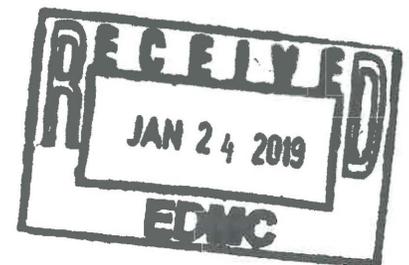


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# Office of River Protection



Monthly Reporting Period  
December 1–December 31 2018<sup>1</sup>



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<sup>1</sup> 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 November 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	Hanford Federal Facility Agreement and Consent Order (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**

<b>Milestone</b>	<b>Title</b>	<b>Due Date</b>	<b>DOE PM</b>	<b>Status</b>
<b>Prior Years</b>				
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
<b>Fiscal Year 2019</b>				
M-062-01AL	Submit Semi-Annual Project Compliance Report to Ecology	01/31/2019	B.R Trimberger	On Schedule
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	J.B. Bovier	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 <sup>1</sup>	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 <sup>1</sup>	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 <sup>1</sup>	J.B. Bovier	On Schedule
<b>Fiscal Year 2020</b>				
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

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

<sup>1</sup> 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

**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 ECY<sup>2</sup>**

Due: March 31, 2016.

**M-090-00 Acquire/Modify Facilities for Storage of First Two Years of IHLW<sup>3</sup> from the WTP<sup>4</sup> 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.

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<sup>2</sup> ECY denotes Washington State Department of Ecology.

<sup>3</sup> IHLW denotes immobilized high-level waste.

<sup>4</sup> 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 RCRA<sup>5</sup> 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.

**M-062-34-T01 Complete Hot Commissioning of Supplemental Treatment Vitrification Facility and/or WTP Enhancements**  
 Due: December 30, 2022.

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<sup>5</sup> RCRA denotes *Resource Conservation and Recovery Act*.

**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 HLW<sup>6</sup> and LAW<sup>7</sup> 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.

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<sup>6</sup> HLW denotes high-level waste.

<sup>7</sup> LAW denotes low-activity waste.

## Low Activity Waste Pretreatment System Sub-Project One

**Tank Farms Assistant Manager:** Rob Hastings  
**Federal Project Manager:** Sahid Smith  
**Ecology Project Manager:** Dan McDonald, Jeff Lyon

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 System (TSCR) spent ion exchange column storage pad 30 percent design review was completed in December 2018.

### Significant Planned Actions in the Next Six Months

- The TSCR system 60 percent design review is projected to begin in January 2019.
- The waste feed delivery system 60 percent design review is projected to begin in January 2019.
- 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.

## 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 Farms 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

- Relocated spare PB-1 pump from the load-out room
- Installed tent assembly to allow rebuild of PB-1 recirculation pump
- Procured parts to rebuild spare PB-1 pump.

### Significant Planned Actions in the Next Six Months

- Establish future campaign and outage scheduling
- Initiate design efforts to install new slurry transfer lines from 242-A Evaporator to AW Tank Farm
- Relocate the spare PB-1 pump back into 242-A Evaporator 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

- PB-1 recirculation pump failed. Actions in progress to procure a new PB-1 pump and to rebuild the spare PB-1 pump for future evaporator campaigns.
- The slurry transfer line encasement for SL-167 from 242-A Evaporator to AW Tank Farm valve pit has not yet passed 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)
<b>Total Volume (as of Dec. 31, 2018)</b>	~ 1.23 Mgal	~ 5.84 Mgal	~ 6.06 Mgal

Waste Received			
AZ-301 Condensate	-	~ 5,000 gal	-
MWT-31 and 34 Leachate	-	~ 21,000 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 December 31, 2018): approximately 0 gallons
- Awarded the independent qualified registered professional engineer (IQRPE) subcontract for the Effluent Treatment Facility (ETF) integrity assessment to Meier Architecture Engineering
- Initiated the LERF Basin 44 to Basin 42 transfer in support of the Basin 44 cover replacement project
- Completed *Resource Conservation and Recovery Act* inspection of Secondary Waste Receiving Tank A
- Completed *Resource Conservation and Recovery Act* inspection of Concentrate Tank A.

### Significant Planned Actions in the Next Six Months

- Continue plant cleanout and corrective maintenance outage
- Perform remaining fieldwork activities in support of the ETF integrity assessment project

- The following activities, projects, and/or upgrades are planned to be performed in FY 2019<sup>8</sup>. The intent of the list below is to show additional work the facility will experience outside of the normal operations and/or maintenance.
  - IQRPE Integrity Assessment of ETF
  - LERF Basin 44 Cover Replacement
  - LERF Basin Leachate System Upgrade
  - ETF Brine Stabilization design and permitting <sup>9</sup>
  - 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 <sup>9</sup>
  - 310/311-PL Transfer Line Upgrade <sup>9</sup>
  - 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.

### 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.

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<sup>8</sup> May not occur in the next 6 months, included for information only.

<sup>9</sup> Requires permit modification

## 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*

- Enhanced annulus visual inspections were completed for the below listed tanks in FY 2018
  - 241-AP-102
  - 241-AP-103
  - 241-AP-104
  - 241-AP-105
  - 241-AP-106
  - 241-AP-108
  - 241-AW-101
  - 241-AW-102
  - 241-AW-104.

Engineering is currently reviewing the inspection videos and the reports will be updated with results

- Ultrasonic testing inspections were completed for the following tank in FY 2019:
  - 241-AP-107.

#### *Significant Planned Actions in the Next Six Months*

- Continue annual comprehensive inspection of Tank AY-101 annulus. In January 2018, an enhanced annulus visual inspection was done. The next comprehensive inspection of Tank AY-101 is scheduled for 2019.
- 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 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.

***Significant Planned Actions in the Next Six Months***

- Visual inspections are planned for the following tanks in FY 2019:
  - 241-B-112
  - 241-U-101
  - 241-U-106
  - 241-U-109
  - 241-SX-114
  - 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 next assessment will be in 2026.
- 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 (2034).
- 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 (2032).
- ETF
  - Washington River Protection Solutions LLC (WRPS) awarded the ETF IQRPE Integrity Assessment contract to Meier Architecture Engineering. A project kickoff meeting between WRPS and Meier Architecture Engineering personnel is planned for early January 2019.
- 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 is next to be leak tested (forecasted for January 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 December 2018, 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. 0
- Released:
  - RPP-RPT-43979, *Derivation of Best-Basis Inventory for Tank 241-AY-101 as of December 1, 2018*, Rev. 19
  - RPP-RPT-58071, *Derivation of Best-Basis Inventory for Tank 241-C-105 as of November 1, 2018*, Rev. 6
  - RPP-RPT-44630, *Derivation of Best-Basis Inventory for Tank 241-AY-102 as of October 1, 2018*, Rev. 15
  - RPP-RPT-48103, *Derivation of Best-Basis Inventory for Tank 241-AP-107 as of October 1, 2018*, Rev. 10
  - RPP-RPT-54017, *Derivation of Best-Basis Inventory for Tank 241-AP-102 as of October 1, 2018*, Rev. 9
  - RPP-RPT-59538, *Derivation of Best-Basis Inventory for Tank 241-TY-105 as of November 1, 2018*, Rev. 1
  - HNF-EP-0182, *Waste Tank Summary Report for Month Ending October 31, 2018*, Rev. 370.

### **Tank Sampling**

#### **Significant Past Accomplishments**

For December 2018, the following tank sampling was conducted:

- Completed tank 241-A-105 equipment blank sampling on December 12, 2018; three samples were received at the laboratory.
- Tank 241-AP-107 Phase 1 grab sampling for large volume testing was completed December 17, 2018; 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 January 2019.
- Tank 241-AP-107 Phase 2 large volume grab sampling is planned for January 2019.
- Tank 241-SY-102 grab sampling is planned for March 2019.
- Tank 241-AW-103 grab sampling is planned for April 2019.
- Tank 241-AN-107 grab sampling is planned for June 2019.
- Tank 241-AZ-101 grab sampling is planned for June 2019.

**Issues**

- None.

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

- Best-basis inventory updates for the following tanks were completed in December 2018:
  - 241-AP-102
  - 241-AP-107
  - 241-AY-101
  - 241-AY-102
  - 241-C-105
  - 241-TY-105

**Significant Planned Actions in the Next Six Months**

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

**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-C<sup>10</sup>**  
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 HFFACO<sup>11</sup> 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.
- 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.

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<sup>10</sup> WMA-C denotes waste management area C.

<sup>11</sup> HFFACO denotes *Hanford Federal Facility Agreement and Consent Order*.

- 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 the RPP-RPT-58339, *Phase 2 RCRA Facility Investigation Report for Waste Management Area C*; RPP-RPT-59379, *Waste Management Area C Phase 2 Corrective Measures Study Report*; and RPP-RPT-58858, *Tier 1 Closure Plan Single-Shell Tank System*, Rev. 01.

**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 submittal letter is in concurrence at ORP as of December 2018.

## 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

November-18

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$51,218	\$51,557	\$52,806	\$340	(\$1,249)	1.01	0.98			
FYTD	\$89,629	\$87,042	\$90,536	(\$2,587)	(\$3,494)	0.97	0.96	\$644,926		
CTD	\$4,873,355	\$4,841,464	\$4,809,818	(\$31,891)	\$31,646	0.99	1.01	\$5,407,822	\$5,428,652	(\$20,830)

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.

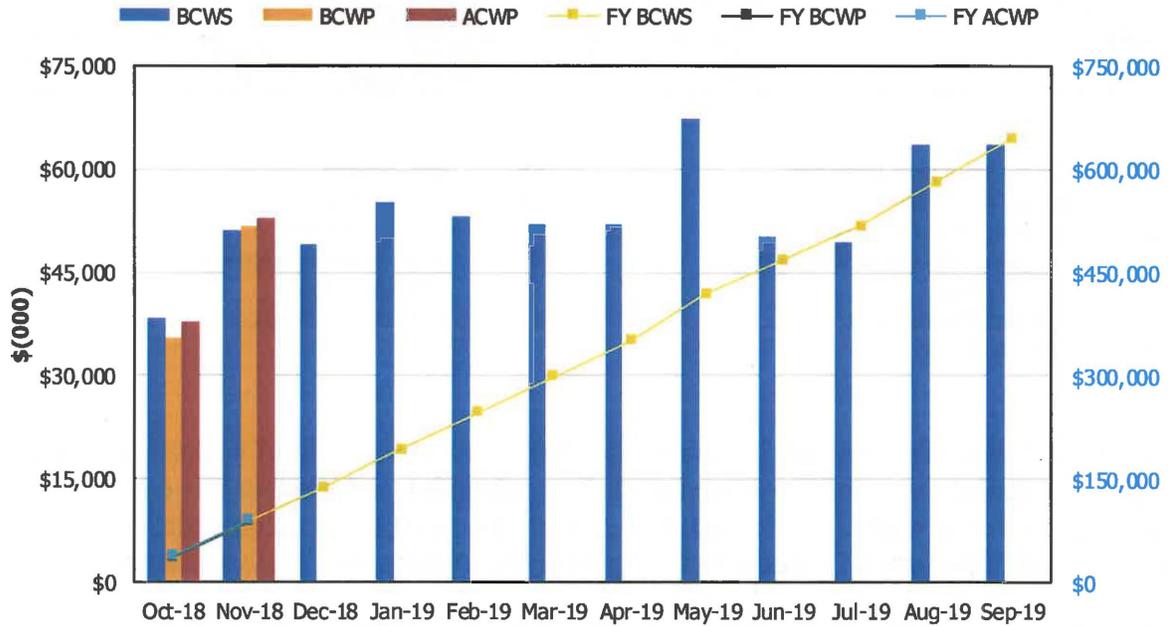
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000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

November-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	\$49,042					\$138,671				
Jan 2019	\$55,122					\$193,793				
Feb 2019	\$53,228					\$247,022				
Mar 2019	\$51,994					\$299,015				
Apr 2019	\$52,021					\$351,036				
May 2019	\$67,410					\$418,447				
Jun 2019	\$50,233					\$468,680				
Jul 2019	\$49,318					\$517,998				
Aug 2019	\$63,503					\$581,501				
Sep 2019	\$63,425					\$644,926				
<b>CTD</b>	<b>\$4,873,355</b>	<b>\$4,841,464</b>	<b>\$4,809,818</b>	<b>0.99</b>	<b>1.01</b>					

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

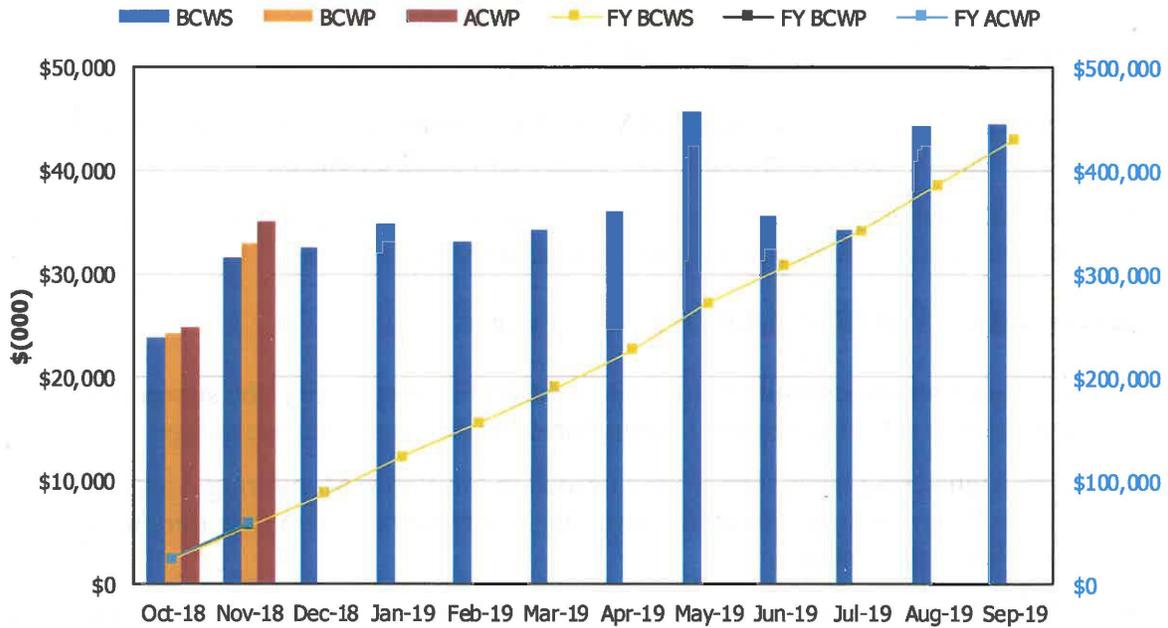
CM current month.  
 CTD contract to date.  
 FY fiscal year.  
 SPI schedule performance index.

Earned Value Data: Fiscal Year 2019

November-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	\$32,455					\$87,732				
Jan 2019	\$34,860					\$122,591				
Feb 2019	\$33,003					\$155,594				
Mar 2019	\$34,189					\$189,782				
Apr 2019	\$36,062					\$225,844				
May 2019	\$45,722					\$271,566				
Jun 2019	\$35,514					\$307,080				
Jul 2019	\$34,196					\$341,276				
Aug 2019	\$44,301					\$385,577				
Sep 2019	\$44,492					\$430,069				
<b>CTD</b>	<b>\$3,231,929</b>	<b>\$3,219,773</b>	<b>\$3,175,285</b>	<b>1.00</b>	<b>1.01</b>					

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 November 2018 variances below do not impact TPA milestones.

The **favorable** SV of \$1,406,200 is primarily due to:

- Schedule recovery in the Chemical Vapor Engineered Control Upgrades for the completion of fabrication of the AW Tank Farm stack extension
- Schedule recovery in the Access/Egress Roadway Upgrade (7th Street to craft trailers) for the completion of roadway widening and safety improvements.

The **unfavorable** CV of (\$2,083,400) is primarily due to:

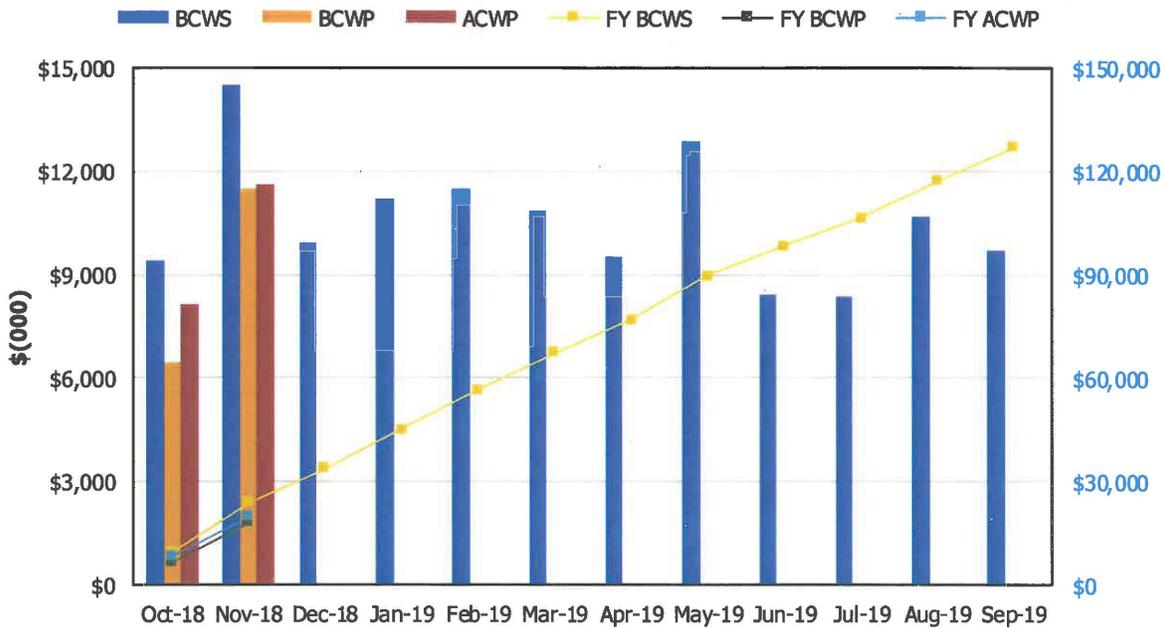
- Additional resources required to support the ETF—specifically, the surveillance and maintenance activities required during the corrective maintenance outage
- More engineering labor support was needed in the Vapor Monitoring And Detection System Upgrades than was anticipated due to the extended turn over duration of the AP Tank Farm stack monitor
- Additional resources were needed in the Cross-Site Transfer Line Activation to help complete permanent power installation.

Earned Value Data: Fiscal Year 2019

November-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	\$9,904					\$33,806				
Jan 2019	\$11,173					\$44,980				
Feb 2019	\$11,490					\$56,470				
Mar 2019	\$10,845					\$67,314				
Apr 2019	\$9,523					\$76,837				
May 2019	\$12,881					\$89,718				
Jun 2019	\$8,424					\$98,142				
Jul 2019	\$8,350					\$106,492				
Aug 2019	\$10,696					\$117,188				
Sep 2019	\$9,694					\$126,882				
<b>CTD</b>	<b>\$964,642</b>	<b>\$948,695</b>	<b>\$998,255</b>	<b>0.98</b>	<b>0.95</b>					

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**

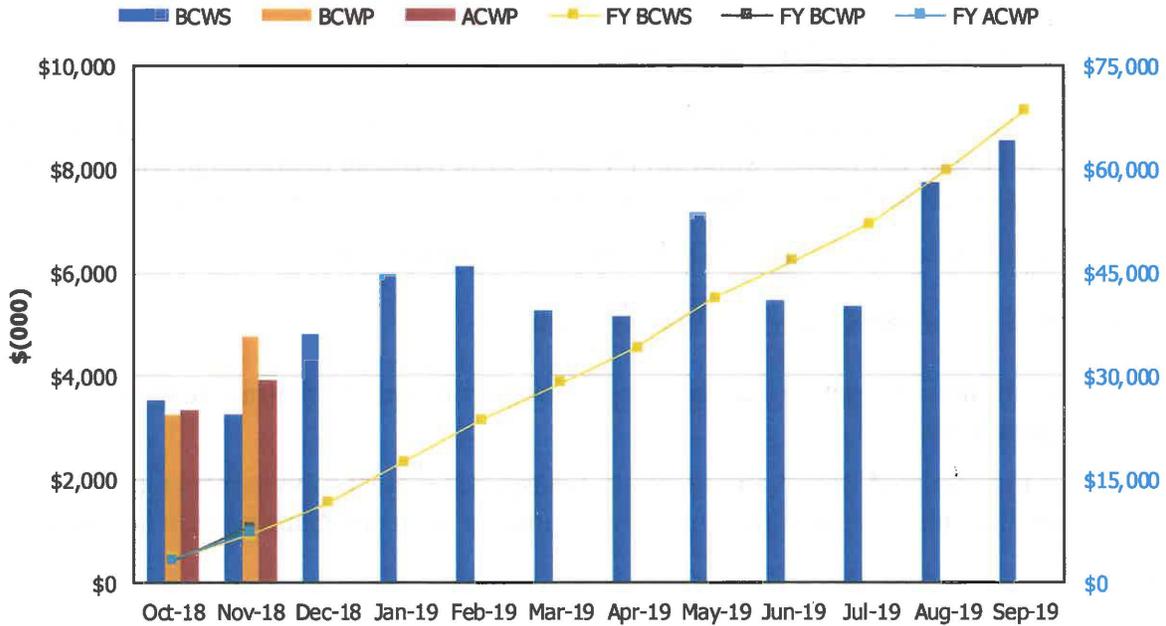
For the retrieval portion see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2019

November-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	\$4,806					\$11,604				
Jan 2019	\$5,977					\$17,581				
Feb 2019	\$6,116					\$23,697				
Mar 2019	\$5,251					\$28,948				
Apr 2019	\$5,156					\$34,104				
May 2019	\$7,146					\$41,249				
Jun 2019	\$5,458					\$46,707				
Jul 2019	\$5,360					\$52,067				
Aug 2019	\$7,750					\$59,817				
Sep 2019	\$8,556					\$68,373				
<b>CTD</b>	<b>\$506,383</b>	<b>\$503,987</b>	<b>\$462,035</b>	<b>1.00</b>	<b>1.09</b>					

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 November 2018 variances below do not impact TPA milestones.

The favorable SV of \$1,502,700 was primarily due to:

- Tank Farm Upgrades project schedule variance is due to a combination of (1) recovery of FY 2018 tool fabrication work, (2) FY 2018 work package preparation, and (3) an earlier than planned start on activities that support the AP -02D pump removal.
- Schedule recovery for the AP-105 Tank Farm Upgrades project.

The favorable CV of \$848,000 was primarily due to:

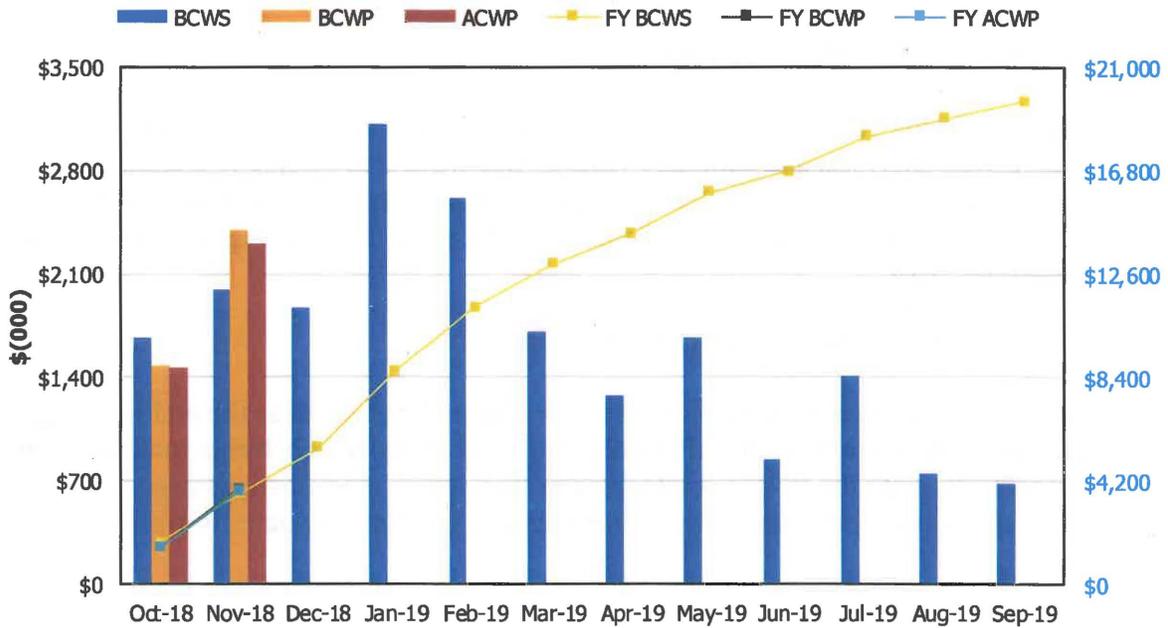
- The Mission Integration Support Program requiring less subcontract support than originally planned
- The Immobilized Low-Activity Waste Transporter project subcontracts took longer to place than planned, resulting in a slower ramp up and contributing to the favorable CV.

Earned Value Data: Fiscal Year 2019

November-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					\$5,529				
Jan 2019	\$3,112					\$8,641				
Feb 2019	\$2,620					\$11,261				
Mar 2019	\$1,709					\$12,971				
Apr 2019	\$1,281					\$14,251				
May 2019	\$1,662					\$15,913				
Jun 2019	\$837					\$16,751				
Jul 2019	\$1,413					\$18,163				
Aug 2019	\$756					\$18,919				
Sep 2019	\$683					\$19,602				

CTD	\$150,291	\$148,900	\$155,076	0.99	0.96
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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:*** Janet Diediker

### **5.05 – Treat Waste**

The November 2018 variances below do not impact TPA milestones.

The current month **favorable** SV of \$415,500 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 change in the Low-Activity Waste Pretreatment System site location. Work is expected to complete in December 2018.

The current month **favorable** CV of \$104,800 is due to:

- Subcontract resource usage efficiencies have been experienced as the architect engineer has been able to work on the AP Tank Farm waste transfer line design modifications concurrently with the W-211 waste transfer line design modifications needed to support both tank-side cesium removal operations and direct-feed low-activity waste.