishments**

- Best-basis inventory updates for the following tanks were completed in May 2019:
 - 241-B-103
 - 241-B-112
 - 241-BX-104
 - 241-SY-101.

Significant Planned Actions in the Next Month

- Best-basis inventory updates for the following tanks are currently planned to be completed in June 2019:
 - 241-A-104
 - 241-A-105
 - 241-AP-102
 - 241-AP-104
 - 241-BY-102
 - 241-BY-103
 - 241-S-107
 - 241-TX-108.

Issues

- None.

Single-Shell Tank Closure Program

Tank Farms Assistant Manager: Rob Hastings

Federal Program Manager: Rod Lobos

Ecology Project Manager: Jeff Lyon

M-045-59 Control Surface Water Infiltration Pathways as Needed

Due: To Be Determined. Will be implemented if needed to control or significantly reduce the likelihood of migration of subsurface contamination to groundwater at the SST waste management areas (WMA) (pending the corrective measures study report, M-45-58 Milestone, and implementation of other interim corrective measures).

Status: On Schedule.

M-045-62 Submit the Draft Tier 3 Closure Plan with Corrective Measures in Phase 2 Corrective Measures Implementation Work Plan (CMIP) for WMA-C⁹

Due: To Be Determined. To be established in accordance with the date identified in the M-45-82 Milestone Tier 2 closure plan.

Status: On Schedule.

M-045-83 Complete the Closure of WMA-C by Completing Closure Activities Specified in the Tier 2 Closure Plan

Due: To Be Determined. To be established in accordance with the date identified in the M-45-82 Milestone Tier 2 closure plan.

Status: On Schedule.

M-045-84 Initiate Negotiations to Establish HFFACO¹⁰ Interim Milestones for Closure of 2nd SST WMA

Due: April 3, 2017.

Status: Completed (March 14, 2017). Negotiations initiated on March 14, 2017.

Note: Decision on location of next WMA to be closed needs to be finalized.

⁹ WMA-C denotes C Tank Farm waste management area.

¹⁰ HFFACO denotes *Hanford Federal Facility Agreement and Consent Order* (HFFACO and the Tri-Party Agreement [TPA] are used interchangeably throughout this report).

- M-045-92V Complete Construction of Barriers 1 (South) and 2 (North) and Expansion Barrier in 241-SX Farm**
Due: October 31, 2019.
Status: On Schedule.
Note: This includes the construction of the SX Tank Farm expansion barrier as well.
- M-045-92W Submit to Ecology Design for Barrier 3 in 241-TX Farm**
Due: October 31, 2019.
Status: On Schedule.
- M-045-92AC Submit to Ecology for Approval a Maintenance and Performance Monitoring Plan for Interim Barriers**
Due: October 31, 2019.
Status: On Schedule.
- M-045-92X Barrier 3 in 241-TX Farm Design Approved by Ecology**
Due: January 31, 2020.
Status: On Schedule.
- M-045-92AD Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities**
Due: October 31, 2020.
Status: On Schedule.
- M-045-92Y Complete Construction of Barrier 3 in 241-TX Farm**
Due: October 31, 2021.
Status: On Schedule.
- M-045-92Z Submit to Ecology Design/Maintenance and Performance Monitoring Plan for Barrier 4 in 241-U Farm**
Due: October 31, 2021.
Status: On Schedule.
- M-045-92AA Barrier 4 in 241-U Farm Design Approved by Ecology**
Due: January 31, 2022.
Status: On Schedule.

M-045-85 Initiate Negotiations of HFFACO Interim Milestones for Closure of Remaining WMAs

Due: January 31, 2022.

Status: On Schedule.

M-045-92AB Complete Construction of Barrier 4 in 241-U Farm

Due: October 31, 2023.

Status: On Schedule.

M-045-00 Complete Closure of All SST Farms

Due: January 31, 2043.

Status: At Risk. Decision document 2016-005 signed August 22, 2016, requires this milestone to be addressed with the negotiations supporting M-062-45 Milestone. See the “System Plan” section above for updates related to the M-062-45 Milestone negotiations.

Significant Past Accomplishments

- Completed construction of the SX Tank Farm Barrier 1 (south) and SX Tank Farm Barrier 2 (north).
- Submitted revisions and comment responses to Ecology for RPP-RPT-59389, *Tier 2 Resource Conservation and Recovery Act (RCRA) Closure Action Plan for Waste Management Area C*; RPP-RPT-59390, *Tier 3 Resource Conservation and Recovery Act (RCRA) Component Closure Activity Plan for 241-C-200 Series Tanks*; and RPP-RPT-58858, *Tier 1 Closure Plan Single-Shell Tank System*.
- Began permitting workshops with Ecology for the SST closure plans in the Hanford Site-wide permit.

Significant Planned Activities in the Next Six Months

- Resolve Ecology’s comments on RPP-RPT-59389, RPP-RPT-59390, and RPP-RPT-58858.
- Complete construction of the SX Tank Farm expansion barrier.
- Submit design for Barrier 3 in 241-TX Farm to Ecology.
- Submit the maintenance and performance monitoring plan for interim barriers to Ecology.

Issues

- Report DOE/ORP-2014-02, *Clean Closure Practicality Demonstration for the Single-Shell Tanks*, Rev. 1 dated July 23, 2014. ORP received Ecology letter 15-NWP-149, “Department of Ecology’s Response Comments Regarding Review of the

Clean Closure Practicability Demonstration for the Single-Shell Tanks, DOE/ORP-2014-02,” dated August 3, 2015. Ecology provided comments on the document and ORP met with Ecology in November 2017 to discuss a path forward. ORP provided an update to DOE/ORP-2014-02 via 18-ECD-0079, “Transmittal of Supplemental Information to the Clean Closure Practicability Demonstration for the Single-Shell Tanks DOE/ORP-201-4-02-SUPP-1,” dated January 24, 2019. Awaiting Ecology approval.

- ORP formally initiated the TPA dispute resolution process with Ecology over Ecology’s “Denial of Request for Waiver for TPA Waste Retrieval Criteria for SST 241-C-106” (C-106). This dispute is extended at the TPA Interagency Management Integration Team level until June 12, 2019. Final determination by the Director of Ecology is due by June 26, 2019. ORP’s statement of dispute suggests that Ecology’s C-106 regulator waiver denial could cause significant time and cost impacts to tank closure schedules.

Single-Shell Tank Retrieval Program

Tank Farms Assistant Manager: Rob Hastings

Federal Program Manager: Jeff Rambo

Ecology Project Manager: Jeff Lyon

M-045-86 Submit Retrieval Data Report (RDR) To Ecology for 19 Tanks Retrieved Under Consent Decree

Due: To Be Determined (12 months after retrieval certification).

Status: On Schedule. Sub-milestone M-045-86D; RPP-RPT-60956, *Retrieval Data Report for Single-Shell Tank 241-C-105*, Rev. 0.

M-045-70 Complete Waste Retrieval from All Remaining Single Shell Tanks (SSTs)

Due: December 31, 2040.

Status: At Risk. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 Milestone. See the “System Plan” section above for updates related to the M-062-45 Milestone negotiations.

Significant Past Accomplishments

- Refer to the Consent Decree monthly report for retrieval accomplishments.

Significant Planned Activities in the Next Six Months

- Refer to the Consent Decree monthly report for planned activities.

Issues

- Refer to the Consent Decree monthly report for retrieval issues.

Tank Operations Contract Overview

Earned Value Data: Fiscal Year 2019

April-19

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$57,293	\$58,896	\$58,059	\$1,603	\$836	1.03	1.01			
FYTD	\$363,412	\$348,593	\$350,903	(\$14,819)	(\$2,310)	0.96	0.99	\$737,501		
CTD	\$5,147,138	\$5,103,015	\$5,070,185	(\$44,123)	\$32,830	0.99	1.01	\$5,521,228	\$5,492,428	\$28,800

ACWP actual cost of work performed.

BAC budget at completion.

BCWP budgeted cost of work performed.

BCWS budgeted cost of work scheduled.

CM current month.

CPI cost performance index.

CTD contract to date.

CV cost variance.

EAC estimate at completion.

FYTD fiscal year to date.

SPI schedule performance index.

SV schedule variance.

VAC variance at completion.

The Earned Value Management System is intended to provide a status of how the contractor is progressing against its monthly planned work (i.e., schedule), and whether it is costing more or less to complete the work than planned. The earned value analysis is not intended to be a measurement of performance against existing TPA milestones.

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 schedule variance (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 a net zero overall cumulative SV over these months. Likewise, work completed late will recover an earlier reported unfavorable SV.

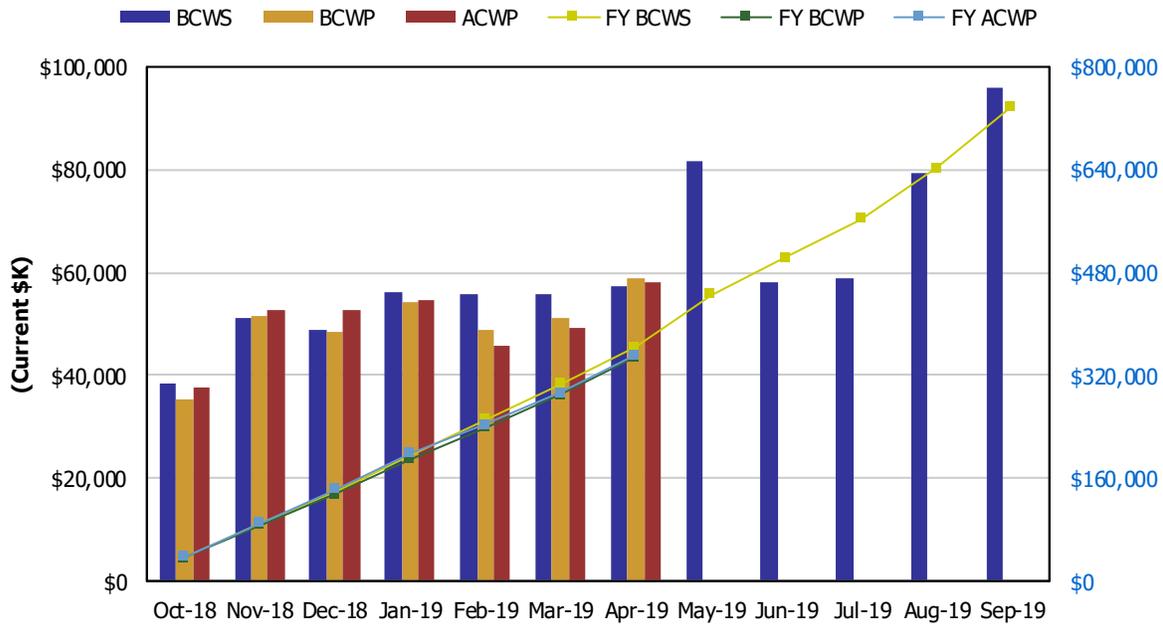
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000 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 contract-to-date value. The monthly variances can fluctuate significantly (for reasons noted earlier), so the fiscal year or contract-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.

Earned Value Data: Fiscal Year 2019

April-19

Tank Farms ORP-0014
WBS 5 - River Protection Project

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 2018	\$38,412	\$35,485	\$37,730	0.92	0.94	\$38,412	\$35,485	\$37,730	0.92	0.94
Nov 2018	\$51,217	\$51,557	\$52,805	1.01	0.98	\$89,629	\$87,042	\$90,536	0.97	0.96
Dec 2018	\$48,948	\$48,478	\$52,703	0.99	0.92	\$138,577	\$135,520	\$143,239	0.98	0.95
Jan 2019	\$56,114	\$54,183	\$54,445	0.97	1.00	\$194,691	\$189,703	\$197,684	0.97	0.96
Feb 2019	\$55,780	\$48,760	\$45,820	0.87	1.06	\$250,471	\$238,463	\$243,503	0.95	0.98
Mar 2019	\$55,648	\$51,235	\$49,340	0.92	1.04	\$306,120	\$289,697	\$292,843	0.95	0.99
Apr 2019	\$57,293	\$58,896	\$58,059	1.03	1.01	\$363,412	\$348,593	\$350,903	0.96	0.99
May 2019	\$81,752					\$445,164				
Jun 2019	\$58,048					\$503,212				
Jul 2019	\$58,915					\$562,127				
Aug 2019	\$79,330					\$641,456				
Sep 2019	\$96,045					\$737,501				

CTD	\$5,147,138	\$5,103,015	\$5,070,185	0.99	1.01
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ACWP actual cost of work performed.
 BCWP budgeted cost of work performed.
 BCWS budgeted cost of work scheduled.
 CPI cost performance index.

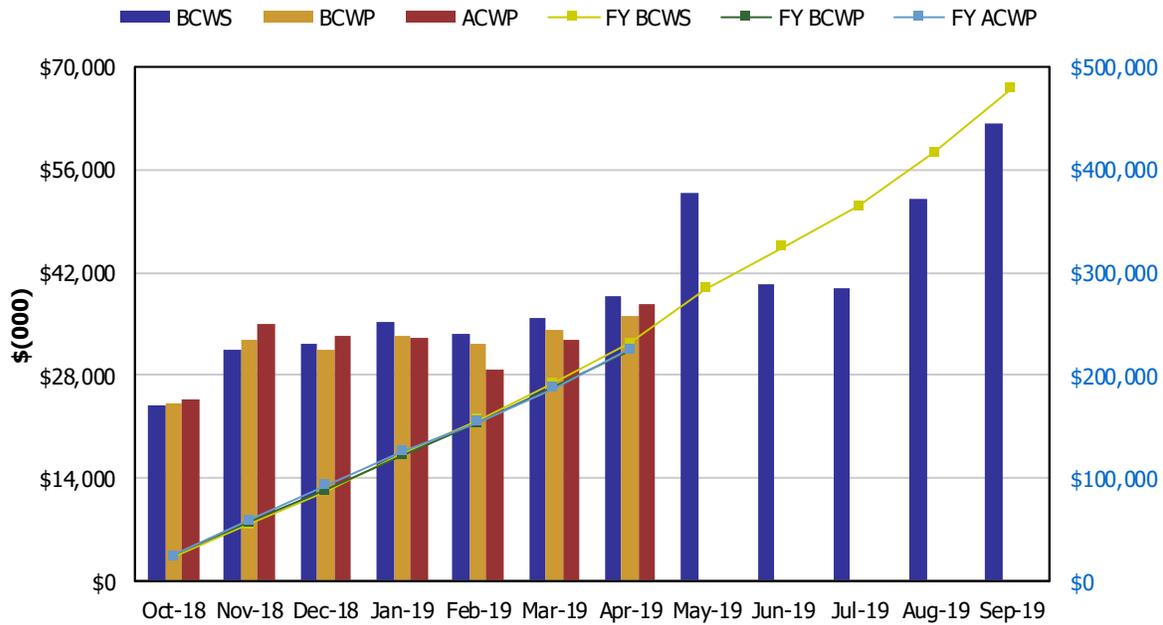
CM current month.
 CTD contract to date.
 FY fiscal year.
 SPI schedule performance index.

Earned Value Data: Fiscal Year 2019

April-19

Tank Farms ORP-0014
WBS 5.1 - Base Operations

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 2018	\$23,815	\$24,288	\$24,807	1.02	0.98	\$23,815	\$24,288	\$24,807	1.02	0.98
Nov 2018	\$31,462	\$32,868	\$34,951	1.04	0.94	\$55,276	\$57,155	\$59,758	1.03	0.96
Dec 2018	\$32,379	\$31,352	\$33,247	0.97	0.94	\$87,655	\$88,507	\$93,005	1.01	0.95
Jan 2019	\$35,182	\$33,427	\$33,218	0.95	1.01	\$122,837	\$121,934	\$126,224	0.99	0.97
Feb 2019	\$33,669	\$32,157	\$28,838	0.96	1.12	\$156,506	\$154,092	\$155,062	0.98	0.99
Mar 2019	\$35,881	\$34,287	\$32,784	0.96	1.05	\$192,387	\$188,379	\$187,845	0.98	1.00
Apr 2019	\$38,897	\$36,077	\$37,624	0.93	0.96	\$231,284	\$224,456	\$225,469	0.97	1.00
May 2019	\$52,848					\$284,132				
Jun 2019	\$40,349					\$324,480				
Jul 2019	\$39,892					\$364,373				
Aug 2019	\$52,016					\$416,389				
Sep 2019	\$62,322					\$478,711				

CTD	\$3,407,937	\$3,387,073	\$3,340,996	0.99	1.01
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- ACWP actual cost of work performed.
- BCWP budgeted cost of work performed.
- BCWS budgeted cost of work scheduled.
- CPI cost performance index.
- CM current month.
- CTD contract to date.
- FY fiscal year.
- SPI schedule performance index.

Tank Farms Assistant Manager: Rob Hastings
Federal Project Director: Ricky Bang

5.01 – Base Operations

The April 2019 variances below do not impact TPA milestones.

The **unfavorable** SV of (\$2,820,200) was primarily due to:

- For the ETF processing the unfavorable SV was a result of an extended facility outage period required in order to prepare for future processing. In order to coordinate with the Tank Farms Project team's work and to allow ETF upgrades to proceed concurrently, significant maintenance was deemed critical for the ETF. These issues delayed ETF processing.
- For the 242-A Evaporator, the unfavorable SV was due to moving PB-1 Pump refurbishment from an outside tent into the facility and additional radiological planning prior to completing the rebuild.

The **unfavorable** CV of (\$1,546,900) was primarily due to:

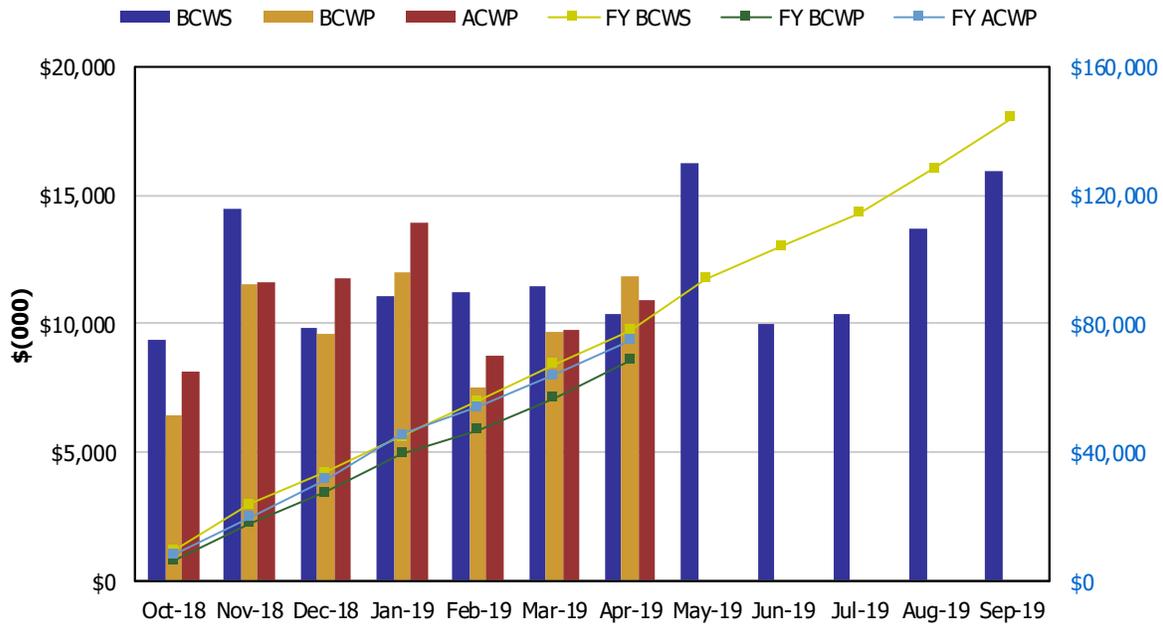
- For the vapor monitoring and detection system upgrades, additional resources were required for software development and creation of key engineering documents for the support of operational acceptance tests. Additional engineering and software resources will continue to be needed to support calculations and software development that will be used to verify test gases and equipment calibration.

Earned Value Data: Fiscal Year 2019

April-19

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

EVMS Monthly and Fiscal Year Values



Earned Value Month

Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2018	\$9,402	\$6,448	\$8,124	0.69	0.79	\$9,402	\$6,448	\$8,124	0.69	0.79
Nov 2018	\$14,501	\$11,516	\$11,634	0.79	0.99	\$23,902	\$17,964	\$19,757	0.75	0.91
Dec 2018	\$9,824	\$9,620	\$11,762	0.98	0.82	\$33,726	\$27,585	\$31,519	0.82	0.88
Jan 2019	\$11,060	\$12,034	\$13,959	1.09	0.86	\$44,786	\$39,618	\$45,479	0.88	0.87
Feb 2019	\$11,259	\$7,545	\$8,742	0.67	0.86	\$56,046	\$47,163	\$54,221	0.84	0.87
Mar 2019	\$11,437	\$9,672	\$9,801	0.85	0.99	\$67,483	\$56,836	\$64,022	0.84	0.89
Apr 2019	\$10,391	\$11,841	\$10,948	1.14	1.08	\$77,874	\$68,677	\$74,969	0.88	0.92
May 2019	\$16,243					\$94,117				
Jun 2019	\$9,975					\$104,092				
Jul 2019	\$10,382					\$114,474				
Aug 2019	\$13,678					\$128,153				
Sep 2019	\$15,917					\$144,070				

CTD	\$1,018,613	\$999,407	\$1,053,467	0.98	0.95
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- ACWP actual cost of work performed.
- BCWP budgeted cost of work performed.
- BCWS budgeted cost of work scheduled.
- CPI cost performance index.
- CM current month.
- CTD contract to date.
- FY fiscal year.
- SPI schedule performance index.

Tank Farms Assistant Manager: Rob Hastings
Federal Program Manager: Jeff Rambo

5.02 – Retrieve and Close Single-Shell Tanks

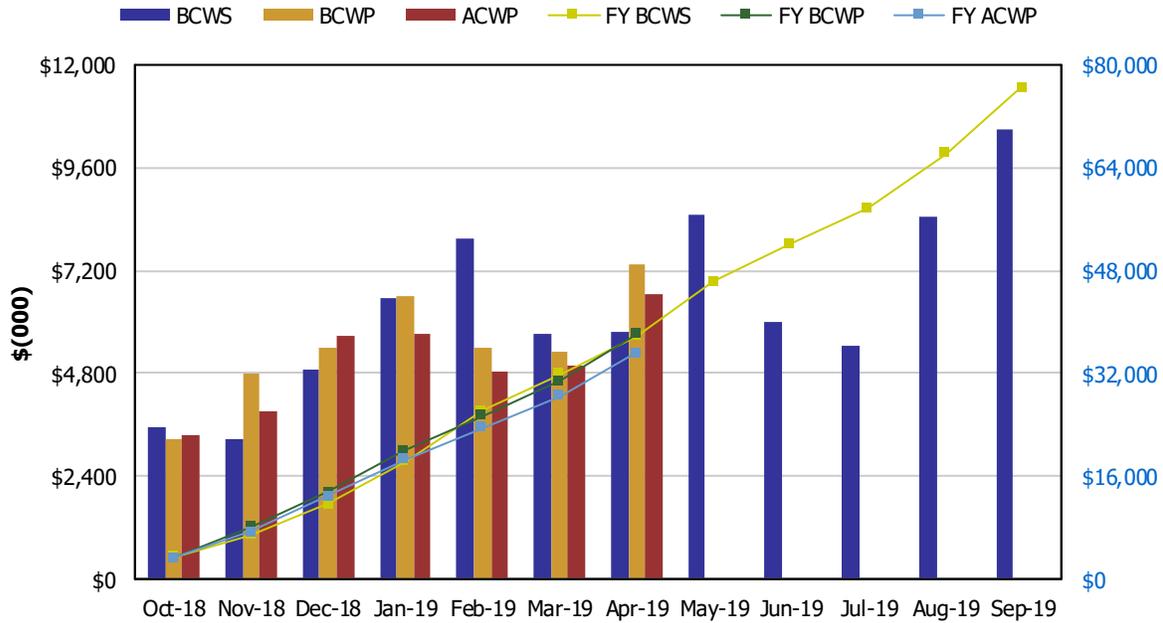
For the retrieval portion see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2019

April-19

Tank Farms ORP-0014
WBS 5.3 - WFD/Treatment Plng/DST Retrieval/Closure

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 2018	\$3,529	\$3,267	\$3,336	0.93	0.98	\$3,529	\$3,267	\$3,336	0.93	0.98
Nov 2018	\$3,269	\$4,771	\$3,923	1.46	1.22	\$6,798	\$8,039	\$7,259	1.18	1.11
Dec 2018	\$4,868	\$5,392	\$5,695	1.11	0.95	\$11,666	\$13,431	\$12,954	1.15	1.04
Jan 2019	\$6,572	\$6,604	\$5,699	1.00	1.16	\$18,238	\$20,035	\$18,653	1.10	1.07
Feb 2019	\$7,962	\$5,389	\$4,829	0.68	1.12	\$26,200	\$25,425	\$23,482	0.97	1.08
Mar 2019	\$5,716	\$5,326	\$4,994	0.93	1.07	\$31,917	\$30,750	\$28,476	0.96	1.08
Apr 2019	\$5,766	\$7,335	\$6,627	1.27	1.11	\$37,683	\$38,086	\$35,102	1.01	1.08
May 2019	\$8,478					\$46,161				
Jun 2019	\$6,015					\$52,175				
Jul 2019	\$5,447					\$57,623				
Aug 2019	\$8,466					\$66,088				
Sep 2019	\$10,475					\$76,563				
CTD	\$537,268	\$534,034	\$489,878	0.99	1.09					

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.

Tank Farms Assistant Manager: Rob Hastings
Federal Program Manager: Brian Harkins

5.03 – Waste Feed Delivery/Treatment

The April 2019 variances below do not impact TPA milestones.

The **favorable** SV of \$1,569,200 was due to:

- In support of the AP-02D Pump removal, schedule recovery for completion of the pump removal and the activities associated with demobilization of pump removal equipment and pit work.

The **favorable** CV of \$708,700 was due to:

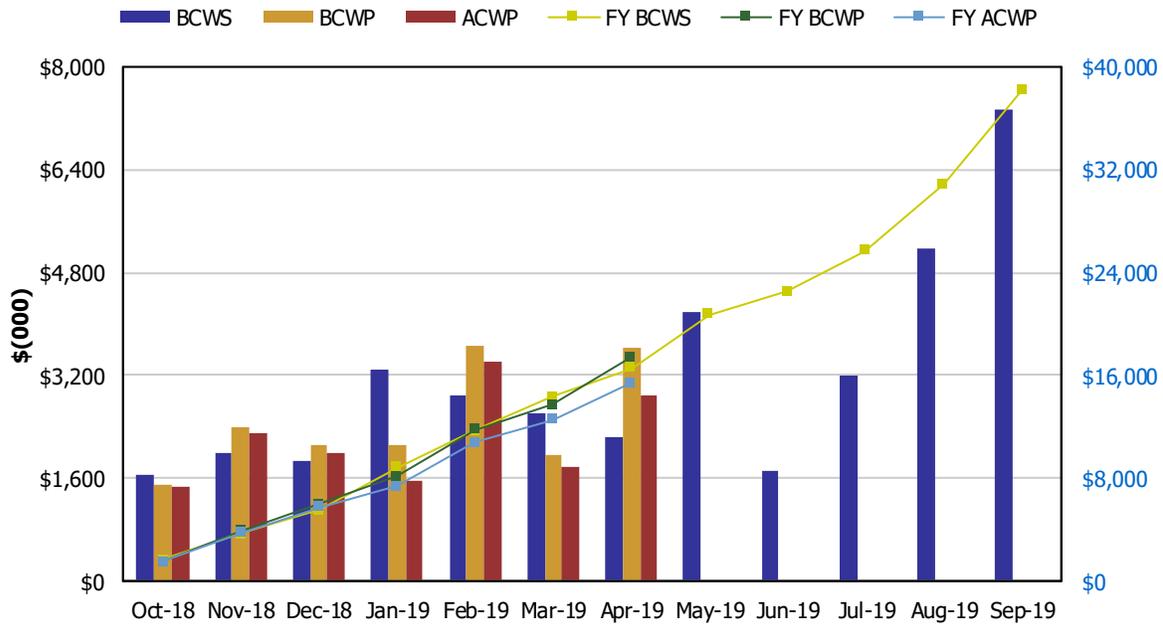
- For the AP-02D Pump removal, the favorable CV was the result of correcting a previous month's accounting error.

Earned Value Data: Fiscal Year 2019

April-19

**Tank Farms ORP-0014
WBS 5.5 - Treat Waste**

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 2018	\$1,666	\$1,482	\$1,464	0.89	1.01	\$1,666	\$1,482	\$1,464	0.89	1.01
Nov 2018	\$1,986	\$2,402	\$2,297	1.21	1.05	\$3,652	\$3,884	\$3,761	1.06	1.03
Dec 2018	\$1,877	\$2,114	\$2,001	1.13	1.06	\$5,529	\$5,997	\$5,762	1.08	1.04
Jan 2019	\$3,301	\$2,118	\$1,568	0.64	1.35	\$8,830	\$8,115	\$7,330	0.92	1.11
Feb 2019	\$2,890	\$3,668	\$3,411	1.27	1.08	\$11,720	\$11,783	\$10,741	1.01	1.10
Mar 2019	\$2,614	\$1,950	\$1,761	0.75	1.11	\$14,333	\$13,733	\$12,502	0.96	1.10
Apr 2019	\$2,239	\$3,642	\$2,895	1.63	1.26	\$16,572	\$17,374	\$15,397	1.05	1.13
May 2019	\$4,183					\$20,755				
Jun 2019	\$1,709					\$22,465				
Jul 2019	\$3,193					\$25,657				
Aug 2019	\$5,169					\$30,826				
Sep 2019	\$7,331					\$38,157				

CTD	\$163,211	\$162,391	\$166,713	0.99	0.97
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ACWP actual cost of work performed.
 BCWP budgeted cost of work performed.
 BCWS budgeted cost of work scheduled.
 CPI cost performance index.

CM current month.
 CTD contract to date.
 FY fiscal year.
 SPI schedule performance index.

Tank Farms Assistant Manager: Rob Hastings
Deputy Federal Project Director: Sahid Smith

5.05 – Treat Waste

The April 2019 variances below do not impact TPA milestones.

The **favorable** SV of \$1,403,400 was due to:

- TSCR's current month favorable SV was due to tank farm upgrades infrastructure's 90-percent design documents for waste transfer line modifications completing 1 month ahead of schedule. In addition, the design analysis for design and prototype development of AP-06A transfer pumps proved to be less difficult than planned and is currently 20 percent ahead of schedule.

The **favorable** CV of \$746,800 was due to:

- Efficiencies realized by the Architect/Engineer in support of the infrastructure 90-percent design, and ion exchange column storage pad 60-percent design. This resulted in fewer project support resources being necessary as compared to planning assumptions due to close coordination between the Architect/Engineer and WRPS and the use of lessons learned from similar system design efforts.