

Office of River Protection

Monthly Reporting Period



July 1–July 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 June 2020.

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Acronyms and Abbreviations

| | |
|----------|--|
| COVID-19 | Coronavirus Disease 2019 |
| CD | critical decision |
| 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 |
| LAW | low-activity waste |
| LERF | Liquid Effluent Retention Facility |
| ORP | U.S. Department of Energy, Office of River Protection |
| PISA | Potential Inadequacy in the Safety Analysis |
| 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 |
| 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 | Completed |
| M-062-54A | Submit Permit Application for AP Tank Farm Mods and Operation Necessary to Support TSCR | 07/15/2020 | B. Harkins | Completed |
| M-062-01AO | Submit Semi-Annual Project Compliance Report to Ecology | 07/31/2020 | G. Trenchard | Completed |
| M-045-56P | Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July) | 07/31/2020 | B. Harkins | Completed |
| 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.”
- As of May 2020, cost and schedule development of the selected scenarios was completed, and the results were presented to Ecology representatives. Development of the *River Protection Project System Plan, Rev. 9*, document is ongoing.
- As of June 2020, the draft of the *River Protection Project System Plan, Rev. 9*, was completed and sent out for internal ORP review.
- As of July 2020, all of the comments associated with the *River Protection Project System Plan, Rev. 9*, have been received from the internal ORP review. Comment incorporation is in progress.
- The U.S. Environmental Protection Agency, DOE, and Ecology met in the first mediated session of the “Holistic Negotiations” on June 25, 2020. This session was an opportunity for each party to express its desired outcomes from the mediation.

Significant Planned Actions in the Next Six Months

- Discuss disputes with regard to milestone M-062-45 and its associated milestones during “Holistic Negotiations.”
- The first working session of the “Holistic Negotiations” is scheduled for August 5, 2020.
- 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 Coronavirus Disease 2019 (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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.
- 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.
- 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-1² for Facility to Store Spent Ion Exchange Columns Prior to DFLAW³**

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

M-090-13 **CD-1 for Interim Hanford Storage Project and CR for CD-2 to ECY⁴**

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

M-090-00 **Acquire/Modify Facilities for Storage of First Two Years of IHLW⁵ from the WTP⁶ 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.

² CD denotes critical decision.

³ DFLAW denotes direct-feed low-activity waste.

⁴ ECY denotes Washington State Department of Ecology.

⁵ IHLW denotes immobilized high-level waste.

⁶ WTP denotes Waste Treatment and Immobilization Plant.

- 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.

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 RCRA⁷ 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. |

⁷ 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 HLW⁸ and LAW⁹ 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.
- 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.

⁸ HLW denotes high-level waste.

⁹ 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. 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.
- 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.

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.

M-062-54A Submit Permit Application for AP Tank Farm Mods and Operation Necessary to Support TSCR¹⁰

Due: July 15, 2020.
 Status: Completed.

Significant Past Accomplishments

- The balance of facilities pad conduit, the structural backfill, the mud mat pour, and the concrete pour for the TSCR unit were completed. Conduit and rebar installation for the control and ancillary units is in progress.
- Maintenance and Operations personnel have been training and preparing operating procedure drafts using the TSCR unit staged at the vendor location while waiting for the TSCR unit to be transported to the TSCR pad in August.
- The TSCR ion exchange column storage pad backfill was completed. Formwork for the mud mat pour on the pad is in progress.

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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.

¹⁰ TSCR denotes Tank-Side Cesium Removal.

- 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.

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 removal of aqueous makeup unit room in 242-A Evaporator E-101 and E-104 tanks and set instrument air dryer in place at the 242-A Evaporator.
- Completed 90-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.
- Initiated work on the resolution of the universal joint Potential Inadequacy in the Safety Analysis (PISA). The vendor is setting up for additional universal joint testing.
- Initiated work on the resolution of the buried pipe PISA. The calculations for Nuclear Safety to perform the safety basis amendment were completed.
- Awarded 242-A Evaporator Documented Safety Analysis upgrades panel design and fire modeling contracts.
- Completed development of the 45 percent engineering design for the 242-A Evaporator Documented Safety Analysis upgrades and initiated development of the 90 percent engineering design.

Significant Planned Actions in the Next Six Months

- Complete 242-A Evaporator annual electrical preventive maintenance.
- Complete installation of the 242-A Evaporator Proximity Security Entry System.
- Procure new PB-1 and PB-2 replacement pumps.

- Complete 100-percent design for 242-A Evaporator transfer line replacement.
- Complete 242-A Evaporator Documented Safety Analysis panel design and fire modeling.
- Complete 242-A Evaporator instrument air dryer tie-in and turnover.
- Complete wall nozzle fabrication for the 242-A Evaporator slurry and feed transfer line replacement.
- Complete work on the resolution of the universal joint PISA.
- Complete work on the buried pipe PISA.

Issues

- Initial testing revealed an issue with the original universal joints on the actuators used to drive the valves. A PISA was written. Testing of different universal joints is needed and will be performed at the vendor's shop.
- 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.
- 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.

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) 2020 processing volume: approximately 1 million gallons.
- Completed the Effluent Treatment Facility (ETF) chiller upgrade to improve reliability and reduce system maintenance.
- Completed the ETF verification tank repair to replace the interior protective epoxy coating.
- Completed design of the LERF Basin 41 installation for additional capacity.
- Completed design of the ETF ultraviolet/oxidation system upgrade because the existing system is no longer supported by the manufacturer.
- Completed final design modifications for the ETF brine loadout system upgrade to address the needed increase in cooling capability.
- Completed final design review for the ETF monitoring and control system upgrade.
- Completed preliminary design review for the ETF supplemental organic treatment system (i.e., ETF acetonitrile treatment).
- Completed preliminary design review for the ETF Load-In Station building expansion.
- Completed preliminary design review for the ETF Vessel Off-Gas System upgrade.
- Completed preliminary design review for the ETF redundant filtration upgrade.

¹¹ LERF denotes Liquid Effluent Retention Facility.

¹² ETF denotes Effluent Treatment Facility.

- Began pre-conceptual design of the ETF Motor Control Center upgrade.
- Began pre-conceptual design of the ETF carbon dioxide membrane contactors upgrade.
- Began pre-conceptual design of the ETF freeze protection upgrade.
- Began procurement activities for design services of the ETF modular grout system, ETF brine storage tanks, and the ETF chiller addition.

Significant Planned Actions in the Next Six Months

- Complete design of the ETF Load-In Station building expansion to support enhanced facility operation.
- Complete design of the ETF redundant filtration upgrade to reduce processing downtime.
- Complete design of the ETF Vessel Off-Gas System upgrade to repair degraded condition.
- 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 freeze protection upgrade to repair degraded condition.
- Complete design of the ETF carbon dioxide membrane contactors to provide the capability to treat the WTP DFLAW effluent.
- Complete design of the ETF brine storage tanks to provide the capacity to manage 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 modular grout system to provide the onsite capability to stabilize the WTP DFLAW effluent.

Issues

- Work has paused on the LERF Basin 44 cover replacement project while nuclear safety evaluations are performed by Washington River Protection Solutions LLC and ORP. Evaluations are being performed due to visual indication of solid material in the basin and sample results from that material. Two options to repair/replace the LERF Basin 44 cover have been developed and issued to vendors for bid proposals.
- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.

- 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.

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

| Description | 242AL-42 (Basin 42) | 242AL-43 (Basin 43) | 242AL-44 (Basin 44) |
|------------------------------|------------------------|------------------------|------------------------|
| AZ-301 Condensate | +6,200 | - | - |
| Mixed Waste Trench 31 and 34 | +21,400 | - | - |
| Other | - | - | - |
| Processing Campaign(s) | - | - | - |
| Total Volume | 2,914,000 | 6,473,000 | 803,000 ^a |

^a The increase in volume in Basin 44 includes water added to the cover for dust suppression.

Data Date: July 30, 2020.

Values shown in gallons.

¹³ 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 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

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

¹⁴ SST denotes single-shell tank.

¹⁵ IQRPE denotes Independent Qualified Registered Professional Engineer.

- 241-SY-101
- 241-SY-102
- 241-SY-103.
- Completed annulus visual inspection of Tank 241-AY-102 through risers 88 and 89 in January 2020.
- Released revision of RPP-RPT-31599, *Double-Shell Tank Integrity Inspection Report for 241-AN Tank Farm*, which includes FY 2019 visual inspection results. The revised report was released in February 2020.
- RPP-RPT-62123, *Ultrasonic Inspection and Air Slot Visual Inspection Results for Double Shell Tank 241-AW-102 – FY 2020*, was released in June 2020.
- Issued a contract to fabricate, test, and deliver a primary tank bottom volumetric inspection system to be deployed into the annulus of double-shell tanks (DST) and used to characterize regions of the primary tank bottom.
- Issued a competitive procurement contract to a vendor to design and fabricate a tertiary leak detection inspection tool for deployment beneath the secondary liner of a DST.

Significant Planned Actions in the Next Six Months

- Complete Tank 241-AW-106 ultrasonic testing.
- Fabricate and install retractable corrosion monitoring probes in Tanks 241-AP-102 and 241-AZ-101.

Ultrasonic Testing Report Status

- Draft ultrasonic testing reports in process:
 - 241-AW-101 ultrasonic testing report (forecasted for release in October 2020)
 - 241-AW-102 ultrasonic testing report released in June 2020.

Issues

- On March 24, 2020, the Hanford Site moved to an essential mission-critical operations posture in recognition of increasing COVID-19 concerns. While the majority of the Hanford Site workforce continues to telework, there are a limited number of workers reporting to the site to perform activities necessary to maintain the site in a safe condition, continuing to protect the community, region, and the environment. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.
- 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.

Single-Shell Tank Integrity

Significant Past Accomplishments

- Performed TFC-ENG-CHEM-P-57, *Intrusion Notification and Tank Leak Assessment Process*, on the following tanks in FY 2020:
 - 241-SX-104
 - 241-T-109.
- Visual inspections were completed for the following tanks in FY 2020:
 - 241-TX-101 (Completed December 2019)
 - 241-TX-102 (Completed December 2019)
 - 241-TX-104 (Completed January 2020)
 - 241-TX-107 (Completed January 2020)
 - 241-S-103 (Completed January 2020)
 - 241-S-110 (Completed January 2020)
 - 241-BX-112 (Completed February 2020)
 - 241-BY-107 (Completed February 2020)
 - 241-SX-112 (Completed February 2020)
 - 241-TY-104 (Completed February 2020)
 - 241-TX-110 (Completed February 2020)
 - 241-BX-109 (Completed February 2020)
 - 241-B-107 (Completed March 2020)
 - 241-BX-108 (Completed March 2020)
 - 241-BX-105 (Completed June 2020).
- Visual inspections for extent of condition, as a result of Tank 241-SX-112 findings in February 2020:
 - 241-SX-112 (Completed July 2020)
 - 241-SX-109 (Completed July 2020).
- Completed work package planning for visual inspection of five miscellaneous underground storage tanks.

Significant Planned Actions in the Next Six Months

- Perform TFC-ENG-CHEM-P-57, *Intrusion Notification and Tank Leak Assessment Process*, on Tank 241-TX-113 (in progress).
- Perform Tank 241-SX-112 Leica laser scan.
- Perform Tank 241-SX-108 visual inspection.
- Perform Tank 241-SX-111 visual inspection.
- Perform Tank 241-B-109 visual inspection.

Issues

- Tank 241-SX-112 was inspected visually in late February. 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; 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, 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. Further analysis is ongoing.
- Tank 241-SX-109 was inspected visually in late July. 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.
- 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.
- 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.

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

- Completed:
 - RPP-RPT-59854, *Derivation of Best-Basis Inventory for Tank 241-AX-103 as of July 1, 2020*, Rev. 1
 - RPP-RPT-59887, *Derivation of Best-Basis Inventory for Tank 241-BX-107 as of July 1, 2020*, Rev. 3
 - RP-PLAN-63996, Sampling and Analysis Plan for Tank TK-CR-003 in the 244-CR Vault, Rev. 0
- Released:
 - HNF-EP-0182, *Waste Tank Summary Report for Month Ending May 31, 2020*, Rev. 389.

Tank Sampling

Significant Past Accomplishments

- For July 2020, the following tank sampling was conducted:
 - None.

Significant Planned Actions in the Next Six Months

- Tank 241-AN-106 core sampling is planned for September 2020.
- Tank 241-AN-106 liquid grab sampling is planned for September 2020.
- Tank 241-AP-107 large volume grab sampling is planned for October 2020.
- Tank 241-AX-102 post-retrieval solids grab sampling is planned for October 2020 (delayed for the 222-S Laboratory outage).
- Tank 241-A-104 Off Riser Sampling System sampling is planned for November 2020.
- Catch Tank C-301 grab sampling is planned for December 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.

- 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.

Best-Basis Inventory Updates

Significant Past Accomplishments

- Best-basis inventory updates for the following tanks were completed in July 2020:
 - 241-AX-103
 - 241-BX-107.

Significant Planned Actions in the Next Month

- Best-basis inventory updates for the following tanks are currently planned to be completed in August 2020:
 - 241-AN-101
 - 241-BX-106
 - 241-BX-111
 - 241-BY-105
 - 241-TX-111
 - 241-TX-114
 - 241-U-105
 - 241-U-112.

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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.

- 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.

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-045-92V 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.

¹⁶ 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-045-56** **Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)**
Due: July 31, 2020.
Status: Completed July 9, 2020.
- 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 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.
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.

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

- 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 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.
- Analysis of the Tank 241-C-106 in-tank videos have yielded the Camera/Computer Aided Design Modeling System volume estimate of 285.98 cubic feet, actual volume (calculation) 316.66 cubic feet, and 95 percent upper confidence level 334.92 cubic feet.

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

¹⁹ PMR denotes Permit Modification Request.

- Mobilized subcontract labor and equipment to start field activities on the TX Evapotranspiration Basin.
- A cultural resource review was prepared and submitted for Washington State Historic Preservation Officer and tribal review in support of the barriers at the TX Barrier Special Emphasis Area and *National Environmental Policy Act*. Based on the review determination, there are no cultural resource concerns related to the construction of the Evapotranspiration barrier.
- Completed clearing and grubbing, as well as pot holing, and started mass excavation on the TX Evapotranspiration Basin (mass excavation is 70 percent complete).
- Held M-045-56 Milestone pre-meeting with Ecology, DOE, and Washington River Protection Solutions LLC staff on June 16, 2020.
- Conducted the M-045-56 Milestone annual meeting on July 9, 2020.

Significant Planned Activities in the Next Six Months

- Resolve Ecology's comments on RPP-RPT-59389, RPP-RPT-59390, and RPP-RPT-58858.
- Complete mass excavation and liner installation on the TX Evapotranspiration Basin.
- Revise the RPP-RPT-61684, *Maintenance and Performance Monitoring Plan*, to incorporate comments received via Ecology letter 20-NWP-106, "Department of Ecology Response to Letter 19-TPD-0029, 'U.S. Department of Energy, Office of River Protection Response to Letter 19-NWP-194, 'Department of Ecology's (Ecology) Review and Assessment of the Maintenance and Performance Monitoring Plan, RPP-RPT-61684,'" dated June 11, 2020. RPP-RPT-61684 was delivered to Ecology on October 10, 2019, to complete M-045-92AC Milestone.

Issues

- Interagency Management Integration Team decisions for the four issues on RPP-RPT-58329, *Baseline Risk Assessment for Waste Management Area C*, were stalled since the February 21, 2019, meeting. All four issues have now been resolved. The Interagency Management Integration Team determinations for judgmental sampling, hazard index, food change pathway, and groundwater ingestion were signed on November 21, 2019; November 25, 2019; May 7, 2020; and June 25, 2020, respectively.
- 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. Additional work on planning for remobilization, engineering analysis, permitting documentation development, etc. by both the DOE and site contractors progresses as conditions allow.

- 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.

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: Completed.

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 2020

June-2020

| Tank Farms ORP-0014 WBS 5 - River Protection Project (in \$000s) | | | | | | | | | | |
|--|-------------|-------------|-------------|------------|----------|------|------|-------------|-------------|----------|
| | BCWS | BCWP | ACWP | SV | CV | SPI | CPI | BAC | EAC | VAC |
| CM | \$50,419 | \$48,860 | \$43,270 | (\$1,558) | \$5,591 | 0.97 | 1.13 | | | |
| FYTD | \$506,117 | \$481,541 | \$465,931 | (\$24,576) | \$15,610 | 0.95 | 1.03 | \$739,450 | | |
| CTD | \$6,028,714 | \$5,934,159 | \$5,885,034 | (\$94,555) | \$49,125 | 0.98 | 1.01 | \$6,262,046 | \$6,210,080 | \$51,966 |

ACWP = actual cost of work performed.

CV = cost variance.

BAC = budget at completion.

EAC = estimate at completion.

BCWP = budgeted cost of work performed.

FYTD = fiscal year to date.

BCWS = budgeted cost of work scheduled.

SPI = schedule performance index.

CM = current month.

SV = schedule variance.

CPI = cost performance index.

VAC = variance at completion.

CTD = contract to date.

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

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

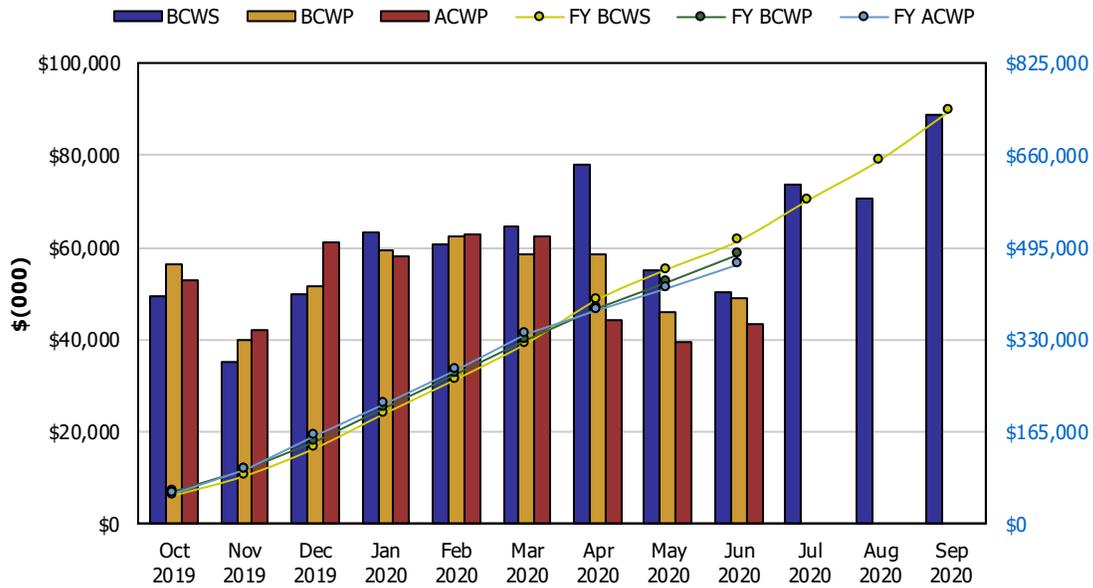
The cost variance (CV) measures the actual cost of work performed against the earned dollar value of that performed work. As an example, assume \$10,000 of work was planned to-date, \$8,000 was reported as being performed (earned), at an actual cost of \$9,000. This work would be reported as being \$2,000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

Earned Value Data: Fiscal Year 2020

June-2020

Tank Farms ORP-0014
WBS 5 - River Protection Project

EVMS Monthly and Fiscal Year Values



Earned Value Month

| Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|----------|----------|----------|----------|------|------|-----------|-----------|-----------|--------|--------|
| Oct 2019 | \$49,558 | \$56,275 | \$52,812 | 1.14 | 1.07 | \$49,558 | \$56,275 | \$52,812 | 1.14 | 1.07 |
| Nov 2019 | \$34,954 | \$39,741 | \$42,066 | 1.14 | 0.94 | \$84,512 | \$96,016 | \$94,879 | 1.14 | 1.01 |
| Dec 2019 | \$49,841 | \$51,597 | \$61,200 | 1.04 | 0.84 | \$134,353 | \$147,613 | \$156,079 | 1.10 | 0.95 |
| Jan 2020 | \$63,048 | \$59,514 | \$57,979 | 0.94 | 1.03 | \$197,401 | \$207,128 | \$214,059 | 1.05 | 0.97 |
| Feb 2020 | \$60,669 | \$62,504 | \$62,711 | 1.03 | 1.00 | \$258,071 | \$269,632 | \$276,770 | 1.04 | 0.97 |
| Mar 2020 | \$64,495 | \$58,502 | \$62,318 | 0.91 | 0.94 | \$322,565 | \$328,133 | \$339,088 | 1.02 | 0.97 |
| Apr 2020 | \$78,113 | \$58,649 | \$44,236 | 0.75 | 1.33 | \$400,679 | \$386,782 | \$383,324 | 0.97 | 1.01 |
| May 2020 | \$55,020 | \$45,899 | \$39,337 | 0.83 | 1.17 | \$455,699 | \$432,681 | \$422,661 | 0.95 | 1.02 |
| Jun 2020 | \$50,419 | \$48,860 | \$43,270 | 0.97 | 1.13 | \$506,117 | \$481,541 | \$465,931 | 0.95 | 1.03 |
| Jul 2020 | \$73,696 | | | 0.00 | 0.00 | \$579,813 | | | 0.00 | 0.00 |
| Aug 2020 | \$70,806 | | | 0.00 | 0.00 | \$650,619 | | | 0.00 | 0.00 |
| Sep 2020 | \$88,830 | | | 0.00 | 0.00 | \$739,450 | | | 0.00 | 0.00 |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| CTD | \$6,028,714 | \$5,934,159 | \$5,885,034 | 0.98 | 1.01 |
|-----|-------------|-------------|-------------|------|------|

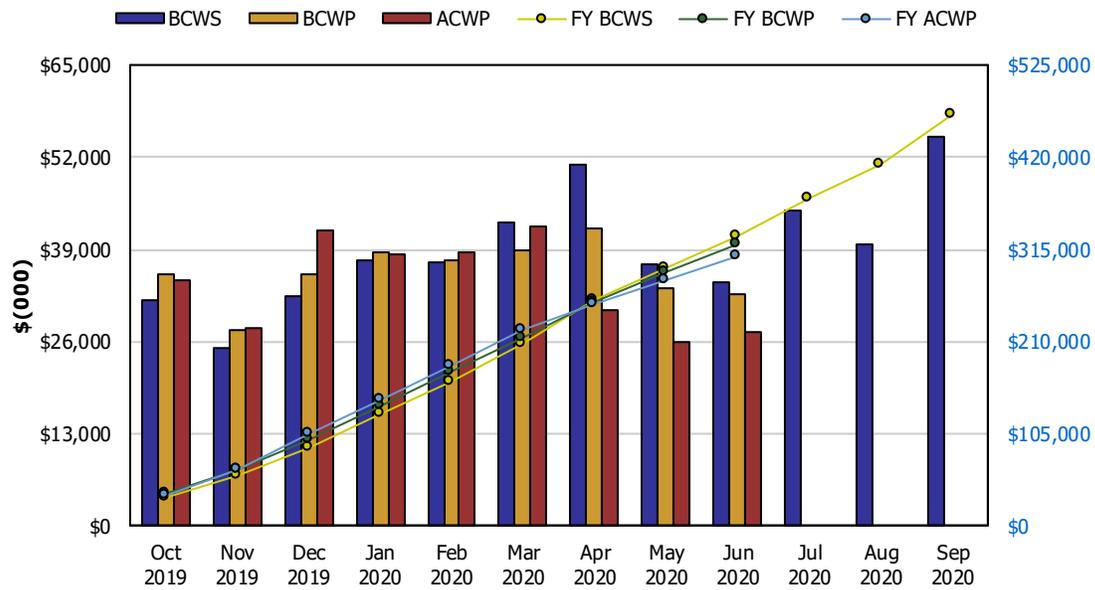
- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- CM = current month.
- CTD = contract to date.
- FY = fiscal year.
- SPI = schedule performance index.

Earned Value Data: Fiscal Year 2020

June-2020

**Tank Farms ORP-0014
WBS 5.1 - Base Operations**

EVMS Monthly and Fiscal Year Values



Earned Value Month

| Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|----------|----------|----------|----------|------|------|-----------|-----------|-----------|--------|--------|
| Oct 2019 | \$31,720 | \$35,563 | \$34,769 | 1.12 | 1.02 | \$31,720 | \$35,563 | \$34,769 | 1.12 | 1.02 |
| Nov 2019 | \$24,924 | \$27,726 | \$27,829 | 1.11 | 1.00 | \$56,644 | \$63,289 | \$62,598 | 1.12 | 1.01 |
| Dec 2019 | \$32,399 | \$35,357 | \$41,699 | 1.09 | 0.85 | \$89,043 | \$98,646 | \$104,297 | 1.11 | 0.95 |
| Jan 2020 | \$37,525 | \$38,619 | \$38,174 | 1.03 | 1.01 | \$126,568 | \$137,265 | \$142,471 | 1.08 | 0.96 |
| Feb 2020 | \$37,219 | \$37,342 | \$38,509 | 1.00 | 0.97 | \$163,787 | \$174,607 | \$180,980 | 1.07 | 0.96 |
| Mar 2020 | \$42,891 | \$38,955 | \$42,127 | 0.91 | 0.92 | \$206,678 | \$213,562 | \$223,107 | 1.03 | 0.96 |
| Apr 2020 | \$50,864 | \$42,080 | \$30,456 | 0.83 | 1.38 | \$257,542 | \$255,642 | \$253,563 | 0.99 | 1.01 |
| May 2020 | \$36,892 | \$33,386 | \$25,784 | 0.90 | 1.29 | \$294,435 | \$289,028 | \$279,347 | 0.98 | 1.03 |
| Jun 2020 | \$34,378 | \$32,642 | \$27,185 | 0.95 | 1.20 | \$328,812 | \$321,670 | \$306,532 | 0.98 | 1.05 |
| Jul 2020 | \$44,395 | | | 0.00 | 0.00 | \$373,207 | | | 0.00 | 0.00 |
| Aug 2020 | \$39,601 | | | 0.00 | 0.00 | \$412,809 | | | 0.00 | 0.00 |
| Sep 2020 | \$54,861 | | | 0.00 | 0.00 | \$467,669 | | | 0.00 | 0.00 |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| CTD | \$3,987,462 | \$3,941,248 | \$3,875,959 | 0.99 | 1.02 |
|-----|-------------|-------------|-------------|------|------|

- 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 June 2020 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$1,735,500) was primarily due to:

- June work performance delays as a result of COVID-19-related restrictions. Affected scope for the reporting month included, but was not limited to:
 - Tank Operations Contract direct facilities support
 - Multi-craft maintenance facility.

The current month **favorable** CV of \$5,457,500 was primarily due to:

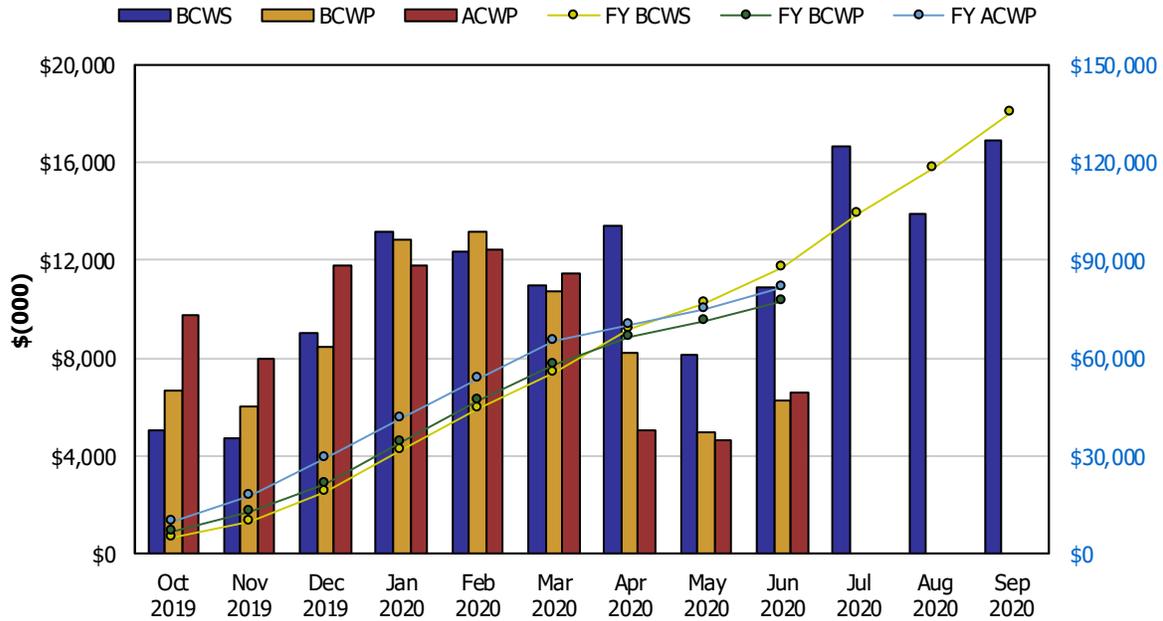
- June work performance under-spending as a result of COVID-19-related restrictions. Affected scope for the reporting month included, but was not limited to:
 - Tank Operations Contract training course costs
 - ETF/LERF/Treated Effluent Disposal Facility operations and maintenance
 - 222-S Laboratory general support operations support and safe compliant support
 - Production operations in AN, AP, B, BX, BY, and C tank farms
 - Production operations in S, SX, SY, T, TX, TY, and U tank farms
 - Production operations in A, AX, AY, and AZ tank farms
 - 242-A Evaporator operations and maintenance.

Earned Value Data: Fiscal Year 2020

June-2020

Tank Farms ORP-0014
WBS 5.2 - Retrieve and Close SSTs

EVMS Monthly and Fiscal Year Values



Earned Value Month

| Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|----------|----------|----------|----------|------|------|-----------|----------|----------|--------|--------|
| Oct 2019 | \$5,039 | \$6,662 | \$9,772 | 1.32 | 0.68 | \$5,039 | \$6,662 | \$9,772 | 1.32 | 0.68 |
| Nov 2019 | \$4,722 | \$6,050 | \$7,940 | 1.28 | 0.76 | \$9,761 | \$12,712 | \$17,711 | 1.30 | 0.72 |
| Dec 2019 | \$9,040 | \$8,482 | \$11,822 | 0.94 | 0.72 | \$18,801 | \$21,193 | \$29,534 | 1.13 | 0.72 |
| Jan 2020 | \$13,201 | \$12,877 | \$11,828 | 0.98 | 1.09 | \$32,003 | \$34,070 | \$41,362 | 1.06 | 0.82 |
| Feb 2020 | \$12,323 | \$13,174 | \$12,473 | 1.07 | 1.06 | \$44,326 | \$47,245 | \$53,834 | 1.07 | 0.88 |
| Mar 2020 | \$10,984 | \$10,744 | \$11,497 | 0.98 | 0.93 | \$55,310 | \$57,989 | \$65,331 | 1.05 | 0.89 |
| Apr 2020 | \$13,412 | \$8,230 | \$5,011 | 0.61 | 1.64 | \$68,722 | \$66,218 | \$70,343 | 0.96 | 0.94 |
| May 2020 | \$8,123 | \$4,957 | \$4,623 | 0.61 | 1.07 | \$76,845 | \$71,175 | \$74,966 | 0.93 | 0.95 |
| Jun 2020 | \$10,857 | \$6,262 | \$6,619 | 0.58 | 0.95 | \$87,702 | \$77,437 | \$81,585 | 0.88 | 0.95 |
| Jul 2020 | \$16,641 | | | 0.00 | 0.00 | \$104,343 | | | 0.00 | 0.00 |
| Aug 2020 | \$13,905 | | | 0.00 | 0.00 | \$118,248 | | | 0.00 | 0.00 |
| Sep 2020 | \$16,939 | | | 0.00 | 0.00 | \$135,187 | | | 0.00 | 0.00 |

| | | | | | |
|-----|-------------|-------------|-------------|------|------|
| CTD | \$1,171,964 | \$1,138,779 | \$1,200,368 | 0.97 | 0.95 |
|-----|-------------|-------------|-------------|------|------|

- ACWP = actual cost of work performed.
- BCWP = budgeted cost of work performed.
- BCWS = budgeted cost of work scheduled.
- CPI = cost performance index.
- CM = current month.
- CTD = contract to date.
- FY = fiscal year.
- SPI = schedule performance index.

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

5.02 – Retrieve and Close Single-Shell Tanks

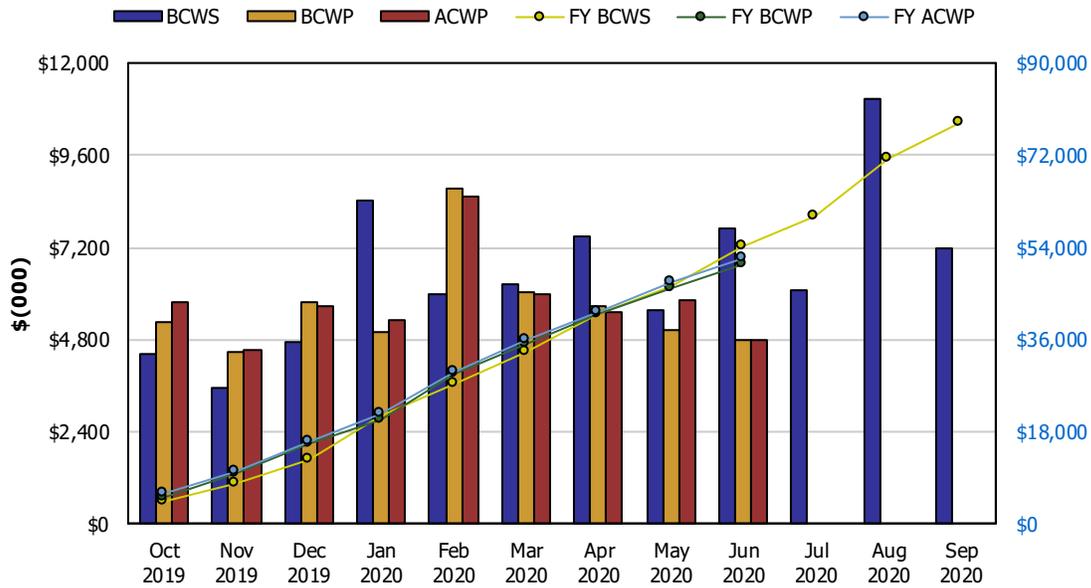
For the retrieval portion, see the Consent Decree monthly report for cost and schedule status.

Earned Value Data: Fiscal Year 2020

June-2020

Tank Farms ORP-0014
WBS 5.3 - WFD/Treatment Plng/DST Retrieval/Closure

EVMS Monthly and Fiscal Year Values



Earned Value Month

| Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|----------|----------|---------|---------|------|------|----------|----------|----------|--------|--------|
| Oct 2019 | \$4,444 | \$5,240 | \$5,748 | 1.18 | 0.91 | \$4,444 | \$5,240 | \$5,748 | 1.18 | 0.91 |
| Nov 2019 | \$3,521 | \$4,447 | \$4,535 | 1.26 | 0.98 | \$7,965 | \$9,687 | \$10,283 | 1.22 | 0.94 |
| Dec 2019 | \$4,707 | \$5,765 | \$5,664 | 1.22 | 1.02 | \$12,672 | \$15,452 | \$15,947 | 1.22 | 0.97 |
| Jan 2020 | \$8,446 | \$5,009 | \$5,307 | 0.59 | 0.94 | \$21,118 | \$20,461 | \$21,254 | 0.97 | 0.96 |
| Feb 2020 | \$5,997 | \$8,716 | \$8,545 | 1.45 | 1.02 | \$27,115 | \$29,177 | \$29,799 | 1.08 | 0.98 |
| Mar 2020 | \$6,256 | \$6,053 | \$5,966 | 0.97 | 1.01 | \$33,371 | \$35,230 | \$35,765 | 1.06 | 0.99 |
| Apr 2020 | \$7,498 | \$5,683 | \$5,490 | 0.76 | 1.04 | \$40,868 | \$40,913 | \$41,256 | 1.00 | 0.99 |
| May 2020 | \$5,562 | \$5,055 | \$5,822 | 0.91 | 0.87 | \$46,430 | \$45,968 | \$47,078 | 0.99 | 0.98 |
| Jun 2020 | \$7,720 | \$4,764 | \$4,803 | 0.62 | 0.99 | \$54,150 | \$50,732 | \$51,881 | 0.94 | 0.98 |
| Jul 2020 | \$6,096 | | | 0.00 | 0.00 | \$60,246 | | | 0.00 | 0.00 |
| Aug 2020 | \$11,086 | | | 0.00 | 0.00 | \$71,332 | | | 0.00 | 0.00 |
| Sep 2020 | \$7,186 | | | 0.00 | 0.00 | \$78,518 | | | 0.00 | 0.00 |

| | | | | | |
|-----|-----------|-----------|-----------|------|------|
| CTD | \$630,528 | \$622,458 | \$577,307 | 0.99 | 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 June 2020 variances below do not impact TPA milestones.

The current month **unfavorable** SV of (\$2,955,600) was primarily due to:

- A delay in receiving the pipe assembly materials for the LAW bubblers. This work provides for the receipt of long-lead materials required for the fabrication of LAW melter bubbler assemblies. The schedule variance will be recovered after the vendor completes procurement of the pipe assembly materials.

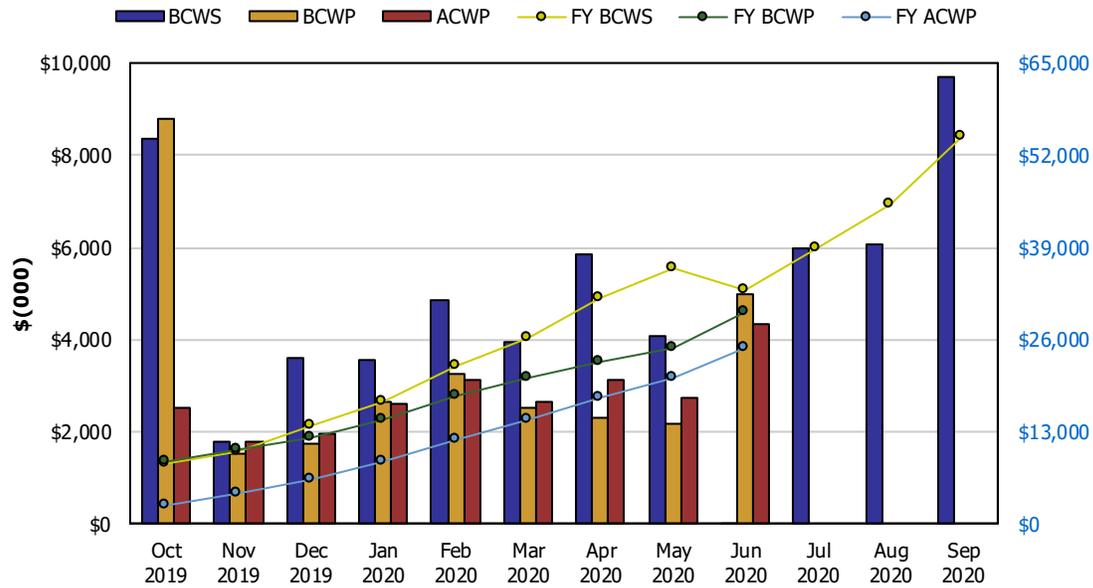
The current month **unfavorable** CV of (\$39,000) was below reportable thresholds.

Earned Value Data: Fiscal Year 2020

June-2020

**Tank Farms ORP-0014
WBS 5.5 - Treat Waste**

EVMS Monthly and Fiscal Year Values



Earned Value Month

| Month | BCWS | BCWP | ACWP | SPI | CPI | FY BCWS | FY BCWP | FY ACWP | FY SPI | FY CPI |
|----------|-----------|---------|---------|-------|------|----------|----------|----------|--------|--------|
| Oct 2019 | \$8,344 | \$8,802 | \$2,523 | 1.05 | 3.49 | \$8,344 | \$8,802 | \$2,523 | 1.05 | 3.49 |
| Nov 2019 | \$1,778 | \$1,510 | \$1,759 | 0.85 | 0.86 | \$10,122 | \$10,312 | \$4,282 | 1.02 | 2.41 |
| Dec 2019 | \$3,591 | \$1,715 | \$1,940 | 0.48 | 0.88 | \$13,713 | \$12,027 | \$6,223 | 0.88 | 1.93 |
| Jan 2020 | \$3,546 | \$2,663 | \$2,588 | 0.75 | 1.03 | \$17,260 | \$14,691 | \$8,810 | 0.85 | 1.67 |
| Feb 2020 | \$4,867 | \$3,230 | \$3,133 | 0.66 | 1.03 | \$22,127 | \$17,921 | \$11,944 | 0.81 | 1.50 |
| Mar 2020 | \$3,928 | \$2,526 | \$2,646 | 0.64 | 0.95 | \$26,055 | \$20,446 | \$14,590 | 0.78 | 1.40 |
| Apr 2020 | \$5,844 | \$2,283 | \$3,128 | 0.39 | 0.73 | \$31,900 | \$22,730 | \$17,718 | 0.71 | 1.28 |
| May 2020 | \$4,059 | \$2,179 | \$2,731 | 0.54 | 0.80 | \$35,959 | \$24,908 | \$20,449 | 0.69 | 1.22 |
| Jun 2020 | (\$2,984) | \$4,984 | \$4,323 | -1.67 | 1.15 | \$32,974 | \$29,892 | \$24,772 | 0.91 | 1.21 |
| Jul 2020 | \$5,995 | | | 0.00 | 0.00 | \$38,969 | | | 0.00 | 0.00 |
| Aug 2020 | \$6,071 | | | 0.00 | 0.00 | \$45,040 | | | 0.00 | 0.00 |
| Sep 2020 | \$9,718 | | | 0.00 | 0.00 | \$54,758 | | | 0.00 | 0.00 |

| | | | | | |
|-----|-----------|-----------|-----------|------|------|
| CTD | \$216,171 | \$209,754 | \$211,108 | 0.97 | 0.99 |
|-----|-----------|-----------|-----------|------|------|

- 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 June 2020 variances below do not impact TPA milestones.

The current month **favorable** SV of \$7,967,900 was primarily due to:

- A single point adjustment that removed budget out of the current period, as a result of the approved Baseline Change Request RPP-20-080, *TSCR TFU/WFD Initial COVID-19 Impacts*. This Baseline Change Request resulted in a retroactive change to the budgeted cost for work scheduled due to shifting and/or re-planning activities that have been affected by the partial stop work orders related to COVID-19.

The current month **favorable** CV of \$660,100 was primarily due to:

- Resumption of previously planned FY 2020 construction support activities utilizing fewer resources than anticipated.

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.