

Office of River Protection



Monthly Reporting Period

November 1–November 30, 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 October 2020.

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Acronyms and Abbreviations

COVID-19	coronavirus disease 2019
CMIP	corrective measures implementation work plan
CV	cost variance
DFLAW	direct-feed low-activity waste
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
DST	double-shell tank
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
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
PMR	Permit Modification Request
RCRA	<i>Resource Conservation and Recovery Act</i>
SST	single-shell tank
SV	schedule variance
TPA	Tri-Party Agreement
TSCR	Tank-Side Cesium Removal
WMA	waste management area
WRPS	Washington River Protection Solutions LLC
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
M-045-59	Control Surface Water Infiltration Pathways as Needed	TBD ^a	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 ^a	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 ^a	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	Complete
M-062-40H	Submit System Plan to Ecology	11/13/2020 ^b	M. Irwin	Complete

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	Complete
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
Fiscal Year 2022 (October 1, 2021 – September 30, 2022)				
M-045-92Y	Complete Construction of Barrier 3 in 241-TX Farm	10/31/2021	B. Harkins	On Schedule
M-045-92Z	Submit to Ecology Design for Barrier 4 in 241-U Farm	10/31/2021	B. Harkins	On Schedule

Milestone	Title	Due Date	DOE PM	Status
M-045-92AE	Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities	10/31/2021	B. Harkins	On Schedule
M-062-45-XX	Complete Negotiations to Resolve Future Disputes M-062-45 Paragraphs 4 & 5	12/31/2021	B. Harkins	On Schedule
M-062-51-T01	Submit to Ecology, as a Primary Document, a Secondary Liquid Waste Disposition Work Plan	12/31/2021	B. Harkins	On Schedule
M-062-52-T01	Submit to Ecology, as a Primary Document, a Secondary Solid Waste Disposition Work Plan	12/31/2021	B. Harkins	On Schedule
M-045-85	Initiate Negotiations of HFFACO Interim Milestones for Closure of Remaining WMAs	1/31/2022	B. Harkins	On Schedule
M-045-92AA	Barrier 4 Design Approved by Ecology	1/31/2022	B. Harkins	On Schedule
M-062-01AR	Submit Semi-Annual Project Compliance Report to Ecology	1/31/2022	B. Trimberger	On Schedule
M-062-53A	Achieve Substantial Completion of EMF Construction	4/30/2022	W. Abdul	On Schedule
M-062-51-T02	Submit to Ecology, PMR for Redesign Upgrades and Ops to Support Volumes of Waste Types	5/15/2022	B. Harkins	On Schedule
M-062-52-T02	Submit to Ecology, PMR for Ancillary Facilities/Capabilities to Support Treatment of Secondary Waste	5/15/2022	B. Harkins	On Schedule
M-045-56R	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	7/31/2022	B. Harkins	On Schedule
M-062-01AS	Submit Semi-Annual Project Compliance Report to Ecology	7/31/2022	B. Trimberger	On Schedule

Milestone	Title	Due Date	DOE PM	Status
M-045-15	Completion of Tank A-103 SST Waste Retrieval	9/30/2022	B. Harkins	On Schedule
M-045-98	Submit to Ecology a RFI/CMS Work Plan for WMA A/AX as a Primary Document	9/30/2022	B. Harkins	On Schedule
M-045-102	Submit to Ecology a Performance Assessment Maintenance Plan for the WMA A/AX PA	9/30/2022	B. Harkins	On Schedule
M-045-15A	Submit a Retrieval Data Report Pursuant to Agreement Appendix I	9/30/2022	B. Harkins	On Schedule
M-045-15D	Submit, if appropriate, an exception to Waste Retrieval Criteria Pursuant to Agreement Appendix H	9/30/2022	B. Harkins	On Schedule

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

^b DOE and Ecology agreed to an extension until November 13, 2020, for submission of System Plan Rev. 9.

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

HFFACO = *Hanford Federal Facility Agreement and Consent Order*

Mod = modification

PM = project manager

RCRA = *Resource Conservation and Recovery Act*

SST = single-shell tank

TBD = to be determined

TSCR = tank-side cesium removal

WMA-C = C Tank Farm waste management area

WTP = Waste Treatment and Immobilization Plant

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: November 13, 2020²

Status: Complete

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 U.S. Environmental Protection Agency (EPA), U.S. Department of Energy (DOE), and Washington State Department of Ecology (Ecology) met in the first mediated session of the “Holistic Negotiations” on June 25, 2020. The November negotiation session was cancelled by DOE.
- On November 13, 2020, DOE transmitted the final *River Protection Project System Plan*, Rev. 9, to Ecology per letter 20-ORP-0016, “Transmittal of the River Protection Project System Plan, Revision 9.”

Significant Planned Actions in the Next Six Months

- Discuss disputes with regard to milestone M-062-45 and its associated milestones during “Holistic Negotiations.”

Issues

- Ecology and DOE Office of River Protection (ORP) have ended negotiations related to the M-062-45 Milestone and have initiated dispute. “Holistic Negotiation” mediated sessions began in June, 2020 to resolve these disputes.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing Coronavirus Disease 2019 (COVID-19) concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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

² DOE and Ecology agreed to an extension until November 13, 2020, for submission of System Plan Rev. 9.

implementation of COVID-19 protocols to infrastructure and facilities, required training, medical evaluations, and limited construction activities were added.

- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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-1³ for Facility to Store Spent Ion Exchange Columns Prior to DFLAW⁴**

Due: March 31, 2021
 Status: Complete

M-090-13 **CD-1 for Interim Hanford Storage Project and CR for CD-2 to ECY⁵**

Due: September 30, 2025
 Status: On schedule

M-090-00 **Acquire/Modify Facilities for Storage of First Two Years of IHLW⁶ from the WTP⁷ 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

- Submitted CD-1 for Facility to Store Spent Ion Exchange Columns Prior to DFLAW.

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. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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

³ CD denotes critical decision.

⁴ DFLAW denotes direct-feed low-activity waste.

⁵ ECY denotes Washington State Department of Ecology.

⁶ IHLW denotes immobilized high-level waste.

⁷ WTP denotes Waste Treatment and Immobilization Plant.

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.

- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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.”

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 RCRA⁸ 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

⁸ 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 HLW⁹ and LAW¹⁰ 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 Negotiation” mediated sessions began in June, 2020 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. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, COVID-19 potential impacts on the TPA, and if other actions may be necessary.

⁹ HLW denotes high-level waste.

¹⁰ LAW denotes low-activity waste.

Low-Activity Waste Pretreatment System

Tank Farms Assistant Manager: Rob Hastings
Technical Lead: Janet Diediker
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. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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: Janet Diediker
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.

Significant Past Accomplishments

- The Tank-Side Cesium Removal (TSCR) shield walls were completed.
- The forklift was shipped to the site.
- Washington River Protection Solutions LLC (WRPS) completed the disposition of the ORP review comments on the Documented Safety Analysis (DSA) addendum and Technical Safety Requirements.
- Installation of primary piping for the route between W-211 and ICD-30/31 is in progress. Twenty spools were placed in the trench and eleven piping welds were completed.
- Completed preparations for an electrical outage for AP Farm starting December 10, 2020, to support the power tie-in of the TSCR system. Continued electrical infrastructure installation.
- Completed the excavation of the portion of the waste transfer line inside of AP Farm. Installed the cathodic protection anode. Work continues on setting pipe supports in the trench, which will be followed by placement of the transfer line spools.

Significant Planned Actions in the Next Six Months

- ORP will review the DSA addendum, Technical Safety Requirements, and TSCR Readiness Plan of Action for approval.
- TSCR construction activities will be completed and readiness activities will commence.
- ORP will approve the TSCR DSA.

Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.

- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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	Per DOE direction, cold runs will not be used to maintain 242-A Evaporator readiness, staff proficiency, and cycle idle equipment while transfer lines are being replaced.

DOE = U.S. Department of Energy

N/A = not applicable

TBD = to be determined

Significant Past Accomplishments

- Completed replacement of the 242-A Failed Sock Filter assembly.
- Completed 100 percent design for the 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 functional testing.
- Completed work on the resolution of the universal joint potential inadequacy in the safety analysis. Universal joint testing has been completed, and the vendor has incorporated the new universal joints into the calculations, engineering change notices, and drawings.
- Completed work on the resolution of the buried pipe potential inadequacy in the safety analysis. The calculations for Nuclear Safety to perform the safety basis amendment were completed.
- Completed development of the 100 percent engineering design for the 242-A Evaporator DSA upgrades.
- 242-A Evaporator DSA upgrades hardware and software procurement initiated.
- Initiated AW-B pit work and excavation for wall nozzle installation in support of 242-A Evaporator transfer line replacement.

Significant Planned Actions in the Next Six Months

- Complete replacement of the third, and final, set of pre-filters on the building exhaust plenums

- Procure new PB-1 and PB-2 replacement pumps
- Initiate DSA safety system upgrades construction phase
- Complete wall nozzle fabrication for the 242-A Evaporator slurry and feed transfer line replacement
- Install new wall nozzles in the AW-B, AW-02E, and AW-02A pits in support of the new 242-A Evaporator slurry line and feed transfer lines.

Issues

- Initial testing revealed an issue with the original universal joints on the actuators used to drive the tank farm double isolation valves. A potential inadequacy in the safety analysis was written. Testing of different universal joints has now been completed, and the vendor has incorporated the new universal joints into the calculations, engineering change notices, and drawings.
- Following universal joint determination, 92 universal joints/actuators will need to be replaced. Project team and facility operations personnel are initiating phased planning of replacement to support tank transfer operations.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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 LERF¹¹/ETF¹² Construction Upgrades Necessary for LAW Hot Commissioning

Due: April 15, 2023
 Status: On schedule

Significant Past Accomplishments

- Total fiscal year (FY) 2021 processing volume: approximately 0.315 million gallons
- Began final design for the Effluent Treatment Facility (ETF) supplemental organic treatment system (i.e., acetonitrile treatment)
- Began conceptual design of the ETF modular grout system
- Began conceptual design of the ETF brine storage tanks
- Began conceptual design of the ETF carbon dioxide membrane contactors
- Began conceptual design of the ETF motor control center upgrade
- Began conceptual design of the ETF freeze protection upgrade.

Significant Planned Actions in the Next Six Months

- Complete design of the ETF supplemental organic treatment system (i.e., ETF acetonitrile treatment) to provide the capability to treat the WTP DFLAW effluent
- Complete design of the ETF modular grout system to provide the onsite capability to stabilize the WTP DFLAW effluent
- Complete design of the ETF brine storage tanks to provide the capacity to manage the WTP DFLAW effluent

¹¹ LERF denotes Liquid Effluent Retention Facility.

¹² ETF denotes Effluent Treatment Facility.

- Complete design of the ETF carbon dioxide membrane contactors to provide the capability to treat the WTP DFLAW effluent
- Complete design of the ETF motor control center upgrade to address the deficient condition and provide additional capability for ongoing upgrade projects
- Complete design of the ETF freeze protection upgrade as systems have become degraded and many replacement parts are considered obsolete
- Receive material procurements for the ETF monitoring and control system, Ultraviolet/Oxidation, Redundant Filtration, and Vessel Off-gas system upgrades.

Issues

- Work has paused on the LERF Basin 44 cover replacement project while nuclear safety evaluations are performed by WRPS and ORP. Evaluations are being performed due to visual indication of solid material in the basin and sample results from that material. ORP has provided approval to implement the approach that will pump down the remaining volume in LERF Basin 44 to perform a radiological analysis of the solids.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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.¹³

¹³ The volume in each LERF 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.

Description	242AL-42 (Basin 42)	242AL-43 (Basin 43)	242AL-44 (Basin 44)
AZ-301 Condensate	-	+ 4,000	-
Mixed Waste Trench 31 and 34	+ 11,000	-	-
Other ¹	+ 900	-	-
Processing Campaign(s)	- 315,000	-	-
Total Volume	2,515,000	6,484,000	738,000

¹ 325 retention process sewer.

Data Date: December 1, 2020.

Values shown in gallons.

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 SST¹⁴ 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 IQRPE¹⁵ Attesting to SST Structural Integrity

Due: September 30, 2034
 Status: On schedule

Double-Shell Tank Integrity

Significant Past Accomplishments

- Released RPP-RPT-34311, *Double-Shell Tank Integrity Inspection Report for 241-AY Tank Farm*, in November 2020. Completed two of nine enhanced annulus visual inspections in FY 2021:
 - 241-AP-101
 - 241-AP-103.
- Continued Ultrasonic testing at AW-105 DST.

Significant Planned Actions in the Next Six Months

- Complete the FY 2021 ultrasonic testing inspections at tanks 241-AW-105, 241-AW-104, and 241-AP-103
- Complete DST annulus visual inspections at nine tanks

¹⁴ SST denotes single-shell tank.

¹⁵ IQRPE denotes Independent Qualified Registered Professional Engineer.

- Complete fabrication/receipt of Southwest Research Institute Guided Wave system.

Ultrasonic Testing Report Status

- Released RPP-RPT-62123, *Ultrasonic Inspection and Air Slot Visual Inspection Results for Double-Shell Tank 241-AW-102 – FY 2020*, in June 2020
- 241-AW-101 ultrasonic testing report released in August 2020
- 241-AW-106 ultrasonic testing is in release process with projected release in December.

Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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 2021:
 - 241-TX-113.
- Visual inspections for CHEM-P-57 tank leak assessment:
 - 241-B-109 (completed September 2020).
- Completed work package planning for visual inspection of five miscellaneous underground storage tanks.
- Completed the in-tank laser scan for dome spalling extent of condition, as a result of Tank 241-SX-112 findings in February 2020:

- Tank 241-SX-112 Leica laser scan (August 2020)
- Tank 241-SX-111 Leica laser scan (September 2020)
- Tank 241-SX-109 Leica laser scan (September 2020).
- Visual inspections were completed for the following tanks in FY 2021
 - 241-B-106 (completed November 2020)
 - 241-B-108 (completed November 2020).

Significant Planned Actions in the Next Six Months

- Perform TFC-ENG-CHEM-P-57 on tanks 241-B-109 (in progress)
- Perform FY 2021 visual inspections of SSTs.

Issues

- Tank 241-SX-112 was inspected visually in late February 2020. The concrete dome was inspected fully, and there were three spots of spalled concrete in the dome. While there have been past inspections of the tank, they did not include the full dome; and this was the first inspection to reflect the spalling. There was 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, but a structural analysis contract is in place with the Pacific Northwest National Laboratory. Tank 241-SX-112 was inspected visually again in late July. The inspection did not identify any changes in the condition of the spalled locations. Concrete was noted on the waste surface under the spalled locations, suggesting that the spalling took place after 1969 when the tank was pumped and taken out of service. SX-112 analysis is ongoing.
- Tank 241-SX-109 was inspected visually in late July 2020. Spalled concrete was identified in the northeast portion of the tank dome next to a rectangular construction manhole. Additional small/shallow spalling locations, similar to those in Tank 241-SX-112, were noted on the tank dome. Concrete has been noted on the waste surface, and, comparing to past visual inspections, suggests that the spalling occurred post-1996.
- Tank 241-SX-108 was inspected visually in early August 2020. Minor spalled concrete was identified on the tank dome.
- Tank 241-SX-111 was inspected visually in mid-August 2020. Spalled/Cracked concrete was identified in various locations on the tank dome. Concrete has been noted on the waste surface, and, when comparing to past visual inspections, suggests that the spalling occurred post-1987. On September 1, 2020, a laser scan of SX-111 was performed. Review of the laser scan results identified a new spalling location since the visual inspection.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers

reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.

- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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 November 2020, the following reports were completed (internal access only) or released (external access):

- Completed:
 - RPP-RPT-48774, *Derivation of Best-Basis Inventory for Tank 241-SY-101 as of October 1, 2020*, Rev. 4
 - RPP-RPT-58655, *Derivation of Best-Basis Inventory for Tank 241-BX-111 as of October 1, 2020*, Rev. 3
 - RPP-RPT-59510, *Derivation of Best-Basis Inventory for Tank 241-B-201 as of October 1, 2020*, Rev. 2
 - RPP-RPT-44637, *Derivation of Best-Basis Inventory for Tank 241-AZ-101 as of October 1, 2020*, Rev. 17
 - RPP-RPT-62033, *Final Analytical Report for Tank 241-AP-106 Repurposing Step 6 Grab Samples 2019-12*, Rev 2
 - WRPS-2003847, "Test Plan for the Electrochemical Corrosion Testing of Tank 241-AN-106 Core Samples," Rev 0.
- Released:
 - HNF-EP-0182, *Waste Tank Summary Report for Month Ending September 30, 2020*, Rev. 393.

Tank Sampling

Significant Past Accomplishments

- For November 2020, the following tank sampling was conducted:
 - Performed Tank 241-AN-106 core sampling November 17, 2020. One core sample was received at the laboratory. Note that no material was extruded from this core sample, and consequently another sample is planned to be taken.
 - Performed Tank 241-AP-107 first large volume grab sampling between November 18 and November 24, 2020.

Significant Planned Actions in the Next Six Months

- Complete Tank 241-AN-106 core sampling December 2020

- Tank 241-AP-107 large-volume liquid grab sampling is planned for December 2020
- Tank 241-AN-106 liquid grab sampling is planned for January 2021
- Tank 241-AP-107 qualification liquid grab sampling is planned for January 2021
- Catch Tank C-301 grab sampling is planned for January 2021.

Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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 November 2020:
 - 241-AZ-101
 - 241-B-201
 - 241-BX-111
 - 241-SY-101.

Significant Planned Actions in the Next Month

- Best-basis inventory updates for the following tanks are currently planned to be completed in December 2020:
 - 241-AN-107
 - 241-B-107

241-BX-109

241-BX-112

241-BY-103

241-T-105

241-TX-108.

Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition, protective of the community, the region, and the environment.
- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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-C¹⁶**
 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-045-92AD Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities**
 Due: October 31, 2020
 Status: Completed October 7, 2020
- M-045-97 Submit to Ecology as a Primary Document a Waste Management Area Integration Study for WMA A/AX as described in HFFACO¹⁷ 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

¹⁶ WMA-C denotes C Tank Farm waste management area.

¹⁷ HFFACO denotes *Hanford Federal Facility Agreement and Consent Order*.

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/CMS¹⁸ 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
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 PMR¹⁹ 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 RPP-RPT-62684, *FY 2019 Annual Interim Surface Barrier Monitoring Report*, Rev. 0, to Ecology via letter 20-TF-0095, “The U.S. Department of Energy, Office of

¹⁸ RFI/CMS denotes *Resource Conservation and Recovery Act* Facility Investigation/Corrective Measure Study.

¹⁹ PMR denotes Permit Modification Request.

River Protection, Transmittal of RPP-RPT-62684, Fiscal Year 2019 Annual Interim Surface Barrier Monitoring Report, Rev. 0, to Meet Hanford Federal Facility Agreement and Consent Order Milestone M-045-92AD” on October 7, 2020. This completed the M-045-92AD Milestone.

- 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.
- Submitted RPP-ENV-61497, *Preliminary Performance Assessment of Waste Management Area A-AX*, and RPP-ENV-62206, *Analysis of Post-Closure Groundwater Impacts From Hazardous Chemicals in Residual Wastes in Tanks and Ancillary Equipment at Waste Management Area A-AX*, on September 29, 2020, to meet the M-045-99 Milestone.
- Held a data quality objective meeting for defining the WMA A/AX boundary with Ecology and EPA, September 1, 2020. Held two follow-up meetings for defining the WMA A-AX boundary with Ecology on September 16 and November 3, 2020.
- Held a data quality objective sampling meeting for WMA A/AX with Ecology on September 29, 2020.
- Held a sample depth meeting for D0006 in WMA A/AX with Ecology on October 14, 2020.
- Completed liner installation on the TX Evapotranspiration Basin on August 31, 2020.
- Completed the storm water drainage system and stabilization of the Waste Isolation Division site for the TX evapotranspiration basin on November 17, 2020.
- Completed hydro seed application for the TX evapotranspiration basin on November 18, 2020.
- Report RPP-RPT-61684, Rev. 00B, was delivered to Ecology on October 10, 2019, to complete the M-045-92AC Milestone. Submitted RPP-RPT-61684, *Maintenance and Performance Monitoring Plan for the Interim Barriers Program*, Rev. 1, to Ecology via letter 20-TF-0069, “The U.S. Department of Energy, Office of River Protection, Transmittal of RPP-RPT-61684, Maintenance and Performance Monitoring Plan for the Interim Barriers Program, Rev. 1,” on July 23, 2020. Ecology extended its review of the document until September 18, 2020 (20-NWP-137, “Extension of the Department of Ecology’s (Ecology) Comment Review Period for the *Maintenance and Performance Monitoring Plan*, RPP-RPT-61684, Revision 1, for the Interim Barriers Program”). ORP received Ecology comments on the document on September 18, 2020 (20-NWP-159, “Department of Ecology’s [Ecology] Comments on the United States Department of Energy – Office of River Protection’s [USDOE-ORP] *Maintenance and Performance Monitoring Plan for the Interim Barriers Program* [RPP-RPT-61684, Rev. 1]”). On

October 8, 2020, ORP requested an additional 60 days past October 18, 2020 to provide responses to Ecology's comments on the primary document (20-TF-0101, "Response to 20-NWP-159 from the Washington State Department of Ecology"). On October 9, 2020, Ecology approved ORP's request for a 60-day extension (20-NWP-164, "Approval of the United States Department of Energy's 60-day Extension Request for Comment Response on the Maintenance and Performance Monitoring Plan for the Interim Barriers Program, RPP-RPT-61684, Rev.1").

Significant Planned Activities in the Next Six Months

- Resolve Ecology's comments on RPP-RPT-59389, RPP-RPT-59390, and RPP-RPT-58858
- Respond to Ecology's comments on RPP-RPT-61684
- Release updated TPA Appendix I Performance Assessment documents incorporating Ecology comments as appropriate for WMA-C
- Hold additional WMAs A/AX boundary meetings for the purpose of reaching agreement
- Award construction subcontract for TX Farm Barrier and commence barrier construction.

Issues

- The boundary of WMA A-AX must be defined in order to complete milestones M-045-97 and M-045-98. In September 2020, Ecology proposed adding three areas to WMA A-AX: 1) the 244-AR Vault and 241-AR-151 diversion box; 2) the soil in the area around DST AY-102; and 3) an area outside the east of A Farm fence line. Meetings about the boundary for WMA A-AX continued through October 2020, and into November 2020. Work necessary to meet these two milestones has fallen behind schedule as the scope is unresolved and resources are being used to support the evaluation of Ecology's requests. As discussions continue regarding the boundary, the DOE's ability to complete these milestones is impacted. Additionally, if discussions yield the need to add additional areas to the WMA A-AX boundary, the milestones' dates will also be impacted. These impacts will be addressed by DOE proposing new dates for these milestones through a TPA Change Control Form.
- The content of the WMA Integration Studies has been negotiated and agreed upon by DOE, EPA and the State of Washington, and is captured in Section 2.1.1 of Appendix I of the HFFACO Action Plan. This content had been agreed upon prior to establishment of milestone 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." Following establishment of milestone M-045-97, Ecology submitted a five page annotated outline to DOE for the WMA A-AX Integration Study via letter on September 10, 2020 (20-NWP-154, "Re: Waste Management Area (WMA) A/AX Integration Study Outline"). Although the transmittal letter says the "...outline provides a detailed description of the elements necessary to meet Hanford Facility Agreement and Consent Order Appendix I requirements," the outline includes many elements not required under Section 2.1.1 of Appendix I of the HFFACO Action Plan. Some of the

elements of Ecology's annotated outline will not be completed for years. DOE is reviewing Ecology's annotated outline to determine the schedule impacts that could result if all of the elements were included in the WMA A-AX Integration Study.

- Ecology proposed (via an email from Mr. Jeff Lyon on June 17, 2020) to remove the milestone (i.e., M-045-62, "Submit the Draft Tier 3 Closure Plan with Corrective Measures in Phase 2 CMIP for WMA-C") for submittal of the CMIP, with the intent to install a final closure cap, rather than implement the planned interim barrier. Ecology's proposal to install the final closure cap before most of the closure activities would be completed at Tank Farms 241-A, 241-AN, 241-AP, 241-AW, 241-AX, 241-AY, and 241-AZ is an issue for the following reasons:
 - Could impact retrievals and tank structural stability
 - Could cause runoff issues for adjacent tank farms
 - Is not consistent with the approach analyzed in DOE/EIS-0391, *Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington*, and the record of decision (78 FR 75918, "Final Tank Closure and Waste Management Environmental Impact Statement for the Hanford Site, Richland, Washington") and captured in the approved RPP-RPT-59379, *Waste Management Area C Phase 2 Corrective Measures Study Report*.

DOE is developing the CMIP to submit to Ecology and has followed this path since RPP-RPT-59379 was approved in June 2018. DOE understands that the CMIP is the vehicle that Ecology will use to meet its TPA/HFFACO obligations in its role as lead agency, as set forth in paragraph 54 of the HFFACO legal agreement. Paragraph 54 of the HFFACO states:

DOE shall develop and submit its proposed remedial action (or corrective action) alternative following completion and approval of a Remedial Investigation and Feasibility Study (or RCRA Facility Investigation and Corrective Measures Study), in accordance with the requirements and schedules set forth in the Action Plan. If Ecology is the lead regulatory agency, it will recommend the CERCLA²⁰ remedial action(s) it deems appropriate to EPA. The EPA Administrator, in consultation with the DOE and Ecology, shall make final selection of the CERCLA remedial action(s), which shall not be subject to dispute.

Notwithstanding Ecology's forthcoming recommendations and whether they also indicate Ecology's position that corrective actions are not needed for the dangerous waste constituents, the EPA Administrator has sole authority to make the CERCLA remedial action decisions. DOE has not received a clearly articulated rationale for any Ecology-proposed change or the process Ecology plans to use to recommend any remedial action(s) to the EPA and to obtain the EPA's selection of remedial action(s).

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. During this time, the majority

²⁰ CERCLA denotes the *Comprehensive Environmental Response, Compensation, and Liability Act*, 42 USC § 9601 *et seq.*

of the Hanford Site workforce transitioned to telework, and a limited number of workers reported to the site to perform activities necessary to maintain the site in a safe condition.

- 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.
- The Hanford Site transitioned to Phase 2 beginning August 31, 2020. In Phase 2, the workforce that has been performing portable work via telework will generally continue to telework. The majority of the workforce performing nonportable work will return to the site to progress work activities, leveraging established COVID-19 controls.
- DOE and its contractors are engaged in ongoing analysis of work schedule impacts. DOE is continuing to evaluate the information, 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-045-86 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.

Significant Planned Activities in the Next Six Months

- Refer to the Consent Decree monthly report.

Issues

- Refer to the Consent Decree monthly report.

Tank Operations Contract Overview

Earned Value Data: Fiscal Year 2021

October-2020

Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s)										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	\$34,722	\$47,321	\$42,535	\$12,599	\$4,786	1.36	1.11			
FYTD	\$34,722	\$47,321	\$42,535	\$12,599	\$4,786	1.36	1.11	\$680,855		
CTD	\$6,354,537	\$6,254,217	\$6,178,763	(\$100,319)	\$75,454	0.98	1.01	\$7,000,670	\$6,924,224	\$76,446

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	WBS	=	work breakdown structure

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.

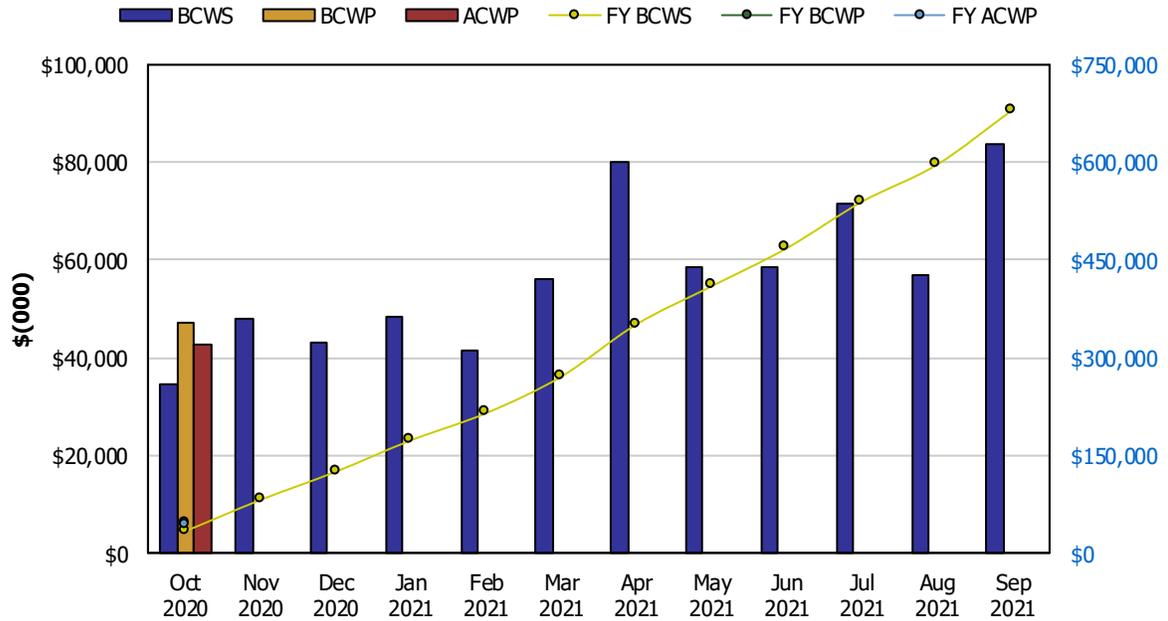
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000 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 2021

October-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 2020	\$34,722	\$47,321	\$42,535	1.36	1.11	\$34,722	\$47,321	\$42,535	1.36	1.11
Nov 2020	\$47,993					\$82,715				
Dec 2020	\$43,234					\$125,949				
Jan 2021	\$48,244					\$174,193				
Feb 2021	\$41,663					\$215,856				
Mar 2021	\$56,077					\$271,933				
Apr 2021	\$80,219					\$352,152				
May 2021	\$58,432					\$410,585				
Jun 2021	\$58,410					\$468,994				
Jul 2021	\$71,334					\$540,329				
Aug 2021	\$56,891					\$597,219				
Sep 2021	\$83,636					\$680,855				

CTD	\$6,354,537	\$6,254,217	\$6,178,763	0.98	1.01
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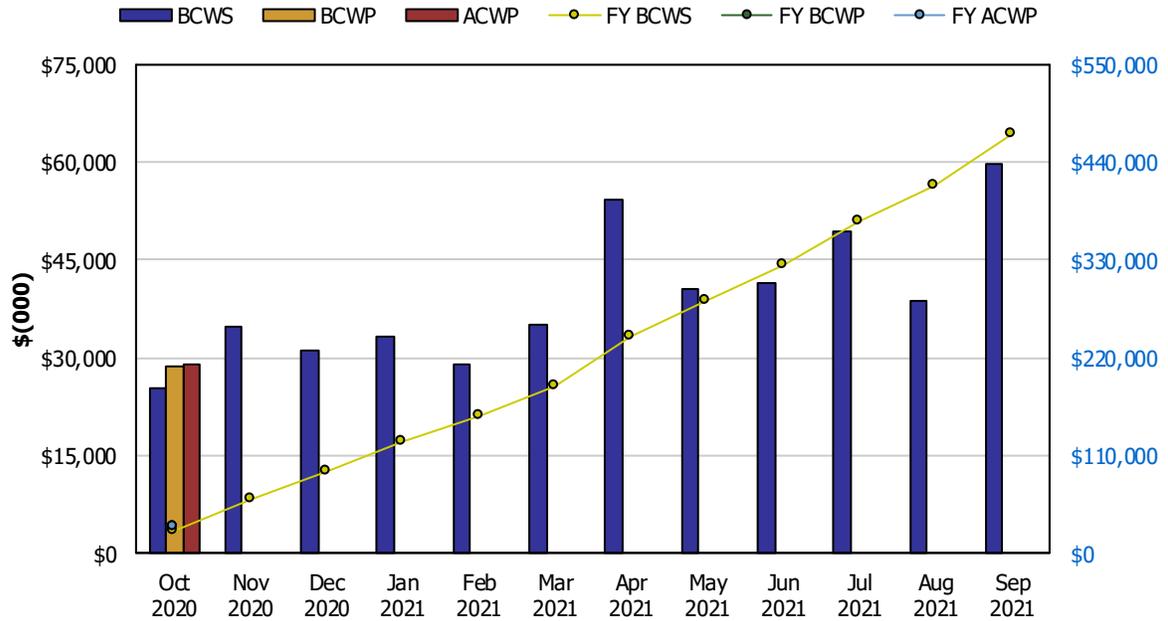
- ACWP = actual cost of work performed
- BCWP = budgeted cost of work performed
- BCWS = budgeted cost of work scheduled
- CPI = cost performance index
- CM = current month
- CTD = contract to date
- FY = fiscal year
- SPI = schedule performance index

Earned Value Data: Fiscal Year 2021

October-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 2020	\$25,298	\$28,696	\$29,098	1.13	0.99	\$25,298	\$28,696	\$29,098	1.13	0.99
Nov 2020	\$34,789					\$60,088				
Dec 2020	\$30,993					\$91,081				
Jan 2021	\$33,336					\$124,417				
Feb 2021	\$29,085					\$153,502				
Mar 2021	\$34,939					\$188,441				
Apr 2021	\$54,337					\$242,778				
May 2021	\$40,522					\$283,300				
Jun 2021	\$41,490					\$324,790				
Jul 2021	\$49,473					\$374,263				
Aug 2021	\$38,569					\$412,832				
Sep 2021	\$59,647					\$472,479				

CTD	\$4,211,077	\$4,164,802	\$4,083,970	0.99	1.02
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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 October 2020 variances below do not impact TPA milestones.

The current month **favorable** SV of \$3,397,700 was primarily due to:

- The Ultrasonic Testing of DST AW-105 being performed ahead of schedule.
- The Implementation of Baseline change and the Integrated Priority List Scope Removals Transfer to Undistributed Budget. Scopes of work that were on contract, but will not be performed in FY 2021, were removed from the Baseline and Contract:
 - 5.1.4.1.30 - Cross-Site Transfer Line Activation
 - 5.1.5.11.56 - Vapor Monitoring & Detection System Upgrades
 - 5.1.1.5.50 - Leak Detection Pit Corrosion
 - 5.1.1.5.37 - Miscellaneous Underground Storage Tanks
 - 5.1.1.5.49 - Drain Line Robotic Inspection.
- The favorable SV was partially offset by an unfavorable SV for the 242-A Evaporator Facility Transfer Line Replacement. This is the result of field work for the 242-A wall penetrations being delayed due to the permit not being issued yet; unfavorable SV for the 242-A Evaporator Facility Transfer Line Replacement will continue to be realized until the permit is finalized.

The current month **unfavorable** CV of (\$402,300) was primarily due to:

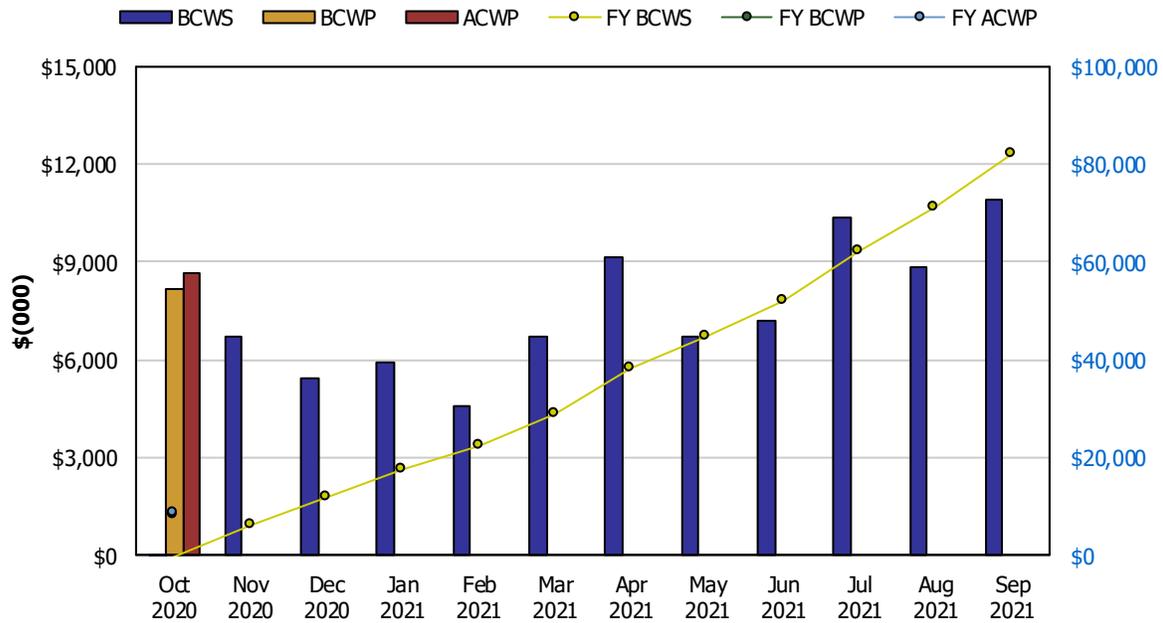
- The 242-A Evaporator Facility Transfer Line Replacement due to COVID-19 related costs that were previously accrued within the Project Control account. A cost transfer to transition those costs from the Project Control account to their appropriate account, including a large portion into the 242-A Evaporator Facility Transfer Line Replacement account, was realized this month.

Earned Value Data: Fiscal Year 2021

October-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 2020	(\$362)	\$8,176	\$8,653	-22.56	0.94	(\$362)	\$8,176	\$8,653	-22.56	0.94
Nov 2020	\$6,679					\$6,317				
Dec 2020	\$5,399					\$11,716				
Jan 2021	\$5,946					\$17,662				
Feb 2021	\$4,582					\$22,244				
Mar 2021	\$6,725					\$28,969				
Apr 2021	\$9,127					\$38,096				
May 2021	\$6,686					\$44,782				
Jun 2021	\$7,174					\$51,956				
Jul 2021	\$10,348					\$62,305				
Aug 2021	\$8,860					\$71,165				
Sep 2021	\$10,891					\$82,056				

CTD	\$1,217,448	\$1,184,383	\$1,239,915	0.97	0.96
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- BCWP = budgeted cost of work performed
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- SPI = schedule performance index

Tank Farms Assistant Manager: Rob Hastings
Technical Lead: Jeff Rambo

5.02 – Retrieve and Close Single-Shell Tanks

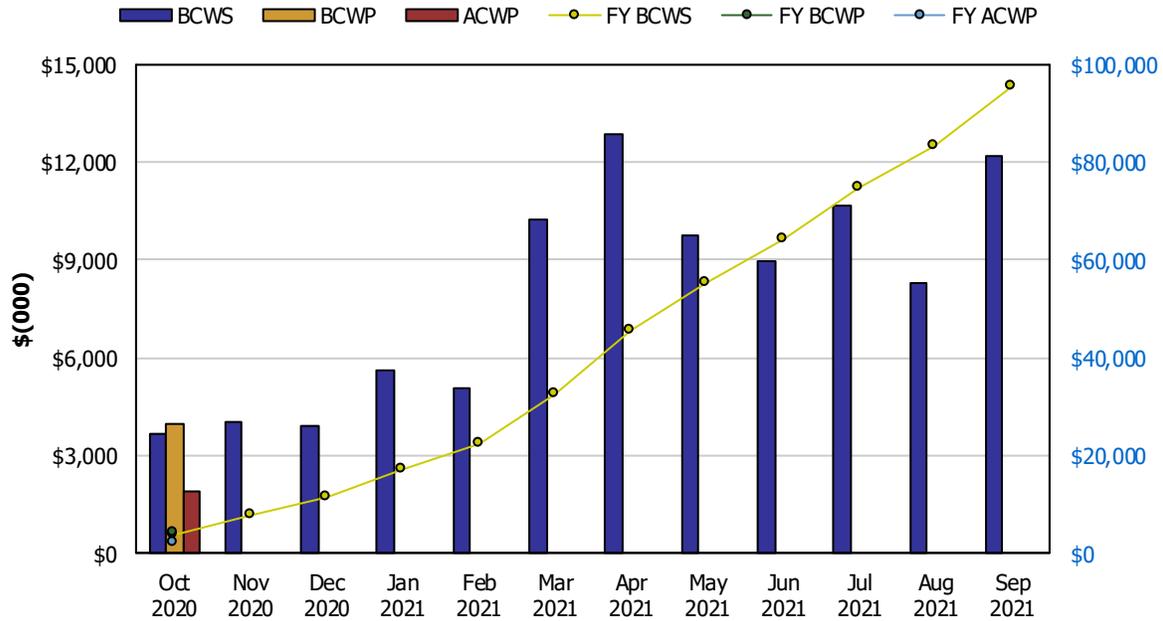
For the retrieval portion, see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2021

October-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 2020	\$3,681	\$3,941	\$1,894	1.07	2.08	\$3,681	\$3,941	\$1,894	1.07	2.08
Nov 2020	\$4,017					\$7,699				
Dec 2020	\$3,896					\$11,594				
Jan 2021	\$5,588					\$17,182				
Feb 2021	\$5,093					\$22,275				
Mar 2021	\$10,268					\$32,543				
Apr 2021	\$12,878					\$45,421				
May 2021	\$9,782					\$55,203				
Jun 2021	\$8,971					\$64,174				
Jul 2021	\$10,661					\$74,835				
Aug 2021	\$8,303					\$83,138				
Sep 2021	\$12,181					\$95,319				

CTD	\$658,555	\$648,194	\$598,734	0.98	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 October 2020 variances below do not impact TPA milestones.

The current month **favorable** SV of \$259,200 was primarily due to:

- Schedule recovery for the Waste Feed Delivery Integrated Disposal Facility Glass Testing. Specifically the recovery of sampling, analysis, reviews, and Field Lysimeter operations.

The current month **favorable** CV of \$2,046,200 was primarily due to:

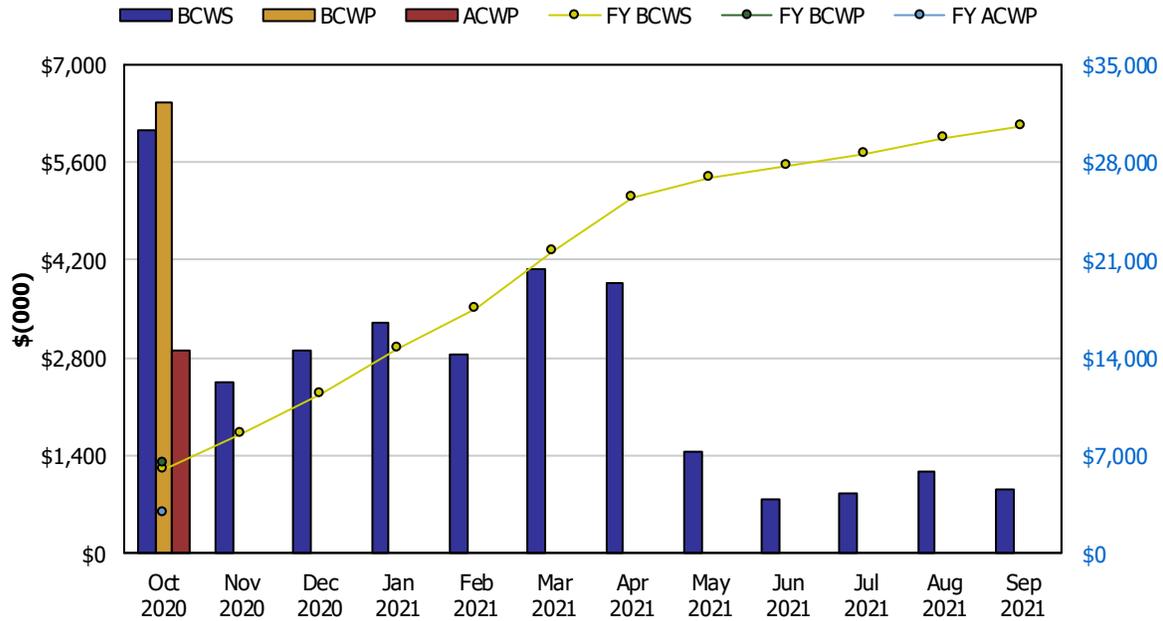
- A current month positive CV with the River Protection Project Integrated Flowsheet and Maturation. Receipt of a procured software package arrived in October. Payments for the software package items will occur next month.
- A current month positive CV for the AP-02D Pump Removal, DST Tank AP-102. A delayed contract change settlement for subcontractor supported field work activities for the AP-02D Pump Removal. Work scope has been completed and this variance represents final contract settlement.

Earned Value Data: Fiscal Year 2021

October-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 2020	\$6,053	\$6,465	\$2,900	1.07	2.23	\$6,053	\$6,465	\$2,900	1.07	2.23
Nov 2020	\$2,441					\$8,494				
Dec 2020	\$2,890					\$11,384				
Jan 2021	\$3,313					\$14,697				
Feb 2021	\$2,851					\$17,548				
Mar 2021	\$4,079					\$21,628				
Apr 2021	\$3,875					\$25,503				
May 2021	\$1,443					\$26,945				
Jun 2021	\$774					\$27,720				
Jul 2021	\$852					\$28,572				
Aug 2021	\$1,158					\$29,730				
Sep 2021	\$917					\$30,646				

CTD	\$243,977	\$233,463	\$234,599	0.96	1.00
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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 October 2020 variances below do not impact TPA milestones.

The current month **favorable** SV of \$412,000 was primarily due to:

- Progress made on the development of operation documentation, which was originally planned to complete in September 2020. This work had been previously delayed to allow for information from the TSCR Factory Acceptance Testing and TSCR operation training to be incorporated into the operation documentation. With the completion of both the Factory Acceptance Testing and the training, significant progress is now being made to complete the operation documentation to support operation acceptance testing and readiness.

The current month **favorable** CV of \$3,564,900 was primarily due to:

- COVID-19 Impact costs were collected through August. These costs were transferred in September to the appropriate account. However, the COVID-19 Impact budget and performance through September was not implemented into the baseline until October, via BCR RPP-21-005, causing the favorable variance.
- WRPS labor efficiencies for TSCR operation documentation. Original estimates assumed development of 35 new operating procedures. Upon completion of the TSCR System design and fabrication, it was determined that the type of procedures are different than originally anticipated with fewer operating procedures needed and more preventive maintenance procedures, which are less labor intensive.

Table 1 Administrative Record Metadata

Milestone Number or Facility Identification	Title
M-062-45	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-062-31-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-045-92AD	Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities
M-062-40H	Submit System Plan to Ecology
M-062-50	Submit to Ecology as a Secondary Document, a Mass Balance Flow
M-062-01AP	Submit Semi-Annual Project Compliance Report to Ecology
M-090-14	Submit CD-1 for Facility to Store Spent Ion Exchange Columns Prior to DFLAW
M-062-33-T01	Complete Construction of Supplemental Treatment Vitrification Facility and/or WTP Enhancements
M-062-45-A	Complete Negotiations 6-Months After Last Issuance of System Plan
M-045-56Q	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)
M-062-01AQ	Submit Semi-Annual Project Compliance Report to Ecology
M-045-97	Submit to Ecology a WMA Integration Study for WMA A/AX as a Primary Document
M-045-91E4	Provide SST Farms Dome Deflection Surveys Every 2 Years to Ecology
M-045-92Y	Complete Construction of Barrier 3 in 241-TX Farm
M-045-92Z	Submit to Ecology Design for Barrier 4 in 241-U Farm
M-045-92AE	Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities
M-045-92AE	Submit Yearly Reports Summarizing the Results of Maintenance and Performance Monitoring Activities
M-062-45-XX	Complete Negotiations to Resolve Future Disputes M-062-45 Paragraphs 4 & 5
M-062-51-T01	Submit to Ecology, as a Primary Document, a Secondary Liquid Waste Disposition Work Plan

Milestone Number or Facility Identification	Title
M-062-52-T01	Submit to Ecology, a Secondary Solid Waste Disposition Work Plan as a Primary Document
M-045-85	Initiate Negotiations of HFFACO Interim Milestones for Closure of Remaining WMAs
M-045-92AA	Barrier 4 Design Approved by Ecology
M-062-01AR	Submit Semi-Annual Project Compliance Report to Ecology
M-062-53A	Achieve Substantial Completion of EMF Construction
M-062-51-T02	Submit to Ecology, PMR for Redesign Upgrades and Ops to Support Volumes of Waste Types
M-062-52-T02	Submit to Ecology, PMR for Ancillary Facilities/Capabilities to Support Treatment of Secondary Waste
M-045-56R	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)
M-062-01AS	Submit Semi-Annual Project Compliance Report to Ecology
M-045-15	Completion of Tank A-103 SST Waste Retrieval
M-045-98	Submit to Ecology a RFI/CMS Work Plan for WMA A/AX as a Primary Document
M-045-102	Submit to Ecology a Performance Assessment Maintenance Plan for the WMA A/AX PA
M-045-15A	Submit a Retrieval Data Report Pursuant to Agreement Appendix I
M-045-15D	Exception to Waste Retrieval Criteria Pursuant to Agreement Appendix H
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
T-2-8	Effluent Treatment Facility (ETF)
TS-2-8	Low-Activity Waste Pretreatment System (LAWPS)

CD	=	critical decision	PMR	=	Permit Modification Request
DFLAW	=	direct-feed low-activity waste	RCRA	=	Resource Conservation and Recovery Act
DOE	=	U.S. Department of Energy	SST	=	single-shell tank
Ecology	=	Washington State Department of Ecology	TSCR	=	tank-side cesium removal
EMF	=	Effluent Management Facility	WMA	=	waste management area
HFFACO	=	Hanford Federal Facility Agreement and Consent Order	WTP	=	Waste Treatment and Immobilization Plant