
Final

Office of River Protection

Tri-Party Agreement
Monthly Report
September 2016



Office of River Protection (ORP)
Tri-Party Agreement (TPA) Milestone Review
Project Earned Value Management System reflects July 2016 information

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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	Tri-Party Agreement
WMA-C	C Farm waste management area
WTP	Waste Treatment and Immobilization Plant

Administrative Items/Milestone Status
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Milestone	Title	Due Date	Completion Date	Status
Fiscal Year 2015				
M-062-45-T01	Comp. Negs 6-Mo After Last Issuance of System Plan	04/30/2015		In Dispute
M-062-45-ZZ	Negotiate a One Time Supplemental Treatment Selection	04/30/2015		In Dispute
M-062-45-ZZ-A	Convert M-062-31-T01 Thru M-062-34-T01 to Interim Milestones	04/30/2015		In Dispute
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 Dispute
M-090-13	CD-1 for Interim Hanford Storage Project and CR for CD-2 to Ecology	03/31/2016		In Dispute
M-062-31-T01	Comp. Final Design & Submit RCRA Part B Permit Mod Request for Enhanced WTP & Supplemental Treatment	04/30/2016		In Dispute
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
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

Milestone	Title	Due Date	Completion Date	Status
M-045-62	Phase 2 Corrective Measures Implementation Work Plan For WMA-C	Six months after CMS approval (M-045-61A)		On Schedule
M-045-84	Comp Negs of HFFACO Interim Milestones for Closure of 2 nd 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.
 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.*

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 started between the U.S. Department of Energy (DOE), Office of River Protection (ORP) and the Washington State Department of Ecology (Ecology) on April 25, 2016.
- Both ORP and Ecology presented scenarios for consideration with an initial prioritization of all scenarios on June 27, 2016.
- System Plan 8 selected scenarios document has been drafted, and delivered to ORP and Ecology for their review and comment on August 25, 2016.

Significant Planned Actions in the Next Six Months:

- Scenario selection discussions will be conducted to support M-062-40E
Due: October 31, 2016.
- Negotiations to support decision document 2016-005 to commence by September 8, 2016. System Plan 8 information will be used to assist in negotiations.
- Complete 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 dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than 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 that are required to start no later than September 8, 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 dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than 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 that are required to start no later than 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-ZZ (designation for M-062-45 item 3), Negotiate a one-time supplemental treatment selection, Due: April 30, 2015, Status: In dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than 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 dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than 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 dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than September 8, 2016.

M-062-32-T01, Start construction of supplemental vitrification treatment facility and/or WTP enhancements, Due: April 30, 2018, Status: In dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than September 8, 2016.

M-062-33-T01, Complete construction of supplemental vitrification treatment facility and/or WTP enhancements, Due: April 30, 2021, Status: In dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than September 8, 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 dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than 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 dispute. Decision document 2016-005 signed August 22, 2016, requires this milestone be addressed with the negotiations supporting M-062-45 that are required to start no later than 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:

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 will begin no later than September 8, 2016.

242-A Evaporator Status

(previously reported under Milestone M-48, which has been closed out)

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	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:

- Laser mapping to support reboiler procurement
- Future campaign and outage scheduling
- Begin integrity assessment on 242-A Evaporator components
- Replace P-B-2 pump and associated pressure relief valves.

Issues:

- 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 08/31/2016)	~5.36 Mgal	~3.26 Mgal	~6.93 Mgal
AZ-301 Tanker Shipments	-	-	-
MWBT-31 and 34 Leachate	-	-	~14,000 gal
Perched Water Tanker Shipments	-	-	-
ERDF Leachate Tanker Shipments	-	-	-
Other (Lysimeter Leachate)	-	-	~400 gal
242-A Campaigns (EC-04 and EC-05)	-	-	-

ERDF = Environmental Restoration Disposal Facility.

Gal = gallon.

M gal = million gallons.

MWBT = mixed waste burial trench.

Significant Past Accomplishments:

- Total FY 2016 volume processed by 200 Area Effluent Treatment Facility (as of 08/31/2016): Approximately 4,000,000 gallons
- *Hanford Dangerous Waste Permit 8C, WA7890008967, LERF and 200 Area ETF, Addendum D, Groundwater Monitoring Plan and SGW-41072 Liquid Effluent Retention Facility Characterization Report* submitted for informal review on July 28, 2016.

Significant Planned Actions in the Next Six Months:

- Repair of the concentrated chemical storage tank berm is to be completed in fourth quarter of FY 2016.
- Submission of class 2 permit modification covering groundwater monitoring (Addendum D) and storage clarification.

Issues:

None.

Tank System Update

Significant Planned Actions in FY 2016

Double-Shell Tank (DST) Integrity:

- Enhanced annulus video inspection:
All DST videos are completed and being evaluated by engineering with report preparation in progress.
- Ultrasonic testing inspections (two risers for primary wall/welds, one riser for secondary floor):
 - 241-AN-105 (report complete awaiting clearance).
 - 241-AW-103 (data collected and under review).
- Continuing bi-weekly inspections of AY-102 waste accumulation site.
- Continuing bi-monthly comprehensive inspection of AY-102 annulus.
- 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, *Double-Shell Tank Tertiary Leak Detection System Investigation and Mitigation Plan*.
- Release RPP-RPT-55666, *Double-Shell Tank Tertiary Leak Detection System Evaluation*, Rev. 3.

Single-Shell Tanks (SST) Integrity:

- In-tank video inspections:
 - 241-TX-103
 - 241-TX-111
 - 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)
- Intrusion mitigation (M-045-56):
 - Complete 241-T-111; evaporation of 241-T-111 continues 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 August 1 through August 31, 2016, the following reports were completed or issued:

- Completed RPP-RPT-59510, *Derivation of Best-Basis Inventory for Tank 241-B-201 as of July 1, 2016*, Rev. 0.
- Completed RPP-RPT-58618, *Derivation of Best-Basis Inventory for Tank 241-T-110 as of July 1, 2016*, Rev. 1.
- Completed RPP-RPT-59537, *Derivation of Best-Basis Inventory for Tank 241-TY-104 as of July 1, 2016*, Rev. 0.
- Completed RPP-RPT-43979, *Derivation of Best-Basis Inventory for Tank 241-AY-101 as of July 1, 2016*, Rev. 16.
- Completed RPP-RPT-59572, *Derivation of Best-Basis Inventory for Tank 241-U-203 as of July 1, 2016*, Rev. 0.
- Completed RPP-RPT-59538, *Derivation of Best-Basis Inventory for Tank 241-TY-105 as of July 1, 2016*, Rev. 0.
- Completed RPP-RPT-59559, *Derivation of Best-Basis Inventory for Tank 241-T-108 as of July 1, 2016*, Rev. 0.
- Completed RPP-RPT-46792, *Derivation of Best-Basis Inventory for Tank 241-AW-102 as of July 1, 2016*, Rev. 10.
- Completed RPP-RPT-58071, *Derivation of Best-Basis Inventory for Tank 241-C-105 as of August 1, 2016*, Rev. 3.
- Completed RPP-RPT-48639, *Derivation of Best-Basis Inventory for Tank 241-AP-104 as of July 1, 2016*, Rev. 14.
- Completed RPP-RPT-59532, *Derivation of Best-Basis Inventory for Tank 241-T-109 as of July 1, 2016*, Rev. 0.
- Completed RPP-CALC-60595, *Tank 241-AW-102 FY16 Q4 Process Knowledge Concentration Vector Calculation*, Rev. 2.
- Completed RPP-CALC-60672, *Tank 241-AP-104 FY16 Q4 Supernatant and Saltcake Process Knowledge Concentration Vectors Calculation*, Rev. 2.
- Completed RPP-CALC-60644, *Tank 241-AP-103 FY16 Q4 Supernatant Process Knowledge Vector*, Rev. 1.
- Completed HNF-EP-0182, *Waste Tank Summary Report for Month Ending July 31, 2016*, Rev. 343.
- Issued RPP-RPT-59363, *Retrieval Completion Certification Report for Tank 241-C-111*, Rev. 0A.

- Issued RPP-RPT-59560, *Final Report for Tank 241-AN-101 Grab Samples in Support of Corrosion Chemistry Control*, Rev 0.
- Issued RPP-RPT-59597, *Final Report for AZ301 Catch Tank Liquid Samples Taken in May 2016*, Rev. 0.

Planned Action within the Next Six Months:

Tank sampling:

- Tank 241-AW-103 grab sampling is planned to begin September 2016.
- Tank 241-AY-102 annulus grab sampling is planned for October 2016.
- Tank 241-AP-107 core sampling is planned to begin October 2016.
- Tank 241-AP-107 grab sampling is planned to begin January 2017.

Best-Basis Inventory updates:

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

- | | | |
|--------------|-------------|--------------|
| • 241-AP-104 | • 241-C-105 | • 241-TY-104 |
| • 241-AW-102 | • 241-T-108 | • 241-TY-105 |
| • 241-AY-101 | • 241-T-109 | • 241-U-203. |
| • 241-B-201 | • 241-T-110 | |

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

- | | | |
|--------------|--------------|--------------|
| • 241-AN-101 | • 241-AP-105 | • 241-T-112. |
| • 241-AP-102 | • 241-AY-102 | |
| • 241-AP-103 | • 241-SY-101 | |

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 released in September 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.

July-16										
	BCWS	BCWP	ACWP	SV	CV	SPI	CPI	BAC	EAC	VAC
CM	74,661	81,738	61,464	7,077	20,274	1.09	1.33			
FYTD	487,968	491,210	469,132	3,242	22,079	1.01	1.05	608,031		
CTD	3,339,104	3,322,462	3,293,809	(16,641)	28,653	1.00	1.01	4,734,857	4,716,946	17,912

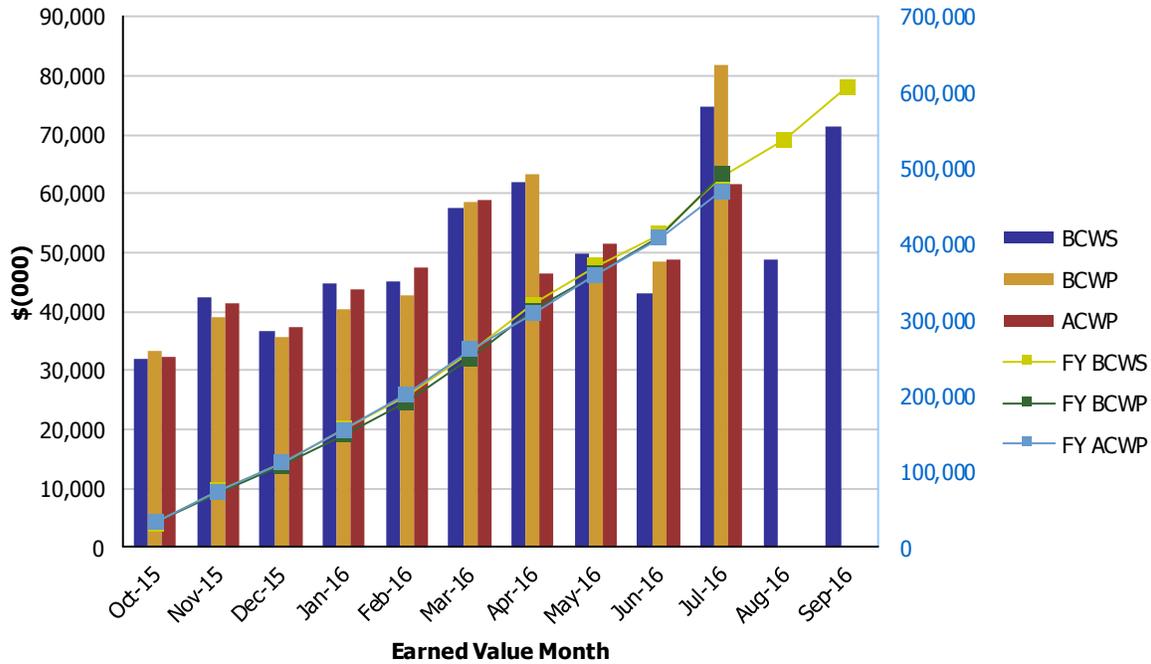
ACWP	=	actual cost of work performed.	CV	=	cost variance.
BAC	=	budget at completion.	EAC	=	estimate at completion.
BCWP	=	budgeted cost of work performed.	FYTD	=	fiscal year to date.
BCWS	=	budgeted cost of work scheduled.	SPI	=	schedule performance index.
CM	=	current month.	SV	=	schedule variance.
CPI	=	cost performance index.	VAC	=	variance at completion.
CTD	=	contract to date.			

Earned Value Data: Fiscal Year 2016

July-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	\$48,718					\$536,686				
Sep 2016	\$71,345					\$608,031				
CTD	\$3,339,104	\$3,322,462	\$3,293,809	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.

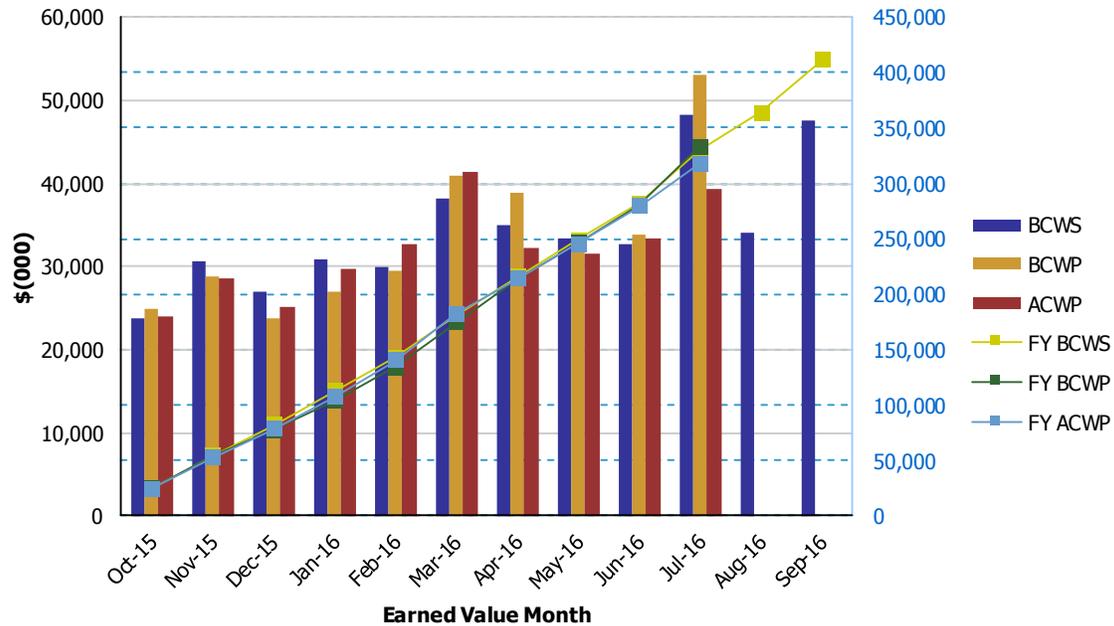
CTD = contract to date
 EVMS = Earned Value Management System.
 FY = fiscal year.
 SPI = schedule performance index

Earned Value Data: Fiscal Year 2016

July-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	\$34,162					\$363,834				
Sep 2016	\$47,488					\$411,322				

CTD	\$2,221,557	\$2,215,157	\$2,191,846	1.00	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

Base Operations and Tank Farm Projects (5.01)

The July variances below have no impacts on TPA milestones.

The current month **favorable** schedule variance (SV) of \$4,728K is primarily due to the following:

- AY extended reach sluicing system (ERSS) installation work has been accelerated due to favorable weather and experienced crews performing field activities, which has resulted in the likelihood that readiness will be declared in late September or early October. This action continues to support 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.
- Schedule recovery for new vapor detection technology components, pilot scale software and field implementation support, proton-transfer-reaction mass spectrometer (PTR-MS), and vapor abatement studies.
- Schedule recovery for completion of chemical cartridge field sampling from four separate sources in different tank farms.

The current month **favorable** cost variance (CV) of \$13,691K is primarily due to the following:

- Point adjustment was made for AY-102 waste retrieval installation activities and AP-102 receiver tank upgrades. The majority of this work scope was completed in early March.
- Nuclear Chemical Operator ERSS training required less time due to experienced crews familiarity with ERSS operations/functions and training materials were completed earlier and available when standard sluicer retrieval was completed. This action continues to support 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.
- Less resources have been required to remove standard sluicers and install ERSS due to favorable weather, robust work plans/packages, and experienced crews performing field activities. This action continues to support 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.
- Less resources required than planned to perform all air-purifying respirators cartridge field sampling. It was determined that sampling would be completed on the weekend and swing shifts to provide sufficient hours to prove data needed from analysis.

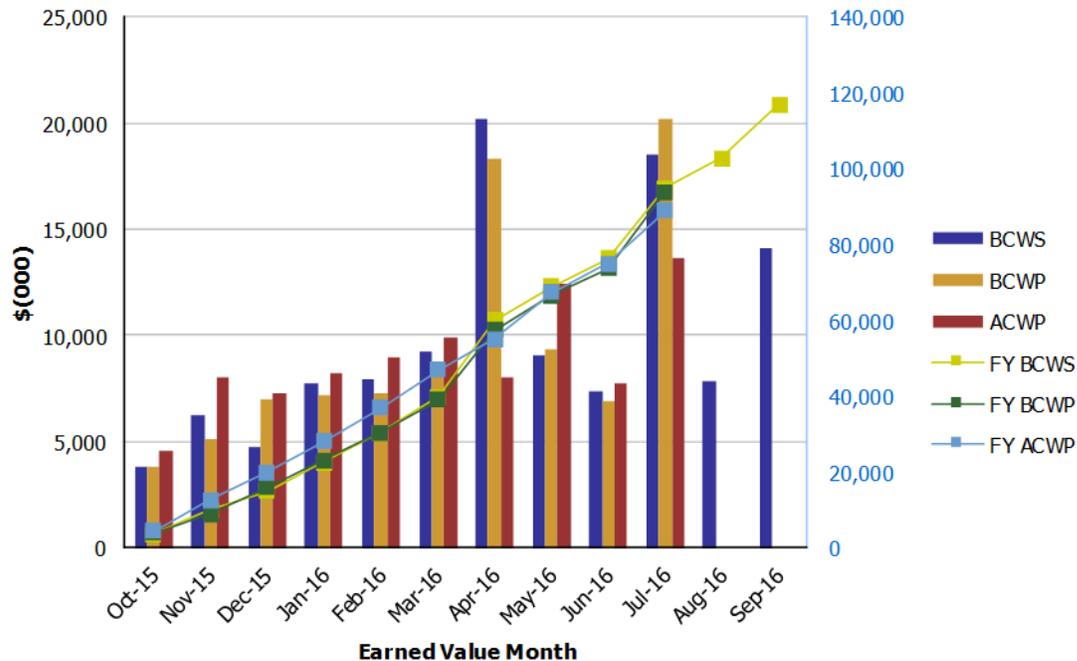
EXC-01a: Fiscal Year Cost and Schedule Report

Earned Value Data: Fiscal Year 2016

July-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	\$7,830					\$102,697				
Sep 2016	\$14,069					\$116,766				

CTD	\$687,345	\$679,044	\$698,701	0.99	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 July variances have a minimal variance on Consent Decree and TPA milestones (M-045-15) at A-103 for tank retrieval.

The current month **favorable** SV of \$1,723K is due to:

- ***Schedule Recovery***: AX Farm procurements were previously re-planned due to field construction slips and funding challenges. Two out of the six ERSSs for AX-102/104 arrived this past month. The remaining four ERSSs are scheduled to be delivered prior to the end of September. The water supply demister required for retrieval operations at AX Farm was also delivered during July. This positive SV continues to support the completion of projects B-1 and B-3 of the Consent Decree milestones.

The current month **favorable** CV of \$6,551K is due to:

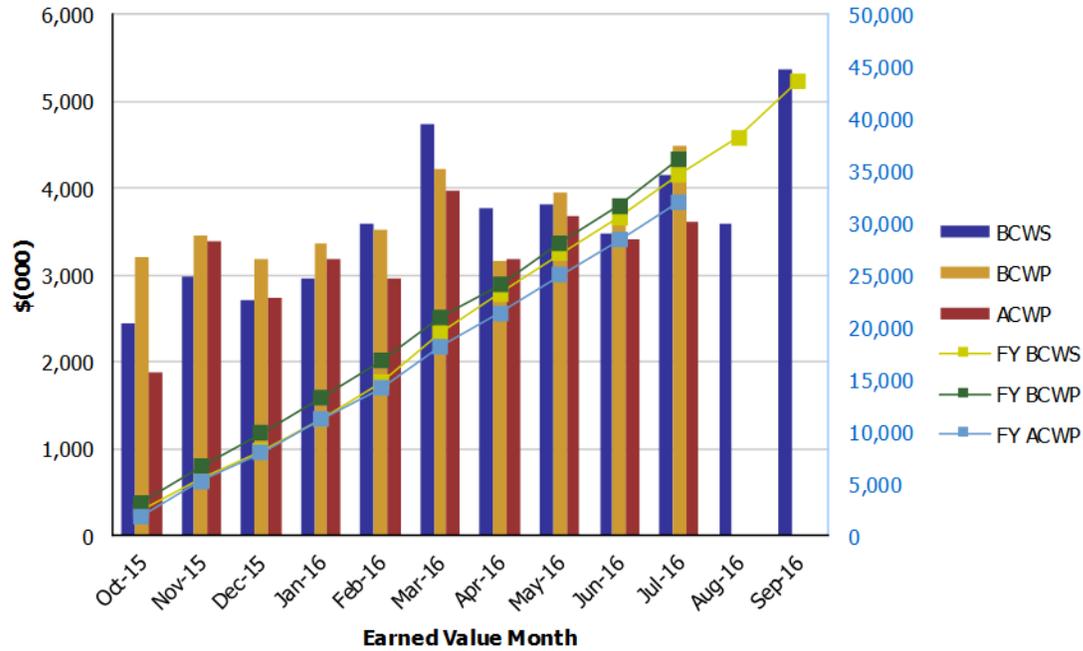
- Contract Modification 386 (FY 2016 Vapor Impacts Implementation) was implemented during July, which resulted in a point adjustment for FY 2016 work scope that was or continues to be impacted by tank farm vapors. This adjustment provides cost relief to control accounts affected/impacted by vapors and required additional health and safety controls (self-contained breathing apparatus).

Earned Value Data: Fiscal Year 2016

July-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	\$3,591					\$38,225				
Sep 2016	\$5,354					\$43,579				
CTD	\$363,306	\$362,437	\$337,094	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/Double-Shell Tank Retrieval Closure (5.03)

The July variances below have no impacts on the Consent Decree and TPA milestones.

The current month **favorable** SV of \$344K is primarily due to:

- Completion of scope in the current period, which was scheduled for completion in prior reporting periods.
- Positive progress being made toward schedule recovery. Previous delays in simulant development and limited national laboratory resources available to perform this scope caused this work to fall behind plan. There are now a sufficient number of resources available to execute the scope.

The current month **favorable** CV of \$875K is primarily due to:

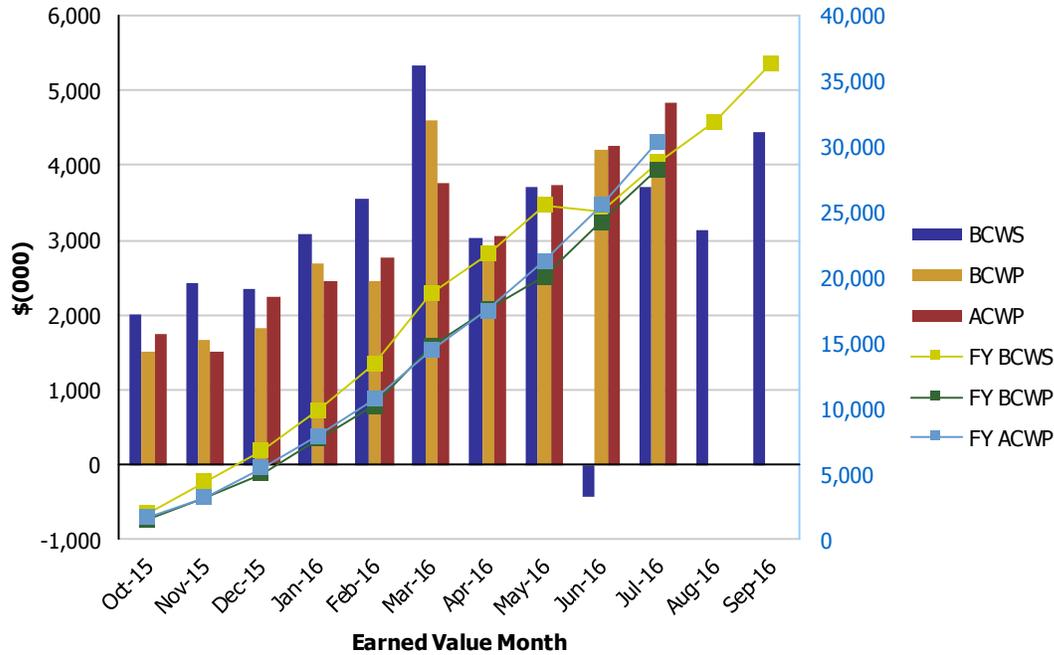
- The majority of this CV is attributed to the efficiencies realized in the work being performed by Vitreous State Laboratory, Pacific Northwest National Laboratory, and Savannah River National Laboratory.
- Resource usage efficiencies related to subcontract and project support.

Earned Value Data: Fiscal Year 2016

July-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	\$3,135					\$31,929				
Sep 2016	\$4,434					\$36,363				

CTD	\$46,786	\$45,714	\$47,007	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

Treat Waste (5.5)

The July variances below have no impacts on TPA milestones.

The current month **favorable** SV of \$283K is due to:

- Recovery of scheduled work in Technology Maturation and Integrated Scale Test Program including fabrication and assembly of both the full-scale test and integrated test rig. In addition, simulant has been manufactured and the required volumes were shipped to the full scale ion-exchange test location and the 1/9-scale test location.

The current month **unfavorable** CV of (\$843K) is due to:

- Higher costs than anticipated were realized for 1/9-scale integrated test equipment fabrication and assembly due to an accelerated fabrication work schedule, which included extended work weeks with scheduled overtime resulting in increased unplanned labor costs.

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 required to start no later than September 8, 2016.

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 September 30, 2016. In addition, a meeting has been scheduled 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.

August 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 required to start no later than September 8, 2016.

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:

- Completed post-retrieval sampling of Tank 241-C-111.
- Began development of Tank C-111 Retrieval Data Report.
- Submitted C-111 retrieval completion certification to Ecology.
- Completed cold operational acceptance testing of POR126 exhauster system and prepared for hot operational acceptance testing.
- Received two out of the six ERSSs for AX-102/104.
- Completed two out of the four planned pit cleanout at AX-102/104 for FY 2016.
- Completed concrete foundation pour on the new air and service water building (A-285) and began building erection.
- Completed AX-2707 fencing and gate upgrades.
- Removal of the C-112 hose-in-hose transfer lines (HIHTL) was completed. This completes the FY 2016 HIHTL work scope.

Significant Planned Activities in the Next Three Months:

- Submit retrieval data report for Tank 241-C-102
- Negotiate contract proposal for installing and performing the third retrieval technology at Tank C-105
- Complete Tank C-105 Mobile Arm Retrieval System-Vacuum (MARS-V) containment box disassembly
- Complete removal of Tank C-105 MARS-V in-tank equipment
- Complete Tank C-105 modified sluicing system design
- Complete refurbishment of C-105 pits to support ERSS installation next year
- Complete two additional planned pit cleanouts at AX-102/104
- Receive the four remaining ERSSs for AX-102/104
- Complete installation of the A-285 service building.

Issues:

- The Hanford Atomic Metals Trades Council (HAMTC) stop work issued on July 11, 2016, and subsequent Request for Preliminary Injunction filed by the State of Washington, et al., (Case 4:15-cv-05086-TOR) has delayed field work at the AX and C farms. On July 21, 2016, the Washington State Attorney General and Citizens (Local Union 598 and Hanford Challenge) filed motions for a preliminary injunction in federal court seeking, among other things, all work inside the perimeter fences of any tank farm be performed while wearing mandatory supplied air. Additional controls may be required (e.g., back shift or weekends work only, additional monitoring, etc.) which is slowing the pace of work being accomplished. For example the C-105 Mobile Arm Retrieval System-Sluicing removal has been slowed. Also the AX-102 and AX-104 retrieval construction (removal of legacy equipment) is affected by not being able to operate the tank-specific ventilation system.
- Project funding limitations could potentially limit field activities within AX Farm, which would result in deferring tank preparation activities, which include removal of legacy operational equipment, and installation of retrieval pumps and sluicers into FY 2017 and FY 2018. Due to the prior technical challenges related to completing retrievals at Tank 241-C-102, retrievals at Tank 241-C-111, and current modifications to Tank 241-C-105, it is likely funding needed to complete Tank 241-AX-102 and Tank 241-AX-104 farm retrieval system installation will be required through FY 2018 with retrieval operations starting in FY 2019 to meet milestone D-16B-03 by December 31, 2020.

Tank Waste Retrieval Work Plan Status

Tank	TWRWP	Expected Revisions	Retrieval Technology		
			First	Second	Third
AX-101	RPP-RPT-58932, Draft	Initial Approval	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-102	RPP-RPT-58933, Draft	Initial Approval	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-103	RPP-RPT-58934, Draft	Initial Approval	Sluicing with ERSS	High-Pressure Water deployed with ERSS	-
AX-104	RPP-RPT-58935, Draft	Initial Approval	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:

- Modification approved to RPP-22520, 241-C-101, and 241-C-105, Tanks Waste Retrieval Work Plan, to include a third retrieval technology for C-105 retrieval on July 20, 2016.

Significant Planned Activities in the Next Three Months:

- Finalize AX Farm tank waste retrieval work plans.

Issues:

None.