

Office of River Protection



Monthly Reporting Period

March 1–March 31, 2020¹

¹ The narrative descriptions of progress in this report cover the reporting period. Information outside the reporting period may also be included for purposes of providing continuity or useful context. Information may be repeated in multiple sections of this report for continuity and clarity. Earned Value Management System data and descriptions cover the period through February 2020.

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Acronyms and Abbreviations

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
WMA	waste management area
WTP	Waste Treatment and Immobilization Plant

Administrative Items/Milestone Status

Milestone	Title	Due Date	DOE PM	Status
Prior Years				
M-062-45-T01	Complete Negotiations 6-Months After Last Issuance of System Plan	04/30/2015	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
Fiscal Year 2020 (October 1, 2019–September 30, 2020)				
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

Milestone	Title	Due Date	DOE PM	Status
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	On Schedule
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 ¹	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 ¹	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 ¹	B. Harkins	On Schedule
Fiscal Year 2021 (October 1, 2020 – September 30, 2021)				
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

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

CD = critical decision.

CMIP = corrective measures implementation work plan.

DFLAW = direct-feed low-activity waste.

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.

TSCR = tank-side cesium removal.

WTP = Waste Treatment and Immobilization Plant.

WMA-C = C Tank Farm waste management area.

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.”

Significant Planned Actions in the Next Six Months

- 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 DFLAW²

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

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

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

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

- None.

Significant Planned Actions in the Next Six Months

- None.

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.

² DFLAW denotes direct-feed low-activity waste.

³ ECY denotes Washington State Department of Ecology.

⁴ IHLW denotes immobilized high-level waste.

⁵ WTP denotes Waste Treatment and Immobilization Plant.

Supplemental Treatment and 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.”

M-062-45-T01	Complete Negotiations 6-Months after Last Issuance of System Plan
Due:	April 30, 2015.
M-062-45-ZZ	Negotiate a One-Time Supplemental Treatment Selection
Due:	April 30, 2015.
M-062-45-ZZ-A	Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones
Due:	April 30, 2015.
M-062-31-T01	Complete Final Design and Submit RCRA⁶ Part B Permit Modification Request for Enhanced WTP & Supplemental Treatment
Due:	April 30, 2016.
M-062-32-T01	Start Construction of Supplemental Vitrification Facility and/or WTP Enhancements
Due:	April 30, 2018.
M-062-33-T01	Complete Construction of Supplemental Treatment Vitrification Facility and/or WTP Enhancements
Due:	April 30, 2021.
M-062-45-XX	Complete Negotiations to Resolve Future Disputes M-062-45, Paragraphs 4 and 5
Due:	December 31, 2021.
Status:	On schedule.
M-062-34-T01	Complete Hot Commissioning of Supplemental Treatment Vitrification Facility and/or WTP Enhancements
Due:	December 30, 2022.

⁶ 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 HLW⁷ and LAW⁸ Tank Wastes

Due: December 31, 2047.

Status: At risk.

Significant Past Accomplishments

- None.

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

- 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.

⁷ HLW denotes high-level waste.

⁸ 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

- None.

Significant Planned Actions in the Next Six Months

- None.

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 TSCR⁹

Due: July 15, 2020.
 Status: On schedule.

Significant Past Accomplishments

- Tank-side cesium removal system factory acceptance testing was satisfactory completed at the end of March 2020.

Significant Planned Actions in the Next Six Months

- ORP will submit the updated tank-side cesium removal permit application addressing all of Ecology's comments.
- ORP intends to commence construction of tank-side cesium removal support systems following Ecology issuance of the draft permit for public comment and after Ecology grants temporary authorizations.

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 path forward.
- 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 tank-side cesium removal unit, the ion exchange column storage pad, and installation of the transfer lines until the draft *Resource Conservation and Recovery Act* permit was completed. This has the potential to impact the project schedule by up to 4 months and several million dollars in cost.

⁹ TSCR denotes tank-side cesium removal.

- 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 for fiscal year (FY) 2020 is in the following table:

Fiscal Year	Campaign No.	Feed Source	Slurry Tank	Comments
2020	EC-11	N/A	N/A	A cold run will be initiated prior to June 25, 2020, at the 242-A Evaporator. This run will occur while fieldwork activities for the new transfer lines from 242-A Evaporator to 241-AW Tank Farm are in progress. This run will maintain 242-A Evaporator readiness, staff proficiency, and cycle idle equipment.

N/A = not applicable.

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.

Significant Planned Actions in the Next Six Months

- Complete repairs to PB-1 seal water supply, discharge line, and filtered raw water sock filters
- Initiate campaign EC-11
- Procure new PB-1 replacement pump
- Continue installing 242-A Evaporator instrument air dryer upgrade, remove Tanks E101 and E104
- Complete 100-percent design for 242-A Evaporator transfer line replacement

- Initiate 242-A Evaporator safety systems upgrades engineering design
- Initiate 242-A Evaporator transfer line replacement field work.

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/ETF Construction Upgrades Necessary for LAW Hot Commissioning

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

Significant Past Accomplishments

- Total fiscal year (FY) 2020 processing volume: approximately 1 million gallons
- Completed upgrade of the Effluent Treatment Facility (ETF) uninterruptible power supply due to age and the occurrence of faults
- Completed upgrade of ETF stairs and ladder to improve personnel safety and ergonomics
- Completed upgrade of the ETF peroxide decomposer system in preparation for the WTP DFLAW effluent
- Completed upgrade of the ETF evaporator drain valve due to leak-prone issues
- Completed upgrade of the ETF rough filter system to reduce processing down time
- Completed the 90-percent design review for Liquid Effluent Retention Facility (LERF) Basin 41 project
- Completed the 60-percent design review for the ETF monitoring and control system upgrade
- Completed the 60-percent design review for the ETF ultraviolet/oxidation system upgrade
- Completed the 30-percent design review for the ETF supplemental organic treatment system (i.e., acetonitrile treatment)
- Completed the 30-percent design review for the ETF Load-In Station building expansion
- Continued fieldwork for the upgrade of the ETF cooling tower system

- Continued fieldwork for the upgrade of the ETF dilute caustic tank
- Continued fieldwork for the upgrade of the ETF chiller system
- Continued fieldwork for the upgrade of the ETF reverse osmosis system
- Continued fieldwork for the repair of the ETF verification tank (60H-TK-1C)
- Continued work package planning for the ETF brine loadout system upgrade
- Continued work package planning for the 310/311-PL transfer lines.

Significant Planned Actions in the Next Six Months

- Complete the ETF cooling tower and pump upgrade which is subject to shut down due to the degraded condition
- Complete the ETF dilute caustic tank upgrade with a tank of compatible material to the system piping
- Complete the ETF chiller system upgrade to improve reliability and reduce system maintenance
- Complete the ETF reverse osmosis system upgrade to replace leak prone valves and obsolete system pumps
- Complete the ETF verification tank repair to replace the interior protective epoxy coating
- Perform ETF processing campaign to reduce LERF backlog
- Perform repair or replacement of the LERF Basin 44 floating cover
- Perform ETF brine loadout upgrade to manage secondary waste
- Perform physical tie-in of transfer lines 200-E-310-PL (primary) and 200-E-311-PL (backup) at the interface points in preparation for the WTP DFLAW effluent
- Perform ETF load-in station drain and filter system upgrade to install a new sump tank system
- 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
- Design ETF redundant filtration upgrade to reduce processing down time
- Complete design of the ETF load-in station building expansion to support enhanced facility operation
- Design ETF vessel offgas demister housing upgrade to repair degraded condition
- Complete design of the ETF supplemental organic treatment system in preparation for the WTP DFLAW effluent.

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.
- 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. Evaluations are being performed due to visual indication of solid material in the basin and sample results from that material.

Liquid Effluent Retention Facility Volumes

LERF liquid levels, inventory, and received waste are shown in the table below. Volumes in the table are estimated.¹⁰ Tanker shipment volumes are estimated by multiplying the number of shipments by the capacity of the tanker being used.

Description	242AL-42 (Basin 42)	242AL-43 (Basin 43)	242AL-44 (Basin 44)
AZ-301 Condensate	+3,000	-	-
Mixed Waste Trench 31 and 34	+13,700	-	-
Other (325 RPS)	+1,800	-	-
Processing Campaign(s)	-	-	-
Total Volume	2,882,000	6,508,000	640,000

Data Date: March 31, 2020.

Values shown in gallons.

325 RPS = 325 retention process sewer.

¹⁰ 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 SST¹¹ 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 AY-101.
- Ultrasonic testing inspections were completed for the following tanks in FY 2019:
 - 241-AP-107.
 - 241-AP-108.
 - 241-AN-102.
 - 241-AP-106 (limited scope supplementary wall scans; rescanning in FY 2020).
 - 241-AP-102 (annulus floor ultrasonic testing only; air slot inspection).

¹¹ SST denotes single-shell tank.

- Ultrasonic testing inspections have been completed for the following tanks in FY 2020:
 - 241-AW-102.
 - 241-AW-101.
 - 241-AW-106 (ongoing).
 - First of a kind primary tank bottom ultrasonic testing of Tank AW-101 was completed on February 12, 2020, through small accessible air slots (2.5 inches by 2.5 inches) in the refractory pad under the tank. Final report of findings released in March 2020 (RPP-RPT-62182, *Remote Ultrasonic Testing Inspection System 2 Development and Field Demonstration Results – FY2020*, Rev. 0).
- Completed enhanced annulus visual inspection in FY 2019:
 - 241-AN-101.
 - 241-AN-102.
 - 241-AN-103.
 - 241-AN-104.
 - 241-AN-105.
 - 241-AN-106.
 - 241-AN-107.
 - 241-AZ-101.
 - 241-AZ-102.
- 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.
 - 241-SY-102.
 - 241-SY-103.
- Completed annulus visual inspection of Tank 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.

Significant Planned Actions in the Next Six Months

- Fabricate two retractable corrosion monitoring probes for installation in the following tanks:
 - 241-AZ-101
 - 241-AP-102.
- Award 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.
- Complete ultrasonic testing of the following tanks:
 - 241-AW-106.
- Release revision of RPP-RPT-42147, *Double-Shell Tank Integrity Inspection Report for 241-AW Tank Farm*, which includes FY 2020 visual inspection results.
- Release revision of RPP-RPT-39149, *Double-Shell Tank Integrity Inspection Report for 241-SY Tank Farm*, which includes FY 2020 visual inspection results.

Ultrasonic Testing Report Status

- FY 2019 released ultrasonic testing reports:
 - 241-AP-107 (RPP-RPT-61361, *Ultrasonic Inspection Results for Double-Shell Tank 241-AP-107 – FY 2019*, Rev. 0)
 - 241-AP-108 (RPP-RPT-61460, *Ultrasonic Inspection Results for Double-Shell Tank 241-AP-108 – FY 2019*, Rev. 0)
 - 241-AN-102 (RPP-RPT-61685, *Ultrasonic Inspection and Air Slot Visual Inspection Results for Double-Shell Tank 241-AN-102 – FY 2019*, Rev. 0)
- Draft ultrasonic testing reports:
 - 241-AP-102 (estimated completion April 2020)
 - 241-AW-102 (estimated completion April 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-D-42, *Tank Leak Assessment Process*, on the following tanks in FY 2019:
 - 241-T-101
 - 241-T-103
- Completed TFC-ENG-CHEM-D-42 leak assessment final report and recommendations for Tank 241-SX-104
- 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.

Significant Planned Actions in the Next Six Months

- Perform TFC-ENG-CHEM-D-42 on the following tank in FY 2020:
 - 241-T-109
- Perform single-shell tank (SST) visual inspection in FY 2020 on the following tank:
 - 241-BX-105

- Perform visual inspection of five inactive miscellaneous underground storage tanks:
 - 241-BX-302-A
 - 241-BX-302-B
 - 241-BX-302-C
 - 241-S-302-B
 - 241-SX-302.

Issues

- Tank 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.

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

- Completed:
 - RPP-RPT-44814, *Derivation of Best-Basis Inventory for Tank 241-AN-101 as of January 1, 2020*, Rev. 27
 - RPP-RPT-43493, *Derivation of Best-Basis Inventory for Tank 241-AP-106 as of February 1, 2020*, Rev. 9
 - RPP-RPT-54017, *Derivation of Best-Basis Inventory for Tank 241-AP-102 as of February 1, 2020*, Rev. 13
 - RPP-RPT-59981, *Derivation of Best-Basis Inventory for Tank 241-AP-108 as of January 1, 2020*, Rev. 3
 - RPP-RPT-46792, *Derivation of Best-Basis Inventory for Tank 241-AW-102 as of February 1, 2020*, Rev. 19
 - RPP-RPT-44049, *Derivation of Best-Basis Inventory for Tank 241-AZ-102 as of February 1, 2020*, Rev. 16
 - RPP-RPT-59036, *Derivation of Best-Basis Inventory for Tank 241-B-110 as of February 1, 2020*, Rev. 1
 - RPP-RPT-44740, *Derivation of Best-Basis Inventory for Tank 241-AX-102 as of February 1, 2020*, Rev. 5
 - RPP-PLAN-63783, *Tank 241-AN-106 Core Sampling and Analysis Plan – Fiscal Year 2020*, Rev. 0
 - RPP-RPT-60563, *Final Analytical Report for Tank 241-AW-102 Grab Samples in Support of Evaporator Campaign EC-08*, Rev. 1
 - RPP-RPT-61613, *Final Analytical Report for A-105 2018-12*, Rev. 0
 - RPP-RPT-62164, *Final Analytical Report for Tank 241-AP-106 Repurposing – Post Extended Recirculation Sampling and Analysis Plan*, Rev. 0
 - HNF-SD-WM-DQO-001, *Data Quality Objectives for Tank Farm Waste Compatibility Program*, Rev. 25

- Released:
 - HNF-EP-0182, *Waste Tank Summary Report for Month Ending January 31, 2020*, Rev. 385.

Tank Sampling

Significant Past Accomplishments

For March 2020, the following tank sampling was conducted:

- None.

Significant Planned Actions in the Next Six Months

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

- Tank 241-AX-102 post-retrieval grab sampling is planned for May through July 2020.
- Tank 241-AN-106 core sampling is planned for July and August 2020.
- Tank 241-AN-106 liquid grab sampling is planned for September 2020.
- Tank 241-A-104 off riser sample system second sample scheduled for August 2020.
- C-301 Catch Tank grab sampling is planned for late September 2020.
- Tank 241-AP-107 grab sampling is planned for September 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.

Best-Basis Inventory Updates

Significant Past Accomplishments

- Best-basis inventory updates for the following tanks were completed in March 2020:
 - 241-AN-101
 - 241-AP-102
 - 241-AP-106
 - 241-AP-108
 - 241-AW-102
 - 241-AX-102

- 241-AZ-102
- 241-B-110.

Significant Planned Actions in the Next Month

- Best-basis inventory updates for the following tanks are currently planned to be completed in April 2020:
 - None.

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-C¹²

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.

¹² WMA-C denotes C Tank Farm waste management area.

- M-045-92X** **Barrier 3 in 241-TX Farm Design Approved by Ecology**
Due: January 31, 2020.
Status: Completed October 17, 2019.
- 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 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/CMS¹³ 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.

¹³ Resource Conservation And Recovery Act Facility Investigation/Corrective Measure Study

M-045-102 Submit to Ecology a Performance Assessment (PA) Maintenance Plan for WMA A/AX PA

Due: September 30, 2022.
Status: On schedule.

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

Due: October 31, 2023.
Status: On schedule.

M-045-103 Submit to Ecology a PMR¹⁴ 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-201-4-02-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

¹⁴ Permit Modification Request

Maintenance and Performance Monitoring Plan was hand delivered to Ecology for approval on October 10, 2019.

- 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 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.

Significant Planned Activities in the Next Six Months

- Resolve Ecology's comments on RPP-RPT-59389, RPP-RPT-59390, and RPP-RPT-58858
- Initiate construction of the Evapotranspiration Basin in TX Tank Farm.

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 and for hazard index were signed November 21, 2019, and November 25, 2019, respectively. The other two issues remain 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" (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, but have 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 is scheduled for July 28, 2020. Analysis of the Tank 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 C-106, the above calculated volumes are more accurate than the calculations resulting from 2004 residual waste measurement activities for Tank C-106. In addition to use of improved

technologies, evaporation of the liquid pool has enabled a more accurate measurement of Tank 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.

- Delayed TX Tank Farm evapotranspiration basin construction due to differing opinions between the U.S. Department of Energy, Richland Operations Office and ORP on need for a cultural review.
- 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

February-20

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$60,669	\$62,504	\$62,711	\$1,835	(\$207)	1.03	1.00			
FYTD	\$258,071	\$269,632	\$276,770	\$11,561	(\$7,138)	1.04	0.97	\$749,518		
CTD	\$5,780,668	\$5,722,250	\$5,695,874	(\$58,418)	\$26,376	0.99	1.00	\$6,272,115	\$6,246,023	\$26,092

ACWP actual cost of work performed.

BAC budget at completion.

BCWP budgeted cost of work performed.

BCWS budgeted cost of work scheduled.

CM current month.

CPI cost performance index.

CTD contract to date.

CV cost variance.

EAC estimate at completion.

FYTD fiscal year to date.

SPI schedule performance index.

SV schedule variance.

VAC variance at completion.

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

The project plan is measured by expressing the schedule in terms of dollars spread over the anticipated project duration, and then for each month, determining how much of the planned work was accomplished or “earned,” as measured in equivalent dollars. If more work is accomplished than planned, then the project is ahead of schedule and has a favorable schedule variance (SV). Similarly, if less work is accomplished, the project is behind schedule and has an unfavorable SV. Accomplished work is reported in the month it was completed, which may not be when it was planned. For example, work completed in a month earlier than planned would be reported as a favorable SV for the month in which it was completed, but would be reported as an unfavorable SV in the month it was planned. The end result would be a net zero overall cumulative SV over these months. Likewise, work completed late will recover an earlier reported unfavorable SV.

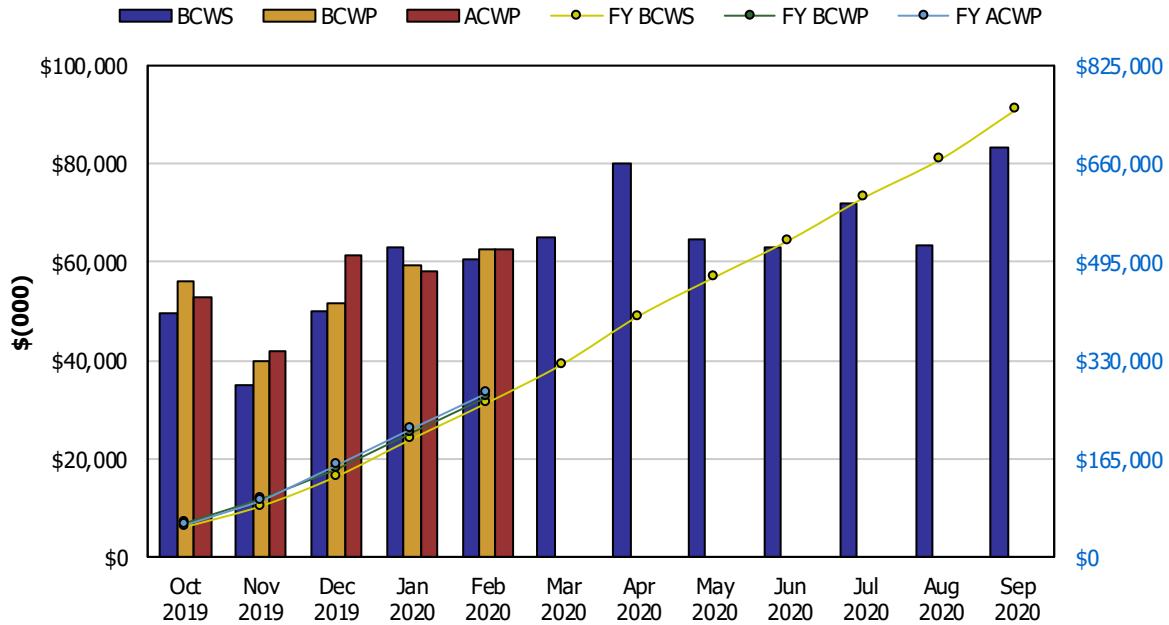
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000 behind schedule [a negative or unfavorable SV: $\$8,000 - \$10,000 = (\$2,000)$], and has cost \$1,000 more [a negative or unfavorable CV: $\$8,000 - \$9,000 = (\$1,000)$] than was planned for completing that work scope. Likewise, a favorable or positive CV would be reported if it cost less to complete the work than the performed dollar value of the work. The SV and CV are reported for each monthly period, fiscal-year-to-date, as well as for the contract-to-date value. The monthly variances can fluctuate significantly (for reasons noted earlier), so the fiscal year or contract-to-date report provides a better indicator of the overall project completion status and can give a reasonable projection of how the project will finish, based on the progress-to-date.

Earned Value Data: Fiscal Year 2020

February-20

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	\$65,097			0.00	0.00	\$323,168			0.00	0.00
Apr 2020	\$80,042			0.00	0.00	\$403,210			0.00	0.00
May 2020	\$64,778			0.00	0.00	\$467,988			0.00	0.00
Jun 2020	\$62,814			0.00	0.00	\$530,802			0.00	0.00
Jul 2020	\$71,832			0.00	0.00	\$602,634			0.00	0.00
Aug 2020	\$63,470			0.00	0.00	\$666,103			0.00	0.00
Sep 2020	\$83,414			0.00	0.00	\$749,518			0.00	0.00
CTD	\$5,780,668	\$5,722,250	\$5,695,874	0.99	1.00					

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

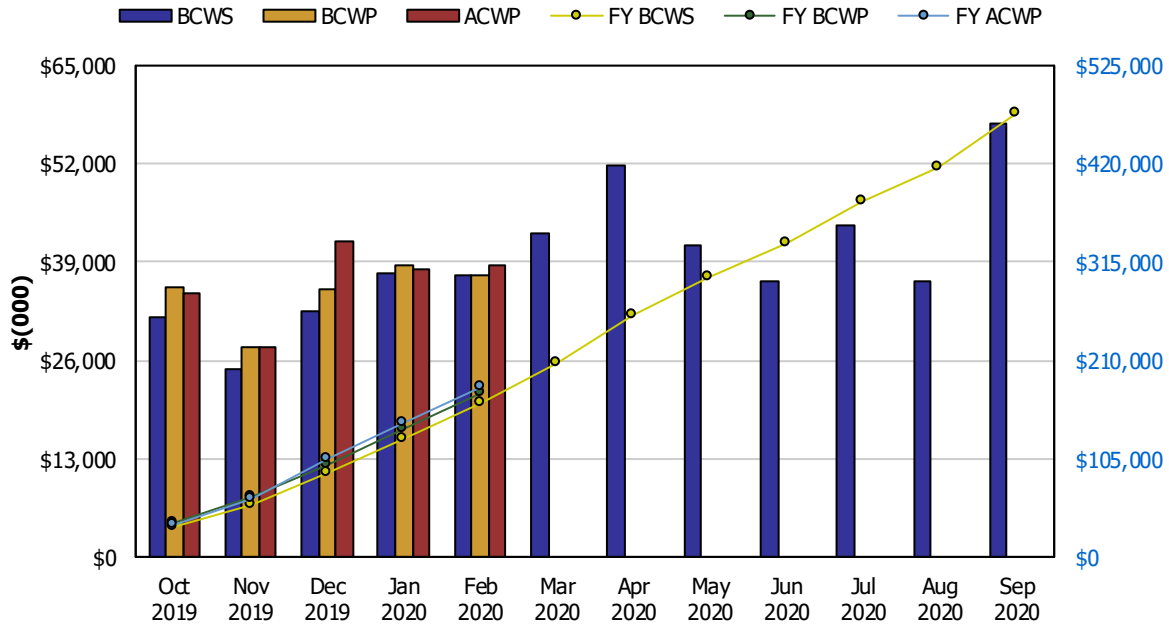
CM current month.
 CTD contract to date.
 FY fiscal year.
 SPI schedule performance index.

Earned Value Data: Fiscal Year 2020

February-20

**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			0.00	0.00	\$206,678			0.00	0.00
Apr 2020	\$51,770			0.00	0.00	\$258,448			0.00	0.00
May 2020	\$41,139			0.00	0.00	\$299,588			0.00	0.00
Jun 2020	\$36,401			0.00	0.00	\$335,989			0.00	0.00
Jul 2020	\$43,937			0.00	0.00	\$379,926			0.00	0.00
Aug 2020	\$36,511			0.00	0.00	\$416,437			0.00	0.00
Sep 2020	\$57,305			0.00	0.00	\$473,742			0.00	0.00
CTD	\$3,822,437	\$3,794,185	\$3,750,407	0.99	1.01					

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

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

Tank Farms Assistant Manager: Rob Hastings
Technical Lead: Ricky Bang

5.01 – Base Operations

The February 2020 variances below do not impact TPA milestones.

The current month **favorable** SV of \$123,000 was below the reporting threshold.

The current month **unfavorable** CV of (\$1,167,100) was primarily due to:

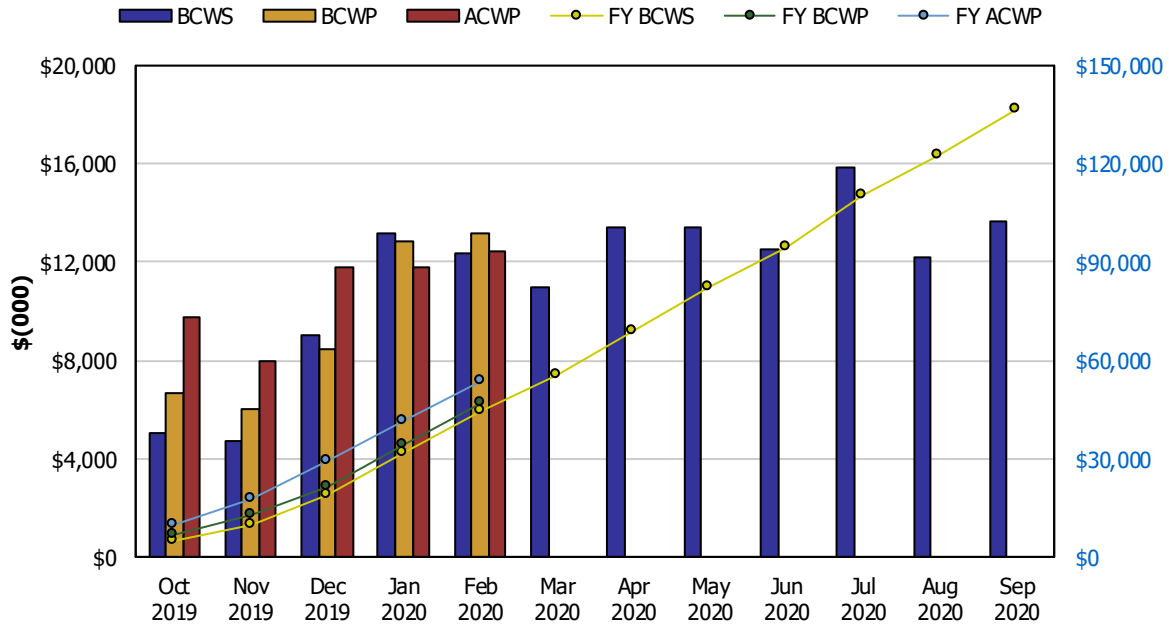
- The vapor monitoring detection system commissioning in AP Tank Farm experienced more than anticipated engineering/commissioning labor support due to the duration to turn over the stack monitor equipment. The Commissioning team has been working with field resources to complete the operation acceptance test and the testing requirements matrix in AP Tank Farm to support turnover of the stack monitoring equipment.
- The ETF cooling tower system upgrade project experienced increased construction subcontractor costs above the original budgeted values. It is anticipated that similar CVs will continue through project completion due to this higher value construction subcontract award.

Earned Value Data: Fiscal Year 2020

February-20

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			0.00	0.00	\$55,310			0.00	0.00
Apr 2020	\$13,424			0.00	0.00	\$68,734			0.00	0.00
May 2020	\$13,429			0.00	0.00	\$82,163			0.00	0.00
Jun 2020	\$12,543			0.00	0.00	\$94,706			0.00	0.00
Jul 2020	\$15,842			0.00	0.00	\$110,548			0.00	0.00
Aug 2020	\$12,179			0.00	0.00	\$122,727			0.00	0.00
Sep 2020	\$13,664			0.00	0.00	\$136,391			0.00	0.00

CTD	\$1,128,588	\$1,108,586	\$1,172,617	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

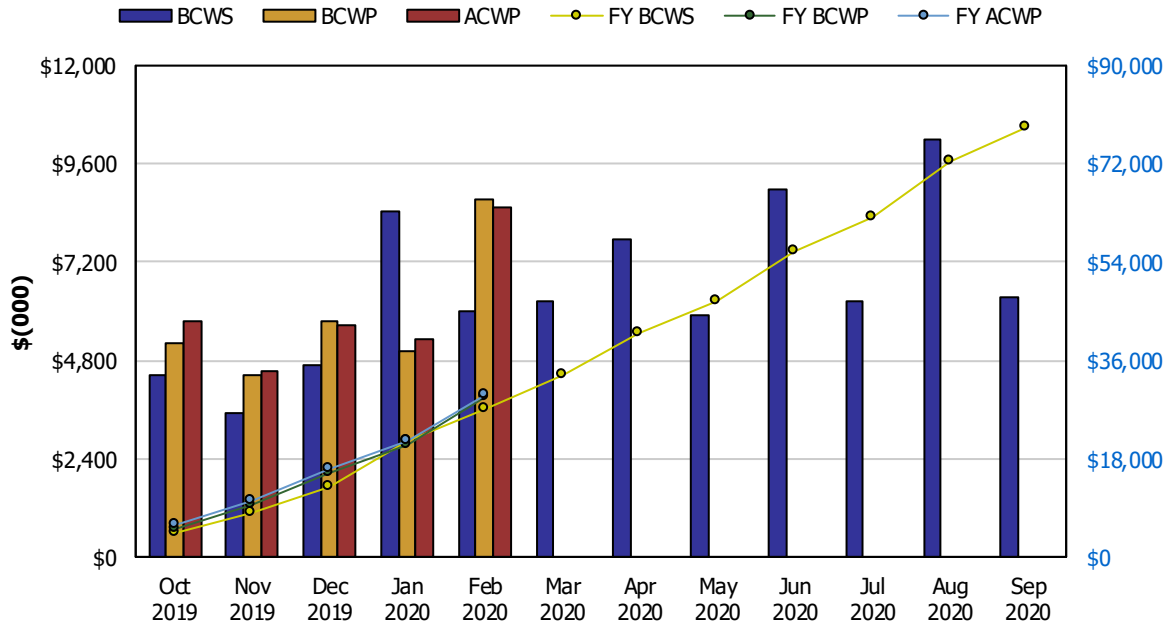
For the retrieval portion see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2020

February-20

Tank Farms ORP-0014
WBS 5.3 - WFD/Treatment Png/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			0.00	0.00	\$33,371			0.00	0.00
Apr 2020	\$7,747			0.00	0.00	\$41,117			0.00	0.00
May 2020	\$5,888			0.00	0.00	\$47,005			0.00	0.00
Jun 2020	\$8,949			0.00	0.00	\$55,955			0.00	0.00
Jul 2020	\$6,228			0.00	0.00	\$62,182			0.00	0.00
Aug 2020	\$10,196			0.00	0.00	\$72,379			0.00	0.00
Sep 2020	\$6,345			0.00	0.00	\$78,724			0.00	0.00
CTD	\$603,493	\$600,903	\$555,225	1.00	1.08					

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 February 2020 variances below do not impact TPA milestones.

The current month **favorable** SV of \$2,718,500 was primarily due to:

- A positive SV with the procurement of and schedule recovery for the fabrication of the Low-Activity Waste Facility melter bubblers and melter refractory planned to occur in January 2020, but were delayed due to vendor completion of pre-assembly and inspections. Also the Low-Activity Waste Facility melter refractory was delayed due to manufacturing process issues. There were defects in the refractory blocks requiring repouring and additional curing time.

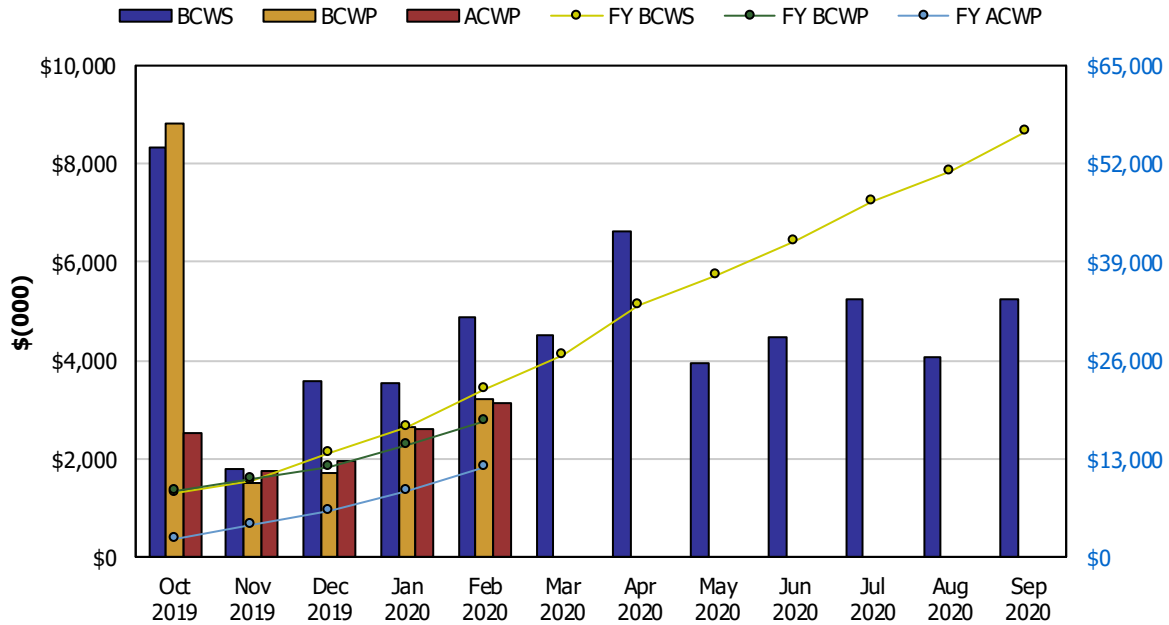
The current month **favorable** CV of \$170,500 was below reportable thresholds.

Earned Value Data: Fiscal Year 2020

February-20

**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	\$4,531			0.00	0.00	\$26,658			0.00	0.00
Apr 2020	\$6,606			0.00	0.00	\$33,264			0.00	0.00
May 2020	\$3,939			0.00	0.00	\$37,202			0.00	0.00
Jun 2020	\$4,472			0.00	0.00	\$41,675			0.00	0.00
Jul 2020	\$5,255			0.00	0.00	\$46,930			0.00	0.00
Aug 2020	\$4,082			0.00	0.00	\$51,011			0.00	0.00
Sep 2020	\$5,252			0.00	0.00	\$56,263			0.00	0.00
CTD	\$205,324	\$197,784	\$198,280	0.96	1.00					

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 February 2020 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$1,637,300) was primarily due to:

- The delay in completion of the factory acceptance test report, final data package, and readiness to ship. The delay is due to additional time needed to implement multiple design changes associated with the ion exchange column seismic restraints and piping fit-up tolerances. This impacted the start/completion of fabrication and the follow-on factory acceptance test.

The current month **favorable** CV of \$96,800 was below the reporting threshold.

Table 1 Administrative Record Metadata

Milestone Number or Facility Identification	Title
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

Milestone Number or Facility Identification	Title
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.