

# Office of River Protection



## Monthly Reporting Period

May 1–May 31, 2020<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 April 2020.

<b>Topic</b>	<b>Page</b>
Acronyms and Abbreviations .....	2
Administrative Items/Milestone Status .....	3
System Plan.....	6
Acquisition of New Facilities .....	8
Supplemental Treatment and Resource Conservation and Recovery Act Part B Permit Applications .....	10
Low-Activity Waste Pretreatment System.....	12
Tank-Side Cesium Removal System .....	13
242-A Evaporator Status .....	15
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility.....	17
Tank System Update .....	20
In-Tank Characterization and Summary .....	25
Single-Shell Tank Closure Program .....	25
Single-Shell Tank Retrieval Program .....	33
Tank Operations Contract Overview .....	34
Table 1 Administrative Record Metadata .....	44

## Acronyms and Abbreviations

COVID-19	Coronavirus Disease 2019
CV	cost variance
DFLAW	direct-feed low-activity waste
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
WTP	Waste Treatment and Immobilization Plant

**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	B. Harkins	In Dispute
M-062-45-ZZ	Negotiate a One-Time Supplemental Treatment Selection	04/30/2015	B. Harkins	In Dispute
M-062-45-ZZ-A	Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones	04/30/2015	B. Harkins	In Dispute
M-062-31-T01	Complete Final Design & Submit RCRA Part B Permit Mod Request for Enhanced WTP & Supplemental Treatment	04/30/2016	B. Harkins	In Dispute
M-062-32-T01	Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements	04/30/2018	B. Harkins	In Dispute
<b>Fiscal Year 2020 (October 1, 2019–September 30, 2020)</b>				
M-062-40G	Select a Minimum of 3 Scenarios	10/31/2019	B. Harkins	Completed
M-045-92V	Complete Construction of Barriers 1 (North) and 2 (South) and Expansion Barrier in 241-SX Farm	10/31/2019	B. Harkins	Completed
M-045-92W	Submit to Ecology Design for Barrier 3 in 241-TX Farm	10/31/2019	B. Harkins	Completed
M-045-92AC	Submit to Ecology for Approval a Maintenance and Performance Monitoring Plan for Interim Barriers	10/31/2019	B. Harkins	Completed
M-045-92X	Barrier 3 in 241-TX Farm Design Approved by Ecology	01/31/2020	B. Harkins	Completed

<b>Milestone</b>	<b>Title</b>	<b>Due Date</b>	<b>DOE PM</b>	<b>Status</b>
M-062-01AN	Submit Semi-Annual Project Compliance Report to Ecology	01/31/2020	G. Trenchard	Completed
M-045-93	Submit Report for Description, Analysis and Technology for Removing Drainable Liquids from SSTs	06/30/2020	B. Harkins	On Schedule
M-062-54A	Submit Permit Application for AP Tank Farm Mods and Operation Necessary to Support TSCR	07/15/2020	B. Harkins	Completed
M-062-01AO	Submit Semi-Annual Project Compliance Report to Ecology	07/31/2020	G. Trenchard	On Schedule
M-045-56P	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2020	B. Harkins	On Schedule
M-045-99	Submit to Ecology the Preliminary Performance Assessment/Closure Analysis ( <i>refers to WMA A/AX</i> )	09/30/2020	B. Harkins	On Schedule
M-045-59	Control Surface Water Infiltration Pathways as Needed	TBD <sup>1</sup>	B. Harkins	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>	B. Harkins	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>	B. Harkins	On Schedule
<b>Fiscal Year 2021 (October 1, 2020 – September 30, 2021)</b>				
M-045-92AD	Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities	10/31/2020	B. Harkins	On Schedule
M-062-40H	Submit System Plan to Ecology	10/31/2020	M. Irwin	On Schedule

Milestone	Title	Due Date	DOE PM	Status
M-062-50	Submit to Ecology as a Secondary Document, a Mass Balance Flow	01/30/2021	B. Harkins	On Schedule
M-062-01AP	Submit Semi-Annual Project Compliance Report to Ecology	01/31/2021	G. Trenchard	On Schedule
M-090-14	Submit CD-1 for Facility to Store Spent Ion Exchange Columns Prior to DFLAW	3/31/2021	B. Harkins	On Schedule
M-062-45-A	Complete Negotiations 6-Months After Last Issuance of System Plan	4/30/2021	B. Harkins	On Schedule
M-062-33-T01	Complete Construction of Supplemental Treatment Vitrification Facility and/or WTP Enhancements	4/30/2021	B. Harkins	In Dispute
M-062-01AQ	Submit Semi-Annual Project Compliance Report to Ecology	07/31/2021	G. Trenchard	On Schedule
M-045-56Q	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2021	B. Harkins	On Schedule
M-045-91E4	Provide SST Farms Dome Deflection Surveys Every 2 Years to Ecology	09/30/2021	B. Harkins	On Schedule
M-045-97	Submit to Ecology a WMA Integration Study for WMA A/AX as a Primary Document	09/30/2021	B. Harkins	On Schedule

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

CD	=	critical decision.	RCRA	=	<i>Resource Conservation and Recovery Act.</i>
CMIP	=	corrective measures implementation work plan.	SST	=	single-shell tank.
DFLAW	=	direct-feed low-activity waste.	TBD	=	to be determined.
DOE	=	U.S. Department of Energy.	TSCR	=	tank-side cesium removal.
Ecology	=	Washington State Department of Ecology.	WTP	=	Waste Treatment and Immobilization Plant.
Mod	=	modification.	WMA-C	=	C Tank Farm waste management area.
PM	=	project manager.			

## System Plan

**Responsible Assistant Manager:** Mat Irwin  
**Technical Lead:** Kaylin Burnett  
**Ecology Project Manager:** Dan McDonald, Jeff Lyon

**M-062-40H Submit System Plan to Ecology**

Due: October 31, 2020.

Status: On schedule.

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

Due: April 30, 2021.

Status: On schedule.

## Significant Past Accomplishments

- The selected scenarios for the *River Protection System Plan*, Rev. 9 were agreed upon by U.S. Department of Energy (DOE), Office of River Protection (ORP) and Washington State Department of Ecology (Ecology). ORP documented the agreement and transmitted letter 19-MIO-0020, "Request for Concurrence on Selected Scenarios for the River Protection Project System Plan, Revision 9," dated September 25, 2019, to Ecology for concurrence. Ecology concurred on October 2, 2019, via letter 19-NWP-158, "Re: Transmittal of Signed Concurrence for *Selected Scenarios for the River Protection Project System Plan, Revision 9*, RPP-RPT-61707, Rev. 0."
- As of May 2020, cost and schedule development of the selected scenarios was completed, and the results were presented to Ecology representatives. Development of the System Plan document is ongoing.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

## Significant Planned Actions in the Next Six Months

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.
- Discuss disputes with regard to milestone M-062-45 and its associated milestones during "Holistic Negotiations."
- Ecology and ORP will continue discussions in support of *River Protection System Plan*, Rev. 9 development, due October 31, 2020.

**Issues**

- Ecology and ORP have ended negotiations related to the M-062-45 Milestone and have initiated dispute. “Holistic Negotiations” are planned to resolve these disputes.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the Tri Party Agreement (TPA) and, if other actions may be necessary.



## Acquisition of New Facilities

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Janet Diediker  
**Ecology Project Manager:** Dan McDonald, Jeff Lyon

**M-090-14      Submit CD-1 for Facility to Store Spent Ion Exchange Columns Prior to DFLAW<sup>2</sup>**

Due: March 31, 2021.  
 Status: On schedule.

**M-090-13      CD-1 for Interim Hanford Storage Project and CR for CD-2 to ECY<sup>3</sup>**

Due: September 30, 2025.  
 Status: On schedule.

**M-090-00      Acquire/Modify Facilities for Storage of First Two Years of IHLW<sup>4</sup> from the WTP<sup>5</sup> Operations**

Due: December 31, 2036.  
 Status: On schedule.

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

Due: To be determined.  
 Status: On schedule.

## Significant Past Accomplishments

- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

## Significant Planned Actions in the Next Six Months

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

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<sup>2</sup> DFLAW denotes direct-feed low-activity waste.

<sup>3</sup> ECY denotes Washington State Department of Ecology.

<sup>4</sup> IHLW denotes immobilized high-level waste.

<sup>5</sup> WTP denotes Waste Treatment and Immobilization Plant.

**Issues**

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## Supplemental Treatment and Resource Conservation and Recovery Act Part B Permit Applications

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** 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 ORP 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.”

<b>M-062-45-T01</b>	<b>Complete Negotiations 6-Months after Last Issuance of System Plan</b>
Due:	April 30, 2015.
<b>M-062-45-ZZ</b>	<b>Negotiate a One-Time Supplemental Treatment Selection</b>
Due:	April 30, 2015.
<b>M-062-45-ZZ-A</b>	<b>Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones</b>
Due:	April 30, 2015.
<b>M-062-31-T01</b>	<b>Complete Final Design and Submit RCRA<sup>6</sup> Part B Permit Modification Request for Enhanced WTP &amp; Supplemental Treatment</b>
Due:	April 30, 2016.
<b>M-062-32-T01</b>	<b>Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements</b>
Due:	April 30, 2018.
<b>M-062-33-T01</b>	<b>Complete Construction of Supplemental Treatment Vitrification Facility and/or WTP Enhancements</b>
Due:	April 30, 2021.
<b>M-062-45-XX</b>	<b>Complete Negotiations to Resolve Future Disputes M-062-45, Paragraphs 4 and 5</b>
Due:	December 31, 2021.
Status:	On schedule.
<b>M-062-34-T01</b>	<b>Complete Hot Commissioning of Supplemental Treatment Vitrification Facility and/or WTP Enhancements</b>
Due:	December 30, 2022.

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<sup>6</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>7</sup> and LAW<sup>8</sup> Tank Wastes**

Due: December 31, 2047.  
Status: At risk.

**Significant Past Accomplishments**

- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.
- See the "System Plan" section above for updates related to the M-062-45 Milestone negotiations.

**Issues**

- Ecology and ORP have ended negotiations related to the M-062-45 Milestone and have initiated dispute. "Holistic Negotiations" are planned to resolve these disputes.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

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<sup>7</sup> HLW denotes high-level waste.

<sup>8</sup> LAW denotes low-activity waste.

## Low-Activity Waste Pretreatment System

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Steve Pfaff  
**Ecology Project Manager:** Dan McDonald

**M-062-50**    **Submit to Ecology as a Secondary Document, a Mass Balance Flow**  
Due: January 30, 2021.  
Status: On schedule.

### Significant Past Accomplishments

- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

### Significant Planned Actions in the Next Six Months

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

### Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## Tank-Side Cesium Removal System

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Steve Pfaff  
**Ecology Project Manager:** Dan McDonald

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

### **M-062-54A Submit Permit Application for AP Tank Farm Mods and Operation Necessary to Support TSCR<sup>9</sup>**

Due: July 15, 2020.  
 Status: Completed.

### **Significant Past Accomplishments**

- Tank-Side Cesium Removal (TSCR) system factory acceptance testing was satisfactorily completed at the end of March 2020.
- ORP submitted the agreed-upon resolution to all Ecology comments and submitted the updated TSCR permit application on April 24, 2020. This submittal also contained all of the necessary information to complete TPA milestone M-062-54A.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

### **Issues**

- On December 3, 2018, Ecology sent ORP and the DOE Richland Operations Office letter 18-NWP-177, "Hanford Site Ambient Air Boundary Concerns," regarding the Hanford Site ambient air boundary. In it, 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. ORP, Ecology, and the Washington State Department of Health have met several times to attempt to develop a shared understanding of existing conditions and a

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<sup>9</sup> TSCR denotes tank-side cesium removal.

path forward. DOE and Ecology engaged in mediation to try and resolve the issue. On May 8, 2020, DOE and Ecology reached a mediated agreement to resolve Ecology's concerns about the Hanford Site ambient air boundary. The parties are developing a Memorandum of Understanding to capture revisions to the boundary and other agreements. The project was informed on January 29, 2020, that Ecology was not going to issue the agreed upon temporary authorizations to allow pouring of the concrete pad for the TSCR unit, the ion exchange column storage pad, and installation of the transfer lines until the draft *Resource Conservation and Recovery Act* permit was completed. Preparation of the permit for the second public comment period has progressed during the pause on construction activities due to COVID-19. The public comment period is currently scheduled for late June.

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## 242-A Evaporator Status

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Paul Hernandez  
**Ecology Project Manager:** Jeff Lyon

The 242-A Evaporator campaign strategy is identified in the following table:

Fiscal Year	Campaign No.	Feed Source	Slurry Tank	Comments
TBD	EC-11	N/A	N/A	Cold runs will be used to maintain 242-A Evaporator readiness, staff proficiency, and cycle idle equipment while transfer lines are being replaced.

N/A = not applicable.

TBD = to be determined.

## Significant Past Accomplishments

- Replaced filtered raw water sock filter assembly.
- Removed supernate jumper 13 – 13A and installed process blanks on exposed nozzles to prepare for EC-11 and upcoming slurry line replacement work.
- Initiated replacement of 242-A Evaporator instrument air dryer and removal of aqueous makeup unit room Tanks E101 and E104.
- Initiated dismantlement of obsolete tanks for air dryer installation.
- Completed 90-percent design for 242-A Evaporator transfer line replacement.
- Continued wall nozzle fabrication for the 242-A Evaporator slurry and feed transfer line replacement.
- Completed actuator fabrication and initiated functional testing.
- Awarded 242-A Evaporator Documented Safety Analysis upgrades panel design and fire modeling contracts.
- Completed development of the 45 percent engineering design for the 242-A Evaporator Documented Safety Analysis upgrades.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.



### Significant Planned Actions in the Next Six Months

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.
- Procure new PB-1 and PB-2 replacement pumps.
- Complete 100-percent design for 242-A Evaporator transfer line replacement.
- Complete 242-A Evaporator Documented Safety Analysis panel design and fire modeling.

### Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Richard Valle  
**Ecology Project Manager:** John Temple, Dan McDonald (for milestones)

**M-062-51-T01     Submit to Ecology, as a Primary Document for Approval a Secondary Liquid Waste Disposition Work Plan**

Due: December 31, 2021.  
 Status: On schedule.

**M-062-51-T02     Submit Permit Modification Request for Redesign Upgrades And Operations to Support Volumes of Waste Types Expected**

Due: May 15, 2022.  
 Status: On schedule.

**M-062-51     Achieve Substantial Completion of LERF<sup>10</sup>/ETF<sup>11</sup> Construction Upgrades Necessary for LAW Hot Commissioning**

Due: April 15, 2023.  
 Status: On schedule.

### Significant Past Accomplishments

- Total FY 2020 processing volume: approximately 1 million gallons.
- Completed fieldwork for the ETF chiller upgrade. Due to increasing temperatures, ORP granted approval for this work to be performed during COVID-19 essential mission critical operations.
- Completed the 30-percent design review for the ETF vessel off-gas system upgrade.
- Completed the 30-percent design review for the ETF redundant filtration upgrade.
- Continued fabrication and procurement activities for the ETF reverse osmosis system upgrade.
- Continued vendor repair of the ETF dilute caustic tank (see “Issues” section, below).
- Continued design of modifications for the ETF brine load out system upgrade.
- Continued work package planning for the LERF Basin 44 cover repair/replacement.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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<sup>10</sup> LERF denotes Liquid Effluent Retention Facility.

<sup>11</sup> ETF denotes Effluent Treatment Facility.

### Significant Planned Actions in the Next Six Months

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.
- Complete the ETF chiller system upgrade to improve reliability and reduce system maintenance.
- Complete design modifications for the ETF brine load out system upgrade to address the needed increase in cooling capability.
- Complete design of the ETF ultraviolet/oxidation system upgrade since the existing system is no longer supported by the manufacturer.
- Complete design of the ETF monitoring and control system upgrade because it is currently operating on outdated systems.
- Complete design of the LERF Basin 41 installation for additional capacity.
- Complete design of the ETF redundant filtration upgrade to reduce processing downtime.
- Complete design of the ETF load-in station building expansion to support enhanced facility operation.
- Complete design of the ETF vessel off-gas system upgrade to repair degraded condition.
- Complete design of the ETF supplemental organic treatment system to provide the capability to treat the WTP DFLAW effluent.
- Begin design of the ETF carbon dioxide membrane contactors to provide the capability to treat the WTP DFLAW effluent.
- Begin design of the ETF brine storage tanks to provide the capacity to manage the WTP DFLAW effluent.
- Begin design of the ETF modular grout system to provide the capability to stabilize the WTP DFLAW effluent.
- Begin design of the ETF motor control center upgrade to address the deficient condition and provide additional capability for ongoing upgrade projects.
- Begin design of the ETF freeze protection upgrade to repair degraded condition.

### Issues

- The ETF dilute caustic tank was received at the Hanford Site in January. However, the tank was found to have deficiencies when inspected by ETF engineering in February. The tank was delivered back to the vendor in March for repair prior to the upgrade project continuing.

- Work has paused on the LERF Basin 44 cover replacement project while nuclear safety evaluations are performed by Washington River Protection Solutions, LLC and ORP. Evaluations are being performed due to visual indication of solid material in the basin and sample results from that material. Two options to repair/replace the LERF Basin 44 cover have been developed and issued to vendors for bid proposals.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

### Liquid Effluent Retention Facility Volumes

LERF liquid levels, inventory, and received waste are shown in the table below. Volumes in the table are estimated.<sup>12</sup>

Description	242AL-42 (Basin 42)	242AL-43 (Basin 43)	242AL-44 (Basin 44)
AZ-301 Condensate	+6,700	-	-
Mixed Waste Trench 31 and 34	+19,000	-	-
Other (SWLL)	-	-	-
Processing Campaign(s)	-	-	-
<b>Total Volume</b>	<b>2,876,000</b>	<b>6,469,000</b>	<b>608,000</b>

Data Date: June 1, 2020.

Values shown in gallons.

SWLL = Solid Waste Landfill Lysimeter leachate.

<sup>12</sup> The volume in each Liquid Effluent Retention Facility basin is calculated from liquid level sensor readings. Therefore, based on sensor fluctuations and/or environmental effects (e.g., precipitation, temperature), values for basin volumes may vary slightly from the net inputs and outputs shown for the basin.

## Tank System Update

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Dustin Stewart  
**Ecology Project Manager:** Jeff Lyon, Nina Menard

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

**M-045-91E4 Provide SST<sup>13</sup> Farms Dome Deflection Surveys Every 2 Years to Ecology**

Due: September 30, 2021.  
 Status: On schedule.

**M-045-91K Complete Initial Baseline Visual Inspections of all SSTs**

Due: September 30, 2023.  
 Status: On schedule.

**M-045-91K-T01 Submit Report of the Initial Baseline Visual Inspection of all SSTs Remaining to be Inspected**

Due: March 31, 2024.  
 Status: On schedule.

**M-045-91L Obtain Assessment Reviewed/Certified by an IQRPE Attesting to SST Structural Integrity**

Due: September 30, 2034.  
 Status: On schedule.

### Double-Shell Tank Integrity

#### Significant Past Accomplishments

- Received and installed a retractable corrosion monitoring probe in Tank 241-AY-101.
- Ultrasonic testing inspections have been completed for the following tanks in FY 2020:
  - 241-AW-102
  - 241-AW-101.
- Completed enhanced annulus visual inspection in FY 2020:
  - 241-AW-101
  - 241-AW-102
  - 241-AW-103
  - 241-AW-104
  - 241-AW-105
  - 241-AW-106
  - 241-SY-101

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<sup>13</sup> SST denotes single-shell tank.

- 241-SY-102
- 241-SY-103.
- Completed annulus visual inspection of Tank 241-AY-102 through risers 88 and 89 in January 2020.
- Released revision of RPP-RPT-31599, *Double-Shell Tank Integrity Inspection Report for 241-AN Tank Farm*, which includes FY 2019 visual inspection results. The revised report was released in February 2020.
- Issued a contract to fabricate, test, and deliver a primary tank bottom volumetric inspection system to be deployed into the annulus of double-shell tanks (DST) and used to characterize regions of the primary tank bottom.
- Issued a competitive procurement contract to a vendor to design and fabricate a tertiary leak detection inspection tool for deployment beneath the secondary liner of a DST.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

### **Ultrasonic Testing Report Status**

- Draft ultrasonic testing reports:
  - 241-AW-102 (expected to be released in June 2020).

### **Issues**

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## **Single-Shell Tank Integrity**

### **Significant Past Accomplishments**

- Performed TFC-ENG-CHEM-P-57, *Intrusion Notification and Tank Leak Assessment Process*, on the following tanks in FY 2020:
  - 241-SX-104
  - 241-T-109.
- Visual inspections were completed for the following tanks in FY 2020:
  - 241-TX-101 (Completed December 2019)
  - 241-TX-102 (Completed December 2019)
  - 241-TX-104 (Completed January 2020)
  - 241-TX-107 (Completed January 2020)
  - 241-S-103 (Completed January 2020)
  - 241-S-110 (Completed January 2020)
  - 241-BX-112 (Completed February 2020)
  - 241-BY-107 (Completed February 2020)
  - 241-SX-112 (Completed February 2020)
  - 241-TY-104 (Completed February 2020)
  - 241-TX-110 (Completed February 2020)
  - 241-BX-109 (Completed February 2020)
  - 241-B-107 (Completed March 2020)
  - 241-BX-108 (Completed March 2020).
- Initiated work package planning for visual inspection of five miscellaneous underground storage tanks.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

### **Issues**

- Tank 241-SX-112 was visually inspected in late February. The concrete dome was fully inspected, and there were three spots of spalled concrete in the dome. Further investigation is ongoing and a path forward is being developed. The spalling is believed

to have happened before 1969, when the tank was interim stabilized. While there have been past inspections of the tank, they did not include the full dome; this is the first inspection to reflect the spalling. There is no evidence of structural issues; however, the dome loading is being limited to current levels until further analysis is complete. The full analysis may take several months to complete.

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.



## 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.
- 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 at a frequency of 10 years, and ORP will continue to comply with the permit condition.
- ETF:
  - Completed RPP-IQRPE-50043, *Effluent Treatment Facility (ETF) IQRPE Integrity Assessment*, in 2019.
  - The IQRPE recommended the next ETF integrity assessment be completed in 10 years.
- 219-S Tank system:
  - Completed RPP-IQRPE-50029, *219-S Integrity Assessment Report*, in February 2020.
  - The IQRPE recommended the next 219-S Tank system integrity assessment be completed in 20 years.

## In-Tank Characterization and Summary

**Tank Farms Assistant Manager:** Rob Hastings  
**Technical Lead:** Dustin Stewart  
**Ecology Project Manager:** Jeff Lyon

### Reports Completed or Released

For May 2020, the following reports were completed (internal access only) or released (external access):

- Completed:
  - RPP-RPT-59039, *Derivation of Best-Basis Inventory for Tank 241-AX-104 as of April 1, 2020*, Rev. 2
  - RPP-RPT-60184, *Derivation of Best-Basis Inventory for Tank 241-SX-104 as of April 1, 2020*, Rev. 1
  - RPP-RPT-59537, *Derivation of Best-Basis Inventory for Tank 241-TY-104 as of April 1, 2020*, Rev. 1
  - RPP-RPT-45764, *Derivation of Best-Basis Inventory for Tank 241-AN-102 as of April 1, 2020*, Rev. 7
  - RPP-RPT-58071, *Derivation of Best-Basis Inventory for Tank 241-C-105 as of April 1, 2020*, Rev. 7
  - RPP-RPT-58864, *Derivation of Best-Basis Inventory for Tank 241-A-105 as of April 1, 2020*, Rev. 3.
- Released:
  - HNF-EP-0182, *Waste Tank Summary Report for Month Ending April 30, 2020*, Rev. 388.

### Tank Sampling

#### Significant Past Accomplishments

- For May 2020, the following tank sampling was conducted:
  - None.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

### **Issues**

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

### **Best-Basis Inventory Updates**

#### **Significant Past Accomplishments**

- Best-basis inventory updates for the following tanks were completed in May 2020:
  - 241-A-105
  - 241-AN-102
  - 241-AX-104
  - 241-C-105
  - 241-SX-104
  - 241-TY-104.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

### **Significant Planned Actions in the Next Month**

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.

**Issues**

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## Single-Shell Tank Closure Program

**Tank Farms Assistant Manager:** Rob Hastings

**Technical Lead:** 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-C<sup>14</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-045-92V Complete Construction of Barriers 1 (South) and 2 (North) and Expansion Barrier in 241-SX Farm**

**Due:** October 31, 2019.

**Status:** Completed.

**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:** Completed.

**M-045-92AC Submit to Ecology for Approval a Maintenance and Performance Monitoring Plan for Interim Barriers**

**Due:** October 31, 2019.

**Status:** Completed.

**M-045-92X Barrier 3 in 241-TX Farm Design Approved by Ecology**

**Due:** January 31, 2020.

**Status:** Completed October 17, 2019.

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<sup>14</sup> WMA-C denotes C Tank Farm waste management area.

- M-045-99**     **Submit to Ecology the Preliminary Performance Assessment/Closure Analysis (*refers to WMA A/AX*)**  
Due: September 30, 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-045-97**     **Submit to Ecology as a Primary Document a Waste Management Area Integration Study for WMA A/AX as described in HFFACO<sup>15</sup> Appendix I.2.1.1**  
Due: September 30, 2021.  
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 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-045-98**     **Submit to Ecology as a Primary Document an RFI/CMS<sup>16</sup> work plan for WMA A/AX including an implementation schedule in accordance with HFFACO Action Plan Section 11.6**  
Due: September 30, 2022.  
Status: On schedule.
- M-045-102**     **Submit to Ecology a Performance Assessment (PA) Maintenance Plan for WMA A/AX PA**  
Due: September 30, 2022.  
Status: On schedule.

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<sup>15</sup> HFFACO denotes *Hanford Federal Facility Agreement and Consent Order*.

<sup>16</sup> RFI/CMS denotes *Resource Conservation and Recovery Act Facility Investigation/Corrective Measure Study*.

- M-045-92AB Complete Construction of Barrier 4 in 241-U Farm**  
 Due: October 31, 2023.  
 Status: On schedule.
- M-045-103 Submit to Ecology a PMR<sup>17</sup> with Tier 2 RCRA Closure Plan for WMA A/AX and Schedule for Tier 3 Schedule**  
 Due: September 30, 2026.  
 Status: On schedule.
- M-045-104 Submit to Ecology as a PMR the Post-Closure Plan for WMA A/AX**  
 Due: September 30, 2028.  
 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.

### Significant Past Accomplishments

- 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. The workshops are currently being conducted as teleconferences.
- Approved DOE/ORP-2014-02, *Clean Closure Practicality Demonstration for the Single-Shell Tanks*, with supplemental information DOE/ORP-2014-02-SUPP-1 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.
- Submitted the maintenance and performance monitoring plan for interim barriers to Ecology. This action completes milestone M-045-92AC. ORP letter 19-TPD-0027, "Completion of Maintenance Performance and Monitoring Plan Submittal to Meet Hanford Federal Facility Agreement and Consent Order Milestone M-045-92AC," dated October 31, 2019, documented completion of this milestone. The letter states the *Maintenance and Performance Monitoring Plan* was hand delivered to Ecology for approval on October 10, 2019.

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<sup>17</sup> Permit Modification Request

- Ecology approved the design for Barrier 3 in 241-TX Tank Farm to allow the start of construction. This action completes milestone M-045-92X as noted by Administrative Record documentation (AR-03146) signed October 17, 2019.
- Analysis of the Tank 241-C-106 in-tank videos have yielded the Camera/Computer Aided Design Modeling System volume estimate of 285.98 cubic feet, actual volume (calculation) 316.66 cubic feet, and 95 percent upper confidence level 334.92 cubic feet.
- Mobilized subcontract labor and equipment to start field activities on the TX Evapotranspiration Basin. Potholing initiated to identify abandoned underground utility obstructions.
- A cultural resource review was prepared and submitted for Washington State Historic Preservation Officer and tribal review in support of barriers at the TX Barrier Special Emphasis Area and *National Environmental Policy Act*. Based on the determination, there are no cultural resource concerns related to construction of the Evapotranspiration barrier.
- On May 20, 2020, DOE authorized the Hanford Site to move to Phase 1. Hanford Site operations began Phase 1 on May 26, 2020. During Phase 1, essential mission-critical operations were continued and targeted mobilization and low-risk workscope, such as implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

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

- Essential mission-critical operations and Phase 1 activities will continue in light of COVID-19-related restrictions and DOE's authorization for the Hanford Site to move to Phase 1. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both DOE and site contractors will progress as conditions support.
- Resolve Ecology's comments on RPP-RPT-59389, RPP-RPT-59390, and RPP-RPT-58858.

### **Issues**

- Interagency Management Integration Team decisions for the four issues on RPP-RPT-58329, *Baseline Risk Assessment for Waste Management Area C*, have been stalled since the February 21, 2019, meeting. Interagency Management Integration Team determinations for judgmental sampling, hazard index, and food change pathway were signed November 21, 2019, November 25, 2019, and May 7, 2020, respectively. The groundwater ingestion issue remains open.
- 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." 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, "Director's Determination on United States Department of Energy Request for a Waiver of Single-Shell Tank Retrieval Criteria"). ORP appealed the



Director of Ecology's determination to the Pollution Control Hearings Board on July 26, 2019. The parties participated in mediation on October 28, 2019. The parties were unable to successfully negotiate and resolve the appeal on October 28, 2019, but agreed to one additional negotiation meeting in November. The important dates and litigation deadlines are set forth in the Pollution Control Hearings Board's Second Amended Pre-hearing Order. The hearing in this appeal was scheduled for July 28, 2020. Analysis of the Tank 241-C-106 in-tank videos have yielded the Camera/Computer Aided Design Modeling System volume estimate of 285.98 cubic feet, actual volume calculation of 316.66 cubic feet, and a 95 percent upper confidence limit of 334.92 cubic feet. Due to improvements in technology used to measure residual waste and tank liquid evaporation since ORP's 2004 residual waste measurement activities for Tank 241-C-106, the above calculated volumes are more accurate than the calculations resulting from 2004 residual waste measurement activities for Tank 241-C-106. In addition to use of improved technologies, evaporation of the liquid pool has enabled a more accurate measurement of Tank 241-C-106 residual wastes that were not visible in 2004. Due to the improved visibility, the assumption that the entire dish bottom was covered by a 1-inch minimum layer of waste has changed. As a result of Camera/Computer Aided Design Modeling System improvements, using better technologies and evaporation of tank liquids since 2004, the 2019 estimates are believed to be more accurate than the 2004 estimates. ORP rescinded its "Request for Waiver to Hanford Federal Facility Agreement and Consent Order Waste Retrieval Criteria for Single-Shell Tank 241-C-106" (18-ECD-0055) on April 1, 2020, as the TPA Appendix H retrieval goal of 360 cubic feet has been met. Per DOE's motion to withdraw, the Pollution Control Hearings Board dismissed the appeal related to this waiver request on April 7, 2020 (PCHB No. 19-042).

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information and COVID-19 potential impacts on the TPA and, if other actions may be necessary.

## Single-Shell Tank Retrieval Program

**Tank Farms Assistant Manager:** Rob Hastings

**Technical Lead:** Jeff Rambo

**Ecology Project Manager:** Jeff Lyon

**M-045-93     Submit Report for Description, Analysis and Technology for Removing Drainable Liquids from SSTs**

Due: June 30, 2020.

Status: On schedule.

Note: Change Control Form M-45-19-01, signed July 11, 2019, added this milestone to the TPA.

**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: No retrieval data reports are currently underway. The next planned retrieval is Tank 241-AX-102.

**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.

### Significant Past Accomplishments

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

### Significant Planned Activities in the Next Six Months

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

### Issues

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

## Tank Operations Contract Overview

Earned Value Data: Fiscal Year 2020

April-2020

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$78,113	\$58,649	\$44,236	(\$19,464)	\$14,413	0.75	1.33			
FYTD	\$400,679	\$386,782	\$383,324	(\$13,896)	\$3,458	0.97	1.01	\$756,195		
CTD	\$5,923,275	\$5,839,400	\$5,802,428	(\$83,875)	\$36,972	0.99	1.01	\$6,278,792	\$6,239,261	\$39,531

ACWP = actual cost of work performed.

CV = cost variance.

BAC = budget at completion.

EAC = estimate at completion.

BCWP = budgeted cost of work performed.

FYTD = fiscal year to date.

BCWS = budgeted cost of work scheduled.

SPI = schedule performance index.

CM = current month.

SV = schedule variance.

CPI = cost performance index.

VAC = variance at completion.

CTD = contract to date.

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.

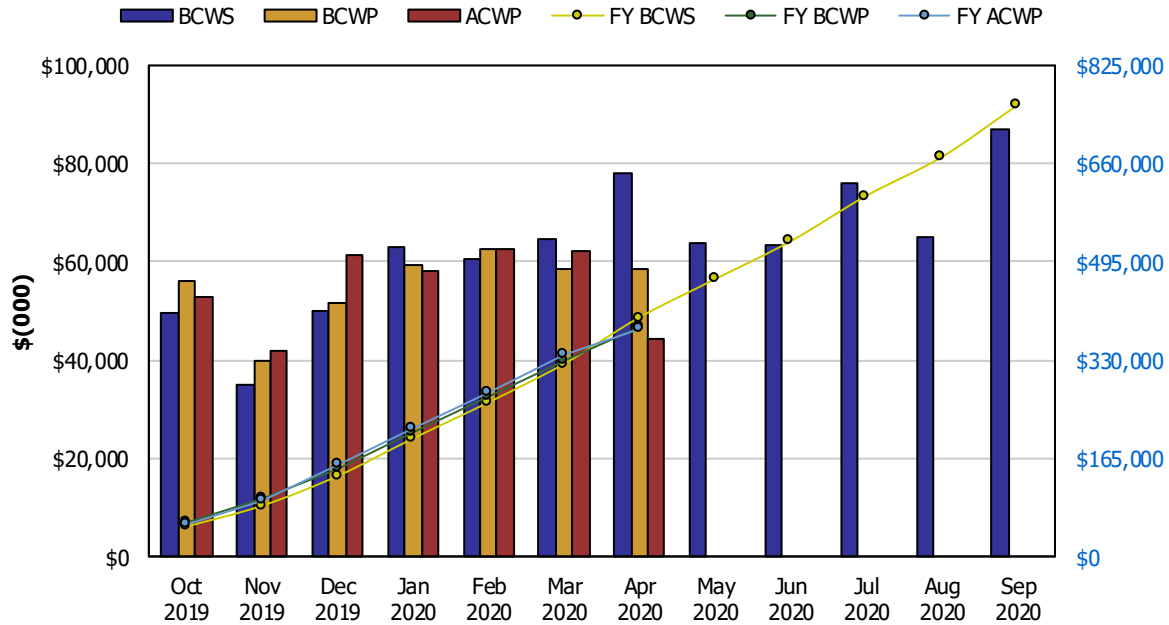
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000 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 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 2020

April-2020

**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 2019	\$49,558	\$56,275	\$52,812	1.14	1.07	\$49,558	\$56,275	\$52,812	1.14	1.07
Nov 2019	\$34,954	\$39,741	\$42,066	1.14	0.94	\$84,512	\$96,016	\$94,879	1.14	1.01
Dec 2019	\$49,841	\$51,597	\$61,200	1.04	0.84	\$134,353	\$147,613	\$156,079	1.10	0.95
Jan 2020	\$63,048	\$59,514	\$57,979	0.94	1.03	\$197,401	\$207,128	\$214,059	1.05	0.97
Feb 2020	\$60,669	\$62,504	\$62,711	1.03	1.00	\$258,071	\$269,632	\$276,770	1.04	0.97
Mar 2020	\$64,495	\$58,502	\$62,318	0.91	0.94	\$322,565	\$328,133	\$339,088	1.02	0.97
Apr 2020	\$78,113	\$58,649	\$44,236	0.75	1.33	\$400,679	\$386,782	\$383,324	0.97	1.01
May 2020	\$63,991			0.00	0.00	\$464,670			0.00	0.00
Jun 2020	\$63,538			0.00	0.00	\$528,207			0.00	0.00
Jul 2020	\$76,135			0.00	0.00	\$604,342			0.00	0.00
Aug 2020	\$64,999			0.00	0.00	\$669,342			0.00	0.00
Sep 2020	\$86,854			0.00	0.00	\$756,195			0.00	0.00

CTD	\$5,923,275	\$5,839,400	\$5,802,428	0.99	1.01
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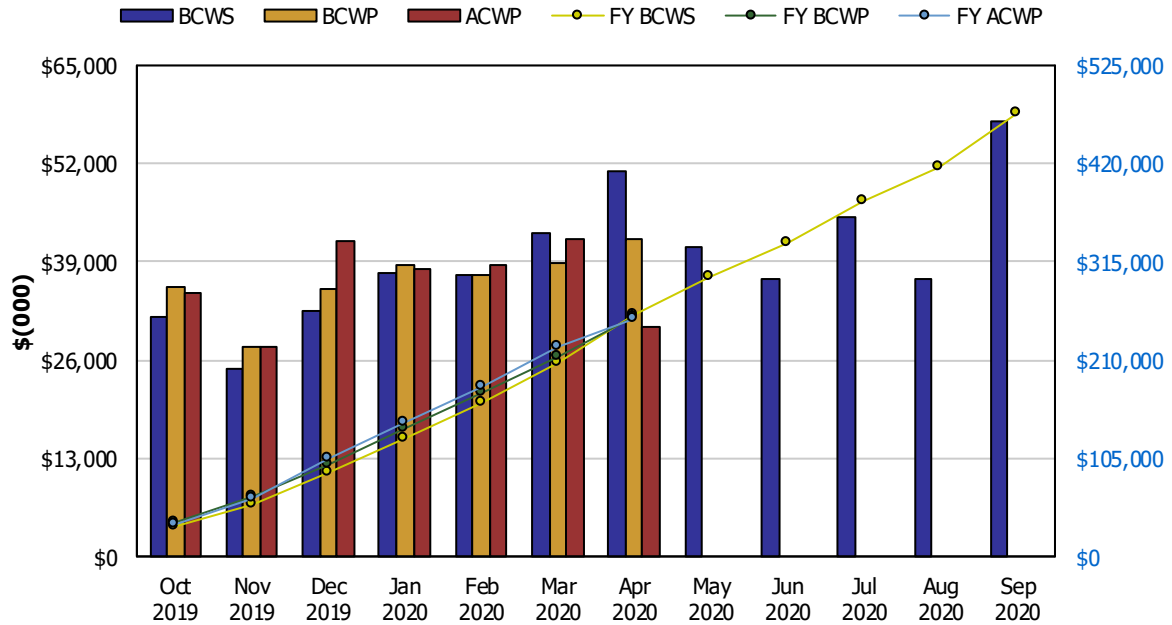
- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- CM = current month.
- CTD = contract to date.
- FY = fiscal year.
- SPI = schedule performance index.

Earned Value Data: Fiscal Year 2020

April-2020

**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 2019	\$31,720	\$35,563	\$34,769	1.12	1.02	\$31,720	\$35,563	\$34,769	1.12	1.02
Nov 2019	\$24,924	\$27,726	\$27,829	1.11	1.00	\$56,644	\$63,289	\$62,598	1.12	1.01
Dec 2019	\$32,399	\$35,357	\$41,699	1.09	0.85	\$89,043	\$98,646	\$104,297	1.11	0.95
Jan 2020	\$37,525	\$38,619	\$38,174	1.03	1.01	\$126,568	\$137,265	\$142,471	1.08	0.96
Feb 2020	\$37,219	\$37,342	\$38,509	1.00	0.97	\$163,787	\$174,607	\$180,980	1.07	0.96
Mar 2020	\$42,891	\$38,955	\$42,127	0.91	0.92	\$206,678	\$213,562	\$223,107	1.03	0.96
Apr 2020	\$50,864	\$42,080	\$30,456	0.83	1.38	\$257,542	\$255,642	\$253,563	0.99	1.01
May 2020	\$40,985			0.00	0.00	\$298,527			0.00	0.00
Jun 2020	\$36,797			0.00	0.00	\$335,324			0.00	0.00
Jul 2020	\$44,903			0.00	0.00	\$380,227			0.00	0.00
Aug 2020	\$36,799			0.00	0.00	\$417,026			0.00	0.00
Sep 2020	\$57,657			0.00	0.00	\$474,683			0.00	0.00

CTD	\$3,916,192	\$3,875,219	\$3,822,990	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  
***Technical Lead:*** Ricky Bang

### 5.01 – Base Operations

The April 2020 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$8,784,300) was primarily due to:

- April work performance delays as a result of COVID-19-related restrictions. On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. Affected scope for the reporting month includes, but is not limited to:
  - SY Tank Farm Exhauster
  - 242-A Evaporator Transfer Line Replacement
  - ETF Verification Tank Repair
  - S/SX Farms Automation
  - DST Integrity Ultrasonic Testing
  - Core Sampling
  - 222-S Laboratory Fire Alarm System Upgrade
  - ETF Chiller Upgrade.

The current month **favorable** CV of \$11,623,800 was primarily due to:

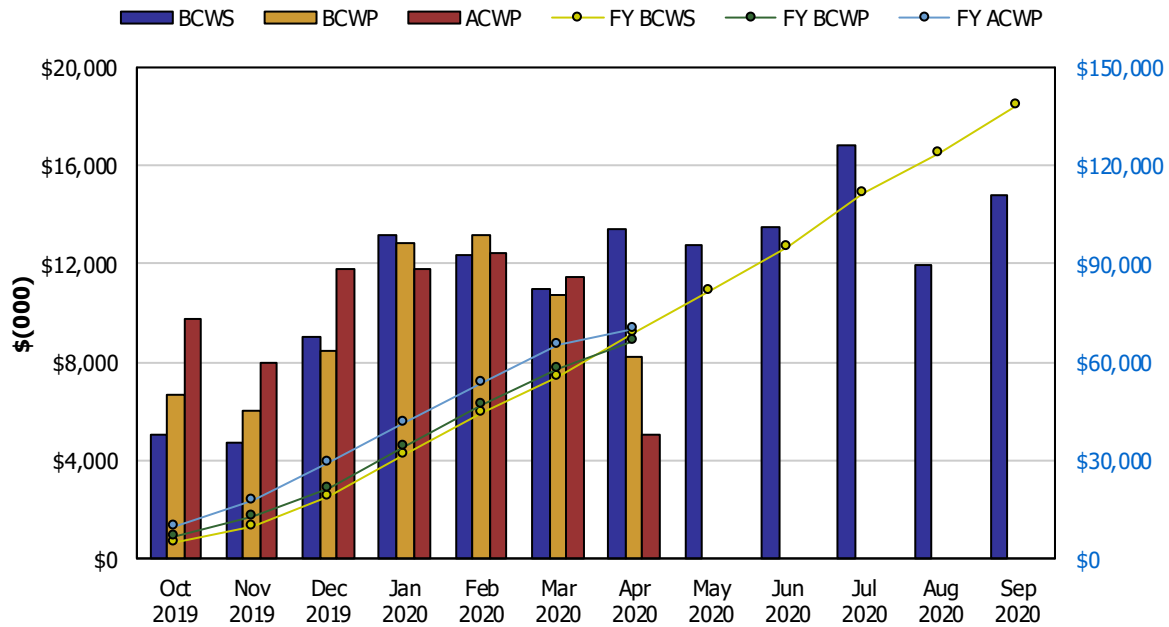
- April work performance under-spending as a result of COVID-19-related restrictions. On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. Affected scope for the reporting month includes, but is not limited to:
  - Production Operations Support Services
  - ETF Operations and Maintenance
  - 222-S Laboratory General Support Operations Support
  - Production Operations in the Tank Farms.

Earned Value Data: Fiscal Year 2020

April-2020

**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 2019	\$5,039	\$6,662	\$9,772	1.32	0.68	\$5,039	\$6,662	\$9,772	1.32	0.68
Nov 2019	\$4,722	\$6,050	\$7,940	1.28	0.76	\$9,761	\$12,712	\$17,711	1.30	0.72
Dec 2019	\$9,040	\$8,482	\$11,822	0.94	0.72	\$18,801	\$21,193	\$29,534	1.13	0.72
Jan 2020	\$13,201	\$12,877	\$11,828	0.98	1.09	\$32,003	\$34,070	\$41,362	1.06	0.82
Feb 2020	\$12,323	\$13,174	\$12,473	1.07	1.06	\$44,326	\$47,245	\$53,834	1.07	0.88
Mar 2020	\$10,984	\$10,744	\$11,497	0.98	0.93	\$55,310	\$57,989	\$65,331	1.05	0.89
Apr 2020	\$13,412	\$8,230	\$5,011	0.61	1.64	\$68,722	\$66,218	\$70,343	0.96	0.94
May 2020	\$12,747			0.00	0.00	\$81,469			0.00	0.00
Jun 2020	\$13,484			0.00	0.00	\$94,953			0.00	0.00
Jul 2020	\$16,800			0.00	0.00	\$111,752			0.00	0.00
Aug 2020	\$11,922			0.00	0.00	\$123,674			0.00	0.00
Sep 2020	\$14,833			0.00	0.00	\$138,507			0.00	0.00

CTD	\$1,152,984	\$1,127,560	\$1,189,126	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  
***Technical Lead:*** 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.

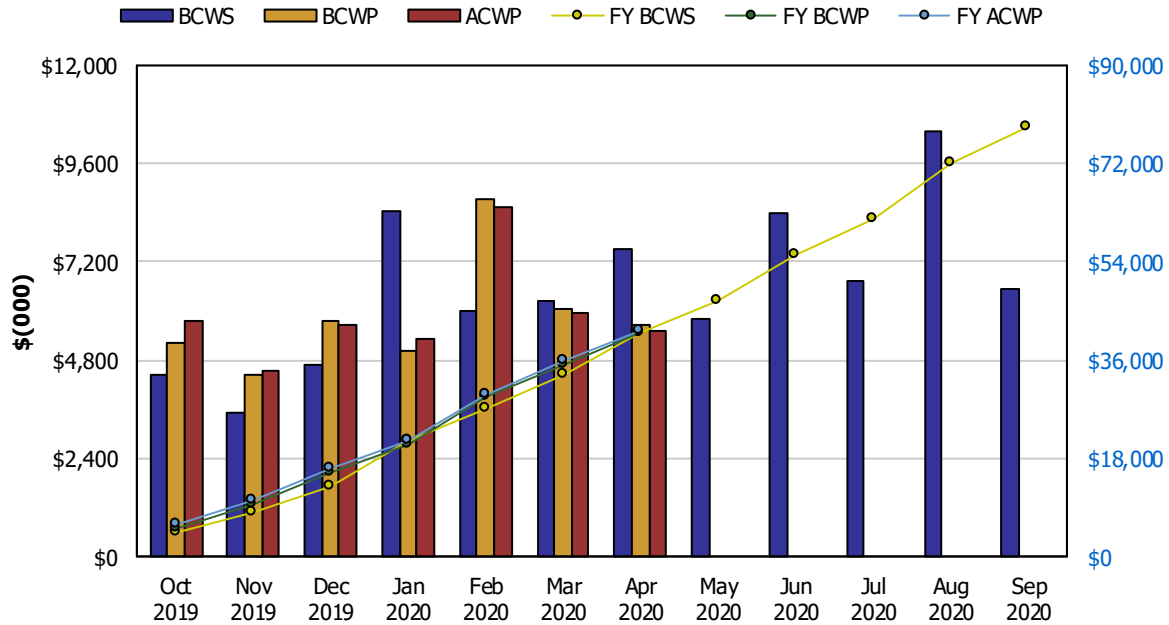


Earned Value Data: Fiscal Year 2020

April-2020

**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 2019	\$4,444	\$5,240	\$5,748	1.18	0.91	\$4,444	\$5,240	\$5,748	1.18	0.91
Nov 2019	\$3,521	\$4,447	\$4,535	1.26	0.98	\$7,965	\$9,687	\$10,283	1.22	0.94
Dec 2019	\$4,707	\$5,765	\$5,664	1.22	1.02	\$12,672	\$15,452	\$15,947	1.22	0.97
Jan 2020	\$8,446	\$5,009	\$5,307	0.59	0.94	\$21,118	\$20,461	\$21,254	0.97	0.96
Feb 2020	\$5,997	\$8,716	\$8,545	1.45	1.02	\$27,115	\$29,177	\$29,799	1.08	0.98
Mar 2020	\$6,256	\$6,053	\$5,966	0.97	1.01	\$33,371	\$35,230	\$35,765	1.06	0.99
Apr 2020	\$7,498	\$5,683	\$5,490	0.76	1.04	\$40,868	\$40,913	\$41,256	1.00	0.99
May 2020	\$5,819			0.00	0.00	\$46,687			0.00	0.00
Jun 2020	\$8,386			0.00	0.00	\$55,073			0.00	0.00
Jul 2020	\$6,713			0.00	0.00	\$61,786			0.00	0.00
Aug 2020	\$10,378			0.00	0.00	\$72,164			0.00	0.00
Sep 2020	\$6,560			0.00	0.00	\$78,724			0.00	0.00

CTD	\$617,246	\$612,639	\$566,682	0.99	1.08
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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 April 2020 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$1,814,500) was primarily due to:

- April work performance delays as a result of COVID-19-related restrictions. On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. Affected scope for the reporting month includes, but is not limited to:
  - Integrated Disposal Facility Glass Testing
  - DFLAW Rad Waste Test Platform
  - Waste Feed Delivery Technology.

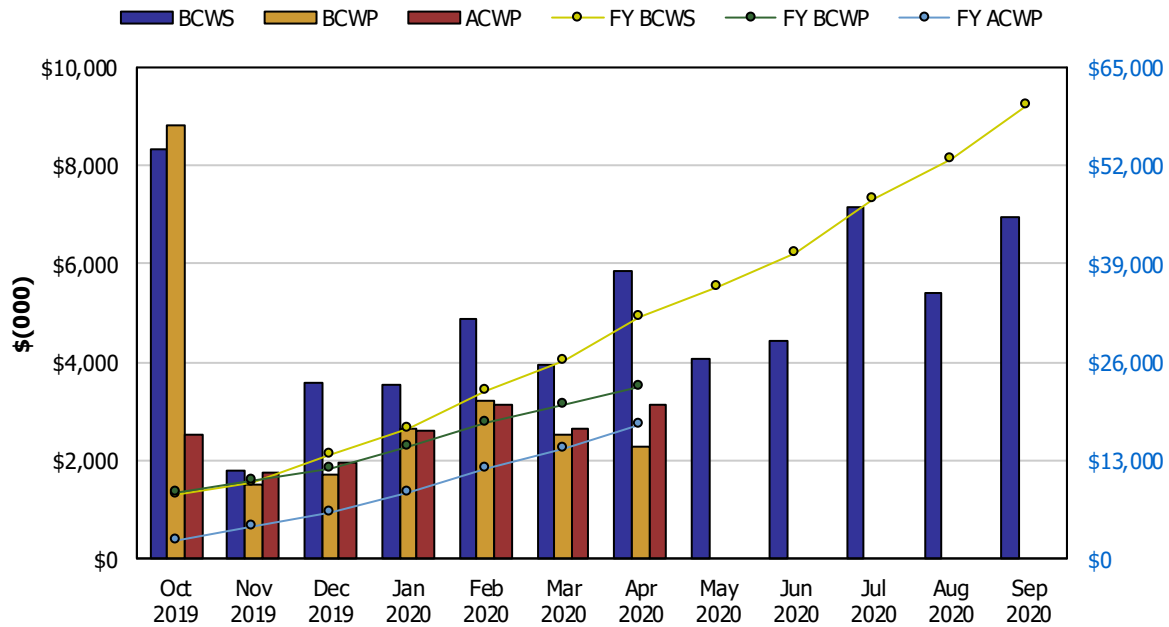
The current month **favorable** CV of \$192,900 was below reportable thresholds.

Earned Value Data: Fiscal Year 2020

April-2020

**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 2019	\$8,344	\$8,802	\$2,523	1.05	3.49	\$8,344	\$8,802	\$2,523	1.05	3.49
Nov 2019	\$1,778	\$1,510	\$1,759	0.85	0.86	\$10,122	\$10,312	\$4,282	1.02	2.41
Dec 2019	\$3,591	\$1,715	\$1,940	0.48	0.88	\$13,713	\$12,027	\$6,223	0.88	1.93
Jan 2020	\$3,546	\$2,663	\$2,588	0.75	1.03	\$17,260	\$14,691	\$8,810	0.85	1.67
Feb 2020	\$4,867	\$3,230	\$3,133	0.66	1.03	\$22,127	\$17,921	\$11,944	0.81	1.50
Mar 2020	\$3,928	\$2,526	\$2,646	0.64	0.95	\$26,055	\$20,446	\$14,590	0.78	1.40
Apr 2020	\$5,844	\$2,283	\$3,128	0.39	0.73	\$31,900	\$22,730	\$17,718	0.71	1.28
May 2020	\$4,057			0.00	0.00	\$35,957			0.00	0.00
Jun 2020	\$4,423			0.00	0.00	\$40,379			0.00	0.00
Jul 2020	\$7,151			0.00	0.00	\$47,530			0.00	0.00
Aug 2020	\$5,398			0.00	0.00	\$52,928			0.00	0.00
Sep 2020	\$6,956			0.00	0.00	\$59,884			0.00	0.00

CTD	\$215,097	\$202,592	\$204,054	0.94	0.99
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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

### **5.05 – Treat Waste**

The April 2020 variances below do not impact TPA milestones.

The current month unfavorable SV of (\$3,560,900) was primarily due to:

- Fabrication and fieldwork delays associated with COVID-19-related restrictions. As a result, no fieldwork was performed and critical fabrication work was halted (e.g., pipe-in-pipe transfer lines and waste feed pumps).

The current month unfavorable CV of (\$844,900) was primarily due to:

- Additional Nuclear Safety resources that have been assigned to develop the TSCR Documented Safety Analysis Amendment.
- Unforeseen design modifications have resulted in more design subcontractor support than planned originally. This increase has been due primarily to incorporation of additional lighting and a north-south construction joint for the ion exchange column storage pad, analysis for the balance of facilities pad wall, and splitting of electrical component drawings to support Critical Decision-4A and Critical Decision-4, “Approve Start of Operations or Project Completion,” commissioning plans.

**Table 1 Administrative Record Metadata**

<b>Milestone Number or Facility Identification</b>	<b>Title</b>
M-045-56P	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)
M-045-91E4	Provide SST Farms Dome Deflection Surveys Every 2 Years to Ecology
M-045-92AD	Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities
M-045-93	Submit Report for Description, Analysis and Technology for Removing Drainable Liquids from SSTs
M-045-97	Submit to Ecology a WMA Integration Study for WMA A/AX as a Primary Document
M-045-99	Submit to Ecology the Preliminary Performance Assessment/Closure Analysis
M-062-31-T01	Comp. Final Design & Submit RCRA Part B Permit Mod Request for Enhanced WTP & Supplemental Treatment
M-062-32-T01	Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements
M-062-33-T01	Complete Construction of Supplemental Treatment Vitrification Facility and/or WTP Enhancements
M-062-40H	Submit System Plan to Ecology
M-062-45	Complete Negotiations 6-Months After Last Issuance of System Plan
M-062-45-A	Complete Negotiations 6-Months After Last Issuance of System Plan
M-062-45-T01	Complete Negotiations 6-Months After Last Issuance of System Plan
M-062-45-ZZ	Negotiate a One-Time Supplemental Treatment Selection
M-062-45-ZZ-A	Convert M-062-31-T01 Thru M-062-34-T01 to Interim Milestones
M-062-50	Submit to Ecology as a Secondary Document, a Mass Balance Flow
M-062-54A	Submit Permit Application for AP Tank Farm Mods and Operation Necessary to Support TSCR
M-090-14	Submit CD-1 for Facility to Store Spent Ion Exchange Columns Prior to DFLAW
S-2-3	Double-Shell Tank System (DST)
S-2-4	Single-Shell Tank System (SST)
S-2-8	Liquid Effluent Retention Facility (LERF)
T-2-6	242-A Evaporator

<b>Milestone Number or Facility Identification</b>	<b>Title</b>
T-2-8	Effluent Treatment Facility (ETF)
TS-2-8	Low-Activity Waste Pretreatment System (LAWPS)

CD = critical decision.  
 DFLAW = direct-feed low-activity waste.  
 DOE = U.S. Department of Energy.  
 RCRA = *Resource Conservation and Recovery Act*.  
 TSCR = tank-side cesium removal.  
 WMA = waste management area.  
 WTP = Waste Treatment and Immobilization Plant.