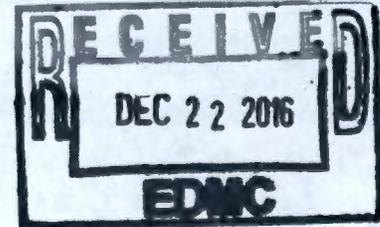


Final
Office of River Protection
Tri-Party Agreement
Monthly Report
December¹ 2016



¹ The narrative descriptions of progress in this report cover the period from November 1–30, 2016. Earned Value Management System data and descriptions cover the period of October 1–31, 2016.

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Tri-Party Agreement (TPA) Milestone Review

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CD	Waste Treatment and Immobilization Plant (WTP) Overall TPA Summary and Milestone Status; see the Office of River Protection Consent Decree Monthly Report	J. Grindstaff D. McDonald

Acronyms and Abbreviations

CV	cost variance
DOE	U.S. Department of Energy
DST	double-shell tank
Ecology	Washington State Department of Ecology
ERSS	extended reach sluicing system
FY	fiscal year
HAMTC	Hanford Atomic Metals Trades Council
IQRPE	independent qualified registered professional engineer
MARS-V	Mobile Arm Retrieval System-Vacuum
ORP	U.S. Department of Energy, Office of River Protection
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
SCBA	self-contained breathing apparatus
SST	single-shell tank
SV	schedule variance
System Plan 8	<i>River Protection Project System Plan, Rev. 8</i>
TPA	<i>Hanford Federal Facility Agreement and Consent Order Tri-Party Agreement</i>
WMA-C	C Farm waste management area
WRPS	Washington River Protection Solution LLC
WTP	Waste Treatment and Immobilization Plant

Administrative Items/Milestone Status

Milestone	Title	Due Date	Completion Date	Status
Fiscal Year 2015				
M-062-45-T01	Complete Negotiations 6-Mo After Last Issuance of System Plan	04/30/2015		In Abeyance
M-062-45-ZZ	Negotiate a One Time Supplemental Treatment Selection	04/30/2015		In Abeyance
M-062-45-ZZ-A	Convert the M-062-31-T01 Through M-062-34-T01 to Interim Milestones	04/30/2015		In Abeyance
M-045-82	Submit Comp. Permit Modification Request for Tiers 1,2,3	09/30/2015		In Dispute
Fiscal Year 2016				
M-047-07	CD-1 for Secondary Liquid Waste Treatment and CR for CD-2 to Ecology	03/31/2016		In Abeyance
M-090-13	CD-1 for Interim Hanford Storage Project and CR for CD-2 to Ecology	03/31/2016		In Abeyance
M-062-31-T01	Complete Final Design & Submit RCRA Part B Permit Mod Request for Enhanced WTP & Supplemental Treatment	04/30/2016		In Abeyance
Fiscal Year 2017				
M-062-40E	Select a Minimum of Three Scenarios	10/31/2016	10/06/2016	Completed
M-045-61A	Submit to Ecology a primary doc. Phase 2 CMS, and rev. 0 update to the RFI Report for WMA C	12/31/2016		On Schedule
M-045-62	Phase 2 Corrective Measures Implementation Work Plan For WMA-C	6 mo. after CMS appr. (M-045-61A)		On Schedule
M-062-01AH	Submit Semi-Annual Project Compliance Report	01/31/2017		On Schedule
M-045-84	Initiate Negotiations to Establish HFFACO Interim Milestones for Closure of 2nd SST WMA	04/03/2017		On schedule.

Milestone	Title	Due Date	Completion Date	Status
M-045-56M	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2017		On Schedule
M-062-01AI	Submit Semi-Annual Project Compliance Report	07/31/2017		On Schedule
M-045-91E2	Provide SST Farms Dome Deflection Surveys Every Two Years	09/30/2017		On Schedule
M-045-92S	DOE And Ecology Will Agree On Locations For Barriers 3 And 4	09/30/2017		On Schedule
Fiscal Year 2018				
M-062-40F	Submit System Plan	10/31/2017		On Schedule
M-062-32-T01	Start Construction of Supplemental Vitrification Treatment Facility and/or WTP Enhancements	04/20/2018		In Abeyance
M-045-92O	Barrier 3 Design/Monitoring Plan Submitted to Ecology	06/30/2018		On Schedule
M-045-56N	Ecology And DOE Agree, At A Minimum, To Meet Yearly (By July)	07/31/2018		On Schedule
M-045-91I	Provide IQRPE Certification of SSTs Structural Integrity	09/30/2018		On Schedule
M-045-92T	Barrier 3 Design/Monitoring Plan Approved by Ecology	09/30/2018		On Schedule

CD-1/-2 critical decision-1/-2.

CMS corrective measures study.

CR change request.

DOE U.S. Department of Energy.

Ecology Washington State Department of Ecology.

HFFACO Hanford Federal Facility Agreement and Consent Order.

IQRPE independent qualified registered professional engineer

RCRA Resource Conservation and Recovery Act.

RFI RCRA Facility Investigation.

SST single-shell tank.

WTP Waste Treatment and Immobilization Plant.

WMA waste management area.

WMA-C C Farm waste management area.

System Plan

Significant Past Accomplishments:

- The River Protection Project System Plan, Rev. 8 (System Plan 8) scenario selection discussions, to support M-062-40E, between the U.S. Department of Energy (DOE), Office of River Protection (ORP) and the Washington State Department of Ecology (Ecology), are complete.
- The System Plan 8 scenario selection document was transmitted to Ecology for concurrence by letter 16-WSC-0050, "Request for Concurrence on Selected Scenarios for the River Protection Project System Plan, Revision 8," dated September 27, 2016.
- Ecology's concurrence on scenario selection was received on October 11, 2016, thereby satisfying the requirement to provide scenarios one year prior to submittal of the System Plan identified in M-062-40.

Significant Planned Actions in the Next Six Months:

- Continue negotiations of the M-062-45 milestones with intent to utilize information from System Plan 8 in negotiations.
- Begin modeling of first scenario by December 5, 2016.

Issues:

- None.

Acquisition of New Facilities

- M-047-07** **Submit CD-1 for Secondary Liquid Waste Treatment and Change Request (CR) for CD-2 to Ecology**
Due: March 31, 2016
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-090-13** **Submit Critical Decision-1 for Interim Hanford Storage Project and TPA Change Request for CD-2 to Ecology**
Due: March 31, 2016
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-090-00** **Acquire/Modify Facilities for Storage of Immobilized High-Level Waste (IHLW)**
Due: December 31, 2019
Status: At risk. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-047-00** **Complete Work Necessary to Provide Facilities for Management of Secondary Waste from the Waste Treatment and Immobilization Plant (WTP)**
Due: December 31, 2022
Status: At risk. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.

Significant Past Accomplishments:

- None.

Significant Planned Actions in the Next Six Months:

- None.

Issues:

- None.

Supplemental Treatment and Part B Permit Applications

- M-062-45-T01** **Every six years, within six months after last revision of the System Plan, negotiate tank waste retrieval sequencing**
Due: April 30, 2015
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-062-45-ZZ** **(designation for M-062-45 item 3), Negotiate a one-time supplemental treatment selection**
Due: April 30, 2015
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-062-45-ZZ-A** **Convert M-062-31-T01 through M-062-34-T01 to Interim Milestones**
Due: April 30, 2015
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-062-31-T01** **Complete final design and submit Resource Conservation and Recovery Act Part B permit modification request**
Due: April 30, 2016
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-062-32-T01** **Start construction of supplemental vitrification treatment facility and/or WTP enhancements**
Due: April 30, 2018
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-062-33-T01** **Complete construction of supplemental vitrification treatment facility and/or WTP enhancements**
Due: April 30, 2021
Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.
- M-062-45-XX** **No later than December 31, 2021, the DOE and Ecology shall complete negotiations to establish a mechanism that will apply to resolve future disputes regarding the determinations in M-062-45, paragraphs 4 and 5**
Due: December 31, 2021

Status: On schedule.

M-062-34-T01 Complete hot commissioning of supplemental vitrification treatment facility and/or WTP enhancements

Due: December 30, 2022

Status: In Abeyance. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45. Negotiations began on September 8, 2016.

M-062-21 Annually submit data that demonstrates operation of the WTP

Due: February 28, 2023

Status: At risk.

M-062-00 Complete Pretreatment Processing and Vitrification of High-Level Waste and LAW Tank Wastes

Due: December 31, 2047

Status: At risk.

Significant Past Accomplishments:

- None.

Significant Planned Actions in the Next Six Months:

- None.

Issues:

- Negotiations on the items identified in the M-062-45 milestone began on September 8, 2016 per decision at the Internal Agency Management Integration Team meeting.

242-A Evaporator Status

The 242-A Evaporator campaign strategy for fiscal year (FY) 2016 through fourth quarter of FY 2017 is depicted in the following table:

Fiscal Year	Campaign No.	Feed Source	Slurry Tank	Comments
FY 2016	EC-04	AP-104	AP-103	Completed April 15, 2016. WVR = 258 kgal
FY 2016	EC-05	AP-104	AP-104	Completed April 21, 2016. WVR = 46 kgal
FY 2016	EC-06	AY-101	AP-104	242-A Evaporator campaign EC-06 has been postponed until replacement of failed Radiation Monitoring systems RC-1, RC-2 and RC-3 are completed. This is expected midyear of CY2017.
FY 2017	EC-07	AW-106	AP-104	242-A Evaporator campaign EC-07 will immediately follow EC-06.
FY 2018	EC-08	AP and AZ Blends	AP-103 AP-104	Will require blending of waste in 102-AW, sampling, and sampling analysis prior to campaign start. This cannot occur until campaign EC-07 is completed.

FY fiscal year.
kgal thousand gallons.
WVR waste volume reduction.

Significant Past Accomplishments:

- Part A Unit Group Workshop for 242-A Evaporator completed in October 2016.
- WRPS awarded a design/fabrication contract (P.O. 00061664) for the 242-A Evaporator spare reboiler to ABW Technologies Inc. on November 15, 2016.
- The class 2 permit modification covering the removal of the diesel generator requiring changes to Chapter 6.0, "Procedures to Prevent Hazards" and Chapter 7.0, "Contingency Plan," and updates to storage volumes in Chapter 1.0, "Part A Form" at the 242-A Evaporator were submitted to Ecology for informal review on 11/14/2016.

Significant Planned Actions in the Next Six Months:

- Future campaign and outage scheduling
- Continue integrity assessment on 242-A Evaporator components
- Replace P-B-2 pump and associated pressure relief valves.
- Replace Radiation Monitoring systems RC-1, RC-2, and RC-3

Issues:

- None.

Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

The Liquid Effluent Retention Facility (LERF) liquid levels, inventory, and received waste is shown in the table below. Volumes in this table are estimated. Tanker shipment volumes are estimated by multiplying the number of shipments by the capacity of the tanker being used.

	242AL-42 (Basin 42)	242AL-43 (Basin 43)	242AL-44 (Basin 44)
Volume (as of 11/30/2016)	~ 5.49 Mgal	~ 3.44 Mgal	~ 7.09 Mgal
AZ-301 Tanker Shipments	-	-	-
MWT-31 and 34 Leachate	-	-	~ 14,000 gal
Other (325 Building Totes)	-	-	~ 3,960 gal
242-A Campaigns	-	-	-

gal gallon.
Mgal million gallons.
MWT mixed waste trench.

Significant Past Accomplishments:

- Total FY 2017 volume processed (as of 11/30/2016): 0 gallons.
- Part A unit group workshop for Liquid Effluent Retention Facility/Effluent Treatment Facility held on October 27, 2016.
- The Class 2 permit modification covering the Effluent Treatment Facility (ETF) container storage areas, updates to Addendum H "Closure Plan" regarding the Load-In Station Tanks 109 and 117, and Addendum D "Groundwater Monitoring Plan" were submitted to Ecology for informal review.

Significant Planned Actions in the Next Six Months:

- Empty LERF Basin 43 by processing waste through ETF

Issues:

- None

Tank System Update

Significant Past Accomplishments

Double-Shell Tank (DST) Integrity:

- Enhanced annulus video inspections:
All FY 2016 DST enhanced annulus video inspections have been completed and inspection reports issued.
- All FY 2016 ultrasonic testing inspections have been completed and reports issued.

Single-Shell Tanks (SST) Integrity:

- None.

Independent Qualified Registered Professional Engineer Activities

- Washington River Protection Solutions LLC (WRPS) revised the DST independent qualified registered professional engineer (IQRPE) integrity assessment report (RPP-RPT-58441, *Double-Shell Tank System Integrity Assessment Report (DSTAR)*) per WAC 173-303-640(2), "Tank systems" and report transmitted to ORP via letter WRPS-1603683, "Contract Number DE-AC27-08RV14800 – Washington River Protection Solutions LLC Submittal of 2016 Double-Shell Tank System Integrity Assessment Report Revision 1."

Significant Planned Actions in the Next Six Months:

DST Integrity:

- Continuing bi-weekly inspections of AY-102 waste accumulation site.
- Continuing bi-monthly comprehensive inspection of AY-102 annulus.
- Continuing quarterly comprehensive inspection of AY-101 annulus.
- Work planning for FY 2017 enhanced annulus visual inspections has already begun. The following tanks will be inspected in FY 2017:

– 241-AN-102	– 241-AW-105
– 241-AN-107	– 241-AY-101
– 241-AP-101	– 241-AZ-101
– 241-AP-107	– 241-AZ-102
- Work planning for FY 2017 ultrasonic testing inspections has already begun. The following tanks will be inspected in FY 2017:

– 241-AN-106	– 241-AZ-101
– 241-AY-101	

SST Integrity:

- Inspections for FY 2016 are complete.
- Work planning for FY 2017 in-tank video inspections has already begun. The following tanks will be inspected in FY 2017 (note SX-113 was deleted and S-104 was added)
 - 241-BX-102
 - 241-BX-107
 - 241-BY-109
 - 241-S-104
 - 241-SX-110
 - 241-T-104
 - 241-T-106
 - 241-T-109
 - 241-TX-105
 - 241-TX-106
 - 241-TX-109
 - 241-U-107
- Intrusion mitigation (M-045-56):
 - The heater on the POR06 exhauster was replaced, and the exhauster was restarted on 11/14/16. Data collection and reporting software is currently not working, so troubleshooting that issue has begun. An in-tank video was conducted on 11/16/16 and showed no decrease in pool size. A report will be issued when evaporation is considered complete.

Issues:**DST Integrity:**

- None.

SST Integrity:

- None.

Single-Shell Tank Integrity Assurance

M-045-91I **Provide to Ecology an Independent, Qualified, Registered Professional Engineer (IQRPE) certification of single-shell tanks (SST) structural integrity for the remainder of the mission, or for such time as the IQRPE believes he/she can reasonably certify.**
Due: September 30, 2018
Status: On schedule.

Significant Past Accomplishments:

- None.

Significant Planned Actions in the Next Six Months:

- Continue planning for the SST integrity assessment by an IQRPE (M-045-91I).

Issues:

- None.

In-Tank Characterization and Summary

Accomplishments:

For the period from November 1 through November 30, 2016, the following reports were completed or issued:

- Completed RPP-RPT-58260, Derivation of Best-Basis Inventory for Tank 241-BX-110 as of October 1, 2016, Rev 1.
- Completed RPP-RPT-56803, Derivation of Best-Basis Inventory for Tank 241-BX-103 as of October 1, 2016, Rev 1.
- Completed RPP-RPT-59713, Derivation of Best-Basis Inventory for Tank 241-AN-105 as of October 1, 2016, Rev 0.
- Completed RPP-RPT-59736, Derivation of Best-Basis Inventory for Tank 241-AN-104 as of October 1, 2016, Rev 0.
- Completed RPP-RPT-48459, Derivation of Best-Basis Inventory for Tank 241-C-111 as June 28, 2016, Rev 3.
- Completed RPP-RPT-59724, Derivation of Best-Basis Inventory for Tank 241-AW-101 as October 1, 2016, Rev 0.
- Completed RPP-RPT-44625, Derivation of Best-Basis Inventory for Tank 241-AW-105 as October 1, 2016, Rev 5.
- Completed RPP-RPT-59718, Derivation of Best-Basis Inventory for Tank 241-AN-103 as October 1, 2016, Rev 0.
- Completed RPP-RPT-59714, Tank 241-C-111 Residual Waste Inventory Estimates for Component Closure Risk Assessment, Rev 0.
- Completed RPP-SCR-59791, Update to Unit Liter Dose Calculation Spreadsheet, Rev 0.
- Completed RPP-PLAN-61243, Tank 241-AP-105 Grab Sampling and Analysis Plan – Fiscal Year 2017, Rev. 0.
- Completed HNF-EP-0182, Waste Tank Summary Report for Month Ending October 31, 2016, Rev. 346.
- RPP-RPT-59597, Final Report for AZ301 Catch Tank Liquid Samples Taken in May, Rev. 1, was released.
- RPP-RPT-59727, Quarter 2 Results for 241-AP Stack Chemical Emissions, Rev. 0, was released.
- Completed 241-AY-102 Annulus solids sampling November 17, 2016. Four samples were received at the laboratory

Planned Action within the Next Six Months:

Tank sampling:

- Tank 241-AP-105 grab sampling is planned for December 2016.
- Tank 241-AW-104 grab sampling is planned for February 2017.

Best-Basis Inventory updates:

Best-basis inventory updates for the following tanks were completed in November 2016:

- 241-AN-103
- 241-AN-104
- 241-AN-105
- 241-AW-101
- 241-AW-105
- 241-BX-103
- 241-BX-110
- 241-C-111

Best-basis inventory updates for the following tanks currently are planned to be completed in December 2016:

- 241-AN-106
- 241-AP-102
- 241-AZ-101
- 241-B-109
- 241-BY-108
- 241-TY-102

Data Quality Objectives:

RPP-8532, *Double-Shell Tanks Chemistry Control Data Quality Objectives*, Rev. 15, is in-process to identify additional analyses for corrosion mitigation and to simplify quality control parameters is planned to be completed in December 2016.

Issues:

- None.

Single-Shell Tank Closure Program

- M-045-59** **Control surface water infiltration pathways as 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, Milestone M-45-58, and implementation of other interim corrective measures)**
Due: To be determined
Status: To be determined.
- M-045-82** **Submit complete permit modification requests for Tiers 1, 2, and 3 of the SST System**
Due: September 30, 2015
Status: In dispute. A tentative agreement between Ecology and DOE-ORP to resolve this dispute was signed November 22, 2016 (16-TF-0127). The tentative agreement is to implement a HFFACO Change Control Form (M-45-16-01) to (1) modify the M-045-82 milestone for submittal of the draft Tier 2 closure plan, (2) create a new milestone (M-045-82A) to submit the draft Tier 3 closure plans for the C-200 tanks, (3) modify the M-045-62 milestone to require submittal of a Tier 3 closure plan for corrective measures agreed upon through a Corrective Measures Implementation Work Plan, and (4) modify the M-045-83 milestone for completion of closure of WMA C. The HFFACO Change Control Form will undergo a 45-day public comment period prior to finalization.
- M-045-61A** **Submit to Ecology for review and approval as an Agreement primary document, a Phase 2 Corrective Measures Study, and Revision 0 update to the RFI Report for WMA-C.**
Due: December 31, 2016
Status: On schedule.
- M-045-62** **Submit to Ecology for review and approval as an agreement primary document, a Phase 2 Corrective Measures Implementation Work Plan for WMA-C**
Due: Six months after the approval of the corrective measures study submitted under milestone M-045-61A.
Status: On schedule. This milestone will be modified through resolution of the dispute on M-045-82.
- M-045-84** **Initiate negotiations to establish HFFACO interim milestones for closure of second SST WMA**
Due: April 3, 2017
Status: On schedule.
- M-045-56M** **Complete Implementation of Agreed to Interim Measures**
Due: July 28, 2017

Status: On schedule. An annual meeting is held between ORP and Ecology to discuss the prior FY accomplishments and the next FY proposed interim measures. The last annual meeting was held July 20, 2016 (M-045-56L), and the meeting minutes are in the Administrative Record.

- M-045-92S** **DOE and Ecology agree on locations for Barriers 3 and 4**
Due: September 30, 2017
Status: On schedule.
- M-045-92O** **Barrier 3 Design and Monitoring Plan Submitted to Ecology**
Due: June 30, 2018
Status: On schedule.
- M-045-92T** **Barrier 3 Design and Monitoring Plan Approved by Ecology**
Due: September 30, 2018
Status: On schedule.
- M-045-92N** **Complete construction of Barriers 1 and 2 in SX Farm**
Due: October 31, 2018
Status: On schedule.
- M-045-83** **Complete the closure of WMA-C**
Due: June 30, 2019
Status: To be missed. As discussed above, this milestone will be modified through resolution of the dispute on M-045-82.
- M-045-92Q** **Barrier 4 Design and Monitoring Plan Submitted to Ecology**
Due: June 30, 2019
Status: On schedule.
- M-045-92U** **Barrier 4 Design and Monitoring Plan Approved by Ecology**
Due: September 30, 2019
Status: On schedule.
- M-045-92P** **Complete construction of Barrier 3**
Due: October 31, 2019
Status: On schedule.
- M-045-92R** **Complete construction of Barrier 4**
Due: October 31, 2020
Status: On schedule.
- M-045-85** **Initiate negotiations to establish HFFACO interim milestones for closure of remaining SST WMAs**
Due: January 31, 2022
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 be addressed with the negotiations supporting M-062-45.

October Accomplishments:

- Completed the draft TPA Action Plan, Appendix I, Section 2.5, C Farm waste management area (WMA-C) performance assessment.

Significant Planned Activities in the Next Six Months:

- Continue data collection for T Farm and TY Farm interim surface barrier monitoring and develop the annual interim barrier monitoring report for FY 2016.
- Submit Rev. 0 of the *Phase 2 RCRA Facility Investigation Report and Corrective Measures Study for WMA C* to Ecology for review.
- Resolve the dispute on M-045-82.
- Begin resolution of Ecology's comments on the *Resource Conservation and Recovery Act of 1976 (RCRA) Tier 1 Closure Plan*.
- Submit the draft Tier 2 Closure Plan for WMA C, and a draft Tier 3 Closure Plan for the C-200 Series Tanks to Ecology for review.
- Begin discussions on locations for Barriers 3 and 4.

Issues:

- Complete Public Comment period on proposed changes to M-045-82 and complete TPA change package M-45-16-01.
- Developing path forward for resolving Ecology's comments on the RCRA Tier 1 Closure Plan.

Single-Shell Tank Retrieval Program

M-045-86 **Submit retrieval data report (RDR) to Ecology for 19 tanks retrieved**
Due: To be determined (12 months after retrieval certification).
Status: On schedule.

M-045-70 **Complete waste retrieval from all remaining 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. Negotiations have begun.

Significant Accomplishments for the Prior Three Months:

- Removed and disposed 19 hose-in-hose transfer lines from C Farm to Environmental Restoration Disposal Facility
- Submitted the C-102 Retrieval Data Report to Ecology, completing TPA milestone M-45-86b
- Completed C-105 proof of concept for in-tank equipment (Mobile Arm Retrieval System-Vacuum [MARS-V] modification)
- Completed C-105 MARS-V disassembly to support modifications for installation of the slurry pump to be used in the C-105 third retrieval technology.
- Removed C-105 upper and lower cover blocks at 05A and 05C pits and performed riser inspection.. Riser inspections are performed prior to placing sluicers into the tanks to ensure that the “as built” risers are straight and round, avoiding sluicers getting “stuck” before placement into the tank.
- Received two of three extended reach sluicer systems (ERSS) for installation in Tank C- 105
- Submitted C-111 Retrieval Completion Certification report to Ecology
- Completed an additional AX-102 and AX-104 six of eight pit clean outs completed
- Completed AX Farm air and water service building exterior construction
- Completed POR126 and POR127 ventilation installation and initial testing
- Received AX-102 and AX-104 ERSS and slurry pumps
- Completed AX Farm ingress and egress change trailers
- Completed A Farm ventilation design.
- Completed demolition of 801B and 801C buildings to support future equipment installation.

Significant Planned Activities in the Next Three Months:

- Negotiate contract proposal for installing and performing the third retrieval technology at Tank C-105
- Complete Tank C-105 modified sluicing system design
- Prepare and clean out the C-105 A and C pits for ERSS installation
- Receive spare C-105 ERSS
- Complete AX Farm air and water service building major utilities installation
- Complete AX Farm ventilation installation and readiness/turnover at portable exhauster POR126 and POR127 (Hot Operational Testing remains)
- Complete the two remaining AX-104 pit cleanouts.

Issues:

- On July 11, 2016, the Hanford Atomic Metal Trades Council (HAMTC), a labor organization composed of various unions working at Hanford, issued a “stop work” requiring mandatory use of supplied air within the perimeter fence lines of both single- and double-shell tank farms. This letter also included six other demands HAMTC expected WRPS to implement immediately. On August 31, 2016, WRPS and HAMTC signed a Memorandum of Agreement which documents HAMTC’s agreement to lift the stop work, based upon WRPS’s agreement to remain on supplied air until chemical cartridge testing is complete and reviewed by a third party selected by HAMTC. On July 21, 2016, the Washington State Attorney General and Citizens (Local Union 598 and Hanford Challenge) filed motions for preliminary injunction in federal court (Case 4:15-cv-05086-TOR) seeking, among other things, that all work inside the perimeter fences of any tank farm be performed while wearing *mandatory* supplied air. A hearing on the preliminary injunction motions was held on October 12, 2016. The court denied the motions for preliminary injunction in their entirety, however, the Memorandum of Agreement and interim measures associated with the motions for preliminary injunction slowed and/or delayed field work at the AX and C farms.² For example, the AX-102 and AX-104 retrieval construction (removal of legacy/long length equipment) was affected by not being able to operate the tank-specific ventilation system. Due to the prior technical challenges related to completing retrievals at Tank 241-C-102 and Tank 241-C-111, and the current modifications to Tank 241-C-105, funding will be needed to complete Tank 241-AX-102 and Tank 241-AX-104 tank retrieval system(s) installation through FY 2018 with retrieval operations starting in FY 2019 to meet milestone D-16B-03 by December 31, 2020.
- ORP submitted letter 16-TF-0102, “Status Update Related to Tank Farm Vapors,” on September 15, 2016, to make certain Ecology is aware of several recent events regarding the

² The interim measures associated with the Memorandum of Agreement remained in effect until the Court’s recent ruling on the motions for preliminary injunction.

Hanford tank farms retrieval activities, to pass along relevant information, and provide updates on the status of ongoing processes related to those vapor events and their mitigation. Ecology acknowledged receipt of this letter on October 17, 2016 and requested a copy of the WRPS response to ORP's September 8, 2016 request for additional information. WRPS responded to ORP's September 8, 2016 request by letter dated November 22, 2016. ORP discussed the WRPS November 22, 2016 letter informally with Ecology on November 25, 2016; ORP formally provided this on December 2, 2016 in 16-TF-0132., will provide this letter formally to Ecology subsequently.

Tank Waste Retrieval Work Plan Status

Tank	TWRWP	Expected Revisions	Retrieval Technology		
			First	Second	Third
AX-101	RPP-RPT-58932, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-102	RPP-RPT-58933, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-103	RPP-RPT-58934, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-104	RPP-RPT-58935, Rev. 0	In Progress	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
C-101	RPP-22520, Rev. 8	Complete	Modified Sluicing with ERSS	High-Pressure Water deployed with the ERSS	-
C-102	RPP-22393, Rev. 7	Complete	Modified Sluicing with ERSS	High-Pressure Water deployed with the ERSS	-
C-104	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0018	-

Tank	TWRWP	Expected Revisions	Retrieval Technology		
			First	Second	Third
C-105	RPP-22520, Rev. 8	Complete	MARS-V	MARS-V-High Pressure Water Spray	Chemical Dissolution Process with ERSS
C-107	RPP-22393, Rev. 7	Complete	MARS-S	MARS-S -High Pressure Water Spray	Water Dissolution
C-108	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0025	-
C-109	RPP-21895, Rev. 5	Complete	Modified Sluicing	Chemical Retrieval Process complete per 13-TF-0037	-
C-110	RPP-33116, Rev. 3	Complete	Modified Sluicing	Mechanical Waste Conditioning with an In-Tank Vehicle	High Pressure Water
C-111	RPP-37739, Rev. 2	Complete	Modified Sluicing	High pressure water using the ERSS	Chemical Dissolution Process with ERSS
C-112	RPP-22393, Rev. 7	Complete	Modified Sluicing	Chemical Retrieval Process	-

ERSS extended reach sluicing system.

MARS Mobile Arm Retrieval System.

S sluicing.

TWRWP Tank Waste Retrieval Work Plan.

V vacuum.

Significant Accomplishments:

- None.

Significant Planned Activities in the Next Three Months:

- Finalize AX Farm tank retrieval work plans.

Issues:

- None.

Tank Operations Contract Overview

Project Performance:

The earned value performance reporting reflects the format, work breakdown structure reporting levels, and variance thresholds as agreed to with the Tank Operations Contractor for monthly performance reporting. The earned value analysis is not intended to be a measurement of performance against existing TPA milestones.

October-16										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	33,052	33,502	31,799	450	1,703	1.01	1.05			
FYTD	33,052	33,502	31,799	450	1,703	1.01	1.05	616,655		
CTD	3,489,001	3,468,637	3,440,662	(20,364)	27,975	0.99	1.01	4,751,084	4,737,367	13,716

ACWP = actual cost of work performed.
 BAC = budget at completion.
 BCWP = budgeted cost of work performed.
 BCWS = budgeted cost of work scheduled.
 CM = current month.
 CPI = cost performance index.
 CTD = contract to date.

CV = cost variance.
 EAC = estimate at completion.
 FYTD = fiscal year to date.
 SPI = schedule performance index.
 SV = schedule variance.
 VAC = variance at completion.

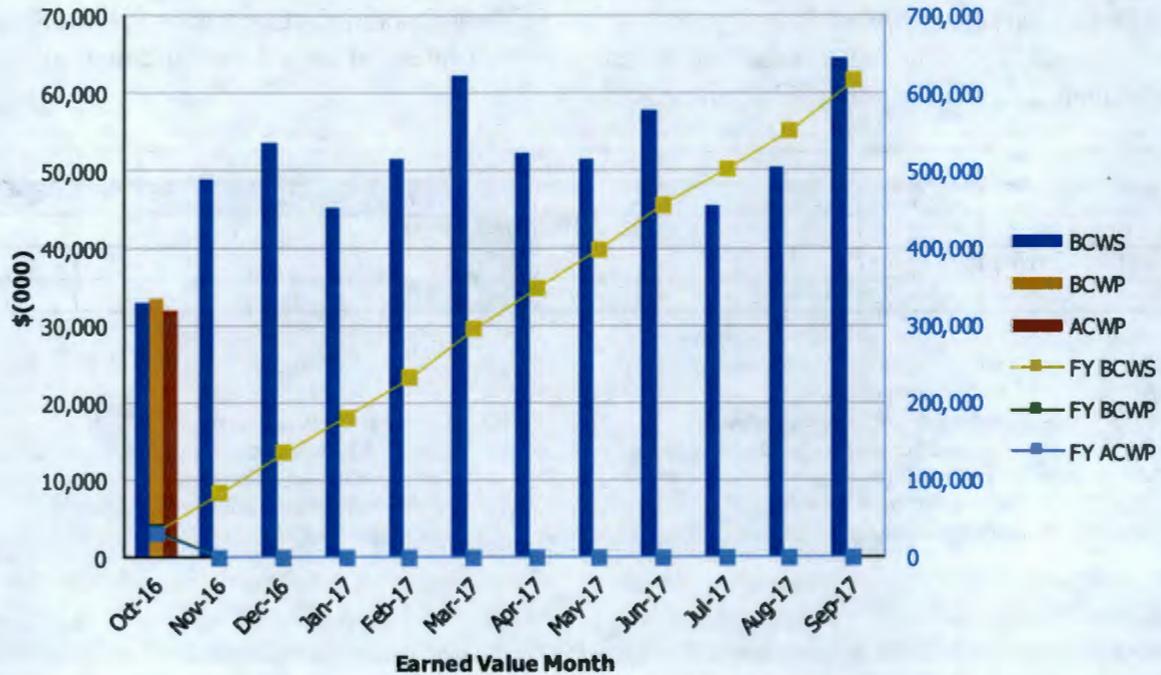
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2017

October-16

Tank Farms ORP-0014

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2016	\$33,051	\$33,502	\$31,798	1.01	1.05	\$33,051	\$33,502	\$31,798	1.01	1.05
Nov 2016	\$48,854	\$0	\$0	0.00	0.00	\$81,905	\$0	\$0	0.00	0.00
Dec 2016	\$53,576	\$0	\$0	0.00	0.00	\$135,481	\$0	\$0	0.00	0.00
Jan 2017	\$45,149	\$0	\$0	0.00	0.00	\$180,630	\$0	\$0	0.00	0.00
Feb 2017	\$51,552	\$0	\$0	0.00	0.00	\$232,182	\$0	\$0	0.00	0.00
Mar 2017	\$62,242	\$0	\$0	0.00	0.00	\$294,424	\$0	\$0	0.00	0.00
Apr 2017	\$52,336	\$0	\$0	0.00	0.00	\$346,760	\$0	\$0	0.00	0.00
May 2017	\$51,488	\$0	\$0	0.00	0.00	\$398,248	\$0	\$0	0.00	0.00
Jun 2017	\$57,799	\$0	\$0	0.00	0.00	\$456,047	\$0	\$0	0.00	0.00
Jul 2017	\$45,468	\$0	\$0	0.00	0.00	\$501,515	\$0	\$0	0.00	0.00
Aug 2017	\$50,393	\$0	\$0	0.00	0.00	\$551,908	\$0	\$0	0.00	0.00
Sep 2017	\$64,747	\$0	\$0	0.00	0.00	\$616,655	\$0	\$0	0.00	0.00

CTD	\$3,489,001	\$3,468,637	\$3,440,662	0.99	1.01
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ACWP = actual cost of work performed.
 BCWP = budgeted cost of work performed.
 BCWS = budgeted cost of work scheduled.
 CPI = cost performance index.

CTD = contract to date
 EVMS = Earned Value Management System.
 FY = fiscal year.
 SPI = schedule performance index

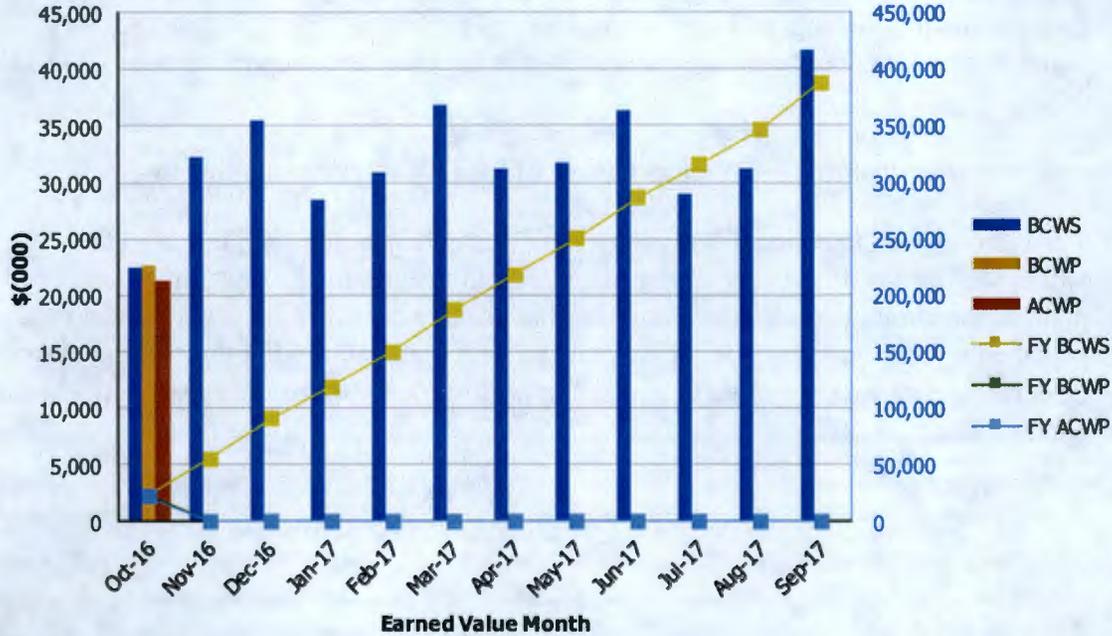
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2017

October-16

**Tank Farms ORP-0014
Base Operations 5.01**

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2016	\$22,507	\$22,546	\$21,216	1.00	1.06	\$22,507	\$22,546	\$21,216	1.00	1.06
Nov 2016	\$32,199	\$0	\$0	0.00	0.00	\$54,706	\$0	\$0	0.00	0.00
Dec 2016	\$35,544	\$0	\$0	0.00	0.00	\$90,250	\$0	\$0	0.00	0.00
Jan 2017	\$28,489	\$0	\$0	0.00	0.00	\$118,739	\$0	\$0	0.00	0.00
Feb 2017	\$30,902	\$0	\$0	0.00	0.00	\$149,641	\$0	\$0	0.00	0.00
Mar 2017	\$36,910	\$0	\$0	0.00	0.00	\$186,551	\$0	\$0	0.00	0.00
Apr 2017	\$31,137	\$0	\$0	0.00	0.00	\$217,688	\$0	\$0	0.00	0.00
May 2017	\$31,772	\$0	\$0	0.00	0.00	\$249,460	\$0	\$0	0.00	0.00
Jun 2017	\$36,338	\$0	\$0	0.00	0.00	\$285,798	\$0	\$0	0.00	0.00
Jul 2017	\$29,034	\$0	\$0	0.00	0.00	\$314,832	\$0	\$0	0.00	0.00
Aug 2017	\$31,277	\$0	\$0	0.00	0.00	\$346,109	\$0	\$0	0.00	0.00
Sep 2017	\$41,761	\$0	\$0	0.00	0.00	\$387,870	\$0	\$0	0.00	0.00
CTD	\$2,321,186	\$2,314,869	\$2,288,642	1.00	1.01					

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

CTD = contract to date
 EVMS = Earned Value Management System.
 FY = fiscal year.
 SPI = schedule performance index

Base Operations and Tank Farm Projects (5.01)

The October variances below do not directly impact or delay TPA milestones.

The current month **favorable** Schedule Variance (SV) of \$39K is primarily due to:

- The New Vapor Detection Technology Pilot Scale Project achieved schedule recovery during the current month. Scope includes final design support, software, field implementation, testing, and the Vapor Abatement Study. This schedule recovery maintains completion for the key milestone for the pilot scale report write up of October 2016.

The current month **favorable** Cost Variance (CV) of \$1,330K is primarily due to:

- The New Vapor Detection Technology Pilot Scale Project incurred less cost than anticipated as a result of converting planned field installation and testing resources from plant forces direct labor to a construction forces subcontract. This level of effort scope is expected to have additional labor and subcontract costs incurred in the coming months.
- Less resources (operators) were required to perform AY-102 readiness activities which resulted in a cost savings.

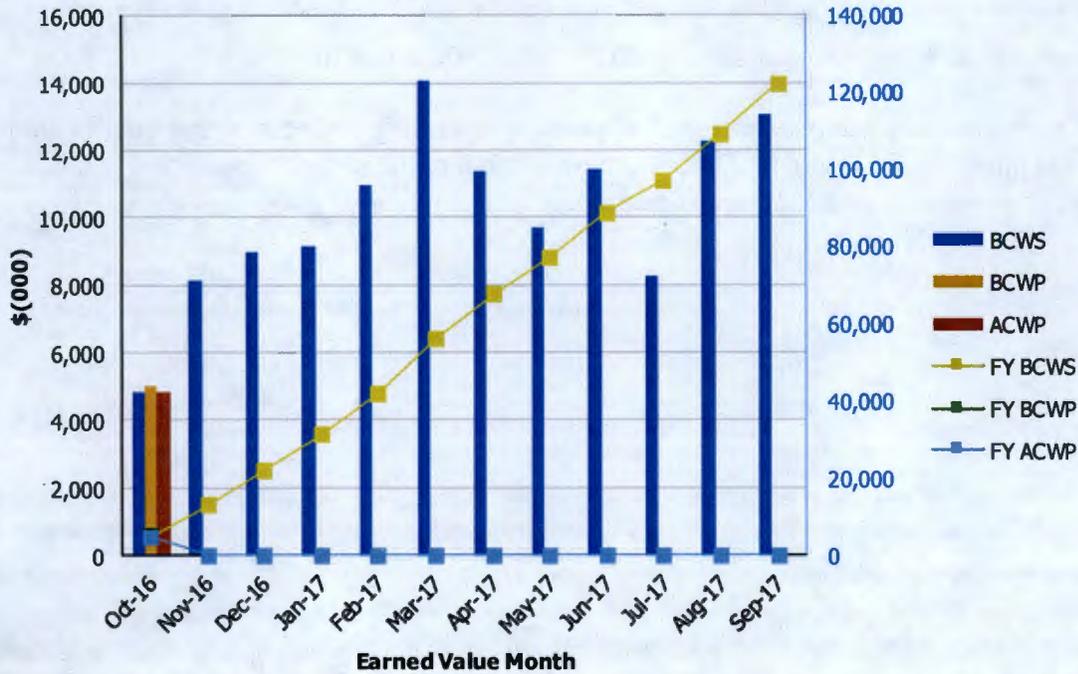
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2017

October-16

Tank Farms ORP-0014
Retrieve and Close SST's 5.02

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2016	\$4,816	\$4,996	\$4,822	1.04	1.04	\$4,816	\$4,996	\$4,822	1.04	1.04
Nov 2016	\$8,122	\$0	\$0	0.00	0.00	\$12,938	\$0	\$0	0.00	0.00
Dec 2016	\$8,997	\$0	\$0	0.00	0.00	\$21,935	\$0	\$0	0.00	0.00
Jan 2017	\$9,134	\$0	\$0	0.00	0.00	\$31,069	\$0	\$0	0.00	0.00
Feb 2017	\$10,974	\$0	\$0	0.00	0.00	\$42,043	\$0	\$0	0.00	0.00
Mar 2017	\$14,060	\$0	\$0	0.00	0.00	\$56,103	\$0	\$0	0.00	0.00
Apr 2017	\$11,355	\$0	\$0	0.00	0.00	\$67,458	\$0	\$0	0.00	0.00
May 2017	\$9,694	\$0	\$0	0.00	0.00	\$77,152	\$0	\$0	0.00	0.00
Jun 2017	\$11,435	\$0	\$0	0.00	0.00	\$88,587	\$0	\$0	0.00	0.00
Jul 2017	\$8,265	\$0	\$0	0.00	0.00	\$96,852	\$0	\$0	0.00	0.00
Aug 2017	\$12,286	\$0	\$0	0.00	0.00	\$109,138	\$0	\$0	0.00	0.00
Sep 2017	\$13,057	\$0	\$0	0.00	0.00	\$122,195	\$0	\$0	0.00	0.00

CTD	\$713,983	\$703,045	\$725,496	0.98	0.97
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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.

CTD = contract to date
 EVMS = Earned Value Management System.
 FY = fiscal year.
 SPI = schedule performance index

Retrieve and Close Single-Shell Tanks (5.02)

The October variances have a minimal impact on TPA milestones for tank retrieval.

The current month **favorable** schedule variance (SV) of \$180K is due to:

- A portion of the MARS-V (C-105) retrieval system was disposed in October ahead of the planned November disposal, this resulted in a favorable schedule variance.

The current month **favorable** cost variance (CV) of \$174K is due to:

- Key retrieval operations personnel required less training for maintaining qualification(s) than anticipated. Using less training time led to a reduced cost expenditure than planned, resulting in a favorable cost variance.

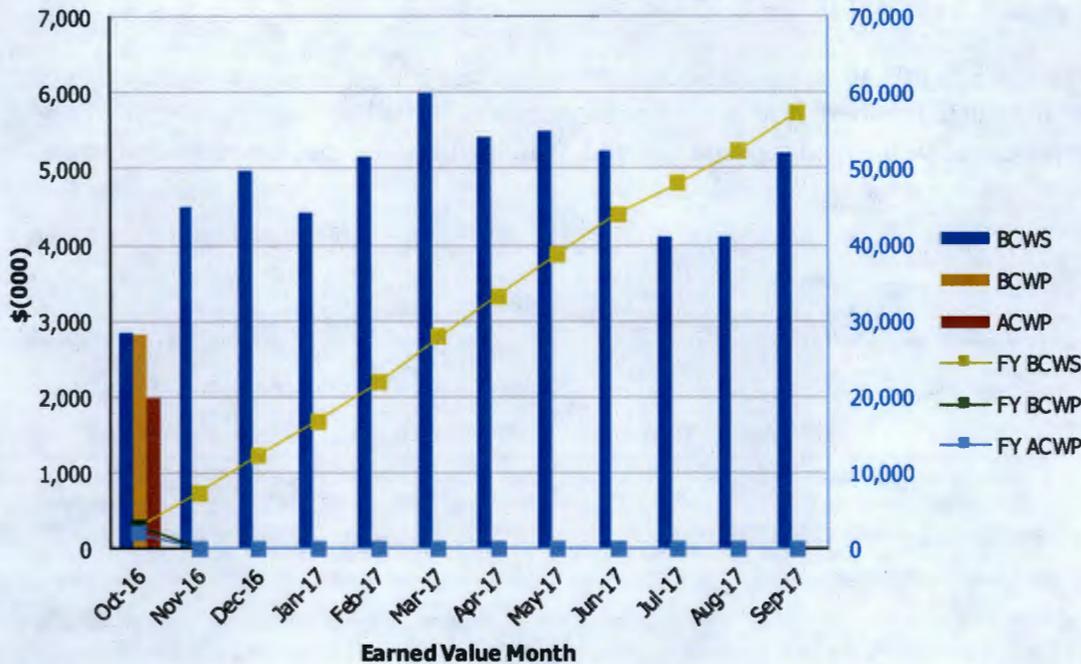
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2017

October-16

Tank Farms ORP-0014
Waste Feed Delivery/Treatment/Double-Shell Tank Retrieval Closure 5.03

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2016	\$2,840	\$2,829	\$1,990	1.00	1.42	\$2,840	\$2,829	\$1,990	1.00	1.42
Nov 2016	\$4,503	\$0	\$0	0.00	0.00	\$7,343	\$0	\$0	0.00	0.00
Dec 2016	\$4,976	\$0	\$0	0.00	0.00	\$12,319	\$0	\$0	0.00	0.00
Jan 2017	\$4,413	\$0	\$0	0.00	0.00	\$16,732	\$0	\$0	0.00	0.00
Feb 2017	\$5,148	\$0	\$0	0.00	0.00	\$21,880	\$0	\$0	0.00	0.00
Mar 2017	\$5,988	\$0	\$0	0.00	0.00	\$27,868	\$0	\$0	0.00	0.00
Apr 2017	\$5,425	\$0	\$0	0.00	0.00	\$33,293	\$0	\$0	0.00	0.00
May 2017	\$5,497	\$0	\$0	0.00	0.00	\$38,790	\$0	\$0	0.00	0.00
Jun 2017	\$5,246	\$0	\$0	0.00	0.00	\$44,036	\$0	\$0	0.00	0.00
Jul 2017	\$4,119	\$0	\$0	0.00	0.00	\$48,155	\$0	\$0	0.00	0.00
Aug 2017	\$4,104	\$0	\$0	0.00	0.00	\$52,259	\$0	\$0	0.00	0.00
Sep 2017	\$5,199	\$0	\$0	0.00	0.00	\$57,458	\$0	\$0	0.00	0.00

CTD	\$375,224	\$373,848	\$346,845	1.00	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.

CTD = contract to date
 EVMS = Earned Value Management System.
 FY = fiscal year.
 SPI = schedule performance index

Waste Feed Delivery/Treatment (5.03)

The October variances below have no impacts on the TPA milestones.

The current month **unfavorable** SV of (\$11K) is below the reporting threshold and does not require a variance narrative.

The current month **favorable** CV of \$838K is primarily due to:

- The renewal of four software licenses in the current reporting period and the associated performance reported, however, the cost was not accrued/realized. The cost will be experienced in the next reporting period, which will offset the current period variance.

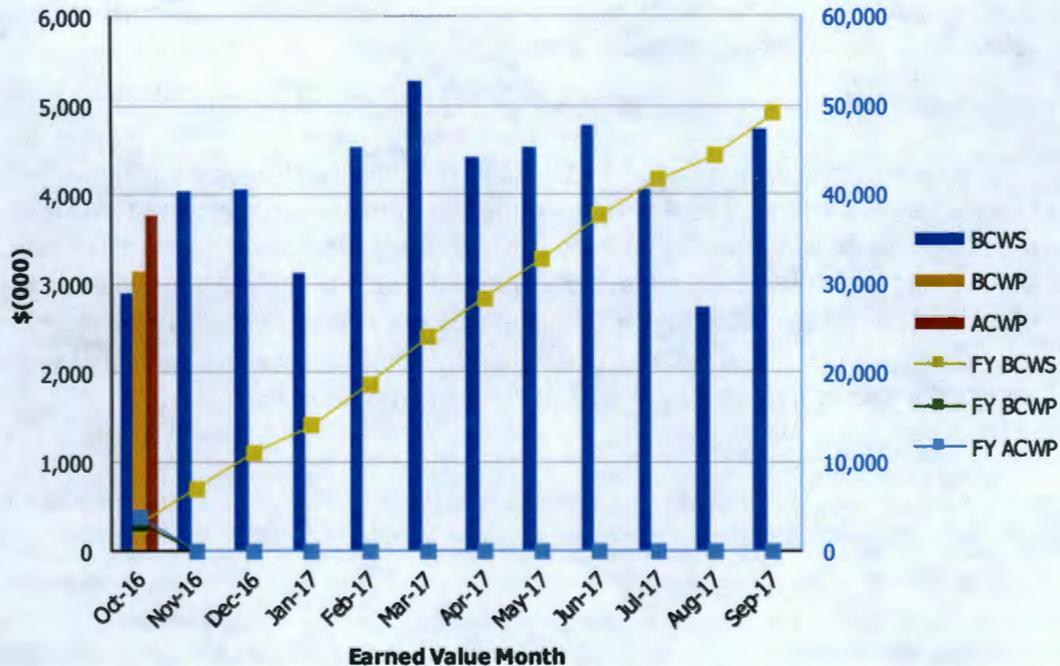
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2017

October-16

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

EVMS Monthly and Fiscal Year Values



Earned Value Month	BCWS	BCWP	ACWP	SPI	CPI	FY BCWS	FY BCWP	FY ACWP	FY SPI	FY CPI
Oct 2016	\$2,889	\$3,131	\$3,770	1.08	0.83	\$2,889	\$3,131	\$3,770	1.08	0.83
Nov 2016	\$4,030	\$0	\$0	0.00	0.00	\$6,919	\$0	\$0	0.00	0.00
Dec 2016	\$4,059	\$0	\$0	0.00	0.00	\$10,978	\$0	\$0	0.00	0.00
Jan 2017	\$3,113	\$0	\$0	0.00	0.00	\$14,091	\$0	\$0	0.00	0.00
Feb 2017	\$4,528	\$0	\$0	0.00	0.00	\$18,619	\$0	\$0	0.00	0.00
Mar 2017	\$5,284	\$0	\$0	0.00	0.00	\$23,903	\$0	\$0	0.00	0.00
Apr 2017	\$4,419	\$0	\$0	0.00	0.00	\$28,322	\$0	\$0	0.00	0.00
May 2017	\$4,525	\$0	\$0	0.00	0.00	\$32,847	\$0	\$0	0.00	0.00
Jun 2017	\$4,780	\$0	\$0	0.00	0.00	\$37,627	\$0	\$0	0.00	0.00
Jul 2017	\$4,050	\$0	\$0	0.00	0.00	\$41,677	\$0	\$0	0.00	0.00
Aug 2017	\$2,726	\$0	\$0	0.00	0.00	\$44,403	\$0	\$0	0.00	0.00
Sep 2017	\$4,730	\$0	\$0	0.00	0.00	\$49,133	\$0	\$0	0.00	0.00
CTD	\$58,498	\$56,764	\$60,518	0.97	0.94					

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

CTD = contract to date
 EVMS = Earned Value Management System.
 FY = fiscal year.
 SPI = schedule performance index

Treat Waste (5.5)

The October variances below have no impacts on TPA milestones.

The current month **favorable** schedule variance (SV) of \$242K is due to:

- The early completion of the work scope related to Seismic Investigations for the LAWPS facility. This work scope was planned to start in November, but was performed ahead of schedule as resources became available.

The current month **unfavorable** cost variance (CV) of (\$639K) is due to:

- Underreporting performance for the Cross Flow Filter Fouling and Cleaning Testing, the Gas Generation testing Test #4, and completion of the water testing test instructions due to changes in the National Laboratory (PNNL) Integrated Scale Support Testing subcontract which were not adequately communicated to the project. Additionally, labor usage and labor rates were higher than planned and subcontracted geophysical investigation work scope is being performed by senior level individuals that were assigned to the project based on their experience and knowledge.