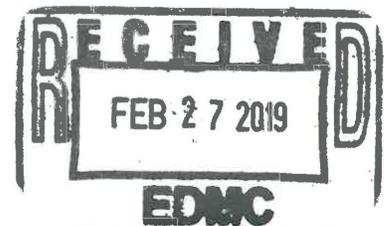


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Office of River Protection



Monthly Reporting Period
January 1–January 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 December 2018.

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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

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	S.H. Pfaff	In Abeyance
M-062-45-ZZ	Negotiate a One-Time Supplemental Treatment Selection	04/30/2015	S.H. Pfaff	In Abeyance
M-062-45-ZZ-A	Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones	04/30/2015	S.H. Pfaff	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	S.H. Pfaff	In Abeyance
M-062-32-T01	Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements	04/30/2018	S.H. Pfaff	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
M-045-56O	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2019	J.B. Bovier	On Schedule

Milestone	Title	Due Date	DOE PM	Status
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	J.B. Bovier	On Schedule
M-045-62	Submit the Draft Tier 3 Closure Plan with Corrective Measures in Phase 2 CMIP for WMA-C	TBD ¹	J.B. Bovier	On Schedule
M-045-83	Complete the Closure of WMA-C by Completing Closure Activities Specified in the Tier 2 Closure Plan	TBD ¹	J.B. Bovier	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	J.B. Bovier	On Schedule
M-045-92W	Submit to Ecology Design for Barrier 3 in 241-TX Farm	10/31/2019	J.B. Bovier	On Schedule
M-045-92AC	Submit to Ecology for Approval a Maintenance and Performance Monitoring Plan for Interim Barriers	10/31/2019	J.B. Bovier	On Schedule
M-045-92X	Barrier 3 in 241-TX Farm Design Approved by Ecology	01/31/2020	J. B. Bovier	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

Milestone	Title	Due Date	DOE PM	Status
M-045-56P	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2020	J.B. Bovier	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 = *Resource Conservation and Recovery Act.*

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

Mission Integration Office Director: Joni Grindstaff
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 agreed to a 90-day extension of the negotiations until February 15, 2019.

Significant Planned Actions in the Next Six Months

- Continue negotiations of the M-062-45 Milestone and related milestones with intent to use information from the ORP-11242, *River Protection Project System Plan*, Rev. 8.

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 this milestone be addressed 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 CR 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 ECY²

Due: March 31, 2016.

M-090-00 Acquire/Modify Facilities for Storage of First Two Years of IHLW³ from the WTP⁴ 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 ECY denotes Washington State Department of Ecology.

³ IHLW denotes immobilized high-level waste.

⁴ WTP denotes Waste Treatment and Immobilization Plant.

Supplemental Treatment and Part B Permit Applications

Tank Farms Assistant Manager: Rob Hastings
Federal Project Director: Steve Pfaff
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, Hanford Federal Facility Agreement and Consent Order Interagency Management Integration Team (IAMIT) Decision/Determination/Action Agreement, signed August 22, 2016, requires this milestone be addressed 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 RCRA⁵ 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.

⁵ 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 HLW⁶ and LAW⁷ 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.

⁶ HLW denotes high-level waste.

⁷ 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 tank-side cesium removal (TSCR) system 60 percent design review was completed in January 2019.
- The waste feed delivery system 60 percent design review was initiated in January 2019.

Significant Planned Actions in the Next Six Months

- The tank farm infrastructure upgrades system 60 percent design review is projected to begin in March 2019.
- The TSCR spent ion exchange column storage pad 60 percent design review is projected to begin in March 2019.
- The TSCR system 90 percent design review is projected to begin in April 2019.
- The waste feed delivery system 90 percent design review is projected to begin in April 2019.
- The tank farm infrastructure upgrades system 90 percent design review is projected to begin in May 2019.
- The TSCR spent ion exchange column storage pad 90 percent design review is projected to begin in June 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- or single-shell tank. 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) regarding the Hanford Site ambient air boundary. Ecology expressed its belief that the ambient air boundary appears to have changed as a result of increased public access to parts of the Hanford Site. Ecology asked DOE to participate in an evaluation of the ambient air boundary. DOE accepted Ecology's offer to discuss

Ecology's concerns (19-ESQ-0023). DOE, Ecology, and the Washington State Department of Health held a kick-off meeting on January 31, 2019.

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 slurry transfer lines from 242-A Evaporator to 241-AW Tank Farm progress. This maintains 242-A Evaporator staff proficiency and allows for new equipment testing. This work effort is scheduled for June 2019.

Significant Past Accomplishments

- Procured parts to rebuild spare PB-1 pump
- Planned high risk work package to move PB-1 pump back into 242-A Evaporator building
- Planned high risk work package to rebuild spare PB-1 pump.

Significant Planned Actions in the Next Six Months

- Establish future campaign and outage scheduling
- Initiate design efforts related to installation of new slurry transfer lines from 242-A Evaporator to AW Tank Farm
- Relocate the spare PB-1 pump back into 242-A Evaporator building and begin rebuilding spare PB-1 pump
- Procure new PB-1 replacement pump
- Prepare 60 percent design for 242-A Evaporator slurry line replacement.

Issues

- The slurry transfer line encasement for SL-167 from 242-A Evaporator to AW Tank Farm valve pit did not pass the encasement leak check that was due in calendar year 2018. Actions are being pursued by the Tank Operations Contractor to design replacement lines.

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 Jan. 30, 2019)	~ 5.54 Mgal	~ 5.93 Mgal	~ 2.02 Mgal

Waste Received			
AZ-301 Condensate	-	~ 6,000 gal	-
MWT-31 and 34 Leachate	-	~ 14,000 gal	-
Other (RPS wastewaters)	-	~ 1,300 gal	-

gal = gallon.

Mgal = million gallons.

MWT = mixed waste trench.

RPS = retention process sewer.

Significant Past Accomplishments

- Total FY 2019 volume processed (as of January 31, 2019): approximately 0 gallons.
- Completed repair of small leak at the LERF Basin 44 catch basin.
- Resumed the LERF Basin 44 to LERF Basin 42 transfer in support of the Basin 44 cover replacement project.
- Completed demolition of the three surge pumps and their associated equipment.
- Completed installation of mechanical and electrical equipment for the Effluent Treatment Facility (ETF) Air Compressor Upgrade (e.g., compressor, tank, dryer). Minor connections and commission required before turnover to Operations.

Significant Planned Actions in the Next Six Months

- Continue plant cleanout and corrective maintenance outage.
- Complete the transfer of LERF Basin 44 to LERF Basin 42.

- The following activities, projects, and/or upgrades are planned to be performed in FY 2019⁸. The intent of the list below is to show additional work the facility will experience outside of the normal operations and/or maintenance.
 - Independent Qualified Registered Professional Engineer (IQRPE) Integrity Assessment of ETF
 - LERF Basin 44 Cover Replacement
 - LERF Basin Leachate System Upgrade
 - ETF Brine Stabilization design and permitting ⁹
 - ETF Air Compressor Upgrade
 - ETF Stairs and Ladder Upgrades
 - ETF Life Cycle Study Report
 - ETF Chiller procurement
 - ETF Dilute Caustic Tank procurement
 - ETF Reverse Osmosis Pumps and Valves redesign and procurements
 - ETF Verification Tank Recoating
 - ETF Peroxide Decomposer Vessel Upgrade
 - Treated Effluent Disposal Facility Pump Station No. 2 Generator Upgrade
 - ETF Vapor Compressor procurement
 - Load-In Station Drain System procurements ⁹
 - 310/311-PL Transfer Line Upgrade ⁹
 - ETF Ultraviolet Light/Oxidation design
 - ETF Monitor and Control System design
 - ETF Uninterrupted Power Supply design
 - ETF Cooling Tower design
 - ETF Evaporator Valve upgrade
 - ETF Rough Filter/Hoist Refurbishment.

⁸ May not occur in the next 6 months, included for information only.

⁹ Requires permit modification

Issues

- Two surge tank pumps indicated failure. For efficiency, the decision was made to replace all three pumps within the system. The three pumps and their associated equipment have been removed in support of installing upgraded pumps.
- During a surveillance, a drip-type leak was discovered on the LERF Basin 44 catch basin secondary containment. The discovery halted the LERF Basin 44 to LERF Basin 42 transfer. A work package was developed to remove insulation, investigate for leak(s), and retighten leaking fitting(s) at the LERF Basin 44 catch basin.

Tank System Update

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

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. Engineering is reviewing the inspections. The previous annulus visual inspection was completed in January 2018.
- Ultrasonic testing inspections were completed for the following tank in FY 2019:
 - 241-AP-107.

Significant Planned Actions in the Next Six Months

- Ultrasonic testing inspections planned for the following tanks in FY 2019:
 - 241-AP-108 (ongoing)
 - 241-AP-102 (annulus floor only)
 - 241-AN-102.
- Enhanced annulus visual inspections planned for the following tanks 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.
- Procure/Design annulus floor cleaning technology in FY 2019 to clean the annulus floor of 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.

Significant Planned Actions in the Next Six Months

- Visual inspections are planned for the following tanks in FY 2019:
 - 241-U-101
 - 241-U-106
 - 241-U-109
 - 241-T-108
 - 241-T-202.
- Perform three miscellaneous underground storage tank visual camera inspections in FY 2019. The three tanks have yet to be identified.
- Perform TFC-ENG-CHEM-D-42, *Tank Leak Assessment Process*, on the following tanks in FY 2019:
 - 241-T-101 (ongoing)
 - 241-T-103.

Issue

- None.

Independent Qualified Registered Professional Engineer Activities

- Double-Shell Tank System
 - RPP-RPT-58441, *Double-Shell Tank System Integrity Assessment Report (DSTAR)*, Rev. 1, was completed in 2016.
 - The 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.
- 242-A Evaporator
 - RPP-RPT-60098, *242-A Evaporator System Integrity Assessment Report, Rev. 0* was completed in 2018.
 - The IQRPE recommended the next 242-A Evaporator system integrity assessment be completed in 15 years.
- ETF
 - Washington River Protection Solutions LLC awarded the ETF IQRPE integrity assessment contract to Meier Architecture Engineering. A project kickoff meeting was held with Meier Architecture Engineering on January 8, 2019. Technical material needed to perform the assessment was provided to the IQRPE project team. Meier Architecture Engineering personnel then toured the ETF as part of their assessment on January 28, 2019.
- 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 is next to be leak tested (forecasted for April 2019). Work packages for the internal and external visual inspections of the tanks and associated piping has been drafted and is under review.
 - Planning for ultrasonic testing of the tanks in 219-S has been deferred until results from the visual inspection have been completed.

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

- Completed:
 - RPP-RPT-61102, *Tank 241-C-105 Residual Waste Inventory Estimates for Component Closure Risk Assessment*, Rev. 1
 - RPP-PLAN-62902, *Tank 241-SY-102 Grab Sampling and Analysis Plan – Fiscal Year 2019*, Rev 0
- Released:
 - RPP-RPT-48103, *Derivation of Best-Basis Inventory for Tank 241-AP-107 as of January 1, 2019*, Rev. 11
 - RPP-RPT-61237, *Tank 241-AW-105 Grab Sampling in Support of Waste Characterization in Fiscal Year 2018*, Rev. 0 [final data report]
 - RPP-RPT-60989, *Final Analytical Report for Tank 2241-AY-101 Grab Samples - Post-Recirculation*, Rev. 1
 - RPP-RPT-61247, *Final Report for AZ-301 Liquid Grab Samples Taken August 2018*, Rev. 0
 - RPP-RPT-60905, *Tank Core Profile Report for 241-AP Tank Farm*, Rev. 0
 - HNF-EP-0182, *Waste Tank Summary Report for Month Ending November 30, 2018*, Rev. 371.

Tank Sampling

Significant Past Accomplishments

For January 2019, the following tank sampling was conducted:

- Tank 241-AP-107 Phase 2 grab sampling for large volume testing was completed January 3, 2019; 18 samples were shipped to Pacific Northwest National Laboratory.

Significant Planned Actions in the Next Six Months

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

- Tank 241-A-105 solids grab sampling is planned for February 2019.
- Tank 241-SY-102 grab sampling is planned for February 2019.
- Tank 241-AW-103 grab sampling is planned for March 2019.
- Tank 241-AN-107 grab sampling is planned for April 2019.
- Tank 241-AZ-101 grab sampling is planned for May 2019.
- Catch tank 241-C-301 closure grab sampling is planned for June 2019.
- 241-AP-106 Post-Repurposing grab sampling is planned for August 2019.

Issues

- None.

Best-Basis Inventory Updates

Significant Past Accomplishments

- Best-basis inventory updates for the following tanks were completed in January 2019:
 - 241-AP-107
 - 241-T-107.

Significant Planned Actions in the Next Six Months

- Best-basis inventory updates for the following tanks are currently planned to be completed in February 2019:
 - 241-AW-102
 - 241-AZ-102
 - 241-T-101.

Issues

- None.

Single-Shell Tank Closure Program

Tank Farms Assistant Manager: Rob Hastings

Federal Program Manager: Jan Bovier

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-C¹⁰

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 HFFACO¹¹ 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.

¹⁰ WMA-C denotes C Tank Farm waste management area.

¹¹ HFFACO denotes *Hanford Federal Facility Agreement and Consent Order*.

- 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).

Significant Planned Activities in the Next Six Months

- Resolve Ecology's comments on 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*.
- Begin permitting workshops with Ecology for including the SST closure plans in the Hanford Sitewide permit.

Issues

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 Practicality 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 path forward. ORP expects to provide a revision to be included as an appendix to the report. The revision was submitted to Ecology via 18-ECD-0079, "Transmittal of Supplemental Information to the *Clean Closure Practicality Demonstration for the Single-Shell Tanks* DOE/ORP-2014-02-SUPP-1," dated January 24, 2019.

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

December-18

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$48,948	\$48,478	\$52,703	(\$470)	(\$4,225)	0.99	0.92			
FYTD	\$138,577	\$135,520	\$143,239	(\$3,057)	(\$7,719)	0.98	0.95	\$686,918		
CTD	\$4,922,303	\$4,889,942	\$4,862,521	(\$32,361)	\$27,421	0.99	1.01	\$5,470,644	\$5,449,729	\$20,915

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 Tri-Party Agreement (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.

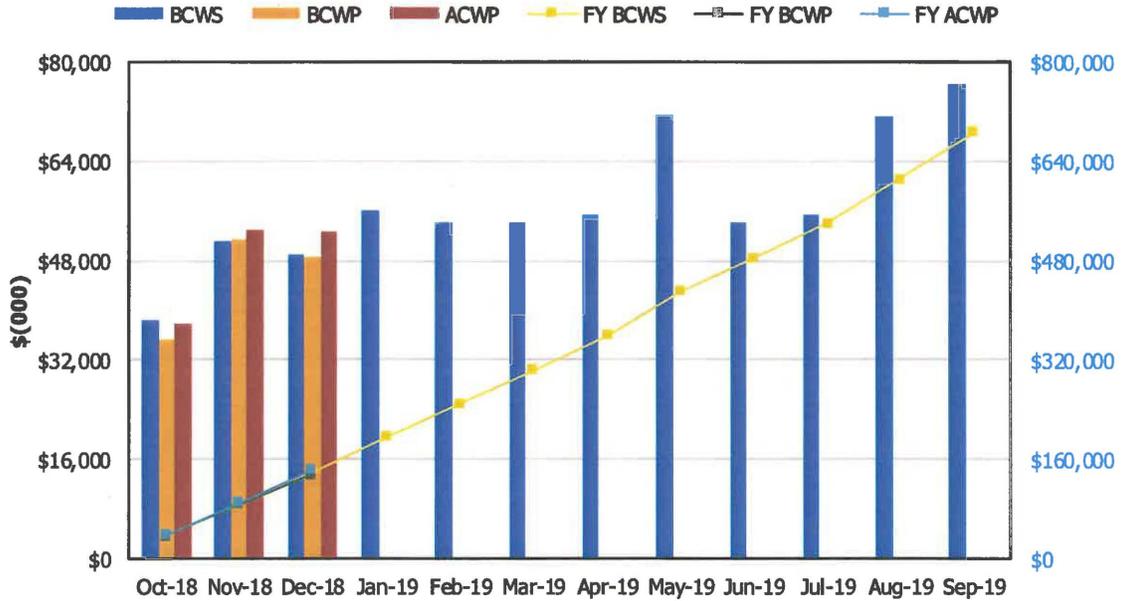
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000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

December-18

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	\$56,062					\$194,639				
Feb 2019	\$54,187					\$248,825				
Mar 2019	\$54,304					\$303,130				
Apr 2019	\$55,425					\$358,555				
May 2019	\$71,387					\$429,942				
Jun 2019	\$54,282					\$484,225				
Jul 2019	\$55,334					\$539,559				
Aug 2019	\$71,079					\$610,638				
Sep 2019	\$76,280					\$686,918				
CTD	\$4,922,303	\$4,889,942	\$4,862,521	0.99	1.01					

ACWP actual cost of work performed.
 BCWP budgeted cost of work performed.
 BCWS budgeted cost of work scheduled.
 CPI cost performance index.

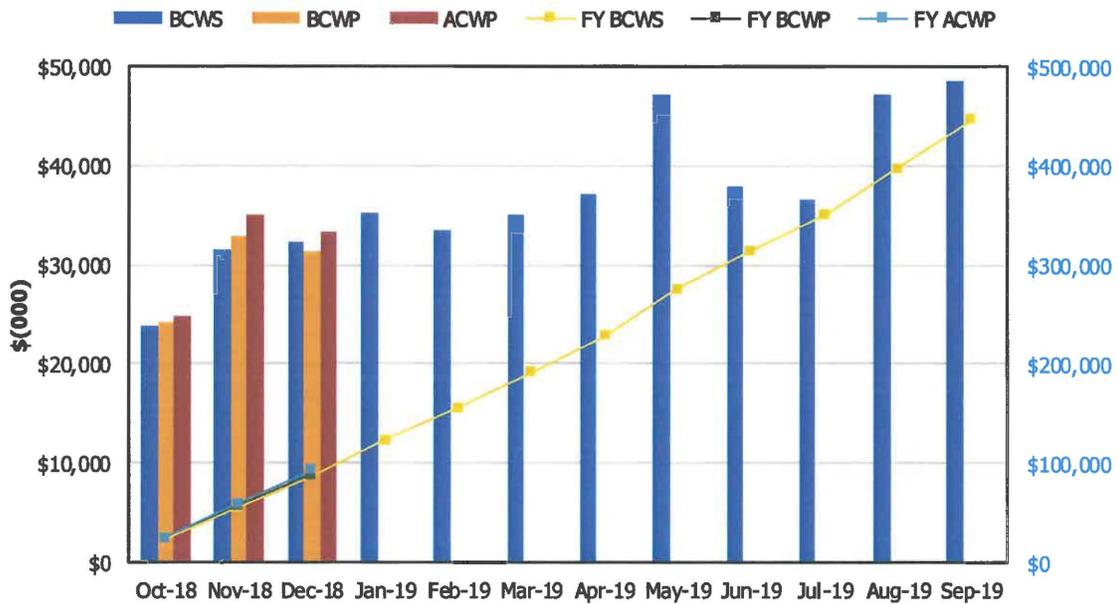
CM current month.
 CTD contract to date.
 FY fiscal year.
 SPI schedule performance index.

Earned Value Data: Fiscal Year 2019

December-18

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					\$122,837				
Feb 2019	\$33,432					\$156,268				
Mar 2019	\$35,023					\$191,291				
Apr 2019	\$37,216					\$228,507				
May 2019	\$47,258					\$275,766				
Jun 2019	\$37,837					\$313,603				
Jul 2019	\$36,516					\$350,119				
Aug 2019	\$47,216					\$397,336				
Sep 2019	\$48,486					\$445,822				
CTD	\$3,264,308	\$3,251,124	\$3,208,532	1.00	1.01					

ACWP actual cost of work performed.
 BCWP budgeted cost of work performed.
 BCWS budgeted cost of work scheduled.
 CPI cost performance index.

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

Tank Farms Assistant Manager: Rob Hastings
Federal Project Director: Brian Harkins

5.01 – Base Operations

The December 2018 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$1,027,300) is primarily due to:

- Contamination of the 242-A Evaporator failed PB-1 pump resulted in delays to the PB-1 pump refurbishment planning and field work. The contamination of the pump increased the complexity of associated work packages and subsequent fieldwork and necessitated moving the pump back into the 242-A Building for refurbishment.
- There was a delay in procurement of equipment (ENRAF and Rosemount temperature transmitter devices) required for installation in the TX Tank Farm in support of the SST Stewardship Program. The investigation to determine the number of ENRAF modules able to operate on the network loop delayed the procurement of the ENRAFS until the quantity needed could be determined.

The current month **unfavorable** CV of (\$1,895,500) is primarily due to:

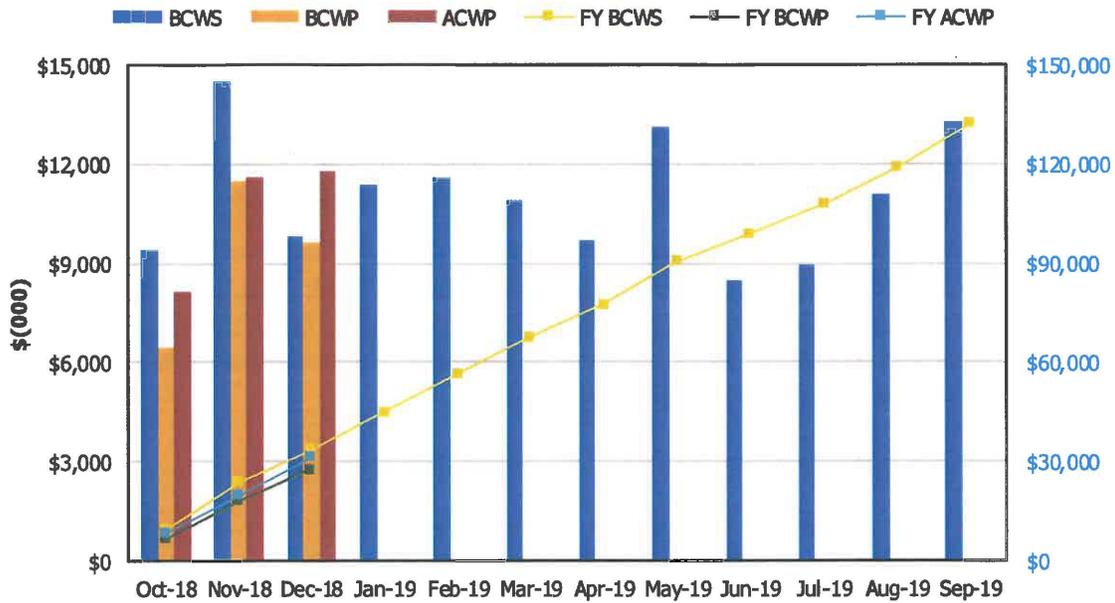
- Additional resources for surveillance and maintenance activities were required to support the ETF during the corrective maintenance outage.
- Additional resources were needed for procurements of the MSA brand of air purifying respirator masks and filters in support of the general Production Operations Support Services.

Earned Value Data: Fiscal Year 2019

December-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 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	\$11,377					\$45,103				
Feb 2019	\$11,583					\$56,686				
Mar 2019	\$10,925					\$67,611				
Apr 2019	\$9,671					\$77,283				
May 2019	\$13,104					\$90,387				
Jun 2019	\$8,502					\$98,889				
Jul 2019	\$8,968					\$107,858				
Aug 2019	\$11,103					\$118,961				
Sep 2019	\$13,262					\$132,223				
CTD	\$974,466	\$958,315	\$1,010,017	0.98	0.95					

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

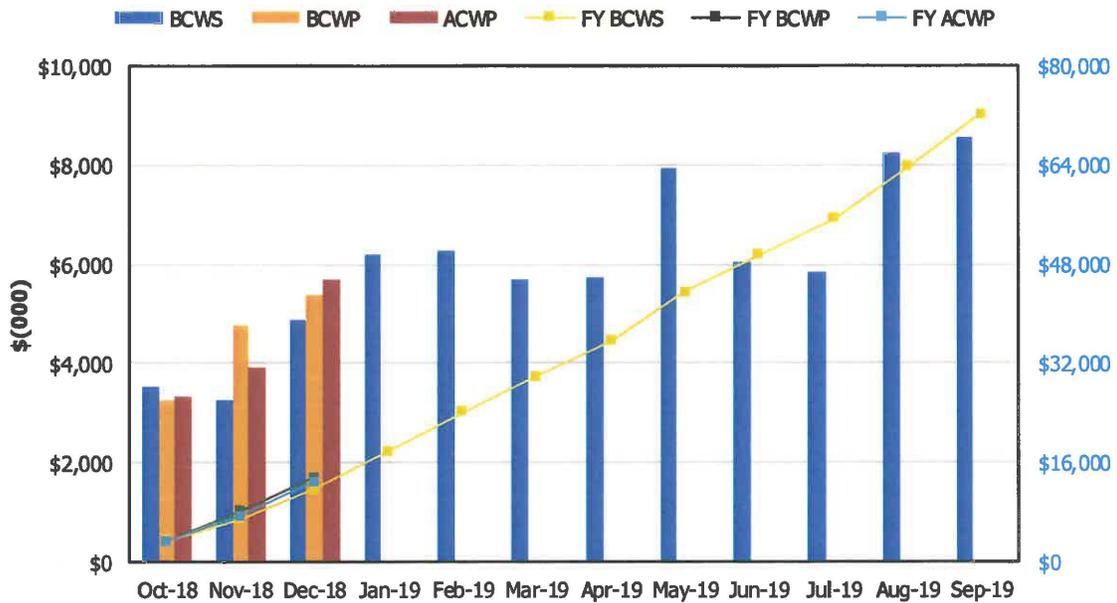
For the retrieval portion see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2019

December-18

Tank Farms ORP-0014
WBS 5.3 - WFD/Treatment Pmg/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	\$6,203					\$17,868				
Feb 2019	\$6,283					\$24,151				
Mar 2019	\$5,694					\$29,845				
Apr 2019	\$5,729					\$35,574				
May 2019	\$7,914					\$43,488				
Jun 2019	\$6,034					\$49,523				
Jul 2019	\$5,860					\$55,383				
Aug 2019	\$8,224					\$63,607				
Sep 2019	\$8,561					\$72,168				
CTD	\$511,251	\$509,379	\$467,730	1.00	1.09					

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.

One System Division Director: Joni Grindstaff

Federal Program Manager: Kaylin Burnett

5.03 – Waste Feed Delivery/Treatment

The December 2018 variances below do not impact TPA milestones.

The current month **favorable** SV of \$524,400 was primarily due to:

- Schedule recovery for tool fabrication and work package preparation scope for the AP-02D Tank Farm Upgrades Project. The project scope preceding pump removal is also ahead of schedule.

The current month **unfavorable** CV of (\$302,800) was primarily due to:

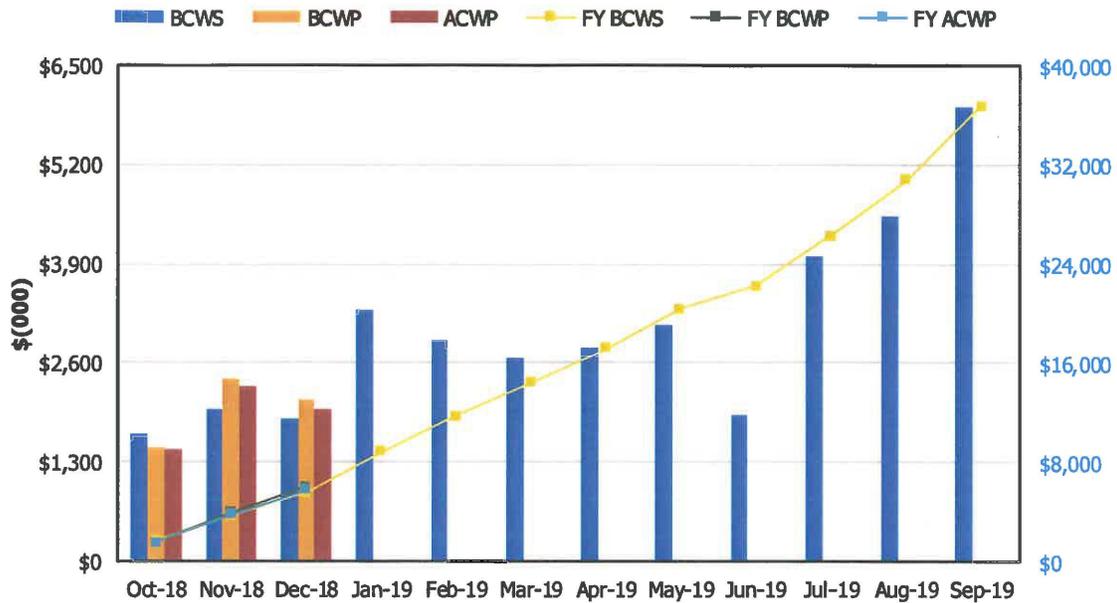
- The AP-105 Tank Farm Upgrades Project required additional training and time to ensure readiness, prior to mobilizing to the field to complete removal of a pump.

Earned Value Data: Fiscal Year 2019

December-18

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					\$8,830				
Feb 2019	\$2,890					\$11,720				
Mar 2019	\$2,662					\$14,382				
Apr 2019	\$2,809					\$17,191				
May 2019	\$3,110					\$20,301				
Jun 2019	\$1,908					\$22,210				
Jul 2019	\$3,989					\$26,199				
Aug 2019	\$4,536					\$30,734				
Sep 2019	\$5,970					\$36,705				
CTD	\$152,168	\$151,014	\$157,077	0.99	0.96					

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: Janet Diediker
5.05 – Treat Waste

The December 2018 variances below do not impact TPA milestones.

The current month **favorable** SV of \$236,800 is due to:

- Recovery in the current period of performance of the geotechnical laboratory testing, engineering analyses, and summary reports; this work was originally planned to be performed in July and August 2018, but experienced delays due to a change in the Low-Activity Waste Pretreatment System site location. Additionally, comment resolution on the final report took longer than anticipated as comment resolution required developing and re-running certain aspects of the model. Work is now expected to complete in February 2019.

The current month **favorable** CV of \$113,200 is due to:

- All variances were below the reporting threshold in the current period.