

Office of River Protection



Monthly Reporting Period

June 1–June 30, 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 May 2019.

Topic	Page
Acronyms and Abbreviations	2
Administrative Items/Milestone Status.....	3
System Plan.....	6
Acquisition of New Facilities	7
Supplemental Treatment and Part B Permit Applications	8
Tank-Side Cesium Removal System	10
242-A Evaporator Status.....	12
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility.....	13
Tank System Update	15
In-Tank Characterization and Summary.....	19
Single-Shell Tank Closure Program	22
Single-Shell Tank Retrieval Program	26
Tank Operations Contract Overview	27

Acronyms and Abbreviations

CV	cost variance
DOE	U.S. Department of Energy
DST	double-shell tank
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

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 Dispute
M-062-45-ZZ	Negotiate a One-Time Supplemental Treatment Selection	04/30/2015	R. Bang	In Dispute
M-062-45-ZZ-A	Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones	04/30/2015	R. Bang	In Dispute
M-047-07	CD-1 for Secondary Liquid Waste Treatment and CR for CD-2 to Ecology	03/31/2016	J.A. Diediker	In Dispute
M-090-13	CD-1 for Interim Hanford Storage Project and CR for CD-2 to Ecology	03/31/2016	J.A. Diediker	In Dispute
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 Dispute
M-062-32-T01	Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements	04/30/2018	R. Bang	In Dispute
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.	PM	=	project manager.
CMIP	=	corrective measures implementation work plan.	RCRA	=	<i>Resource Conservation and Recovery Act.</i>
CR	=	change request.	SST	=	single-shell tank.
DOE	=	U.S. Department of Energy.	TBD	=	to be determined.
Ecology	=	Washington State Department of Ecology.	WTP	=	Waste Treatment and Immobilization Plant.
Mod	=	modification.	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 Environmental Management received a letter from the Director of the Washington State Department of Ecology (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. The DOE Office of River Protection (ORP), U.S. Environmental Protection Agency, and Ecology have ended negotiations related to M-062-45 Milestone with ORP letter 19-ORP-0005, “Milestones in the Hanford Federal Facility Agreement and Consent Order Placed “In Abeyance” During the System Plan 8 Negotiations,” to Ecology dated June 21, 2019, and Ecology letter 19-NWP-097, “Correspondence Regarding Tank Waste Retrieval and Treatment Pathway at Hanford,” to ORP dated June 27, 2019, in which ORP requested to keep the milestones in abeyance until the holistic negotiations were completed and Ecology denied the request. This resulted in initiation of the Tri-Party Agreement’s (TPA) dispute process.

Additionally, Ecology attached change packages with their concurring signatures for DOE to respond to within the 14-day required period related to topics covered in the negotiations related to milestone M-062-45.

Significant Planned Actions in the Next Six Months

- Resolve dispute regarding milestone M-062-45 and associated milestones.
- Ecology and ORP will continue discussions to develop scenarios for System Plan, Rev. 9, due October 31, 2019.

Issues

- Failed negotiations have led to initiation of the dispute process for milestones associated to milestone M-062-45.

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 Dispute. Ecology and DOE have ended negotiations related to the M-062-45 Milestone and have initiated dispute. Therefore, the status of the milestones below has changed to “In Dispute.”

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

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

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 Dispute. Ecology and DOE have ended negotiations related to the M-062-45 Milestone and have initiated dispute. Therefore, the status of the milestones below has changed to “In Dispute.”

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

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

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 waste feed delivery system 90-percent design review was completed in May 2019.
- The tank farm infrastructure upgrades system 90-percent design review was completed in May 2019.
- The Tank-Side Cesium Removal (TSCR) system 90-percent design review was completed in June 2019.

Significant Planned Actions in the Next Six Months

- The TSCR system and supporting infrastructure (tank farm upgrades and waste feed delivery) design is projected to be completed in July 2019.
- TSCR technology testing is projected to be completed in July 2019:
 - Tall column.
 - Batch contact.
 - Gas generation with ion exchange media.
 - Ion exchange media drying.
- The TSCR spent ion exchange column storage pad 90-percent design review is projected to begin in August 2019.
- 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 (DST) 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 was completed on June 27, 2019, at the 242-A Evaporator. This run occurred while installation of new transfer lines from 242-A Evaporator to 241-AW Tank Farm continued. This run helped to maintain 242-A Evaporator staff proficiency, cycled idle equipment, and allowed for new equipment testing.

Significant Past Accomplishments

- Completed campaign EC-10
- Completed run-in and leak testing of the PB-1 recirculation pump
- Awarded fabrication contract for PB-1 spare pump.

Significant Planned Actions in the Next Six Months

- Establish future campaign and outage scheduling
- 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 July 1, 2019)	~5.90 Mgal	~6.48 Mgal	~0.70 Mgal

Waste Received			
242-A Evaporator Process Condensate	-	~162,000 gal	-
AZ-301 Condensate	~6,400 gal	-	-
MWT-31 and 34 Leachate	~54,100 gal	-	-
Other (325 RPS, SWLL, WESF)	-	~1,200 gal	-

Total fiscal year 2019 volume processed (as of July 1, 2019): approximately 1,200,000 gallons.

gal = gallon.

Mgal = million gallons.

MWT = mixed waste trench.

RPS = Radioactive Process Sewer (PNNL).

SWLL = Solid Waste Landfill Lysimeter.

WESF = Waste Encapsulation and Storage Facility.

Significant Past Accomplishments

- Continued waste processing of LERF Basin 42 effluent through the Effluent Treatment Facility (ETF).
- Completed fieldwork for upgrade of the backup power source for the Treated Effluent Disposal Facility pump station 2 to provide a connection for a portable generator.

Significant Planned Actions in the Next Six Months

- Initiate ETF cleanout activities at the completion of LERF Basin 42 processing.
- Begin preparations for the LERF Basin 44 cover replacement project. Upgrades to the leachate system for each LERF basin will also be performed in fiscal year (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 3 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-AN-102
 - 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-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 DSTs 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

- 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 DST system integrity assessment report be completed in 10 years.
- 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 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-IQRPE-50043, “FY19 Effluent Treatment Facility IQRPE Integrity Assessment, Rev 00”, to Washington River Protection Solutions LLC personnel for review and comments. Fieldwork was performed allowing inspections supporting the integrity assessment to be completed.
- 219-S Tank System:
 - Washington River Protection Solutions LLC 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. Work package 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 June 2019, the following reports were completed (internal access only) or released (external access):

- Completed:
 - RPP-RPT-58864, *Derivation of Best-Basis Inventory for Tank 241-A-105 as of April 1, 2019*, Rev. 2
 - RPP-RPT-58857, *Derivation of Best-Basis Inventory for Tank 241-A-104 as of April 1, 2019*, Rev. 3
 - RPP-RPT-48639, *Derivation of Best-Basis Inventory for Tank 241-AP-104 as of May 1, 2019*, Rev. 18
 - RPP-RPT-60372, *Derivation of Best-Basis Inventory for Tank 241-S-107 as of April 1, 2019*, Rev. 1
 - RPP-RPT-54017, *Derivation of Best-Basis Inventory for Tank 241-AP-102 as of May 1, 2019*, Rev. 11
 - RPP-RPT-58279, *Derivation of Best-Basis Inventory for Tank 241-BY-102 as of April 1, 2019*, Rev. 2
 - RPP-RPT-44752, *Derivation of Best-Basis Inventory for Tank 241-BY-103 as of June 1, 2019*, Rev. 3
 - RPP-RPT-58699, *Derivation of Best-Basis Inventory for Tank 241-TX-108 as of May 1, 2019*, Rev. 2
 - RPP-PLAN-63188, *Tank 241-AW-102 Grab Sampling and Analysis Plan – Fiscal Year 2019*, Rev. 0
 - RPP-RPT-61237, *Final Analytical Report for Tank 241-AW-105 TBI Grab Sampling in Support of Waste Characterization in Fiscal Year 2018*, Rev. 2
 - RPP-RPT-60687, *Final Analytical Report for Tank 241-AP-106 TBI Grab Sampling and Analysis Plan – Fiscal Year 2018*, Rev. 1
 - RPP-RPT-61614, *Final Analytical Report for Tank 241-SY-102 Grab Samples 2019-03*, Rev. 0
- Released:
 - HNF-EP-0182, *Waste Tank Summary Report for Month May 31, 2019*, Rev. 377.

Tank Sampling

Significant Past Accomplishments

For June 2019, the following tank sampling was conducted:

- None.

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 July 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 August 2019.
- Tank 241-A-104 sampling is planned for September 2019.
(Note: Uses the off riser sampling system.)

Issues

- None.

Best-Basis Inventory Updates

Significant Past Accomplishments

- Best-basis inventory updates for the following tanks were 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.

Significant Planned Actions in the Next Month

- Best-basis inventory updates for the following tanks are currently planned to be completed in July 2019:
 - None.

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: Completed in May 2019.
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).
- Completed construction of the SX Tank Farm expansion barrier (May 2019).
- 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*.
- Continued permitting workshops with Ecology for the SST closure plans in the Hanford Site-wide permit.
- DOE/ORP-2014-02, *Clean Closure Practicality Demonstration for the Single-Shell Tanks*, with supplemental information DOE/ORP-2014-02-SUPP-1 was approved via letter 19-NWP-090, “Transmittal of Supplemental Information to the *Clean Closure Practicality Demonstration for the Single-Shell Tanks*, DOE/ORP-2014-02-SUPP1, Revision 0,” by Ecology on June 12, 2019.

Significant Planned Activities in the Next Six Months

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

Issues

- 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 was extended at the TPA Interagency Management Integration Team level until June 12, 2019. A Director's Determination by the Director of Ecology was made on June 26, 2019 (19-NWP-101). ORP is reviewing the Director's Determination.

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: Completed. Sub-milestone M-045-86D; RPP-RPT-60956, *Retrieval Data Report for Single-Shell Tank 241-C-105*, Rev. 0. Transmitted to Ecology on via letter 19-TPD-0011. “Contract No. DE-AC27-08RV 14800 - The U.S. Department of Energy Office of River Protection Submits the Retrieval Data Report for Tank 241 -C-L105” dated June 21, 2019.

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

May-19

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$81,214	\$73,728	\$69,793	(\$7,486)	\$3,935	0.91	1.06			
FYTD	\$444,626	\$422,321	\$420,695	(\$22,305)	\$1,626	0.95	1.00	\$739,286		
CTD	\$5,228,352	\$5,176,743	\$5,139,978	(\$51,609)	\$36,765	0.99	1.01	\$5,523,012	\$5,495,160	\$27,852

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.

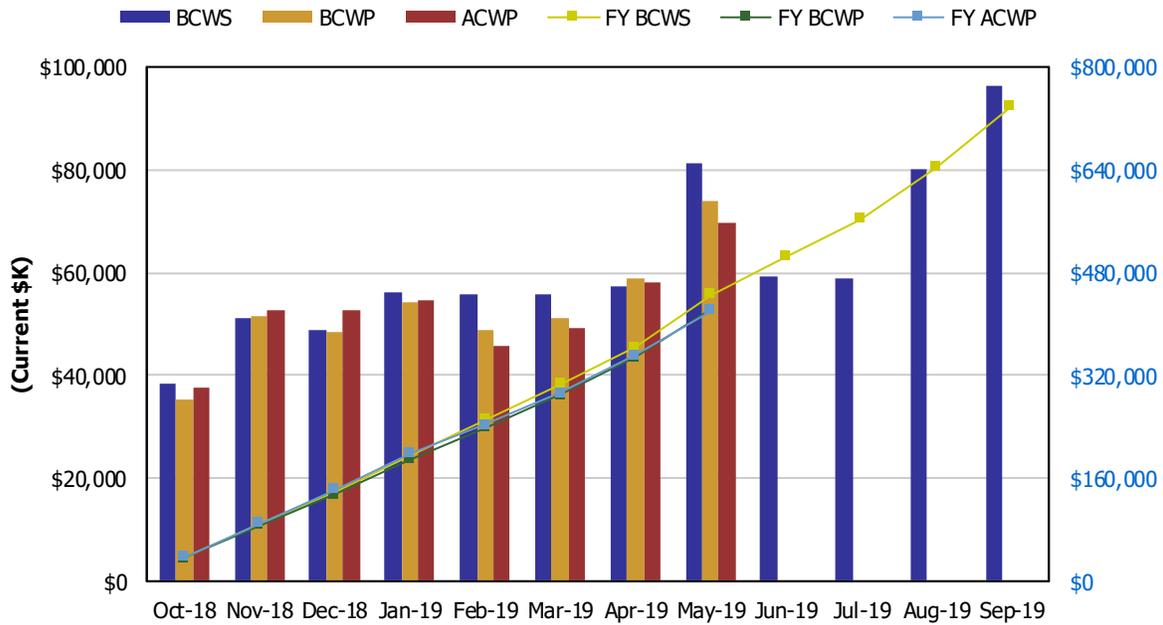
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000 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

May-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	\$81,214	\$73,728	\$69,793	0.91	1.06	\$444,626	\$422,321	\$420,695	0.95	1.00
Jun 2019	\$59,357					\$503,983				
Jul 2019	\$58,784					\$562,767				
Aug 2019	\$80,232					\$642,999				
Sep 2019	\$96,287					\$739,286				

CTD	\$5,228,352	\$5,176,743	\$5,139,978	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.

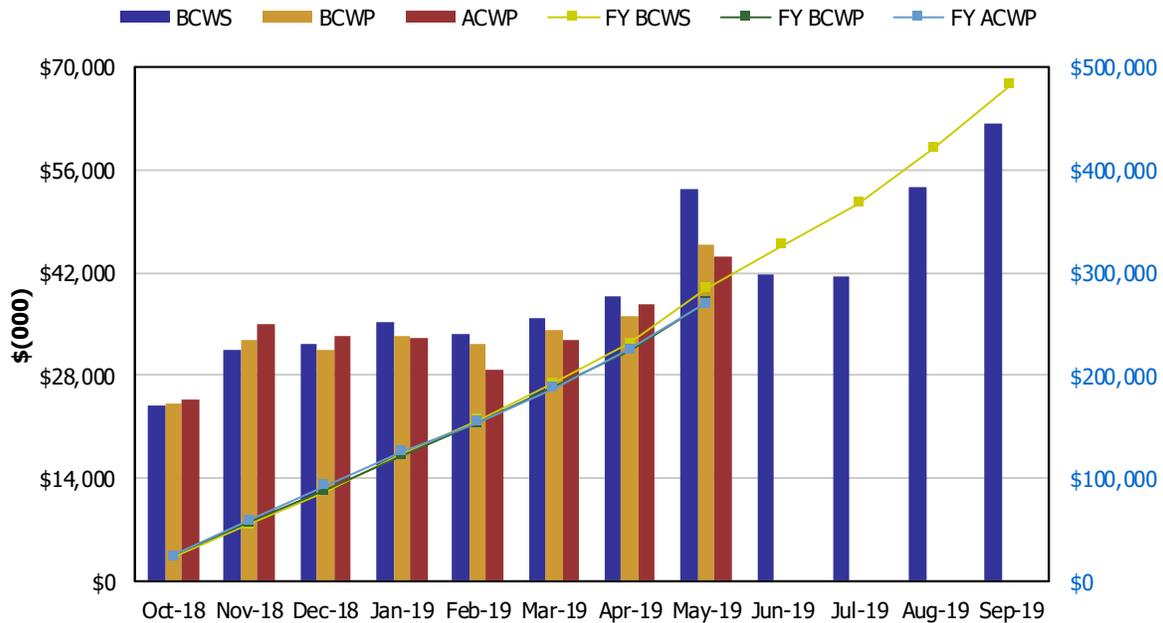
CM current month.
 CTD contract to date.
 FY fiscal year.
 SPI schedule performance index.

Earned Value Data: Fiscal Year 2019

May-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	\$53,231	\$45,760	\$44,092	0.86	1.04	\$284,515	\$270,216	\$269,562	0.95	1.00
Jun 2019	\$41,610					\$326,125				
Jul 2019	\$41,387					\$367,512				
Aug 2019	\$53,565					\$421,076				
Sep 2019	\$62,164					\$483,241				

CTD	\$3,461,168	\$3,432,833	\$3,385,089	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 May 2019 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$7,470,900) was primarily due to:

- The LERF Basin 44 cover replacement project experienced unanticipated piping repairs and updated facility requirements to filter Basin 44 wastewaters, which are needed prior to pumping down the basin. The additional time to complete this work delayed cover removal, which was the predominant driver for work scheduled in the current month.
- The DST transfer pump replacements project experienced delays to start the removal and replacement of the pump and jumper in DST AW-104. These delays were the result of adverse weather conditions during February and early March, which delayed the preceding AP-02D pump removal and AP-02A jumper replacement.

The current month **favorable** CV of \$1,667,600 was primarily due to:

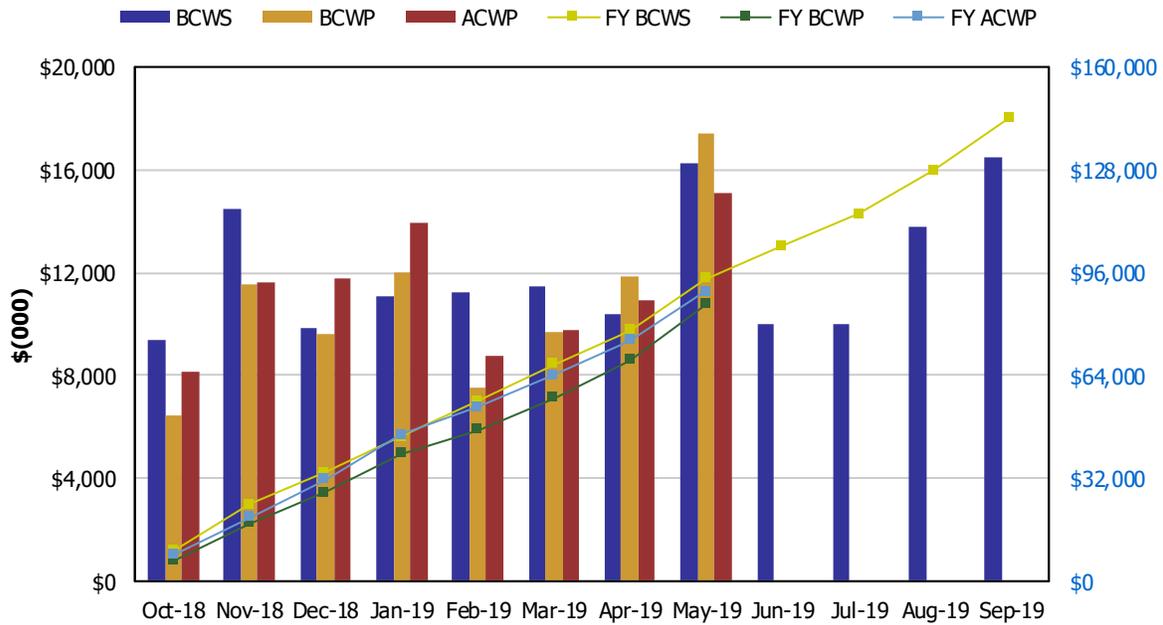
- ETF Operations and Maintenance experiencing labor usage efficiencies during facility processing operations, as considerably less maintenance takes place during the LERF volume reduction campaign.

Earned Value Data: Fiscal Year 2019

May-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	\$17,411	\$15,108	1.07	1.15	\$94,117	\$86,088	\$90,077	0.91	0.96
Jun 2019	\$9,975					\$104,092				
Jul 2019	\$9,988					\$114,080				
Aug 2019	\$13,749					\$127,829				
Sep 2019	\$16,481					\$144,310				

CTD	\$1,034,856	\$1,016,818	\$1,068,575	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

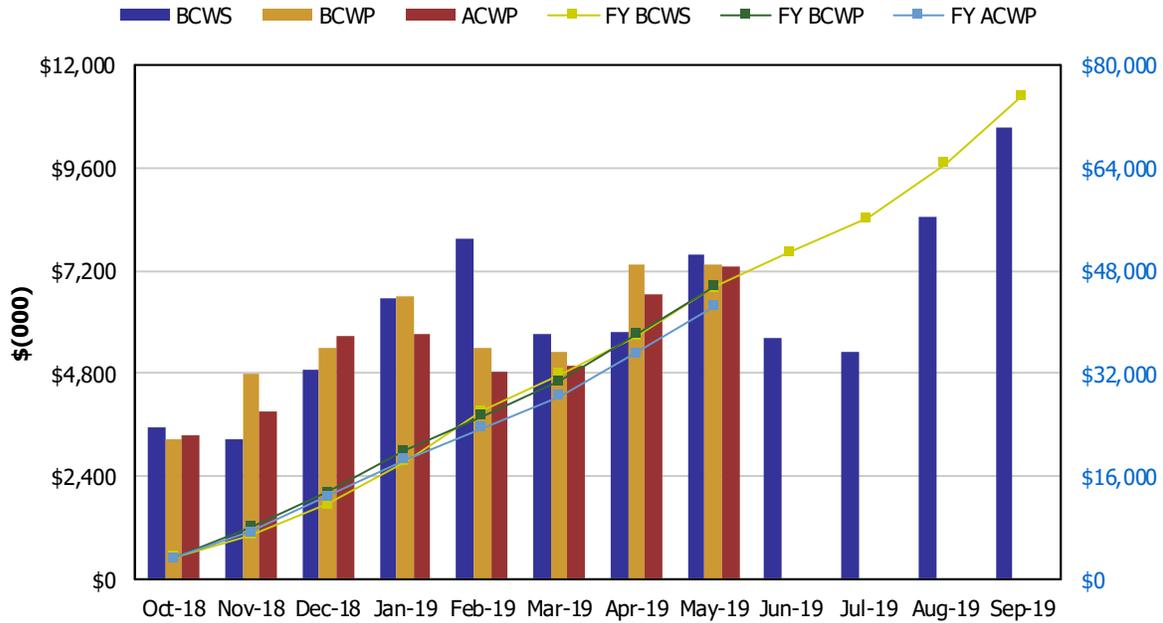
For the retrieval portion see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2019

May-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	\$7,556	\$7,329	\$7,272	0.97	1.01	\$45,239	\$45,415	\$42,374	1.00	1.07
Jun 2019	\$5,635					\$50,874				
Jul 2019	\$5,293					\$56,167				
Aug 2019	\$8,439					\$64,606				
Sep 2019	\$10,528					\$75,134				

CTD	\$544,824	\$541,363	\$497,150	0.99	1.09
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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: Brian Harkins

5.03 – Waste Feed Delivery/Treatment

The May 2019 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$227,300) was due to:

- The AP Tank Farm change trailer 90-percent design progressing more slowly than planned, with unexpected design changes due to the relocation of a survey monument and the addition of a staging area.

The current month **favorable** CV of \$57,400 was:

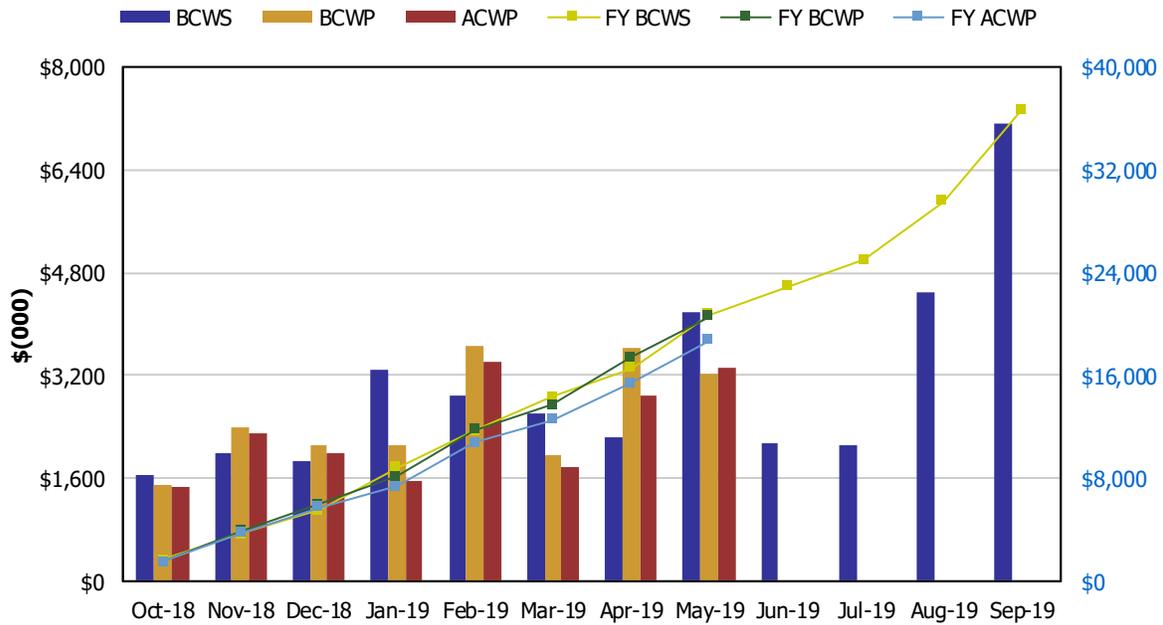
- Below the reporting threshold.

Earned Value Data: Fiscal Year 2019

May-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	\$3,228	\$3,321	0.77	0.97	\$20,755	\$20,603	\$18,718	0.99	1.10
Jun 2019	\$2,137					\$22,892				
Jul 2019	\$2,116					\$25,009				
Aug 2019	\$4,479					\$29,488				
Sep 2019	\$7,113					\$36,601				
CTD	\$167,394	\$165,619	\$170,033	0.99	0.97					

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 May 2019 variances below do not impact TPA milestones.

The **unfavorable** SV of (\$955,400) was due to:

- Delays in design that have extended the effort to prepare and issue the Tank-Side Cesium Removal system 90-percent design package. This is due to the structural calculations taking longer than anticipated as a result of vendor resource limitations. The issuance of the Tank-Side Cesium Removal system 90-percent design package was originally planned for May 2019. The current project schedule forecasts completion in June 2019.

The **unfavorable** CV of (\$92,700) was:

- Below the reporting threshold.