Subject: WRPS MULTI-YEAR OPERATING PLAN, REVISION 5, FY 2017 – FY 2022

References:

1. Condon, W. A., February 16, 2016, "WRPS MULTI-YEAR OPERATING PLAN, REVISION 4, FY 2016 – FY 2021" (email to distribution), WRPS-1501754-OS,
2. RPP-16-161, Rev. 0, Baseline Change Request, FY 2017 Fiscal Year Planning, August 18, 2016, Washington River Protection Solutions, Richland, Washington.
3. MMR-50087, Rev. 0, Model Modification Request Form, Multi-Year Operating Plan, Rev. 5, August 16, 2016, Washington River Protection Solutions, Richland, Washington.

Attached is Revision 5 of the WRPS Multi-Year Operating Plan (MYOP), covering the period from Fiscal Year (FY) 2017 through FY 2022, including both planned (FY 2017) and forecast activities (FY 2018 – FY 2022). This plan updates MYOP Revision 4 (Reference 1) that was issued on February 16, 2016. The information is current as of July 2016 and is aligned with our FY 2017 Work Plan (Reference 2). The MYOP graphic also includes selected activities from FY 2016 and FY 2023 to provide context.

Revision 5 of the MYOP is being transmitted to document the technical basis for the FY 2017 Work Plan and to provide a historical reference against which impacts from emerging tank vapor mitigation decisions may be measured.

Both the MYOP and the FY 2017 Work Plan reflect the assumption that all waste disturbing activities would continue during the remainder of FY 2016, including 242-A Evaporator Campaign EC-06 and the AP06A pump replacement and jumper installation. Once the impacts from the tank vapor related decisions are sufficiently understood, we plan to update the MYOP in conjunction with Project Integration’s update to the FY 2017 Work Plan.

Because MYOP Revision 5 is being transmitted for historical purposes, the final round of integration with the “T-4” team was not completed; rather we are continuing the coordination efforts to update the projected transfers, retrievals and 242-A Evaporator campaigns as tank vapor related impacts are identified.

Highlights of changes incorporated in this revision include:
- Update of the overall schedule to align current program plans and project schedules, including alignment of AX and A Farm retrieval project activities with the 2016 Consent Decree.
- Alignment with FY 2017 Work Plan.
- Update of waste affecting activities to accommodate field conditions as of July 2016. These include retrievals, transfers, level rises, and evaporator campaigns, waste feed delivery and Low-Activity Waste Pretreatment System (LAWPS) and Direct Feed Low-Activity Waste (DFLAW) support.
- Addition of construction outages for LAWPS/DFLAW related upgrades to the DSTs and waste transfer systems.
- Change in focus to primarily waste affecting activities (discussed below).

A series of Hanford Tank Waste Operations Simulator (HTWOS) model runs, culminating with Reference 3, were used to confirm the viability of the MYOP from a DST space management perspective, supporting AY-102 Recovery, SST Retrievals, the proposed preparation and delivery of feed for the operation of LAWPS and the WTP LAW Vitrification Facility under the DFLAW program and the associated returns to the DSTs.

Attachment 2 provides supplemental information for the projected operations from the HTWOS model run that forms the basis for the MYOP. These include:

- 242-A Campaign and DST Transfer Summary
- Available Operating DST Space in East Area
- East Area DST Emergency Space
- DST System Inputs and Outputs
- Projected DST Volumes and Use

The results show that careful management of available DST space from today through a pinch point circa 2023 is important to support the above objectives and that near-term operational activities are closely orchestrated with each other and with field activities. Revision 5 of the MYOP still requires a nominal one million gallons per year of 242-A Evaporator waste volume reduction through FY 2021 (similar to MYOP Revision 4). However, the deferral of that waste volume reduction is beginning to create a “bow-wave” of about 1.6 Mgal per year in FYs 2020 and 2021. There also is an increase in the overall pace of activities, namely waste inputs to the DST system (from retrievals and LAWPS/DFLAW returns) and outputs (from running the 242-A Evaporator and delivering feed to LAWPS). These need to be carefully balanced to maintain adequate operational space in the DST system so that existing Consent Decree commitments can be met.

As discussed at the Level 1 Team Review Kick-Off meeting for MYOPr4, this revision of the MYOP shifts focus to the actual waste affecting activities and key interfacing fieldwork. The new format, organized primarily by evaporator and LAWPS campaigns, was informed by a survey of end-users and adjusted after discussion with the “T-4” team. We plan to continue to refine the format based on end-users’ feedback and evolving needs.

An important uncertainty for this MYOP is that it does not reflect the impacts from the mitigation of the tank vapor issues. The next update to the MYOP is anticipated to be initiated circa September 2016 to incorporate those impacts, incrementally or in full.

You may contact me at 376-7652, or Mr. P. J. Certa at 376-5429 with any questions regarding this matter.

William A. Condon
Manager, One System/Chief Technology Office

PJC:MDE
ATTACHMENT 1

WRPS Multi-Year Operating Plan - Rev. 5
AW-106 has already been sampled and is ready to feed, as soon as the pump is replaced.

AWPS Campaign 1 Sample Window does not start later could be accelerated to 07/23/18 in order to maximize the opportunity to adjust feed, if necessary.
MYOPr Project File (2016-09-13b).mpp
### Multi-Year Operating Plan - Revision 5

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**Legend**
- DST Transfer
- Evaporator Campaign
- Feed LAWPS
- Influent
- Outage
- Receiver Full
- Recr Space Avail
- Regulatory Milestone
- Rollup
- Sample Window
- SST Window
- SST Retrieval

**Notes:**
- Feed for EC-21 includes waste from retrieval of AX-101, AX-103, and AX-102, aggregated in AK-107.

**Campaigns and Events:**
- **EC-21 and Related Events:**
  - A-302 to AP-305 (365 licked)
  - A-302 to AP-305 (365 licked)
  - AP-306 to AK-101 (130 licked)
  - EC-21 Sample Window (AV-103)
  - AV-103 to AK-103 (120 licked)
  - AK-103 to AK-101 (250 licked)
  - AV-103 to AK-102 (190 licked)
  - AV-102 to AK-103 (130 licked)
  - AV-103 to AK-102 (310 licked)
  - AV-102 to AK-101 (250 licked)
  - AV-101 to AK-102 (310 licked)
  - AV-101 to AK-102 (310 licked)
  - AV-101 to AK-103 (310 licked)

- **EC-22 and Related Events:**
  - A-302 to AP-305 (365 licked)
  - A-301 to AP-305 (365 licked)
  - A-302 to AP-305 (365 licked)
  - EC-22 Sample Window (AV-104)
  - AV-104 to AK-103 (130 licked)
  - AV-103 to AK-102 (310 licked)
  - AV-102 to AK-103 (130 licked)
  - AV-102 to AK-102 (310 licked)
  - AV-101 to AK-102 (310 licked)
  - AV-101 to AK-103 (310 licked)

- **LAWPS Campaign 2 and Related Events:**
  - A-306 to AP-305 (246 licked)
  - A-306 to AP-305 (246 licked)
  - A-306 to AP-305 (246 licked)
  - EC-22 Sample Window (AV-104)
  - AV-104 to AK-103 (130 licked)
  - AV-103 to AK-102 (310 licked)
  - AV-102 to AK-103 (130 licked)
  - AV-102 to AK-102 (310 licked)

**MYOPr Project File (2016-09-13b).mpp**
General Notes

- Multi-Year Operating Plan (MYOP) Revision 5 is current as of July 2016 and is aligned with RPP:16-161, Rev. 0, WRPS FY 2017 Work Plan. This revision documents the technical basis for the Work Plan and provides a historical reference against which impacts from emerging tank vapor mitigation decisions may be measured.
- The MYOP and the FY 2017 Work Plan reflect the assumption that waste-disturbing activities will continue during the remainder of FY 2016, including 242-A Evaporator Campaign EC-06 and the AP-06 A pump replacement and jumper installation.
- Once the actual impacts from the tank-vapor-related decisions are sufficiently understood, Strategic and Operations Planning will update the MYOP in conjunction with Project Integration’s update to the FY 2017 Work Plan.
- The activities under the gray “curtain” during the last quarter of FY 2016 are shown for context. The MYOP assumes that these FY 2016 activities will be completed as shown.
- The activities under the “curtain” that start with the second quarter of FY 2023 are beyond the scope of the MYOP and are shown for reference only.
- The activities under the gray “curtain” during the last quarter of FY 2016 are shown for context. The MYOP assumes that these FY 2016 activities will be completed as shown.
- The activities under the “curtain” that start with the second quarter of FY 2023 are beyond the scope of the MYOP and are shown for reference only.
- The Evaporator campaign sample windows begin on the earliest date at which the feed is ready to sample and end on the latest date that allows the minimum allocated time for laboratory analysis and development of the process control plan.
- Ninety (90) days are allocated for the lab analysis and process control plan development for evaporator campaigns occurring before the start of LAWPS, changing to sixty (60) days after the start of LAWPS.
- One hundred eighty (180) days are allocated for LAWPS feed qualification.

Acronyms and Terms

- CD: Consent Decree
- DST: double-shell tank
- EC: evaporator campaign
- EMF: Effluent Management Facility
- LAWPS: Low-Activity Waste Pretreatment System
- LERF: Liquid Effluent Retention Facility
- MCC: Motor Control Center
- PCM: Process Control Memo
- SST: single-shell tank
- TPA: Tri-Party Agreement
- WVR(F): waste volume reduction (factor)
ATTACHMENT 2

Multi-Year Operating Plan Revision 5
Supplemental Information
## 242-A Campaign and DST Transfer Summary

<table>
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<tr>
<th>Campaign</th>
<th>Multi-Pass</th>
<th>Dual Receiver</th>
<th>Date</th>
<th>Feed (kgal)</th>
<th>WVR (kgal)</th>
<th>WVRF (%)</th>
<th>Cumulative WVR (kgal)</th>
<th>Annual WVR (kgal)</th>
<th>DST Transfers</th>
<th>Level Rises</th>
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<td>260</td>
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<td>260</td>
<td>520</td>
<td>10</td>
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<td>175</td>
<td>20%</td>
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**WVR = Waste Volume Reduction; WVRF = Waste Volume Reduction Factor**

**Basis:** EC-04/05 are actuals. EC-06 through EC-29 are from Run 3 of MMR-50087. Run 3 delays the AP-106 level rise from FY16 to 17, defers the start of AX Farm SST retrievals, and incorporates a LAWPS outage schedule for the DST and transfer system upgrades supporting LAWPS starting in FY18. 242-A Campaign plans will continue to evolve during collaboration with Process Engineering, Operations, Production Control, and Project Integration following MYOP Rev. 5.

*aNot including the two DST transfers needed for each level rise.
Available Operating Space in East Area for SST Retrievals

On this figure, the available operating space is the DST space that is available in East Area for SST Retrieval.

It is the total headspace in all East Area DSTs excluding the headspace on:
- Group A tanks
- Complexed Concentrate tanks: AN-102, AN-107
- AY-102
- DFLAW tanks (when used to support DFLAW): AP-103, AP-105, AP-107, AP-108, AW-106
- AW-102 above 390"
- AW-103 - AW-106 above 380" after backfilling with concentrated supernatant
On this figure, the available emergency space is the DST space that is available in East Area for emergency pumping use. It is the total headspace in all East Area DSTs, excluding the headspace on Group A tank headspace.
Projected DST Volumes and Use

- Units on horizontal axes are in calendar years.
- Units on vertical axes are in gallons.

- Total Volume vs. Years
- Settled Solids vs Years
- Solids Level Limit

- Total Volume vs. Calendar Year:
  - 2016
  - 2017
  - 2018
  - 2019
  - 2020
  - 2021

- Settled Solids vs Calendar Year:
  - 2016
  - 2017
  - 2018
  - 2019
  - 2020
  - 2021

- Solids Level Limit:
  - 2016
  - 2017
  - 2018
  - 2019
  - 2020
  - 2021

- LAWPS Feed
- LAWPS Feed Prep