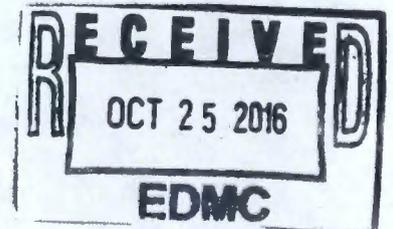


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FINAL

Office of River Protection

Tri-Party Agreement
Monthly Report
October¹ 2016



¹ The narrative descriptions of progress in this report cover the period from September 1-30, 2016. Earned Value Management System data and descriptions cover the period of August 1-30, 2016.

Tri-Party Agreement (TPA) Milestone Review

Page	Topic	Leads
3	Administrative Items/Milestone Status	B. Trimberger D. McDonald, J. Lyon
5	System Plan	K. Burnett J. Lyon, D. McDonald
6	Acquisition of New Facilities	J. Diediker J. Lyon, D. McDonald
7	Supplemental Treatment and Part B Permit Applications	S. Pfaff J. Lyon, D. McDonald
9	242-A Evaporator Status	P. Hernandez J. Lyon
10	Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility	R. Valle S. Schleif
11	Tank System Update	D. Stewart J. Lyon
13	Single-Shell Tank Integrity Assurance	D. Stewart J. Alzheimer
14	In-Tank Characterization and Summary	D. Stewart M. Barnes
16	Tank Operations Contract Overview	ORP TPA PMs J. Lyon
26	Single-Shell Tank Closure Program	R. Beach J. Lyon
28	Single-Shell Tank Retrieval Program	C. Kemp J. Lyon
30	Tank Waste Retrieval Work Plan Status	C. Kemp J. Lyon
CD	Waste Treatment and Immobilization Plant (WTP) Overall TPA Summary and Milestone Status; see the U.S. Department of Energy, Office of River Protection Consent Decree 08-5085-FVS Monthly Report for WTP Facility-specific information	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
HIHTL	hose-in-hose transfer line
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>
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
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
M-045-91E1	Provide SST Farms Dome Deflection Surveys Every Two Years	09/30/2015	09/21/15	Complete
Fiscal Year 2016				
M-062-01AF	Submit Semi-Annual Project Compliance Report	01/31/2016	01/29/2016	Complete
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
M-062-01AG	Submit Semi-Annual Project Compliance Report	07/31/2016	07/29/2016	Complete
M-045-56L	Ecology and DOE Agree, at a Minimum, to Meet Yearly (by July)	07/31/2016	07/20/2016	Complete
Fiscal Year 2017				
M-062-40E	Select a Minimum of Three Scenarios	10/31/2016		On Schedule

Milestone	Title	Due Date	Completion Date	Status
M-045-61A	Submit To Ecology A Primary Doc. Phase 2 CMS And Rev. O 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-045-84	Comp Negotiations Of HFFACO Interim Milestones For Closure Of 2nd SST WMA	01/31/2017		At Risk
M-062-01AH	Submit Semi-Annual Project Compliance Report	01/31/2017		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-045-92	DOE And Ecology Will Agree On Locations For Barriers 3 And 4	09/30/2017		On Schedule

CD-1/-2	= critical decision-1/-2.	RCRA	= <i>Resource Conservation and Recovery Act.</i>
CMS	= corrective measures study.	RFI	= RCRA Facility Investigation.
CR	= change request.	SST	= single-shell tank.
DOE	= U.S. Department of Energy.	WTP	= Waste Treatment and Immobilization Plant.
Ecology	= Washington State Department of Ecology.	WMA	= waste management area.
HFFACO	= <i>Hanford Federal Facility Agreement and Consent Order.</i>	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.
- System Plan 8 selected scenarios document was transmitted to Ecology for concurrence by letter 16-WSC-0050, dated September 29, 2016.

Significant Planned Actions in the Next Six Months:

- Continue negotiations of the M-062-45 milestone with intent to utilize information from System Plan revision 8 in negotiations. Finalize detailed assumptions for baseline case, provide contractor direction to proceed by December 1, 2016.
- Begin modeling of first scenario by December 5, 2016.

Issues:

- None.

Acquisition of New Facilities

- 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 15, 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 15, 2016.
- 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 15, 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 15, 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-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 15, 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 15, 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 15, 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 15, 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 15, 2016.
- 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 15, 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 15, 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:

On January 30, 2015, ORP provided Ecology Change Control Form M-62-14-02, which proposed adding language under Tri-Party Agreement (TPA) Milestone M-062-45 to defer negotiations required under M-062-45. Ecology did not respond with the 14-day review period that ended February 13, 2015, which is deemed disapproval in accordance with the TPA. In letter 15-TF-0014, "Initiation of Dispute Resolution Regarding Disapproval of Hanford Federal Facility Agreement and Consent Order Change Control Form M-62-14-02," dated February 20, 2015, ORP initiated a dispute resolution. Ecology provided a justification for their disapproval on March 12, 2015, via letter 15-NWP-036, "Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Change Package, Change Number M-62-14-02, dated 01/30/2015." The U.S. Environmental Protection Agency, Ecology, and DOE signed an Interagency Management determination on August 22, 2016, to begin TPA negotiations regarding M-047-07, M-090-13, and M-062-45 milestones. Negotiations on the items identified in the M-062-45 milestone began on September 15, 2016 at the Internal Agency Management Integration Team meeting.

242-A Evaporator Status

The 242-A Evaporator campaign strategy for fiscal year (FY) 2015 through fourth quarter of FY 2016 is depicted in the following table:

Fiscal Year	Campaign No.	Feed Source	Slurry Tank	Comments
FY 2015	EC-01	AP-103 AP-104	AP-107	Completed June 21, 2015. WVR = 381 kgal
FY 2015	EC-02	AZ-102	AP-103	Completed July 21, 2015. WVR = 384 kgal
FY 2015	EC-03	AZ-102	AP-103	Completed September 25, 2015. WVR = 375 kgal
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 after calendar year 2016, or until the Court rules on the requests for preliminary injunction filed by the State of Washington, Hanford Challenge, and Local 598 in FY 2017.

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

Significant Planned Actions in the Next Six Months:

- Re-boiler laser mapping
- Future campaign and outage scheduling
- Begin integrity assessment on 242-A Evaporator components
- Replace P-B-2 pump and associated pressure relief valves.

Issues:

- Potential impacts from preliminary injunction.

Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

The Liquid Effluent Retention Facility liquid levels, inventory, and received waste is shown in the table below.

Note: 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 09/30/2016)	~ 5.36 Mgal	~ 3.25 Mgal	~ 6.94 Mgal
AZ-301 Tanker Shipments	~ 6,500 gal	-	-
MWBT-31 and 34 Leachate	-	-	~ 21,000 gal
Perched Water Tanker Shipments	-	-	-
ERDF Leachate Tanker Shipments	-	-	-
Other (325 Building Totes)	-	-	~ 1,650 gal
242-A Campaigns	-	-	-

ERDF = Environmental Restoration Disposal Facility.

Gal = gallon.

Mgal = million gallons.

MWBT = mixed waste burial trench.

Significant Past Accomplishments:

- Total FY 2016 volume processed (as of 09/30/2016): ~ 4,100,000 gallons
- Repair of the concentrated chemical storage tank berm completed in September 2016.

Significant Planned Actions in the Next Six Months:

- Part A Unit Group Workshop for LERF/200 Area ETF to be held in October 2016.
- The revised draft closure plan for Load-In Tanks 109 and 117 will be transmitted to Ecology by October 31, 2016.
- Submission of a class 2 permit modification covering container storage areas clarification and Addendum D, *Groundwater Monitoring Plan*.
- Facility maintenance activities (replace vapor compressor and degas heat exchanger, repair fine filter assembly, and conduct four tank visual inspections).

Issues:

None.

Tank System Update

Significant Planned Actions in FY 2016

Double-Shell Tank (DST) Integrity:

- Enhanced annulus video inspections:
All DST videos have been completed.
 - RPP-RPT-31599, *Double-Shell Tank Integrity Inspection Report for 241-AN Tank Farm*
 - RPP-RPT-39149, *Double-Shell Tank Integrity Inspection Report for 241-SY Tank Farm*
 - RPP-RPT-42147, *Double-Shell Tank Integrity Inspection Report for 241 AW Tank Farm*
- Ultrasonic testing inspections (two risers for primary wall/welds, one riser for secondary floor):
 - 241-AN-105 (RPP-RPT-59548, *Ultrasonic Inspection Results for Double-Shell Tank 241-AN-105 - FY 2016*)
 - 241-AW-103 (data collected and report development is ongoing)
- 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.
- WRPS revised 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."
- Released RPP-PLAN-60778, Rev. 1, *Double-Shell Tank Tertiary Leak Detection System Investigation and Mitigation Plan*.

Single-Shell Tanks (SST) Integrity:

- Remaining in-tank video inspections:
 - 241-TX-113
 - 241-TX-116
 - 241-BY-105
 - 241-U-102
 - 241-U-105
 - 241-U-107 (no free riser; replaced with 241-S-105)

- Completed in-tank video inspections:
 - 241-B-101
 - 241-B-201
 - 241-T-107
 - 241-T-110
 - 241-TX-103
 - 241-TX-111
- Intrusion mitigation (M-045-56):
 - Evaporation of 241-T-111 continues, in tank video was completed, and a report will be issued when evaporation is considered complete.

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 September 1 through September 30, 2016, the following reports were completed or issued:

- Completed RPP-RPT-58456, Derivation of Best-Basis Inventory for Tank 241-AP-103 as of July 1, 2016, Rev. 3.
- Completed RPP-RPT-57068, Derivation of Best-Basis Inventory for Tank 241-B-203 as of August 1, 2016, Rev. 2.
- Completed RPP-RPT-59619, Derivation of Best-Basis Inventory for Tank 241-BY-106 as of August 1, 2016, Rev. 0.
- Completed RPP-RPT-59626, Derivation of Best-Basis Inventory for Tank 241-U-204 as of July 1, 2016, Rev. 0.
- Completed RPP-RPT-44630, Derivation of Best-Basis Inventory for Tank 241-AY-102 as of July 1, 2016, Rev. 12.
- Completed RPP-RPT-58619, Derivation of Best-Basis Inventory for Tank 241-B-202 as of August 1, 2016, Rev. 1.
- Completed RPP-RPT-54017, Derivation of Best-Basis Inventory for Tank 241-AP-102 as of July 1, 2016, Rev. 2.
- Completed RPP-RPT-59663, Derivation of Best-Basis Inventory for Tank 241-BY-107 as of September 1, 2016, Rev. 0.
- Completed RPP-RPT-59612, Derivation of Best-Basis Inventory for Tank 241-U-101 as of July 1, 2016, Rev. 0.
- Completed RPP-RPT-57069, Derivation of Best-Basis Inventory for Tank 241-B-204 as of August 1, 2016, Rev. 2.
- Completed RPP-RPT-58270, Derivation of Best-Basis Inventory for Tank 241-BX-101 as of September 1, 2016, Rev. 1.
- Completed RPP-RPT-48774, Derivation of Best-Basis Inventory for Tank 241-SY-101 as of September 1, 2016, Rev. 2.
- Completed RPP-RPT-44814, Derivation of Best-Basis Inventory for Tank 241-AN-101 as of July 1, 2016, Rev. 22.
- Completed RPP-RPT-43498, Derivation of Best-Basis Inventory for Tank 241-AP-105 as of July 1, 2016, Rev. 4.
- Completed RPP-RPT-47139, Derivation of Best-Basis Inventory for Tank 241-T-112 as of July 1, 2016, Rev. 1.
- Completed RPP-CALC-60939, Tank 241-AP-102 FY16 Q4 Process Knowledge Concentration Vector Calculations, Rev. 1.

- Completed RPP-PLAN-61021, Tank 241-AW-103 Grab Sampling and Analysis Plan – Fiscal Year 2016, Rev. 0.
- Completed RPP-RPT-59307, Tank Core Profile Report for 241-SY Tank Farm, Rev. 1.
- Completed 241-AW-103 grab sampling on September 20, 2016 and September 29, 2016. Seven samples were received at the laboratory.

Planned Action within the Next Six Months:

Tank sampling:

- Tank 241-AY-102 annulus solids grab sampling is planned for October 2016.
- Tank 241-AP-107 core sampling is planned to begin March 2017.
- Tank 241-AP-107 grab sampling is planned to begin March 2017.

Best-Basis Inventory updates:

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

- | | | |
|--------------|--------------|--------------|
| • 241-AN-101 | • 241-B-202 | • 241-BX-101 |
| • 241-AP-102 | • 241-B-203 | • 241-SY-101 |
| • 241-AP-103 | • 241-B-204 | • 241-T-112 |
| • 241-AP-105 | • 241-BY-106 | • 241-U-204 |
| • 241-AY-102 | • 241-BY-107 | 241-U-101 |

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

- | | | |
|--------------|--------------|--------------|
| • 241-AN-105 | • 241-BX-103 | • 241-BX-110 |
|--------------|--------------|--------------|

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 October 2016.

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.

August-16										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	48,974	46,315	48,716	(2,659)	(2,401)	0.95	0.95			
FYTD	536,941	537,525	517,847	584	19,678	1.00	1.04	608,286		
CTD	3,388,128	3,368,778	3,342,525	(19,350)	26,253	0.99	1.01	4,758,775	4,733,080	25,694

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.

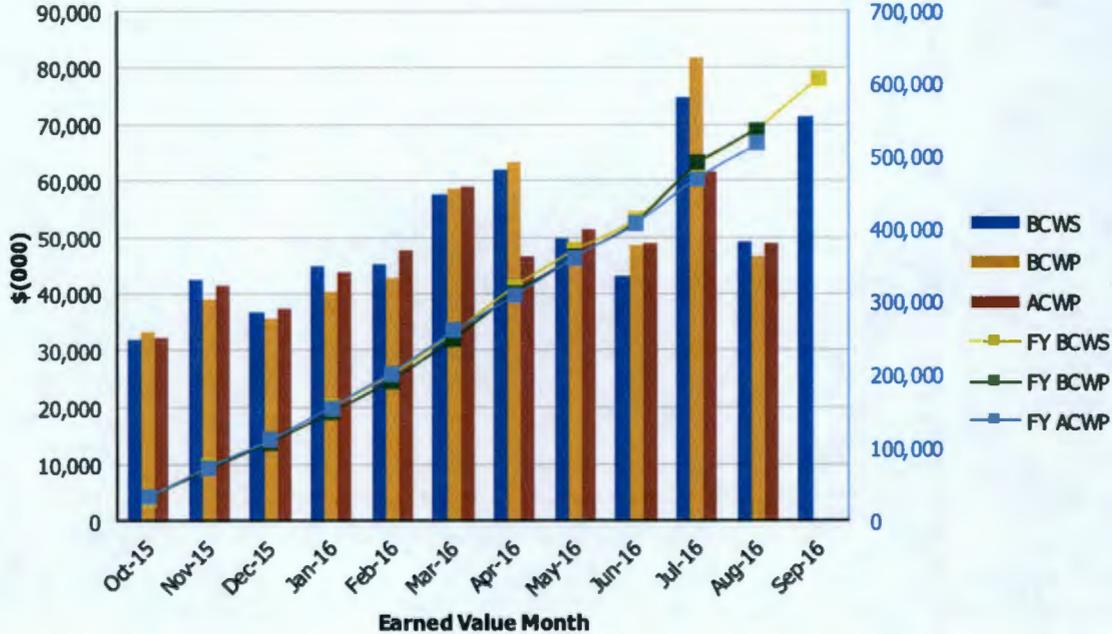
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2016

August-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 2015	\$31,981	\$33,377	\$32,188	1.04	1.04	\$31,981	\$33,377	\$32,188	1.04	1.04
Nov 2015	\$42,365	\$38,998	\$41,461	0.92	0.94	\$74,345	\$72,376	\$73,649	0.97	0.98
Dec 2015	\$36,744	\$35,614	\$37,416	0.97	0.95	\$111,089	\$107,990	\$111,065	0.97	0.97
Jan 2016	\$44,587	\$40,183	\$43,604	0.90	0.92	\$155,677	\$148,173	\$154,669	0.95	0.96
Feb 2016	\$45,043	\$42,790	\$47,389	0.95	0.90	\$200,720	\$190,963	\$202,058	0.95	0.95
Mar 2016	\$57,499	\$58,407	\$59,030	1.02	0.99	\$258,219	\$249,370	\$261,088	0.97	0.96
Apr 2016	\$62,027	\$63,159	\$46,446	1.02	1.36	\$320,246	\$312,529	\$307,534	0.98	1.02
May 2016	\$49,955	\$48,483	\$51,355	0.97	0.94	\$370,200	\$361,012	\$358,889	0.98	1.01
Jun 2016	\$43,107	\$48,460	\$48,778	1.12	0.99	\$413,307	\$409,472	\$407,667	0.99	1.00
Jul 2016	\$74,661	\$81,738	\$61,464	1.09	1.33	\$487,968	\$491,210	\$469,131	1.01	1.05
Aug 2016	\$48,974	\$46,315	\$48,716	0.95	0.95	\$536,941	\$537,525	\$517,847	1.00	1.04
Sep 2016	\$71,268					\$608,209				

CTD	\$3,388,128	\$3,368,778	\$3,342,525	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

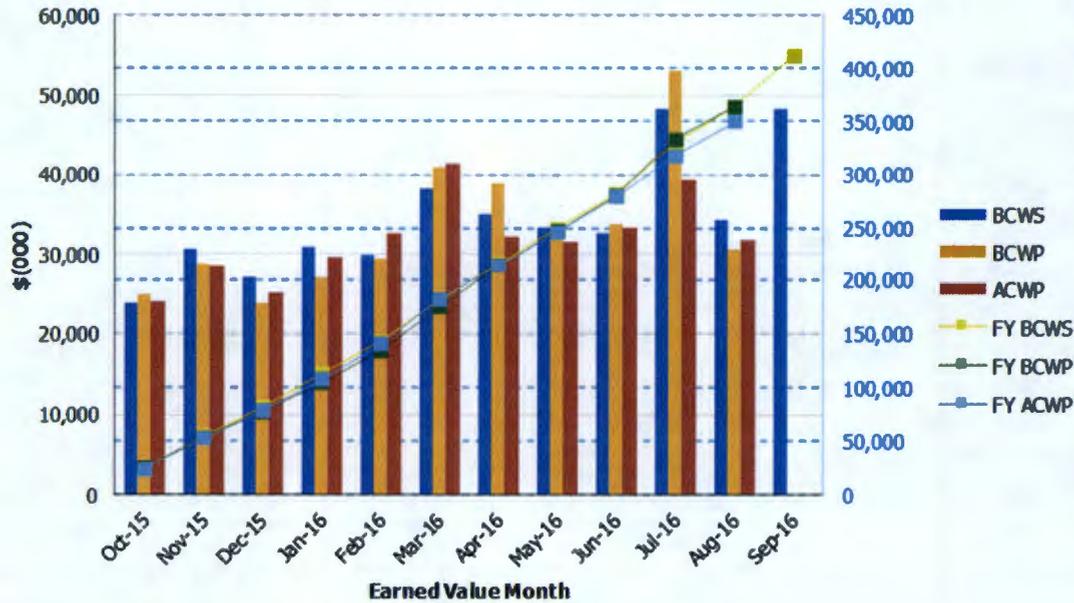
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2016

August-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 2015	\$23,768	\$24,839	\$24,025	1.05	1.03	\$23,768	\$24,839	\$24,025	1.05	1.03
Nov 2015	\$30,658	\$28,752	\$28,562	0.94	1.01	\$54,426	\$53,592	\$52,587	0.98	1.02
Dec 2015	\$26,911	\$23,637	\$25,173	0.88	0.94	\$81,336	\$77,229	\$77,760	0.95	0.99
Jan 2016	\$30,829	\$26,913	\$29,740	0.87	0.90	\$112,165	\$104,142	\$107,500	0.93	0.97
Feb 2016	\$29,963	\$29,524	\$32,689	0.99	0.90	\$142,128	\$133,666	\$140,189	0.94	0.95
Mar 2016	\$38,167	\$40,891	\$41,434	1.07	0.99	\$180,295	\$174,557	\$181,623	0.97	0.96
Apr 2016	\$34,996	\$38,877	\$32,157	1.11	1.21	\$215,291	\$213,434	\$213,780	0.99	1.00
May 2016	\$33,412	\$32,736	\$31,529	0.98	1.04	\$248,703	\$246,170	\$245,308	0.99	1.00
Jun 2016	\$32,672	\$33,750	\$33,375	1.03	1.01	\$281,375	\$279,919	\$278,683	0.99	1.00
Jul 2016	\$48,297	\$53,025	\$39,334	1.10	1.35	\$329,673	\$332,944	\$318,017	1.01	1.05
Aug 2016	\$34,214	\$30,648	\$31,709	0.90	0.97	\$363,887	\$363,592	\$349,726	1.00	1.04
Sep 2016	\$48,250					\$412,137				
CTD	\$2,255,771	\$2,245,805	\$2,223,555	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 August variances below do not directly impact or delay TPA milestones.

The current month **unfavorable** schedule variance (SV) of (\$3,566K) is primarily due to the following:

- There is a negative schedule variance for AY-102 Extended Reach Sluicing System (ERSS) Installation because this work was performed in prior months. This work supports the completion of retrieval on AY-102 by March 4, 2017 along with the follow up activities of Phase III implementation of the AY-102 Settlement Agreement.
- Software interface communication challenges with the new Tank Vapor Detection Technology equipment prevented fulfilling all functions and objectives in accordance with the *Vapor Monitoring and Detection System Pilot-scale Test Plan*.

The current month **unfavorable** cost variance (CV) of (\$1,062K) is primarily due to the following:

- More resources were required than planned to troubleshoot, calibrate, and integrate the software of the equipment for the New Tank Vapor Detection Technology equipment.
- Increase in equipment costs for fabrication of two additional cartridge testing units used in field sampling. The field sampling units required modifications prior to field use in order to facilitate use in the tank farms while providing required data quality.

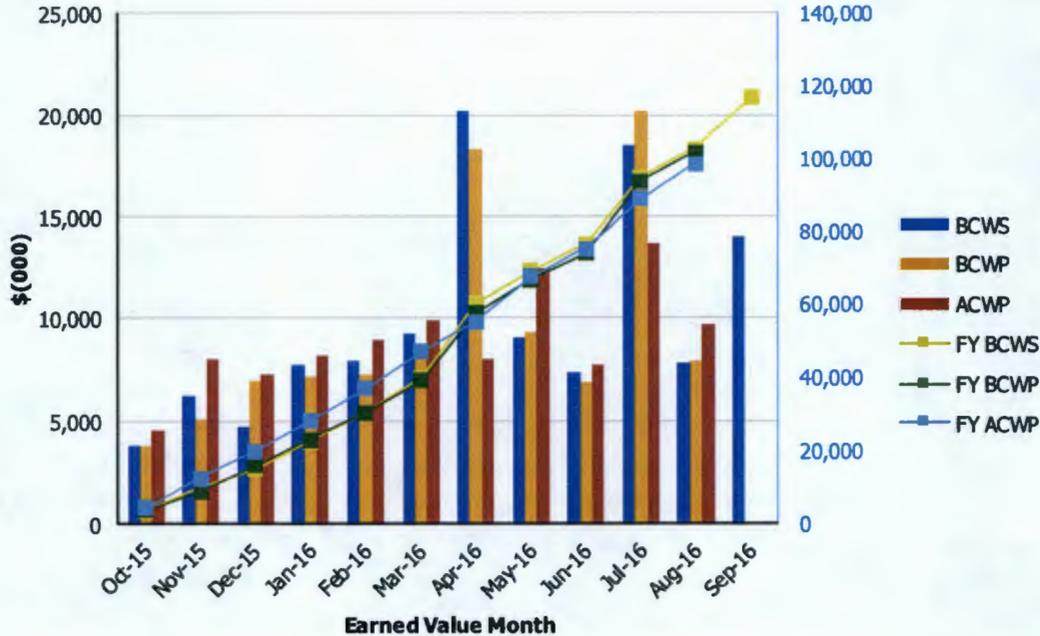
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2016

August-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 2015	\$3,770	\$3,814	\$4,560	1.01	0.84	\$3,770	\$3,814	\$4,560	1.01	0.84
Nov 2015	\$6,282	\$5,131	\$8,006	0.82	0.64	\$10,052	\$8,946	\$12,566	0.89	0.71
Dec 2015	\$4,769	\$6,970	\$7,255	1.46	0.96	\$14,821	\$15,915	\$19,821	1.07	0.80
Jan 2016	\$7,702	\$7,214	\$8,233	0.94	0.88	\$22,522	\$23,130	\$28,053	1.03	0.82
Feb 2016	\$7,948	\$7,288	\$8,959	0.92	0.81	\$30,470	\$30,417	\$37,012	1.00	0.82
Mar 2016	\$9,249	\$8,693	\$9,857	0.94	0.88	\$39,719	\$39,111	\$46,869	0.98	0.83
Apr 2016	\$20,237	\$18,288	\$8,046	0.90	2.27	\$59,956	\$57,399	\$54,916	0.96	1.05
May 2016	\$9,013	\$9,299	\$12,417	1.03	0.75	\$68,970	\$66,698	\$67,333	0.97	0.99
Jun 2016	\$7,387	\$6,885	\$7,713	0.93	0.89	\$76,357	\$73,584	\$75,045	0.96	0.98
Jul 2016	\$18,511	\$20,234	\$13,683	1.09	1.48	\$94,867	\$93,817	\$88,728	0.99	1.06
Aug 2016	\$7,831	\$7,971	\$9,736	1.02	0.82	\$102,698	\$101,788	\$98,464	0.99	1.03
Sep 2016	\$13,992					\$116,690				
CTD	\$695,176	\$687,016	\$708,437	0.99	0.97					

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

The current month **favorable** schedule variance (SV) of \$140K is due to:

- Schedule Recovery – Four extended reach sluicer systems (ERSS) to support AX Farm retrieval were received and accepted (green-tagged) in August earlier than the expected September 2016 date.

The current month **unfavorable** cost variance (CV) of (\$1,765K) is due to:

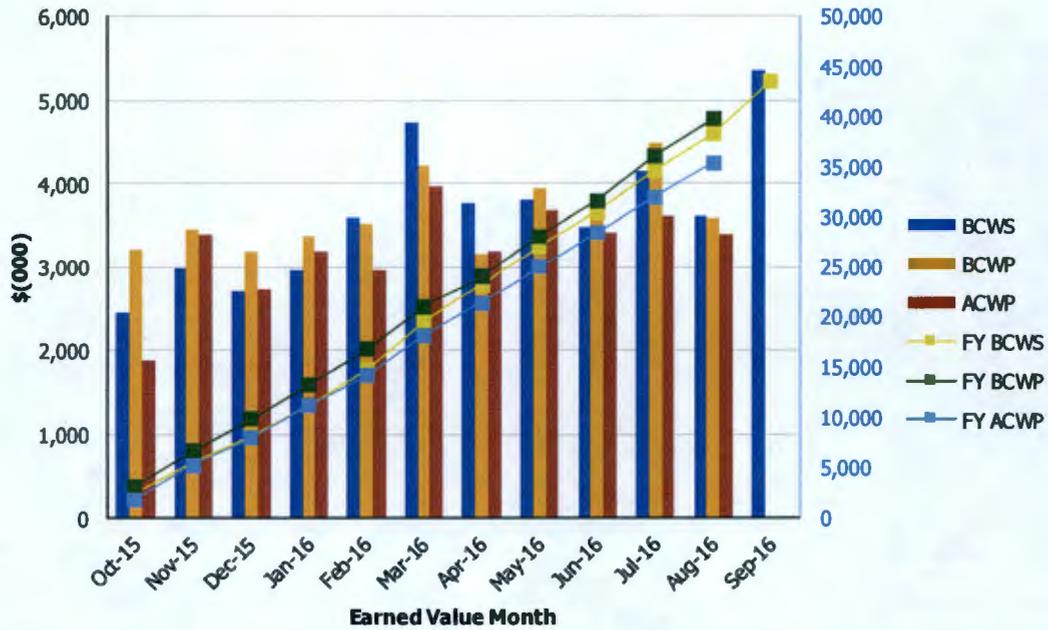
- Additional field support was required to complete Portable Exhauster (POR126) testing (AX Farm) because of required instrumentation re-calibration, and minor repairs of that instrumentation.
- Tank AX-102 and AX-104 pit clean out activities of legacy equipment was limited because health physicist technician and industrial hygienist technician (HPT/IHT) staff supporting these activities were diverted to Tank Farm minimum – safe operations at Double Shell Tank Farms which now required Self-Contained Breathing Apparatus for field operations personnel.

Earned Value Data: Fiscal Year 2016

August-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 2015	\$2,434	\$3,210	\$1,876	1.32	1.71	\$2,434	\$3,210	\$1,876	1.32	1.71
Nov 2015	\$2,987	\$3,446	\$3,379	1.15	1.02	\$5,421	\$6,656	\$5,255	1.23	1.27
Dec 2015	\$2,714	\$3,193	\$2,743	1.18	1.16	\$8,134	\$9,849	\$7,998	1.21	1.23
Jan 2016	\$2,966	\$3,366	\$3,180	1.13	1.06	\$11,101	\$13,215	\$11,178	1.19	1.18
Feb 2016	\$3,583	\$3,518	\$2,966	0.98	1.19	\$14,683	\$16,733	\$14,144	1.14	1.18
Mar 2016	\$4,740	\$4,210	\$3,979	0.89	1.06	\$19,424	\$20,943	\$18,124	1.08	1.16
Apr 2016	\$3,777	\$3,155	\$3,183	0.84	0.99	\$23,200	\$24,098	\$21,307	1.04	1.13
May 2016	\$3,824	\$3,954	\$3,678	1.03	1.08	\$27,025	\$28,052	\$24,984	1.04	1.12
Jun 2016	\$3,467	\$3,623	\$3,416	1.04	1.06	\$30,492	\$31,675	\$28,401	1.04	1.12
Jul 2016	\$4,142	\$4,486	\$3,611	1.08	1.24	\$34,634	\$36,161	\$32,012	1.04	1.13
Aug 2016	\$3,617	\$3,596	\$3,397	0.99	1.06	\$38,251	\$39,757	\$35,408	1.04	1.12
Sep 2016	\$5,354					\$43,605				
CTD	\$372,385	\$371,019	\$344,855	1.00	1.08					

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

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

Waste Feed Delivery/Treatment (5.03)

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

The current month **unfavorable** schedule variance (SV) of (\$20K) is below the reporting threshold and does not require a variance narrative.

The current month **favorable** cost variance (CV) of \$200K is primarily due to:

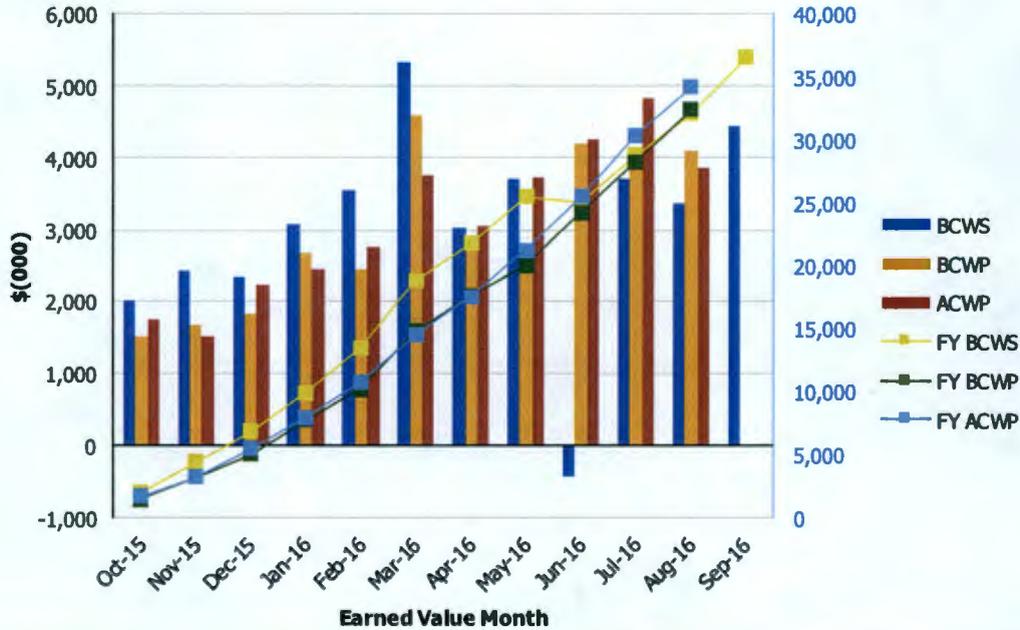
- Better use of performance assessment modeling resources and overall efficiency by integrating with WRPS the resource usage efficiencies within One System Program Support.

Earned Value Data: Fiscal Year 2016

August-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 2015	\$2,008	\$1,513	\$1,735	0.75	0.87	\$2,008	\$1,513	\$1,735	0.75	0.87
Nov 2015	\$2,439	\$1,669	\$1,517	0.68	1.10	\$4,447	\$3,182	\$3,252	0.72	0.98
Dec 2015	\$2,351	\$1,814	\$2,245	0.77	0.81	\$6,798	\$4,996	\$5,497	0.73	0.91
Jan 2016	\$3,090	\$2,691	\$2,451	0.87	1.10	\$9,888	\$7,687	\$7,948	0.78	0.97
Feb 2016	\$3,550	\$2,460	\$2,775	0.69	0.89	\$13,438	\$10,147	\$10,723	0.76	0.95
Mar 2016	\$5,343	\$4,613	\$3,760	0.86	1.23	\$18,781	\$14,760	\$14,482	0.79	1.02
Apr 2016	\$3,018	\$2,838	\$3,060	0.94	0.93	\$21,799	\$17,598	\$17,542	0.81	1.00
May 2016	\$3,705	\$2,495	\$3,732	0.67	0.67	\$25,503	\$20,092	\$21,274	0.79	0.94
Jun 2016	(\$420)	\$4,202	\$4,274	-10.01	0.98	\$25,084	\$24,294	\$25,548	0.97	0.95
Jul 2016	\$3,710	\$3,993	\$4,836	1.08	0.83	\$28,794	\$28,287	\$30,385	0.98	0.93
Aug 2016	\$3,364	\$4,100	\$3,874	1.22	1.06	\$32,158	\$32,387	\$34,259	1.01	0.95
Sep 2016	\$4,434					\$36,592				

CTD	\$50,149	\$49,814	\$50,881	0.99	0.98
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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

Treat Waste (5.5)

The August variances below have no impacts on TPA milestones.

The current month **favorable** SV of \$736K is due to:

- Completion of LAWPS Integrated Scale Test equipment activities ahead of schedule.

The current month **favorable** CV of \$226K is due to:

- Overstatement of performance which occurred in the current month due to an error in the project controls tools during the implementation of BCR RPP-16-180. This error resulted in double counting the cumulative performance in the current reporting period, which will be corrected in September.

Single-Shell Tank Closure Program

- 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.
- 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 being finalized.
- 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-045-61A Submit to Ecology for review and approval as an Agreement primary document, document review process, 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 Study Implementation Plan for WMA-C**
Due: Six months after the approval of the corrective measures study submitted under milestone M-045-61A.
Status: On schedule. TPA change control form M-045-15-02 approved on April 14, 2015.
- M-045-82 Submit complete permit mod requests for Tiers 1, 2, and 3 of the SST**
Due: September 30, 2015
Status: In dispute. A tentative agreement to end the dispute on M-045-82 is in negotiation between Ecology and ORP, and the dispute has been extended at the program manager level until October 31, 2016. ORP and Ecology have an agreed upon TPA change notice for this milestone. Ecology is working with EPA to accept this TPA change notice. In addition, a meeting was held among Ecology, ORP, and WRPS staff for September 7, 2016, to discuss the comment resolution process for Ecology's comments on the Tier 1 Closure Plan.

- M-045-83** **Complete the closure of WMA-C**
Due: June 30, 2019
Status: To be missed.
- M-045-84** **Complete negotiations of TPA interim milestones for closure of second WMA**
Due: January 31, 2017
Status: At risk.
- M-045-85** **Complete negotiations of TPA interim milestones for closure of remaining WMAs**
Due: January 31, 2022
Status: On schedule.
- M-045-92** **(N, O, P, Q, R) Complete Installation of Four (4) Additional Interim Barriers**
Due: October 31, 2020
Status: On Schedule.

September Accomplishments:

None.

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.
- Complete the draft TPA Action Plan, Appendix I, Section 2.5, C Farm waste management area (WMA-C) Performance Assessment and submit to the WMA-C participants and stakeholders for review.
- Complete Rev. 0 of the *Phase 2 RCRA Facility Investigation Report and Corrective Measures Study for WMA C* and submit 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*.

Issues:

- Resolving the dispute on M-045-82
- Developing path forward for resolving Ecology's comments on the RCRA Tier 1 Closure Plan.

Single-Shell Tank Retrieval Program

- 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.
- 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.

Significant Past Accomplishments:

- Removed and disposed 15 hose-in-hose transfer lines from C-Farm to Environmental Restoration Disposal Facility (ERDF)
- Prepared the C-102 Retrieval Data Report for submittal to Ecology
- Completed C-105 Proof of Concept for In-Tank Equipment (MARS-V modification)
- Completed C-105 MARS-V disassembly to support modifying for slurry pump installation
- Removed C-105 C pit upper and lower cover blocks
- Submitted C-111 Retrieval Completion Certification report to Ecology
- Completed two additional AX Farm pit clean outs
- 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
- Prepared the AX-101 through AX-104 Tank Waste Retrieval Work Plans for submittal to Ecology

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
- Clean and prepare C-105 A and C pits for ERSS installation
- Receive C-105 ERSS
- Complete AX air and water service building major utilities installation

- Complete AX ventilation installation and readiness/turnover at portable exhausters POR126 and POR127
- Complete the four remaining AX-102 and 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 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. This stop work and interim measures associated with the motions for preliminary injunction has slowed and/or delayed field work at the AX and C farms. For example the AX-102 and AX-104 retrieval construction (removal of legacy/long length equipment) is affected by not being able to operate the tank-specific ventilation system. DOE and WRPS continue to evaluate near-term and long-term impacts of these actions though at this time we have not determined the effect, if any, on milestones. 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.
- 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 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.

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	-
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	-

Tank	TWRWP	Expected Revisions	Retrieval Technology		
			First	Second	Third
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:

- AX Farm Tank Waste Retrieval Work Plan drafts were reviewed by Ecology and are going through final revision at ORP.
- Modification to RPP-22520, 241-C-101 and 241-C-105 Tanks Waste Retrieval Work Plan to include a third technology for Tank C-105 retrieval was approved by the Washington State Department of Ecology and is in process of being revised.

Significant Planned Activities in the Next Three Months:

- Finalize AX Farm Tank Retrieval Work Plans

Issues:

None.