



OFFICE OF RIVER PROTECTION

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14-TF-0112

SEP 18 2014

Ms. Jane A. Hedges, Program Manager
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3100 Port of Benton Blvd.
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Ms. Hedges:

ADMINISTRATIVE ORDER NO. 10618, TRANSMITTAL OF DOCUMENTS TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY IN RESPONSE TO ADMINISTRATIVE ORDER ITEM NUMBERS 9 AND 10

- References:
1. ORP letter from K.W. Smith to J.A. Hedges, Ecology, "Administrative Order No. 10618, Transmittal of Documents to the State of Washington, Department of Ecology in Response to Administrative Order Item Numbers 9 and 10," 14-TF-0096, dated August 19, 2014.
 2. Administrative Order Docket #10156 for the Hanford Site, EPA/State ID WA7890008967, dated March 21, 2014.

Item 9 of the referenced Administrative Order requires the U.S. Department of Energy, Office of River Protection (ORP) and Washington River Protection Solutions LLC (WRPS) to:

- Within 120 days of the effective date of this Order, submit a detailed waste retrieval work plan to Ecology for removing the remaining waste from Tank 241-AY-102. The waste retrieval work plan shall include, but is not limited to, detailed descriptions of:
 - a. The engineering design and the steps taken to procure equipment, including those steps already undertaken, with a schedule for the procurement of each piece of equipment, showing that these activities either have been or will be completed at the earliest practicable time.
 - b. The steps necessary for installation of all needed out-of-tank equipment and in-tank equipment for removing the waste from Tank 241-AY-102.
 - c. The number and schedule of 242-A Evaporator runs, including support activities needed.
 - d. The schedule for installation and start-up of equipment needed to support transfers to other double-shell tanks.

SEP 18 2014

Item 10 of the Administrative Order requires ORP and WRPS to:

- Officially submit all supporting documentation that justifies the schedule for the above requirements.

RPP-RPT-59931, Rev. 0, *AY-102 Recovery Project Waste Retrieval Work Plan*, provides the waste retrieval work plan and supporting documentation for removing primary tank and pumpable annulus waste from 241-AY-102. This includes, but is not limited to, detailed descriptions and project schedules requested by action item numbers 9 and 10 of the Administrative Order. RPP-RPT-59931, Rev. 0, was submitted with letter 14-TF-0096 on August 19, 2014. Enclosed is RPP-RPT-59931, Rev. 2. The revision was necessary to remove the Official Use Only classification from the document.

If you have any questions, please contact Thomas W. Fletcher, Assistant Manager for Tank Farms, at (509) 376-3434.



Kevin W. Smith
Manager

Attachment

cc w/attach:
M.D. Bellon, Ecology
Administrative Record
Environmental Portal, LMSI
WRPS Correspondence Control

ATTACHMENT

14-TF-0112

**RPP-RPT-59931,
AY-102 RECOVERY PROJECT WASTE RETRIEVAL WORK PLAN,
REV. 2**

RPP-PLAN-59931, Rev. 2

AY-102 Recovery Project Waste Retrieval Work Plan

S. P. Guillot
Washington River Protection Solutions LLC

Date Published
August 2014

Prepared for the U.S. Department of Energy
Office of River Protection

Contractor for the U.S. Department of Energy
Contract No. DE-AC27-08RV14800



Post Office Box 850
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DOCUMENT RELEASE AND CHANGE FORM		1a. Doc No: RPP-PLAN-59931 Rev. 02	
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4. USQ Number <input type="checkbox"/> N/A	5. PrHA Number <input type="checkbox"/> N/A		
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c. For Safety Significant equipment, does the change require a modification to Chapter 4 of the DSA and/or FRED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A Basis is required for Yes: _____			
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PrHA Lead	SMITH, RYAN D	SMITH, RYAN D	08/27/2014
Responsible Manager	GREENWELL, DOUG	FRANKLIN, WHITNEY J for GREENWELL, DOUG per telecon	08/27/2014
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RPP-PLAN-59931, Rev. 2

AY-102 Recovery Project Waste Retrieval Work Plan

Author Name:
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Richland, WA 99352
U.S. Department of Energy Contract DE-AC27-08RV14800

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Abstract: Abstract: The purpose of this document is to provide to the State of Washington, Department of Ecology (Ecology), the waste retrieval work plan and supporting documentation for removing primary tank and pumpable annulus waste from 241-AY-102 (AY-102). This includes, but is not limited to, detailed descriptions and project schedules for the following scope requested by action item numbers 9 and 10 of the Administrative Order (AO) Docket 10156 (Corrected Docket Number 10618) issued by Ecology on March 21, 2014.

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APPROVED
By Julia Raymer at 8:34 am, Sep 15, 2014

Release Approval

Date

DATE:
Sep 15, 2014 
**HANFORD
RELEASE**

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Approved For Public Release

Tank Operations Contractor (TOC) RECORD OF REVISION		(1) Document Number: RPP-PLAN-59931		Page 1
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Change Control Record				
(3) Revision	(4) Description of Change – Replace, Add, and Delete Pages	Authorized for Release		
		(5) Author. (print/sign/date)	(6) Resp. Mgr. (print/sign/date)	
2 RS	Removal of Official Use Only Classification.	S. P. Guillot <i>S. P. Guillot</i> 8-26-14	R. D. Greenwell <i>R. D. Greenwell</i> 8-27-14	

RPP-PLAN-59931, Rev. 2**EXECUTIVE SUMMARY**

The purpose of this document is to provide to the State of Washington, Department of Ecology (Ecology), the waste retrieval work plan and supporting documentation for removing primary tank and pumpable annulus waste from 241-AY-102 (AY-102). This includes, but is not limited to, detailed descriptions and project schedules for the following scope requested by action item numbers 9 and 10 of the Administrative Order (AO) Docket 10156 (Corrected Docket Number 10618) issued by Ecology on March 21, 2014:

- The engineering design and the steps taken to procure equipment, including those steps already undertaken, with a schedule for the procurement of each piece of equipment, showing that these activities either have been or will be completed at the earliest practicable time.
- The steps necessary for installation of all needed out-of-tank equipment and in-tank equipment for removing the waste from Tank 241-AY-102.
- The number and schedule of 242-A Evaporator runs, including support activities needed.
- The schedule for installation and start-up of equipment needed to support transfers to other DSTs.

The detailed work steps corresponding to the above list are included in the following phased scope:

- The AY-102 Recovery Project - Phase 1 scope for the engineering and design of the AY-102 primary tank Waste Retrieval and Transfer System (WRS), and
- The AY-102 Recovery Project - Phase 2 scope for equipment procurement, equipment removal and installation, DST to DST transfers and 242-A Evaporator campaigns, startup and readiness, and operation of the AY-102 WRS deployed on DST 241-AY-102 and the receiver DST 241-AP-102.

The detailed work steps, schedule, and supporting documentation presented in this plan are consistent with the objective of the AY-102 Recovery Project to complete the removal of primary tank waste to the capability limit of the selected modified sluicing and high-pressure water technologies currently used in SST retrieval operations, and to enable inspection of the leak site(s) to allow for an eventual determination of repair or closure of the tank.

The schedule for completion of the detailed work steps includes risk-based contingency at a level sufficient to provide a 50% confidence level for meeting the project completion milestones. Expected dates for readiness to initiate waste removal from Tank 241-AY-102, range from March 4, 2016 (pumping plan), to October 1, 2016 (includes schedule contingency for realized risk). Achieving the start of AY-102 waste retrieval operation milestone within this range may require the AY-102 Recovery Project to be fully prioritized against other tank operations activities.

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RPP-PLAN-59931, Rev. 2**LIST OF TERMS****Abbreviations and Acronyms**

241-AY-102	AY-102
ALC	Air Lift Circulator
AO	Administrative Order
AY-102	DST 241-AY-102
CGD	Commercial Grade Dedication
CTF	Cold Test Facility
DST	Double-Shell Tank
Ecology	State of Washington, Department of Ecology
ERSS	Extended Reach Sluicer System
GFS/I	Government-Furnished Services and Information
HIHTL	Hose-in-Hose-Transfer Line
HP	High Pressure
HTWOS	Hanford Tank Waste Operations Simulation
LAW PS	Low-Active Waste Pretreatment System
MYOP	Multi-Year Operating Plan
PEP	Project Execution Plan
SST	Single-Shell Tank
TOC	Tank Operations Contractor
WBS	Work Breakdown Structure
WRPS	Washington River Protection Solutions LLC
WRS	Waste Retrieval and Transfer System

RPP-PLAN-59931, Rev. 2**1.0 INTRODUCTION****1.1 PURPOSE**

The purpose of this document is to provide to the State of Washington, Department of Ecology (Ecology), the waste retrieval work plan and supporting documentation for removing primary tank and pumpable annulus waste from 241-AY-102 (AY-102). The details include supporting documentation and project schedules requested by action item numbers 9 and 10 of the Administrative Order (AO) Docket 10156 (Corrected Docket Number 10618) issued by Ecology on March 21, 2014. The AO action item numbers 9 and 10 state:

9. Within 120 days of the effective date of this Order, submit a detailed waste retrieval work plan to Ecology for removing the remaining waste from Tank 241-AY-102. The waste retrieval work plan shall include, but is not limited to, detailed descriptions of:
 - a. The engineering design and the steps taken to procure equipment, including those steps already undertaken, with a schedule for the procurement of each piece of equipment, showing that these activities either have been or will be completed at the earliest practicable time.
 - b. The steps necessary for installation of all needed out-of-tank equipment and in-tank equipment for removing the waste from Tank 241-AY-102.
 - c. The number and schedule of 242-A Evaporator runs, including support activities needed.
 - d. The schedule for installation and start-up of equipment needed to support transfers to other DSTs.
10. Officially submit all supporting documentation that justifies the schedule for the above requirements.

1.2 RETRIEVAL WORK PLAN OBJECTIVES

The objective of this plan is to present the AY-102 Recovery Project scope, strategy and detailed project work steps to design, procure and install a waste retrieval and transfer system (WRS) to retrieve and transfer AY-102 tank waste to the capability limit of the selected modified sluicing and high-pressure (HP) water technologies to enable inspection of the leak site(s) to allow for an eventual determination of repair or closure of the tank. This plan provides for the safe and expedient removal of the waste to reduce the potential hazard from the compromised DST.

Section 2.0 describes the project execution strategy and phased approach based on the current technical challenges, uncertainties, and risks faced by the project, the existing waste retrieval technology limitations, and the experience and lessons learned from past Tank Farm retrieval operations.

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Section 1.0 provides details of how the execution strategy was developed into a project execution plan (PEP), describing the sequence of engineering, procurement, construction, and operations steps leading to removal of the AY-102 waste.

Section 4.0 describes detailed project activities logically sequenced into an execution schedule optimized to reduce the project duration. This section highlights the project's critical path and the sequence of activities driving the overall project duration; and impacts of risk-based schedule contingency to provide reasonable assurance of project completion within the indicated milestones to the extent practical.

Section 5.0 presents the provided documentation to support the assumptions used to build the project schedule.

The following table provides a matrix for location of information requested by AO Action Items 9 and 10 by document section of this plan, and schedule WBS and work scope activities contained in the attached project schedule. The status of work scope progress and completed activities is included in project schedules in Attachment B.

AO Item #	AO Element	Work Plan	Schedule WBS	WBS Activity
9a	Engineering design and the steps taken to procure equipment.	Section 3.1 Section 3.2	5.01.01.15.01.02 AY-102 Design and Engineering	5.01.01.15.01.02 Site Evaluation of HIHTL Transfer Route AY Farm to AP Farm Subcontract - Design Support Subcontract - Backstop Design Subcontract - ERSS Design Build Subcontract- Independent Qualified Responsible PE Services Subcontract - AY-102 Waste Thermal Analysis Identify preferred waste transfer route for AY-102 Routes Prepare AY-102 WRS Level 2 Specification Prepare AY-102 SL Pump Assembly design Prepare Pit Jumper designs for SL pump Prepare Pit cover plate designs (AY-102) Prepare SN Splitter box and manifold design Prepare Transfer Route Shielding Design Prepare Design for AY-102 WRS Control Trailer & Operator Work Station AY Farm Water Utilities Upgrade Prepare design for AY-02A Pit drain isolation AY Farm Mechanical Layout & Installation Design AY Farm Electrical Layout & Installation Design AY-02A Pit Installation Design SL Pump & ERSS HPU Installation Design AY Farm Mechanical Layout & Installation Design AY Farm Electrical Layout & Installation Design AY-02A Pit Installation Design SL Pump & ERSS HPU Installation Design Conduct Preliminary Process Hazards Analysis Meeting for AY-102 WRS Prepare & Assemble Documents for Control Decision Meeting Conduct Radiological Engineering Design Studies Prepare Process Control Plan for AY-102 Waste Retrieval Prepare Waste Compatibility Assessment for AY-102 Waste Retrieval Prepare AY-102 WRS project memo - Receipt of Feed Control List Prepare and approve AY-102 WRS test program worksheet Prepare Criticality Safety Evaluation Report for AY-102 waste retrieval Prepare FREDs for safety-related AY-102 WRS equipment Implement AB Amendment for AY-102 WRS Operations Review/Comment on Operating Procedure for AY-102 WRS Waste Retrieval and Transfer Prepare Draft Alarm Response Procedure for AY-102 WRS Waste Retrieval and Transfer

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AO Item #	AO Element	Work Plan	Schedule WBS	WBS Activity
				Prepare Final IQRPE for AY-102 WRS Installation Prepare design for AY-102 WRS Remote RARM (RadCon) System Review and comment on preliminary AY-102 WRS Integrated Design Description Prepare definitive design of Extended Reach Sluicing System Assembly ALARA Plan for equipment removal Prepare ALARA Plan for ex-tank equipment installation Prepare ALARA Plan for in-tank equipment installation
			5.01.01.15.04.02 AP-102 Design and Engineering	Conduct Thermal Analysis to identify preferred retrieval strategy Equipment Removal & Site Preparation Design Prepare SN Pump Assembly Design (AP-102) Prepare Pit Jumper designs for SN pump Prepare Pit cover plate designs (AP-102) AP Farm Mechanical Layout & Installation Design AP Farm Electrical Layout & Installation Design AP-02A Pit Installation Design SN Pump HPU Installation (AP-102) Design In-Tank Video Equipment Installation Design
9a	Schedule for the procurement of each piece of equipment, showing these activities either have been or will be completed at the earliest practicable time.	Section 5.1 Attachment B	5.01.01.15.02.01 AY-102 Misc. Procurements and Support	Isolation Valves Flow Control Valves (60 degree V notch Ball Valves) ERSS Filters Flow Meters for SL & SN Pumps Pressure Indicators for Pumps Gasket Materials Purex Nozzles, Connector Heads & Connector Assemblies TFE Gaskets for Purex Connectors Flex Piping Jumpers Proprietary Pipe Unions Flex Piping Jumpers Proprietary Pipe Unions Thermocouples Strong-Backs Leak Detector Assemblies & Indicator Panels (GS) Video Cameras, Lamps, Video Monitors & Cables (GS) Prepare RFP for AY-102 Slurry Pump Assembly Fabrication & Test Prepare MR AY-102 ERSS WRS Hose in Hose Transfer Lines (HIHTL) Procurement Procure Pressure Transducer for Pumps Procurement of Thermowells

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AO Item #	AO Element	Work Plan	Schedule WBS	WBS Activity
			5.01.01.15.02.02 AY-102 Major Procurements	Manufacture & Test AY-102 SL Transfer Pump & HPU AY-102 SL Pump Assembly Fabrication Manufacture (5) AY-102 ERSS & (2) HPU AY-102 Sluicer Splitter Box & Manifold Fabrication AY Farm Water Distribution Skid Fabrication & Testing AP Farm Electrical Distribution Skid Fabrication - AY-102 WRS Operations Control Trailer & Work Station Procurement WRS Hose in Hose (HIHTL) Procurement Fabricate WRS Pit Cover Plate HIHTL Shielding Procurement AY-102 Ventilator Procurement AY-102 Ventilation Cooling Tower Procurement
			5.01.01.15.05.01 AP-102 Misc. Procurements and Support	Vendor Prepare & Submit Proposal for AP-102 SN Transfer Pump & HPU
			5.01.01.15.05.02 AP-102 Major Procurements	Manufacture & Test AP-102 SN Transfer Pump & HPU AP-102 Supernatant Pump Assembly Procurement
9b	Steps necessary for the installation of all needed out-of-tank equipment and in-tank equipment.	Section 3.3 Attachment B	5.01.01.15.03.01 AY-102 Video/Pit Examinations	Prepare AY-102 WRS Construction cost estimate Plant Forces Work Review Development & Release of Contract to Perform Video Exams Procurement of Video Equipment Video Inspection of AY-02D & AY-02E Pits (TFC-WO-14-2078) Video Inspection of AY-02B & AY-02C Pits (TFC-WO-14-2080) AY-102 In-Tank Video Examinations (TFC-WO-14-2079) Work Package Planning for Pit Equipment Removal & Rehabilitation AY-02B Pit - Removal of Blow Sand from Lifting Bails (TFC-WO-14-2692) AY-02B Pit Equipment Removal AY-02B Pit Rehabilitation AY-02C Pit - Removal of Blow Sand from Lifting Bails (TFC-WO-14-2692) AY-02C Pit Rehabilitation AY-02D Pit - Removal of Blow Sand from Lifting Bails (TFC-WO-14-2692) AY-02D Equipment Removal AY-02D Rehabilitation AY-02E Pit - Removal of Blow Sand from Lifting Bails (TFC-WO-14-2692) AY-02E Pit Equipment Removal AY-02E Pit Rehabilitation Fabricate Temporary Pit Cover Plates Ventilator Installation Cooling Tower Installation
			5.01.01.15.03.02 Work package Planning	Work Package Planning for Pit Equipment Removal & Rehabilitation

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AO Item #	AO Element	Work Plan	Schedule WBS	WBS Activity
				Work Package for AY-02B Pit Equipment Removal Work Package for AY-02B Pit Rehabilitation Work Package for AY-02C Pit Rehabilitation Work Package for AY-02D Equipment Removal Work Package for AY-02D Rehabilitation Work Package for AY-02E Pit Equipment Removal Work Package for AY-02E Pit Rehabilitation Work Package Planning for AY-02A Pit Equipment Installation Install Equipment in AY-02A Pit
			5.01.01.15.03.03 Equipment Removal and Pit Rehab	WRS In-Tank Equipment Installation Prepare Work Packages to Install ERSS in AY-102 Pits ERSS Installation in AY-02D Pit ERSS Installation in AY-02C Pit ERSS Installation in AY-02B Pit ERSS Installation in AY-02E Pit Install Hydraulic Power Unit for AY-102 ERSS Perform AY-102 ERSS System Testing Close AY-102 Sluice Pits B, C, D & E
			5.01.01.15.03.04 AY-102 Out- of- Tank Installation	Water Skid Installation Prepare Work Packages for AY-102 Electrical Skid Installation AY-102 Electrical Skid Installation Prepare Work Packages for 480V Power Tie-In 480V Power Tie-In Prepare Work Packages for Control Trailer Installation Control Trailer Installation Prepare Work Packages for Splitter Box Installation Splitter Box Installation
			5.01.01.15.06.01 AP-102 Pit Exam and Video	Video Inspection of AP-02A Pit (TFC-WO-14-2081)
			5.01.01.15.06.02 AP-102 Remove Mixer Pump & Rehab of Pit	AP-02A Pit - Equipment Removal AP-02A Pit - Rehabilitation
			5.01.01.15.06.03 AP-102 Work Package Planning	AP-102 Work Package Planning for Equipment Installation AP-102 Pump Pit Equipment Installation AP-102 Install Hydraulic Power Unit AP-102 Test & Close
			5.01.01.15.06.04 WRS Transfer System - HIHTL Installation	Prepare & Award Contract to install HIHTL AY Farm HIHTL Installation Work Package Preparation Install AY Farm HIHTL Transfer Line

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AO Item #	AO Element	Work Plan	Schedule WBS	WBS Activity
				Inter Farm HIHTL Installation Work Package Preparation Install Inter Farm HIHTL Transfer Line AP Farm HIHTL Installation Work Package Preparation Install AP Farm HIHTL Transfer Line
9c	Number and schedule of 242-A Evaporator runs, including project support activities needed.	Section 3.4.2 Section 5.5 Attachment F		
9d	Schedule for the installation and startup of the equipment needed to support transfers to other DSTs.	Section 3.4.1 Section 5.5 Attachment F	5.01.01.15.07.01 AY-102 & AP-102 Integrated Startup & Readiness	WRS Readiness for Operations Prepare Test Program Worksheet (TPW) Prepare Test Plan (TP) Review FAT Plans Prepare Operational Acceptance Test (OAT) Perform OAT Prepare Test Results Report (TRR)
10	Supporting documentation to justify the schedule.	Section 5 Attachments A thru F		

RPP-PLAN-59931, Rev. 2**2.0 PROJECT EXECUTION STRATEGY****2.1 TECHNICAL APPROACH**

The AY-102 Recovery Project has been directed by the Department Of Energy Office of River Protection (DOE ORP) to proceed with the execution of the RPP-PLAN-55220, *241-AY-102 Pumping Plan*, which defines the approach for removal of the tank waste on a timeline as soon as practicable. The objective of the AY-102 Recovery Project is to remove sufficient tank waste to enable future inspections of the primary tank shell that support evaluations for tank repair or determinations for tank closure. The project is proceeding in a phased approach with the planning and execution of all activities leading to waste retrieval. The main project work activities detailed in this document are:

- Phase 1 - Engineering and design of the AY-102 Waste Retrieval and Transfer System (WRS), including modifications and upgrades to the AP-102 receiver tank, AP Farm and AY Farm, and
- Phase 2 – WRS equipment and material procurement, equipment removal and installation, modification and upgrades, DST to DST transfers and 242-A Evaporator campaigns, startup testing, turnover of the AY-102 WRS to Operations, and the execution of waste retrieval and transfer operations from the AY-102 tank.

Project scope descriptions, and the specific breakdown of activities and corresponding work breakdown structure (WBS) elements for Phase 1 and Phase 2 are detailed in Attachment A, RPP-PLAN-56413, *AY-102 Recovery Project Execution Plan*. The WBS structure organizes and defines the total project scope into increasingly detailed definitions of specific work activities. Section 4.0, describes how the WBS and detailed work activity elements are logically sequenced into the project execution schedule.

2.2 DST RECEIVER TANK SELECTION

The AP-102 tank has been assigned as the receiver tank for the AY-102 tank waste based on Hanford tank waste operations simulations modeling and preliminary process studies performed as part of the Project Phase 1 engineering and design work. The decision to utilize the AY-102 tank as the receiver tank is documented in RPP-RPT-57042, *Decision Report for the Disposition of Sludge from Tank 241-AY-102 and the 241-A/241-AX Farm Tanks*.

2.3 DST WASTE RETRIEVAL TECHNOLOGY SELECTION AND LIMITATIONS

Consistent with the overall objective of removing the waste from AY-102 in a safe and expedient way to allow for an inspection of the leak sites, several strategies and approaches were considered. There are a large number of factors, including uncertainties that influence the selected approach and technology selection. Uncertainties currently exist regarding the

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feasibility of final tank inspections, leak site(s) investigation, and tank repair or closure determination, including:

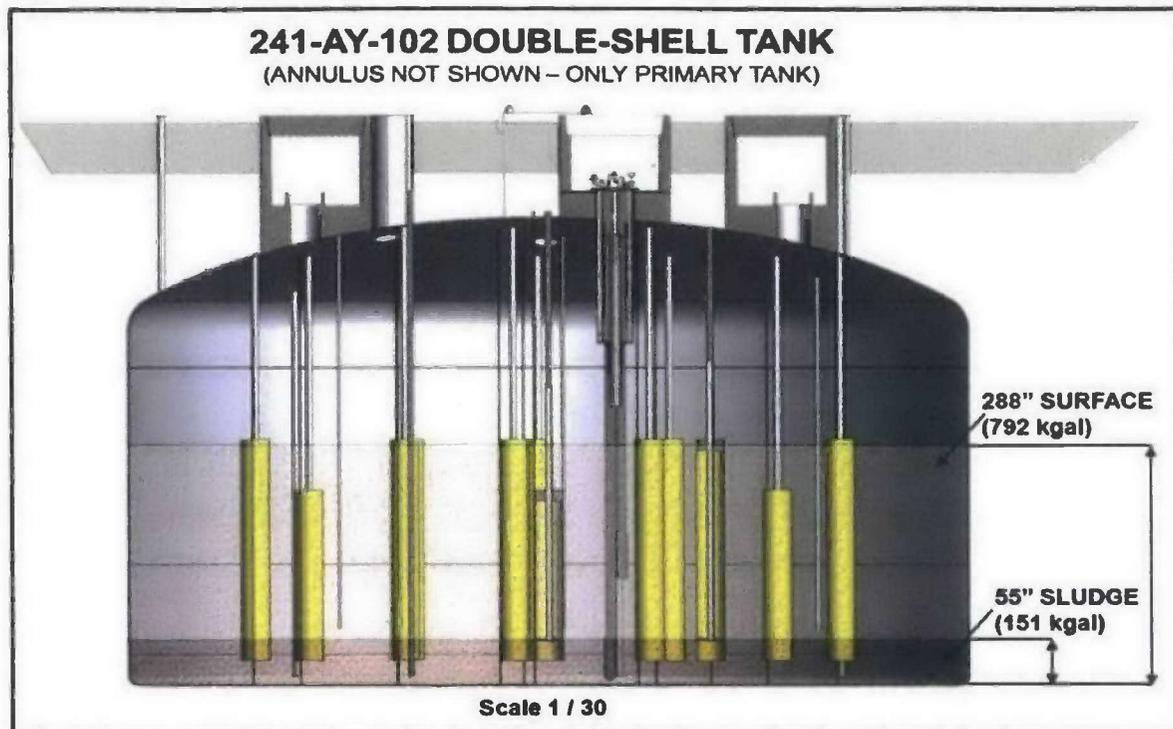
- The Physical characteristics and location of the tank waste sludge that could prevent removal of solids sufficient to reveal the primary tank leak site location,
- The capability of existing waste retrieval technologies to remove and transfer waste from a large DST tank that includes 22 ALCs, thermal wells, and other interferences not seen in SST retrievals (first of a kind application),
- The condition of the bottom of the primary tank and the leak site(s) once the waste has been removed to the extent practical. The in-tank video camera's used to position the sluicer nozzles are limited to specific locations and elevations that prevent video observation of the tank floor, and
- The capabilities of the available inspection techniques have not been developed for final tank inspection and leak site investigation within the environment of the primary tank once the waste has been removed. Inspection techniques would likely require robotic deployment to reach primary tank shell locations under the ALCs

Though sludge waste mobilization, retrieval, and transfer have been executed for many years for C Farm SST retrieval operations, there are several key differences between the C Farm tanks and the AY-102 tank that support these uncertainties. These differences include:

- The C Farm tanks have a 530,000-gallon storage capacity verses the 1,000,000-gallon capacity of the AY-102 tank. The additional storage capacity is realized by the 15 feet taller side walls. The additional tank height and requirement for longer length retrieval equipment requires additional work scope and schedule duration to support the impacts to engineering, procurement and construction.
- The bottom of the C Farm tanks are sloped toward a low point at the radial center of the tank allowing sluicing liquid and solids to move toward and collect at the location of the waste transfer pump. The AY-102 tank is flat bottomed, which will challenge the capabilities of the current sluicing systems and slurry pump to remove the last inches of tank waste.
- The C Farm tanks do not contain large tank internal structures such as the 22 air lift circulators (ALCs). These structures introduce interferences that block access to tank waste and are a barrier to the full range movement of the sluicer radial arm and spray nozzle. To address these challenges, four ERSS sluicers will be installed at radial locations to maximize mobilization of waste sludge to the waste slurry transfer pump. Figure 2-1 shows a diagram that portrays the current configuration of the AY-102 tank, and levels of sludge and supernatant.

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Figure 2-1. Air Lift Circulators in AY-102 Tank.



The AY-102 Recovery Project selection of the ERSS modified sluicing and HP water technologies were based on evaluations of past waste retrieval sluicing performance. The evaluation criteria and results are documented in RPP-RPT-56094, *Alternatives Evaluation for Tank 241-AY-102 Modified Sluicing*. These waste retrieval technologies are based on existing and proven technologies previously used to transfer the AY-102 tank waste from the C-106 tank, and presently used for C Farm SST retrievals. The project assumes these technologies will mitigate the uncertainties regarding the condition of the waste and tank configuration.

The modified sluicing technologies will utilize either supernatant or high pressure water to mobilize solid waste towards the centrally located waste slurry transfer pump. The sluicers are located 90 degrees apart which will optimize deployment of the sluicer nozzle around and behind the 22 ALCs (see Figure 2-2) in order to mobilize waste from behind these structures. The project includes a full scale remotely operated ERSS training mockup at the Cold Test Facility (CTF) that will incorporate operational procedures for sluicing in an environment that includes these structural interferences.

Project Execution Strategy – Implement retrieval technologies which have been proven on SST retrieval operations, and install four ERSS sluicers in AY-102 to help ensure waste is mobilized and retrieved from the tank.

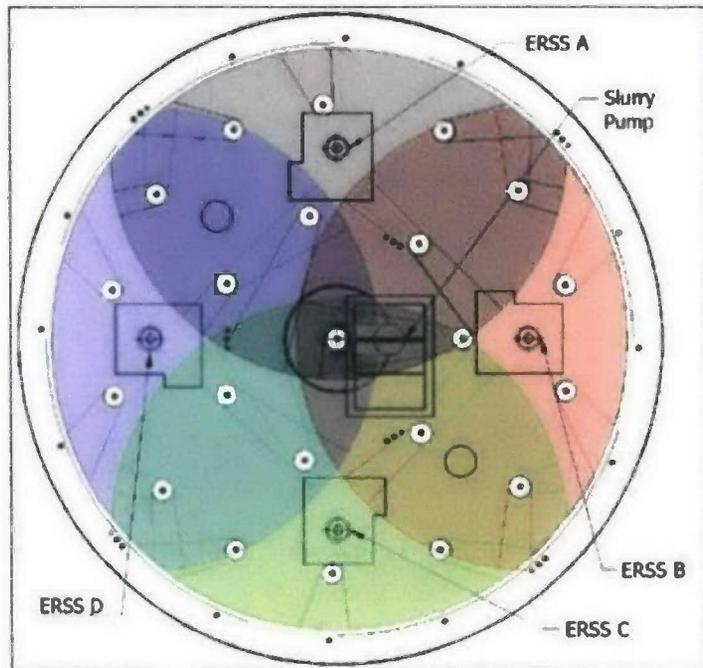
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Figure 2-2. Photo of the ALCs in the AY-102 Tank.



Figure 2-3 shows the positions that have been selected for the ERSSs in order to optimize sluicing of the bottom of the tank.

Figure 2-3. Selected ERSS Locations in the AY-102 Tank.



RPP-PLAN-59931, Rev. 2**2.4 CRITERIA FOR PROJECT PHASE 2 COMPLETION AND DOUBLE-SHELL TANK WASTE RETRIEVAL TECHNOLOGY SELECTION**

Most of the solids contained in tank AY-102 were previously transferred from C-106 using modified sluicing. The waste solids in AY-102 have remained covered by supernatant from that time until the present which reduces the likelihood for the presence of waste hard heel. Based on these conditions, it is anticipated that the mobilization and retrieval of the solids will be successfully executed using the same technology.

The primary tank waste removal and Phase 2 scope will be considered complete when sludge removal operations have reached the capability limit of the two selected retrieval technologies; modified sluicing and HP water. Ideally, the degree of removal will be sufficient to enable the subsequent identification and inspection of the leak site(s), or to identify work scope that will support a decision for tank repair or closure. The definition of the capability limits will be based on what is currently used with modified sluicing in SST retrieval operations, and described in RPP-50910, *Single-Shell Tank Waste Retrieval Limit of Technology Definition for Modified Sluicing*. Removal is considered complete once the concentration of slurry sent to the receiver tank is within, or bracketing, the range of zero to 0.6 volume percent.

Project Execution Strategy – Mobilize and transfer the AY-102 sludge using modified sluicing and HP water technologies to the limit of these two technologies, then evaluate the need for a third technology, and implement its use, as needed, as part of a future project phase.

2.5 AY-102 WASTE RETRIEVAL AND TRANSFER SYSTEM PRELIMINARY DESIGN STATUS

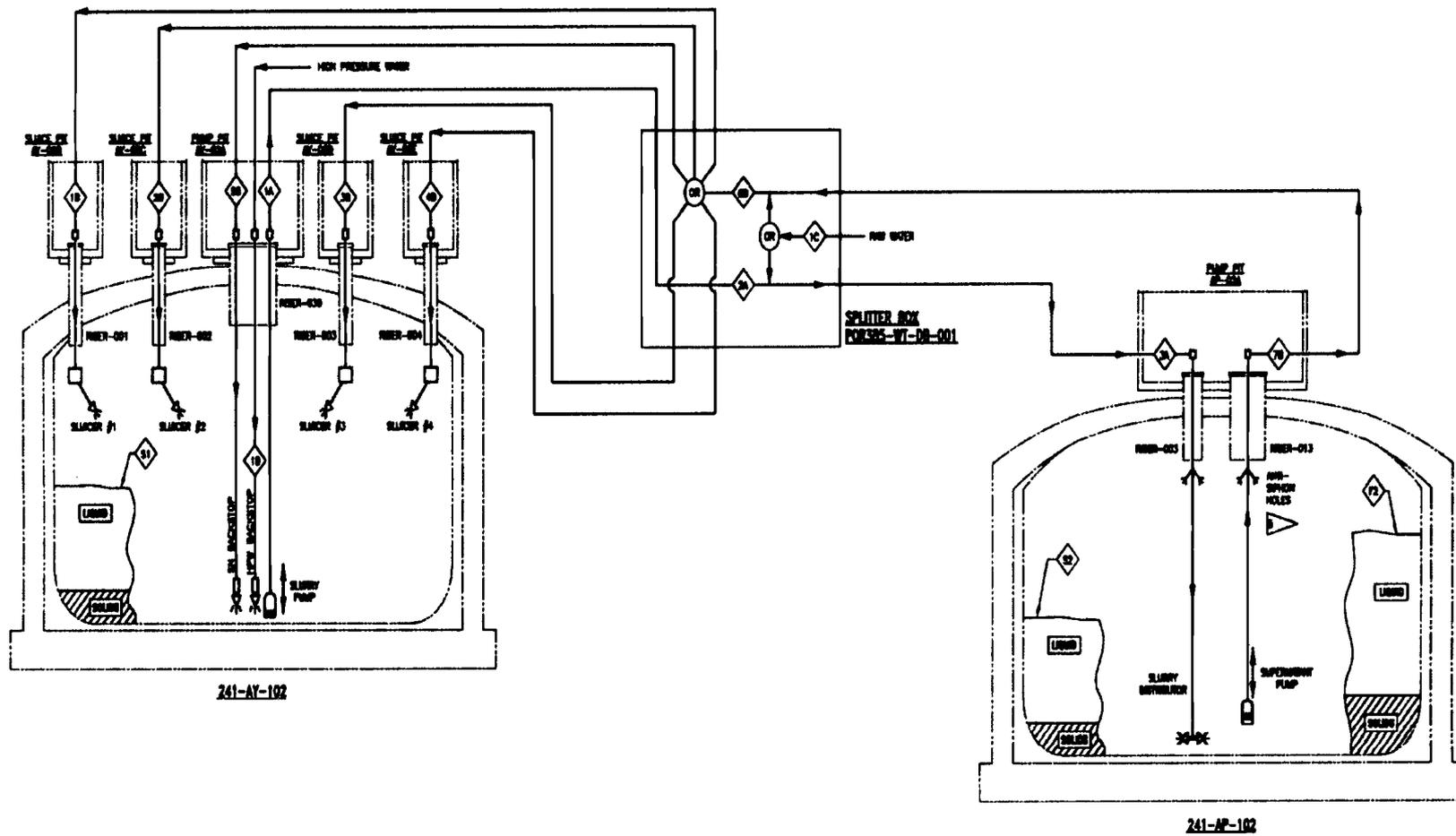
The AY-102 Recovery Project scope includes design and engineering of the AY-102 waste retrieval and transfer system, and all Tank Farm infrastructure and tank modifications and upgrades required to receive the retrieval and transfer equipment, and for turnover of the system to Operations. The following is a summary of the work currently in progress and supporting equipment design and procurement activities:

- The ERSS modified sluicing and HP water technologies will be used to remove the AY-102 tank waste solids using recycled tank waste supernatant as the sluicing medium.
- Four ERSSs will be located around the perimeter of the tank to provide as much removal capability as is practical to remove the waste from all locations in the tank. The ERSS includes a boom that extends and retracts from the support mast to increase the effectiveness of the sluicer nozzle. The sluicer is a remote controlled, high-volume jetting system equipped with an articulating nozzle that rotates and moves vertically to break up tank waste at different locations. The combination of the boom extension and the nozzle provide capability for sluicing behind air lift circulators and other objects within the reach of the boom. The ERSS nozzle is also used to move the waste back towards a slurry pump installed near the center of the AY-102 tank.

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Figure 2-4 depicts the preliminary process flow diagram for the AY-102 WRS, including four ERSSs and a slurry transfer pump in the AY-102 tank, and a supernatant transfer pump in the AP-102 tank.

Figure 2-5. Preliminary Process Flow Diagram for the AY-102 Waste Retrieval and Transfer System.



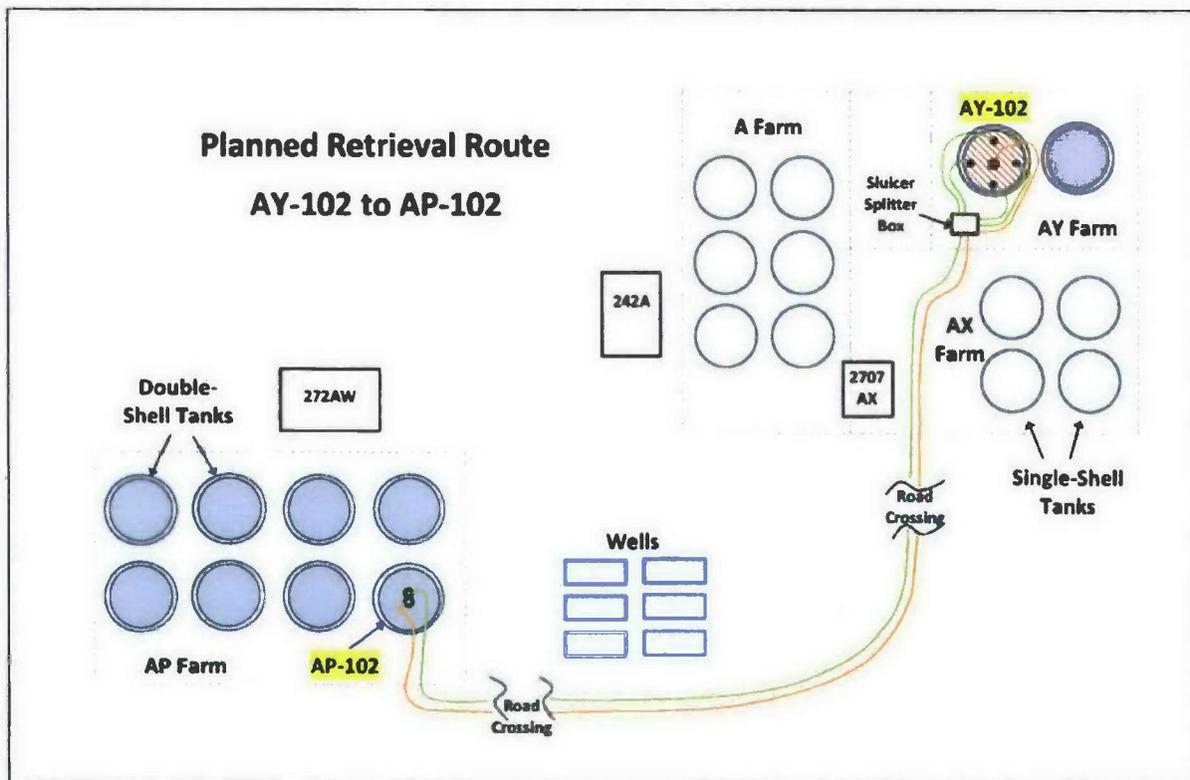
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Solids removal using modified sluicing is likely to disturb the leak site and increase the leak rate from the primary tank to the annulus. Pumpable liquids which may then accumulate in the tank annulus space will be removed using an annulus pumping system similar to the emergency annulus pumping system. The annulus pumping system will be designed as an integral element of the WRS, and installed prior to the start of sludge removal operations to enable management of potential liquid accumulation in the annulus while primary tank waste is being retrieved.

Hose-in-Hose-Transfer Lines (HIHTLs) will be routed to and from the sending and receiving tanks with appropriate valve boxes, allowing transfer routes to be established between the AY-102 waste tank and the AP-102 receiver tank. Primary equipment in the AP-102 receiver tank will include a supernatant pump, slurry distributor, monitoring systems, and other ancillary equipment required for retrieval operations. Figure 2-5 and Figure 2-6 illustrate the current configuration of the HIHTLs between the AY-102 and the AP-102 tanks. The total length of the HIHTL route is estimated to be approximately 1,800 feet, including 500 feet underground through the AY and AX Farms.

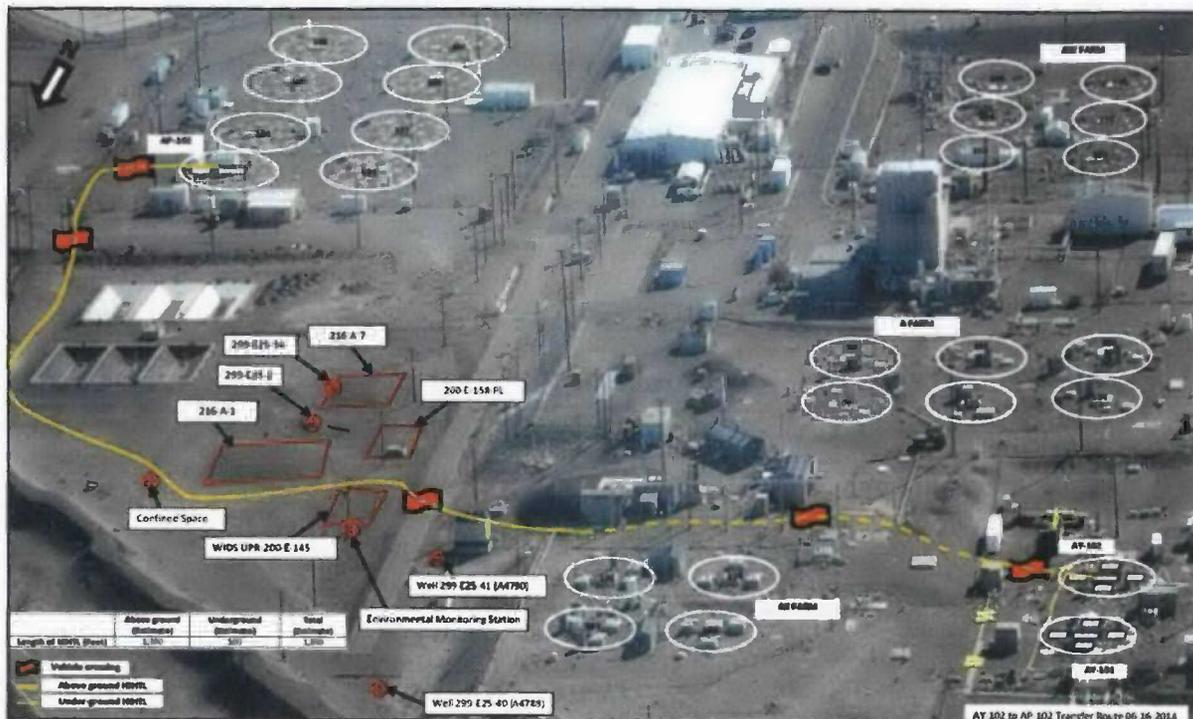
Project Execution Strategy – Include lessons learned from present ERSS sluicing operations to identify performance upgrades to be included in project design and procurement specifications.

Figure 2-6. Current Configuration Sketch of the Hose-in-Hose-Transfer Line (HIHTL) Route between Tanks AY-102 and AP-102.



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Figure 2-7. Current Configuration Aerial View of the Hose-in-Hose-Transfer Line (HIHTL) Route between Tanks AY-102 and AP-102.



2.6 RISK MANAGEMENT

WRPS RISK SUMMARY

To ensure successful completion of the project it is necessary to identify contingency plans and funding necessary to respond to the realization of project risks. Based on the assessment, WRPS owns 30 risk events that if realized would negatively impact the ability to successfully retrieve AY-102 in the time allotted. Following execution of the handling strategy actions provided in the table below, two risk elements remained at a high residual risk level. In both cases while significant improvement was achieved by the handling actions, further mitigation is neither cost effective nor viable. These risks (R-4 and S-4) will continue to be closely monitored by the project team throughout execution of AY-102 Recovery to allow for a timely and efficient response if the risks are realized. It should be noted that residual risk remains for those handling strategies that have been completed.

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
1	D-2	Waste characterization insufficient to meet needs.	High	Mitigate	<ol style="list-style-type: none"> Robust design to accommodate conservative assumptions; and Share assumptions with customer and obtain customer buy-in on limit of two technologies methodology. 	<ol style="list-style-type: none"> Design of modified sluicing technology includes updates to system based on lessons learned and technology development (extended reach sluicer arm, multiple nozzles located on end effector, more durable hydraulic hoses, etc.). Active Limit of technology criteria was developed to establish retrieval end point. Active 	Medium
2	D-4	Waste Chemistry / Heat Control More Complex Than Anticipated.	Medium	Mitigate	<ol style="list-style-type: none"> Complete process hazard analysis early; Perform process studies and thermal analyses to optimize Waste Retrieval and Transfer System (WRS) design for transfer of high heat waste; and Conduct waste compatibility assessment. 	<ol style="list-style-type: none"> PrHA scoping meetings were conducted at pre-conceptual design to identify emerging hazards and consequences that would require unanticipated design changes. Active Thermal analysis study was conducted to provide design and operational parameters for waste conditions. Complete Waste compatibility assessment is in progress. Active 	Low
3	ER&I-1	Incident during field work results in safety stand down.	Low	Mitigate	<ol style="list-style-type: none"> Utilize vendors with established safety performance; and Implement safety management systems. 	<ol style="list-style-type: none"> Engineering, design, fabrication and construction companies with high radiation and radioactive contamination field experience have contracted to provide services to the project. Complete ISMS implemented by WRPS policies, plans, and procedures. Complete 	Low
4	ER&I-11	Construction inspection identifies quality assurance and quality check issues.	Medium	Mitigate	<ol style="list-style-type: none"> Provide oversight of construction contractor; More frequent in-process quality assurance verifications of quality assurance requirements; and Use known/trusted vendor. 	<ol style="list-style-type: none"> Experienced field personnel are assigned to oversee field contractors. Active QA Engineers were identified and assigned to assist in procurement, commercial grade dedication (CGD), construction and operations. Complete Contractor with extensive Tank Farm field experience was contracted and has been deployed. Complete 	Low
5	ER&I-15	Radiological conditions worse than anticipated.	Medium	Mitigate	<ol style="list-style-type: none"> Measure dose rates in tank to validate model and Perform conservative shielding calculations. 	<ol style="list-style-type: none"> Activities for tank radiation monitoring have been identified and included in scheduled work packages. Active Shielding calculations for in-tank environment and HIHTLs have been performed. Shielding calculation will be performed for removal of equipment from AP-102 and AY-102. Active 	Low
6	ER&I-17	Cranes are not available to support project.	Medium	Mitigate	<ol style="list-style-type: none"> Support analyses for site infrastructure needs to ensure project needs are understood and met; and Identify crane needs early in project planning. 	<ol style="list-style-type: none"> Infrastructure requirements based on conceptual design (electrical, water, waste disposition support, etc.) have been identified in current design. Definitive field infrastructure needs continue to be identified based on competing needs of SST Retrieval and Base Operations maintenance requirements. Active Crane support requirements have been identified in field work planning and are verified prior to initiation of field work. Active 	Low

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
7	ER&I-20	Pit drain seal does not work.	Low	Accept	1. A sump pump will be installed in the AY-02A Pit. No further mitigation is practical.	1. Sump pump has been specified and designed. Pump is being procured for installation in the tank. Active	Low
8	ER&I-3	Pits require cleanup to remove debris or reduce surface contamination levels.	Medium	Mitigate	1. Conduct field walkdown of pits in advance of scheduled work.	1. Field walk down were conducted and information stored on configured project engineering website. Evaluation of completed video inspections for selected AY-102 pits have identified additional pit repair and rehabilitation work. Field walkdowns are complete, but video examinations are in progress at this time. Active	Low
9	ER&I-4	As-found field conditions differ from expected.	High	Mitigate	1. Conduct inspection of risers in advance of scheduled design work.	1. Riser inspections are scheduled, work packages have or are being developed, and some work has been completed. Active	Medium
10	ER&I-7	Damage of the AY-102 tank during equipment removal/installation.	Medium	Mitigate	1. Assure qualified personnel support project work; and 2. Provide additional oversight of critical evolutions.	1. Field Work planners and field support personnel are experienced in tank farm operations and field conditions. Complete 2. Project engineering staff, QA Engineers, and construction personnel are assigned as needed to oversee critical design, procurement and field work as needed. Active	Medium
11	ER&I-8	Waste disturbance activities lead to accelerated leaking into annulus.	High	Mitigate	1. Design process to remove pumpable waste from both primary and annulus.	1. Annulus pumping system design is in progress and equipment specified for procurement action. System will be permanently installed and available to pump waste from annulus. Active	Medium
12	I-1	Insufficient double-shell tank (DST) space to allow for retrieval.	Medium	Mitigate	1. Perform Hanford Tank Waste Operations Simulator modeling to identify available DST storage space.	1. Process engineering model runs have been conducted to establish DST storage space supporting AY-102 waste transfer. Complete	Medium
13	I-3	Insufficient infrastructure available.	Medium	Mitigate	1. Identify project infrastructure needs to support construction, maintenance, and operation of the AY-102 WRS.	1. Infrastructure requirements have been identified for input to existing TOC baseline work scope. Support requirements are included in appropriate integration planning and weekly status meetings. Active	Low
14	OS-11	Technology readiness level insufficient for retrieval operations.	Low	Mitigate	1. Perform technical readiness review to identify appropriate technology for retrieval of the AY-102 tank waste; and 2. Obtain customer buy-in on readiness of technologies selected.	1. Technology readiness studies and evaluations have been conducted to identify the preferred technology to be deployed. Modified sluicing selected as the preferred technology. Complete 2. Readiness scope and technology approved in expectations document.	Low
15	OS-12	No technical solution for waste retrieval, including residual heel.	High	Avoid	1. Establish end-point criteria with stakeholder buy in; 2. Limit definition of success to implementation of two retrieval technologies; 3. Include strategy for deployment of two technologies in Project Execution Plan (PEP); and 4. Obtain concurrence for technical solutions early in Phase 1 design.	1. Approved in client expectations document. Complete 2. Approved in client expectations document. Complete 3. PEP developed and issued. Complete 4. Approved in client expectations document. Complete	None

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
16	OS-14	Temperature exceeds hose-in-hose-transfer-line (HIHTL) or equipment limits.	High	Mitigate	1. Design WRS process to monitor and control temperature to operational specifications.	1. WRS design includes provisions for monitoring waste and equipment temperature. Complete	Medium
17	OS-17	Lack of thorough preventative maintenance leads to degradation of equipment.	High	Mitigate	1. Identify and implement controlled storage; 2. Identify and implement maintenance requirements during storage; 3. Establish priority of preventative maintenance for readiness; and 4. Identify Operations owner responsible for preventive maintenance.	1. Controlled storage space has been identified and included in project cost and planning activities. Complete 2. Maintenance requirements established by material and equipment vendor based on specifications developed by design and project engineering staff. Active 3. Priority will be established by project engineering and management staff. Active 4. Specific identified Base Ops and/or Retrieval Ops staff TBD. Active	Medium
18	OS-4	Unclear roles and responsibilities.	Low	Mitigate	1. Define roles, responsibilities, authority, and accountability for project staff in the PEP.	1. R&R established in published PEP. Complete	Low
19	OS-5	Project team not understanding schedule and milestones.	Low	Mitigate	1. Define work scope and schedule activities in PEP and communicate with project team; 2. Regularly status and update action item list; and 3. Present schedule and action item status at weekly project coordination team meetings.	1. Project phased work scope defined by proposals approved and accepted as TOC contract scope. Work scope included in AY-102 Recovery Project working schedule. Active 2. Project team meetings include updates to work step activities. Active 3. Schedule action item status conducted at the bi-weekly project coordination meetings. Active	Low
20	OS-6	Failure to maintain control of baseline scope.	Medium	Mitigate	1. Adhere to requirements of baseline management control; and 2. Build resource depth in project, particularly in project manager position (assign deputy project manager).	1. Project schedule activities are verified to be compliant with baseline management control processes and procedures. Active 2. FY15 project resource planning has established staff number and specialties needed. Number and job description and function follows staff roles and responsibilities documented in Project Execution Plan. Status tracked in weekly Retrieval Integration meeting. Active	Low

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
21	OS-8	Lack of work scope integration in tank farm.	Medium	Mitigate	<ol style="list-style-type: none"> 1. Attend Base Ops, Tank Farm Projects, and SST Retrieval Ops integration meetings to identify issues and conflicts affecting project schedule; 2. Status condition and availability of equipment, infrastructure, and Tank Farm Project deliverables supporting project milestones; and 3. Ensure project is included in integrated Tank Operations Contract schedule. 	<ol style="list-style-type: none"> 1. Project staff actively attending integration meetings for Base Operations, AJAX Retrieval Project, SST Retrieval Operations, Process Engineering, Tank Farm Projects, Construction, and multi-year operations planning. All activities are statused at the bi-weekly AY-102 Recovery Project Integrated Project Team coordination meeting. Active 2. Project staff assigned areas of responsibility for status of project work and TOC work affecting project deliverables. Active 3. Project work scope is entered into TOC baseline schedule as contract mods and BCRs are negotiated and approved. In process work scope under negotiation is added to FY15 and multi-year planning documents. Active 	Medium

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
22	OS-9	Resources unavailable when required.	High	Mitigate	<ol style="list-style-type: none"> 1. Identify key staff requirements early and communicate this to functional organizations; 2. Build resource depth in the project; 3. Develop baseline schedule to minimize interferences, and conduct daily/weekly interface meetings to absolve interferences; 4. Support staffing plan development and attempt to bring additional resources on line as early as possible; 5. Subcontract for needed support during peak periods; 6. Develop strategy for early release of nuclear chemical operators (NCOs) and other critical craft resources from other subcontractors so they can obtain needed tank farm training prior to bumping incumbent NCOs and other critical craft resources; and 7. Develop strategy for staggered early release of NCOs and other critical craft resources from other subcontractors. 	<ol style="list-style-type: none"> 1. Staff skill established in PEP. Staffing requirements and dates needed maintained documented in Retrieval and Closure staffing status documents. PM evaluates status of staffing requirements each week. Selected skill areas remain unfilled requiring overtime for existing staff. Active 2. Matrixes staff positions have been identified for support as indicated on the Integrated Project Team AY-102 Recovery Project organization chart, however, required project engineering staff positions for removal and installation of equipment remain unfilled. R&C Engineering management have active position postings and have received resumes for evaluation. Status for these needs is tracked in weekly R&C Integration meetings. Active 3. Project waste retrieval working schedule is in place and is being actively managed. Schedule activity status is tracked daily and updated twice per week and project coordination meetings. Additional schedule detail is being developed for field activities, including logic ties to external TOC SST Retrievals, Base Operation maintenance activities, Tank Farm Project work scope, DST to DST and Evaporator Campaign scheduled activities. Active 4. As noted in OS-9 Action 2 status, staffing development continues. The project is identifying staffing needs for ramp up of FY15 work scope execution. Active 5. Subcontracting strategies and procurement of resources are tied to present and FY15 work scope execution planning. Active 6. The strategy for early release of NCOs and critical craft resources is complete. Project input for this strategy was to identify resource needs to support this action. Complete 7. This activity was executed and completed by other TOC departments. Project provided resource inputs to process. Complete 	Medium

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
23	P-1	Sub-contractors fail to perform as required.	High	Mitigate	<ol style="list-style-type: none"> 1. Develop engineering support team for fabrication and testing at vendor facility; 2. Investigate use of long-term purchasing agreements to help retain niche vendors; 3. Use vendors on evaluated supplier list; 4. Perform on-site vendor inspections; 5. Early procurements where possible; and 6. Sole source from reliable vendors that are of best value. 	<ol style="list-style-type: none"> 1. Subcontractor performance evaluated on an ongoing basis for procured material and companies supporting the following: Engineering, Design, Construction, manufacturers, and equipment fabricators. ERSS design and manufacturing contractor schedule performance closely evaluated. Active 2. WRPS has approved sole source vendor procurements for specialized vendors. Complete 3. Material and equipment orders are executed through vendors on the approved supplier list and by implementation of commercial grade dedication (CGD) for vendors not on the approved vendor list. CGD support activities are included on project schedule and tracked for status twice per week. Active 4. On site vendor inspections identified and included in project schedule. Procurement Engineering and QA staff identified and travel plans and tickets purchased. Active 5. Material, equipment, and design engineering and construction services procurement planning documents were identified early. All procurements are active and presently meeting required schedule milestones. However, major equipment purchases are on project critical path and are being closely stasured. Active 6. Sole source contracts have been initiated and approved for critical path activities. Complete 	Medium

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
24	P-4	Procurement inefficiencies	Medium	Mitigate	<ol style="list-style-type: none"> 1. Early notifications of upcoming procurements; 2. Establish procurement priorities; 3. Involve procurement manager in project procurement; 4. Assign project's buyer technical representative to support procurement of equipment; 5. Assign procurement point of contact for sub-contracts and material orders; 6. Assign procurement engineer for commercial grade dedication procurements; 7. Involve quality engineer early in procurement strategies and acquisition activities; and 8. Develop procurement strategies based on C Farm lessons learned. 	<ol style="list-style-type: none"> 1. All required procurements were identified and coordinated with WRPS Procurement and Contracting. Complete 2. Procurement priorities established early in project by PM, Buyer Technical Rep., Procurement Engineering, and Project Engineering Lead. Complete 3. Procurement manager attends weekly Retrieval and Closure Integration meetings, provides status of critical path procurements and takes action to resolve issues. Active 4. BTR assigned at project initiation. BTR identified procurement engineering staff requirements and developed draft equipment list at project initiation. Complete 5. Procurement contracting officer and material order buyers identified at project initiation. Complete 6. Procurement Engineer and Lead assigned to develop CGD packages for draft equipment lists at project initiation. Procurement engineer developed draft schedule fragments for each required CGD package and provides twice weekly schedule updates at project coordination meetings. Active 7. QA Engineer identified at project initiation. QAE is supporting contract reviews, construction field work execution and CGD reviews and vendor surveys. Complete 8. BTR, Project Engineering, Procurement Engineering, Construction management and PM staff implemented procurement strategies in early project planning. All procurement activities are on schedule at this time. Complete 	Low
25	R-1	Failure of the AY-AP ventilation system causes delays due to respirator work	Low	Mitigate	<ol style="list-style-type: none"> 1. Evaluate existing ventilation system (primary and annulus) for shutdowns and operational failure modes early in project planning. 	<ol style="list-style-type: none"> 1. TOC Base Ops have established vapor control zones and strategies to provide mitigation of precursors to ventilation failure. Active 	Low

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
26	R-3	Service life of the retrieval equipment (e.g., HIHTL, pumps, PRVs, cameras, lights) for the AY-102 tank cannot be extended.	Medium	Avoid	<ol style="list-style-type: none"> 1. Perform heat-trace destructive testing to attempt remove and/or minimize impact of greatest HIHTL life shortener - heat trace; 2. Replace HIHTLs when service life exceeded; 3. Plan to complete retrieval before HIHTLs service life is exceeded; and 4. Discuss impacts of delayed retrieval on hose life in proposal. 	<ol style="list-style-type: none"> 1. Thermal analysis study was performed to identify the highest temperature for waste in AY-102 tank and HIHTLs for all operational configurations. The results of the study indicate that the waste temperatures do not exceed the temperature limit of the equipment during storage or waste transfers. Complete 2. Service life of HIHTLs is approximately 10+ years. HIHTLs will be exposed to AY-102 tank waste for less than two years. Complete 3. Same as response to #2. Complete 4. Equipment like cycle discussed in Phase 2 proposal in "Technical Assumptions." Thermal analysis of tank waste verifies that service life temperature limits are not exceeded. Complete 	None
27	R-4	Major equipment fails during retrieval (slurry/supernatant pumps/slucers)	High	Mitigate	<ol style="list-style-type: none"> 1. Procure and maintain availability of spares for key equipment/components. 	<ol style="list-style-type: none"> 1. Project is procuring one ERSS Sluicer and one Slurry Pump and associated assemblies as spare parts. These pumps will be stored and available to replace failed equipment if this risk is realized. Complete 	High
28	S-1	Ability to meet regulatory requirements.	High	Mitigate	<ol style="list-style-type: none"> 1. Develop functions and requirements early; 2. Gain stakeholder buy-in early; 3. Establish end point criteria; 4. Develop contingency technologies; and 5. Describe existing technology capabilities early. 	<ol style="list-style-type: none"> 1. WRS functions and design specifications were developed during pre-conceptual design as input to the environmental compliance strategies and potential updates to TOC Base Ops Air Permits. Environmental Compliance Strategy document incorporated design input to identify required permit and regulatory status documents. Complete 2. Project developed customer expectations document to document concurrence with strategies, schedule activity timelines and end point criteria for tank waste retrieval. Complete 3. Same as #2. Complete 4. Existing technologies and performance criteria do not require development of new technology. See status of #2. Complete 5. Existing technology was evaluated and selected early during the early stages of Phase 1. Complete 	Medium

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No.	ID	Title	Initial Risk Level	Handling Strategy	Handling Strategy Actions	Handling Action Status (HAS)	Residual Risk Level
29	S-3	Additional controls required by documented safety analysis.	Medium	Mitigate	<ol style="list-style-type: none"> 1. Conduct "what-if" process hazards scoping of the AY-102 WRS conceptual design to allow early identification of unanalyzed hazards; 2. Conduct process hazards analyses to mitigate impacts of unanalyzed hazards; 3. Expedite thermal evaluation of high heat waste transfer and storage; and 4. Use mature technology in WRS design. 	<ol style="list-style-type: none"> 1. Early scoping meetings did not identify any unanalyzed hazards or potential consequence that would require revision to the TOC DSA. Complete 2. PHA will be conducted prior to completion of WRS design. PHA is scheduled for July 2014. Active 3. Thermal evaluation of tank waste has been completed. Complete 4. All technology selected for the AY-102 WRS has been used in past and current waste retrieval operations. Project design has incorporated design upgrades and enhancements based on lessons learned and active evaluations (C-111 vendor design verification tests). 	Medium
30	S-4	Existing ventilation system is inadequate	High	Mitigate	<ol style="list-style-type: none"> 1. Evaluate existing ventilation system (primary and annulus) for shutdowns and operational modes early in project planning; and 2. Return the AY-102 tank ventilation recirculation sub-system to operational status. 	<ol style="list-style-type: none"> 1. Base Operations Engineering evaluation of existing tank ventilation system identified on project schedule including completion dates for defined deliverables. Completion of activities includes path forward for actions that will confirm required ventilation performance, or identify required actions to achieve fit for duty status. Active 	High

RPP-PLAN-59931, Rev. 2**DOE-ORP RISK SUMMARY**

As part of the assessment process, risks and opportunities were identified that were outside the scope and control of WRPS. A number of risks captured under higher level risk management documents included funding, requirements changes and latent or as found plant conditions.

The table below provides a summary of DOE-Office of River Protection (ORP)-owned risks and opportunities specific to this project along with the associated handling strategies and actions.

No	ID	Title	Handling Strategy	Handling Strategy Actions
1	D-3	Discover Dome Integrity Issues (Dome Crack)	Mitigate	1. Perform AY-102 tank integrity inspection to ensure no issues; and 2. Dome load analysis early.
2	OS-21	Secondary Liner Failure	Mitigate	1. Perform evaluation of secondary liner as early as practical; and 2. Identify response and recovery actions.
3	OS-22	Selected receipt tank changes.	Mitigate	1. Identify critical milestones for decision on receipt tank to reduce impact on cost and schedule; and 2. Anticipate confirmatory studies.
4	R-5	Use of DST Supernatant Not Allowed For Sluicing	Mitigate	1. Define use of DST supernatant as an assumption within proposal.
5	ER&I-2	Tank Farm Vapors Require Additional Controls	Mitigate	1. Develop mitigating strategies for the nuisance vapors including establishment of vapor control zones and vapor exclusion zones (complete); and 2. Continue to monitor need and utility of vapor monitoring and control program in and around the AY-102 tank.
6	T-1	DOE Readiness Assessment is Required	Avoid	1. Engage turnover and commissioning early during project planning; 2. Ensure necessary turnover documentation is identified early; and 3. Obtain DOE-ORP approval on readiness approach as part of proposal. 4. Include impact of DOE-ORP Readiness Assessment within project cost and schedule.

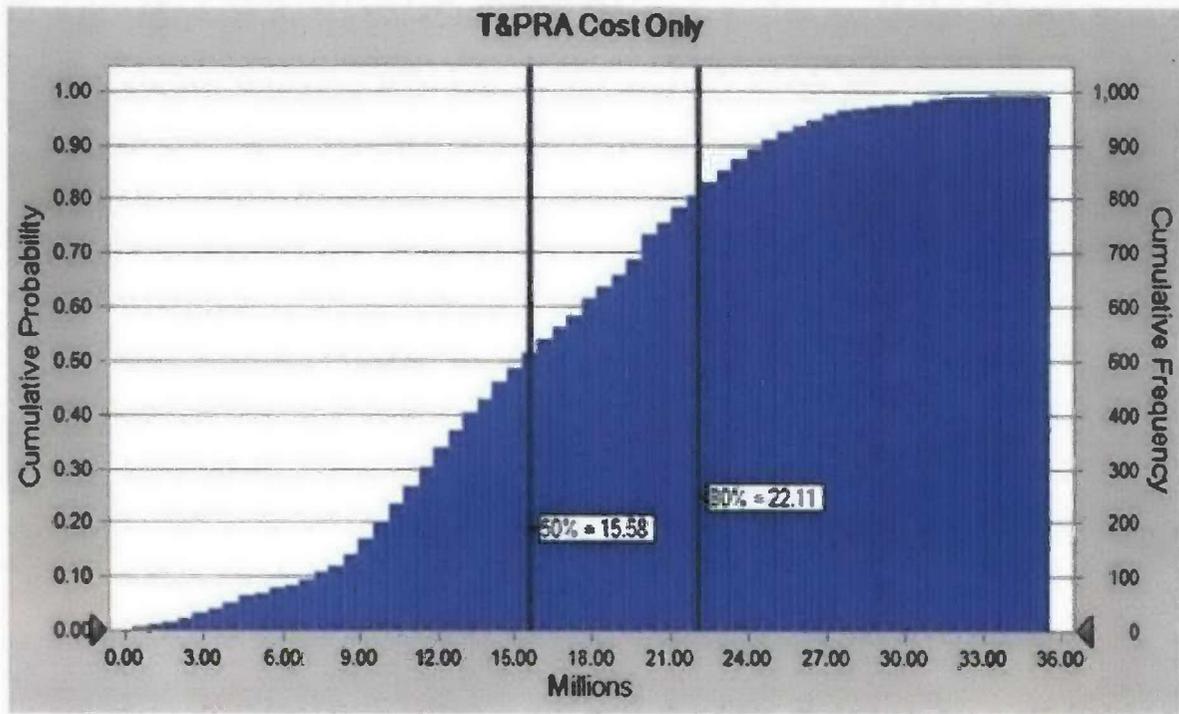
These risks will be aggressively managed with DOE-ORP support throughout the project life. If realized, these risks would result in an extensive impact to the existing project baseline and would result in additional cost and schedule delays.

RISK ANALYSIS RESULTS

A Monte Carlo analysis of the residual risk impacts and likelihoods associated with the identified risks was performed to include risk contingency within the schedule logic and cost baseline. The results of the cost contingency analysis determined that the cost impacts associated with the WRPS owned technical and programmatic risks at the 50% confidence level was \$15.58 million. The full results of this analysis are shown in Figure 2-7 below.

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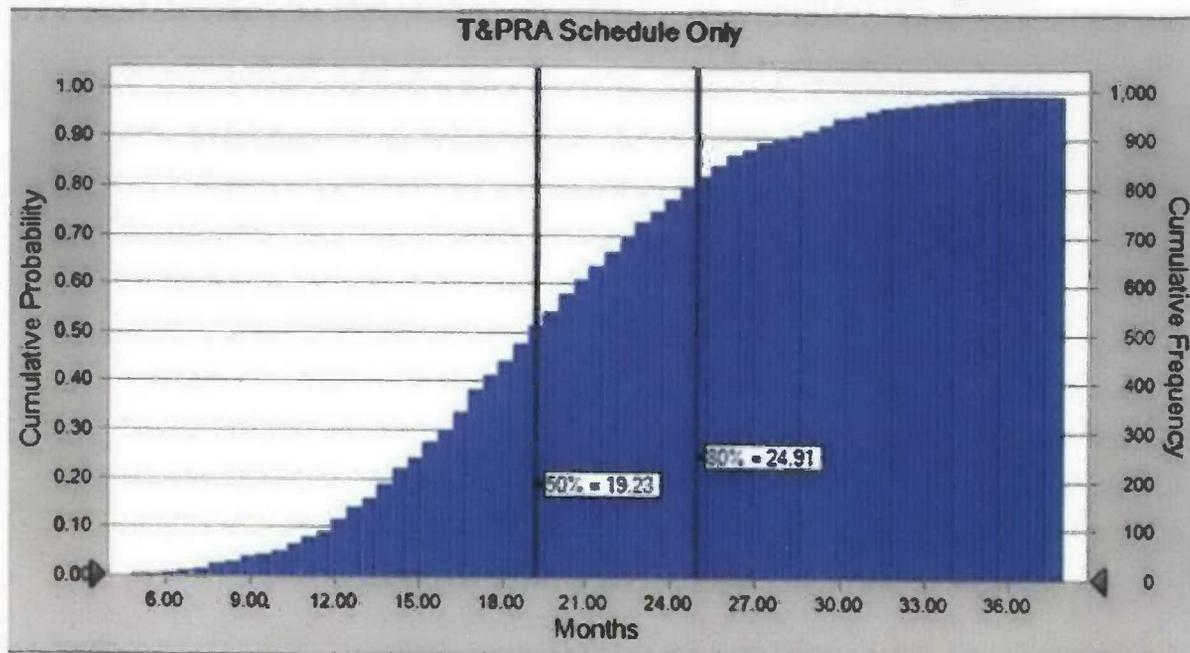
Figure 2-7. Technical and Programmatic Risk Cost Impacts.



A similar analysis was performed of the schedule impacts of all the WRPS and ORP owned risks. The results of the schedule analysis are shown in Figure 2-8 below.

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Figure 2-8. Technical and Programmatic Risk Schedule Impacts.



The results of the model analysis showed a recommended schedule contingency of 19 months based on the cumulative impacts of schedule risks at the 50% confidence level. The analysis for schedule contingency has some weakness which must be accounted for in order to present an accurate picture. The model assumes that any schedule impact has a direct delay on the project critical path. The model also gives no credit to the project team for the ability to work multiple tasks simultaneously. These weaknesses within the model result in a conservative analysis. The project team chose to account for this model bias and accept a lower calculated confidence level with a more realistic approach in terms of project execution strategy.

The range of proposed schedule milestone dates to initiate and complete waste removal from AY-102 based on the analysis of risk indicates:

- An “early anticipated date for completion”, based on the current project working schedule that includes no contingency for realized risk, and
- A probable date for completion that adds 15 months risk based contingency to provide a 50% confidence level for meeting the proposed completion milestones.

Details of risk based contingency impacts to the project schedule are included in Section 4.0.

Project Execution Strategy – The project will use the current pumping plan schedule milestones to manage the day to day project activities while evaluating and implementing risk handling actions to mitigate realized risk impacts. The project will also identify and implement opportunities for improvement that mitigate impacts to project milestones.

RPP-PLAN-59931, Rev. 2**3.0 241-AY-102 RECOVERY PROJECT EXECUTION WORK STEPS**

The following sections describe the specific project work step activities consistent with the execution strategy presented in section 2.

The project work step activities are distributed by main project phases or area of scope: for the Engineering and design, procurement of equipment and materials, removal of legacy tank equipment, installation of new equipment, startup, test and readiness activities, DST-to-DST transfers, Evaporator Campaigns, and operations to complete transfer of waste from AY-102 to AP-102. The work steps are organized by project work breakdown structure (WBS) elements and work step schedule activity identifications, traceable to schedule timelines provided in the attached project schedules. The progress status of all scheduled activities is evaluated daily in order to manage issues requiring corrective action and to implement strategies to assure project goals and commitments are met.

3.1 WASTE RETRIEVAL AND TRANSFER SYSTEM ENGINEERING AND DESIGN ACTIVITIES

Design and Engineering support scope is based on C Farm Single Shell Tank (SST) Retrievals, and upgrades to double-shell tanks serving as waste receiver tanks. The scope of this sub-task includes the Tank Operations Contract engineering activities required to support the design of AY-102 Waste Retrieval System and all modifications and upgrades on AY-102, the AP-102 receiver tank, and the waste transfer route between the two tanks. The engineering and design scope summarized in the attached project schedule includes the following activities:

- Prepare and approve Statements of Work for Architect/Engineering and other engineering support.
- Prepare and approve Statements of Work for Independent Qualified Registered Professional Engineer.
- Provide subcontract administration for all engineering subcontracts.
- Perform tank riser utilization studies to determine WRS equipment installation location.
- Complete ground scans, riser and pit inspections in support of system design.
- Define design bases and requirements documents.
- Establish specification for upgrades to the DST pits and risers.
- Complete design reviews and approve design for the removal of legacy equipment being replaced by the retrieval system components.
- Initiate and/or approve requisite permitting activities including Radiological and Non-Radiological Notices of Construction, Risk Based Disposal Approvals, and National Environmental Policy Act.

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- Design for the installation of the slurry pump and sluicers in AY-102.
- Design for the installation of the slurry distributor and supernatant pump in the receiver DST.
- Design for the installation of supernatant and slurry process jumpers in the DST pits including strong-backs.
- Design for the installation of new cover plates on supernatant and sluicing pits.
- Design for the installation of HIHTLs and connections to farm inter-connecting HIHTLs and valve boxes.
- Design for the installation of valve box locations and HIHTL connections.
- Design for the installation of shield plates and shielding hose barns on transfer system HIHTL including vehicle impact barriers.
- Design for the installation of containment and shielding boxes.
- Design for the installation of the electrical distribution for power and instrument from the DST equipment to the electrical distribution system.
- Design for the installation of the electrical distribution to the control trailer.
- Design for the installation of electrical control panels, instrument cabinets, and breaker panels.
- Design for the installation of temperature monitoring equipment on transfer systems.
- Design for the installation of sump pumps and assemblies.
- Design for the installation of the pit leak detection assemblies.
- Design for the installation of video equipment installed in support of construction.
- Perform Process Hazards Analyses for all system design media.
- Provide Un-reviewed Safety Question documentation for approved system design media.
- Prepare inputs for the equipment procurement specifications (Pumps, HIHTL, Sluicers, Valve boxes, and other engineered procurements etc.).
- Perform engineering calculations, analyses, and evaluations for DST system equipment.
- Prepare Functions and Requirements Evaluation Documents (FREDs).
- Prepare analyses for Safety Significant components, including freeze protection, over-pressurization, and water-hammer.
- Prepare Design Requirements Compliance Matrix as required.
- Define inspection and testing requirements.

RPP-PLAN-59931, Rev. 2**3.2 WASTE RETRIEVAL AND TRANSFER SYSTEM EQUIPMENT
PROCUREMENT**

This scope of this task includes the procurement of design and fabrication services as well as built-to-print fabrication services for the delivery of equipment required to perform the installation and testing of the AY-102 WRS, including the AP-102 receiver tank equipment.

The AY-102 Recovery Project will purchase commercial-grade equipment and material on a competitive basis as much as is possible. Equipment that can be procured as catalog items while still meeting the requirements of the equipment specifications will be used when possible. Material procurement contracts will be structured in package awards with options, whenever possible, for maximized value.

The major equipment to be procured includes:

- Extended reach sluicers and their hydraulic power unit, with spares,
- A slurry transfer pump assembly and its hydraulic power unit, with spares,
- A supernatant transfer pump assembly and its hydraulic power unit,
- A slurry distributor,
- HIHTLs, with pre-cast concrete enclosures or steel plate shielding,
- A shielded supernatant distribution valve box,
- A water distribution skid,
- An electrical power distribution skid, and
- A process monitoring and control system.

Additional miscellaneous procurements will provide:

- Isolation valves, and manifolds,
- Flow meters and thermocouple instrumentation,
- In-tank cameras and lighting,
- Pit cover plates,
- Pit jumpers,

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- Pit sump pumps,
- Freeze protection and winterization equipment, and
- Remote Area Radiation Monitoring system elements.

Project Execution Strategy – Procurement planning for long lead equipment and material was initiated early, based on preliminary design. The project developed draft equipment lists, commercial grade dedication (CGD) packages and material requisitions early in Phase 1. The project has confirmed draft CGD and procurement documentation as the design has matured, and as design specifications have established firm performance requirements and technical design criteria. Additionally, a spare ERSS sluicer and tank slurry pump is being purchased as spares in case these items fail during waste retrieval operations.

3.3 WRS EQUIPMENT INSTALLATION AND RELATED INFRASTRUCTURE CONSTRUCTION WORK

The project DST and Tank Farm upgrades and modifications include the field activities necessary for the removal of existing equipment and installation of the WRS equipment in the feed tank and receiver tank, as well as all of the related infrastructure modifications and construction work in the respective tank farms. Activities include completion of construction acceptance testing, startup and operational acceptance testing, and readiness verification. The major activities are included in the attached project schedule include:

- Modifications to the AY-102 and AP-102 tanks for the installation of the WRS including the following:
 - Isolation of the AY-02A Pit drain line to prevent intrusion of hazardous waste from DST transfers into the AY-102 primary tank,
 - Removal of excess equipment from the AY-02A Pit, sealing unused penetrations, and adding a new sump pump to allow liquid removed from the pit.
- Field activity work package planning,
- Contractor mobilization, coordination, and oversight,
- Tank infrastructure construction, including lighting and electrical power distribution upgrades, water supply skids, and the control trailer,
- Removal of the unused equipment in the tanks, including a mixer pump and three transfer pumps in the AY-102 tank and a transfer pump in the AP-102 tank,
- Installation of the AY-102 WRS equipment, including the following principal components:
 - A slurry transfer pump assembly, and 4 Extended Reach Sluicer Systems (ERSS) in tank AY-102,

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- A supernatant transfer pump assembly and a slurry distributor in Tank AP-102,
- Installation of the slurry and supernatant transfer lines (HIHTL) and valve boxes between AY-102 and AP-102 tanks, including construction work for the excavation and burial of in-farm transfer lines and road crossings.

3.4 DST TO DST TRANSFERS AND EVAPORATOR CAMPAIGNS

DST to DST transfers and 242-A Evaporator Campaigns supporting preparation of AY-102 and AP-102 and the transfer of waste from AY-102 to AP-102 are impacted by the DST Space Management transfers and 242-A Evaporator Campaigns. The DST to DST transfers and 242-A Evaporator Campaigns listed in Attachment F are grouped into three categories:

- AY-102 Recovery Project - Preparatory Transfers
- AY-102 Recovery Project - Waste Retrieval Transfers
- DST Space Management and 242-A Evaporator Campaigns (Common to AY-102, SST Retrievals, and LAWPS preparations)

The DST to DST transfers and Evaporator Campaigns listed in Attachment F are based on draft WRPS near-term operational plans for FY14 – FY17. The near-term operational planning currently in progress, will introduce expected changes requiring revisions to existing DST to DST transfers and 242-A Evaporator Campaigns supporting the AY-102 Recovery Project. Because the process models and operating plans are sensitive to small changes in assumptions and emerging field conditions such as funding, actual evaporator availability, equipment failure, weather, and retrieval efficiencies; the table/schedule of transfers and campaigns provided in Attachment F is not suitable for tracking purposes. As a result, the models and planning documents are frequently updated to address the changes to assumptions and field conditions, and to support development of recovery actions required to support project commitments and schedule milestones. It should be noted that modification to selected AP-102 and AY-102 pits that enable future operation of the AY-102 WRS, interfere with, and potentially shutdown DST to DST transfers and evaporator campaign supporting AY-102 retrieval operations. As a result, the project coordinates and includes required field work in operational plans and Baseline schedules.

Project Execution Strategy – The AY-102 Recovery Project will coordinate with process engineering to status the required transfers and evaporator campaigns enabling AY-102 retrieval, and control the impact of changes on the AY-102 milestones and deliverables.

3.4.1 DST to DST Transfers

A HTWOS model run supporting AY-102 waste retrieval is documented in MMR-14-032. The model run indicates that a total of 13 DST-to-DST transfers will be required to support the AY-102 tank retrieval in addition to the current baseline. The number of transfers may change based

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on DST space management, SST Retrieval requirements and other unknown field conditions. A summary of work steps required to execute this scope include:

- Perform Technical Evaluations, Operability Evaluations, Procedure Reviews, and Waste Compatibility Assessments,
- Review/update existing procedure and obtain Operations, Safety, Radiological Controls, Environmental, and Criticality Safety approvals,
- Perform Environmental reviews and approval,
- Review/update existing Radiological Monitoring Plan and Radiological Survey Task Description,
- Review/update existing Industrial Hygiene Monitoring Plans,
- Perform pre-requisite activities including: Radiological baseline survey, Industrial Hygiene Technician baseline survey, Operations operability checks, camera installs, performing internal dry runs as part of the readiness to process, and conducting authorization meetings,
- Perform the transfer pre-requisites and required surveillance during the transfer,
- Perform post transfer flushing activities including draining of the transfer system, and
- Perform post transfer procedure reviews and document lessons learned.

3.4.2 242-A Evaporator Campaigns

A HTWOS model run to support the AY-102 retrieval is documented in MMR-14-032. This model run indicates that a total of three evaporator campaigns are required to support the AY-102 tank retrieval in addition to the current baseline activities for DST space management and SST Retrievals. The number of campaigns may change based on DST space management and SST Retrieval requirements. A summary of work steps required to execute this scope include:

- Performing campaign pre-requisites to align facility equipment and systems for waste processing),
- Facility startup, monitoring and shutdown,
- In-process slurry sampling and analysis,
- Sampling and analysis of process condensate, steam condensate and cooling water samples, and
- Preventive and corrective maintenance necessary to operate the facility during the Campaign period and Transfer activities supporting the waste processing campaign.

RPP-PLAN-59931, Rev. 2**3.5 STARTUP AND READINESS FOR AY-102 WASTE TRANSFER**

The scope of this task includes preparing for readiness, completing calibration grooming and alignment on system equipment, developing training plans for the CTF ERSS modified sluicing mockup, completing operational acceptance testing, developing and approving operating and maintenance procedures, and completing system readiness for the AY-102 Recovery Project WRS. A summary of work steps required to execute this scope include:

1. Retrieval Readiness Preparation and Verification

- Develop Activity Description with input from draft Safety Evaluation or USQ, draft Work Plan, and draft Process Control Plan.
- Identify functional area managers responsible for completing objective evidence documentation.
- Provide documented agreement between project manager and responsible managers concerning required deliverables.
- Develop Operational Readiness Checklist and enter all items in FES.
- Provide project support to track status of open items.
- Ensure all Readiness documentation (i.e., Readiness Verification Checklist) and associated actions are complete and approved.

2. Retrieval Equipment Calibration, Grooming, and Alignment

- Calibrations - Approximately 30 calibrations for system instrumentation
- Preventative or corrective maintenance of the equipment identified during system testing

3. Operational Acceptance Testing

- Prepare and approve Graded Approach Worksheet
- Prepare and approve Test Plan/Sub Test Plan
- Prepare and approve Operational Acceptance Test
- Walk down Job Site for Operational Acceptance Test
- Perform Operational Acceptance Test
- Prepare and approve Test Results Report
- Operators support during testing

RPP-PLAN-59931, Rev. 2**4. Procedures and Training**

- Develop, review, and approve operating procedures for water skid operations, miscellaneous operations procedures (e.g., valve usage, cold weather), and Alarm Response Procedures (ARPs).
- Perform field walk-downs and validation for all procedures.
- Complete Procedure Change Authorizations for the system instrumentation, and maintenance calibration procedures.
- Prepare training material, including an ERSS training Mockup at the CTF.
- Develop training bulletin and training material.
- Administer training for Operations Managers, Operating Engineers, Nuclear Chemical Operators, Health Physics Technicians, and Industrial Health Technicians.

5. Operational Readiness

- Completed readiness documentation identified for action.
- Declare readiness for operations.

Project Execution Strategy – Considering the first of a kind configuration for deployment and operations of the ERSS in the AY-102 tank, the project scope includes a full-scale operator training mockup of the tank. The mockup will be installed at the Hanford Cold Test Facility (CTF), and will incorporate structures representing the tank internals and an ERSS sluicer remotely operated for waste mobilization. The ERSS sluicer will be installed in the mockup for training and qualification of each operator prior to start of waste retrieval operations in AY-102. Procurement of the ERSS sluicer to support this scope has commenced.

3.6 AY-102 OPERATIONS MOCKUP TRAINING

The Operations Mockup Training scope includes design, procurement, construction, installation and readiness verifications for the modifications to the CTF, and includes the scope to train the operators at the CTF for operation of the AY-102 WRS. A summary of work steps required to execute this scope include:

1. Cold Test Facility Modification

- Fabricate (6) simulated air lift circulators (i.e., 30" dia. schedule 10 piping that extends to 30" from tank floor) and suspend from the CTF catwalk structure in a pattern that is representative of the internal configuration of tank AY-102.
- Fabricate a simulated riser extension suitable for supporting an ERSS robotic arm and install on the CTF catwalk structure.
- Refurbish prototype ERSS arm and related Hydraulic Power Unit now held in storage at AGI, Stockton CA to the CTF.

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- Transfer the prototype ERSS arm and related Hydraulic Power Unit now held in storage at AGI, Stockton CA to the CTF.
- Install ERSS in the simulated riser extension, place the HPU on the catwalk, and interconnect to CTF utilities.
- Transfer or acquire a camera, lamp, monitors, and controls that are representative of typical in-tank video monitoring (i.e., RJ Electronics camera system); install camera in a location representative of the in-tank configuration planned for field operations.
- Install temporary ERSS control panel and video monitor in CTF operations control room; interconnect mock-up components with cords, cables, and hoses.
- Verify operability of mock-up ERSS and video monitoring systems.

2. Operator Training

- Operators will be trained using planned procedure steps and equipment that is representative of planned in-tank equipment.
- Training will consist of classroom instruction on retrieval system instruments and controls that are similar or identical to those now in use for C Farm.
- Classroom instruction will be supplemented by training operators to manipulate Extended Reach sluicers inside tanks that are fitted with air-lift circulators.
- Operators will be issued qualification cards following satisfactory completion of training.

Training sessions will provide a portion of the basis for qualifying operating procedures and Alarm Response Procedures (ARPs) that are to be developed for AY-102 waste retrieval system (WRS) operations.

3.7 RETRIEVAL AND TRANSFER OPERATIONS

The AY-102 Retrieval Operations & Maintenance scope is based on a modified sluicing template used to perform retrieval operations on C Farm SSTs previously completed, or being used for existing and similar waste tank sluicing operations. The following sections provide descriptions of the operational activity work scope.

3.7.1 Retrieval Operations

The operation of the AY-102 waste retrieval system (WRS) includes four ERSS sluicers used to mobilize waste solids for transfer to the AP-102 receiver tank. The AY-102 WRS is a closed system designed to remove and transfer solid waste from AY-102 to AP-102 and recycle supernatant from AP-102 to AY-102. A summary of work steps required to execute this scope include:

- Retrieval and transfer of the AY-102 primary tank waste to the AP-102 receiver tank using the selected two retrieval technologies (e.g., ERSS and slurry pump operations,

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transfer of slurry and return of supernatant from AP-102, and removal of AY-102 annulus pumpable liquids as needed),

- AP-102 and AY-102 Exhauster Operations.

The removal of the waste is intended to allow for a subsequent inspection to determine the location and nature of the leak site(s). Because of the uncertainty regarding the effectiveness of sludge removal and the nature of the leak sites (a leak site may or may not be apparent with video cameras for example), it is not clear what tools and techniques may be required for this inspection. A determination will be made when the sludge is removed to the limits of technology as to what additional steps, if any, are required for this determination. Because these activities are unknown, they are not included in this plan.

3.7.2 Preventative Maintenance

The Preventative Maintenance activities include resources to perform preventive maintenance during operation of the ERSS Modified Sluicing and High Water Pressure Sluicing Systems. It is assumed that there are three Tank Intrusive and three Ex-Tank maintenance activities with one-day prep and two-day durations with a required Senior Supervisory Watch during execution of maintenance activities. A summary of work steps required to execute this scope include:

- A walkdown of the facility/area will be performed to identify the physical condition of the work area to establish required work step scope,
- Identification of detailed work steps, including Quality Control inspection points and Radiological hold points to perform work,
- Identification of re-test requirements to verify readiness,
- Identification of requirements, development of minor field work permits and establishment of energy control barriers to execute work steps, and
- Obtaining management and oversight review and approval to commence activities.

Corrective Maintenance activities are anticipated, to recover from foreseeable risk events of equipment failure during retrieval operations. Spare equipment procurement is planned and executed ahead of the start of operations, to reduce the impact of the potential realization of these events. Based on experience and lessons learned from past tank retrieval operations, recovery from such potential equipment failure events may impact the AY-102 operations schedule with a 6 months extension.

RPP-PLAN-59931, Rev. 2**4.0 241-AY-102 RECOVERY PROJECT EXECUTION SCHEDULE****4.1 SCHEDULE STRATEGY**

This section presents how the detailed project activities listed in section 3.0 have been logically sequenced into a project execution schedule optimized to reduce the overall project duration to the extent practical, and incorporate risk based contingency to provide reasonable assurance of timely project completion. The schedule includes WBS and work activity IDs that track completion of work by planned start date, activity duration, and completion date. The activity title provides a brief description of the activity work scope or milestone deliverable. Each descending WBS level, represents an increasingly detailed definition of project work scope activities. The schedule logic also identifies the critical path activities that determine the earliest possible end date for the project milestones.

The schedule for execution of the AY-102 Recovery Project - Phase 2 is consistent with the RPP-PLAN-55220, *241-AY-102 Pumping Plan*, but includes strategies and contingency to cover the potential realization of identified risk elements. The plan incorporates the conclusions and outcomes of the design process and engineering studies to support authorization for safe transfer of tank waste from AY-102 to AP-102.

The project developed a schedule that includes all activities necessary to execute RPP-PLAN-55220, and incorporates risk-based contingency at a level sufficient to provide a 50% confidence level for meeting the project milestones to initiate and complete waste retrieval operations. The basis for determination of the schedule contingency is discussed in Section 2.6.

The project developed a detailed waste retrieval work plan schedule and critical path schedule summary consistent with the 241-AY-102 Pumping Plan waste retrieval start date of March 4, 2016. The project also developed a schedule that includes contingency for realized risk resulting in a readiness to initiate waste removal operations in October 1, 2016. At the time the sludge is removed to the limits of the two technologies, a determination will be made to define the additional project activities and work steps that will provide a basis for repair or closure of the tank.

4.2 PROJECT CRITICAL PATH ACTIVITIES

The project's critical path schedule highlights the sequence of project activities driving the overall duration of the project execution. The critical path typically includes all activities related to equipment which have the longest combined duration for both procurement and installation. A delay in completion of a critical path activity will extend the overall duration of the project.

For the AY-102 Recovery project, the critical path includes tasks related to one critical component for the Waste Retrieval and Transfer System, and the Extended Reach Sluicing System.

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The project schedule critical path durations are driven by the following activities:

1. Engineering and design activities supporting approval and release of procurement specifications include the following:
 - a. Preparing and initiating design activities,
 - b. Mobilizing the engineering support subcontractor,
 - c. Executing the preliminary design of the WRS, including:
 - ✓ Down selecting modified sluicing as the retrieval technology,
 - ✓ Down selecting the ERSS as the modified sluicing tool,
 - ✓ Performing the tank pit and riser utilization study to determine where the WRS in-tank equipment will be installed, including the ERSS,
 - ✓ Releasing the ERSS performance specification to initiate design.
 2. Procurement activities, including:
 - a. Releasing the Statement of Work and Request for Proposal, performing the technical evaluation of the vendor's response, and awarding the contract;
 - b. ERSS design, to adapt the existing system used in C Farm SST retrievals to the specific configuration for installation in AY-102 (deeper tank, and different riser interfaces and dimensions);
 - c. Commercial Grade Dedication of the safety significant components of the ERSS,
 - d. Component fabrication and equipment assembly,
 - e. Source inspections and Factory Acceptance Testing,
 - f. On-site delivery and receipt.
 3. Installation and construction activities, including:
 - a. Installing the four ERSS in four different pits of AY-102,
 - b. Installing the jumpers and connections to the HIHTLs,
 - c. Installing and connecting the Hydraulic Power Unit feeding the ERSS,
 - d. Installing and connecting the HP water supply skid feeding the ERSS with pressurized water,
 - e. Performing Construction Acceptance Tests for individual equipment installed.
 4. Startup testing and readiness activities, including:
 - a. Startup and testing on the ERSS sub-system,
 - b. Startup and testing on the WRS as a whole,
 - c. System readiness verification:
-

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- ✓ Readiness of the equipment once tests have been successfully completed, and availability of spare parts for maintenance has been verified
 - ✓ Readiness of the operations, maintenance, alarm response documentation and procedures
 - ✓ Readiness of the operations crew, once operators have been properly trained and qualified
 - ✓ Turnover to operations.
5. Waste retrieval and transfer operations, including:
- a. Operating the WRS and its utilities (e.g., ventilation, water supply)
 - b. Performing system maintenance.

RPP-PLAN-59931, Rev. 2**5.0 SUPPORTING DOCUMENTATION****5.1 PROJECT EXECUTION PLAN**

The Project Execution Plan (PEP) is included in Attachment A as supporting documentation for the approach, organizational structure, and management systems implemented to complete project activities supporting initiation of AY-102 waste removal operations. The PEP includes activities for staging in-tank equipment, turnover of the AY-102 Recovery Project completed activities to operations, and AY-102 waste retrieval and transfer system (WRS) operations.

5.2 PROJECT SCHEDULE

The project schedules in Attachment B include the current version of the AY-102 Recovery Project detailed working schedule that does not include risk based contingency, a critical path schedule that indicates the long duration activities that drive the completion date for the project, and a project schedule that includes risk based contingency to show the expected project completion date, based on the analysis of project risks and incorporation of their potential schedule impact.

5.3 ENGINEERING AND DESIGN

The document in Attachment C is the work plan and schedule provided by the vendor in charge of the design of the ERSS. This activity started in June 2014, and is scheduled to be completed in September 2014. However, this contract has not been negotiated and the

5.4 PROCUREMENT

Commercial grade dedication (CGD) plans are required for procurement of equipment, services and components that support a nuclear safety function for the AY-102 Recovery Project WRS. The CDG plan documents the critical characteristics, acceptance criteria and supporting documentation identified through a detailed design process that establishes the suitability of the equipment for its intended function. The design must consider all applicable design requirements including operability, maintainability, fit, form, function, process, interfaces, seismic, environmental, etc. The CGD plan is initiated after the suitability of a design has been established, and upon approval, authorizes procurement of the material or subcontracted services. The CGD plan is completed when the equipment is delivered on site, quality receipt inspections are completed, and the equipment is green tagged. When these conditions are satisfied, the equipment is available for use.

The ERSS Sluicers, waste transfer pumps and other engineered components requiring a CGD plan, determine the critical path long lead procurement activities that establish the timeline for completion of project activities supporting initiation of waste transfer operations.

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The documents provided in Attachments D provides a list of CGD reports for ERSS critical components from past SST retrieval projects and historical CGD documentation from past CGD procurments. The CGD reports listed below provide evidence for the long durations typical for these procurement activities.

Equipment/Component	Historical Data (Cradle to Grave)
ERSS Waste Transfer Piping CGD-03112 (Attachment D)	377 Days (This does not include creating draft CGD, Survey Activities, or Green Tagging)
ERSS Hydraulic Pressure Control Device CGD-03213 (Attachment D)	372 Days (This does not include creating draft CGD, Survey Activities, or Green Tagging)

The AY-102 detailed working schedule has reduced this duration from 377 days to 176 days by the following mitigating actions:

1. Early identification of the long lead procurement time equipment,
2. Early Initiation of the following procurement activities to reduce schedule duration:
 - a. Prioritizing the design to deliver the input to procurement as soon as possible in the process
 - b. Initiating the CGD process as soon as the minimal design input is available
 - c. Work design/Engineering documents that support the procurement process in parallel
3. Work with the vendors/manufactures to identify and implement actions that reduce delivery time.

5.5 SCHEDULE DURATION FOR EQUIPMENT INSTALLATION, CONSTRUCTION, STARTUP, READINESS, AND RETRIEVAL OPERATIONS

The schedule durations for all the activities that support initiation of waste retrieval operations, range from a waste retrieval start date on March 4, 2016, to a schedule that includes contingency for realized risk, where operations commence on October 1, 2016. The AY-102 Recovery Project working schedule activities were developed based on similar work scope performed in past and current C Farm SST retrievals. To meet the proposed AY-102 pumping plan date for start of waste retrieval operations, project planning incorporated lessons learned and other strategies for developing strategies for completion of waste retrieval operations. However, the project, as noted earlier, identified risk elements that could extend the schedule durations as the risk is realized.

The schedule in Attachment E provides the C Farm C-101 SST Retrieval and Closure project activity durations, selected as a relevant reference because of the similar retrieval technology used (ERSS and Slurry pump). The AY-102 primary tank contains 151 kgal of sludge that is available for transfer to the selected receiver tank AP-102. The estimate for transferring the AY-102 sludge ranges from the best case timeline of 169 days (6 months), to 349 days (12 months) with schedule contingency for equipment failure. For comparison, C-101 retrieval operations

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transferred a total of 77.5 kgal of sludge in 130 days of operations, and due to several outages and interruptions, retrieval operations were extended to over a total of 242 days.

The best case scenario for AY-102 waste retrieval operations uses a higher retrieval rate based on the following assumptions:

- Implementing a more efficient operations schedule and shift organization structure (ABCD shift instead of XYZ), and
- The sludge originally transferred to AY-102 used the same technology, which reduces the risk for a lower retrieval rate.

5.6 DST-TO-DST TRANSFERS AND RELATED EVAPORATOR CAMPAIGNS

The documentation included in Attachment F provides a list of DST to DST transfers and 242-A Evaporator Campaigns supporting SST retrievals, DST Space Management, AY-102 waste retrieval, and LAWPS preparations. The DST to DST transfers and 242-A Evaporator Campaigns are grouped into three categories:

- AY-102 Recovery Project - Preparatory Transfers,
- AY-102 Recovery Project - Waste Retrieval Transfers, and
- DST Space Management and 242-A Evaporator Campaigns (Common to AY-102, SST Retrievals, and LAWPS preparations).

As noted in section 5.5, the process models and operating plans are sensitive to small changes in both assumptions and emerging field conditions such as funding, actual evaporator availability, equipment failure, weather, and retrieval efficiencies. As a result, the number, sequence, start dates and complete dates for the transfers and evaporator campaigns are changed on a routine basis, and therefore, difficult to track. For example, the following AY-102 WRS work scope schedule activities may interfere with scheduled DST to DST transfers and Evaporator Campaigns supporting project milestones:

- AY-102 and AP-102 pit modifications, and
- AY-102 and AP-102 equipment removal and installation activities.

However, the operational durations for the DST to DST transfers and evaporator campaigns are generally less than one week in duration, allowing sufficient time for additional process model runs and planning in order to establish revised schedules for transfers and evaporator campaigns that support AY-102 project milestones.

RPP-PLAN-59931, Rev. 2**6.0 REFERENCES**

Administrative Order Docket 10618 for the Hanford Site, EPA/State ID #WA7890008967, dated March 21, 2014.

HNF-SD-WM-OCD-015, 2014, *Tank Farms Waste Transfer Compatibility Program*, Rev. 34, Washington River Protection Solutions LLC, Richland, Washington.

MMR-14-032, 2014, *AY-102 and A/AX Proposal Schedule Support*, Rev. 0, Washington River Protection Solutions LLC, Richland, Washington.

RPP-50910, 2011, *Single-Shell Tank Waste Retrieval Limit of Technology Definition for Modified Sluicing*, Rev. 0, Washington River Protection Solutions LLC, Richland, Washington.

RPP-PLAN-55220, 2014, *241-AY-102 Pumping Plan*, Rev. C, Washington River Protection Solutions LLC, Richland, Washington.

RPP-PLAN-56413, 2014, *AY-102 Recovery Project Execution Plan*, Rev. 1, Washington River Protection Solutions LLC, Richland, Washington.

RPP-RPT-56094, 2013, *Alternatives Evaluation for Tank 241-AY-102 Modified Sluicing*, Rev. 0, Washington River Protection Solutions LLC, Richland, Washington.

RPP-RPT-57042, 2014, *Decision Report for the Disposition of Sludge from Tank 241-AY-102 and the 241-A/241-AX Farm Tanks*, Rev. 0, Washington River Protection Solutions LLC, Richland, Washington.

RPP-RPT-57449, 2014, *HTWOS Model Data Package for A-AX Retrieval Proposal Support*, Rev. 0, Washington River Protection Solutions LLC, Richland, Washington.

RPP-PLAN-59931, Rev. 2

ATTACHMENT A
AY-102 RECOVERY PROJECT EXECUTION PLAN

AY-102 Recovery Project Execution Plan

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Prepared for the U.S. Department of Energy
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ACRONYMS

A/E	Architect/Engineer
ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
AY-102	DST 241-AY-102
AP-102	DST 241-AP-102
BCR	baseline change request
BMA	blanket master agreement
BTR	Buyer's Technical Representative
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLIN	contract line item number
DOE	U.S. Department of Energy
DSA	Documented Safety Analysis
DSGRE	Deep Sludge Gas Release Event
DST	double-shell tank
EAC	Estimate at Completion
ECN	engineering change notice
EIA	Electronic Industries Alliance
EPOC	External Panel Oversight Committee
ERSS	Extended Reach Sluicer System
EVMS	Earned Value Management System
FY	fiscal year
HIHTL	Hose-in-Hose-Transfer Line
IPT	integrated project team
IQRPE	Independent Qualified Registered Professional Engineer
ISMS	Integrated Environment, Safety, and Health Management System
LDP	leak detection pit
MSA	Mission Support Alliance
NDIA	National Defense Industrial Association
NEPA	National Environmental Policy Act

ORP	Office of River Protection
PCSD	Project Control System Description
PEP	Project Execution Plan
PMSC	Program Management Systems Committee
PrHA	Process Hazard Analysis
RCRA	Resource Conservation and Recovery Act
RPP	River Protection Project
SOW	Statement of Work
TBD	to be determined
TOC	<i>Tank Operations Contract</i>
USQ	Unreviewed Safety Question
VRSS	Vertical Reach Sluicer System
WBS	work breakdown structure
WRPS	Washington River Protection Solutions LLC
WRS	Waste Retrieval and Transfer System

1.0 PURPOSE

This Project Execution Plan (PEP) describes the Washington River Protection Solutions LLC (WRPS) project management process for retrieval of 241-AY-102 tank waste on a timeline as soon as practicable. The PEP addresses the strategic approach, organizational structure, and management systems necessary to complete all project activities supporting a U.S. Department of Energy (DOE) decision to install in-tank equipment and authorize initiation of AY-102 waste removal operations. The PEP includes activities for staging in-tank equipment, turnover of the AY-102 Recovery Project completed activities to operations, and AY-102 waste retrieval and transfer system (WRS) operations.

The AY-102 Recovery Project scope will be executed in several phases and Tank Operations Contract (TOC) modifications based on allocation of resources and availability of receiver tanks. Project scope activities for removal and transfer of waste are detailed in Section 2.1, *Project Scope Descriptions*, and the specific breakdown of activities and corresponding work breakdown structure (WBS) elements for Phase 1 and Phase 2 are detailed in Section 2.5, *Mission Execution*. This PEP aligns with the TOC (DE-AC27-08RV14800)¹ approach for managing and controlling TOC work described in the TFC-PLN-84, *Tank Operations Contract Project Execution Plan*,² which implements the DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*³ and American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA) 748 A, National Defense Industrial Association (NDIA) Program Management Systems Committee (PMSC) Earned Value Management Systems Intent Guide.⁴ This PEP includes a Project Tailoring Checklist (see Attachment D) to document the approach and strategy for fulfilling contract requirements identified in the TOC PEP. In addition, this PEP complies with TFC-PRJ-PM-C-02, *Project Management*,⁵ using a graded approach suitable for the size and complexity of the planned work.

1.1 PROJECT BACKGROUND

1.1.1 AY-102 History

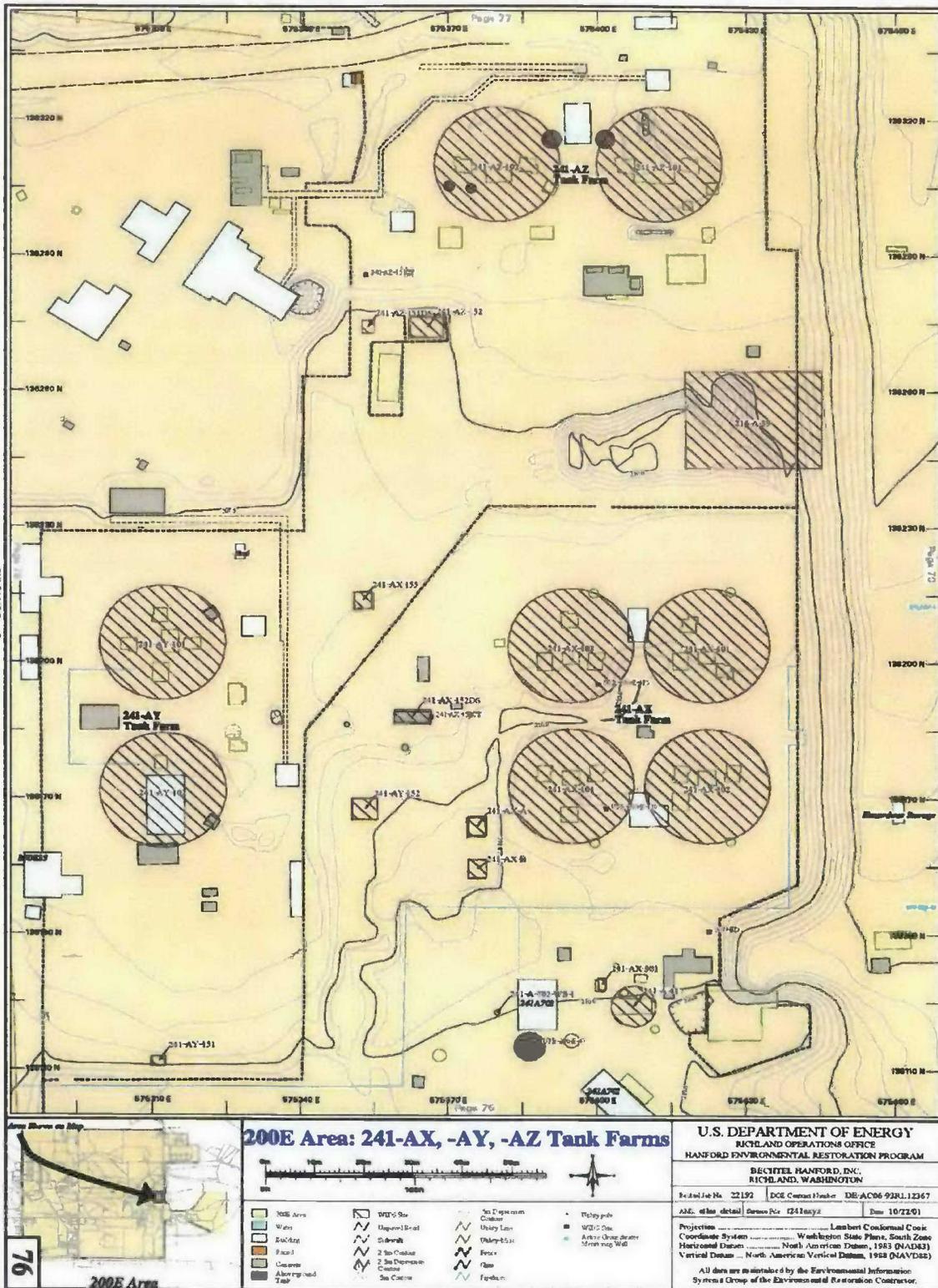
Tank AY-102 is one of two 1 million gallon (Mgal) tanks located in the 241-AY-Tank Farm in the 200 East Area of the Hanford Site (see Figure 1-1). AY-102 was the first double-shell tank (DST) constructed at Hanford, and was declared operational in 1971, with a service life of 40 years. The tank consists of a primary carbon-steel tank, 75 feet in diameter, inside of a secondary carbon-steel liner, which is surrounded by a reinforced concrete shell. The primary steel tank rests atop an 8-inch insulating concrete slab, separating it from the secondary steel liner, and providing for air circulation/leak detection channels under the primary tank bottom plate. An annular space of 2.5 feet exists in between the secondary liner and primary tank, allowing for visual examination of the tank wall and secondary liner annular surfaces, and ultrasonic volumetric inspections of the primary tank walls and secondary liners. The tank risers penetrate the dome to provide access for video cameras, ultrasonic inspection devices, waste sampling devices, mixer pumps, and other equipment requiring entry into either

the primary tank interior or annular space. Six tank pits containing valves and pumps are located above the primary tank shell extending from grade to varying depths above the dome. The pits and associated equipment support tank operational and storage activities.

In August 2012, routine visual inspections of the annulus between the primary and secondary tank walls of AY-102 identified suspect waste material near Riser 87. A formal leak assessment team confirmed that the material originated from a leak located in the bottom of the primary tank and identified a second leak site under Riser 83. The probable cause was identified as accelerated corrosion due to high-waste temperatures and reduced containment margins resulting from construction defects. Although Tank AY-102 was declared an "assumed leaker - primary tank" in October 2012, there is presently no evidence of a leak outside of the secondary containment tank walls.

Tank AY-102 currently has 797,000 gallons of waste (waste level = 289.9 inches), of which 151,000 gallons is sludge and 646,000 gallons is supernatant. Tank AY-102 has a radiolytic decay heat load of 106,000 BTU/hour and a significant portion of this decay heat is removed through evaporation of the supernatant. The evaporation rate is approximately 33,000 gallons/year, which results in a 12 inch supernatant level decrease per year (RPP-RPT-53901, *Management of Supernatant Level in Tank 241-AY-102*).⁶ Prior to and since waste was detected in the annulus, tank waste temperatures have followed historic trends (i.e. seasonal fluctuations) with sludge temperatures generally below 150°F and supernatant temperatures around 100°F.

Figure 1. Location of AY-102 within Hanford and the Tank Farms



1.1.2 AY-102 Recovery Strategy

1.1.2.1 241-AY-102 Pumping Plan Execution

The RPP-PLAN-55220, *AY-102 Pumping Plan*,⁷ updates the approach and planning schedule for the removal of the tank waste on a timeline as soon as practicable. The project will proceed with the planning and initiation of activities supporting the engineering and design, procurement, construction, installation of out-of-tank equipment, and completion of all actions supporting in-tank installation of equipment, project turnover of the AY-102 waste retrieval system (WRS) to operations, and waste retrieval from AY-102. The PEP includes project completion options and associated activities that support the DOE decision to either stage for in-tank equipment installation and storage of in-tank equipment or, install in-tank equipment and complete all readiness activities to authorize initiation of waste retrieval operations.

- Receiver Tank Selection

DST 241-AP-102 (AP-102) has been assigned as the receiver tank based on recent Hanford Tank Waste Operations Simulator modeling, and preliminary process studies.

- Preparation for Transfer of Supernatant

A supernatant transfer pump is installed in the primary tank to commence transfer of liquid waste if required. However, supernatant transfer is not scheduled to commence until the AY-102 WRS is installed and authorized to transfer waste. An emergency annulus supernatant transfer pump is staged for installation and authorized for waste transfer if required.

- Retrieval Technology

The Extended Reach Sluicer System (ERSS) will be used to remove waste from AY-102 using modified sluicing and high pressure water technologies. ERSSs have been successfully deployed for bulk retrieval of Tanks 241-C-112 and 241-C-101, and have proven effective in breaking up and mobilizing solid waste towards the centrally located slurry pump. The maneuverability of the ERSS also provides an advantage as it is able to direct waste from behind objects towards the slurry pump in a variety of mast configurations.

1.1.2.1.1 Double-Shell Tanks Extent of Condition Reviews

DST Near-Term Extent of Condition Review activities were initiated in Phase 1 of the AY-102 Recovery Project to monitor and predict the evolution of the integrity of AY-102 as well as analyze the potential extent of AY-102's condition relative to other DSTs. A status of completed and continuing Extent of Condition activities is provided in Section 1.3, *Project Objectives*, and Section 2.0, *Scope*.

1.2 MISSION NEED JUSTIFICATION

The River Protection Project (RPP) mission includes the retrieval, immobilization, storage, and disposal of Hanford Site tank waste. Maintaining safe storage of the tank waste is an essential part of that mission. To support that mission, the DOE, Office of River Protection (ORP), directed WRPS to execute the AY-102 Recovery Project under the Contract DE-AC27-08RV14800 by the following contract modifications and formal direction:

- Letter 13-CPM-0219, dated July 31, 2013, "Contract Number DE-AC27-08RV14800 - Transmittal of Contract Modification 222,"⁸ directed WRPS to start execution of the project consistent with the RPP-RPT-55220.
- Letter 13-TF-0116, dated November 5, 2013, "Contract Number DE-AC27-08RV14800 - Transmittal of Contract Modification 234,"⁹ directed WRPS to continue work and increased the authorized Not to Exceed project value.
- ORP letter of direction 13-TF-0116, received November 6, 2013, "Fiscal Year 2014 Project Execution Direction under the Continuing Resolution Funding Level"¹⁰, directed WRPS to suspend the AY-102 Recovery Project activities.
- Email (WRPS-1401442), dated January 24, 2014, from M. T. McCusker, ORP, to C. A. Simpson, "Subject: Notification to Proceed in Revising the AY-102 Pumping Plan,"¹¹ directed WRPS to revise the pumping plan with a new execution approach. March 7, 2014, the RPP-RPT-55220, 241-AY-102 Pumping Plan, Rev. C, was released.
- E-mail (WRPS-1401149), dated February 7, 2014, from R. L Dawson, ORP, to C. A. Simpson, WRPS, "Subject: AY-102 Recovery/Pumping Execution Plan – Mod 222,"¹² directed WRPS to re-start AY-102 Recovery Phase 1 Engineering and Design activities.
- ORP letter of direction 14-CPM-0031, dated February 18, 2014, "Fiscal Year 2014 Project Execution Direction under the \$520M Office of River Protection-0014 Funding Level",¹³ confirmed direction to WRPS to re-start the AY-102 Recovery Project activities.
- Letter 14-CPM-0080, dated April 8, 2014, "Contract Number DE-AC27-08RV14800, Transmittal of Contract Modification 253,"¹⁴ directed WRPS to begin work on the AY-102 Recovery/Pumping Execution Plan Phase 2, including all activities necessary to complete the retrieval of AY-102 supernatant, sludge, and removal of waste from the annulus, as well as AY-102 Annulus Corrosion Study and Testing work, based on the External Panel Oversight Committee (EPOC) recommendations.

The Department of Ecology of the State of Washington has issued an Administrative Order on March 21st, 2014 (WA 7890008967),¹⁵ ordering USDOE and WRPS to take

actions impacting the scope and execution plan of the AY-102 Recovery Project as described in RPP-RPT-55220.

1.3 PROJECT OBJECTIVES

The objective of the AY-102 Recovery Project is to proceed in a phased approach with the planning and project activities required to support the DST Near-Term Extent of Condition Review activities related to AY-102, and to execute the AY-102 waste removal operations as described in RPP-RPT-55220 using AP-102 as the receiver tank. A summary status of project activities completed prior to project suspension in November 2013 is provided in Section 1.3.1, *Project Scope Status – November 2013*, and the revised project scope required to initiate AY-102 waste retrieval operations is provided in Section 1.3.2, *Project Scope Status – March 2014*.

1.3.1 Project Scope Status - November 2013

The following project activities were completed, suspended, or transferred to other TOC organizations in November, 2013:

1.3.1.1 Enhanced AY-102 Monitoring

The following enhanced monitoring activities were funded by the AY-102 Recovery Project and performed by TOC Base Operations. The management and execution of these activities have been transferred to other TOC organizations:

- Weekly tank riser video inspection
- Weekly Leak Detection Pit (LDP) level and pH monitoring
- Bi-weekly annulus contamination monitoring
- Monthly LDP water sampling and analysis in anticipation of having to pump the pit every 3 to 4 weeks. However, the LDP water level accumulation has been slower than anticipated (~every 6 to 8 weeks during the winter months)

1.3.1.1.1 Tank Monitoring Technology Review, Evaluation and Deployment of Robotic Inspection of the AY-102 Annulus and Leak Detection Pit

A robotic inspection technology was selected and procured to perform the inspections of the AY-102 annulus 4-inch air supply pipe, the refractory air slots through the annulus, and the LDP 6-inch drain line. The robotic inspection of the LDP was completed in November 2013 and the results documented in the *241-AY-102 Leak Detection Pit Drain Line Inspection Report (RPP-RPT-56464)*¹⁶. The analysis of the recovered residues for this inspection confirmed that no material consistent with tank waste was found in the LDP 6-inch drain line. The robotic inspections for the AY-102 annulus 4-inch air supply pipe and refractory air slots through the annulus were cancelled.

1.3.1.1.2 Review of the DST Structural and Leak Integrity Program

A workshop held in September 2013 to determine the most likely cause of primary tank failure resulted in recommendations for inspections, sampling, or other activities that should be performed to confirm the cause of failure.

Construction history reviews were performed on all 28 DSTs of the AY, AZ, SY, AW, AN, and AP Tank Farms, and were documented in individual reports in preparation for a second workshop scheduled for early 2014.

1.3.1.1.3 Annulus Corrosion Monitoring and Testing to Evaluate the Continued Integrity of the Annulus

In February 2013, the DST Corrosion Monitoring and Testing EPOC provided recommendations in RPP-ASMT-54634, *Propensity for Corrosion in the 241-AY-102 Annulus*,¹⁷ on corrosion analysis and testing to determine whether leaked waste in the annulus of AY-102 might compromise the integrity of the secondary liner. In August 2013, the EPOC provided a prioritized list of recommendations to guide additional analyses and testing to assess leak threats for AY-102. The recommendations were released on September 3, 2014, in RPP-ASMT-55871, Rev. 0, *Propensity for Corrosion in the 241-AY-102 Annulus*.¹⁸

AY-102 tank secondary liner corrosion was estimated through testing and modeling, using a representative annulus waste simulant material. Tests and modeling results were documented in RPP-RPT-56141, *FY2013 DNV DST and SST Corrosion and Stress Corrosion Cracking Testing Report*.¹⁹ The management of this activity has been assigned to the Double-Shell Tank Integrity Program.

1.3.1.1.4 241-AY-102 Pumping Plan Execution

The following activities were completed in November 2013:

Environmental Protection:

- A recommended approach on non-radioactive air permitting was developed and documented in RPP-ENV-56398, Draft A, *AY-102 Retrieval Project Non-Radioactive Air Permitting Strategy*.²⁰
- An environmental analysis associated with the LDP inspection (RPP-PLAN-56400) was released to enable the inspection work (see activity 2).

AY-102 Waste Retrieval and Transfer System (WRS) Engineering and Design Activities:

- Developed pre-conceptual design and engineering plan in support of project planning and Phases 1 and 2 proposal preparation
- Prepared and released a Statement of Work document for solicitation of external engineering support, and provided feedback, review, and approval on the

solicited vendor proposal and work plan. At time of project suspension, the requisition for this work scope was on hold in procurement pending authorization to place the contract

- Executed an alternative analysis on the modified sluicing technology to be implemented, and documented the down-selection in RPP-RPT-56094, *Alternatives Evaluation for Tank 241-AY-102 Modified Sluicing System*²¹
- Prepared a draft Design Verification Plan
- Prepared a draft Procurement Plan
- Prepared a draft process study defining preliminary process parameters
- Prepared a draft specification for the development of the waste retrieval and transfer pump
- Target locations were proposed in an equipment list for the WRS equipment, including a tentative selection of risers and pits. Actions were identified to confirm the current status of target risers (i.e. what equipment is currently installed, if any) and status of pits (i.e. are target pits RCRA compliant or are rehabilitation activities needed in our Phase 2 construction plans).
- Interfaces with modifications on the adjacent AY-101 Tank, as well as planned upgrades on Tank AZ-101 were identified. AZ-101 was considered early in project evaluations as a potential receiver tank for AY-102 waste. Approaches to manage these interfaces and the corresponding opportunities for overall performance and cost optimizations were defined and documented in presentations and meeting notes.

The annulus drying/air circulation system was cancelled, and the annulus waste retrieval pre-conceptual design and testing scope was deferred until completion of primary tank waste removal and completion of annulus liner corrosion and refractory testing.

AY-102 Secondary Investigation Pit Work – SN-265 Line Readiness for Waste Transfer

The following SN-265 transfer line activation activities were completed in December 2013:

- Overpressure protection technical evaluation (AY-102 to AW-105 - RPP-TE-56207)
- Pneumatic test on the SN-265 secondary encasement line (TFC-WO-12-5092)
- AW-05A Pit coating inspection according to National Association of Corrosion Engineers standards (TFC-WO-12-5408)
- SN-265 in-service IQRPE assessment (RPP-RPT-56412)
- SN-265 ECN for routing board (ECN-13-001197)

-
- Thermocouple placement technical evaluation (AW-B-AY-102 to AW-105 – RPP-TE-56093)
 - AW Farm waste transfer system temperature surveillance procedure (TO-040-790)
 - Leak path technical evaluation (AY-102 to AW-105 – RPP-TE-56280)
 - Buried piping report (AY-102 – AW-105 – RPP-RPT-52823)
 - Waste compatibility assessment (RPP-RPT-53847)
 - Completion of route activation and readiness work activities

The following remaining activities were turned over to operations (Waste Transfer) and completed in February 2014:

- Overpressure protection technical analysis (RPP-CALC-56185, RPP-CALC-56186 - RPP-TE-56207)
- High point column separation engineering report (RPP-CALC-56520)
- Leak Check procedure preparation and leak path screen (TO-232-001)
- Line winterization technical evaluation
- Shielding calculation
- Radiological control monitoring plan
- Industrial hygiene plan
- AY-102 to AY-105 transfer procedure (TO-230-370)

1.3.2 Project Scope Status - March 2014

The AY-102 Recovery project was directed by the DOE, Office of River Protection (ORP), to resume execution of RPP-RPT-55220 to remove and transfer AY-102 tank waste to a DST receiver tank. The following summary activities present the project phased approach to implement this direction.

Phase 1 of the AY-102 Recovery Project will execute the following project activities:

- DST Extent of Condition review activities
- Engineering and design of the AY-102 WRS, including modifications to the selected receiver tank (AP-102)
- Project Management in support of these activities

Phase 2 of the AY-102 Recovery Project will include the following remaining tasks completing the execution of RPP-RPT-55220 using AP-102 as the receiver tank for AY-102 waste:

- AY-102 and AP-102 waste retrieval and transfer equipment procurement

- AY-102, AP-102, and tank farm inspections, equipment removal, waste retrieval and transfer equipment installation, and related infrastructure and construction work, including installation of in-tank equipment, or conditioning of the equipment for long-term storage
- AY-02A pit drain line isolation
- AY-102 and AP-102 equipment testing and readiness activities
- Turnover of the AY-102 WRS to Operations
- AY-102 WRS Operations
- Project Management in support of these activities

2.0 SCOPE

A summary description of project activities is provided in RPP-RPT-55220. The activities are described in more detail in the following sections, and include the required activities to support a decision to install in-tank equipment and authorize AY-102 waste removal. DST 241-AP-102 (AP-102) has been assigned as the receiver tank for the AY-102 waste, based on Hanford Tank Waste Operations Simulations modeling, and preliminary process studies.

The activity descriptions and execution strategy for this PEP have been revised to reflect this decision.

2.1 PROJECT SCOPE DESCRIPTIONS

2.1.1 Isolation of AY-02A Pit Drain line

Isolation of the AY-02A Pit drain line will prevent intrusion of liquids from DST transfers into the AY-102 primary tank, currently the only potential source for any addition of external waste into AY-102, and associated with transfer to and from AY-101. Prior to initiation of current AY-101 waste transfers, the drain blocker in the AY-02A Pit will be functionally tested for operability, and a camera will be inserted in the AY-02A Pit to provide continuous leak monitoring of the transfer route. A drip wise leak in the AY-02A Pit during a DST AY-101 waste transfer will be a shutdown criterion for these waste transfers.

The AY-102 WRS design will implement engineered controls through modifications of the AY-02A Pit and drain line. The modifications will include the removal of all excess equipment from the AY-02A Pit, the sealing of unused penetrations, and the addition of a new sump pump and jumper to allow liquid removed from the pit to be sent back to AY-101.

The AY-02A Pit will also be used to host some of the AY-102 waste retrieval and transfer equipment. Modifications to the AY-02A Pit will be designed to ensure all isolation and waste retrieval and transfer process functions can be performed.

2.1.2 Extent of Condition - AY-102 Enhanced Monitoring

Perform the following Tank AY-102 enhanced monitoring activities:

- As part of WBS 5.01.01.14.03.01, "Enhanced AY-102 Monitoring":
 - Perform quarterly AY-102 LDP setups to pull samples
 - Perform quarterly sampling events of the LDP
 - Perform on a quarterly basis the collection, containerizing, bill of lading paperwork, and ship samples for laboratory analysis
 - Scope includes the re-planning of work packages once a year

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- Perform one weekly video inspection in an AY-102 Tank riser to monitor and characterize any changes identified in the annulus floor where waste has been accumulating. Perform and report the comparison from the previous week's videos to identify any increase or change to the waste
 - Report bi-weekly annulus contamination area monitoring paper pulls and analysis to determine if there are any abnormal radiation readings
 - Report weekly level and pH monitoring of the LDP liquids and compare to the previous week's samples
 - As part of WBS 5.01.01.14.03.03, "AY-102 Secondary Investigation Inspection":
 - Perform and report secondary investigation of five (5) additional annulus risers

These enhanced monitoring activities will be conducted until the end of fiscal year (FY) 2016, and the monitoring and inspection plan will be adjusted according to the findings.

2.1.3 Review of the DST Structural and Leak Integrity Program

Perform the following activities supporting DST Structural and Leak Integrity Program Evaluations (WBS 5.01.01.14.02.08):

- Identify members and form a charter for an Independent Expert Panel to support DST Integrity Program workshops.
- Perform DST Integrity Program workshops to address the following:
 - A total of three workshops will be performed. One completed workshop in FY 2013, and two additional workshops to be performed in FY 2014.
 - The FY 2013 workshop reviewed the AY-102 Leak Assessment Report, individual construction files and operating history to determine the most likely cause of failure and determine what inspections, sampling, or other activities should be performed to confirm the cause of failure.
 - Following the completion of the construction history review of all 28 DSTs, the expert panel will review the findings from the review, and using the findings from the first workshop, determine the tanks most at risk to experience a failure similar to AY-102. In addition, the panel shall review the DST Integrity Program elements. The panel will then recommend program changes to enhance tank monitoring and inspections for the tank and LDP system.
 - Recommend inspections and destructive testing of AY-102 walls floor and support components in order to determine failure mechanisms, and assist with determining the remaining life of the other 27 DSTs. These inspections and testing would follow removal of waste from the tanks and repair/closure determination.

Two reports documenting the Comprehensive Review Panel's programmatic recommendations (after the second meeting), and recommendations for post-retrieval examination of Tank 241-AY-102 (after the third meeting) will be prepared.

The recommendations or additional proposed actions resulting from the DST Integrity Program workshops are not included in the present project scope.

2.1.4 Preparation for and Execution of AY-102 Waste Removal

The project activities required to remove AY-102 tank waste include the following:

- Design and engineering of the AY-102 WRS including all upgrades and modifications to tank equipment and associated transfer systems between AY-102 and AP-102
- Design of an Annulus Pump System to support removal of pumpable liquids during AY-102 primary tank waste removal and transfer operations
- Design of ERSS training mockup
- Procurement, delivery and receipt of WRS and training mockup equipment
- Modification of training facility in preparation for installation of ERSS mockup equipment
- Removal of selected equipment from AY-102, AP-102, and the associated tank farms in preparation for the installation of new waste retrieval and transfer equipment
- Installation of ERSS equipment and construction of related infrastructure for training facility
- Installation of out-of-tank equipment and construction of related infrastructure for AY-102 and AP-102:
 - Solicitation, bidding and award of contract(s) for Installation of out-of-tank WRS equipment, and related construction work
 - Preparation, review and approval of all field work packages required for installation of out-of-tank WRS equipment
 - Completion of out-of-tank construction work
 - The installation of all out-of-tank retrieval and transfer equipment
- AY-102 and AP-102 in-tank equipment installation and construction of related infrastructure:
 - Solicitation, bidding and award of contract(s) for Installation of in-tank WRS equipment, and related construction work
 - Preparation, review and approval of all field work packages required for installation of the in-tank WRS equipment
 - The installation of all in-tank retrieval and transfer equipment

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- Execution of the requisite AY-102 WRS testing and readiness activities required for turnover to operations and authorization for the start of retrieval and transfer operations:
 - Construction acceptance testing
 - Operational acceptance testing
 - Operator training at ERSS mockup facility
 - Readiness verification and approval
 - Project turnover to TOC Base Operations
 - Complete AY-102 waste removal operations

Note: The AY-102 Recovery Project Phase 2 scope will include execution of the Administrative Order issued by Ecology on March 21, 2014 (Docket #10156, subsequently corrected by Ecology to Docket #10618) according to an approach which will provide compliance to the extent technically feasible. This approach is being defined and the resulting impact on the execution plan will be addressed at a later date.

2.2 ELEMENTS EXCLUDED FROM THE SCOPE

The elements of scope described in this section reflect changes which have been made since Revision 0 of this execution plan, or identify activities which will be executed in a later phase of the project, and therefore not included in Phase 2.

2.2.1 Annulus Corrosion Monitoring and Testing to Evaluate the Continued Integrity of the Annulus

Testing of the waste in contact with the annulus liner will estimate the rate of corrosion, and modeling will assist in estimating the susceptibility of the secondary tank liner to corrosion to determine the most effective methods to remove residual waste from the refractory, while ensuring the overall structural integrity of the tank is protected.

The following activities were completed prior to the suspension of project Phase 1 in November 2013:

- Performed testing on a representative annulus waste simulant material
- Performed modeling to determine corrosion potential within the annulus tank space
- Developed the draft technical report RPP-RPT-56141, documenting tests and modeling results for approval by the EPOC for Corrosion Testing and Monitoring

Completion of the corrosion monitoring and testing to evaluate the AY-102 annulus integrity will include additional testing and modelling as recommended by the EPOC. These activities will be performed under the Tank Integrity Program (WBS element 5.01.01.05.01.14), and are therefore not included in the scope of the AY-102 Recovery Project.

2.2.2 Annulus Air Drying System

The Annulus Air Drying System was conceived to mitigate the risk of further primary tank waste dispersion by maintaining the waste in a stable solid form through control of the relative humidity. The existing tank ventilation system provided sufficient capability to dry the small volume of annulus waste and therefore, this system was deleted in order to redirect resources to activities that support the retrieval and transfer of waste from AY-102.

2.2.3 Annulus Residual Waste Retrieval Pre-Conceptual Design and Testing

Activities described in Section 2.2.1 will provide an estimate of the susceptibility of the secondary liner to corrosion from the waste, and provide input for the design of an annulus residual waste removal solution for the leaked waste. The activities required to define the appropriate annulus residual waste removal method will include:

- Performing testing to determine the best available solution to remove the residual waste from the refractory, while ensuring overall structural integrity of the tank
- Preparing a plan for the removal of residual waste from the annulus, following the completion of the annulus liner corrosion testing, and refractory testing. The activities to complete the test include:
 - Evaluation and determination of cleaning alternatives for both a “repair and return to service” approach, and a “closure” approach
 - Update of document RPP-ASMT-27062, *Stress Corrosion Cracking Evaluation for the Secondary Liner Exposed to In-Specification Waste in Double-Shell Tank Annulus*²²

These activities and residual annulus waste retrieval operations are not included in the current project scope.

2.2.4 Post-Retrieval Tank Inspection

The tank inspection method, which will be used to identify and characterize the leak site, will depend on the amount and condition of the residual waste left at the bottom of the tank once removal has been completed, as well as on the condition of the tank itself. The selection and qualification of the inspection method cannot be finalized until completion of waste removal.

Post-Retrieval Tank Inspections, consequent analysis to determine if the tank can be repaired or needs to be closed, and repair or closure activities are therefore not included in the AY-102 Recovery Project Phase 2 scope.

2.3 RETRIEVAL COMPLETION CRITERIA

The objective of the AY-102 Recovery Project is to remove sufficient tank waste to enable inspections of the primary tank shell in order to support a determination for either repair or closure of the tank.

The condition of the sludge to be removed and transferred, the condition of the bottom of the primary tank and the leak site(s), and the capabilities of the available inspections techniques for final tank inspection remain uncertain, at this point in the project.

The waste retrieval and transfer technologies which will be implemented to achieve completion of primary tank waste removal are based on existing and proven technologies presently used for single-shell tank retrievals and evaluated for use to retrieve waste from AY-102. The AY-102 Recovery Project has selected the ERSS to perform waste removal from DST AY-102, using the modified sluicing technology (ref. RPP-RPT-56094) and the high-pressure water technology.

Primary tank waste removal will be considered completed when sludge removal operations have reached the capability limit of modified sluicing and high pressure water technologies. The definition of the capability limits will be based on what is currently used with modified sluicing in SST Retrieval and Closure operations, as defined in RPP-50910, Single-Shell Tank Waste Retrieval Limit of Technology Definition for Modified Sluicing (Concentration of slurry sent to the receiver tank is within, or bracketing, the range of 0 to 0.6 volume percent).

2.4 WASTE RETRIEVAL AND TRANSFER DESIGN STRATEGY

The Extended Reach Sluicer System (ERSS) modified sluicing and high pressure water technologies will be used to remove AY-102 waste solids using recycled tank waste supernatant as the sluicing medium. Four ERSSs will be located around the perimeter of the tank and optimized to reach all tank waste locations. The ERSS includes a boom that extends and retracts from the support mast to increase the effectiveness of the sluicer nozzle. The sluicer is a remote controlled, high-volume jetting system equipped with an articulating nozzle that rotates and moves vertically to break up tank waste at different locations. The combination of the boom extension and the nozzle provide capability for sluicing behind air lift circulators and other objects within the reach of the boom. The ERSS nozzle is also used to move the waste back towards a slurry pump installed near the center of AY-102. The slurry pump is equipped with a backstop assembly technology used to enhance pumping performance for removal of tank waste slurry.

Hose-in-Hose-Transfer Lines (HIHTLs) will be routed to and from the sending and receiving tanks with appropriate valve boxes to allow transfer routes to be established between AY-102 and AP-102. Primary equipment in AP-102 will include a supernatant pump, slurry distributor, valve boxes, and the requisite jumpers, monitoring systems, and other ancillary equipment required for retrieval operations.

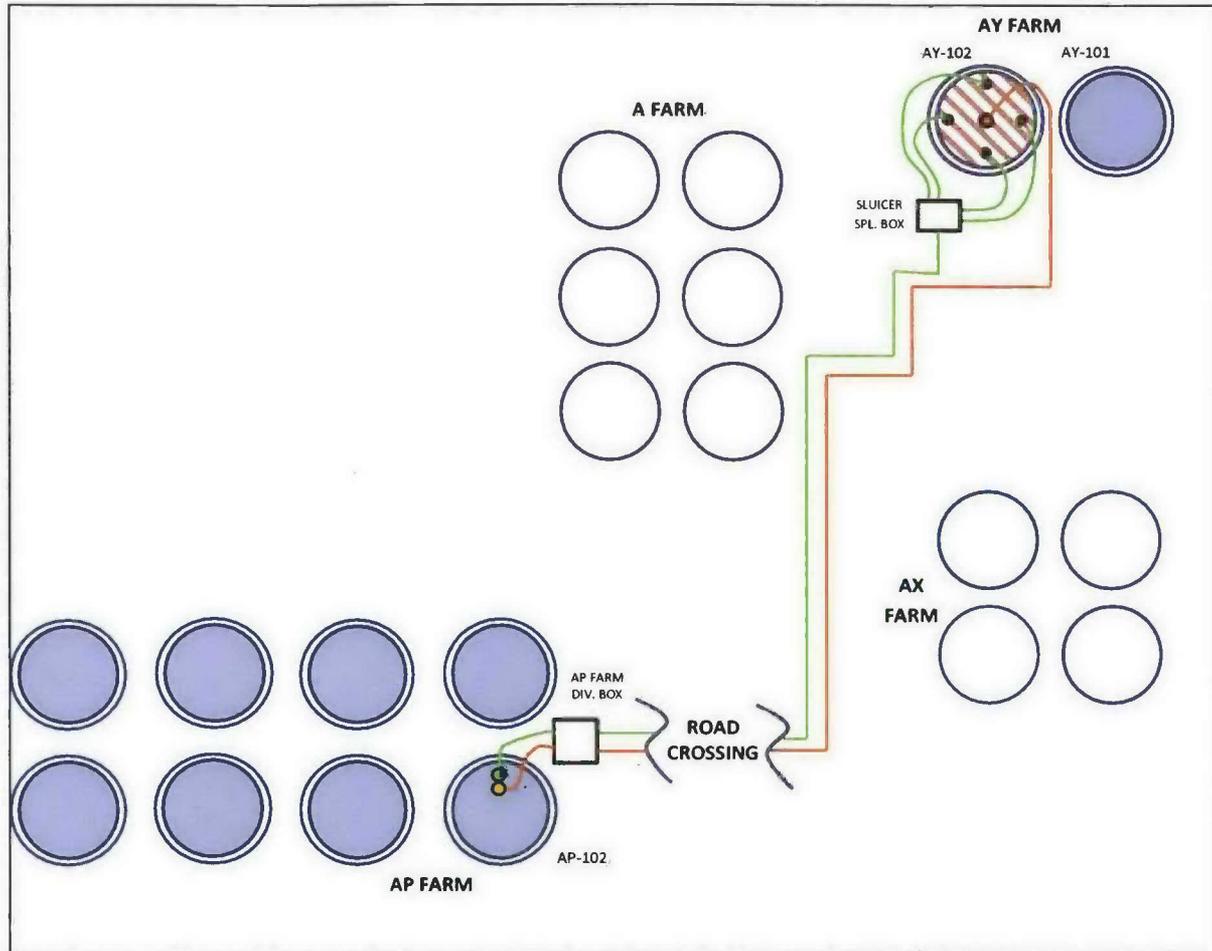
Table 2 presents a summary waste retrieval system equipment list for AY-102 based on the conceptual design described in RPP-RPT-55220.

Table 1. 241-AY-102 Pumping Plan Equipment

Component	Qty	Component	Qty
Slurry Transfer Pump assembly	1	Slurry Transfer Pump HPU	1
Slurry Pump Jumper assembly	1	AY-02A Pit Cover Plate assembly	1
SL Transfer Pump Control sub-system	1	Backstop HPU	1
Backstop Mechanical assembly	1	Water supply sub-system	1
Backstop Jumper assembly	1	ERSS Riser Extension	4
Backstop Control sub-system	1	AY-02B Pit Cover Plate assembly	1
ERSS Sluicer assembly for 6-in riser	4	AY 02C/D/E	1 ea
ERSS Sluicer assembly for Sluice Pit riser	1	SN Transfer Pump HPU	2
ERSS Control sub-system	1	AY Farm CPP Cover Plate assembly	2
Enhanced SN Transfer Pump assembly	2	AY Farm Splitter Box assembly	1
SN Pump Jumper assembly	2	AY Farm Splitter Box Manifold	1
SN Transfer Pump Controls sub-system	2	AY Farm SN Pump HIHTLs	4
AY-102 Sluicer Splitter Box assembly	1	Shielding for HIHTLs	TBD
AY-102 Sluicer Splitter Box Manifold	1	Winterization equipment	TBD
AY-102 Sluicing sub-system HIHTLs	5	Remote ARM sub-system	TBD
Inter-farm HIHTLs - 2 segments/route	4	In-farm Video Camera subsystem	TBD
Leak Detector Sensors & Alarm Panels	TBD	Operations Control trailer	1
Freeze Protection Monitoring subsystem	TBD	Water hoses	TBD
Vehicle impact barriers	TBD	Cable and conduit	TBD
In-tank Video Camera subsystem, lights	TBD	Low-suction heel pump	TBD
Operator workstation	1	AP-102 Slurry Distributor	1
AY Farm Water Distribution Skid	1	AP Farm Diversion Box	1
AY Farm Elec. Distribution Skids	2	AP-102 HIHTLs	2
Heel removal Jet Pump sub-system	TBD	Hose Barn, Lead Antimony, for at grade HIHTL	2K
Crawler-Based Sluicer	TBD	Shield Plate (2 in thick, 4 ft X 20 ft)	260

Figure 2 describes a preliminary conceptual layout of the key components of an integrated AY-102 WRS. The configuration presents intra-farm waste transfer routes consisting of HIHTL assemblies manufactured to specified lengths to connect portable valve and instrument boxes within the AY/AP Farm, and convey slurry and supernatant between AY-102 and AP-102 Tanks using the modified sluicing process.

Figure 2. AY-102 Recovery Project – Preliminary Layout and Integration Plan



2.5 MISSION EXECUTION

The objectives of the AY-102 Recovery Project are to support the ongoing DST Near-Term Extent of Condition Review activities related to AY-102, and to proceed with the planning, preparations, procurement, equipment installations and related Tank Farm infrastructure and construction work, readiness and startup operations required to execute and complete the waste retrieval and transfer operations described in the updated RPP-RPT-55220 and Section 2.0, Scope, of this PEP.

3.0 ORGANIZATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

3.1 PROJECT TEAM PRINCIPLE

In compliance with the TOC PEP, an integrated project team (IPT) has been created to execute this work. The IPT is composed of both deployed and matrixed functional personnel reporting to AY-102 Recovery Project line management, under the Single Shell Tank Retrieval and Closure (SST R&C) line management organization. Personnel assigned to the AY-102 Recovery IPT are responsible to project line management for completion of assigned activities in support of project objectives, and to retain and exercise responsibility and accountability for technical implementation of their function consistent with the standards and expectations of their Functional Management. Attachment C illustrates the IPT organization chart.

3.2 WORK AREA MANAGER

The SST R&C Work Area Manager (WAM) is responsible for managing activities related to the disposition of waste from the SSTs through various retrieval technologies and closure options, while ensuring that lessons learned during each task are applied to future retrieval and closure activities. The SST R&C organization is structured utilizing an IPT approach.

3.3 AY-102 RECOVERY PROJECT MANAGER

The AY-102 Recovery Project Manager reports to the SST Retrieval & Closure WAM, is responsible for day-to-day management of AY-102 Recovery activities, and is accountable to the SST R&C WAM for achievement of project goals. The AY-102 Recovery Project Manager Responsibilities include:

- Providing day-to-day management and oversight of project activities, including interfacing with DOE-ORP, engineering discipline leads, subcontractors, and other WRPS support organizations for execution and fulfillment of project goals
- Incorporating Integrated Environment, Safety, and Health Management System (ISMS) and Voluntary Protection Program principles in project activities
- Directing development of project planning and baseline documents
- Providing contractual direction through the Buyer's Technical Representative (BTR) and Buyer to the Architect/Engineer (A/E) and construction management subcontractors for the performance of design, procurement, and construction to ensure compliance with applicable codes, standards, criteria, regulations, and DOE Orders
- Ensuring completion of a Plant Forces Work Review in accordance with TFC-BSM-HR_EM-C-05, *Plant Forces Work Review (Davis-Bacon Act Compliance)*²³
- Providing the administration of overall project change control to ensure appropriate management of scope, cost, and schedule commitments

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- Providing project direction for coordination and integration among participating subcontractors for project activities to ensure compliance with the project technical baseline and other technical design criteria
 - Providing development and maintenance of project schedules
 - Directing preparation, coordination, and approval (as applicable) of all local, state, and federal environmental documents/permits required for the project
 - Communicating with the project team and others on project status and key project deliverables
 - Coordinating construction, testing, and turnover activities that are performed to prepare for operational startup
 - Establishes agreement with Project Management Program Manager for scope and content of project turnover activities required to confirm project completion

3.4 INTEGRATED PROJECT TEAM

The AY-102 Recovery Project includes personnel deployed and matrixed from SST Retrieval & Closure and WRPS functional organization disciplines for expertise required to achieve project objectives. Project personnel are listed in the Project Organization Chart (see Attachment C) for assigned responsibilities and are accountable to the project line management to complete assigned tasks and meet project goals. Functional personnel retain and exercise responsibility and accountability for technical implementation of their function consistent with the standards and expectations of their Functional Management. The following sections further describe the expertise required to execute project goals.

3.4.1 Engineering

Engineering personnel assigned to the project provide as needed the following discipline support:

- Provide technical direction to the A/E
- Provide BTR services for engineering contracts
- Ensure requisite IQRPE certifications are obtained
- Ensure the design media complies with project baseline, while considering safety, quality, constructability, operability, maintainability, environmental compliance, and cost effectiveness
- Ensure that design and performance specifications meet applicable laws, standards, regulations, and the project technical baseline
- Conduct design reviews
- Review and approve vendor data submittals
- Support development of as-built drawings

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- Participate in Process Hazard Analyses (PrHAs)
 - Participate in team planning meetings, Joint Review Groups and Post Job As Low As Reasonably Achievable (ALARA) meetings
 - Participate in the development, review and approval of work packages
 - Conduct post installation walk-downs of equipment and process work completion of engineering change notices (ECNs)
 - Support field work activities
 - Provide engineering support and direction for procuring commercial grade, safety class or safety significant structures, systems, or components
 - Provide support to Test Program by development of appropriate acceptance criteria, including Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

The following AY-102 Recovery Project positions describe specific management and discipline responsibilities:

Project Engineering Manager – coordinates all Engineering activities, and interfaces with the SST R&C Project Engineering Manager, to organize additional Engineering Support (Systems and Facilities Subject Matter Experts and Design Authorities) for the purpose of completing tasks assigned by the project line management. The Project Engineering Manager approves and makes decision on technical engineering documents and issues, and is accountable for the performance of the Engineers and the quality and compliance of the technical products developed by the project.

Lead Project Engineer – is the AY-102 Retrieval System Project Mechanical DA for design, installation, testing & turnover (DITT) and is responsible for planning and implementing the engineering work in accordance with engineering standards, plans, and procedures. The AY-102 Retrieval System DA (Mech.) maintains the design requirements and ensures that the design output documents accurately reflect the design basis. The Lead Project engineer supports project scope/cost/schedule development, completion of assigned tasks, and coordinates implementation of field work and construction activities including verification of completed work activities consistent with approved design. The Lead project engineer also coordinates with the discipline AY-102 Retrieval System DAs (DITT) to ensure that the structures, systems, and components (SSCs) are maintained within the Authorization Basis.

Process Engineer – is responsible for preparing and issuing process control plans, block flow diagrams, and process flow sheets that define planned operations. The Process Engineer shall ensure Waste Compatibility Assessments are prepared and approved for planned transfers from AY-102 to receiver tanks.

Mechanical Engineering Staff – are responsible for preparing the mechanical design of the AY-102 Recovery pumping system, robotic inspection systems and any design preparation by a subcontract design agency. Staff will support procurement of

equipment, test, examination, and acceptance of equipment, preparation of ECNs and calculations consistent with established TOC engineering standards.

Electrical Engineering Staff – are responsible for preparing the electrical design of the AY-102 Recovery pumping system and supervising design prepared by a subcontract design agency. Staff will support procurement of equipment and facilitate test, examination, and acceptance of equipment for installation and operation. Responsibilities include preparing ECNs that modify existing DST utilities, and preparation of electrical engineering calculations consistent with TOC engineering standards.

Civil/Structural Engineer – is responsible for preparing the structural design of the AY-102 Recovery pumping system or supervising its preparation by a subcontract design agency. Responsibilities include development of structural design elements and preparation of structural analyses consistent with established TOC engineering standards.

Procurement Engineer – is responsible for Procurement Engineering Evaluations and coordinating development of the commercial grade dedication (CGD) documents and other activities supporting procurement as assigned by project management. Responsibilities include:

- Ensuring Commercial Grade Dedication form (A-6002-544) prerequisites are completed prior to procurement of safety significant SSCs, piece parts, or services not procured from an evaluated supplier.
- Coordinates and tracks required evaluations and input (Responsible Engineer, Design Agent, and Design Authorities, Quality Assurance Engineers, Project Engineers, etc.) to ensure appropriate CGD documentation is specified (critical characteristics, acceptance criteria and methods, etc.), and appropriate approvals are obtained to support the completion of project CGD packages.
- Provides support to the engineering BTR for the procurement of project material and services, and interfaces with the WRPS Procurement Specialists and buyers as needed to status planning and execution of procurement activities.
- Coordinates with BTR to maintain an equipment and material spreadsheet that tracks the status and location of all procured equipment and material supporting project completion.

Nuclear Safety and Licensing Engineer:

- Administers the Unreviewed Safety Question (USQ) process
- Coordinates the preparation and processing of amendments to the Documented Safety Analysis (DSA), as required
- Participates in design reviews

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- Conducts PrHAs and document results

3.4.2 Construction

Construction Manager:

Manages construction activities, including:

- Construction execution per the authorized Statement of Work (SOW) and project schedule
- Construction Contractor activities in compliance with the approved contract.
- Project construction organization, resources and facilities
- Coordination of construction activities with support organizations and Tank Farms Operations
- Coordination with BTR for construction contracts
- Provides construction input to engineering during design, and manages constructability reviews throughout the design phase of the project
- Provides construction input to work planning and work package development
- Develops field execution schedule details and logic for management of all phases of project construction execution for integration into the master project schedule
- Prepares and approves notices of intent, and SOW for construction activities
- Coordinates Plant Force Work Reviews for construction activities
- Reviews and approves construction subcontractor documentation
- Prepares construction acceptance and operational acceptance test result reports
- Oversees/conducts construction acceptance and operational acceptance tests
- Coordinates the development of preventive maintenance plans for the staged equipment to maintain readiness

Construction Field Lead:

- Supports the Construction Manager with the supervision all field construction activities
- Responsible for safe conduct of daily construction execution
- Responsible for daily pre-job briefings
- Responsible for preparation and submittal of Daily Activity Reports (DARs)
- Responsible for maintaining a photographic record of daily construction activities
- Responsible for review and verification of Contractor Daily Reports

Work Package Planners (Mechanical, Electrical, and Radiological Control):

- Coordinate and execute Work Package Planning to develop, prepare and maintain project work packages as required to enable the safe and timely execution of field construction activities

3.4.3 Operations**Operations Specialist**

The Operations Specialist coordinates all project activities related to the preparation of retrieval operations. As future owner and operator of the waste retrieval and transfer system, the Operations Specialist will ensure Design and Engineering activities integrate system operations constraints as well:

- Participates actively in the design and conducts operability reviews
- Participates in PrHAs
- Facilitates future operations readiness of the system

Procedure Writers:

- Prepare operating, alarm response, and maintenance procedures
- Participate in PrHA reviews

Training Coordinator:

- Prepares operations and maintenance training material
- Conducts training

3.4.4 Procurement**Procurement Specialist – Subcontracting:**

- Reviews Contract Requisitions
- Evaluates responsiveness of vendor proposals
- Manages selection and award of subcontracts

The Procurement Coordinator/BTR:

- Coordinates and supports the development of any project related/required SOW, interfacing with the Engineering team
- Coordinates the procurement of project materials and services, interfacing with the WRPS Procurement Specialists and buyers to ensure proper planning and execution of procurement activities, and with vendors to resolve any project related procurement issues

3.4.5 Project Integration

Project Integrator and Expeditor:

- Leads the project integration effort between the project team and WRPS supporting entities to ensure successful execution of project commitments.
- Conducts project alignment/integration meetings to ensure compliance with technical specifications, regulatory requirements, and project cost and schedule commitments
- Expedites critical path actions and manages the balance of resources to ensure achievement of project goals and milestones
- Provides support for preparation of the project turnover scoping document and project turnover document
- Participates in project scoping and planning meetings to identify critical path activities and additional project risk that may require mitigating action

3.4.6 Commissioning

Readiness Representative:

- Develops Activity Description as required to support readiness review determinations
- Develops Operational Readiness Checklist (ORC) that identifies deliverables and objective evidence requirements to confirm a state of readiness for facility startup
- Maintains activity-specific open items list to support closure of ORC
- Reviews and validates submitted evidence to ensure that the ORC lines of inquiry and the referenced source document requirements have been fully satisfied, and that all pre-start items are completed
- Coordinates with the responsible activity manager to ensure that any post-start items are tracked by the appropriate system (e.g., TFCHAMPS, ESTARS, PERs, NCRs, IMES, etc.)

3.4.7 Project Management Program

Project Turnover Coordinator:

- Prepares project turnover documents per TFC-PRJ-PM-C-28, Project Turnover and Closeout/Suspension²⁴
- Supports identification of operations and maintenance training and procedures
- Ensures turnover activities are input into the IMES and are tracked through completion

- Ensures that drawings identified by the Design Authority for as-built are completed prior to turnover or are entered in the Turnover Punchlist and shall be completed prior to the approval and issuance of the project completion reports
- Tracts completion of Work management System/Safety Equipment Compliance Database updates, Vendor Information file, Preventative Maintenance Identification forms and Spare Parts List in accordance with Engineering procedures and standards

3.4.8 Project Controls

Project Control Specialists:

- Support cost estimate and schedule development and maintenance
- Support cost accounting
- Provide performance management baseline development and maintenance
- Approve SOWs
- Prepare Estimates at Completion
- Prepare monthly progress reports
- Track accruals
- Support development of all documentation required for Baseline Change Requests (BCRs)

3.4.9 Quality Assurance

Quality Assurance Engineer:

- Provides quality engineering support to procurement, engineering, construction, and operations
- Participates in design reviews and PrHA
- Provides quality control functions during project execution providing verification of completion of work in accordance with quality assurance requirements
- Reviews and approves SOWs, Fabrication Requests, Material Requisitions, and Bills of Material
- Participates in the development and approval of Quality Assurance Inspection Plans
- Participates in the technical evaluation of proposals for SOWs and Material Requisitions
- Performs assessments or audits, as required
- Coordinates Acquisition Verification Services Inspections

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- Participates in team planning meetings, ALARA meetings, Joint Review Groups, and post-job briefings
 - Develops, tracks, and closes non-conformance reports

3.4.10 Environmental Safety and Health, Industrial Hygiene

The Environmental Permitting and Compliance Specialist works under the functional supervision of the Environmental Protection Manager, to provide environmental compliance and permitting support for all AY-102 Recovery Project activities. His responsibilities include:

- Development, review coordination, and publication of an Environmental Permitting and Compliance Plan including regulatory evaluation and analysis of all applicable environmental regulations and identification of regulatory approvals
- Integration and status of regulatory permitting and approvals with project schedules
- Integration and coordination of environmental permitting and compliance activities for the project with Environmental Protection management
- Development and coordination of necessary permitting documents and submittals including calculations and modeling as appropriate to support permit submittals. Coordination with Environmental Protection to support modeling may be required up to and including peer review and checking. This activity also includes preparation and coordination of correspondence with DOE, Regulatory Agencies and Mission Support Alliance (MSA) as necessary to support project activities.
- Environmental support and review of project documents including engineering, design, procurement, work planning and work execution documents including coordination and interface with engineering, procurement staff in the development of work products
- Supports field work package development; providing input to limits and hold points
- Monitors field activities for compliance with environmental requirements and exposure limits

Industrial Safety and Health Specialist:

- Defines safety requirements related to design and installation of project equipment and performance of retrieval operations
- Participates in Process Hazard Evaluation Meetings (as required)
- Participates in round tables, team planning meetings, Joint Review Groups and post-job ALARA meetings
- Prepares and approve Work Hazards Analysis paper work

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- Reviews and approves subcontractor safety and health plans
 - Monitors performance of field work
 - Defines Industrial Hygiene requirements related to design and installation of project equipment and performance of retrieval operations
 - Prepares and approves project specific Industrial Hygiene Monitoring Plan
 - Coordinates the intervention of trained Industrial Hygiene Technicians to oversee field activities

3.4.11 Radiological Safety

Radiological Controls Specialist and HPT Support Team:

- Develops radiological monitoring plans
- Reviews designs for compliance with ALARA principles
- Prepares/Approves Radiation Work Permits and ALARA Work Sheets
- Participates in Team Planning Meetings, Joint Review Groups, walkdowns, and post-job ALARA meetings
- Participates in the development, review and approval of work packages
- Performs radiological surveys
- Monitors performance of field work

3.4.12 Administrative Support

Project Specialist:

- Provides support to the Project Manager and IPT members
- Interfaces with the WRPS Records Management organization to ensure proper management of the project documentation

3.5 U. S. DEPARTMENT OF ENERGY OFFICE OF RIVER PROTECTION

DOE is the owner of the Hanford Site and responsible for its cleanup. ORP is responsible for coordinating the activities of the RPP prime contractors to accomplish the RPP mission. Authority for contractual direction to the TOC is the ORP contracting officer. Within the ORP, contracting officer's representatives are authorized to provide technical direction and technical oversight to the TOC. An ORP representative also functions as an integral part of the IPT.

3.6 HANFORD SITE INFRASTRUCTURE SERVICES

Hanford site infrastructure and utility services are provided by MSA. Specific services that MSA provides to the C-Farm Tank Waste Retrieval project include: crane and rigging services, general-purpose facility management and maintenance services,

utilities maintenance and operations, and acquisition verification services. They also provide calibration and nondestructive examination services; transportation; nonradioactive and solid-waste handling; emergency services, including management of the Hanford Fire Department and Emergency Preparedness; sponsorship of many sit level boards; and management of the landlord programs.

4.0 PROJECT PROCESSES AND CONTROLS

4.1 PROJECT BASELINE

The baseline defines the key technical, schedule, cost, and performance parameters, and provides the means to measure progress and assess performance.

The baseline is composed of three elements: (1) scope (2) schedule, and (3) cost. These three elements are indexed to the WBS.

4.1.1 Scope Baseline and Work Breakdown Structure

The technical baseline is defined through the collective specifications and requirements. From this technical baseline documentation, the scope is defined and captured in a WBS to establish the scope baseline. The WBS was developed in accordance with TFC-PRJ-PC-C-02, *Work Breakdown Structure and WBS Dictionary Sheet Development and Administration*.²⁵ The WBS provides the basis for organizing, planning, estimating, scheduling, and reporting performance for tasks within the AY-102 Recovery Project. Table 4-2 shows the WBS for the AY-102 Recovery Project. The second level of the WBS (5.01) identifies the Tank Farms Base Operations activity. The third level of the WBS (5.01.01) identifies the Tank Farms Base Operations Area. The fourth level of the WBS identifies the DST Near-Term Extent of Condition Review activities (5.01.01.14) as well as the AY-102 Recovery Project Preparations for Retrieval (5.01.01.15). The fifth level of the WBS identifies the different tasks within the project. The sixth level of the WBS identifies major subtask for each task.

Table 2. Work Breakdown Structure for Phase 1/Phase 2

WBS Number	WBS Description
5	River Protection Project
5.01	Base Operations
5.01.01	Base Operations
5.01.01.14	DST Near-Term Extent of Condition Review
5.1.1.14.2	Pre-Project Planning/Extent of Condition Studies
5.1.1.14.2.6	AY-102 Corrosion Study
5.1.1.14.2.7	AY-102 Tech. Dev. for Robotic Inspection
5.1.1.14.2.8	DST Integrity Program Evaluation
5.1.1.14.3	Ext. of Cond. - Enhanced Monitoring
5.1.1.14.3.1	Ext. of Cond. - Enhanced AY-102 Monitoring
5.1.1.14.3.3	AY-102 Secondary Investigation Inspection
5.1.1.14.3.4	AY-102 Robotic Deployment / Inspection
5.1.1.14.5	Ext. of Cond. - DST Transfer Readiness
5.1.1.14.5.6	AY-102 Secondary Investigation Pit Work
5.1.1.15	AY-102 Preparation for Retrieval

5.1.1.15.1	AY-102 Recovery Project Management & Engineering
5.1.1.15.1.1	AY-102 Recovery Project Management & Support
5.1.1.15.1.2	AY-102 Design and Engineering
5.1.1.15.1.3	AY-102 Revised Pumping Plan
5.1.1.15.2	AY-102 Waste Retrieval System Procurements
5.1.1.15.2.1	AY-102 Procurements
5.1.1.15.3	AY-102 Waste Retrieval System Installation/Construction
5.1.1.15.3.1	AY-102 Video / Pit Examinations and Pit Rehab
5.1.1.15.3.2	AY02A Pit Isolation
5.1.1.15.3.3	AY-102 ERSS Installation
5.1.1.15.3.4	AY-102 Water Skid Installation
5.1.1.15.3.5	AY-102 Electrical Skid Installation
5.1.1.15.3.6	AY-102 480V Tie-In
5.1.1.15.3.7	AY-102 Control Trailer and Stations
5.1.1.15.3.8	AY-102 Splitter Box Installation
5.1.1.15.3.9	AY-102 & AP-102 Integrated CAT
5.1.1.15.3.10	AY-102 Engineering Support to Construction
5.1.1.15.4	AP-102 Recovery Project Management & Engineering
5.1.1.15.4.1	AP-102 Project Management & Support
5.1.1.15.4.2	AP-102 Design and Engineering
5.1.1.15.5	AP-102 Procurements
5.1.1.15.5.1	AP-102 Procurements
5.1.1.15.6	AP-102 System Installation/Construction
5.1.1.15.6.1	AP-102 Pit Exam and Video
5.1.1.15.6.2	AP-102 Remove Mixer Pump & Rehabilitation of Pit
5.1.1.15.6.3	AP-102 Slurry Pump and Distributor Installation
5.1.1.15.6.4	AP-102 Water Skid Installation
5.1.1.15.6.5	AP-102 Electrical Skid Installation
5.1.1.15.6.6	AP-102 480V Tie-In
5.1.1.15.6.7	AP-102 Splitter Box Installation
5.1.1.15.6.8	AP-102 Valve Box Installation
5.1.1.15.6.9	AP-102 Engineering Support to Construction
5.1.1.15.7	AY-102 & AP-102 Integrated Testing/Readiness & Operations
5.1.1.15.7.1	AY-102 Mock-up & Testing
5.1.1.15.7.2	AY-102 & AP-102 Integrated Startup & Readiness
5.1.1.15.7.3	AY-102 Retrieval Operations

4.1.2 Schedule Baseline

The schedule for Phase 1 is attached in Attachment A.

The detailed project schedule, including critical path and resource loadings, is developed using TFC-PRJ-PC-D-04.6, *Scheduler's Guidance*,²⁶ and the schedule baseline is documented and maintained in the current TOC baseline.

4.1.3 Cost Baseline

Attachment B shows the estimated cost for completion of AY-102 Recovery Project tasks. Cost estimates are developed in accordance with TFC-PRJ-PC-C-05, *Estimating*,²⁷ and the estimate baseline is documented and maintained in the current RPP baseline.

4.1.4 Funding

AY-102 Recovery tasks are expense funded from year to year. Changes in year-to-year funding are dependent upon DOE funding requests and appropriations. Funding needs are reflected in out-year budget planning documents.

Attachment B provides a funding profile to execute the project in alignment with the schedule baseline.

4.1.5 Baseline Change Control

TFC-PRJ-PC-C-12, *Baseline Change Control*,²⁸ describes the BCR process, and provides the BCR cost, schedule, scope, and interface thresholds that determine the required approval authority (i.e., DOE-HQ, DOE-ORP, TOC).

4.2 PROJECT MANAGEMENT

4.2.1 Project Management Approach

The activities of the AY-102 Recovery Project are being managed in accordance with TFC-PRJ-PM-C-02, using an IPT approach. The project management approach is tailored in accordance with, TFC-PRJ-PM-C-03, *Project Categorization and Tailoring Approach*.²⁹ The project tailoring checklist in Section 6.4 identifies the project management and control methods to be used along with project deliverables.

The scope of AY-102 Recovery has been screened in accordance with the *Major Modification Evaluation Criteria* section of DOE-STD-1189, *Integration of Safety Into the Design Process*,³⁰ (see Attachment E). The screening process determined that the planned activities do not constitute a major modification to the 241 Tank Farms. If necessary, this screening will be updated as AY-102 waste retrieval system design matures.

4.2.2 Project Performance Measurement, Reporting and Forecasting

The AY-102 Recovery Project uses the WRPS Earned Value Management System (EVMS) documented in RPP-7725, *Washington River Protection Solutions LLC Project Control System Description (PCSD)*.³¹ The PCSD also outlines the project reporting requirements which include earned value progress, variance reporting and analysis, and forecasting of expected cost upon completion.

Project performance will be measured and reported against the project approved baselines using the WRPS EVMS.

Project planning and performance reporting will be accomplished by a compilation of data provided to the Task Project Manager from the performing organizations and by the efforts of the Project Controls Specialist. Supporting subcontractors will also provide monthly status, to the Task Project Manager, for work in progress, consistent with the requirements of the PCSD.

Each month, the performing organizations report progress to the project controls specialist, who reviews the reports and forwards them with earned value data to the Task Project Manager. Reports are formatted to the requirements of WRPS for submittal to ORP. These reports include variances and any proposed corrective actions at the respective level of detail. Each Estimate at Completion (EAC) will be evaluated no less than annually. The purpose of an EAC is to develop an estimate of the fiscal year cost and/or the total cost, at completion, of an element of work, considering both earned value performance to date and factors that may affect future performance on remaining work. The completed EAC is a management tool used to assess overall project/project baseline summaries performance and funding requirements. Earned value data are the basis for assessing performance from both a cost and schedule perspective. These data are used in cost control and schedule execution decisions. Recovery plans are developed for activities with negative variances. The level of detail in the recovery plan is commensurate with the impact on subsequent activities, the value of the variance and the anticipated duration of the variance.

4.2.3 Engineering Execution Plan

4.2.3.1 Engineering Approach

This section of the PEP is intended to function as the Engineering Execution Plan as required by TFC-PLN-03, *Engineering Program Management Plan*.³²

4.2.3.1.1 Engineering Scope and Schedule

Section 2.0 provides an overview of the project scope and planned activities. With the exception of new retrieval technology development, engineering scope generally consists of adapting existing waste retrieval designs.

4.2.3.1.2 Organization and Responsibilities

Section 3.0 discusses the project organization and associated engineering responsibilities.

4.2.3.1.3 Technical Basis

The AY-102 Recovery technical basis is defined in functional, performance, and interface requirements. These requirements are or will be to be defined in specifications developed in accordance with TFC-ENG-DESIGN-C-01, *Development of System and Subsystem Specifications*.³³ In addition specifications for procured items are developed in accordance with TFC-ENG-DESIGN-C-34, *Technical Requirements for Procurement*.³⁴ Requirements for design/build subcontracts are also conveyed in SOWs that are prepared in accordance with TFC-BSM-CP_CPR-C-05, *Procurement of Services*.³⁵

It is expected that a sub-system specification for AY-102 pumping will be prepared as a part of project activities. Other relevant system and sub-system specifications include:

- HNF-SE-WM-TRD-007, System Specification for the Double-Shell Tank System³⁶
- HNF-4155, Double-Shell Tank Monitor and Control Subsystem Specification³⁷
- HNF-4157, Double-Shell Tank Utilities Subsystem Specification³⁸
- HNF-4159, Double-Shell Tank Maintenance and Recovery Subsystem Specification³⁹
- HNF-4161, Double-Shell Tank Transfer Piping Subsystem Specification⁴⁰
- HNF-4163, Double-Shell Tank Diluent and Flush Subsystem Specification⁴¹
- HNF-5196, Double-Shell Tank Ventilation Subsystem Specification⁴²

4.2.3.1.4 Expected Deliverables

Typical deliverables for TOC projects are identified in the Project Roadmap, a module of the Project Navigator System. Execution of AY-102 Recovery engineering activities will result in the following engineering deliverables:

- ECNs showing adaptation of standard waste retrieval designs
- Design drawings
- Procurement Specifications
- Construction specifications
- Construction acceptance test plans
- Calculations (as applicable)

-
- Plans
 - Procedures

Deliverables are thoroughly defined by SOWs.

4.2.3.1.5 ISMS/QA Requirements

Section 4.2.7 describes the application of ISMS, Section 4.2.3.10 addresses Nuclear Safety, and Section 4.2.11 addresses Quality Assurance.

4.2.3.1.6 Contracting Strategy

In accordance with RPP-6113, *WRPS Acquisition Plan*⁴³ and TFC-BSM-CP_CPR-C-05, Engineering, services are procured using a contracting strategy (e.g., fixed price, cost reimbursement, or performance-based incentive) that will result in reasonable subcontractor risk while providing an incentive for efficient and economical performance. Engineering service agreements are generally developed using PassPort™. The AY-102 Recovery Project will benefit from the blanket master agreements (BMAs) established with selected subcontractors to achieve procurement efficiencies. Competitive bidding among BMA holders or sole source procurement where justified, will help to maximize cost efficiency and project performance.

4.2.3.1.7 System Engineering and Value Management

System engineering is performed in accordance with TFC-PLN-03, *Engineering Program Management Plan*.⁴⁴

4.2.3.1.8 Alternatives Analysis and Selection

RPP-RPT-54322, *Alternatives Evaluation for Tank 241-AY-102 Waste Retrieval*,⁴⁵ documents the alternatives study conducted to recommend the retrieval technology to be implemented for removing waste from AY-102. The recommended technology is modified sluicing. The specific equipment to be used to implement the selected technology will be selected using alternatives analysis methods, as a part of the detail design process.

4.2.3.1.9 Nuclear Safety

Required additional accident analysis is identified during the PrHA process, which is conducted in accordance with TFC-ENG-STD-28, *Process Hazard Analysis Standard*.⁴⁶ Required additional safety basis controls are determined by accident analysis. If controls are required they are developed using a control selection and development process and are reflected in updates and amendments to RPP-13033, *Tank Farms Documented Safety Analysis*,⁴⁷ and HNF-SD-WM-TSR-006, *Tank Farms Technical Safety Requirements*,⁴⁸ following the provisions of TFC-ENG-SB-C-01, *Safety Basis Issuance and Maintenance*.⁴⁹ The decision regarding the need for an amendment verses an update is determined by performing USQ evaluations in accordance with TFC-ENG-SB-C-03, *Unreviewed Safety Question Process*.⁵⁰

4.2.3.1.10 Design Reviews

Designs will be reviewed in accordance with TFC-ENG-DESIGN-P-17, *Design Verification*⁵¹ to ensure that a design is technically adequate and meets the applicable requirements for environmental, quality, safety, and performance. ECNs will be reviewed in accordance with TFC-ENG-DESIGN-C-06, *Engineering Change Control*.⁵²

4.2.4 Acquisition Strategy and Planned Major Procurements

AY-102 Recovery Project will acquire high quality and best value products and services in accordance with TFC-BSM-CP_CPR-C-05, TFC-BSM-CP_CPR-C-06, *Procurement of Items (Materials)*,⁵³ and TFC-BSM-CP_CPR-C-09, *Supply Chain Process*.⁵⁴ Commercial and industrial sources will be used to the extent possible for providing retrieval system components.

Design and construction services will be subcontracted in accordance with RPP-6113. Construction, including procurement of construction subcontracts, will be managed in accordance with TFC-PRJ-CM-C-01, *Construction Management*.⁵⁵

Plant Forces Work Reviews will be performed in accordance with TFC-BSM-HR_EM-C-05 to determine appropriate labor services during project execution.

AY-102 Recovery will purchase commercial-grade equipment and material on a competitive basis as much as possible. Equipment that can be procured as catalog items while still meeting the requirements of the specifications will be used. Material procurement contracts will be structured in package awards with options, whenever possible, for maximized value. When certain materials are procured frequently and in substantial quantities, BMAs may be created with suppliers.

4.2.5 Risk Management

Risks and opportunities associated with the execution of the AY-102 Recovery Project will be managed as described in the WRPS Enterprise Risk and Opportunity Management (EROM) Framework.⁵⁶ The framework describes at a high level how the five steps of risk management, planning, identification, grading, handling, and monitoring, are implemented throughout WRPS.

The project has already undergone initial risk management activities associated with the design and procurement scope and will continue work into the construction and operations aspects. A Pre-Mortem brainstorming process was utilized initially to identify risks which have potential to result in project failure.

The project will develop a specific Risk and Opportunity Management Plan which will detail the results of the risk identification and grading process. A project specific risk register will be developed and updated on a monthly basis throughout the project execution. The risk register will provide the basis for the current project risk posture, document specific risk handling actions and track their completion. Where appropriate

risk action items will be added to the project integrated schedule for more detailed tracking.

Work Authorization

Work authorization is the formal process used to initiate work activity once the need for the project has been formalized. A Project Work Authorization will be used to authorize and execute work. Work authorization to commit resources to plan and execute the project is provided to the Task Project Managers by the Work Area Project Manager.

4.2.6 Construction Management

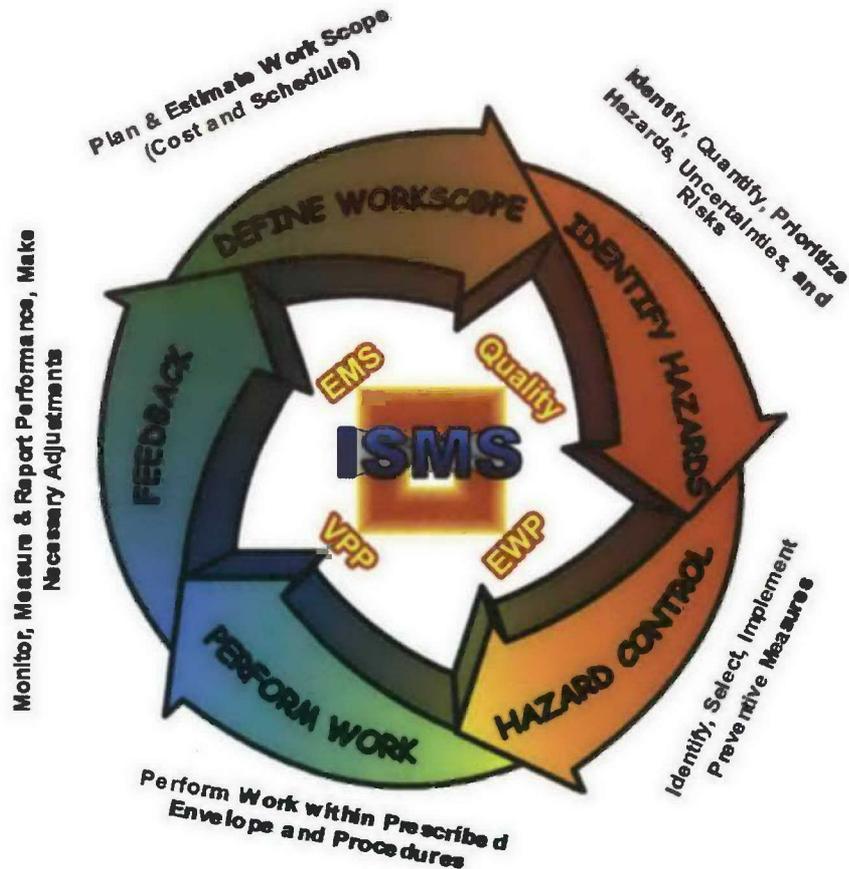
Construction work will be managed in accordance with TFC-PRJ-CM-C-01, and TFC-OPS-MAINT-C-01, *Tank Operations Contractor Work Control*.⁵⁷

4.2.7 Environment, Safety, and Health

4.2.7.1.1 Integrated Safety Management

The AY-102 Recovery Project follows the WRPS ISMS process shown in Figure 4 to execute work. This process integrates environmental, safety, health, and quality requirements into work planning and execution. This is done primarily through use of plans, procedures, and work packages that implement ISMS requirements and govern work planning and execution processes.

Figure 4. Integrated Environment, Safety, and Health Management System



The Tank Farm's facility hazard analysis that considers normal operations, abnormal events, and postulated accidents that could cause the uncontrolled release of radioactive and other hazardous material and affect the public, workers, or the environment is documented in RPP-13033. The safety analysis for AY-102 Recovery operations is covered by RPP-13033. Acceptable conditions, safe boundaries, and management or administrative controls required to prevent or mitigate the hazards identified in RPP-13033 and ensure safe operation of the Tank Farm facilities are identified in HNF-SD-WM-TSR-006.

Designs will be screened to determine if PrHA is required in accordance with TFC-ENG-DESIGN-C-35⁵⁸, *Process Hazard Analysis Determination and Technique Screening*. Any required PrHA will be performed in accordance with TFC-ENG-STD-28. Facility modifications and planned work activities are USQ evaluated in accordance with TFC-ENG-SB-C-03. Any necessary changes will be made to the DSA in accordance with TFC-ENG-SB-C-01.

Work will be performed under TFC-PLN-47, *Worker Safety and Health Plan*⁵⁹ and TFC-PLN-01, *Integrated Environment, Safety, and Health Management System Plan*.⁶⁰ Subcontractors will operate under these plans or submit their own health and safety

plan for approval. During construction, and for the planned retrieval operations, and systems maintenance, the TOC work control processes described in TFC-OPS-MAINT-C-01, and TOC safety programs described in RPP-MP-003, 2001, *Integrated Environment, Safety, and Health Management System Description for the Tank Operations Contractor*,⁶¹ and TFC-PLN-32, *Tank Operations Contractor Safety Management Programs*,⁶² are followed, along with ALARA processes to help ensure projects are delivered safely. Radiological work will be performed in accordance with HNF-5183, *Tank Farms Radiological Control Manual*,⁶³ and HNF-MP-5184, *Washington River Protection Solutions LLC Radiation Protection Program*.⁶⁴

4.2.7.1.2 Site Development, Permits, and Licensing

The AY-102 tank is part of the DST system and is subject to permitting under the Resource Conservation and Recovery Act (RCRA). The DST system is currently operating pursuant to interim status requirements in *Washington Administrative Code (WAC) 173-303-400(3)*, "Interim Status Facility Standards"⁶⁵ as acknowledged in the *Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste (WA 7890008967)*, Revision 8C, Condition I.A.⁶⁶ The recognition that the AY-102 has leaked from the primary tank to the secondary containment system requires that action be taken pursuant to Title 40, *Code of Federal Regulations*, Part 265.196, "Response to leaks and spills and disposition of leaking or unfit-for-use tank systems" (CFR 40 265.196),⁶⁷ which is incorporated into the Washington State regulations by reference.

In compliance with the Federal *Clean Air Act of 1990* (42 U.S.C. 7401, et. seq.),⁶⁸ and the WAC 70.94, *Washington Clean Air Act*,⁶⁹ and the WAC 173-401, Operating Permit Regulation,⁷⁰ potential emissions associated with the AY-102 tank are included in the Hanford Site Air Operating Permit. A permit revision may be necessary to address activities associated with this recovery plan. An evaluation of necessary revisions is currently in progress. Where necessary, revisions will be prepared, submitted for approval and implemented.

4.2.8 Safeguards and Security

This project will comply with WRPS access control procedure TFC-OPS-OPER-C-04, *Access and Key Control for Operation Facilities*.⁷¹

4.2.9 Project Documentation

Project records will be maintained and controlled in accordance with TFC-BSM-IRM_DC-C-02, *Records Management*.⁷²

Individual AY-102 Recovery procedures will be developed, as necessary, and will conform to the requirements of TFC-OPS-OPER-C-13, *Technical Procedure Control and Use*,⁷³ or TFC-BSM-AD-C-01, *Administrative Document Development and Maintenance*.⁷⁴

4.2.10 Configuration Management

Configuration management principles will be implemented to preserve and control the technical integrity of the products and processes, structure, systems, and components, and associated information in accordance with TFC-PLN-23, *Configuration Management Plan*,⁷⁵ and TFC-PLN-02, *Quality Assurance Program Description*.⁷⁶

AY-102 Recovery will maintain configuration management in accordance with TFC-PLN-02, TFC-PLN-03, TFC-ENG-DESIGN-C-06, and TFC-OPS-OPER-C-38, *Operational Configuration Control*.⁷⁷

4.2.11 Quality Assurance

AY-102 Recovery will operate under the TOC Quality Assurance Program detailed in TFC-PLN-02. The TOC Quality Assurance Program meets the requirements of 10 CFR 830, Subpart A, *Quality Assurance Requirements*,⁷⁸ and DOE O 414.1C, *Quality Assurance*.⁷⁹ The TOC quality assurance program uses ASME NQA-1-2004, *Quality Assurance Requirements for Nuclear Facility Applications*,⁸⁰ as the national consensus standard for the TOC work scope. Quality Assurance roles and responsibilities are further described in Section 3.5.7.

4.2.12 Inspection and Testing

Testing to demonstrate the operability and integrity of new or modified Tank Farm facilities and systems will be conducted in accordance with the requirements of TFC-PLN-26, *Test Program Plan*.⁸¹ A test planning worksheet will be prepared in accordance with TFC-PRJ-SUT-C-08, *Test Program Worksheet Preparation*.⁸²

Test plans that provide the detailed step-by-step instructions for the performance of tests will be written in accordance with TFC-PRJ-SUT-C-01, *Test Plan Preparation*.⁸³ Acceptance testing will be performed by construction subcontractors, and operational acceptance testing will be performed by Operations. When necessary, a startup plan, developed in accordance with TFC-PRJ-SUT-C-05, *Startup Plan – Development and Implementation*,⁸⁴ will be used to control equipment configuration and operation from the end of testing/readiness review to the beginning of full unencumbered operations.

4.2.13 Project Reviews

Project reviews will be conducted as part of the engineering process and are described in Section 3.5.1.

4.2.14 Training

Training packages will be developed in accordance with TFC-BSM-TQ_ADD-C-01, *Training Analysis, Design, and Development*,⁸⁵ to train operations and maintenance personnel. A combination of classroom and ERSS mock-up training will be conducted based on work steps expected to be incorporated in the operating procedures (OP) and alarm response procedures (ARP) developed for the AY-102 WRS operations. The

training at CTF will focus on manipulating the ERSS arm within the constraints imposed by the physical configuration of the tank and air-lift circulators using the ERSS controls and video monitoring tools provided.

4.2.15 Transition to Operations

AY-102 Recovery will follow the protocol identified in TFC-PRJ-PM-C-06, *Operational Readiness Process*.⁸⁶ Operational readiness reviews and/or readiness assessments will be performed prior to tank waste retrieval. Operational readiness reviews will be conducted in accordance with TFC-PRJ-PM-C-08, *Operational Readiness Review*,⁸⁷ and readiness assessments will be conducted in accordance with TFC-PRJ-PM-C-09, *Readiness Assessment*.⁸⁸

In addition, AY-102 Recovery will verify the equipment is ready to operate via operations acceptance of the equipment through the operations acceptance work package process as identified in TFC-OPS-MAINT-C-01.

4.2.16 Project Turnover and Closeout

Completion of construction activities supporting the AY-102 Recovery Project and subsequent subcontractor closeout will be accomplished in accordance with TFC-PRJ-CM-C-08, *Construction Completion and Turnover*,⁸⁹ and TFC-PRJ-CM-C-15, *Construction Subcontractor Closeout*.⁹⁰ AY-102 Recovery will follow the protocol identified in TFC-PRJ-PM-C-28, *Project Turnover and Closeout*⁹¹ for the turnover of any equipment and systems to TOC Base Operations for execution of waste transfer operations.

5.0 REFERENCES

- ¹ DE-AC27-08RV14800, 2008, *Tank Operations Contract*, U.S. Department of Energy, Office of River Protection, Richland, Washington.
- ² TFC-PLN-84, *Tank Operations Contract Project Execution Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ³ DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, U.S. Department of Energy, Washington, D.C.
- ⁴ ANS/EIA 748 A, National Defense Industrial Association (NDIA) Program Management Systems Committee (PMSC) Earned Value Management Systems Intent Guide, National Defense Industrial Association, Arlington, Virginia.
- ⁵ TFC-PRJ-PM-C-02, *Project Management*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁶ RPP-RPT-53901, *Management of Supernatant Level in Tank 241-AY-102*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷ RPP-PLAN-55220, *241-AY-102 Pumping Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸ Letter, 13-CPM-0219, S. C. Johnson, ORP, to C. A. Simpson, WRPS, "Contract Number DE-AC27-08RV14800 - Transmittal of Contract Modification 222," WRPS-1313318, September 3, 2013.
- ⁹ Letter, 13-CPM-0279, S. C. Johnson, ORP, to C. A. Simpson, WRPS, "Contract Number DE-AC27-08RV14800 - Transmittal of Contract Modification 234," WRPS-1304485, November 5, 2013.
- ¹⁰ Letter, 13-TF-0116, S. E. Bechtol, ORP, to C. A. Simpson, WRPS, "Contract Number DE-AC27-08RV 14800 - WRPS Fiscal Year 2014 Project Execution Direction Under The Continuing Resolution Funding Level," WRPS-1304500, November 6, 2013.
- ¹¹ McCusker, M. T., 2014-01-24, "Subject: Notification to Proceed in Revising the AY-102 Pumping Plan," (e-mail WRPS-1401442 to C. A. Simpson, Washington River Protection Solutions, LLC), U.S. Department of Energy, Office of River Protection, Richland, Washington.
- ¹² Dawson, R. L., 2014-02-07, "Subject: AY-102 Recovery/Pumping Execution Plan – Mod 222," (e-mail WRPS-1401149 to C. A. Simpson, Washington River Protection Solutions, LLC), U.S. Department of Energy, Office of River Protection, Richland, Washington.
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 - ¹⁵ WA 7890008967, Washington State Department of Ecology (Ecology) Administrative Order, March 21, 2014.
 - ¹⁶ RPP-RPT-56464, *241-AY-102 Leak Detection Pit Drain Line Inspection Report*, January 20, 2014, Washington River Protection Solutions LLC, Richland, Washington.
 - ¹⁷ RPP-ASMT-54634, *Propensity for Corrosion in the 241-AY-102 Annulus Retrieval*, February 26, 2014, Washington River Protection Solutions LLC, Richland, Washington.
 - ¹⁸ RPP-ASMT-54634, *Propensity for Corrosion in the 241-AY-102 Annulus Retrieval*, Rev. 0, February 26, 2014, Washington River Protection Solutions LLC, Richland, Washington.
 - ¹⁹ RPP-RPT-56141, *FY2013 DNV DST and SST Corrosion and Stress Corrosion Cracking Testing Report*.
 - ²⁰ RPP-ENV-56398, Draft A, *AY-102 Retrieval Project Non-Radioactive Air Permitting Strategy*
 - ²¹ RPP-RPT-56094, *Alternatives Evaluation for Tank 241-AY-102 Modified Sluicing System*
 - ²² RPP-ASMT-27062, *Stress Corrosion Cracking Evaluation for the Secondary Liner Exposed to In-Specification Waste in Double-Shell Tank Annulus*, CH2M HILL Hanford Group, Inc., Richland, Washington.
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 - ²⁴ TFC-PRJ-PM-C-28, *Project Turnover and Closeout/Suspension*, Washington River Protection Solutions LLC, Richland, Washington.
 - ²⁵ TFC-PRJ-PC-C-02, *Work Breakdown Structure and WBS Dictionary Sheet Development and Administration*, Washington River Protection Solutions LLC, Richland, Washington.
 - ²⁶ TFC-PRJ-PC-D-04.6, *Scheduler's Guidance*, Washington River Protection Solutions LLC, Richland, Washington.
 - ²⁷ TFC-PRJ-PC-C-05, *Estimating*, Washington River Protection Solutions LLC, Richland, Washington.
 - ²⁸ TFC-PRJ-PC-C-12, *Baseline Change Control*, Washington River Protection Solutions LLC, Richland, Washington.
 - ²⁹ TFC-PRJ-PM-C-03, *Project Categorization and Tailoring Approach*, Washington River Protection Solutions LLC, Richland, Washington.
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- ³⁰ DOE-STD 1189, *Integration of Safety Into the Design Process*, U.S. Department of Energy, Washington, D.C.
- ³¹ RPP-7725, *Washington River Protection Solutions LLC Project Control System Description*, Washington River Protection Solutions LLC, Richland, Washington.
- ³² TFC-PLN-03, *Engineering Program Management Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ³³ TFC-ENG-DESIGN-C-01, *Development of System and Subsystem Specifications*, Washington River Protection Solutions LLC, Richland, Washington.
- ³⁴ TFC-ENG-DESIGN-C-34, *Technical Requirements for Procurement*, Washington River Protection Solutions LLC, Richland, Washington.
- ³⁵ TFC-BSM-CP_CPR-C-05, *Procurement of Services*, Washington River Protection Solutions LLC, Richland, Washington.
- ³⁶ HNF-SE-WM-TRD-00⁷, *System Specification for the Double-Shell Tank System*, CH2M HILL Hanford Group, Inc., Richland, Washington.
- ³⁷ HNF-4155, *Double-Shell Tank Monitor and Control Subsystem Specification*, CH2M HILL Hanford Group, Inc., Richland, Washington.
- ³⁸ HNF-4157, *Double-Shell Tank Utilities Subsystem Specification Rev. 4*, Washington River Protection Solutions LLC, Richland, Washington.
- ³⁹ HNF-4159, *Double-Shell Tank Maintenance and Recovery Subsystem, Rev. 1*, CH2M HILL Hanford Group Inc., Richland, Washington.
- ⁴⁰ HNF-4161, *Double-Shell Tank Transfer Piping Subsystem, Rev. 5*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁴¹ HNF-4163, *Double-Shell Tank Diluent and Flush Subsystem, Rev. 6*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁴² HNF-5196, *Double-Shell Tank Ventilation Subsystem Specification*, CH2M HILL Hanford Group, Inc., Richland, Washington.
- ⁴³ RPP-6113, *WRPS Acquisition Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁴⁴ TFC-PLN-03, *Engineering Program Management Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁴⁵ RPP-RPT-54322, *Alternatives Evaluation for Tank 241-AY-102 Waste Retrieval*, February 28, 2014, Washington River Protection Solutions LLC, Richland, Washington.
- ⁴⁶ TFC-ENG-STD-28, *Process Hazards Analysis Standard*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁴⁷ RPP-13033, *Tank Farms Documented Safety Analysis*, Washington River Protection Solutions LLC, Richland, Washington.
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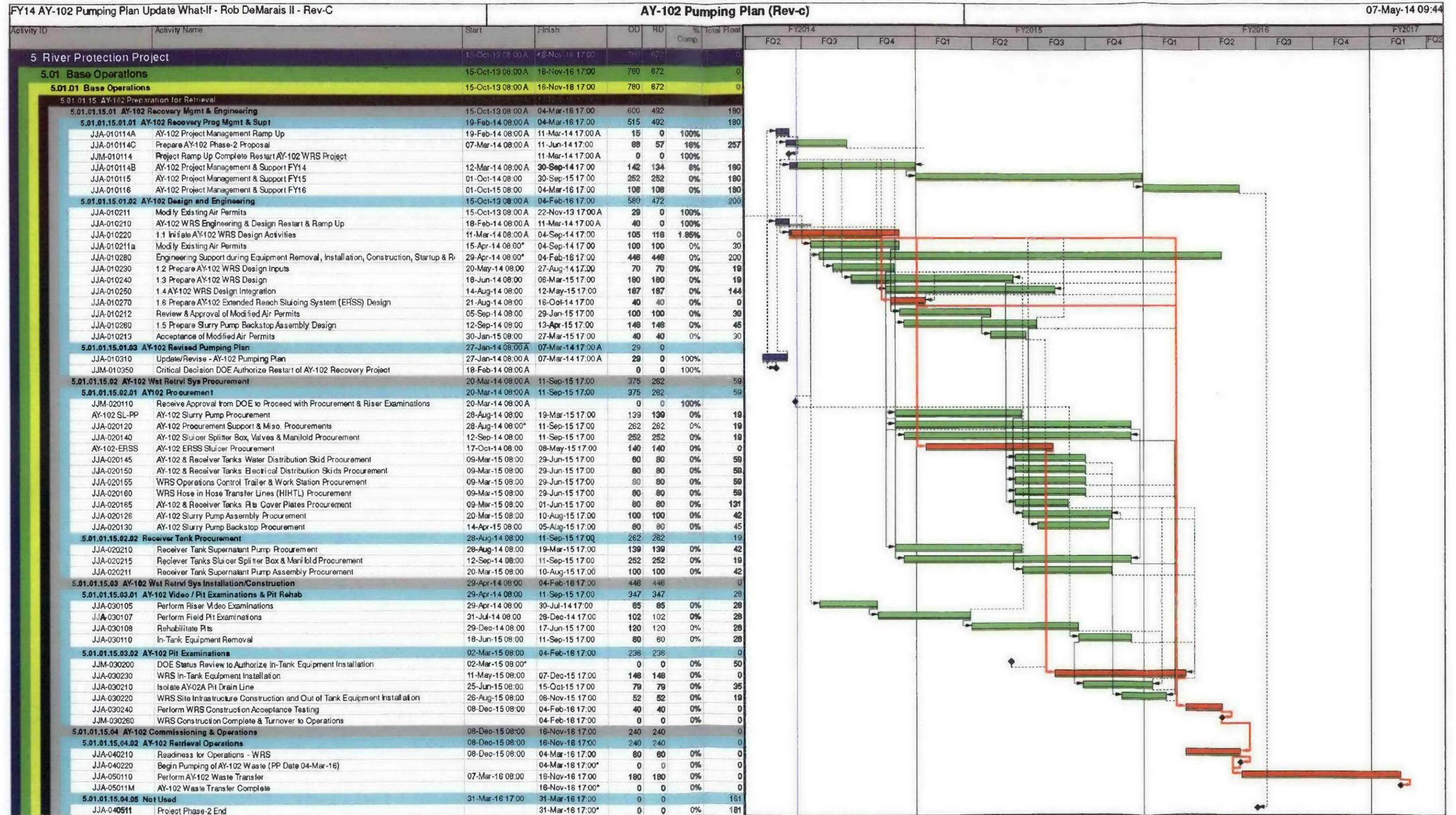
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- 48 HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements, Washington River Protection Solutions LLC, Richland Washington.
- 49 TFC-ENG-SB-C-01, Safety Basis Issuance and Maintenance, Washington River Protection Solutions LLC, Richland, Washington.
- 50 TFC-ENG-SB-C-03, Unreviewed Safety Question Process, Washington River Protection Solutions LLC, Richland, Washington.
- 51 TFC-ENG-DESIGN-P-17, Design Verification, Washington River Protection Solutions LLC, Richland, Washington.
- 52 TFC-ENG-DESIGN-C-06, Engineering Change Control, Washington River Protection Solutions LLC, Richland, Washington.
- 53 TFC-BSM-CP_CPR-C-06, Procurement of Items (Materials), Washington River Protection Solutions LLC, Richland Washington.
- 54 TFC-BSM-CP_CPR-C-09, Supply Chain Process, Washington River Protection Solutions LLC, Richland, Washington.
- 55 TFC-PRJ-CM-C-01, Construction Management, Washington River Protection Solutions LLC, Richland, Washington.
- 56 WRPS-57232, Washington River Protection Solutions, Enterprise Risk and Opportunity Management (EROM) Framework.
- 57 TFC-OPS-MAINT-C-01, Tank Operations Contractor Work Control, Washington River Protection Solutions LLC, Richland, Washington.
- 58 testing-C-35, Process Hazard Analysis Determination and Technique Screening, Washington River Protection Solutions LLC, Richland, Washington.
- 59 TFC-PLN-47, Worker Safety and Health Program, Washington River Protection Solutions LLC, Richland, Washington.
- 60 TFC-PLN-01, Integrated Environment, safety, and Health Management System Plan, Washington River Protection Solutions LLC, Richland, Washington.
- 61 RPP-MP-003, 2001, Integrated Environment, Safety, and Health Management System Description for the Tank Farm Contractor, Washington River Protection Solutions LLC, Richland, Washington.
- 62 TFC-PLN-32, Tank Operations Contractor Safety Management Programs, Washington River Protection Solutions LLC, Richland, Washington.
- 63 HNF-5183, Tank Farms Radiological Control Manual, Washington River Protection Solutions LLC, Richland, Washington.
- 64 HNF-MP-5184, Washington River Protection Solutions LLC, Radiation Protection Program, Washington River Protection Solutions LLC, Richland, Washington.
- 65 WAC 173-303-400(3), "Interim status facility standards," *Washington Administrative Code*, as amended.
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- ⁶⁶ WA 7890008967, Hanford Facility Resource Conservation and Recovery Act Permit for the Treatment, Storage, and Disposal of Dangerous Waste, Washington State Department of Ecology, Olympia, Washington.
- ⁶⁷ 40 CFR 265.196, "Response to leaks and spills and disposition of leaking or unfit-for-use tank systems," *Code of Federal Regulations*, as amended.
- ⁶⁸ *Clean Air Act of 1990*, Public Law 101-549, 42 USC 7401, et seq.
- ⁶⁹ WAC 70.94, "Washington Clean Air Act," *Washington Administrative Code*, as amended.
- ⁷⁰ WAC 173-401, "Operating Permit Regulation," *Washington Administrative Code*, as amended.
- ⁷¹ TFC-OPS-OPER-C-04, *Access and Key Control for Operation Facilities*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷² TFC-BSM-IRM_DC-C-02, *Records Management*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷³ TFC-OPS-OPER-C-13, *Technical Procedure Control and Use*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷⁴ TFC-BSM-AD-C-01, *Administrative Document Development and Maintenance*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷⁵ TFC-PLN-23, *Configuration Management Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷⁶ TFC-PLN-02, *Quality Assurance Program Description*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷⁷ TFC-OPS-OPER-C-38, *Operational Configuration Control*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁷⁸ 10 CFR 830, *Nuclear Safety Management, Subpart A, Quality Assurance Requirements*, U.S. Government, Code of Federal Regulations, Washington, D.C.
- ⁷⁹ DOE O 414.1C, *Quality Assurance*, U.S. Department of Energy, Washington, D.C.
- ⁸⁰ NQA-1-2004, *Quality Assurance Requirements for Nuclear Facility Applications*, The American Society of Mechanical Engineers, New York, New York.
- ⁸¹ TFC-PLN-26, *Testing Program Plan*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸² TFC-PRJ-SUT-C-08, *Test Program Worksheet Preparation*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸³ TFC-PRJ-SUT-C-01, *Test Plan Preparation*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸⁴ TFC-PRJ-SUT-C-05, *Startup Plan - Development and Implementation*, Washington River Protection Solutions LLC, Richland, Washington.
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- ⁸⁵ TFC-BSM-TQ_ADD-C-01, Training Analysis, Design, and Development, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸⁶ TFC-PRJ-PM-C-06, Operational Readiness Process, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸⁷ TFC-PRJ-PM-C-08, *Operational Readiness Review*, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸⁸ TFC-PRJ-PM-C-09, Readiness Assessment, Washington River Protection Solutions LLC, Richland, Washington.
- ⁸⁹ TFC-PRJ-CM-C-08, Construction Completion and Turnover, Washington River Protection Solutions LLC, Richland, Washington.
- ⁹⁰ TFC-PRJ-CM-C-15, Construction Subcontractor Closeout, Washington River Protection Solutions LLC, Richland, Washington.
- ⁹¹ TFC-PRJ-PM-C-28, Project Turnover and Closeout, Washington River Protection Solutions LLC, Richland, Washington.

ATTACHMENTS

Attachment A. Project Schedule



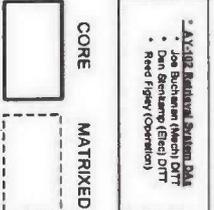
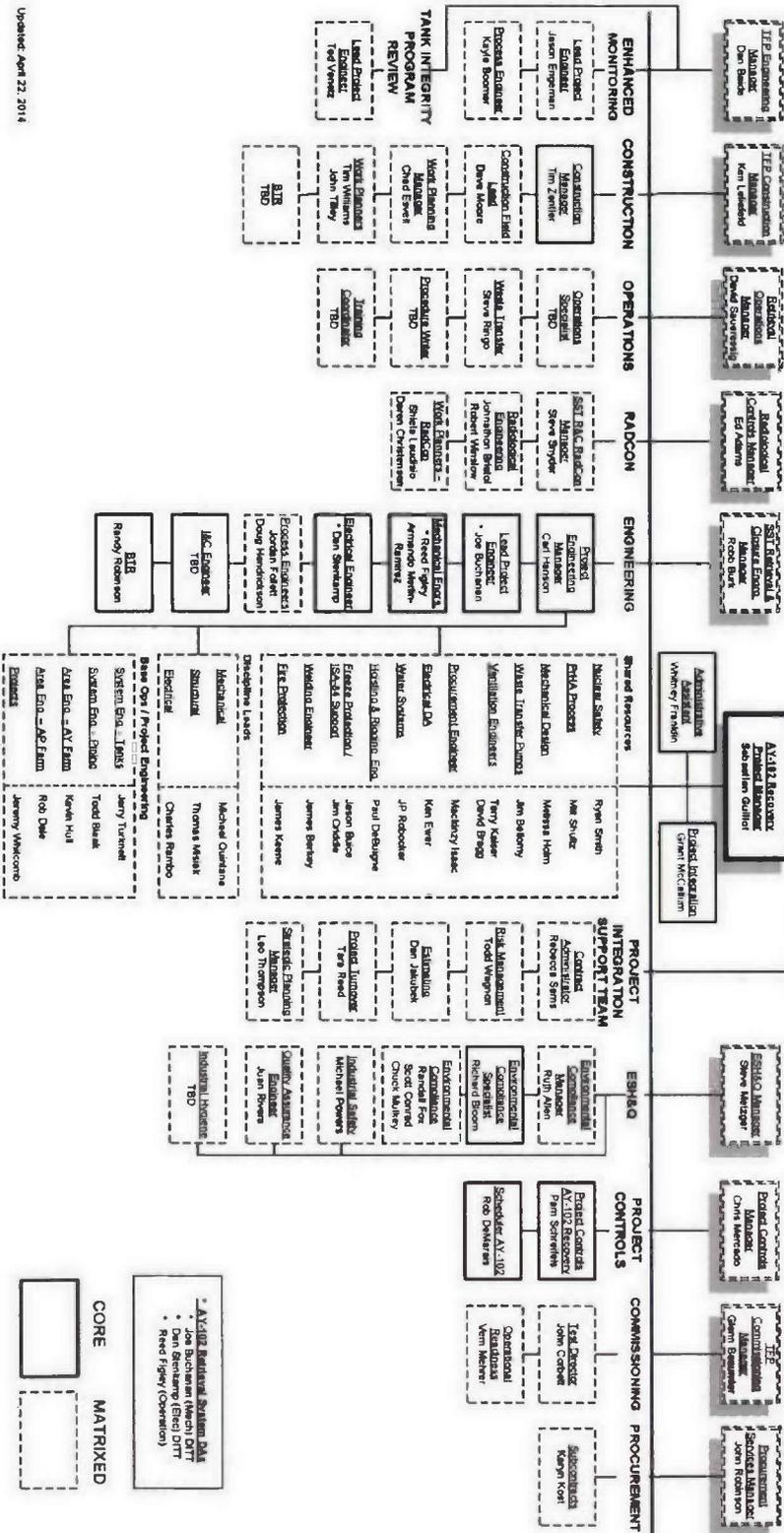
Attachment B. Cost Estimate Summary

Note: Estimate to be updated to revised scope for Phase 2 proposal and Administrative Order activities.



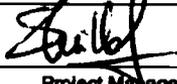
AY-102 Recovery Project

Attachment C. IPT Organization Chart

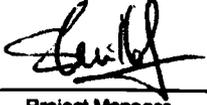
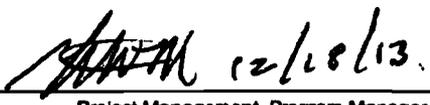


Updated April 22, 2014

Attachment D. Project Tailoring Checklist

PROJECT CATEGORIZATION AND TAILORING CHECKLIST				
Section I:		Project Categorization		
Project Name:		AY-102 Recovery/Pumping Execution Plan		
Project Manager:		Sebastien Guillot	Project Number: T1P97 (which includes T1P-87, "AY-102 Reconfiguration for Annulus Pumping")	Date: October 4th, 2013
Purpose/Scope Description:				
See sections 1 and 2 of the Project Execution Plan				
Introduction/Background:				
See sections 1 and 2 of the Project Execution Plan				
Section 1A Technology Development Determination:				
Does work scope involve Technology Development? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If yes, conduct project using TFC-PLN-90 and TFC-PRJ-TD-C-01 in parallel with TFC-PLN-84 and TFC-PRJ-PM-C-02.				
Explain Technology Development Determination:				
AY-102 Tank waste removal operations will be planned and executed implementing technologies currently used for Single Shell Tanks Retrieval and Closure activities (Modified Sluicing). For robotic inspection activities, see CTE Assessments in Attachment F.				
12-18-2013	 Project Manager	 Technology Development Program Manager	12/18/2013	
Note: After this Technology Development determination is approved, if an additional technology activity is identified later in the project life-cycle, the project manager is required to revise the Technology Development determination and the Categorization and Tailoring Checklist (CTC).				

Section 1B: DOE-STD-1189		Major Modification Evaluation			
DOE-STD-1189 Applicable: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
See applicability matrix documented in Attachment E.					
Section 1C: Category Determination:					
<input type="checkbox"/> Line Item	<input type="checkbox"/> POA Cat 1	<input checked="" type="checkbox"/> POA Cat 2	<input type="checkbox"/> POA Cat 3	<input type="checkbox"/> POA Cat 4	<input type="checkbox"/> Tank Retrieval
Categorization Justification:					
Project cost and schedule estimates, and project complexity and risk levels were estimated according to the categorization matrix, positioning the project as a Category 2 (see next page).					

 Work Area Manager	N.A.
 Project Manager	 Project Management Program Manager

PROJECT CATEGORIZATION MATRIX

Table A-1. Budget and Schedule Matrix. X			Cost	
Schedule	<500K	<5M	<40M	>40M
< 180 Days	1	2	3	4
< year	2	4	6	8
1-3 years	3	6	9	12
>3 years	4	8	12	16

Table A-2. Complexity and Mission Critical Matrix. Y	Complexity			
	Routine	Low	<u>Medium</u>	High
Low	1	2	3	4
Medium	2	4	6	8
High	3	6	9	12
Very High	4	8	12	16

Table A-3. Categorization Identifier. Category	Range	
1	22	32
2	11	21
3	5	10
4	2	4

COMPLEXITY:

Routine - Typically plant maintenance, routine operation or minor system upgrade activity.

Low - Similar type of work performed many times. Usually involves standard tie-ins to plant utility systems.

Medium - Involves integration of some sub-systems and a moderate level of testing prior to operation.

High - Involves integration of many systems and sub-systems. Requires extensive testing prior to operation.

RISK:

Low - Work performed in non-contaminated areas. Minimal industrial hazards.

Medium - Primarily design build construction activities typically non-contaminated locations or areas with low contamination.

High - Waste disturbing activities including tank waste retrieval and modifications to high level waste tanks.

Very High - One-of-a-kind Nuclear Facility or modifications to systems in highly contaminated areas.

SECTION 2: PROJECT TAILORING CHECKLIST

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix		
Requirement	Approach	Basis
<p>1 The Contractor shall:</p> <ul style="list-style-type: none"> • Employ an Earned Value Management System (EVMS) prior to Critical Decision (CD)-2 for projects greater than or equal to \$20 million. The system shall be compliant with ANSI/EIA-748 in accordance with contract clause Federal Acquisition Regulation (FAR) Subpart 52.234-4, EVMS • Self-certify the EVMS prior to CD-3 for projects with a total project cost less than \$50 million to determine compliance with ANSI/EIA-748 in accordance with contract clause FAR Subpart 52.234-4. • Annually conduct a self-surveillance of the EVMS confirming continued compliance with ANSI/EIA-748 in accordance with contract clause FAR Subpart 52.234-4. 	<p>[x] Use the WRPS Tank Operations Contract (TOC) project controls system described in RPP-7725, <i>Washington River Protection Solutions LLC Project Control System Description</i>, which is Office of Engineering and Construction Management (OECM) certified and annually self-surveilled.</p> <p>[] Other (describe):</p>	<p>[x] The WRPS project control system meets the requirements of ANSI/EIA-748.</p> <p>[] Other (describe basis):</p>

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix			
Requirement	Approach	Basis	
2	Submit monthly project performance data beginning no later than three months following CD-2 for projects having a total project cost greater than or equal to \$20 million. For a cost reimbursement contract, the required project performance data shall include: ANSI/EIA-748 earned value, earned value time- phased incremental cost and quantity, Management Reserve, Schedule, Variance Analysis, and Risk Management data.	[x] Use the WRPS TOC project status reporting processes described in RPP-7725, Washington River Protection Solutions LLC Project Control System Description, to develop cost and schedule reports. Use TFC-PRJ-PC-C-02, Work Breakdown Structure (WBS) and WBS Dictionary Sheet Development and Administration, to develop and maintain WBS elements. Use Project Control prepared cost and schedule project status reports for uploading by Office of River Protection (ORP) into the Integrated Planning, Accountability, and Budgeting System (IPABS) to report project status.	[x] Meets ORP and DOE-HQ project status reporting requirements.
		[] Other (describe):	[] Other (describe basis):
3	For project contracts to be awarded as subcontracts, develop a written Acquisition Plan, if applicable. The Acquisition Plan shall receive the DOE Contracting Officer's concurrence.	[x] Use the WRPS TOC Acquisition Plan (RPP-6113) and prepare an Acquisition Planning Document form (A-6003-485) when required by TFC-BSM-CP_CPR-C-05, Procurement of Services.	[x] Meets acquisition planning requirements.
		[] Amend the WRPS TOC Acquisition Plan (RPP-6113).	[] RPP-6113 will be amended to include new scope (describe change):
		[] Other (describe):	[] Other (describe basis):

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix			
Requirement	Approach	Basis	
4	Technical performance analyses and corrective action plans shall be reported to DOE for variances to the project baseline objectives resulting from design reviews, component and system tests and simulations.	[] Use the WRPS TOC project status reporting process described in RPP-7725, Washington River Protection Solutions LLC Project Control System Description, to analyze project performance. Use TFC-PRJ-PC-C-12, Baseline Change Control, to address project variances and report corrective actions per TFC-ESHQ-Q_C-C-01, Problem Evaluation Requests.	[] Project status input includes variance reporting and the ability to report technical performance. The Problem Evaluation Request (PER) system is used for evaluation of adverse conditions and corrective actions for quality, safety, health, operability, and the environment.
		[] Other (describe):	[] Other (describe basis):
5	A critical path schedule and a resource loaded schedule must be developed and maintained for the project. As a minimum, resource loaded schedules must contain labor, material and equipment costs to include unit prices and quantities.	[x] Use WRPS TOC project controls system process to maintain the critical path schedule in accordance with RPP-7725, Washington River Protection Solutions LLC Project Controls System Description. The Summary Life-Cycle Schedule (SLCS) and Integrated Mission Execution Schedule (IMES) will be maintained in accordance with TFC-PRJ-PC-D-04.6, Schedulers Guidance. Construction subcontractor scheduling is performed in accordance with TFC-PRJ-CM-C-05, Construction Meetings. Lower level subcontractor schedules will be prepared where required, with all schedules capable of depicting a critical path.	[x] Meets critical path project schedule requirements.
		[] Other (describe):	[] Other (describe basis):

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix		
Requirement	Approach	Basis
6	<p>Project technical, cost, and schedule risks must be identified, quantified and mitigated throughout the life of the project. A Risk Management Plan (RMP) will be developed to cover processes and procedures that will be implemented to address risk assessment, risk monitoring, risk reporting and lessons learned using a graded approach and appropriate to the project category.</p> <p><input checked="" type="checkbox"/> Use the WRPS TOC risk management process documented in TFC-PLN-39, Risk and Opportunity Management Plan, and implemented in TFC-PRJ-PC-C-13, Risk Management, to identify, analyze, and manage project risks. The:</p> <p><input checked="" type="checkbox"/> Formal Risk Management process will be used.</p> <p><input type="checkbox"/> Informal Risk Management process will be used.</p> <p>Risk Assessments will be performed:</p> <p><input type="checkbox"/> Bi-Weekly <input checked="" type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annually</p> <p>The Risk List will be updated:</p> <p><input type="checkbox"/> Bi-Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input checked="" type="checkbox"/> Annually</p> <p><input type="checkbox"/> Other (describe):</p>	<p><input checked="" type="checkbox"/> Meets risk management requirements.</p> <p>Significant risks associated with tank waste retrieval are already identified in TFC-PLAN-39. Additional risk details will be captured in a risk list and risk probabilities and consequences will be evaluated. A risk workshop has been held to evaluate project risks. Risk mitigation actions will be documented and tracked periodically for High and Very High risks values. The risk list will be updated periodically to including emerging issues, reclassify probabilities or consequences, and update mitigation actions.</p> <p>Task Project Managers continually monitor and manage project risks and report emerging issues to the work Area Project Manager and/or Work Area Manager weekly.</p> <p><input type="checkbox"/> Other (describe basis):</p>

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix			
Requirement	Approach	Basis	
7	The approved integrated contractor technical, cost and schedule baseline shall be maintained using appropriate change control processes (e.g., Change Control Board).	[x] Use the WRPS TOC project controls system described in RPP-7725, Washington River Protection Solutions LLC Project Controls System Description, and TFC-PRJ-PC-C-12, Baseline Change Control, ORP approved fully integrated ORP/WRPS process to maintain project baselines using a contractor-level change control board.	[x] Meets change control requirements.
	[] Other (describe):	[] Other (describe basis):	
8	A configuration management process must be established that controls changes to the physical configuration of project facilities, structures, systems and components in compliance with ANSI/EIA-649 and DOE-STD-1073-2003. This process must also ensure that the configuration is in agreement with the performance objectives identified in the technical baseline and the approved quality assurance plan.	[x] Manage the physical configuration of project facilities, structures, systems, and components in accordance with TFC-PLN-02, Quality Assurance Program Description, which complies with the requirements of ANSI/EIA-649, TFC-PLN-98, Inspections, Tests, Analysis, and Acceptance Criteria (ITAAC Program Plan), to ensure functional requirements are met, TFC-ENG-DESIGN-P-17, Design Verification, to ensure performance objectives are attained, and use TFC-ENG-DESIGN-C-06, Engineering Change Control, processes to ensure design configuration is controlled.	[x] Meets configuration management requirements.
	[] Other (describe):	[] Other (describe basis):	

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix			
Requirement	Approach	Basis	
9	A Value Management/Engineering (VM/VE) process shall be used. Annually contractors shall submit a progress report identifying VE accomplishments to OECM. Refer to DOE O 430.1B, OMB Circular A-131, and PL 104-106.	<input type="checkbox"/> Perform A value management assessment to determine the need for a formal value engineering study.	<input type="checkbox"/> Meets value engineering requirements.
		<input type="checkbox"/> Perform a value engineering study (or studies) during design development and/or construction.	<input type="checkbox"/> Meets value engineering requirements.
		<input checked="" type="checkbox"/> Other (describe): Project team assessments and lessons learned will be used to continue improvements using value engineering principles	<input checked="" type="checkbox"/> Other (describe basis): Tank waste retrievals have been on-going since 1998 on single-shell tanks in C-Farm, and many improvements to the waste retrieval system and tools have been identified and implemented into the design basis for subsequent tank waste retrieval system designs, including the system which will be used for AY-102.
10	A Quality Assurance Program must be developed and implemented for the contract scope of work in accordance with DOE O 414.1C, Attachment 2 (CRD) and 10 CFR Part 830, Subpart A. For nuclear-related activities, the applicable	<input checked="" type="checkbox"/> Use the WRPS TOC quality assurance program described in TFC-PLN-02, Quality Assurance Program Description, which complies with the requirements of DOE O 414.1C, Quality Assurance, and covers the scope of planned activities.	<input checked="" type="checkbox"/> Meets Quality Assurance program requirements.

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix		
Requirement	Approach	Basis
national consensus standard shall be ASME NQA-1.	<input type="checkbox"/> Use the WRPS TOC quality assurance program described in TFC-PLN-02, Quality Assurance Program Description, and additional quality assurance requirements identified in the PEP.	<input type="checkbox"/> Meets Quality Assurance program requirements.
	<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Other (describe basis):
11 An Integrated Safety Management System must be developed and implemented for the contract scope of work when the contractor is complying with the requirements of 48 CFR 970.5223-1, Integration of Environment, Safety and Health into Work Planning and Execution.	<input checked="" type="checkbox"/> Use the WRPS TOC integrated safety management system (ISMS) described in RPP-MP-003, Integrated Environment, Safety, and Health Management System Description for the Tank Operations Contractor, and implemented through TFC-PRJ-PM-C-02, Project Management; TFC-PLN-32, Tank Operations Contractor Safety Management Programs; and TFC-PLN-123, Environmental Management System Description.	<input checked="" type="checkbox"/> Meets ISMS requirements.
	<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Other (describe basis):
12 Contractors performing design for project shall, at a minimum, conduct a Conceptual, Preliminary and final Design Review, in accordance with the PEP. For nuclear projects, the design review will include a focus on safety and security systems. A Code of Record shall be maintained under configuration control	<input type="checkbox"/> Follow TFC-ENG-DESIGN-P-17, Design Verification, to perform project design reviews and TFC-PRJ-CM-C-17, Constructability Review Process, to perform constructability reviews.	<input type="checkbox"/> Meets design review requirements. TFC-ENG-DESIGN-P-17 defines the WRPS TOC design review process and contains checklists to assist reviewers. Checklist items address safety and security.
	<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Other (describe basis):

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix			
Requirement	Approach	Basis	
	throughout the CD process and for the remainder of the nuclear facility's life-cycle.	<input checked="" type="checkbox"/> Other (describe): Design is performed in accordance with TFC-PLN-136	<input checked="" type="checkbox"/> Other (describe basis): CD process not required for category 2 projects.
13	For projects that are Hazard Category 1, 2 and 3 nuclear facilities or include major modifications thereto (as defined in 10 CFR Part 830), the requirements in DOE-STD-1189, as amended, shall be fully implemented. The following documents must be submitted: Safety Design Strategy (CD-1), Conceptual Safety Design Report (CD-1), Preliminary Safety Design Report (CD-2), Preliminary Documented Safety Analysis (CD-3), and Documented Safety Analysis with Technical Safety requirements (CD-4). For major modifications, the Conceptual Safety Design Report (CSDR) and the Preliminary Safety Design Report (PSDR) may either be separate documents or be subsumed within the Preliminary Documented Safety Analysis. The need to maintain the CSDR and PSDR as separate documents shall be based on the design development phases. Projects with conceptual and/or preliminary design phases shall develop the corresponding safety documentation.	<input type="checkbox"/> The project will develop a Safety Design Strategy (CD-1), Conceptual Safety Design Report (CD-1), Preliminary Safety Design Report (CD-2), Preliminary Documented Safety Analysis (CD-3), and Documented Safety Analysis with Technical Safety Requirements (CD-4). The Conceptual Safety Design Report and Preliminary Safety Design Report may either be separate documents or be subsumed within the Preliminary Documented Safety Analysis. <input checked="" type="checkbox"/> Other (describe): The project scope will be screened and documented in accordance with DOE-STD-1189, Table 8-1, to determine if execution of the planned project scope constitutes a major modification to an existing Hazard Category 1, 2, or 3 nuclear facility. If it is determined that they do, the requirements of DOE-STD-1189 will be imposed to ensure integration of safety into designs	<input type="checkbox"/> Meets DOE-STD-1189 requirements. <input checked="" type="checkbox"/> Other (describe basis): Meets DOE-STD-1189 requirements.

Section 2: DOE O 413.3B Contractor Requirements Document – Project Compliance Matrix			
Requirement		Approach	Basis
14	High performance and sustainable building principles in accordance with EO 13423, Section 2(f), must be applied to the siting, design, construction, and commissioning of new facilities and major renovations of existing facilities. At a minimum, all new construction and major building renovations must meet U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) gold certification absent an approved waiver from the Acquisition Executive. Refer to DOE Order 430.2B.	<p><input checked="" type="checkbox"/> Use TFC-PLN-03, Engineering Program Management Plan, for overall management of the project design and apply TFC-ENG-STD-06, Design Loads for Tank Farm Facilities, and other industry codes and standards as applicable. Use DOE-G-413.3-6A to guide employment of integrated design principles, optimize energy use, enhance indoor environmental quality when applicable, reduce environmental impact of construction materials, and protect and conserve water. Review new designs in accordance with TFC-ENG-DESIGN-P-17, Design Verification, to ensure sustainable design principles are considered.</p> <p><input type="checkbox"/> Other (describe):</p>	<p><input checked="" type="checkbox"/> Meets sustainable design requirements.</p> <p><input type="checkbox"/> Other (describe basis):</p>
15	Develop a Project Management Plan (PMP) that supports and complements the Federal PEP and its contract. The PMP shall describe the management methods, organization, control systems and documentation for the project	<p><input checked="" type="checkbox"/> Projects will develop a PEP as defined in TFC-PLN-84.</p> <p><input type="checkbox"/> Other (describe):</p>	<p><input checked="" type="checkbox"/> Meets TFC-PLN-84 and TFC-PRJ-PM-C-02 requirements.</p> <p><input type="checkbox"/> Other (Describe basis):</p>

SECTION 3: PROJECT MANAGEMENT PROCESS/DELIVERABLES SUPPORT	
Section 3a: Support the Federal Project Director in implementing the DOE project management process as indicated.	
Approach	Basis
<input checked="" type="checkbox"/> Justification of mission need	<input checked="" type="checkbox"/> Basis: See Section 1.2 of the Project Execution Plan
<input checked="" type="checkbox"/> Project acquisition strategy: No specific acquisition strategy development is expected to be required.	<input checked="" type="checkbox"/> Basis. RPP-6113, WRPS Acquisition Plan, and TFC-BSM-CP_CPR-C-05, Procurement of Services cover the project acquisition actions.
<input checked="" type="checkbox"/> Project Data Sheet for Design	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Project Data Sheet for Construction	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Critical Decision 0 package	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Critical Decision 1 package	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Critical Decision 2 package	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Critical Decision 3 package	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Critical Decision 4 package	<input checked="" type="checkbox"/> Basis: Not required for Category 2 projects
<input checked="" type="checkbox"/> Project NEPA documentation	<input checked="" type="checkbox"/> Basis: A NEPA Review will be completed in accordance with TFC-ESHQ-ENV_PP-C-07
<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Basis:
Section 3b: Provide input on project documents and develop and maintain contractor project documentation as indicated. The Project Roadmap in Project Navigator provides a list of potential activities and deliverables for each projectized operational activity category. Consult the Project Roadmap and use tailoring to select the appropriate deliverables. Document each choice and rationale here.	
Approach	Basis
<input checked="" type="checkbox"/> Project Charter: Not needed	<input checked="" type="checkbox"/> Basis: The AY-102 Recovery PEP describes the roles and responsibilities of the integrated team members, and the project schedule is WBS based and identifies the necessary resources
<input checked="" type="checkbox"/> Conceptual Design: Not needed	<input checked="" type="checkbox"/> Basis: Conceptual designs for the AY-102 Retrieval system have

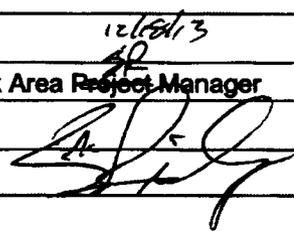
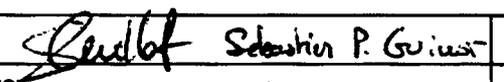
	already been developed to support the alternatives analysis which selected modified sluicing as the retrieval technology (Alternatives evaluation for Tank 241-AY-102 Waste Retrieval, RPP-RPT-54322, Rev. 0)
[x] ITAAC Design requirements compliance matrix per TFC-ENG-DESIGN-C-42	[x] Basis: Need for design requirements compliance matrix will be verified using the engineering processes. Screening will be done per TFC-ENG-DESIGN-C-42
[x] Hazards Analysis: A process hazards screening form (A-6004-410) will be prepared in accordance with TFC-ENG-DESIGN-C-35, Process Hazard Analysis Determination and Technique Screening, to determine the number and timing of process hazards analysis reviews. Process hazards analysis will be performed to meet requirements of TFC-ENG-DESIGN-C-47, Process Hazards Analysis, and conducted in accordance with TFC-ENG-DESIGN-C-35.	[x] Basis: Meets Nuclear Safety and Licensing Requirements
[x] Critical Technology Element Assessment: Not needed	[x] Basis: No technology development anticipated at this point
[x] Plant Forces Work Review: Prepared as required by TFC-BSM-HR_EM-C-05, Plant Forces Work Review	[x] Basis: Meets Davis-Bacon Act requirements
[x] Technology Readiness Assessment: Not needed	[x] Basis: No technology development anticipated at this point
[x] Technology Development Plan: Not needed	[x] Basis: No technology development anticipated at this point
[x] Technology Maturation Plan: Not needed	[x] Basis: No technology development anticipated at this point
[x] Capitalization Determination: Will be obtained if required by TFC-BSM-CP_CPR-C-15, Capitalization Determination	[x] Basis: Meets DOE accounting requirements
[] Integrated Test, Engineering and Management Plan	[] Basis:

<input checked="" type="checkbox"/> Project execution plan: Will be developed	<input checked="" type="checkbox"/> Basis: Meets the requirements of TFC-PRJ-PM-C-02
<input type="checkbox"/> Project risk management plan	<input type="checkbox"/> Basis:
<input checked="" type="checkbox"/> Project quality assurance documentation: The project will operate under the WRPS Quality Assurance Program described in TFC-PLN-02, Quality Assurance Program Description. Any additional project specific QA requirements will be included in the PEP.	<input checked="" type="checkbox"/> Basis: Work conducted in accordance with TFC-PLN-02 and the implementing procedures specified therein meet DOE O 414.1A, Quality Assurance, or 10 CFR 830 Subpart A, Quality Assurance Requirements (as applicable).
<input type="checkbox"/> Preliminary design	<input checked="" type="checkbox"/> Basis: Design Packages will be generated beyond 30% maturity.
<input checked="" type="checkbox"/> Final design	<input checked="" type="checkbox"/> Basis: Final design will be prepared for all new equipment of the waste retrieval and transfer system, in accordance with TFC-PLN-136, Engineering Design Program.
<input checked="" type="checkbox"/> Value management assessment and/or value engineering study(s): Project team assessments and lessons learned will be used to continue improvements using value engineering principles	<input checked="" type="checkbox"/> Basis: Tank waste retrievals have been on-going since 1998 on single-shell tanks in C-Farm, and many improvements to the waste retrieval system and tools have been identified and implemented into the design basis for subsequent tank waste retrieval system designs, including the system which will be used for AY-102.
<input checked="" type="checkbox"/> Documented Safety Analysis or DSA modification: Design will be reviewed in accordance with TFC-ENG-SB-C-06, Safety Basis Development, and any DSA modifications will be performed in accordance with TFC-ENG-SB-C-01, Safety Basis Issuance and Maintenance.	<input checked="" type="checkbox"/> Basis: The planned design will be screened using Table 8-1 in DOE – STD-1189, Integration of Safety into the Design Process, to determine if the installation of tank waste retrieval equipment constitutes a major modification. If it is a major modification, the requirements of DOE-STD-1198 will be imposed to ensure integration of Safety in the design.
<input checked="" type="checkbox"/> Fire Hazard Analysis: A specific fire analysis is not planned.	<input checked="" type="checkbox"/> Basis: RPP-13033, Tank Farms Document Safety Analysis is expected to cover the scope of the AY-102 retrieval activities. The USQ process is applied to all design developments including design changes and considers fire hazards.
<input checked="" type="checkbox"/> Process Hazard Analysis: In addition to the general Job Hazards Analysis (JHA) for	<input checked="" type="checkbox"/> Basis: Meets TFC-ESHQ-S_SAF-C-02 (JHA) for TOC projects

tank retrieval activities (Attachment A of TFC-ESHQ-S_SAF-C-02, Job Hazard Analysis), project specific hazard analyses will be performed, as necessary, to support retrieval activities.	
[x] Environmental Permits: Activities performed will be performed under existing permit requirements or permit modifications will be developed.	[x] Basis: Requirements Identification is an essential element to developing a viable Environmental Management System (EMS) and maintaining compliance with environmental regulations as applicable to Tanks Farms operations. TFC-ESHQ-ENV-STD-10.
[x] Notice of Construction: If needed, appropriate Notices of Construction (NOC) will be prepared and processed in accordance with TFC-ESHQ-ENV_PP-C-05 and TFC-ESHQ-ENV-PP-C-06 to obtain a revised Air permit.	[x] Basis: Requirements Identification is an essential element to developing a viable Environmental Management System (EMS) and maintaining compliance with environmental regulations as applicable to Tanks Farms operations. TFC-ESHQ-ENV-STD-10
[x] Operational Readiness Checklist: An operational readiness checklist will be developed as needed in accordance with TFC-PRJ-PM-C-06	[x] Basis: Meets TFC-PRJ-PM-C-02, Project Management, and DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets, requirements.
[x] Project Turnover Document: Will be prepared in accordance with TFC-PRJ-PM-C-28, Project Turnover and Closeout and TFC-PRJ-PM-C-29, Facility Turnover	[x] Basis: Meets TFC-PLN-72, Project and Facility Turnover Program Plan
[x] RCRA Facility Assessment and/or CERCLA Preliminary Assessment/Site Investigation – Tank Integrity Assessment is ongoing, further action to be determined.	[x] Basis: Hanford Facility Resource Conservation and Recovery Act Permit (WA 7890008967)
[x] RCRA Facility Investigation and/or CERCLA Remedial Investigation: See enhanced monitoring task.	[x] Basis: Hanford Facility Resource Conservation and Recovery Act Permit (WA 7890008967)
[x] RCRA Corrective Measures Study and/or CERCLA Feasibility Study TBD	[x] Basis: Hanford Facility Resource Conservation and Recovery Act Permit (WA 7890008967)
[x] RCRA Closure Plan and Permit/Permit	[x] Basis: Hanford Facility Resource Conservation and Recovery Act

Modification and/or CERCLA Work Plan – TBD	Permit (WA 7890008967)
[x] RCRA Corrective Measures Implementation Work Plan and Design and/or CERCLA Design - TBD	[x] Basis: Hanford Facility Resource Conservation and Recovery Act Permit (WA 7890008967)
[x] Data quality Objectives – To be prepared in accordance with TFC-ENG-CHEM-C-16	[x] Basis: Meet regulatory requirements
[x] Sample Analysis Plan – To be prepared in accordance with TFC-ENG-CHEM-D-23	[x] Basis: Meet regulatory requirements
[x] Sampling Verification and Closeout Plan	[x] Basis: Project follows Tank sample analysis plans and implementing procedures.
[x] Safety-in-Design Risk and Opportunity Assessment: No project specific Safety in Design Opportunity Assessment will be prepared.	[x] Basis: Project does not perform a major modification to a nuclear facility. Tank waste retrieval design is standardized, and has identified and incorporated appropriate SSCs and their safety functions and design criteria into the design. Safety-in-design requirements are captured in the Tank Farm Technical Safety Requirements.
[x] Security Vulnerability Assessment: No project specific Security Vulnerability Assessment will be prepared	[x] Basis: WRPS Security Assessments are coordinated outside of the DST Farm Operations. Personnel will participate in assessments as required.
[x] Capitalization Determination: will be obtained if required by TFC-BSM-CP_CPR-C-15, Capitalization Determination	[x] Basis: Meets DOE accounting requirements
[x] Project Categorization and Tailoring Checklist	[x] Basis: Will be prepared to document the graded approach to managing AY-102 Recovery
[x] Project Turnover Scoping Document: Will be prepared in accordance with TFC-PRJ-PM-C-28, Project Turnover and Closeout and TFC-PRJ-PM-C-29, Facility Turnover	[x] Basis: Meets TFC-PLN-72, Project and Facility Turnover Program Plan
[x] SOW for Design	[x] Basis: Will be prepared in accordance with TFC-BSM-CP_CPR-C-05, Procurement of Services.
[x] Safety Design Report: No project specific Safety Design Report will be	[] Basis: Project does not perform a major modification to a nuclear facility. Tank waste retrieval design is standardized, and has identified and

prepared	incorporated appropriate SSCs and their safety functions and design criteria into the design. Safety-in-design requirements are captured in the Tank Farm Technical Safety Requirements.
[x] Safety Validation Report: No project specific Safety Validation Report will be prepared	[] Basis: Not required, no project specific Safety Design Report will be prepared nor validated.
[x] Independent Cost Review	[x] Basis:
[x] Construction Completion Document Will be prepared in accordance with TFC-PRJ-PM-C-08, Construction Completion and Turnover	[x] Basis: Meets project and construction management requirements.
[x] Hazard Analysis Report: A project specific Hazards Analysis Report will not be prepared	[x] Basis: The Hazards analysis and subsequent safety requirements for the Tank Farm are documented in the safety basis and technical safety requirements.

<input checked="" type="checkbox"/> Project Closeout Report: Will be prepared in accordance with TFC-PRJ-PM-C-28, Project Turnover and Closeout and TFC-PRJ-PM-C-29, Facility Turnover	<input checked="" type="checkbox"/> Basis: Meets TFC-PLN-72, Project and Facility Turnover Program Plan
<input type="checkbox"/> Lessons Learned Report	<input type="checkbox"/> Basis:
<input type="checkbox"/> Safety Evaluation Report	<input checked="" type="checkbox"/> Basis: WRPS safety evaluation reports are coordinated outside of the DST Farm Operations organization. Personnel will participate in assessments as required.
<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Basis:
Approvals:	
<i>12/18/13</i> 	 Project Manager
Work Area Project Manager	<i>C.W. McLean</i> Manager of Project Management Program
<i>12/18/13</i>	<i>12/18/13</i>

**Attachment E. DOE-STD-1189, "Integration of Safety into the Design Process,"
Applicability Matrix**

DOE-STD-1189-2008 MAJOR MODIFICATION EVALUATION				
Project Number - Title: AY-102 Recovery Project				
Description: Install a Modified Sluicing waste retrieval system in double-shell tank 241-AY-102 to retrieve waste to the 241-AZ double-shell tank farm. Retrieval system will be comprised of a slurry transfer pump that will use sluicers to aid in the retrieval. Existing extended reach sluicer systems or a new type of verticle sluicing system will be used.				
Assessment 1	Eliminate Project From Major Modification Consideration			
	New/Revised HA Required?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	If no to each, DOE-STD-1189 does not apply
	New/Revised Accident Analysis Required?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
	New/Revised Controls Required?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	If yes to any, DOE-STD-1189 may apply
Assessment 2	Determine if Modification is Major Modification Requiring a PDSA			
Criterion No.	Evaluation Criteria	Evaluation		
1	Add a new building or facility with a material inventory > Hazard Category 3 (HC 3) limits or increase the HC of an existing facility?	A new building or facility with a material inventory > HC 3 or that limits or increases the HC of an existing facility is not being added. There is no increase in the HC of an existing facility (AY/AZ tank farms) which is already categorized as HC 2.		
2	Change the footprint of an existing HC 1, 2 or 3 facility with the potential to adversely affect any safety class (SC) or safety significant (SS) safety function or associated structure, system and component (SSC)?	The footprint of DST 241 AY-102 (HC 2 facility) is not being changed in a manner that could adversely affect any SS SSCs associated with this tank (e.g., the AY/AZ primary tank ventilation system).		
3	Change an existing process or add a new process resulting in the need for a safety basis change requiring DOE approval?	The waste retrieval process will be almost identical to the ones used for multiple retrieval projects to retrieve single-shell tanks. A safety basis change may be required depending on the final design of the sluicer systems and double-shell tank waste characteristics however any safety basis changes requiring DOE approval are anticipated to similar or the same to existing controls/equipment described in the DSA/TSRs.		
4	Utilize new technology or government furnished equipment (GFE) not currently in use or not previously formally reviewed/ approved by DOE for the affected facility?	The modified waste retrieval system will not utilize new technology or GFE not currently in use or not previously formally reviewed/ approved by DOE.		
5	Create the need for new or revised safety SSCs?	Depending on the final design of the sluicers there may be a need for a new or revised safety SSC. If a new safety SSC is required it is anticipated that it would be similar to existing ERSS safety SSCs.		
6	Involve a hazard not previously evaluated in the Documented Safety Analysis (DSA)?	Given the similarity with existing retrieval systems, no new hazards than those that have been previously evaluated in the DSA are anticipated.		

DOE-STD-1189-2008 MAJOR MODIFICATION EVALUATION	
Note	Major Modification if modification represents a "substantial change to the existing Safety Basis."
Summary and Recommendation: The AY-102 waste retrieval system does not introduce any new or unique hazards or accidents to the DSA. A safety basis change may be required however but new controls or safety SSCs would be similar to existing controls or SSCs in the DSA/TSRs. Therefore it is recommended that the 241-AY modified sluicing system is not a Major Modification as defined in TFC-PRJ-PM-C-02.	
Approvals	
Originator:	RD Smith/JR Buchanan <i>RD Smith</i> 9/26/13 <i>J-2-3L</i> 9/30/13 Printed Signature
Nuclear Safety Manager:	DM Cato <i>DM Cato</i> 9/26/13 Printed Signature
Project Manager:	S. GUILLOT <i>S. Guillot</i> 9/30/2013 GJ McCallum Printed Signature

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Attachment F. Critical Technology Element Assessment and Report Form

**TFC-PRJ-TD-C-01, TECHNOLOGY EVOLUTION AND MATURATION
CTE ASSESSMENT AND REPORT FORM**

TD DETERMINATION ASSESSMENT QUESTIONS

1.	Answer the following questions:	
Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	A. Is the project defined as a Line Item Project, Capital Project and/or have an estimated project Total Installed Cost of \geq \$750M?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	B. Has the Federal Project Director issued direction to the contractor that the project effort will be executed in full compliance with DOE O 413.3B?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	C. Has TOC Project Management directed full DOE O 413.3B compliance and/or additional Risk Management measures by use of the full TRA/TMP process?
<p>If "yes" to any of the above, a formal TRA and TMP shall be required. Complete the balance of this Attachment to determine if CTEs exist, then using TFC-PLN-90, DOE 413.3-4A, and its implementing guidance documents initiate a formal TRA and TMP in coordination with DOE. Document the actions taken and any other pertinent information in the PEP and obtain TD Manager approval on the PEP.</p> <p>If "no" to any of the above, complete the balance of this Attachment to determine if CTEs exist.</p>		
2.	<p>Taking into consideration the "Complexity" and "Risk" criteria in TFC-PRJ-PM-C-03, Attachment A – Project Categorization Matrix, address both the Set 1 and Set 2 Criteria below. Replace the guidance notes under the "Notes" column, with basis in support of your "yes" or "no" answer to each criterion.</p> <p>NOTE: Specific consideration shall be given to the operating environment when using the criterion below.</p>	

**Table 1
CTE Assessment Questions**

Technology Element: LDP Drain Pipe and Annulus Air Supply Pipes Visual Inspection Devices			
Yes	No	Set 1 - Criteria	Notes [Provide a "yes" or "no" and a basis for each answer]
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Does the technology directly impact a functional requirement of the process or facility?	For the purpose of the visual inspections, the devices are introduced and extracted from either the Leak Detection Pit 6-inch drain pipe, which provides tertiary leak detection to the tank, or the 4-inch Annulus Air Supply Pipe.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Do limitations in the understanding of the technology result in a potential schedule risk, i.e., the technology may not be ready for insertion when required?	The devices have been selected because of prior successful use in similar pipe visual inspections as documented in RPP-ASMT-55798.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Do limitations in the understanding of the technology result in a potential cost risk, i.e., the technology may cause significant cost overruns?	Visual inspection is routinely used in nuclear reactors and process facilities. As such, no limitations have been identified.

**TFC-PRJ-TD-C-01, TECHNOLOGY EVOLUTION AND MATURATION
CTE ASSESSMENT AND REPORT FORM**

		Table 1 CTE Assessment Questions	
Technology Element: LDP Drain Pipe and Annulus Air Supply Pipes Visual Inspection Devices			
Yes	No	Set 1 - Criteria	Notes [Provide a "yes" or "no" and a basis for each answer]
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Are there uncertainties in the definition of the end state requirements for this technology?	The objective is to access and visually inspect the pipes, within the limit of their accessibility and the capability of the selected existing devices, to gain further knowledge on the source of the leak and water intrusion, and the potential for repair.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Do limitations in the understanding of the technology impact the safety of the design?	The selected visual inspection technology does not affect safety. The devices have been specifically selected for this well known application, and their readiness for deployment in the tank environment will be verified prior to operations.

Yes	No	Set 2 - Criteria	Notes [Provide a "yes" or "no" and a basis for each answer]
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Is the technology new or novel?	Visual inspection is a well know and proven inspection technology.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Is the technology modified?	Standard video camera is used.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Has the technology been repackaged so a new relevant environment is realized?	The camera deployment platform is adapted to the specific tank environment. Mockup tests and demonstrations will ensure readiness.
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Is the technology expected to operate in an environment and/or achieve performance beyond its original design intention or demonstrated capability?	The visual inspection devices have been selected for their demonstrated capability in similar pipe inspection applications.

3. List ONLY those Technology Elements for which there is an answer of "Yes" in BOTH Set 1 & Set 2 Criteria in Table 1 above. These technology elements shall be designated Candidate Critical Technology Elements - if none are identified list "NONE" in this block:
None

If there are NO CTEs identified this project or activity does not currently contain a Technology Development element.

If there ARE CTEs identified, document in Section 1A of the CTC, obtain the required approvals, and then proceed to TFC-PRJ-TD-C-01 Section 4.0 to determine and document the Risk Management Strategy.

RPP-PLAN-59931, Rev. 2

ATTACHMENT B
AY-102 RECOVERY PROJECT SCHEDULES

Critical Path to meet Pumping Plan rev-C

Activity ID	Activity Name	Start	Finish	OD	RD	Comp	TF	Chg Since Last	FY2014				FY2015				FY2016				FY2017	
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	
5.01.01.15.01.02 AY-102 Design and Engineering																						
1.6.5 - Prepare definitive design of Extended Reach Sluicing System Assembly																						
HZA-165A1	Prepare definitive design of ERSS Assembly	01-Jul-14 A	18-Aug-14	67	40	0	0	0														
HZA-165A2	Review and comment on ERSS Assembly definitive design	19-Aug-14	25-Aug-14	5	5	0%	0	0														
HZA-165A3	Disposition review comments on ERSS Assembly definitive design	26-Aug-14	29-Aug-14	4	4	0%	0	0														
HZA-165A4	Finalize ERSS Assembly definitive design	02-Sep-14	22-Sep-14	15	15	0%	0	0														
HZA-165A5	Review, approve, and release ERSS Assembly definitive design	23-Sep-14	29-Sep-14	5	5	0%	0	0														
5.01.01.15.02.01 AY-102 Misc. Procurement & Support																						
AY-102 Extended Reach Sluicing System (ERSS) Procurement																						
HZA-233A01	Prepare MR AY-102 ERSS	30-Sep-14	06-Oct-14	5	5	0%	0	0														
HZA-233A02	Review MR AY-102 ERSS	07-Oct-14	08-Oct-14	2	2	0%	0	0														
HZA-233A03	Incorporate Review Comments into MR AY-102 ERSS	09-Oct-14	14-Oct-14	3	3	0%	0	0														
HZA-233A04	Buyer Obtain Approvals & Issue MR AY-102 ERSS	15-Oct-14	20-Oct-14	4	4	0%	0	0														
HZA-233A05	MR Issued AY-102 ERSS	20-Oct-14	20-Oct-14	0	0	0%	0	0														
HZA-233A0A1	Prepare Draft Commercial Grade Dedication - Waste Transfer Piping Sys (CGD-03212)	15-Sep-14	19-Sep-14	5	5	0%	0	0														
HZA-233A0D1	Incorporate Comments/Obtain Initial CGD Approvals	22-Sep-14	29-Sep-14	5	5	0%	0	0														
HZA-233A0A2	Prepare Draft Commercial Grade Dedication - HPU (CGD-03213)	15-Sep-14	19-Sep-14	5	5	0%	0	0														
HZA-233A0D2	Incorporate Comments/Obtain Initial CGD Approvals	22-Sep-14	29-Sep-14	5	5	0%	0	0														
5.01.01.15.02.02 AY-102 Major Procurements																						
AY-102 Extended Reach Sluicing System (ERSS) Procurement																						
HZA-233A06	Vendor Prepare & Submit Proposal AY-102 ERSS	21-Oct-14	04-Nov-14	10	10	0%	0	0														
HZA-233A08	Prepare Contract AY-102 ERSS	10-Nov-14	14-Nov-14	5	5	0%	0	0														
HZA-233A09	Award Contract to Selected Vendor AY-102 ERSS	14-Nov-14	14-Nov-14	0	0	0%	0	0														
HZA-233A11	Source Inspect (5) AY-102 ERSS & (2) HPU	08-Jun-15	12-Jun-15	5	5	0%	0	0														
HZA-233A12	Ship (5) AY-102 ERSS & (2) HPU	15-Jun-15	22-Jun-15	5	5	0%	0	0														
HZA-233A13	AVS Perform Receipt Inspection for (5) AY-102 ERSS & (2) HPU	23-Jun-15	24-Jun-15	2	2	0%	0	0														
HZA-233A14	Green Tag & Stage (5) AY-102 ERSS & (2) HPU	25-Jun-15	26-Jun-15	2	2	0%	0	0														
HZA-233A07	Evaluate Vendor Proposals AY-102 ERSS	05-Nov-14	06-Nov-14	2	2	0%	0	0														
HZA-233A10	Manufacture (5) AY-102 ERSS & (2) HPU	17-Nov-14	04-Jun-15	123	123	0%	0	0														
5.01.01.15.03.03 AY-102 Equipment Removal & Pit Rehab																						
Prepare Work Packages to Install ERSS in AY-102 Pits																						
HZA-252A109	Prep/Appro/RTW AY-102 ERSS Mech Work Package	27-Apr-15	26-Jun-15	40	40	0%	0	0														
HZA-252A101	Prep/Appro/RTW AY-102 ERSS Elec. Work Package	28-May-15	26-Jun-15	20	20	0%	0	0														
HZA-252A110	Pre-Job ERSS Mechanical Work Package	29-Jun-15	29-Jun-15	1	1	0%	0	0														
HZA-252A103	Pre-Job ERSS Electrical WP	29-Jun-15	29-Jun-15	1	1	0%	0	0														
ERSS Installation in AY-02D Pit																						
HZA-252A130	Remove Temporary Pit Cover	11-Aug-15	11-Aug-15	1	1	0%	0	0														
HZA-252A131	Install ERSS Sluicer in AY-02D Pit-Riser 003	12-Aug-15	19-Aug-15	5	5	0%	0	0														
HZA-252A132	Install Jumpers for HP and Raw Water	20-Aug-15	26-Aug-15	5	5	0%	0	0														
HZA-252A140	Setup Crane	10-Aug-15	10-Aug-15	1	1	0%	0	0														
ERSS Installation in AY-02C Pit																						
HZA-252A111	Mobilize and Stage Crane	30-Jun-15	01-Jul-15	2	2	0%	0	0														
HZA-252A141	Remove Temporary Pit Cover	06-Jul-15	06-Jul-15	1	1	0%	0	0														
HZA-252A142	Install ERSS Sluicer in AY-02C Pit-Riser 002	07-Jul-15	13-Jul-15	5	5	0%	0	0														
HZA-252A143	Install Jumpers for HP and Raw Water	14-Jul-15	21-Jul-15	5	5	0%	0	0														
ERSS Installation in AY-02B Pit																						
HZA-252A122	Install ERSS Sluicer in AY-02B Pit-Riser 001	01-Sep-15	08-Sep-15	5	5	0%	0	0														
HZA-252A123	Install Jumpers for HP and Raw Water	09-Sep-15	16-Sep-15	5	5	0%	0	0														
HZA-252A124	Connect HIHTL for Super rate	17-Sep-15	18-Sep-15	2	2	0%	0	0														
HZA-252A126	Install Winterization/Freeze Protection Equipment in Pit	21-Sep-15	28-Sep-15	5	5	0%	0	0														
HZA-252A120	Setup Crane	27-Aug-15	27-Aug-15	1	1	0%	0	0														
HZA-252A121	Remove Temporary Pit Cover	31-Aug-15	31-Aug-15	1	1	0%	0	0														
ERSS Installation in AY-02E Pit																						
HZA-252A150	Setup Crane	22-Jul-15	22-Jul-15	1	1	0%	0	0														
HZA-252A151	Remove Temporary Pit Cover	23-Jul-15	23-Jul-15	1	1	0%	0	0														
HZA-252A152	Install ERSS Sluicer in AY-02E Pit-Riser 004	24-Jul-15	30-Jul-15	5	5	0%	0	0														
HZA-252A153	Install Jumpers for HP and Raw Water	03-Aug-15	07-Aug-15	5	5	0%	0	0														
Install Hydraulic Power Unit for AY-102 ERSS																						
HZA-252A160	Install Hydraulic Power Unit for AY-102 ERSS	29-Sep-15	22-Oct-15	17	17	0%	0	0														
HZA-252A162	Install Electrical for HPU	28-Oct-15	09-Nov-15	10	10	0%	0	0														
Perform AY-102 ERSS System Testing																						
HZA-252A163	Perform Testing	10-Nov-15	18-Nov-15	7	7	0%	0	0														
HZA-252A164	Ops Acceptance	19-Nov-15	30-Nov-15	5	5	0%	0	0														
Close AY-102 Sluice Pits B, C, D & E																						
HZA-252A165	Install New Pit Covers	01-Dec-15	07-Dec-15	4	4	0%	0	0														
HZA-252A166	Remove Tents	03-Dec-15	11-Dec-15	6	6	0%	0	0														
5.01.01.15.03.08 AY-102 Engineering Support to Construction																						
Perform WRS Construction Acceptance Testing & Turnover to Operations																						
HZA-254A1	Perform WRS Integrated Operational Acceptance Testing	14-Dec-15	02-Feb-16	30	30	0%	0	0														
5.01.01.15.07.01 AY-102 & AP-102 Integrated Startup & Readiness																						
WRS Readiness for Operations																						
AO-4PP-C	Readiness to Pump AY-102 (Pumping Plan Rev-C Date 04-Mar-16)		04-Mar-16*	0	0	0%	0	0														
HZA-26A1	Readiness for Operations - WRS	25-Nov-15	04-Mar-16	60	60	0%	0	0														
HZA-26A0	Declaration of Readiness to Pump AY-102		04-Mar-16	0	0	0%	0	0														



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

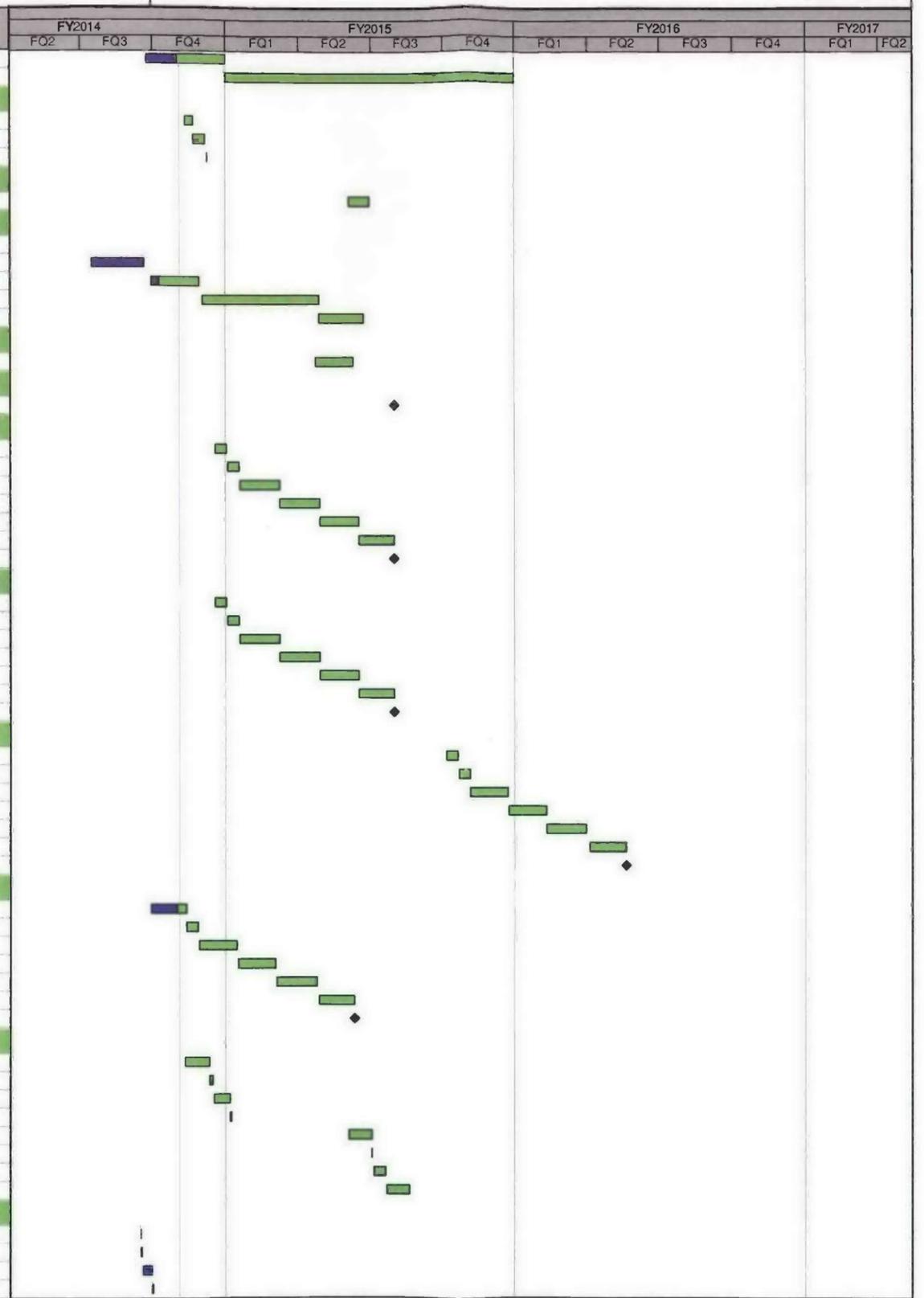
Detailed Schedule

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017	
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	
5.01.01.15.01.01 AY-102 Recovery Prog Mgmt & Supt		19-Feb-14 A	29-Aug-16	639	523		82															
Project Ramp Up (AY-102 Restart)		19-Feb-14 A	11-Mar-14 A	14	0																	
HZA-010100	AY-102 Project Management & Engineering Ramp Up	19-Feb-14 A	10-Mar-14 A	14	0	100%		WRPS- Guillot, SP														
HZM-010100	Project Ramp Up Complete - Restart AY-102 WRS Project	11-Mar-14 A		0	0	100%		WRPS- Guillot, SP														
Project Execution Plan (PEP)		03-Mar-14 A	19-May-14 A	67	0																	
HZA-010400	Prepare Project Execution Plan (PEP)	03-Mar-14 A	13-Mar-14 A	9	0	100%		WRPS- McCallum, G														
AO-90	Prepare & Release PEP (Current FES HAMMOCK)	03-Mar-14 A	19-May-14 A	10	0	100%		WRPS- Guillot, SP														
HZA-010401	Perform Internal Team Review of Project Execution Plan (PEP)	19-Mar-14 A	25-Mar-14 A	2	0	100%		WRPS- McCallum, G														
HZA-010402	Incorporate Internal Team Review Comments on Project Execution Plan (PEP)	21-Mar-14 A	26-Mar-14 A	4	0	100%		WRPS- McCallum, G														
HZA-010403	Perform External Review of Project Execution Plan (PEP)	30-Apr-14 A	06-May-14 A	5	0	100%		WRPS- McCallum, G														
HZA-010404	Incorporate External Review Comments on Project Execution Plan (PEP)	07-May-14 A	14-May-14 A	5	0	100%		WRPS- McCallum, G														
HZA-010405	Issue Project Execution Plan (PEP)	14-May-14 A	19-May-14 A	1	0	100%		WRPS- McCallum, G														
Proposal Kick-Off		07-Mar-14 A	03-Apr-14 A	13	0																	
HZM-20A10	Revised Pumping Plan Released		07-Mar-14 A	0	0	100%		WRPS- Guillot, SP														
HZM-20A11	Receive Notice From ORP to Deliver Phase 2 Proposal		21-Mar-14 A	0	0	100%		WRPS- Guillot, SP														
HZA-20A20	Kick-Off Proposal Effort, Review and Approve Proposal Schedule	03-Apr-14 A	03-Apr-14 A	1	0	100%		WRPS- Sams, R														
Proposal Basis Of Estimate		20-Mar-14 A	18-Apr-14 A	9	0																	
HZA-20A60	Develop Phase 2 WBS	20-Mar-14 A	21-Mar-14 A	3	0	100%		WRPS- Guillot, SP														
HZA-20A61	Develop CEIS Dictionaries	20-Mar-14 A	02-Apr-14 A	6	0	100%		WRPS- Guillot, SP														
HZA-20A40	Prepare AY-102 WRS Pre-conceptual Design	24-Mar-14 A	27-Mar-14 A	3	0	100%		WRPS- Guillot, SP														
HZA-20A50	Prepare Phase 2 Proposal Schedule	31-Mar-14 A	04-Apr-14 A	3	0	100%		WRPS- Guillot, SP														
HZA-20A90	Research Available Cost Elements	31-Mar-14 A	02-Apr-14 A	3	0	100%		WRPS- Guillot, SP														
HZA-20A62	Review & Approve CEIS Dictionaries	03-Apr-14 A	18-Apr-14 A	2	0	100%		WRPS- Guillot, SP														
Risk Management		21-Mar-14 A	06-May-14 A	30	0																	
HZA-20A80	Update Project Risk Log	21-Mar-14 A	24-Mar-14 A	2	0	100%		WRPS- Guillot, SP														
HZA-20A81	Risk Data Development	07-Apr-14 A	15-Apr-14 A	8	0	100%		WRPS- Guillot, SP														
HZA-20A82	Perform Risk Analysis	18-Apr-14 A	23-Apr-14 A	4	0	100%		WRPS- Guillot, SP														
HZA-20A83	Review Risk Analysis	24-Apr-14 A	01-May-14 A	3	0	100%		WRPS- Guillot, SP														
HZA-20A113	Estimate Risk Impacts	30-Apr-14 A	06-May-14 A	5	0	100%		WRPS- Guillot, SP														
Develop Cost Estimate		03-Apr-14 A	11-Jun-14 A	43	0																	
HZA-20A91	Develop Estimates (at activity level)	03-Apr-14 A	03-Apr-14 A	0	0	100%		WRPS- Guillot, SP														
HZA-20A91a	Prepare Backup for Certified Cost Estimates	22-May-14 A	28-May-14 A	2	0	100%		WRPS- Guillot, SP														
HZA-20A92	Perform Tech & CAM Review & Comment Incorporation into Estimate	28-May-14 A	05-Jun-14 A	3	0	100%		WRPS- Guillot, SP														
HZA-20A93	Perform Cost Estimate Peer Review & Comment Incorporation into Estimate	09-Jun-14 A	11-Jun-14 A	3	0	100%		WRPS- Guillot, SP														
Prepare Technical Narrative		17-Apr-14 A	01-May-14 A	10	0																	
HZA-20A111	Draft Technical Narrative	17-Apr-14 A	01-May-14 A	10	0	100%		WRPS- Guillot, SP														
Proposal Developments Assembly Review and Release		02-May-14 A	29-Jul-14 A	55	0																	
HZA-20A135	Proposal Developments Assembly Review & Release	02-May-14 A	17-Jul-14 A	31	0	100%		WRPS- Guillot, SP														
HZA-20A139	Proposal Assembly Complete		17-Jul-14 A	0	0	100%		WRPS- Guillot, SP														
HZA-20A141	WRPS Sr Management review Phase-2 Proposal	21-Jul-14 A	29-Jul-14 A	7	0	100%		WRPS- Guillot, SP														
HZA-20A143	WRPS Submit Proposal to DOE		29-Jul-14 A	0	0	100%		WRPS- Guillot, SP														
Project Management		11-Mar-14 A	29-Aug-16	625	523		82															
HZA-010114a	AY-102 Project Management Support (Mar-Jun) FY14	11-Mar-14 A	20-Jun-14 A	82	0	100%		WRPS- Guillot, SP														
HZA-010114b	AY-102 Project Management Support (Jul-Sep) FY14	23-Jun-14 A	30-Sep-14	63	37	40%	74	WRPS- Guillot, SP														
HZA-010115	AY-102 Project Management Support FY15	01-Oct-14	30-Sep-15	252	252	0%	82	WRPS- Guillot, SP														
HZA-010116	AY-102 Project Management Support FY16	01-Oct-15	29-Aug-16	230	230	0%	82	WRPS- Guillot, SP														
Phase-1		14-Jul-14 A	30-Sep-14	56	41		564															
HZA-NTE11	Identify Scope to be Baselined for Phase-1 NTE	14-Jul-14 A	18-Jul-14 A	5	0	100%		WRPS- Guillot, SP														
HZA-NTE12	Project notify DOE of Phase-1 NTE threshold and need date	21-Jul-14 A	25-Jul-14 A	5	0	100%		WRPS- Sams, R														
HZA-NTE13	DOE prepare Phase-1 NTE contract modification	04-Aug-14	21-Aug-14	14	14	0%	564	ORP- TBD														
HZA-NTE14	DOE transmit Phase-1 NTE contract modification to WRPS	22-Aug-14	28-Aug-14	5	5	0%	564	ORP- TBD														
HZA-NTE15	WRPS contracts transmit Phase-1 NTE to project for BCR development	29-Aug-14	02-Sep-14	2	2	0%	564	WRPS- Sams, R														
HZA-NTE16	Project prepare/WRPS implement BCR for Phase-1 NTE	03-Sep-14	30-Sep-14	20	20	0%	564	WRPS- Guillot, SP														
Phase-2		02-Sep-14	11-Nov-14	51	51		534															
HZA-NTE21	Identify Scope to be Baselined for Phase-2 NTE	02-Sep-14*	08-Sep-14	5	5	0%	534	WRPS- Guillot, SP														
HZA-NTE22	Project notify DOE of Phase-2 NTE threshold and need date	09-Sep-14	15-Sep-14	5	5	0%	534	WRPS- Sams, R														
HZA-NTE23	DOE prepare Phase-2 NTE contract modification	16-Sep-14	03-Oct-14	14	14	0%	534	ORP- TBD														
HZA-NTE24	DOE transmit Phase-2 NTE contract modification to WRPS	06-Oct-14	10-Oct-14	5	5	0%	534	ORP- TBD														
HZA-NTE25	WRPS contracts transmit Phase-2 NTE to project for BCR development	13-Oct-14	14-Oct-14	2	2	0%	534	WRPS- Sams, R														
HZA-NTE26	Project prepare/WRPS implement BCR for Phase-2 NTE	15-Oct-14	11-Nov-14	20	20	0%	534	WRPS- Guillot, SP														
5.01.01.15.01.02 AY-102 Design and Engineering		15-Oct-13 A	18-Feb-16	305	310		311															
Environmental Interface & Support		18-Feb-14 A	30-Sep-15	368	263		75															
HZA-010230a	Environmental Interface & Support (Feb-Jun) FY14	18-Feb-14 A	20-Jun-14 A	107	0	100%		WRPS- Bloom, R														

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 ◆ Milestone

Detailed Schedule

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014		FY2015				FY2016				FY2017	
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1
HZA-010230B	Environmental Interface & Support (Jul-Sep) FY14	23-Jun-14 A	30-Sep-14	63	37	39.5%	75	WRPS- Bloom, R												
HZA-0102315	Environmental Interface & Support FY15	01-Oct-14	30-Sep-15	226	226	0%	75	WRPS- Bloom, R												
NEPA Evaluation		11-Aug-14	08-Sep-14	18	18		74													
HZA-010230a1	Review NEPA Document	11-Aug-14	21-Aug-14	8	8	0%	74	WRPS- Bloom, R												
HZA-010230a2	Document NEPA Review	22-Aug-14	05-Sep-14	9	9	0%	74	WRPS- Bloom, R												
HZA-010230a3	Submit NEPA to NEPA Compliance Officer	08-Sep-14	08-Sep-14	1	1	0%	74	WRPS- Bloom, R												
Cultural Review		05-Mar-15	31-Mar-15	17	17		210													
HZA-010230a4	Perform Cultural Walkdown	05-Mar-15	31-Mar-15	17	17	0%	210	WRPS- Bloom, R												
Non-Rad Permits		15-Oct-13 A	23-Mar-15	323	143		55													
HZA-010230a5	Review Existing Air Permits	15-Oct-13 A	22-Nov-13 A	29	0	100%		WRPS- Bloom, R												
HZA-010230a6	Modify Existing Air Permits (Apr-Jun) FY14	15-Apr-14 A	20-Jun-14 A	80	0	100%		WRPS- Bloom, R												
HZA-010230aj	Modify Existing Air Permits (Jul-Sep) FY14	30-Jun-14 A	28-Aug-14	25	18	15%	55	WRPS- Bloom, R												
HZA-010230a7	Review & Approval of Modified Air Permits	02-Sep-14	26-Jan-15	90	90	0%	55	WRPS- Bloom, R												
HZA-010230a8	Acceptance of Modified Toxic Air Permits	27-Jan-15	23-Mar-15	35	35	0%	55	WRPS- Bloom, R												
Rad Permits		22-Jan-15	10-Mar-15	30	30		53													
HZA-010230ak	Notify WDOH about activation of Rad Air Permit (10 days prior to Removal of AP-102 Mixer Pump)	22-Jan-15	10-Mar-15	30	30	0%	53	WRPS- Bloom, R												
296-A-48/49 Operations License		01-May-15	01-May-15	0	0		46													
HZA-010230am	296-A-48/49 Operations License		01-May-15	0	0	0%	46	WRPS- Bloom, R												
296-A-40 NOC Modification		18-Sep-14	01-May-15	140	140		46													
HZA-296A40-1	296-A-40 NOC Mod - Preparation	18-Sep-14	02-Oct-14	10	10	0%	46	WRPS- Bloom, R												
HZA-296A40-2	296-A-40 NOC Mod - Peer Review & Comment Incorporation	03-Oct-14	17-Oct-14	10	10	0%	46	WRPS- Bloom, R												
HZA-296A40-3	296-A-40 NOC Mod - WRPS Review & Transmittal to ORP	20-Oct-14	08-Dec-14	30	30	0%	46	WRPS- Bloom, R												
HZA-296A40-4	296-A-40 NOC Mod - ORP Review & Transmittal to DOH	09-Dec-14	27-Jan-15	30	30	0%	46	WRPS- Bloom, R												
HZA-296A40-5	296-A-40 NOC Mod - DOH Review & Transmittal for Public Comment	28-Jan-15	17-Mar-15	30	30	0%	46	WRPS- Bloom, R												
HZA-296A40-6	296-A-40 NOC Mod - Public Comment	18-Mar-15	01-May-15	30	30	0%	46	WRPS- Bloom, R												
HZA-296A40-7	296-A-40 NOC Mod Approved		01-May-15	0	0	0%	46	WRPS- Bloom, R												
296-A-42 License Mod		18-Sep-14	01-May-15	140	140		46													
HZA-296A42-1	296-A-42 License Mod - Preparation	18-Sep-14	02-Oct-14	10	10	0%	46	WRPS- Bloom, R												
HZA-296A42-2	296-A-42 License Mod - Peer Review & Comment Incorporation	03-Oct-14	17-Oct-14	10	10	0%	46	WRPS- Bloom, R												
HZA-296A42-3	296-A-42 License Mod - WRPS Review & Transmittal to ORP	20-Oct-14	08-Dec-14	30	30	0%	46	WRPS- Bloom, R												
HZA-296A42-4	296-A-42 License Mod - ORP Review & Transmittal to DOH	09-Dec-14	27-Jan-15	30	30	0%	46	WRPS- Bloom, R												
HZA-296A42-5	296-A-42 License Mod - DOH Review & Transmittal for Public Comment	28-Jan-15	17-Mar-15	30	30	0%	46	WRPS- Bloom, R												
HZA-296A42-6	296-A-42 License Mod - Public Comment	18-Mar-15	01-May-15	30	30	0%	46	WRPS- Bloom, R												
HZA-296a42-7	296-A-42 License Mod Approved		01-May-15	0	0	0%	46	WRPS- Bloom, R												
296-A-19 Annulus NOC		07-Jul-15	18-Feb-16	140	140		81													
HZA-296A19-1	296-A-19 Annulus NOC - Preparation	07-Jul-15	21-Jul-15	10	10	0%	81	WRPS- Bloom, R												
HZA-296A19-2	296-A-19 Annulus NOC - Peer Review & Comment Incorporation	22-Jul-15	05-Aug-15	10	10	0%	81	WRPS- Bloom, R												
HZA-296A19-3	296-A-19 Annulus NOC - WRPS Review & Transmittal to ORP	06-Aug-15	22-Sep-15	30	30	0%	81	WRPS- Bloom, R												
HZA-296A19-4	296-A-19 Annulus NOC - ORP Review & Transmittal to DOH	23-Sep-15	09-Nov-15	30	30	0%	81	WRPS- Bloom, R												
HZA-296A19-5	296-A-19 Annulus NOC - DOH Review & Transmittal for Public Comment	10-Nov-15	30-Dec-15	30	30	0%	81	WRPS- Bloom, R												
HZA-296A19-6	296-A-19 Annulus NOC - Public Comment	04-Jan-16	18-Feb-16	30	30	0%	81	WRPS- Bloom, R												
HZA-296A19-7	296-A-19 Annulus NOC Approved		18-Feb-16	0	0	0%	81	WRPS- Bloom, R												
Diffuse & Fugitive Rad License		30-Jun-14 A	12-Mar-15	158	137		164													
HZA-296Axx-1	Diffuse & Fugitive Rad License - Preparation	30-Jun-14 A	12-Aug-14	25	7	75%	164	WRPS- Bloom, R												
HZA-296Axx-2	Diffuse & Fugitive Rad License - Peer Review & Comment Incorporation	13-Aug-14	27-Aug-14	10	10	0%	164	WRPS- Bloom, R												
HZA-296Axx-3	Diffuse & Fugitive Rad License - WRPS Review & Transmittal to ORP	28-Aug-14	15-Oct-14	30	30	0%	164	WRPS- Bloom, R												
HZA-296Axx-4	Diffuse & Fugitive Rad License - ORP Review & Transmittal to DOH	16-Oct-14	03-Dec-14	30	30	0%	164	WRPS- Bloom, R												
HZA-296Axx-5	Diffuse & Fugitive Rad License - DOH Review & Transmittal for Public Comment	04-Dec-14	23-Jan-15	30	30	0%	164	WRPS- Bloom, R												
HZA-296Axx-6	Diffuse & Fugitive Rad License - Public Comment	26-Jan-15	12-Mar-15	30	30	0%	164	WRPS- Bloom, R												
HZA-296Axx-7	Diffuse & Fugitive Rad License Complete		12-Mar-15	0	0	0%	164	WRPS- Bloom, R												
AY-102 RCRA Review		11-Aug-14	20-May-15	176	176		117													
HZA-010230a9	Prepare RCRA Document - Rev-0	11-Aug-14	10-Sep-14	20	20	0%	206	WRPS- Bloom, R												
HZA-010230aA	Review RCRA Document - Rev-0	11-Sep-14	15-Sep-14	2	2	0%	206	WRPS- Bloom, R												
HZA-010230aB	Incorporate Comments into RCRA Document - Rev-0	16-Sep-14	06-Oct-14	14	14	0%	206	WRPS- Bloom, R												
HZA-010230aC	Issue RCRA Rev-0 Document	07-Oct-14	07-Oct-14	1	1	0%	206	WRPS- Bloom, R												
HZA-010230aD	Update RCRA Document	05-Mar-15	02-Apr-15	19	19	0%	117	WRPS- Bloom, R												
HZA-010230aE	Submit RCRA Document Update for Review	03-Apr-15	03-Apr-15	1	1	0%	117	WRPS- Bloom, R												
HZA-010230aF	Incorporate RCRA Review Comments into Update	06-Apr-15	20-Apr-15	10	10	0%	117	WRPS- Bloom, R												
HZA-010230aG	Issue RCRA Document Update	21-Apr-15	20-May-15	20	20	0%	117	WRPS- Bloom, R												
Site Evaluation of HIHTL Transfer Route AY Farm to AP Farm		16-Jun-14 A	21-Jul-14 A	22	0															
HZA-010240A	Submit Site Evaluation Request	16-Jun-14 A	16-Jun-14 A	1	0	100%		WRPS- Hanson, CE												
HZA-010240B	Prepare Site Evaluation Review Package	17-Jun-14 A	18-Jun-14 A	2	0	100%		WRPS- Hanson, CE												
HZA-010240C	Perform Site Evaluation Review	19-Jun-14 A	01-Jul-14 A	9	0	100%		WRPS- Hanson, CE												
HZA-010240D	Prepare/Release Site Evaluation Report	01-Jul-14 A	02-Jul-14 A	2	0	100%		WRPS- Hanson, CE												



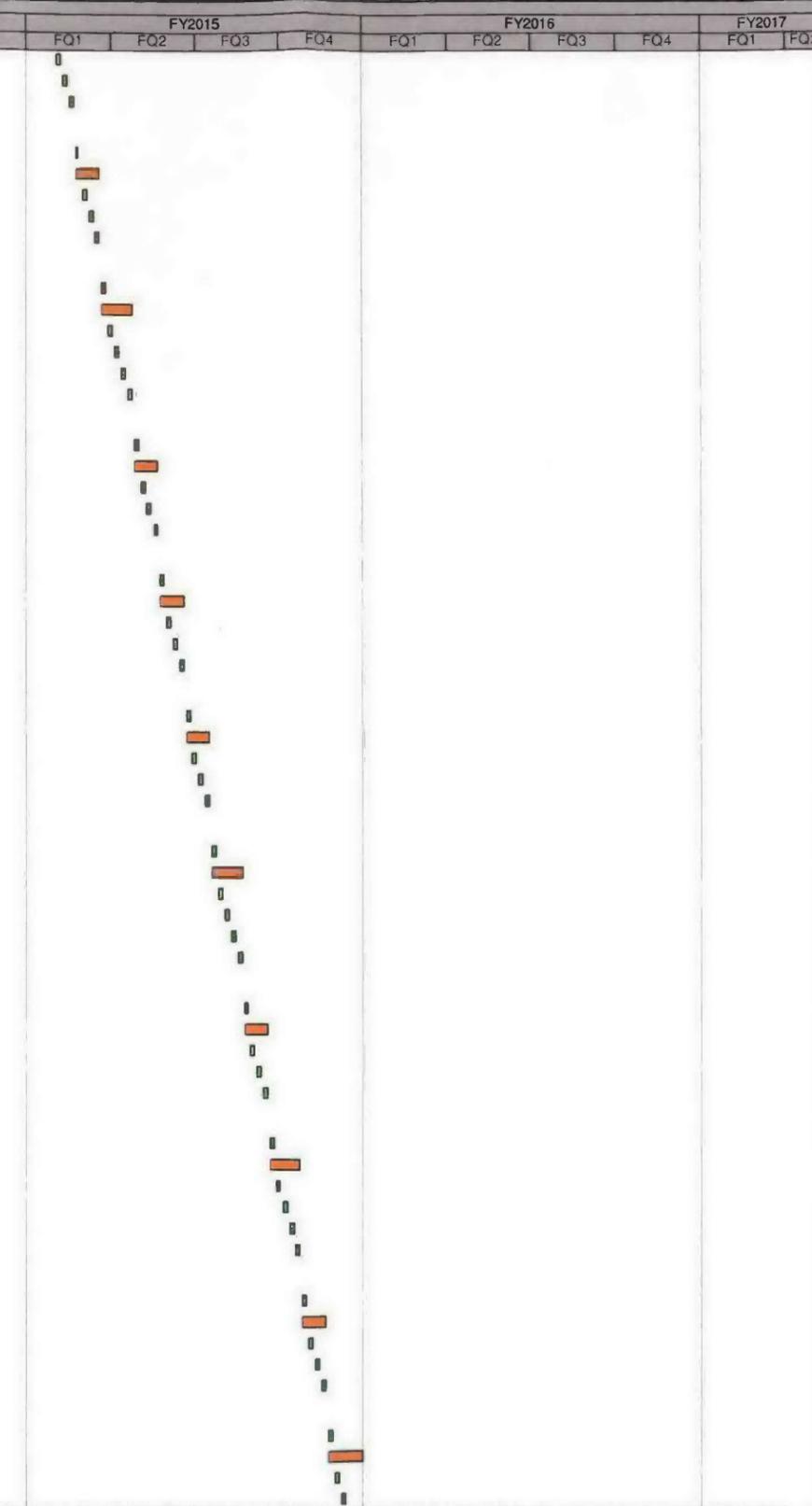
■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	Detailed Schedule																
									FY2014			FY2015			FY2016			FY2017							
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2				
1.4.11.3 - SECD																									
HZA-14113A1	Prepare update to SECD	14-Dec-15	13-Jan-16	20	20		31																		
HZA-14113A2	Review, approve, and issue update to SECD	14-Dec-15	06-Jan-16	15	15	0%	31	WRPS- Hanson, CE																	
HZA-14113A2	Review, approve, and issue update to SECD	07-Jan-16	13-Jan-16	5	5	0%	31	WRPS- Hanson, CE																	
1.4.11.4 - AB Amendment																									
HZA-14114A1	Prepare Draft AB Amendment for AY-102 WRS Operations	08-Oct-14	17-Feb-16	341	341		12																		
HZA-14114A1	Prepare Draft AB Amendment for AY-102 WRS Operations	08-Oct-14	04-Nov-14	20	20	0%	291	WRPS- Hanson, CE																	
HZA-14114A2	DOE Review AB Amendment for AY-102 WRS Operations	05-Mar-15	03-Apr-15	30	30	0%	307	WRPS- Hanson, CE																	
HZA-14114A3	Resolve DOE Comments into AB Amendment for AY-102 WRS Operations	06-Apr-15	17-Apr-15	10	10	0%	211	WRPS- Hanson, CE																	
HZA-14114A4	Implement AB Amendment for AY-102 WRS Operations	03-Feb-16	17-Feb-16	10	10	0%	12	WRPS- Hanson, CE																	
1.4.12.1 - OP																									
HZA-14121A1	Prepare Draft Operating Procedure for AY-102 WRS Waste Retrieval and Transfer	14-Jan-15	25-Mar-15	50	50	0%	228	WRPS- Hanson, CE																	
HZA-14121A2	Review and Comment on Operating Procedure for AY-102 WRS Waste Retrieval and Transfer	01-Jan-16	14-Jan-16	10	10	0%	35	WRPS- Hanson, CE																	
1.4.12.2 - ARP																									
HZA-14122A1	Prepare Draft Alarm Response Procedure for AY-102 WRS Waste Retrieval and Transfer	14-Jan-15	25-Mar-15	50	50	0%	228	WRPS- Hanson, CE																	
HZA-14122A2	Review and Comment on Alarm Response Procedure for AY-102 WRS Waste Retrieval and Transfer	26-Mar-15	08-Apr-15	10	10	0%	228	WRPS- Hanson, CE																	
1.4.12.3 - PMs																									
HZA-14123A1	Prepare Draft Preventive Maintenance procedures for AY-102 WRS equipment	14-Jan-15	04-Mar-15	35	35	0%	248	WRPS- Hanson, CE																	
HZA-14123A2	Review and Comment on Preventive Maintenance procedures for AY-102 WRS equipment	05-Mar-15	11-Mar-15	5	5	0%	248	WRPS- Hanson, CE																	
1.4.13.1 - DRCM																									
HZA-14131A1	Prepare DRCM for AY-102 WRS design	05-Jun-15	29-Dec-15	142	142		26																		
HZA-14131A2	Review, approve, and release DRCM for AY-102 WRS design	14-Dec-15	29-Dec-15	10	10	0%	26	WRPS- Hanson, CE																	
1.4.13.2 - Mod Traveler																									
HZA-14132A1	Prepare final Mod Traveler for AY-102 WRS Installation	30-Dec-15	06-Jan-16	5	5	0%	26	WRPS- Hanson, CE																	
HZA-14132A2	Disposition review comments on final Mod Traveler for AY-102 WRS	07-Jan-16	13-Jan-16	5	5	0%	26	WRPS- Hanson, CE																	
HZA-14132A3	Review and comment on final Mod Traveler for AY-102 WRS	14-Jan-16	20-Jan-16	5	5	0%	26	WRPS- Hanson, CE																	
HZA-14132A4	Finalize final Mod Traveler for AY-102 WRS	21-Jan-16	25-Jan-16	3	3	0%	26	WRPS- Hanson, CE																	
HZA-14132A5	Review, approve, and release final Mod Traveler for AY-102 WRS	26-Jan-16	27-Jan-16	2	2	0%	26	WRPS- Hanson, CE																	
HZM-14133A0	Phase-1 Engineering Design Complete		27-Jan-16	0	0	0%	26	WRPS- Hanson, CE																	
1.4.13.3 - IQRPE Report																									
HZA-14133A0	Prepare Preliminary IQRPE for AY-102 WRS Installation	05-Mar-15	18-Mar-15	10	10	0%	223	WRPS- Hanson, CE																	
HZA-14133A1	Prepare Final IQRPE for AY-102 WRS Installation	30-Dec-15	06-Jan-16	5	5	0%	26	WRPS- Hanson, CE																	
HZA-14133A2	Disposition review comments on Final IQRPE for AY-102 WRS	07-Jan-16	13-Jan-16	5	5	0%	26	WRPS- Hanson, CE																	
HZA-14133A3	Review and comment on Final IQRPE for AY-102 WRS	14-Jan-16	20-Jan-16	5	5	0%	26	WRPS- Hanson, CE																	
HZA-14133A4	Finalize Final IQRPE for AY-102 WRS	21-Jan-16	25-Jan-16	3	3	0%	26	WRPS- Hanson, CE																	
HZA-14133A5	Review, approve, and release Final IQRPE for AY-102 WRS	26-Jan-16	27-Jan-16	2	2	0%	26	WRPS- Hanson, CE																	
1.4.14 - Remote RARM Design (Radcon)																									
HZA-1414A1	Prepare design for AY-102 WRS Remote RARM system	21-Jul-14 A	21-Jul-14 A	1	0	100%		WRPS- Hanson, CE																	
HZA-1414A2	Review and comment on AY-102 WRS Remote RARM system design	22-Jul-14 A	22-Jul-14 A	1	0	100%		WRPS- Hanson, CE																	
HZA-1414A3	Disposition review comments on AY-102 WRS Remote RARM system design	23-Jul-14 A	23-Jul-14 A	1	0	100%		WRPS- Hanson, CE																	
HZA-1414A4	Finalize AY-102 WRS Remote RARM system design	24-Jul-14 A	24-Jul-14 A	20	0	100%		WRPS- Hanson, CE																	
HZA-1414A5	Review, approve, and release AY-102 WRS Remote RARM system design	25-Jul-14 A	25-Jul-14 A	5	0	100%		WRPS- Hanson, CE																	
1.4.15 - Preliminary Design Description																									
HZA-1415A1	Prepare preliminary AY-102 WRS Integrated Design Description	04-Jun-14 A	14-Jul-14 A	10	0	100%		WRPS- Hanson, CE																	
HZA-1415A2	Review and comment on preliminary AY-102 WRS Integrated Design Description	15-Jul-14 A	31-Jul-14 A	6	0	100%		WRPS- Hanson, CE																	
HZA-1415A3	Disposition Review Comments on preliminary AY-102 WRS Integrated Design Description	01-Aug-14 A	05-Aug-14	3	2	1%	83	WRPS- Hanson, CE																	
HZA-1415A4	Finalize preliminary AY-102 WRS Integrated Design Description	06-Aug-14	08-Aug-14	3	3	0%	83	WRPS- Hanson, CE																	
1.5 - Prepare Slurry Pump Backstop Assembly Design																									
HZA-010215A	1.5 Prepare AY-102 Backstop Design FY14 (To Be Deleted in FY15 Planning)	01-Oct-14*	13-Jan-15	70	70	0%	24	WRPS- Hanson, CE																	
1.6.5 - Prepare definitive design of Extended Reach Sluicing System Assembly																									
HZA-165A1	Prepare definitive design of ERSS Assembly	01-Jul-14 A	18-Aug-14	30	11	15%	0	WRPS- Hanson, CE																	
HZA-165A2	Review and comment on ERSS Assembly definitive design	19-Aug-14	25-Aug-14	5	5	0%	0	WRPS- Hanson, CE																	
HZA-165A3	Disposition review comments on ERSS Assembly definitive design	26-Aug-14	29-Aug-14	4	4	0%	0	WRPS- Hanson, CE																	
HZA-165A4	Finalize ERSS Assembly definitive design	02-Sep-14	22-Sep-14	15	15	0%	0	WRPS- Hanson, CE																	
HZA-165A5	Review, approve, and release ERSS Assembly definitive design	23-Sep-14	29-Sep-14	5	5	0%	0	WRPS- Hanson, CE																	
5.01.01.15.01.03 AY-102 Revised Pumping Plan																									
Update/Revise AY-102 Pumping Plan (PP)																									
HZA-010300	Update/Revise AY102 Pumping Plan (PP)	27-Jan-14 A	07-Mar-14 A	29	0																				
HZM-010300	Critical Decision DOE Authorize Restart of AY-102 Pumping	18-Feb-14 A		0	0	100%		WRPS- Guillot, SP																	
5.01.01.15.01.04 AY-102 Administrative Order & Appeal Support																									
Additional Administrative Order (10618) Scope																									
AO-14a	Provide All Docs Listed in the PP Attachment-A Not Previously Officially Transmitted to Ecology Admin Order (Item #1)		05-May-14 A	0	0	100%		WRPS- Guillot, SP																	
AO-14b	Submit All Technical Safety Requirements & Safety Basis Evaluations Used to Determine Rqmts Admin Order (Item #1)		05-May-14 A	0	0	100%		WRPS- Guillot, SP																	
HZA-010400x	Admin Order Support	02-Jun-14 A	20-Jun-14 A	15	0	100%		WRPS- Guillot, SP																	

■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

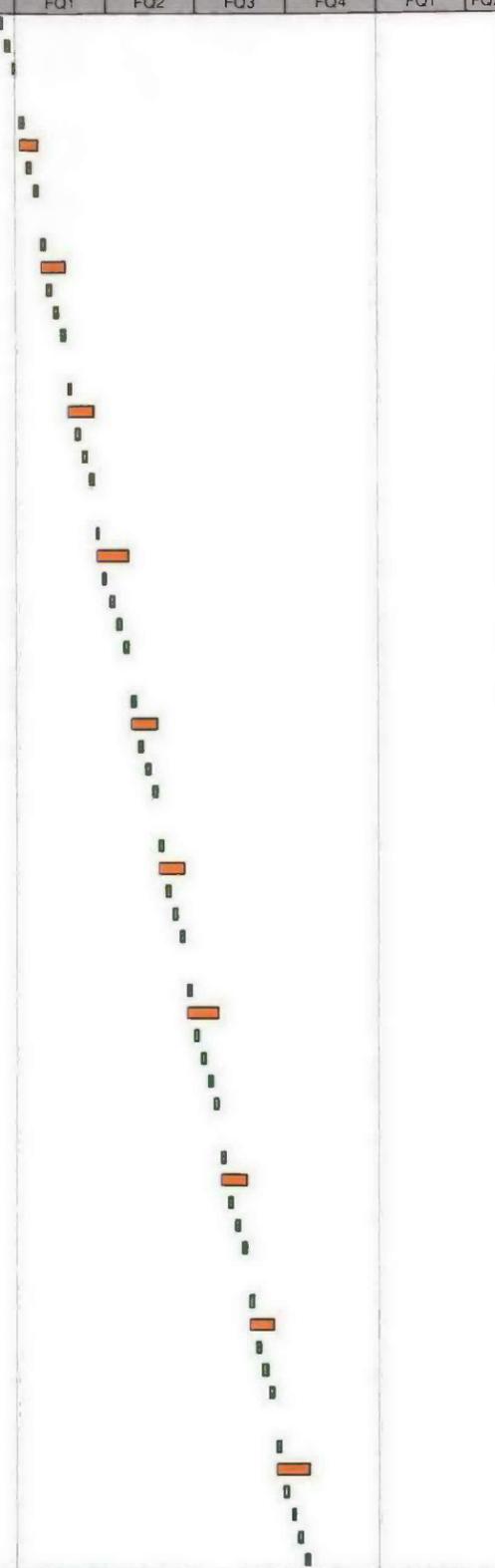
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017	
									FQ2	FQ3	FQ4		FQ1	FQ2	FQ3	FQ4		FQ1	FQ2	FQ3	FQ4	FQ1
AO-1215b4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	03-Nov-14	07-Nov-14	5	5	0%	59	WRPS- Strasser, DW														
AO-1215b5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	10-Nov-14	14-Nov-14	5	5	0%	59	WRPS- Strasser, DW														
AO-1215b6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	17-Nov-14	21-Nov-14	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Dec)																						
AO-1215c3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	24-Nov-14	26-Nov-14	3	3	0%	59	WRPS- Strasser, DW														
AO-1215c0	Perform Monthly Video Inspection of AY-102 Annulus	24-Nov-14	19-Dec-14	18	18	0%	59	WRPS- Strasser, DW														
AO-1215c4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	01-Dec-14	05-Dec-14	5	5	0%	59	WRPS- Strasser, DW														
AO-1215c5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	08-Dec-14	12-Dec-14	5	5	0%	59	WRPS- Strasser, DW														
AO-1215c6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	15-Dec-14	19-Dec-14	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Jan)																						
AO-1215d3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	22-Dec-14	26-Dec-14	3	3	0%	59	WRPS- Strasser, DW														
AO-1215d0	Perform Monthly Video Inspection of AY-102 Annulus	22-Dec-14	23-Jan-15	22	22	0%	59	WRPS- Strasser, DW														
AO-1215d4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	29-Dec-14	02-Jan-15	4	4	0%	59	WRPS- Strasser, DW														
AO-1215d5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	05-Jan-15	09-Jan-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215d6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	12-Jan-15	16-Jan-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215d7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	19-Jan-15	23-Jan-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Feb)																						
AO-1215e3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	26-Jan-15	30-Jan-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215e0	Perform Monthly Video Inspection of AY-102 Annulus	26-Jan-15	20-Feb-15	19	19	0%	59	WRPS- Strasser, DW														
AO-1215e4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	02-Feb-15	06-Feb-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215e5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	09-Feb-15	13-Feb-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215e6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	17-Feb-15	20-Feb-15	4	4	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Mar)																						
AO-1215f3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	23-Feb-15	27-Feb-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215f0	Perform Monthly Video Inspection of AY-102 Annulus	23-Feb-15	20-Mar-15	20	20	0%	59	WRPS- Strasser, DW														
AO-1215f4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	02-Mar-15	06-Mar-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215f5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	09-Mar-15	13-Mar-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215f6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	16-Mar-15	20-Mar-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Apr)																						
AO-1215g3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	23-Mar-15	27-Mar-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215g0	Perform Monthly Video Inspection of AY-102 Annulus	23-Mar-15	17-Apr-15	20	20	0%	59	WRPS- Strasser, DW														
AO-1215g4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	30-Mar-15	03-Apr-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215g5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	06-Apr-15	10-Apr-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215g6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	13-Apr-15	17-Apr-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (May)																						
AO-1215h3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	20-Apr-15	24-Apr-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215h0	Perform Monthly Video Inspection of AY-102 Annulus	20-Apr-15	22-May-15	25	25	0%	59	WRPS- Strasser, DW														
AO-1215h4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	27-Apr-15	01-May-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215h5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	04-May-15	08-May-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215h6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	11-May-15	15-May-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215h7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	18-May-15	22-May-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Jun)																						
AO-1215j3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	26-May-15	29-May-15	4	4	0%	59	WRPS- Strasser, DW														
AO-1215j0	Perform Monthly Video Inspection of AY-102 Annulus	26-May-15	19-Jun-15	19	19	0%	59	WRPS- Strasser, DW														
AO-1215j4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	01-Jun-15	05-Jun-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215j5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	08-Jun-15	12-Jun-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215j6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	15-Jun-15	19-Jun-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Jul)																						
AO-1215k3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	22-Jun-15	26-Jun-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215k0	Perform Monthly Video Inspection of AY-102 Annulus	22-Jun-15	24-Jul-15	24	24	0%	59	WRPS- Strasser, DW														
AO-1215k4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	29-Jun-15	02-Jul-15	4	4	0%	59	WRPS- Strasser, DW														
AO-1215k5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	06-Jul-15	10-Jul-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215k6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	13-Jul-15	17-Jul-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215k7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	20-Jul-15	24-Jul-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Aug)																						
AO-1215l3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	27-Jul-15	31-Jul-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215l0	Perform Monthly Video Inspection of AY-102 Annulus	27-Jul-15	21-Aug-15	20	20	0%	59	WRPS- Strasser, DW														
AO-1215l4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	03-Aug-15	07-Aug-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215l5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	10-Aug-15	14-Aug-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215l6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	17-Aug-15	21-Aug-15	5	5	0%	59	WRPS- Strasser, DW														
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Sep)																						
AO-1215m3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	24-Aug-15	28-Aug-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215m0	Perform Monthly Video Inspection of AY-102 Annulus	24-Aug-15	30-Sep-15	27	27	0%	59	WRPS- Strasser, DW														
AO-1215m4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	31-Aug-15	04-Sep-15	5	5	0%	59	WRPS- Strasser, DW														
AO-1215m5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	08-Sep-15	11-Sep-15	4	4	0%	59	WRPS- Strasser, DW														



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

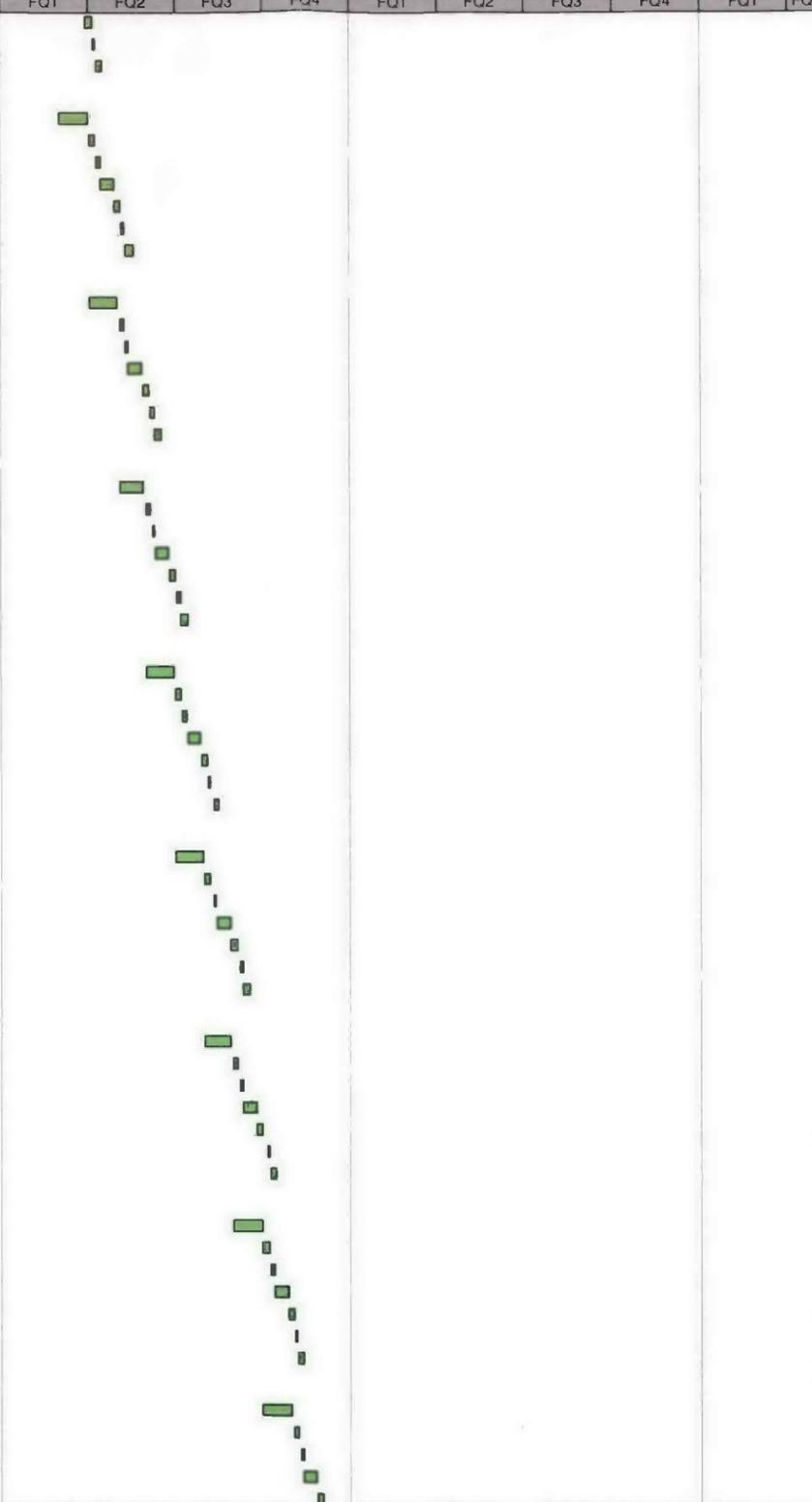
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2		
AO-1215m6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	14-Sep-15	18-Sep-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1215m7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	21-Sep-15	25-Sep-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1215m8	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	28-Sep-15	30-Sep-15	3	3	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Oct)																							
AO-1216a3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	05-Oct-15	09-Oct-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216a0	Perform Monthly Video Inspection of AY-102 Annulus	05-Oct-15	23-Oct-15	15	15	0%	59	WRPS- Strasser, DW															
AO-1216a4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	12-Oct-15	16-Oct-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216a5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	19-Oct-15	23-Oct-15	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Nov)																							
AO-1216b3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	26-Oct-15	30-Oct-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216b0	Perform Monthly Video Inspection of AY-102 Annulus	26-Oct-15	20-Nov-15	20	20	0%	59	WRPS- Strasser, DW															
AO-1216b4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	02-Nov-15	06-Nov-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216b5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	09-Nov-15	13-Nov-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216b6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	16-Nov-15	20-Nov-15	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Dec)																							
AO-1216c3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	23-Nov-15	25-Nov-15	3	3	0%	59	WRPS- Strasser, DW															
AO-1216c0	Perform Monthly Video Inspection of AY-102 Annulus	23-Nov-15	18-Dec-15	18	18	0%	59	WRPS- Strasser, DW															
AO-1216c4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	30-Nov-15	04-Dec-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216c5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	07-Dec-15	11-Dec-15	5	5	0%	59	WRPS- Strasser, DW															
AO-1216c6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	14-Dec-15	18-Dec-15	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Jan)																							
AO-1216d3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	21-Dec-15	23-Dec-15	3	3	0%	59	WRPS- Strasser, DW															
AO-1216d0	Perform Monthly Video Inspection of AY-102 Annulus	21-Dec-15	22-Jan-16	22	22	0%	59	WRPS- Strasser, DW															
AO-1216d4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	28-Dec-15	30-Dec-15	3	3	0%	59	WRPS- Strasser, DW															
AO-1216d5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	04-Jan-16	08-Jan-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216d6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	11-Jan-16	15-Jan-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216d7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	18-Jan-16	22-Jan-16	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Feb)																							
AO-1216e3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	25-Jan-16	29-Jan-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216e0	Perform Monthly Video Inspection of AY-102 Annulus	25-Jan-16	19-Feb-16	19	19	0%	59	WRPS- Strasser, DW															
AO-1216e4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	01-Feb-16	05-Feb-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216e5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	08-Feb-16	12-Feb-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216e6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	16-Feb-16	19-Feb-16	4	4	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Mar)																							
AO-1216f3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	22-Feb-16	26-Feb-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216f0	Perform Monthly Video Inspection of AY-102 Annulus	22-Feb-16	18-Mar-16	20	20	0%	59	WRPS- Strasser, DW															
AO-1216f4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	29-Feb-16	04-Mar-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216f5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	07-Mar-16	11-Mar-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216f6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	14-Mar-16	18-Mar-16	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Apr)																							
AO-1216g3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	21-Mar-16	25-Mar-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216g0	Perform Monthly Video Inspection of AY-102 Annulus	21-Mar-16	22-Apr-16	25	25	0%	59	WRPS- Strasser, DW															
AO-1216g4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	28-Mar-16	01-Apr-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216g5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	04-Apr-16	08-Apr-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216g6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	11-Apr-16	15-Apr-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216g7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	18-Apr-16	22-Apr-16	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (May)																							
AO-1216h3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	25-Apr-16	29-Apr-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216h0	Perform Monthly Video Inspection of AY-102 Annulus	25-Apr-16	20-May-16	20	20	0%	59	WRPS- Strasser, DW															
AO-1216h4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	02-May-16	06-May-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216h5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	09-May-16	13-May-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216h6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	16-May-16	20-May-16	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Jun)																							
AO-1216j3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	23-May-16	27-May-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216j0	Perform Monthly Video Inspection of AY-102 Annulus	23-May-16	17-Jun-16	19	19	0%	59	WRPS- Strasser, DW															
AO-1216j4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	31-May-16	03-Jun-16	4	4	0%	59	WRPS- Strasser, DW															
AO-1216j5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	06-Jun-16	10-Jun-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216j6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	13-Jun-16	17-Jun-16	5	5	0%	59	WRPS- Strasser, DW															
Perform Monthly & Weekly Video Inspections of the AY-102 Annulus (Jul)																							
AO-1216k3	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	20-Jun-16	24-Jun-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216k0	Perform Monthly Video Inspection of AY-102 Annulus	20-Jun-16	22-Jul-16	24	24	0%	59	WRPS- Strasser, DW															
AO-1216k4	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	27-Jun-16	01-Jul-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216k5	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	05-Jul-16	08-Jul-16	4	4	0%	59	WRPS- Strasser, DW															
AO-1216k6	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	11-Jul-16	15-Jul-16	5	5	0%	59	WRPS- Strasser, DW															
AO-1216k7	Perform Weekly Video Inspection of Current/Future Leak Sites in AY-102 Annulus	18-Jul-16	22-Jul-16	5	5	0%	59	WRPS- Strasser, DW															



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

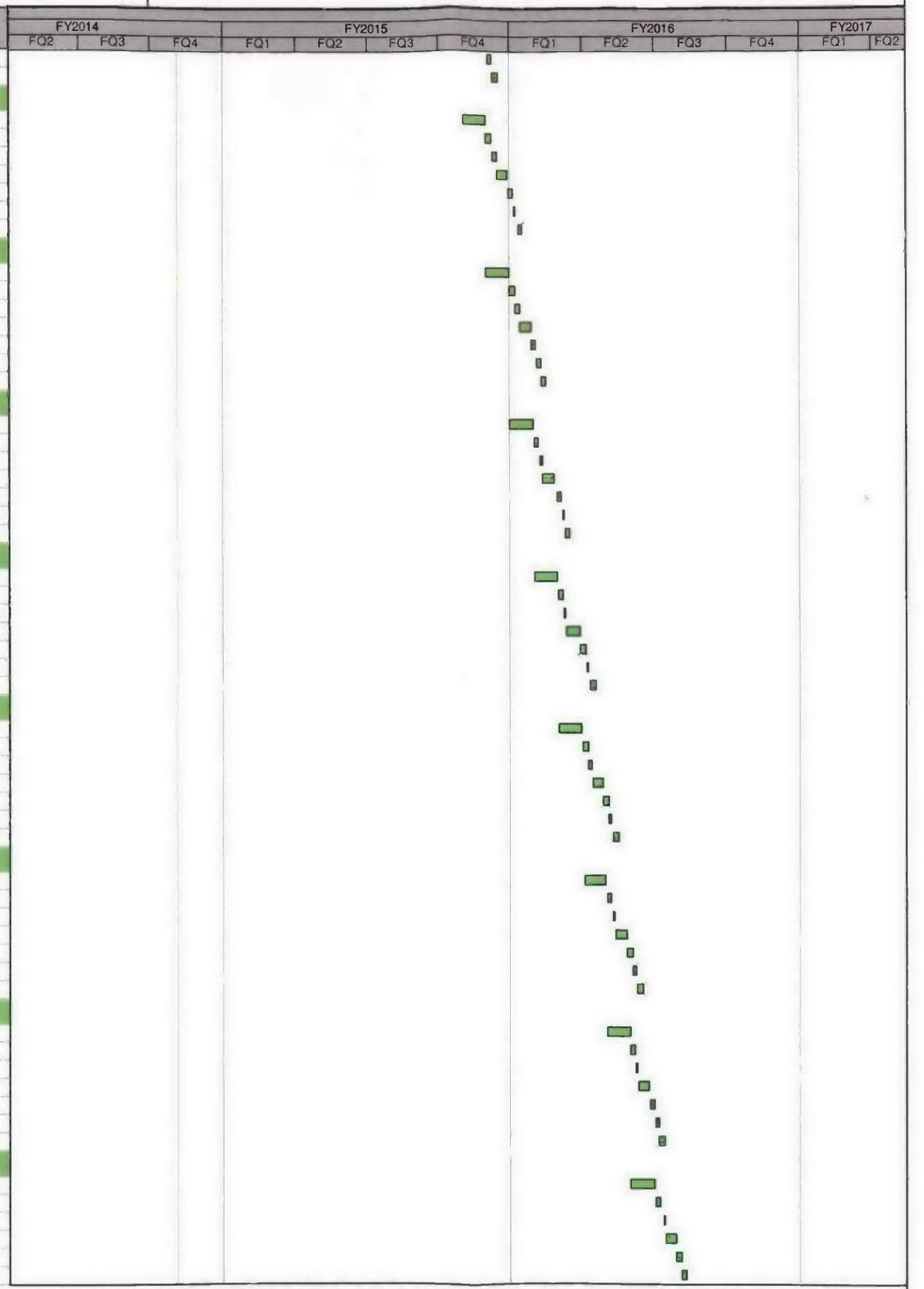
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2		
AO-1315b3	ORP Review of Monthly Report	29-Dec-14	05-Jan-15	5	5	0%	491	WRPS- Joyner, JA															
AO-1315b4	Incorporate ORP Comments into Monthly Report	06-Jan-15	08-Jan-15	3	3	0%	441	WRPS- Haas, C															
AO-1315b5	ORP/WRPS Transmit Monthly Report to Ecology	09-Jan-15	15-Jan-15	5	5	0%	441	WRPS- Joyner, JA															
Prep/Submit Dec Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315c1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Dec-14*	31-Dec-14	21	21	0%	469	WRPS- Houghton, DJ															
AO-1315c6	WRPS Review of Monthly Report	02-Jan-15	08-Jan-15	5	5	0%	469	WRPS- Joyner, JA															
AO-1315c7	Incorporate WRPS Comments into Monthly Report	09-Jan-15	13-Jan-15	3	3	0%	421	WRPS- Haas, C															
AO-1315c2	Prepare Monthly Report	14-Jan-15	27-Jan-15	10	10	0%	470	WRPS- Haas, C															
AO-1315c3	ORP Review of Monthly Report	28-Jan-15	03-Feb-15	5	5	0%	470	WRPS- Joyner, JA															
AO-1315c4	Incorporate ORP Comments into Monthly Report	04-Feb-15	06-Feb-15	3	3	0%	422	WRPS- Haas, C															
AO-1315c5	ORP/WRPS Transmit Monthly Report to Ecology	09-Feb-15	17-Feb-15	5	5	0%	422	WRPS- Joyner, JA															
Prep/Submit Jan Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315d1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	02-Jan-15*	30-Jan-15	21	21	0%	448	WRPS- Houghton, DJ															
AO-1315d6	WRPS Review of Monthly Report	02-Feb-15	06-Feb-15	5	5	0%	448	WRPS- Joyner, JA															
AO-1315d7	Incorporate WRPS Comments into Monthly Report	09-Feb-15	11-Feb-15	3	3	0%	402	WRPS- Haas, C															
AO-1315d2	Prepare Monthly Report	12-Feb-15	26-Feb-15	10	10	0%	449	WRPS- Haas, C															
AO-1315d3	ORP Review of Monthly Report	27-Feb-15	05-Mar-15	5	5	0%	449	WRPS- Joyner, JA															
AO-1315d4	Incorporate ORP Comments into Monthly Report	06-Mar-15	10-Mar-15	3	3	0%	403	WRPS- Haas, C															
AO-1315d5	ORP/WRPS Transmit Monthly Report to Ecology	11-Mar-15	18-Mar-15	5	5	0%	403	WRPS- Joyner, JA															
Prep/Submit Feb Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315e1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	02-Feb-15*	27-Feb-15	19	19	0%	429	WRPS- Houghton, DJ															
AO-1315e6	WRPS Review of Monthly Report	02-Mar-15	06-Mar-15	5	5	0%	429	WRPS- Joyner, JA															
AO-1315e7	Incorporate WRPS Comments into Monthly Report	09-Mar-15	11-Mar-15	3	3	0%	385	WRPS- Haas, C															
AO-1315e2	Prepare Monthly Report	12-Mar-15	25-Mar-15	10	10	0%	430	WRPS- Haas, C															
AO-1315e3	ORP Review of Monthly Report	26-Mar-15	01-Apr-15	5	5	0%	430	WRPS- Joyner, JA															
AO-1315e4	Incorporate ORP Comments into Monthly Report	02-Apr-15	06-Apr-15	3	3	0%	386	WRPS- Haas, C															
AO-1315e5	ORP/WRPS Transmit Monthly Report to Ecology	07-Apr-15	14-Apr-15	5	5	0%	386	WRPS- Joyner, JA															
Prep/Submit Mar Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315f1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	02-Mar-15*	31-Mar-15	22	22	0%	407	WRPS- Houghton, DJ															
AO-1315f6	WRPS Review of Monthly Report	01-Apr-15	07-Apr-15	5	5	0%	407	WRPS- Joyner, JA															
AO-1315f7	Incorporate WRPS Comments into Monthly Report	08-Apr-15	13-Apr-15	3	3	0%	365	WRPS- Haas, C															
AO-1315f2	Prepare Monthly Report	14-Apr-15	27-Apr-15	10	10	0%	407	WRPS- Haas, C															
AO-1315f3	ORP Review of Monthly Report	28-Apr-15	04-May-15	5	5	0%	407	WRPS- Joyner, JA															
AO-1315f4	Incorporate ORP Comments into Monthly Report	05-May-15	07-May-15	3	3	0%	365	WRPS- Haas, C															
AO-1315f5	ORP/WRPS Transmit Monthly Report to Ecology	11-May-15	15-May-15	5	5	0%	365	WRPS- Joyner, JA															
Prep/Submit Apr Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315g1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Apr-15*	30-Apr-15	22	22	0%	385	WRPS- Houghton, DJ															
AO-1315g6	WRPS Review of Monthly Report	01-May-15	07-May-15	5	5	0%	385	WRPS- Joyner, JA															
AO-1315g7	Incorporate WRPS Comments into Monthly Report	11-May-15	13-May-15	3	3	0%	345	WRPS- Haas, C															
AO-1315g2	Prepare Monthly Report	14-May-15	28-May-15	10	10	0%	385	WRPS- Haas, C															
AO-1315g3	ORP Review of Monthly Report	29-May-15	04-Jun-15	5	5	0%	385	WRPS- Joyner, JA															
AO-1315g4	Incorporate ORP Comments into Monthly Report	08-Jun-15	10-Jun-15	3	3	0%	345	WRPS- Haas, C															
AO-1315g5	ORP/WRPS Transmit Monthly Report to Ecology	11-Jun-15	17-Jun-15	5	5	0%	345	WRPS- Joyner, JA															
Prep/Submit May Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315h1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-May-15*	29-May-15	20	20	0%	365	WRPS- Houghton, DJ															
AO-1315h6	WRPS Review of Monthly Report	01-Jun-15	05-Jun-15	5	5	0%	365	WRPS- Joyner, JA															
AO-1315h7	Incorporate WRPS Comments into Monthly Report	08-Jun-15	10-Jun-15	3	3	0%	326	WRPS- Haas, C															
AO-1315h2	Prepare Monthly Report	11-Jun-15	24-Jun-15	10	10	0%	366	WRPS- Haas, C															
AO-1315h3	ORP Review of Monthly Report	25-Jun-15	01-Jul-15	5	5	0%	366	WRPS- Joyner, JA															
AO-1315h4	Incorporate ORP Comments into Monthly Report	06-Jul-15	08-Jul-15	3	3	0%	326	WRPS- Haas, C															
AO-1315h5	ORP/WRPS Transmit Monthly Report to Ecology	09-Jul-15	15-Jul-15	5	5	0%	326	WRPS- Joyner, JA															
Prep/Submit Jun Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315j1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Jun-15*	30-Jun-15	22	22	0%	343	WRPS- Houghton, DJ															
AO-1315j6	WRPS Review of Monthly Report	01-Jul-15	08-Jul-15	5	5	0%	343	WRPS- Joyner, JA															
AO-1315j7	Incorporate WRPS Comments into Monthly Report	09-Jul-15	13-Jul-15	3	3	0%	308	WRPS- Haas, C															
AO-1315j2	Prepare Monthly Report	14-Jul-15	27-Jul-15	10	10	0%	344	WRPS- Haas, C															
AO-1315j3	ORP Review of Monthly Report	28-Jul-15	03-Aug-15	5	5	0%	344	WRPS- Joyner, JA															
AO-1315j4	Incorporate ORP Comments into Monthly Report	04-Aug-15	06-Aug-15	3	3	0%	309	WRPS- Haas, C															
AO-1315j5	ORP/WRPS Transmit Monthly Report to Ecology	07-Aug-15	13-Aug-15	5	5	0%	309	WRPS- Joyner, JA															
Prep/Submit Jul Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315k1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Jul-15*	31-Jul-15	22	22	0%	321	WRPS- Houghton, DJ															
AO-1315k6	WRPS Review of Monthly Report	03-Aug-15	07-Aug-15	5	5	0%	321	WRPS- Joyner, JA															
AO-1315k7	Incorporate WRPS Comments into Monthly Report	10-Aug-15	12-Aug-15	3	3	0%	288	WRPS- Haas, C															
AO-1315k2	Prepare Monthly Report	13-Aug-15	26-Aug-15	10	10	0%	322	WRPS- Haas, C															
AO-1315k3	ORP Review of Monthly Report	27-Aug-15	02-Sep-15	5	5	0%	322	WRPS- Joyner, JA															



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

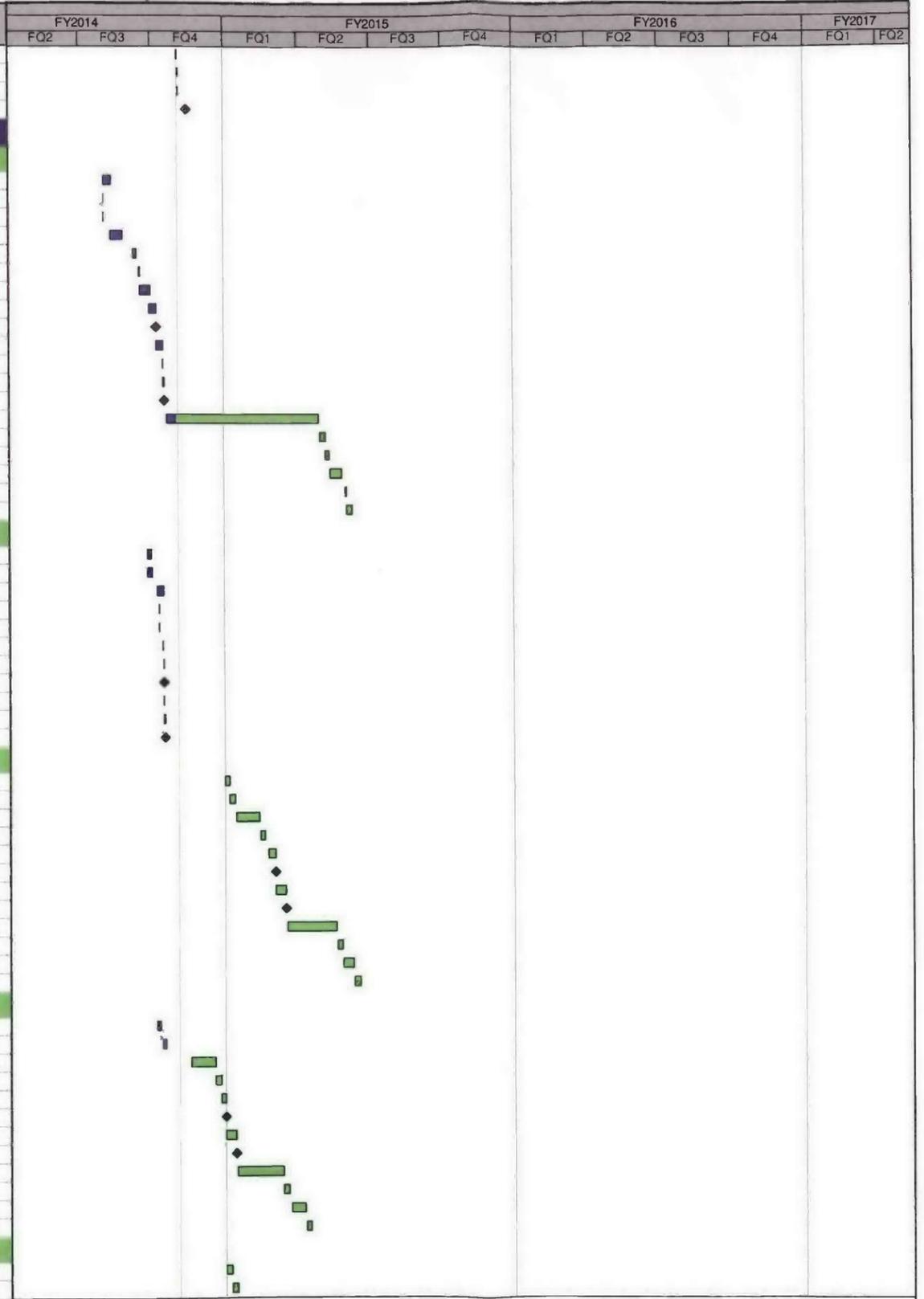
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2		
AO-1315k4	Incorporate ORP Comments into Monthly Report	03-Sep-15	08-Sep-15	3	3	0%	289	WRPS- Haas, C															
AO-1315k5	ORP/WRPS Transmit Monthly Report to Ecology	09-Sep-15	16-Sep-15	5	5	0%	289	WRPS- Joyner, JA															
Prep/Submit Aug Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315l1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	03-Aug-15*	31-Aug-15	21	21	0%	300	WRPS- Houghton, DJ															
AO-1315l6	WRPS Review of Monthly Report	01-Sep-15	08-Sep-15	5	5	0%	300	WRPS- Joyner, JA															
AO-1315l7	Incorporate WRPS Comments into Monthly Report	09-Sep-15	14-Sep-15	3	3	0%	269	WRPS- Haas, C															
AO-1315l2	Prepare Monthly Report	15-Sep-15	28-Sep-15	10	10	0%	300	WRPS- Haas, C															
AO-1315l3	ORP Review of Monthly Report	29-Sep-15	05-Oct-15	5	5	0%	300	WRPS- Joyner, JA															
AO-1315l4	Incorporate ORP Comments into Monthly Report	06-Oct-15	08-Oct-15	3	3	0%	269	WRPS- Haas, C															
AO-1315l5	ORP/WRPS Transmit Monthly Report to Ecology	12-Oct-15	16-Oct-15	5	5	0%	269	WRPS- Joyner, JA															
Prep/Submit Sep Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1315m1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Sep-15*	30-Sep-15	21	21	0%	279	WRPS- Houghton, DJ															
AO-1315m6	WRPS Review of Monthly Report	01-Oct-15	07-Oct-15	5	5	0%	279	WRPS- Joyner, JA															
AO-1315m7	Incorporate WRPS Comments into Monthly Report	08-Oct-15	13-Oct-15	3	3	0%	250	WRPS- Haas, C															
AO-1315m2	Prepare Monthly Report	14-Oct-15	27-Oct-15	10	10	0%	279	WRPS- Haas, C															
AO-1315m3	ORP Review of Monthly Report	28-Oct-15	03-Nov-15	5	5	0%	279	WRPS- Joyner, JA															
AO-1315m4	Incorporate ORP Comments into Monthly Report	04-Nov-15	09-Nov-15	3	3	0%	250	WRPS- Haas, C															
AO-1315m5	ORP/WRPS Transmit Monthly Report to Ecology	10-Nov-15	16-Nov-15	5	5	0%	250	WRPS- Joyner, JA															
Prep/Submit Oct Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1316a1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Oct-15*	30-Oct-15	22	22	0%	257	WRPS- Houghton, DJ															
AO-1316a6	WRPS Review of Monthly Report	02-Nov-15	06-Nov-15	5	5	0%	257	WRPS- Joyner, JA															
AO-1316a7	Incorporate WRPS Comments into Monthly Report	09-Nov-15	11-Nov-15	3	3	0%	231	WRPS- Haas, C															
AO-1316a2	Prepare Monthly Report	12-Nov-15	25-Nov-15	10	10	0%	258	WRPS- Haas, C															
AO-1316a3	ORP Review of Monthly Report	30-Nov-15	04-Dec-15	5	5	0%	258	WRPS- Joyner, JA															
AO-1316a4	Incorporate ORP Comments into Monthly Report	07-Dec-15	09-Dec-15	3	3	0%	232	WRPS- Haas, C															
AO-1316a5	ORP/WRPS Transmit Monthly Report to Ecology	10-Dec-15	16-Dec-15	5	5	0%	232	WRPS- Joyner, JA															
Prep/Submit Nov Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1316b1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	02-Nov-15*	30-Nov-15	19	19	0%	238	WRPS- Houghton, DJ															
AO-1316b6	WRPS Review of Monthly Report	01-Dec-15	07-Dec-15	5	5	0%	238	WRPS- Joyner, JA															
AO-1316b7	Incorporate WRPS Comments into Monthly Report	08-Dec-15	10-Dec-15	3	3	0%	214	WRPS- Haas, C															
AO-1316b2	Prepare Monthly Report	11-Dec-15	28-Dec-15	10	10	0%	239	WRPS- Haas, C															
AO-1316b3	ORP Review of Monthly Report	29-Dec-15	05-Jan-16	5	5	0%	239	WRPS- Joyner, JA															
AO-1316b4	Incorporate ORP Comments into Monthly Report	06-Jan-16	08-Jan-16	3	3	0%	215	WRPS- Haas, C															
AO-1316b5	ORP/WRPS Transmit Monthly Report to Ecology	11-Jan-16	18-Jan-16	5	5	0%	215	WRPS- Joyner, JA															
Prep/Submit Dec Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1316c1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Dec-15*	30-Dec-15	20	20	0%	218	WRPS- Houghton, DJ															
AO-1316c6	WRPS Review of Monthly Report	01-Jan-16	07-Jan-16	5	5	0%	218	WRPS- Joyner, JA															
AO-1316c7	Incorporate WRPS Comments into Monthly Report	08-Jan-16	12-Jan-16	3	3	0%	196	WRPS- Haas, C															
AO-1316c2	Prepare Monthly Report	13-Jan-16	26-Jan-16	10	10	0%	219	WRPS- Haas, C															
AO-1316c3	ORP Review of Monthly Report	27-Jan-16	02-Feb-16	5	5	0%	219	WRPS- Joyner, JA															
AO-1316c4	Incorporate ORP Comments into Monthly Report	03-Feb-16	05-Feb-16	3	3	0%	197	WRPS- Haas, C															
AO-1316c5	ORP/WRPS Transmit Monthly Report to Ecology	08-Feb-16	16-Feb-16	5	5	0%	197	WRPS- Joyner, JA															
Prep/Submit Jan Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1316d1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	04-Jan-16*	29-Jan-16	20	20	0%	197	WRPS- Houghton, DJ															
AO-1316d6	WRPS Review of Monthly Report	01-Feb-16	05-Feb-16	5	5	0%	197	WRPS- Joyner, JA															
AO-1316d7	Incorporate WRPS Comments into Monthly Report	08-Feb-16	10-Feb-16	3	3	0%	177	WRPS- Haas, C															
AO-1316d2	Prepare Monthly Report	11-Feb-16	25-Feb-16	10	10	0%	198	WRPS- Haas, C															
AO-1316d3	ORP Review of Monthly Report	26-Feb-16	03-Mar-16	5	5	0%	198	WRPS- Joyner, JA															
AO-1316d4	Incorporate ORP Comments into Monthly Report	04-Mar-16	08-Mar-16	3	3	0%	178	WRPS- Haas, C															
AO-1316d5	ORP/WRPS Transmit Monthly Report to Ecology	09-Mar-16	16-Mar-16	5	5	0%	178	WRPS- Joyner, JA															
Prep/Submit Feb Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1316e1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Feb-16*	29-Feb-16	20	20	0%	177	WRPS- Houghton, DJ															
AO-1316e6	WRPS Review of Monthly Report	01-Mar-16	07-Mar-16	5	5	0%	177	WRPS- Joyner, JA															
AO-1316e7	Incorporate WRPS Comments into Monthly Report	08-Mar-16	10-Mar-16	3	3	0%	159	WRPS- Haas, C															
AO-1316e2	Prepare Monthly Report	11-Mar-16	24-Mar-16	10	10	0%	178	WRPS- Haas, C															
AO-1316e3	ORP Review of Monthly Report	25-Mar-16	31-Mar-16	5	5	0%	178	WRPS- Joyner, JA															
AO-1316e4	Incorporate ORP Comments into Monthly Report	01-Apr-16	05-Apr-16	3	3	0%	160	WRPS- Haas, C															
AO-1316e5	ORP/WRPS Transmit Monthly Report to Ecology	06-Apr-16	13-Apr-16	5	5	0%	160	WRPS- Joyner, JA															
Prep/Submit Mar Monthly Report of Visual/Video Inspections, CAM, ENRAF Readings to Ecolog																							
AO-1316f1	Gather Data (Visual, Video Annulus & Vent sys, CAM & ENRAF Readings/Calibrations, Sampling & Heat Monitoring R	01-Mar-16*	31-Mar-16	23	23	0%	154	WRPS- Houghton, DJ															
AO-1316f6	WRPS Review of Monthly Report	01-Apr-16	07-Apr-16	5	5	0%	154	WRPS- Joyner, JA															
AO-1316f7	Incorporate WRPS Comments into Monthly Report	11-Apr-16	13-Apr-16	3	3	0%	138	WRPS- Haas, C															
AO-1316f2	Prepare Monthly Report	14-Apr-16	27-Apr-16	10	10	0%	154	WRPS- Haas, C															
AO-1316f3	ORP Review of Monthly Report	28-Apr-16	04-May-16	5	5	0%	154	WRPS- Joyner, JA															
AO-1316f4	Incorporate ORP Comments into Monthly Report	05-May-16	10-May-16	3	3	0%	138	WRPS- Haas, C															



■ Remaining Work
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■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

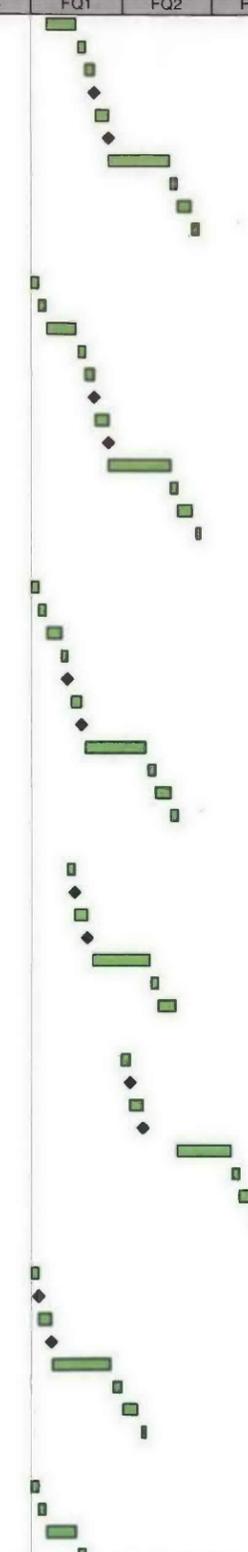
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017			
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2			
AO-2H	Install Temp Cooling	04-Aug-14	04-Aug-14	1	1	0%	7	WRPS- Anderson, CG																
AO-2J	FW: Install	05-Aug-14	05-Aug-14	1	1	0%	7	WRPS- Anderson, CG																
AO-2K	Dispose	05-Aug-14	06-Aug-14	2	2	0%	7	WRPS- Anderson, CG																
AO-2	Isolate AY-02A Pt Administrative Order (Item #2)		15-Aug-14*	0	0	0%	0	WRPS- Strasser, DW																
5.01.01.15.02.01 AY-102 Misc. Procurement & Support																								
Procurement of Isolation Valves																								
HZA-230A10A	Prepare Draft Commercial Grade Dedication (CGD)	03-May-14 A	12-May-14 A	5	0	100%		WRPS- Robinson, RS																
HZA-230A10B	Prepare Draft Survey Plan/Checklist	03-May-14 A	03-May-14 A	1	0	100%		WRPS- Robinson, RS																
HZA-230A10C	Execute Survey/Prepare Report	03-May-14 A	03-May-14 A	1	0	100%		WRPS- Robinson, RS																
HZA-230A10D	Incorporate Comments/Obtain Initial CGD Approvals	12-May-14 A	27-May-14 A	5	0	100%		WRPS- Robinson, RS																
HZA-230A101	Prepare MR (14-02500)	09-Jun-14 A	13-Jun-14 A	5	0	100%		WRPS- Lau, E																
HZA-230A102	Review MR	16-Jun-14 A	17-Jun-14 A	2	0	100%		WRPS- Lau, E																
HZA-230A103	Incorporate Review Comments into MR-14-02500	18-Jun-14 A	30-Jun-14 A	5	0	100%		WRPS- Lau, E																
HZA-230A104	Buyer Obtain Approvals & Issue MR	30-Jun-14 A	07-Jul-14 A	5	0	100%		WRPS- Lau, E																
HZA-230A105	RFP Issued		07-Jul-14 A	0	0	100%		WRPS- Lau, E																
HZA-230A106	Vendor Prepare & Submit Proposal	08-Jul-14 A	16-Jul-14 A	10	0	100%		WRPS- Lau, E																
HZA-230A107	Evaluate Vendor Proposals (TE)	16-Jul-14 A	16-Jul-14 A	2	0	100%		WRPS- Robinson, RS																
HZA-230A108	Prepare Contract (BTR)	17-Jul-14 A	18-Jul-14 A	4	0	100%		WRPS- Lau, E																
HZA-230A109	Award Contract to Selected Vendor (BTR) for Isolation Valves Procurement (54562)		18-Jul-14 A	0	0	100%		WRPS- Lau, E																
HZA-230A110	Procure Isolation Valves	21-Jul-14 A	28-Jan-15	120	110	6%	51	WRPS- Robinson, RS																
HZA-230A111	Ship Isolation Valves	29-Jan-15	05-Feb-15	5	5	0%	51	WRPS- Robinson, RS																
HZA-230A112	AVS Perform Receipt Inspection for Isolation Valves	06-Feb-15	10-Feb-15	3	3	0%	51	WRPS- Robinson, RS																
HZA-230A113	WRPS Dedication Activities (Green Tag & Staging)	11-Feb-15	26-Feb-15	10	10	0%	51	WRPS- Robinson, RS																
HZA-230A114	Deliver Isolation Valves to Fabricator	02-Mar-15	03-Mar-15	2	2	0%	51	WRPS- Robinson, RS																
HZA-230A115	CGD Package Closure	04-Mar-15	10-Mar-15	5	5	0%	163	WRPS- Robinson, RS																
Procurement of Flow Control Valves (60 degree V notch Ball Valves)																								
HZA-230a23	Prepare MR	26-Jun-14 A	01-Jul-14 A	5	0	100%		WRPS- Lau, E																
HZA-230a21	Prepare Draft Commercial Grade Dedication (CGD)	26-Jun-14 A	02-Jul-14 A	5	0	100%		WRPS- Robinson, RS																
HZA-230a28	Vendor Prepare & Submit Proposal	08-Jul-14 A	16-Jul-14 A	3	0	100%		WRPS- Lau, E																
HZA-230a24	Review MR	11-Jul-14 A	11-Jul-14 A	1	0	100%		WRPS- Lau, E																
HZA-230a22	Incorporate Comments/Obtain Initial CGD Approvals	11-Jul-14 A	11-Jul-14 A	1	0	100%		WRPS- Robinson, RS																
HZA-230a25	Incorporate Review Comments into MR-14-02500	15-Jul-14 A	15-Jul-14 A	2	0	100%		WRPS- Lau, E																
HZA-230a26	Buyer Obtain Approvals & Issue MR	16-Jul-14 A	16-Jul-14 A	3	0	100%		WRPS- Lau, E																
HZA-230a27	RFP Issued		16-Jul-14 A	0	0	100%		WRPS- Lau, E																
HZA-230a29	Evaluate Vendor Proposals (TE)	16-Jul-14 A	16-Jul-14 A	1	0	100%		WRPS- Robinson, RS																
HZA-230a2A	Prepare Contract (BTR)	17-Jul-14 A	18-Jul-14 A	6	0	100%		WRPS- Lau, E																
HZA-230a2B	Award Contract to Selected Vendor (BTR) for Isolation Valves Procurement		18-Jul-14 A	0	0	100%		WRPS- Lau, E																
Procurement of ERSS Filters																								
HZA-230B0A	Prepare Draft Commercial Grade Dedication (CGD)	30-Sep-14	06-Oct-14	5	5	0%	34	WRPS- Robinson, RS																
HZA-230B0B	Prepare Draft Survey Plan/Checklist	07-Oct-14	14-Oct-14	5	5	0%	34	WRPS- Robinson, RS																
HZA-230B0C	Execute Survey/Prepare Report	15-Oct-14	13-Nov-14	20	20	0%	34	WRPS- Robinson, RS																
HZA-230B0D	Incorporate Comments/Obtain Initial CGD Approvals	14-Nov-14	20-Nov-14	5	5	0%	34	WRPS- Robinson, RS																
HZA-230B01	Prepare Requisition	24-Nov-14	02-Dec-14	5	5	0%	34	WRPS- Lau, E																
HZA-230B02	Requisition Complete		02-Dec-14	0	0	0%	34	WRPS- Lau, E																
HZA-230B03	Place Purchase Order	03-Dec-14	16-Dec-14	9	9	0%	34	WRPS- Lau, E																
HZA-230B04	Purchase Order Complete		16-Dec-14	0	0	0%	34	WRPS- Lau, E																
HZA-230B05	Procure Filters for ERSS	17-Dec-14	17-Feb-15	36	36	0%	34	WRPS- Robinson, RS																
HZA-230B06	AVS Receipt Inspection	18-Feb-15	24-Feb-15	5	5	0%	34	WRPS- Robinson, RS																
HZA-230B07	WRPS Dedication Activities (Green Tag & Staging)	25-Feb-15	11-Mar-15	10	10	0%	34	WRPS- Robinson, RS																
HZA-230B08	CGD Package Closure	12-Mar-15	19-Mar-15	5	5	0%	157	WRPS- Robinson, RS																
Procurement of Flow Meters for SL & SN Pumps																								
HZA-230C0A	Prepare Advanced Procurement Commercial Grade Dedication (CGD)	07-Jul-14 A	11-Jul-14 A	5	0	100%		WRPS- Robinson, RS																
HZA-230C0B	Prepare Draft Survey Plan/Checklist	14-Jul-14 A	18-Jul-14 A	5	0	100%		WRPS- Robinson, RS																
HZA-230C0C	Execute Survey/Prepare Report	18-Aug-14*	17-Sep-14	20	20	0%	124	WRPS- Robinson, RS																
HZA-230C0D	Incorporate Comments/Obtain Initial CGD Approvals	18-Sep-14	24-Sep-14	5	5	0%	124	WRPS- Robinson, RS																
HZA-230C01	Prepare Requisition	25-Sep-14	30-Sep-14	3	3	0%	124	WRPS- Lau, E																
HZA-230C02	Requisition Complete		30-Sep-14	0	0	0%	124	WRPS- Lau, E																
HZA-230C03	Place Purchase Order	01-Oct-14	14-Oct-14	9	9	0%	124	WRPS- Lau, E																
HZA-230C04	Purchase Order Complete		14-Oct-14	0	0	0%	124	WRPS- Lau, E																
HZA-230C05	Procure Flow Meters	15-Oct-14	11-Dec-14	36	36	0%	124	WRPS- Robinson, RS																
HZA-230C06	AVS Receipt Inspection	12-Dec-14	18-Dec-14	5	5	0%	124	WRPS- Robinson, RS																
HZA-230C07	WRPS Dedication Activities (Green Tag & Staging)	22-Dec-14	08-Jan-15	10	10	0%	124	WRPS- Robinson, RS																
HZA-230C08	CGD Package Closure	09-Jan-15	15-Jan-15	5	5	0%	196	WRPS- Robinson, RS																
Procurement of Pressure Indicators for Pumps																								
HZA-230D0A	Prepare Draft Commercial Grade Dedication (CGD)	01-Oct-14	07-Oct-14	5	5	0%	45	WRPS- Robinson, RS																
HZA-230D0B	Prepare Draft Survey Plan/Checklist	08-Oct-14	15-Oct-14	5	5	0%	45	WRPS- Robinson, RS																



Remaining Work
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Detailed Schedule

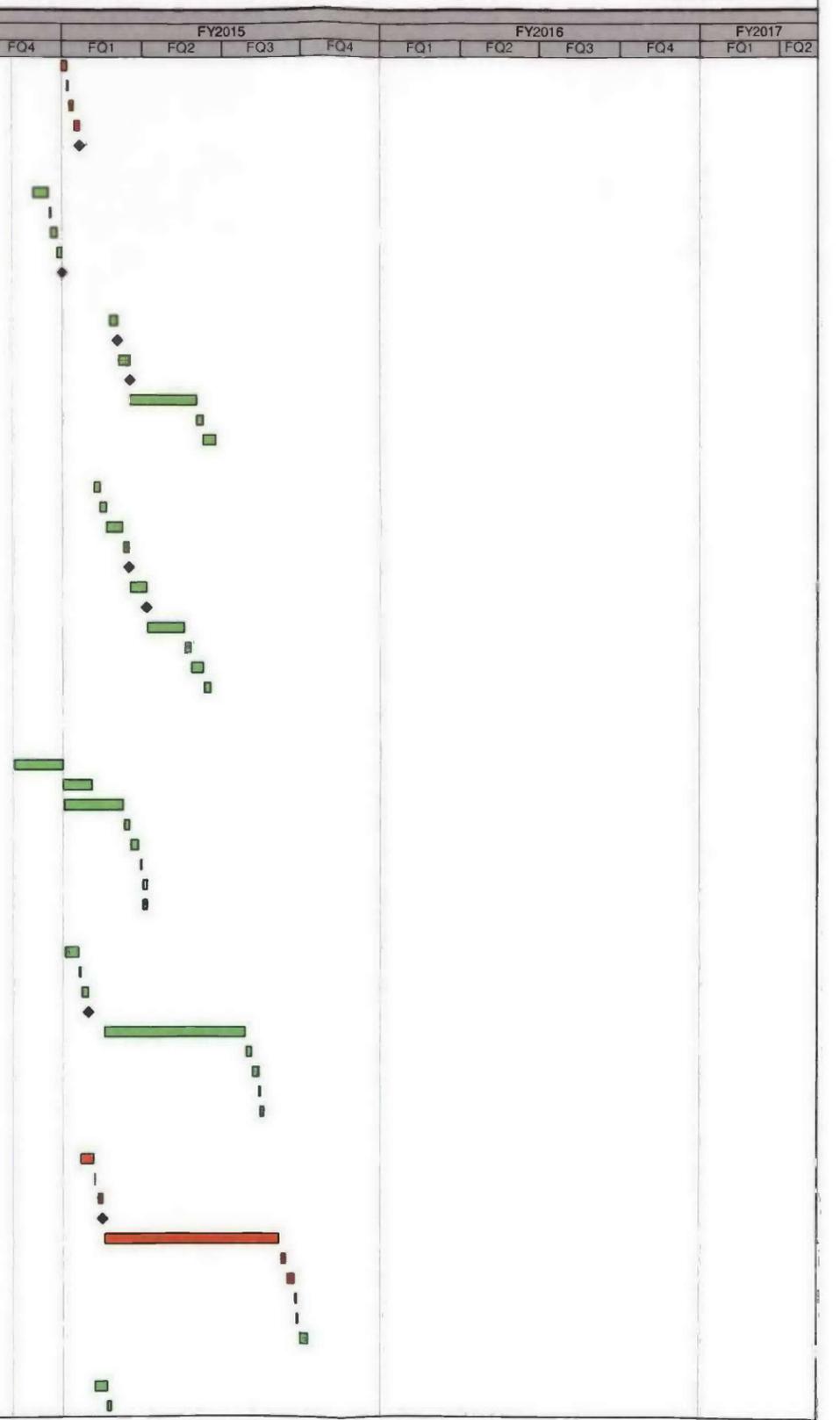
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014		FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2
HZA-230D0C	Execute Survey/Prepare Report	16-Oct-14	14-Nov-14	20	20	0%	45	WRPS- Robinson, RS													
HZA-230D0D	Incorporate Comments/Obtain Initial CGD Approvals	17-Nov-14	24-Nov-14	5	5	0%	45	WRPS- Robinson, RS													
HZA-230D01	Prepare Requisition	25-Nov-14	03-Dec-14	5	5	0%	45	WRPS- Lau, E													
HZA-230D02	Requisition Complete		03-Dec-14	0	0	0%	74	WRPS- Lau, E													
HZA-230D03	Place Purchase Order	04-Dec-14	17-Dec-14	9	9	0%	74	WRPS- Lau, E													
HZA-230D04	Purchase Order Complete		17-Dec-14	0	0	0%	74	WRPS- Lau, E													
HZA-230D05	Procure Pressure Indicators	18-Dec-14	17-Feb-15	40	40	0%	83	WRPS- Robinson, RS													
HZA-230D06	AVS Receipt Inspection	18-Feb-15	24-Feb-15	5	5	0%	75	WRPS- Robinson, RS													
HZA-230D07	WRPS Dedication Activities (Green Tag & Staging)	25-Feb-15	11-Mar-15	10	10	0%	75	WRPS- Robinson, RS													
HZA-230D08	CGD Package Closure	12-Mar-15	19-Mar-15	5	5	0%	157	WRPS- Robinson, RS													
Procurement of Gasket Materials		01-Oct-14	20-Mar-15	105	105		156														
HZA-230E0A	Prepare Draft Commercial Grade Dedication (CGD) (May be deleted)	01-Oct-14*	07-Oct-14	5	5	0%	156	WRPS- Robinson, RS													
HZA-230E0B	Prepare Draft Survey Plan/Checklist	08-Oct-14	15-Oct-14	5	5	0%	156	WRPS- Robinson, RS													
HZA-230E0C	Execute Survey/Prepare Report	16-Oct-14	14-Nov-14	20	20	0%	156	WRPS- Robinson, RS													
HZA-230E0D	Incorporate Comments/Obtain Initial CGD Approvals	17-Nov-14	24-Nov-14	5	5	0%	156	WRPS- Robinson, RS													
HZA-230E01	Prepare Requisition	25-Nov-14	03-Dec-14	5	5	0%	156	WRPS- Lau, E													
HZA-230E02	Requisition Complete		03-Dec-14	0	0	0%	156	WRPS- Lau, E													
HZA-230E03	Place Purchase Order	04-Dec-14	17-Dec-14	9	9	0%	156	WRPS- Lau, E													
HZA-230E04	Purchase Order Complete		17-Dec-14	0	0	0%	156	WRPS- Lau, E													
HZA-230E05	Procure Gasket Material	18-Dec-14	18-Feb-15	36	36	0%	156	WRPS- Robinson, RS													
HZA-230E06	AVS Receipt Inspection	19-Feb-15	25-Feb-15	5	5	0%	156	WRPS- Robinson, RS													
HZA-230E07	WRPS Dedication Activities (Green Tag & Staging)	26-Feb-15	12-Mar-15	10	10	0%	156	WRPS- Robinson, RS													
HZA-230E08	CGD Package Closure	16-Mar-15	20-Mar-15	5	5	0%	156	WRPS- Robinson, RS													
Procurement of Purex Nozzles, Connector Heads & Connector Assemblies		01-Oct-14	25-Feb-15	90	90		171														
HZA-230F0A	Prepare Draft Commercial Grade Dedication (CGD)	01-Oct-14*	07-Oct-14	5	5	0%	35	WRPS- Robinson, RS													
HZA-230F0D	Incorporate Comments/Obtain Initial CGD Approvals	08-Oct-14	15-Oct-14	5	5	0%	35	WRPS- Robinson, RS													
HZA-230F0E	WRPS Dedication Activities (Green Tag & Staging)	16-Oct-14	30-Oct-14	10	10	0%	35	WRPS- Robinson, RS													
HZA-230F01	Prepare Requisition	31-Oct-14	06-Nov-14	5	5	0%	35	WRPS- Lau, E													
HZA-230F02	Requisition Complete		06-Nov-14	0	0	0%	35	WRPS- Lau, E													
HZA-230F03	Place Purchase Order	10-Nov-14	20-Nov-14	9	9	0%	35	WRPS- Lau, E													
HZA-230F04	Purchase Order Complete		20-Nov-14	0	0	0%	35	WRPS- Lau, E													
HZA-230F05	Procure Purex Nozzles, Connector Heads & Assemblies	24-Nov-14	23-Jan-15	36	36	0%	35	WRPS- Robinson, RS													
HZA-230F06	AVS Receipt Inspection	26-Jan-15	02-Feb-15	5	5	0%	35	WRPS- Robinson, RS													
HZA-230F07	WRPS Dedication Activities (Green Tag & Staging)	03-Feb-15	18-Feb-15	10	10	0%	35	WRPS- Robinson, RS													
HZA-230F08	CGD Package Closure	19-Feb-15	25-Feb-15	5	5	0%	171	WRPS- Robinson, RS													
Procurement of TFE Gaskets for Purex Connectors		05-Nov-14	23-Feb-15	65	65		32														
HZA-230G01	Prepare Requisition	05-Nov-14	12-Nov-14	5	5	0%	32	WRPS- Lau, E													
HZA-230G02	Requisition Complete		12-Nov-14	0	0	0%	32	WRPS- Lau, E													
HZA-230G03	Place Purchase Order	13-Nov-14	26-Nov-14	9	9	0%	32	WRPS- Lau, E													
HZA-230G04	Purchase Order Complete		26-Nov-14	0	0	0%	32	WRPS- Lau, E													
HZA-230G05	Procure TFE Gaskets for Purex Connectors	01-Dec-14	28-Jan-15	36	36	0%	32	WRPS- Robinson, RS													
HZA-230G06	AVS Receipt Inspection	29-Jan-15	05-Feb-15	5	5	0%	32	WRPS- Robinson, RS													
HZA-230G07	WRPS Dedication Activities (Green Tag & Staging)	06-Feb-15	23-Feb-15	10	10	0%	32	WRPS- Robinson, RS													
Procurement of Flex Piping Jumpers		30-Dec-14	20-May-15	90	90		117														
HZA-230H01	Prepare Requisition	30-Dec-14	07-Jan-15	5	5	0%	32	WRPS- Lau, E													
HZA-230H02	Requisition Complete		07-Jan-15	0	0	0%	32	WRPS- Lau, E													
HZA-230H03	Place Purchase Order	08-Jan-15	21-Jan-15	9	9	0%	32	WRPS- Lau, E													
HZA-230H04	Purchase Order Complete		21-Jan-15	0	0	0%	32	WRPS- Lau, E													
HZA-230H05	Procure Flex Piping Jumpers	24-Feb-15	20-Apr-15	36	36	0%	32	WRPS- Robinson, RS													
HZA-230H06	AVS Receipt Inspection	21-Apr-15	28-Apr-15	5	5	0%	32	WRPS- Robinson, RS													
HZA-230H07	WRPS Dedication Activities (Green Tag & Staging)	29-Apr-15	13-May-15	10	10	0%	32	WRPS- Robinson, RS													
HZA-230H08	CGD Package Closure	14-May-15	20-May-15	5	5	0%	117	WRPS- Robinson, RS													
Procurement of Proprietary Pipe Unions		01-Oct-14	23-Jan-15	70	70		191														
HZA-230J01	Prepare Requisition	01-Oct-14	07-Oct-14	5	5	0%	41	WRPS- Lau, E													
HZA-230J02	Requisition Complete		07-Oct-14	0	0	0%	41	WRPS- Lau, E													
HZA-230J03	Place Purchase Order	08-Oct-14	21-Oct-14	9	9	0%	41	WRPS- Lau, E													
HZA-230J04	Purchase Order Complete		21-Oct-14	0	0	0%	41	WRPS- Lau, E													
HZA-230J05	Procure Proprietary Pipe Unions	22-Oct-14	18-Dec-14	36	36	0%	41	WRPS- Robinson, RS													
HZA-230J06	AVS Receipt Inspection	22-Dec-14	30-Dec-14	5	5	0%	41	WRPS- Robinson, RS													
HZA-230J07	WRPS Dedication Activities (Green Tag & Staging)	31-Dec-14	15-Jan-15	10	10	0%	41	WRPS- Robinson, RS													
HZA-230J08	CGD Package Closure	19-Jan-15	23-Jan-15	5	5	0%	191	WRPS- Robinson, RS													
Procurement of Thermocouples		01-Oct-14	20-Mar-15	105	105		156														
HZA-230K0A	Prepare Draft Commercial Grade Dedication (CGD)	01-Oct-14*	07-Oct-14	5	5	0%	71	WRPS- Robinson, RS													
HZA-230K0B	Prepare Draft Survey Plan/Checklist	08-Oct-14	15-Oct-14	5	5	0%	71	WRPS- Robinson, RS													
HZA-230K0C	Execute Survey/Prepare Report	16-Oct-14	14-Nov-14	20	20	0%	71	WRPS- Robinson, RS													
HZA-230K0D	Incorporate Comments/Obtain Initial CGD Approvals	17-Nov-14	24-Nov-14	5	5	0%	71	WRPS- Robinson, RS													



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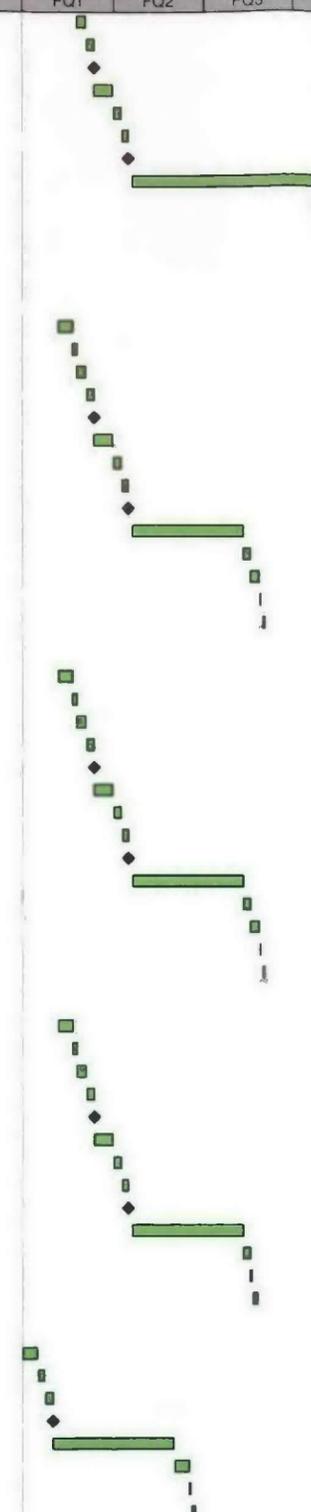
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2		
HZA-233A01	Prepare MR AY-102 ERSS	30-Sep-14	06-Oct-14	5	5	0%	0	WRPS- Lau, E															
HZA-233A02	Review MR AY-102 ERSS	07-Oct-14	08-Oct-14	2	2	0%	0	WRPS- Lau, E															
HZA-233A03	Incorporate Review Comments into MRAY-102 ERSS	09-Oct-14	14-Oct-14	3	3	0%	0	WRPS- Lau, E															
HZA-233A04	Buyer Obtain Approvals & Issue MR AY-102 ERSS	15-Oct-14	20-Oct-14	4	4	0%	0	WRPS- Lau, E															
HZM-233A05	MR Issued AY-102 ERSS		20-Oct-14	0	0	0%	0	WRPS- Lau, E															
WRS Hose in Hose Transfer Lines (HIHTL) Procurement		28-Aug-14	30-Sep-14	20	20		108																
HZA-238A01	Prepare RFP	28-Aug-14	15-Sep-14	10	10	0%	108	WRPS- Lau, E															
HZA-238A02	Review RFP	16-Sep-14	17-Sep-14	2	2	0%	108	WRPS- Lau, E															
HZA-238A03	Incorporate Review Comments into RFP	18-Sep-14	24-Sep-14	5	5	0%	108	WRPS- Lau, E															
HZA-238A04	Buyer Obtain Approvals & Issue RFP	25-Sep-14	30-Sep-14	3	3	0%	108	WRPS- Lau, E															
HZM-238A05	RFP Issued		30-Sep-14	0	0	0%	108	WRPS- Lau, E															
Procure Pressure Transducer for Pumps		25-Nov-14	25-Mar-15	81	81		52																
HZA-23Q001	Prepare Requisition	25-Nov-14	03-Dec-14	5	5	0%	45	WRPS- Lau, E															
HZA-23Q002	Requisition Complete		03-Dec-14	0	0	0%	45	WRPS- Lau, E															
HZA-23Q003	Place Purchase Order	04-Dec-14	17-Dec-14	9	9	0%	45	WRPS- Lau, E															
HZA-23Q004	Purchase Order Complete		17-Dec-14	0	0	0%	45	WRPS- Lau, E															
HZA-23Q005	Procure Pressure Indicators	18-Dec-14	03-Mar-15	50	50	0%	51	WRPS- Robinson, RS															
HZA-23Q006	AVS Receipt Inspection	04-Mar-15	10-Mar-15	5	5	0%	48	WRPS- Robinson, RS															
HZA-23Q007	WRPS Dedication Activities (Green Tag & Staging)	11-Mar-15	25-Mar-15	10	10	0%	46	WRPS- Robinson, RS															
Procurement of Thermowells		05-Nov-14	19-Mar-15	91	91		178																
HZA-230R0A	Prepare Draft Commercial Grade Dedication (CGD)	05-Nov-14	12-Nov-14	5	5	0%	75	WRPS- Robinson, RS															
HZA-230R0D	Incorporate Comments/Obtain Initial CGD Approvals	13-Nov-14	19-Nov-14	5	5	0%	75	WRPS- Robinson, RS															
HZA-230R0E	WRPS Dedication Activities (Green Tag & Staging)	20-Nov-14	09-Dec-14	10	10	0%	75	WRPS- Robinson, RS															
HZA-230R01	Prepare Requisition	10-Dec-14	16-Dec-14	5	5	0%	75	WRPS- Lau, E															
HZA-230R02	Requisition Complete		16-Dec-14	0	0	0%	75	WRPS- Lau, E															
HZA-230R03	Place Purchase Order	17-Dec-14	05-Jan-15	9	9	0%	75	WRPS- Lau, E															
HZA-230R04	Purchase Order Complete		05-Jan-15	0	0	0%	75	WRPS- Lau, E															
HZA-230R05	Procure Thermowells	06-Jan-15	17-Feb-15	30	30	0%	83	WRPS- Robinson, RS															
HZA-230R06	AVS Receipt Inspection	18-Feb-15	24-Feb-15	5	5	0%	75	WRPS- Robinson, RS															
HZA-230R07	WRPS Dedication Activities (Green Tag & Staging)	25-Feb-15	11-Mar-15	10	10	0%	75	WRPS- Robinson, RS															
HZA-230R08	CGD Package Closure	12-Mar-15	19-Mar-15	5	5	0%	160	WRPS- Robinson, RS															
5.01.01.15.02.02 AY-102 Major Procurements		05-Aug-14	13-Aug-15																				
AY-102 SL Transfer Pump & HPU Procurement		05-Aug-14	05-Jan-15	104	104		230																
HZA-2312A10	Manufacture & Test SL Transfer Pump & HPU	05-Aug-14	01-Oct-14	37	37	0%	80	WRPS- Robinson, RS															
HZA-23C150	AY-102 Pit Drain Isolation Equipment Procurement	01-Oct-14*	03-Nov-14	24	24	0%	270	WRPS- Robinson, RS															
HZA-2312A10A	Manufacture & Test SL Transfer Pump & HPU	02-Oct-14	09-Dec-14	42	42	0%	80	WRPS- Robinson, RS															
HZA-2312A11	Source Inspect SL Transfer Pump & HPU	10-Dec-14	16-Dec-14	5	5	0%	80	WRPS- Robinson, RS															
HZA-2312A12	Ship SL Transfer Pump & HPU	17-Dec-14	26-Dec-14	5	5	0%	80	WRPS- Robinson, RS															
HZA-2312A13	Perform Receipt Inspection for SL Transfer Pump & HPU	29-Dec-14	30-Dec-14	2	2	0%	80	WRPS- Robinson, RS															
HZA-2312A14	Green Tag & Stage SL Transfer Pump HPU	31-Dec-14	05-Jan-15	2	2	0%	80	WRPS- Robinson, RS															
HZA-2312A15	Deliver SL Transfer Pump to Fabricator	31-Dec-14	05-Jan-15	2	2	0%	80	WRPS- Robinson, RS															
AY-102 Slurry Pump Assembly Procurement		03-Oct-14	18-May-15	140	140		46																
HZA-231A06	Vendor Prepare & Submit Proposal for AY-102 Slurry Pump Assembly Fabrication & Test	03-Oct-14	17-Oct-14	10	10	0%	57	WRPS- Lau, E															
HZA-231A07	Evaluate Vendor Proposals for AY-102 Slurry Pump Assembly Fabrication & Test	20-Oct-14	21-Oct-14	2	2	0%	57	WRPS- Robinson, RS															
HZA-231A08	Prepare Contract for AY-102 Slurry Pump Assembly Fabrication & Test	22-Oct-14	29-Oct-14	5	5	0%	57	WRPS- Lau, E															
HZM-231A09	Award Contract to Selected Vendor AY-102 Slurry Pump & Assembly		29-Oct-14	0	0	0%	57	WRPS- Lau, E															
HZA-231A10	AY-102 SL Pump Assembly Fabrication	17-Nov-14	27-Apr-15	98	98	0%	46	WRPS- Robinson, RS															
HZA-231A11	Source Inspect AY-102 SL Pump Assembly	28-Apr-15	04-May-15	5	5	0%	46	WRPS- Robinson, RS															
HZA-231A12	Ship AY-102 SL Pump Assembly	05-May-15	12-May-15	5	5	0%	46	WRPS- Robinson, RS															
HZA-231A13	Perform Receipt Inspection for AY-102 SL Pump Assembly	13-May-15	14-May-15	2	2	0%	46	WRPS- Robinson, RS															
HZA-231A14	Green Tag & Stage AY-102 SL Pump Assembly	15-May-15	18-May-15	2	2	0%	46	WRPS- Robinson, RS															
AY-102 Extended Reach Sluicing System (ERSS) Procurement		21-Oct-14	07-Jul-15	159	159		89																
HZA-233A06	Vendor Prepare & Submit Proposal AY-102 ERSS	21-Oct-14	04-Nov-14	10	10	0%	0	WRPS- Lau, E															
HZA-233A07	Evaluate Vendor Proposals AY-102 ERSS	05-Nov-14	06-Nov-14	2	2	0%	0	WRPS- Robinson, RS															
HZA-233A08	Prepare Contract AY-102 ERSS	10-Nov-14	14-Nov-14	5	5	0%	0	WRPS- Lau, E															
HZM-233A09	Award Contract to Selected Vendor AY-102 ERSS		14-Nov-14	0	0	0%	0	WRPS- Lau, E															
HZA-233A10	Manufacture (5) AY-102 ERSS & (2) HPU	17-Nov-14	04-Jun-15	123	123	0%	0	WRPS- Robinson, RS															
HZA-233A11	Source Inspect (5) AY-102 ERSS & (2) HPU	08-Jun-15	12-Jun-15	5	5	0%	0	WRPS- Robinson, RS															
HZA-233A12	Ship (5) AY-102 ERSS & (2) HPU	15-Jun-15	22-Jun-15	5	5	0%	0	WRPS- Robinson, RS															
HZA-233A13	AVS Perform Receipt Inspection for (5) AY-102 ERSS & (2) HPU	23-Jun-15	24-Jun-15	2	2	0%	0	WRPS- Robinson, RS															
HZA-233A14	Green Tag & Stage (5) AY-102 ERSS & (2) HPU	25-Jun-15	26-Jun-15	2	2	0%	0	WRPS- Robinson, RS															
HZA-233A15	CGD Package Closure	29-Jun-15	07-Jul-15	5	5	0%	89	WRPS- Robinson, RS															
Sluicer Valves, Manifold & Splitter Box Procurement		05-Nov-14	13-Aug-15	174	174		41																
HZA-234A01	Prepare RFP	05-Nov-14	19-Nov-14	10	10	0%	41	WRPS- Lau, E															
HZA-234A02	Review RFP	20-Nov-14	24-Nov-14	2	2	0%	41	WRPS- Lau, E															



■ Remaining Work
 ■ Actual Work
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 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

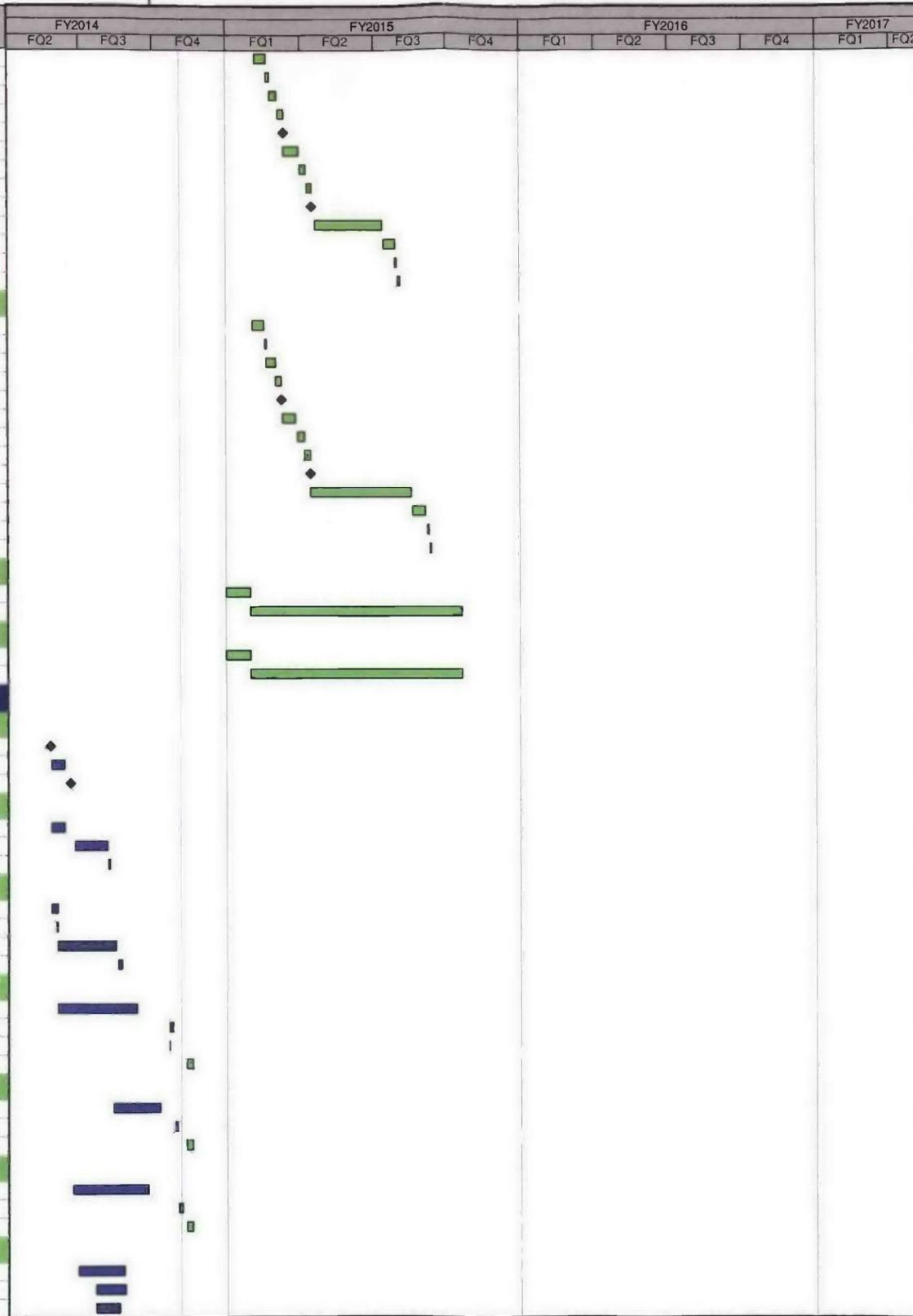
Activity ID	Activity Name	Starts	Finish	OD	RD	% Comp	TF	RESP	FY2014		FY2015				FY2016				FY2017	
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1
HZA-234A03	Incorporate Review Comments into RFP	25-Nov-14	03-Dec-14	5	5	0%	41	WRPS- Lau, E												
HZA-234A04	Buyer Obtain Approvals & Issue RFP	04-Dec-14	11-Dec-14	5	5	0%	41	WRPS- Lau, E												
HZA-234A05	RFP Issued		11-Dec-14	0	0	0%	41	WRPS- Lau, E												
HZA-234A06	Vendor Prepare & Submit Proposal	12-Dec-14	30-Dec-14	10	10	0%	41	WRPS- Lau, E												
HZA-234A07	Evaluate Vendor Proposals	31-Dec-14	08-Jan-15	5	5	0%	41	WRPS- Robinson, RS												
HZA-234A08	Prepare Contract	09-Jan-15	15-Jan-15	5	5	0%	41	WRPS- Lau, E												
HZA-234A09	Award Contract to Selected Vendor		15-Jan-15	0	0	0%	41	WRPS- Lau, E												
HZA-234A10	AY-102 Sluicer Splitter Box & Manifold Fabrication	19-Jan-15	23-Jul-15	118	118	0%	41	WRPS- Robinson, RS												
HZA-234A11	Source Inspect AY-102 Sluicer Splitter Box & Manifold	24-Jul-15	30-Jul-15	5	5	0%	41	WRPS- Robinson, RS												
HZA-234A12	Ship AY-102 Sluicer Splitter Box & Manifold	03-Aug-15	07-Aug-15	5	5	0%	41	WRPS- Robinson, RS												
HZA-234A13	Perform Receipt Inspection for AY-102 Sluicer Splitter Box & Manifold	10-Aug-15	11-Aug-15	2	2	0%	41	WRPS- Robinson, RS												
HZA-234A14	Green Tag & Stage AY-102 Sluicer Splitter Box & Manifold	12-Aug-15	13-Aug-15	2	2	0%	41	WRPS- Robinson, RS												
AY Farm Water Distribution Skid Procurement		05-Nov-14	02-Jun-15	128	128		70													
HZA-235A01	Prepare RFP	05-Nov-14	19-Nov-14	10	10	0%	70	WRPS- Lau, E												
HZA-235A02	Review RFP	20-Nov-14	24-Nov-14	2	2	0%	70	WRPS- Lau, E												
HZA-235A03	Incorporate Review Comments into RFP	25-Nov-14	03-Dec-14	5	5	0%	70	WRPS- Lau, E												
HZA-235A04	Buyer Obtain Approvals & Issue RFP	04-Dec-14	11-Dec-14	5	5	0%	70	WRPS- Lau, E												
HZA-235A05	RFP Issued		11-Dec-14	0	0	0%	70	WRPS- Lau, E												
HZA-235A06	Vendor Prepare & Submit Proposal	12-Dec-14	30-Dec-14	10	10	0%	70	WRPS- Lau, E												
HZA-235A07	Evaluate Vendor Proposals	31-Dec-14	08-Jan-15	5	5	0%	70	WRPS- Robinson, RS												
HZA-235A08	Prepare Contract	09-Jan-15	15-Jan-15	5	5	0%	70	WRPS- Lau, E												
HZA-235A09	Award Contract to Selected Vendor		15-Jan-15	0	0	0%	70	WRPS- Lau, E												
HZA-235A10	AY Farm Water Distribution Skid Fabrication & Testing	19-Jan-15	11-May-15	72	72	0%	70	WRPS- Robinson, RS												
HZA-235A11	Source Inspect AY Farm Water Distribution Skid	12-May-15	18-May-15	5	5	0%	70	WRPS- Robinson, RS												
HZA-235A12	Ship AY Farm Water Distribution Skid	19-May-15	27-May-15	5	5	0%	70	WRPS- Robinson, RS												
HZA-235A13	Perform Receipt Inspection for AY Farm Water Distribution Skid	28-May-15	29-May-15	2	2	0%	70	WRPS- Robinson, RS												
HZA-235A14	Green Tag & Stage AY Farm Water Distribution Skid	01-Jun-15	02-Jun-15	2	2	0%	70	WRPS- Robinson, RS												
AY Farm Electrical Distribution Skid Procurement		05-Nov-14	02-Jun-15	128	128		58													
HZA-236A01	Prepare RFP - AY-102	05-Nov-14	19-Nov-14	10	10	0%	58	WRPS- Lau, E												
HZA-236A02	Review RFP - AY-102	20-Nov-14	24-Nov-14	2	2	0%	58	WRPS- Lau, E												
HZA-236A03	Incorporate Review Comments into RFP - AY-102	25-Nov-14	03-Dec-14	5	5	0%	58	WRPS- Lau, E												
HZA-236A04	Buyer Obtain Approvals & Issue RFP - AY-102	04-Dec-14	11-Dec-14	5	5	0%	58	WRPS- Lau, E												
HZA-236A05	RFP Issued - AY-102		11-Dec-14	0	0	0%	58	WRPS- Lau, E												
HZA-236A06	Vendor Prepare & Submit Proposal - AY-102	12-Dec-14	30-Dec-14	10	10	0%	58	WRPS- Robinson, RS												
HZA-236A07	Evaluate Vendor Proposals - AY-102	31-Dec-14	08-Jan-15	5	5	0%	58	WRPS- Robinson, RS												
HZA-236A08	Prepare Contract - AY-102	09-Jan-15	15-Jan-15	5	5	0%	58	WRPS- Robinson, RS												
HZA-236A09	Award Contract to Selected Vendor - AY-102		15-Jan-15	0	0	0%	58	WRPS- Robinson, RS												
HZA-236A10	AP Farm Electrical Distribution Skid Fabrication - AY-102	19-Jan-15	11-May-15	72	72	0%	58	WRPS- Robinson, RS												
HZA-236A11	Source Inspect AP Farm Electrical Distribution Skid - AY-102	12-May-15	18-May-15	5	5	0%	58	WRPS- Robinson, RS												
HZA-236A12	Ship AP Farm Electrical Distribution Skid - AY-102	19-May-15	27-May-15	5	5	0%	58	WRPS- Robinson, RS												
HZA-236A13	Perform Receipt Inspection for AP Farm Electrical Distribution Skid - AY-102	28-May-15	29-May-15	2	2	0%	58	WRPS- Robinson, RS												
HZA-236A14	Green Tag & Stage AP Farm Electrical Distribution Skid - AY-102	01-Jun-15	02-Jun-15	2	2	0%	58	WRPS- Robinson, RS												
WRS Operations Trailer & Work Station Procurement		05-Nov-14	26-May-15	123	123		73													
HZA-237A01	Prepare RFP	05-Nov-14	19-Nov-14	10	10	0%	73	WRPS- Lau, E												
HZA-237A02	Review RFP	20-Nov-14	24-Nov-14	2	2	0%	73	WRPS- Lau, E												
HZA-237A03	Incorporate Review Comments into RFP	25-Nov-14	03-Dec-14	5	5	0%	73	WRPS- Lau, E												
HZA-237A04	Buyer Obtain Approvals & Issue RFP	04-Dec-14	11-Dec-14	5	5	0%	73	WRPS- Lau, E												
HZA-237A05	RFP Issued		11-Dec-14	0	0	0%	73	WRPS- Lau, E												
HZA-237A06	Vendor Prepare & Submit Proposal	12-Dec-14	30-Dec-14	10	10	0%	73	WRPS- Robinson, RS												
HZA-237A07	Evaluate Vendor Proposals	31-Dec-14	08-Jan-15	5	5	0%	73	WRPS- Robinson, RS												
HZA-237A08	Prepare Contract	09-Jan-15	15-Jan-15	5	5	0%	73	WRPS- Robinson, RS												
HZA-237A09	Award Contract to Selected Vendor		15-Jan-15	0	0	0%	73	WRPS- Robinson, RS												
HZA-237A10	WRS Operations Control Trailer & Work Station Procurement	19-Jan-15	11-May-15	72	72	0%	73	WRPS- Robinson, RS												
HZA-237A12	Ship WRS Operations Control Trailer & Work Station	12-May-15	18-May-15	5	5	0%	73	WRPS- Robinson, RS												
HZA-237A13	Perform Receipt Inspection for WRS Operations Control Trailer & Work Station	19-May-15	20-May-15	2	2	0%	73	WRPS- Robinson, RS												
HZA-237A14	Green Tag & Stage WRS Operations Control Trailer & Work Station	21-May-15	26-May-15	2	2	0%	73	WRPS- Robinson, RS												
WRS Hose in Hose Transfer Lines (HIHTL) Procurement		01-Oct-14	23-Mar-15	106	106		108													
HZA-238A06	Vendor Prepare & Submit Proposal	01-Oct-14	15-Oct-14	10	10	0%	108	WRPS- Lau, E												
HZA-238A07	Evaluate Vendor Proposals	16-Oct-14	22-Oct-14	5	5	0%	108	WRPS- Robinson, RS												
HZA-238A08	Prepare Contract	23-Oct-14	30-Oct-14	5	5	0%	108	WRPS- Lau, E												
HZA-238A09	Award Contract to Selected Vendor		30-Oct-14	0	0	0%	108	WRPS- Lau, E												
HZA-238A10	WRS Hose in Hose (HIHTL) Procurement	31-Oct-14	02-Mar-15	72	72	0%	108	WRPS- Robinson, RS												
HZA-238A12	Ship WRS Hose in Hose (HIHTL)	03-Mar-15	17-Mar-15	10	10	0%	108	WRPS- Robinson, RS												
HZA-238A13	Perform Receipt Inspection for WRS Hose in Hose (HIHTL)	18-Mar-15	19-Mar-15	2	2	0%	108	WRPS- Robinson, RS												
HZA-238A14	Green Tag & Stage WRS Hose in Hose (HIHTL)	20-Mar-15	23-Mar-15	2	2	0%	108	WRPS- Robinson, RS												
WRS Pit Cover Plate Procurement		05-Nov-14	04-May-15	110	110		130													



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
 Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

Activity ID	Activity Name	Start	Finish	CO	HD	C	T	RES	FY2014				FY2015				FY2016				FY2017			
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2			
HZA-239A01	Prepare RFP	05-Nov-14	19-Nov-14	10	10	0%	130	WRPS- Lau, E																
HZA-239A02	Review RFP	20-Nov-14	24-Nov-14	2	2	0%	130	WRPS- Lau, E																
HZA-239A03	Incorporate Review Comments into RFP	25-Nov-14	03-Dec-14	5	5	0%	130	WRPS- Lau, E																
HZA-239A04	Buyer Obtain Approvals & Issue RFP	04-Dec-14	11-Dec-14	5	5	0%	130	WRPS- Lau, E																
HZM-239A05	RFP Issued		11-Dec-14	0	0	0%	130	WRPS- Lau, E																
HZA-239A06	Vendor Prepare & Submit Proposal	12-Dec-14	30-Dec-14	10	10	0%	130	WRPS- Lau, E																
HZA-239A07	Evaluate Vendor Proposals	31-Dec-14	08-Jan-15	5	5	0%	130	WRPS- Robinson, RS																
HZA-239A08	Prepare Contract	09-Jan-15	15-Jan-15	5	5	0%	130	WRPS- Lau, E																
HZM-239A09	Award Contract to Selected Vendor		15-Jan-15	0	0	0%	130	WRPS- Lau, E																
HZA-239A10	Fabricate Pit Cover Plates	19-Jan-15	13-Apr-15	54	54	0%	130	WRPS- Robinson, RS																
HZA-239A12	Ship Pit Cover Plates	14-Apr-15	28-Apr-15	10	10	0%	130	WRPS- Robinson, RS																
HZA-239A13	Perform Receipt Inspection for Pit Cover Plates	29-Apr-15	30-Apr-15	2	2	0%	130	WRPS- Robinson, RS																
HZA-239A14	Green Tag & Stage Pit Cover Plates	01-May-15	04-May-15	2	2	0%	130	WRPS- Robinson, RS																
HIHTL Shielding Procurement									03-Nov-14	11-Jun-15	136	136	97											
HZA-2314A01	Prepare RFP	03-Nov-14	17-Nov-14	10	10	0%	97	WRPS- Lau, E																
HZA-2314A02	Review RFP	18-Nov-14	19-Nov-14	2	2	0%	97	WRPS- Lau, E																
HZA-2314A03	Incorporate Review Comments into RFP	20-Nov-14	01-Dec-14	5	5	0%	97	WRPS- Lau, E																
HZA-2314A04	Buyer Obtain Approvals & Issue RFP	02-Dec-14	09-Dec-14	5	5	0%	97	WRPS- Lau, E																
HZM-2314A05	RFP Issued		09-Dec-14	0	0	0%	97	WRPS- Lau, E																
HZA-2314A06	Vendor Prepare & Submit Proposal	10-Dec-14	26-Dec-14	10	10	0%	97	WRPS- Lau, E																
HZA-2314A07	Evaluate Vendor Proposals	29-Dec-14	06-Jan-15	5	5	0%	97	WRPS- Robinson, RS																
HZA-2314A08	Prepare Contract	07-Jan-15	13-Jan-15	5	5	0%	97	WRPS- Lau, E																
HZM-2314A09	Award Contract to Selected Vendor		13-Jan-15	0	0	0%	97	WRPS- Lau, E																
HZA-2314A10	Procure HIHTL Shielding	14-Jan-15	19-May-15	80	80	0%	97	WRPS- Robinson, RS																
HZA-2314A12	Ship AY-02A HIHTL Shielding	20-May-15	04-Jun-15	10	10	0%	97	WRPS- Robinson, RS																
HZA-2314A13	Perform Receipt Inspection for HIHTL Shielding	08-Jun-15	09-Jun-15	2	2	0%	97	WRPS- Robinson, RS																
HZA-2314A14	Green Tag & Stage HIHTL Shielding	10-Jun-15	11-Jun-15	2	2	0%	97	WRPS- Robinson, RS																
AY-102 Ventilator Procurement									01-Oct-14	20-Jul-15	180	180	123											
HZA-2315A08	Prepare Specification and SOW, place order	01-Oct-14*	30-Oct-14	20	20	0%	123	WRPS- Lau, E																
HZA-2315A10	Procure and receive equipment	31-Oct-14	20-Jul-15	160	160	0%	123	WRPS- Robinson, RS																
AY-102 Cooling Tower Procurement									01-Oct-14	20-Jul-15	180	180	123											
HZA-2316A08	Prepare Specification and SOW, place order	01-Oct-14*	30-Oct-14	20	20	0%	123	WRPS- Lau, E																
HZA-2316A10	Procure and receive equipment	31-Oct-14	20-Jul-15	160	160	0%	123	WRPS- Robinson, RS																
5.01.01.15.03.01 AY-102 Video / Pit Examinations & Pit Rehab									24-Feb-14 A	03-Aug-15														
Plant Forces Work Review									24-Feb-14 A	20-Mar-14 A	15	0												
HZM-2411A1	CACN Approved to Proceed with Phase-1 Video Examinations	24-Feb-14 A		0	0	100%		WRPS- Zentler, T																
HZA-2411A2	Develop and Perform PFWR for AY-102 WRS Construction	25-Feb-14 A	13-Mar-14 A	14	0	100%		WRPS- Zentler, T																
HZM-20A00	Receive Approval from DOE to Proceed with Procurement & Riser Examinations	20-Mar-14 A		0	0	100%		WRPS- Zentler, T																
Development & Release of Contract to Perform Video Exams									25-Feb-14 A	08-May-14 A	56	0												
HZA-2413A1	Develop Video Examination SOW	25-Feb-14 A	13-Mar-14 A	7	0	100%		WRPS- Zentler, T																
HZA-2413A2	Add Release to Existing Contract	27-Mar-14 A	06-May-14 A	18	0	100%		WRPS- Zentler, T																
HZA-2413A3	Mobilize Contractor to Support Planning	07-May-14 A	08-May-14 A	5	0	100%		WRPS- Zentler, T																
Procurement of Video Equipment									25-Feb-14 A	22-May-14 A	55	0												
HZA-2414A1	Prepare Requisition for Video Equipment	25-Feb-14 A	04-Mar-14 A	5	0	100%		WRPS- Zentler, T																
HZA-2414A2	Process Requisition for Video Equipment	04-Mar-14 A	04-Mar-14 A	5	0	100%		WRPS- Zentler, T																
HZA-2414A3	Vendor Process Video Equipment Order	05-Mar-14 A	16-May-14 A	40	0	100%		WRPS- Zentler, T																
HZA-2414A4	Receive/Inspect and Deliver Video Equipment to Construction	19-May-14 A	22-May-14 A	2	0	100%		WRPS- Zentler, T																
Video Inspection of AY-02D & AY-02E Pits (TFC-WO-14-2078)									05-Mar-14 A	18-Aug-14	117	6	19											
HZA-2412A3	Prep, Rvw & Finalize WP for Video Exam of AY-02 Pits AY-02D & AY-02E (TFC-WO-14-2078)	05-Mar-14 A	10-Jun-14 A	37	0	100%		WRPS- Esvelt, CA																
HZA-2415A1	Perform Video Examinations of AY-102 Pits AY-02D & AY-02E (TFC-WO-14-2078)	21-Jul-14 A	25-Jul-14 A	4	0	100%		WRPS- Zentler, T																
HZA-2412A3R	Revise & Rel WP for Video Exam of AY-02 Pits AY-02D & AY-02E (TFC-WO-14-2078)	21-Jul-14 A	21-Jul-14 A	1	0	100%		WRPS- Esvelt, CA																
HZA-2412AZ	Closeout WP Video Exam of AY-02 Pits AY-02D & AY-02E (TFC-WO-14-2078)	11-Aug-14	18-Aug-14	5	5	0%	17	WRPS- Esvelt, CA																
Video Inspection of AY-02B & AY-02C Pits (TFC-WO-14-2080)									13-May-14 A	8-Aug-14	68	6	19											
HZA-2412B1	Prep, Rvw, Finalize & Rel WP for Video Exam of AY-02 Pits AY-02B & AY-02C (TFC-WO-14-2080)	13-May-14 A	09-Jul-14 A	32	0	100%		WRPS- Esvelt, CA																
HZA-2415B1	Perform Video Examinations of AY-102 Pits AY-02B & AY-02C (TFC-WO-14-2080)	28-Jul-14 A	31-Jul-14 A	4	0	100%		WRPS- Zentler, T																
HZA-2412BZ	Closeout WP Video Exam of AY-02 Pits AY-02B & AY-02C (TFC-WO-14-2080)	11-Aug-14	18-Aug-14	5	5	0%	17	WRPS- Esvelt, CA																
AY-102 In-Tank Video Examinations (TFC-WO-14-2079)									24-Mar-14 A	18-Aug-14	104	11	19											
HZA-2412A4	Prep, Rvw, Finalize & Rel WP for In-Tank Video Exam of AY-102 Risers 051 & 061 (TFC-WO-14-2079)	24-Mar-14 A	25-Jun-14 A	60	0	100%		WRPS- Esvelt, CA																
HZA-2416A1	Perform In-Tank Video Examination down Risers AY-102 Risers 051 & 061 (TFC-WO-14-2079)	01-Aug-14 A	06-Aug-14	4	3	25%	14	WRPS- Zentler, T																
HZA-2412A7	Closeout WP for In-Tank Video Exam of AY-102 Risers 051 & 061 (TFC-WO-14-2079)	11-Aug-14*	18-Aug-14	5	5	0%	17	WRPS- Esvelt, CA																
Work Package Planning for Pit Equipment Removal & Rehabilitation									31-Mar-14 A	18-Aug-14	99	6	321											
HZA-242A04	Prep, Rvw, Finalize & Rel WP for Intrusive Examination/Rehabilitation of Pits AY-02B, C, D & E	31-Mar-14 A	26-May-14 A	40	0	100%		WRPS- Zentler, T																
HZA-242B100	Prep, Rvw, Finalize & Rel WP to Inspect Lifting Bais for Pits AY-02B, C, D & E (TFC-WO-14-2106)	21-Apr-14 A	27-May-14 A	22	0	100%		WRPS- Esvelt, CA																
HZA-242A06	Prep, Rvw, Finalize & Rel WP for Removal of Blow Sand (4) (TFC-WO-14-2692)	21-Apr-14 A	20-May-14 A	20	0	100%		WRPS- Esvelt, CA																



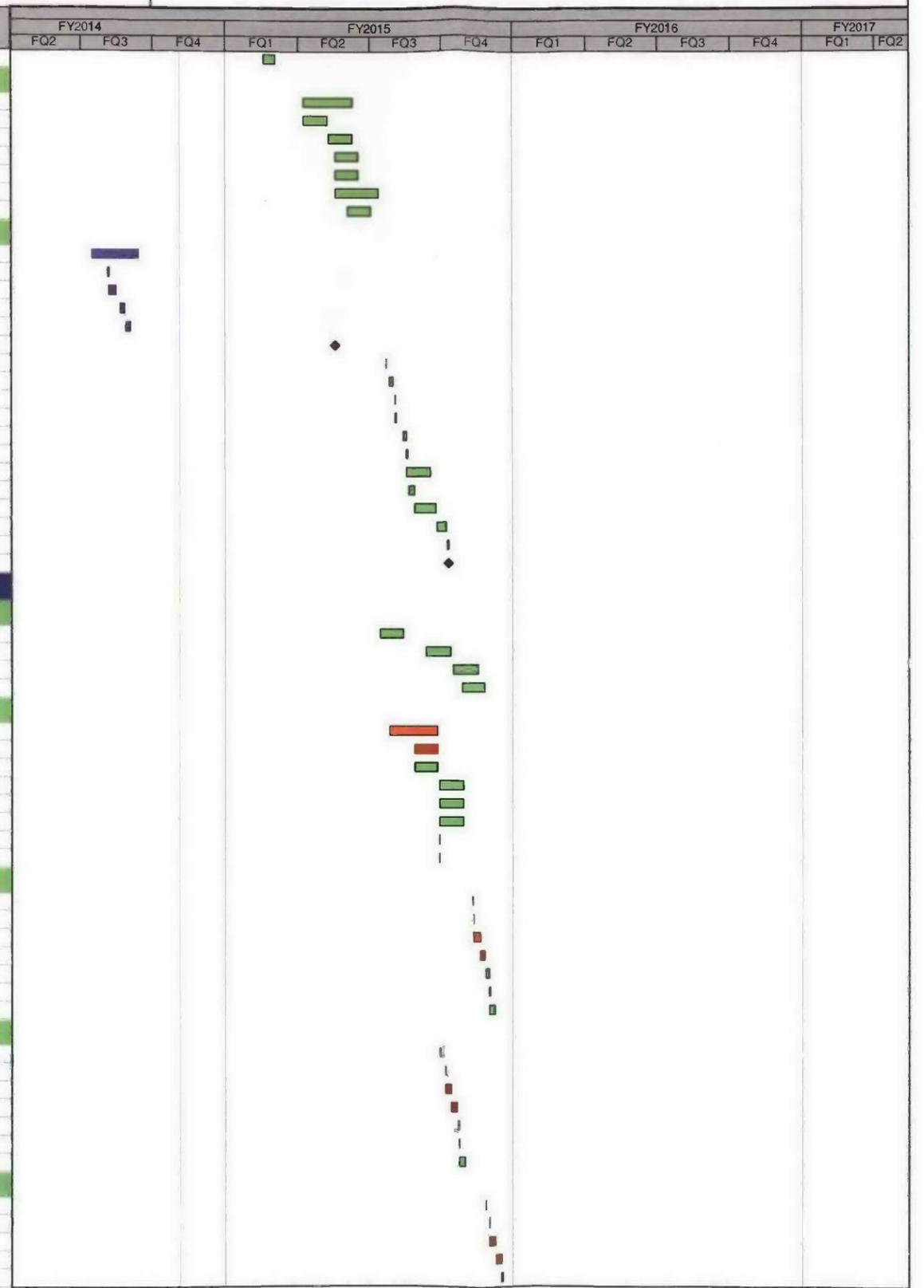
■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	Detailed Schedule														
									FY2014			FY2015			FY2016			FY2017					
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2		
HZA-242A2306	AY-02E - Inspect Pit Risers	04-Nov-14	04-Nov-14	1	1	0%	47	WRPS- Zentler, T															
HZA-242A2609	AY-02E - Remove Pump for Disposal	05-Nov-14	02-Dec-14	15	15	0%	47	WRPS- Zentler, T															
HZA-242A2313	AY-02E - Inspect (NACE)	03-Dec-14	03-Dec-14	1	1	0%	81	WRPS- Zentler, T															
AY-02E Pit Rehabilitation		17-Dec-14	13-Jan-15	14	14		74																
HZA-242A2314	AY-02E - Clean Pit	17-Dec-14	22-Dec-14	3	3	0%	74	WRPS- Zentler, T															
HZA-242A2315	AY-02E - Caulk	23-Dec-14	24-Dec-14	2	2	0%	74	WRPS- Zentler, T															
HZA-242A2316	AY-02E - Paint and Cure	29-Dec-14	31-Dec-14	3	3	0%	74	WRPS- Zentler, T															
HZA-242A2317	AY-02E - Inspect	05-Jan-15	05-Jan-15	1	1	0%	74	WRPS- Zentler, T															
HZA-242A2318	AY-02E - Apply Graphics	06-Jan-15	07-Jan-15	2	2	0%	74	WRPS- Zentler, T															
HZA-242A2319	AY-02E - Mobilize Crane & Re-Install Original Cover Block	08-Jan-15	13-Jan-15	3	3	0%	74	WRPS- Zentler, T															
Fabricate Temporary Pit Cover Plates		25-Aug-14	01-Oct-14	24	24		158																
HZA-242A1	Fabricate Temporary Pit Cover Plates	25-Aug-14	01-Oct-14	24	24	0%	158	WRPS- Zentler, T															
Ventilator Installation		15-May-15	03-Aug-15	49	49		23																
HZA-256AA3	Prep, Rvw, Finalize & Rel WP To AY-102 Install Ventilator	15-May-15	20-Jul-15	40	40	0%	123	WRPS- Esvelt, CA															
HZA-256AA1	Install AY-102 Ventilator	21-Jul-15	24-Jul-15	4	4	0%	123	WRPS- Zentler, T															
HZA-256AAZ	Closeout WP AY-102 Ventilator Installation	27-Jul-15	03-Aug-15	5	5	0%	123	WRPS- Esvelt, CA															
Cooling Tower Installation		15-May-15	03-Aug-15	49	49		123																
HZA-257AA3	Prep, Rvw, Finalize & Rel WP To AY-102 Install Cooling Tower	15-May-15	20-Jul-15	40	40	0%	123	WRPS- Esvelt, CA															
HZA-257AA1	Install AY-102 Cooling Tower	21-Jul-15	24-Jul-15	4	4	0%	123	WRPS- Zentler, T															
HZA-257AAZ	Closeout WP AY-102 Cooling Tower Installation	27-Jul-15	03-Aug-15	5	5	0%	123	WRPS- Esvelt, CA															
5.01.01.15.03.02 AY-102 Work Package Planning		15-Apr-14 A	10-Jul-15	104	62		153																
Work Package Planning for Pit Equipment Removal & Rehabilitation		04-Jun-14 A	29-Oct-14	104	62		140																
HZA-242AA02	Prepare SOW/Requisition	04-Jun-14 A	25-Jun-14 A	14	0	0%		WRPS- Zentler, T															
HZA-242AA03	Route/Approve Req.	26-Jun-14 A	02-Jul-14 A	6	0	100%		WRPS- Zentler, T															
HZA-242AA04	Contracts Receive Requisition		02-Jul-14 A	0	0	100%		WRPS- Lau, E															
HZA-242AA05	Prepare RFP	07-Jul-14 A	11-Jul-14 A	4	0	100%		WRPS- Lau, E															
HZA-242AA06	Pre-Proposal Conference	15-Jul-14 A	16-Jul-14 A	1	0	100%		WRPS- Lau, E															
HZA-242AA07	Addendum/Response to Pre-Proposal	16-Jul-14 A	29-Jul-14 A	4	0	100%		WRPS- Lau, E															
HZA-242AA08	Contractors Prepare and Submit Proposal	29-Jul-14 A	06-Aug-14	4	3	50%	52	WRPS- Lau, E															
HZA-242AA09	Tech Eval of Proposal	07-Aug-14	12-Aug-14	4	4	0%	52	WRPS- Zentler, T															
HZA-242AA10	Clarifications	13-Aug-14	18-Aug-14	3	3	0%	52	WRPS- Lau, E															
HZA-242AA11	Finalize and Issue Contract	19-Aug-14	25-Aug-14	5	5	0%	52	WRPS- Lau, E															
HZA-242AA12	Kick-off Meeting	26-Aug-14	26-Aug-14	1	1	0%	52	WRPS- Zentler, T															
HZA-242AB01	Revise SOW and Prepare CCR for Construction Phase-2 - Pit Rehabilitation	27-Aug-14	04-Sep-14	5	5	0%	81	WRPS- Zentler, T															
HZA-242A08	Prep, Rvw, Finalize & Rel WP for Equipment Removal in Pits AY-02B, D & E (Hammock)	27-Aug-14	26-Sep-14	22	22	0%	86	WRPS- Esvelt, CA															
HZA-242A09	Prep, Rvw, Finalize & Rel WP for Rehabilitation of Pits AY-02B, C, D & E	27-Aug-14*	21-Oct-14	35	35	0%	131	WRPS- Esvelt, CA															
HZA-242A2601	Prep/Apr/RTW Work Package for Equipment Disposal of AY-102 Pumps in Pits AY02B, D & E	27-Aug-14	29-Oct-14	40	40	0%	83	WRPS- Esvelt, CA															
HZA-242AB02	Route/Approve Req.	05-Sep-14	15-Sep-14	6	6	0%	81	WRPS- Zentler, T															
HZA-242AB03	Finalize and Issue Contract	16-Sep-14	16-Sep-14	1	1	0%	81	WRPS- Lau, E															
AY-02B Pit Equipment Removal		30-Sep-14	17-Nov-14	32	32		88																
HZA-242AA21	AY-02B Pump Removal Work Package Prep.	30-Sep-14	07-Oct-14	6	6	0%	88	WRPS- Esvelt, CA															
HZA-242AA21a	AY-02B Pump Removal Work Package Prep.	08-Oct-14	31-Oct-14	16	16	0%	88	WRPS- Esvelt, CA															
HZA-242AA22	AY-02B Work Package JRG/Approval/USQ/Release to Work	03-Nov-14	17-Nov-14	10	10	0%	88	WRPS- Esvelt, CA															
AY-02B Pit Rehabilitation		23-Dec-14	09-Feb-15	29	29		82																
HZA-242A21	AY-02B Pit - Prepare Work Package for Pit Rehab	23-Dec-14	26-Jan-15	20	20	0%	82	WRPS- Esvelt, CA															
HZA-242A22	AY-02B Rehab Work Package JRG/Approval/USQ/Release to Work	27-Jan-15	09-Feb-15	9	9	0%	82	WRPS- Esvelt, CA															
AY-02C Pit Rehabilitation		17-Sep-14	31-Oct-14	30	30		81																
HZA-242AA24	AY-02C Pit - Prepare Work Package for Pit Rehab	17-Sep-14	07-Oct-14	14	14	0%	81	WRPS- Esvelt, CA															
HZA-242AA24a	AY-02C Pit - Prepare Work Package for Pit Rehab	08-Oct-14	16-Oct-14	6	6	0%	81	WRPS- Esvelt, CA															
HZA-242AA26	AY-02C Rehab Work Package JRG/Approval/USQ/Release to Work	17-Oct-14	31-Oct-14	10	10	0%	81	WRPS- Esvelt, CA															
AY-02D Equipment Removal		15-Sep-14	31-Oct-14	32	32		70																
HZA-242AA18	AY-02D Pump Removal Work Package Prep.	15-Sep-14	07-Oct-14	16	16	0%	70	WRPS- Esvelt, CA															
HZA-242AA18a	AY-02D Pump Removal Work Package Prep.	08-Oct-14	16-Oct-14	6	6	0%	70	WRPS- Esvelt, CA															
HZA-242AA19	AY-02D Work Package JRG/Approval/USQ/Release to Work	17-Oct-14	31-Oct-14	10	10	0%	70	WRPS- Esvelt, CA															
AY-02D Rehabilitation		18-Nov-14	08-Jan-15	29	29		86																
HZA-242A26	AY-02D Pit - Prepare Work Package for Pit Rehab	18-Nov-14	22-Dec-14	20	20	0%	82	WRPS- Esvelt, CA															
HZA-242A27	AY-02D Rehab Work Package JRG/Approval/USQ/Release to Work	23-Dec-14	08-Jan-15	9	9	0%	86	WRPS- Esvelt, CA															
AY-02E Pit Equipment Removal		27-Aug-14	16-Oct-14	32	32		52																
HZA-242AA15	AY-02E Pump Removal Work Package Prep.	27-Aug-14	01-Oct-14	22	22	0%	52	WRPS- Esvelt, CA															
HZA-242AA16	AY-02E Work Package JRG/Approval/USQ/Release to Work	02-Oct-14	07-Oct-14	4	4	0%	52	WRPS- Esvelt, CA															
HZA-242AA16a	AY-02E Work Package JRG/Approval/USQ/Release to Work	08-Oct-14	16-Oct-14	6	6	0%	52	WRPS- Esvelt, CA															
AY-02E Pit Rehabilitation		17-Oct-14	03-Dec-14	29	29		90																
HZA-242A23	AY-02E Pit - Prepare Work Package for Pit Rehab	17-Oct-14	17-Nov-14	20	20	0%	82	WRPS- Esvelt, CA															

■ Remaining Work
 ■ Actual Work
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■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

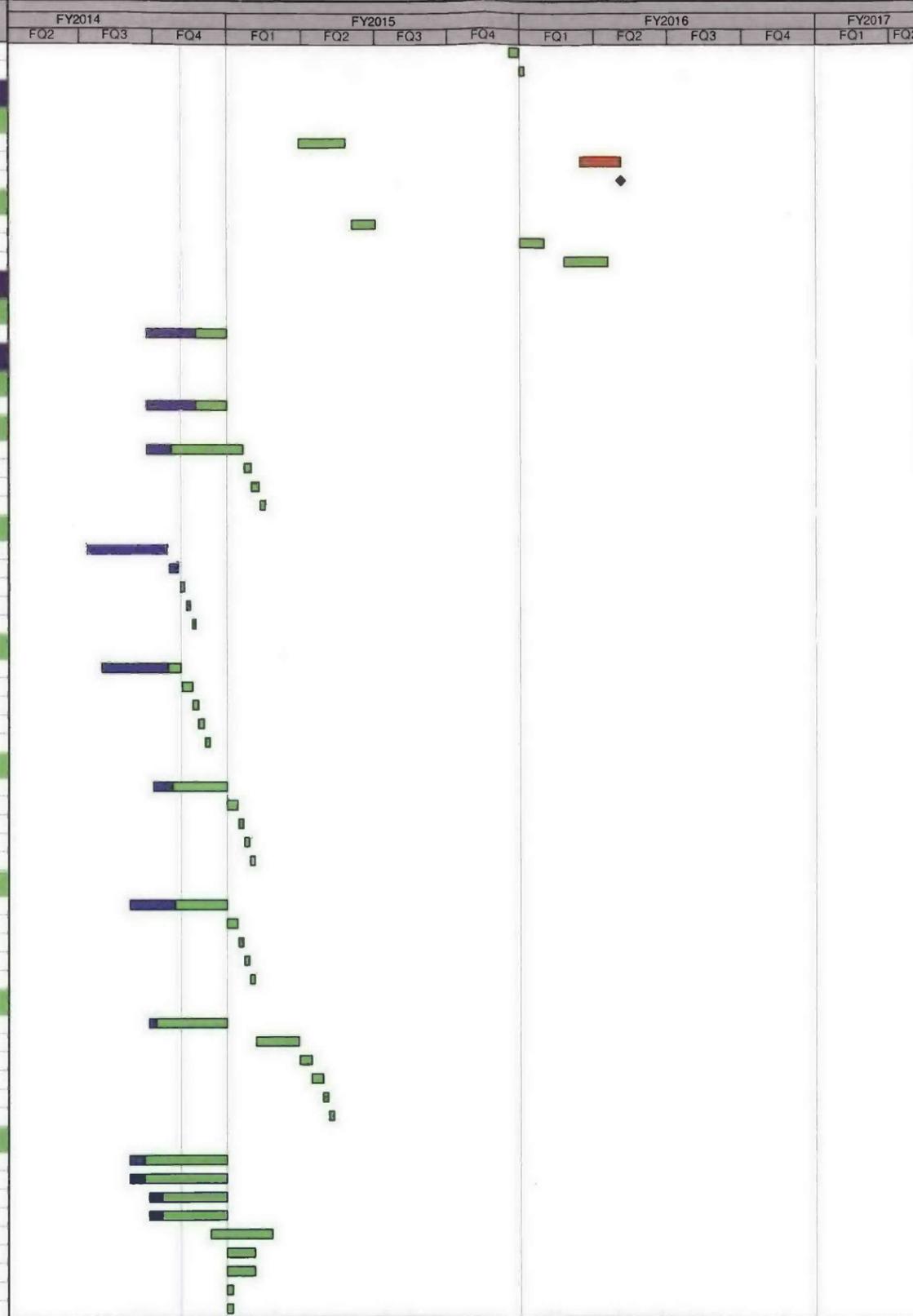
Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2		
HZA-242A24	AY-02E Rehab Work Package JRG/Approval/USQ/Release to Work	18-Nov-14	03-Dec-14	9	9	0%	90	WRPS- Esvelt, CA															
Work Package Planning for AY-02A Pit Equipment Installation		08-Jan-15	13-Apr-15	60	60		93																
HZA-252A171	Prep/Appr/RTW AY-02A Mech Work Package	08-Jan-15	11-Mar-15	40	40	0%	79	WRPS- Esvelt, CA															
HZA-252A172	Prep/Appr/RTW AY-02A Elec. Work Package	08-Jan-15	06-Feb-15	20	20	0%	99	WRPS- Esvelt, CA															
HZA-252A173	Prep/Appr/RTW AY-02A Testing Work Package	09-Feb-15	11-Mar-15	20	20	0%	113	WRPS- Esvelt, CA															
HZA-252A174	Prep/Appr/RTW Mech. Work Packages for AY-102 Slurry Pump and HPU Installation	17-Feb-15	18-Mar-15	20	20	0%	85	WRPS- Esvelt, CA															
HZA-252A175	Prep/Appr/RTW Elec. Work Package for AY-102 HPU Installation	17-Feb-15	18-Mar-15	20	20	0%	85	WRPS- Esvelt, CA															
HZA-252A170	Plan work packages for Pit Drain Isolation and Pump Changeout	17-Feb-15	13-Apr-15	36	36	0%	85	WRPS- Esvelt, CA															
HZA-252A176	Prep/Appr/RTW Testing Work Package for AY-02A HPUs	05-Mar-15	03-Apr-15	20	20	0%	79	WRPS- Esvelt, CA															
Install Equipment in AY-02A Pit		15-Apr-14 A	10-Jul-15	299	102		153																
AO-26	Design Temporary Pit Drain Plug (Hammock)	15-Apr-14 A	13-Jun-14 A	15	0	100%		WRPS- Zentler, T															
AO-21	Define Isolation Approach	05-May-14 A	07-May-14 A	3	0	100%		WRPS- Zentler, T															
AO-22	Review & Approve Isolation Approach	07-May-14 A	16-May-14 A	5	0	100%		WRPS- Zentler, T															
AO-23	Draft & Release Letter to ORP to Get Concurrence	22-May-14 A	27-May-14 A	3	0	100%		WRPS- Zentler, T															
AO-24	ORP Review Approach	28-May-14 A	03-Jun-14 A	5	0	100%		WRPS- Zentler, T															
HZM-252A180	DOE Issue Memo to WRPS to Proceed with In-Tank Equipment Installation	17-Feb-15		0	0	0%	85	WRPS- Zentler, T															
HZA-252A180	AY-02A Pre-Job Work Packages	23-Apr-15	23-Apr-15	1	1	0%	52	WRPS- Zentler, T															
HZA-252A181	AY-02A Install Splash Guards	27-Apr-15	01-May-15	5	5	0%	52	WRPS- Zentler, T															
HZA-252A182	AY-02A Wash Pit	04-May-15	04-May-15	1	1	0%	52	WRPS- Zentler, T															
HZA-252A183	AY-02A Mobilize Crane	04-May-15	05-May-15	2	2	0%	52	WRPS- Zentler, T															
HZA-252A184	AY-02A Remove and Wrap Cover Block	15-May-15	18-May-15	2	2	0%	46	WRPS- Zentler, T															
HZA-252A185	Isolate AY-02A Pit Drain Line	19-May-15	20-May-15	2	2	0%	120	WRPS- Zentler, T															
HZA-252A187	Remove & Install Slurry Pump, Equipment & HIHTL in AY-02A Pit	19-May-15	18-Jun-15	20	20	0%	46	WRPS- Zentler, T															
HZA-252A186	Install sump pump and piping in AY-02A	21-May-15	29-May-15	5	5	0%	163	WRPS- Zentler, T															
HZA-252A188	Electrical and Instrumentation Installation AY-02A	28-May-15	25-Jun-15	19	19	0%	46	WRPS- Zentler, T															
HZA-252A189	Perform AY-02A Equipment Testing	26-Jun-15	08-Jul-15	7	7	0%	46	WRPS- Zentler, T															
HZA-252A18A	AY-02A Install New Pit Cover Plate	09-Jul-15	10-Jul-15	2	2	0%	46	WRPS- Zentler, T															
HZM-252A185	Isolation of AY-02A Pit Complete	10-Jul-15	10-Jul-15	0	0	0%	89	WRPS- Zentler, T															
5.01.01.15.03.03 AY-102 Equipment Removal & Pit Rehab		15-Apr-15	11-Dec-15	81	151																		
WRS In-Tank Equipment Installation		15-Apr-15	26-Aug-15	85	85		41																
HZA-253A142	Prep/Appr/RTW Elec. Work Package for HIHTL Installation	15-Apr-15	14-May-15	20	20	0%	46	WRPS- Esvelt, CA															
HZA-253A141	Prep/Appr/RTW Mech Work Package for HIHTL Installation	12-Jun-15	14-Jul-15	20	20	0%	41	WRPS- Esvelt, CA															
HZA-253A143	Prep/Appr/RTW Testing Work Package for HIHTL	16-Jul-15	17-Aug-15	20	20	0%	41	WRPS- Esvelt, CA															
HZA-253A144	Prep/Appr/RTW Work Package for HIHTL Shielding	28-Jul-15	26-Aug-15	20	20	0%	41	WRPS- Esvelt, CA															
Prepare Work Packages to Install ERSS in AY-102 Pits		27-Apr-15	29-Jul-15	60	60		64																
HZA-252A109	Prep/Appr/RTW AY-102 ERSS Mech Work Package	27-Apr-15	26-Jun-15	40	40	0%	0	WRPS- Esvelt, CA															
HZA-252A101	Prep/Appr/RTW AY-102 ERSS Elec. Work Package	28-May-15	26-Jun-15	20	20	0%	0	WRPS- Esvelt, CA															
HZA-252A102	Prep/Appr/RTW AY-102 ERSS Testing Work Package	28-May-15	26-Jun-15	20	20	0%	84	WRPS- Esvelt, CA															
HZA-252A104	Prep/Appr/RTW Mech. Work Packages for ERSS HPUs	29-Jun-15	29-Jul-15	20	20	0%	37	WRPS- Esvelt, CA															
HZA-252A105	Prep/Appr/RTW Elec. Work Package for ERSS HPUs	29-Jun-15	29-Jul-15	20	20	0%	37	WRPS- Esvelt, CA															
HZA-252A106	Prep/Appr/RTW Testing Work Package for ERSS HPUs	29-Jun-15	29-Jul-15	20	20	0%	64	WRPS- Esvelt, CA															
HZA-252A110	Pre-Job ERSS Mechanical Work Package	29-Jun-15	29-Jun-15	1	1	0%	0	WRPS- Esvelt, CA															
HZA-252A103	Pre-Job ERSS Electrical WP	29-Jun-15	29-Jun-15	1	1	0%	0	WRPS- Esvelt, CA															
ERSS Installation in AY-02D Pit		10-Aug-15	08-Sep-15	19	19		12																
HZA-252A140	Setup Crane	10-Aug-15	10-Aug-15	1	1	0%	0	WRPS- Zentler, T															
HZA-252A130	Remove Temporary Pit Cover	11-Aug-15	11-Aug-15	1	1	0%	0	WRPS- Zentler, T															
HZA-252A131	Install ERSS Sluicer in AY-02D Pit-Riser 003	12-Aug-15	19-Aug-15	5	5	0%	0	WRPS- Zentler, T															
HZA-252A132	Install Jumpers for HP and Raw Water	20-Aug-15	26-Aug-15	5	5	0%	0	WRPS- Zentler, T															
HZA-252A133	Connect HIHTL for Supernate	27-Aug-15	31-Aug-15	2	2	0%	11	WRPS- Zentler, T															
HZA-252A134	Install Leak Detection - In Pit	01-Sep-15	01-Sep-15	1	1	0%	11	WRPS- Zentler, T															
HZA-252A135	Install Winterization/Freeze Protection Equipment in Pit	01-Sep-15	08-Sep-15	5	5	0%	12	WRPS- Zentler, T															
ERSS Installation in AY-02C Pit		30-Jun-15	30-Jul-15	20	20		36																
HZA-252A111	Mobilize and Stage Crane	30-Jun-15	01-Jul-15	2	2	0%	0	WRPS- Zentler, T															
HZA-252A141	Remove Temporary Pit Cover	06-Jul-15	06-Jul-15	1	1	0%	0	WRPS- Zentler, T															
HZA-252A142	Install ERSS Sluicer in AY-02C Pit-Riser 002	07-Jul-15	13-Jul-15	5	5	0%	0	WRPS- Zentler, T															
HZA-252A143	Install Jumpers for HP and Raw Water	14-Jul-15	21-Jul-15	5	5	0%	0	WRPS- Zentler, T															
HZA-252A144	Connect HIHTL for Supernate	22-Jul-15	23-Jul-15	2	2	0%	33	WRPS- Zentler, T															
HZA-252A145	Install Leak Detection - In Pit	24-Jul-15	24-Jul-15	1	1	0%	33	WRPS- Zentler, T															
HZA-252A146	Install Winterization/Freeze Protection Equipment in Pit	24-Jul-15	30-Jul-15	5	5	0%	36	WRPS- Zentler, T															
ERSS Installation in AY-02B Pit		27-Aug-15	28-Sep-15	19	19		0																
HZA-252A120	Setup Crane	27-Aug-15	27-Aug-15	1	1	0%	0	WRPS- Zentler, T															
HZA-252A121	Remove Temporary Pit Cover	31-Aug-15	31-Aug-15	1	1	0%	0	WRPS- Zentler, T															
HZA-252A122	Install ERSS Sluicer in AY-02B Pit-Riser 001	01-Sep-15	08-Sep-15	5	5	0%	0	WRPS- Zentler, T															
HZA-252A123	Install Jumpers for HP and Raw Water	09-Sep-15	16-Sep-15	5	5	0%	0	WRPS- Zentler, T															
HZA-252A124	Connect HIHTL for Supernate	17-Sep-15	18-Sep-15	2	2	0%	0	WRPS- Zentler, T															



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014		FY2015		FY2016		FY2017	
									FO2	FO3	FO4	FO1	FO2	FO3	FO4	FO1
HZA-253A158	Perform System Testing	18-Sep-15	29-Sep-15	7	7	0%	41	WRPS- Zentler, T								
HZA-253A159	Install Hose Barns	30-Sep-15	06-Oct-15	5	5	0%	41	WRPS- Zentler, T								
5.01.01.15.03.08 AY-102 Engineering Support to Construction		29-Dec-14	02-Feb-16	248	248		20									
Perform WRS Construction Acceptance Testing & Turnover to Operations		29-Dec-14	02-Feb-16	248	248		11									
HZA-252A100	Develop Test Review Matrix (TRM)	29-Dec-14	24-Feb-15	36	36	0%	84	WRPS- Zentler, T								
HZA-254A1	Perform WRS Integrated Operational Acceptance Testing	14-Dec-15	02-Feb-16	30	30	0%	0	WRPS- Zentler, T								
HZM-254A0	Construction Complete		02-Feb-16	0	0	0%	11	WRPS- Zentler, T								
AY-102 Engineering & Construction Support During Construction		05-Mar-15	18-Jan-16	197	197		30									
HZA-253500	AY-102 Engineering Support During Construction	05-Mar-15	03-Apr-15	20	20	0%	207	WRPS- Hanson, CE								
HZA-0102316	Environmental Interface & Support FY16	01-Oct-15	30-Oct-15	20	20	0%	75	WRPS- Bloom, R								
HZA-010230aH	Update Environmental Baseline Documents	25-Nov-15	18-Jan-16	30	30	0%	30	WRPS- Bloom, R								
5.01.01.15.04.01 AP-102 Project Mgmt & Support		23-Jun-14 A	30-Sep-14	70	41		294									
Project Management		23-Jun-14 A	30-Sep-14	70	41		294									
HZB-040114	AP-102 Project Management Support (Jul-Sep) FY14	23-Jun-14 A	30-Sep-14	70	41	61%	294	WRPS- Guillot, SP								
5.01.01.15.04.02 AP-102 Design and Engineering		23-Jun-14 A	30-Sep-14	70	41		294									
Environmental Interface & Support		23-Jun-14 A	30-Sep-14	70	41		294									
HZB-010230B	Environmental Support (Jul-Sep) FY14	23-Jun-14 A	30-Sep-14	70	41	61%	294	WRPS- Bloom, R								
1.2.2 - Conduct Thermal Analysis to identify preferred retrieval strategy		23-Jun-14 A	17-Nov-14	104	75		299									
HZB-122b5	Prepare Draft Report for Tank AP-102	23-Jun-14 A	21-Oct-14	47	56	25%	299	WRPS- Hanson, CE								
HZB-122b6	WRPS Review & Comment on Tank AP-102 Report	22-Oct-14	30-Oct-14	7	7	0%	299	WRPS- Hanson, CE								
HZB-122b7	Disposition Comments & Finalize Tank AP-102 Report	31-Oct-14	10-Nov-14	7	7	0%	299	WRPS- Hanson, CE								
HZB-122b8	Approve & Release Tank AP-102 Report (RPP-RPT)	11-Nov-14	17-Nov-14	5	5	0%	299	WRPS- Hanson, CE								
1.3.3.1 - Equipment Removal & Site Preparation Design		11-Apr-14 A	22-Aug-14	94	15		75									
HZB-1331B6	Prepare equipment removal and site preparation designs (AP-02A Pit)	11-Apr-14 A	18-Jul-14 A	40	0	100%		WRPS- Hanson, CE								
HZB-1331B2	Review and comment on equipment removal and site preparation designs (AP-02A Pit)	21-Jul-14 A	01-Aug-14 A	10	0	100%		WRPS- Hanson, CE								
HZB-1331B3	Disposition review comments on equipment removal and site preparation designs (AP-02A Pit)	04-Aug-14	08-Aug-14	5	5	0%	75	WRPS- Hanson, CE								
HZB-1331B4	Finalize equipment removal and site preparation designs (AP-02A Pit)	11-Aug-14	15-Aug-14	5	5	0%	75	WRPS- Hanson, CE								
HZB-1331B5	Review, approve, and release equipment removal and site preparation designs (AP-02A Pit)	18-Aug-14	22-Aug-14	5	5	0%	75	WRPS- Hanson, CE								
1.3.4.2 - Prepare SN Pump Assembly Design (AP-102)		29-Apr-14 A	09-Sep-14	93	26		82									
HZB-134B05	Prepare AP-102 SN Pump Assembly design	29-Apr-14 A	04-Aug-14	25	1	83%	82	WRPS- Hanson, CE								
HZB-134B09	Review and comment on AP-102 SN Pump Assembly design	05-Aug-14	18-Aug-14	10	10	0%	82	WRPS- Hanson, CE								
HZB-134B11	Disposition review comments on AP-102 SN Pump Assembly design	19-Aug-14	25-Aug-14	5	5	0%	82	WRPS- Hanson, CE								
HZB-134B13	Finalize AP-102 SN Pump Assembly design	26-Aug-14	02-Sep-14	5	5	0%	82	WRPS- Hanson, CE								
HZB-134B15	Review, approve, and release AP-102 SN Pump Assembly design	03-Sep-14	09-Sep-14	5	5	0%	82	WRPS- Hanson, CE								
1.3.6.1.2 - SN pump jumpers		01-Jul-14 A	04-Nov-14	89	66		36									
HZB-1361B1	Prepare Pit Jumper designs for SN pump	01-Jul-14 A	30-Sep-14	64	41	26%	36	WRPS- Hanson, CE								
HZB-1361B2	Review and comment on Pit Jumper designs for SN pump	01-Oct-14	14-Oct-14	10	10	0%	36	WRPS- Hanson, CE								
HZB-1361B3	Disposition review comments on Pit Jumper designs for SN pump	15-Oct-14	21-Oct-14	5	5	0%	36	WRPS- Hanson, CE								
HZB-1361B4	Finalize Pit Jumper designs for SN pump	22-Oct-14	28-Oct-14	5	5	0%	36	WRPS- Hanson, CE								
HZB-1361B5	Review, approve, and release Pit Jumper designs for SN pump	29-Oct-14	04-Nov-14	5	5	0%	36	WRPS- Hanson, CE								
1.3.6.2.2 - AP-102 Cover Plate Designs		02-Jun-14 A	04-Nov-14	110	66		88									
HZB-1362B1	Prepare Pit cover plate designs (AP-102)	02-Jun-14 A	30-Sep-14	81	41	47%	88	WRPS- Hanson, CE								
HZB-1362B2	Review and comment on Pit cover plate designs (AP-102)	01-Oct-14	14-Oct-14	10	10	0%	88	WRPS- Hanson, CE								
HZB-1362B3	Disposition review comments on Pit cover plate designs (AP-102)	15-Oct-14	21-Oct-14	5	5	0%	88	WRPS- Hanson, CE								
HZB-1362B4	Finalize Pit cover plate designs (AP-102)	22-Oct-14	28-Oct-14	5	5	0%	88	WRPS- Hanson, CE								
HZB-1362B5	Review, approve, and release Pit cover plate designs (AP-102)	29-Oct-14	04-Nov-14	5	5	0%	88	WRPS- Hanson, CE								
1.3.12.1.2 - AP Farm Mechanical Layout & Installation Design		27-Jun-14 A	10-Feb-15	156	131		94									
HZB-13121B1	Prepare AP Farm Installation Design for Mechanical Equipment	27-Jun-14 A	30-Sep-14	66	41	9%	119	WRPS- Hanson, CE								
HZB-13121C1	Prepare AP Farm Installation Design for Mechanical Equipment	05-Nov-14	29-Dec-14	35	35	0%	94	WRPS- Hanson, CE								
HZB-13121B2	Review and comment on AP Farm Mechanical Equipment Installation Design	30-Dec-14	13-Jan-15	10	10	0%	94	WRPS- Hanson, CE								
HZB-13121B3	Disposition review comments on AP Farm Mechanical Equipment Installation Design	14-Jan-15	27-Jan-15	10	10	0%	94	WRPS- Hanson, CE								
HZB-13121B4	Finalize installation design for AP Farm Mechanical Equipment Install	28-Jan-15	03-Feb-15	5	5	0%	94	WRPS- Hanson, CE								
HZB-13121B5	Review, approve, and release AP Farm Mechanical Equipment Installation Design	04-Feb-15	10-Feb-15	5	5	0%	94	WRPS- Hanson, CE								
1.3.12.2.1 - AP Farm Electrical Layout & Installation Design		02-Jun-14 A	04-Mar-15	190	146		130									
HZB-13122B03	Prepare AP Farm design for Freeze Protection Monitoring (Mechanical)	02-Jun-14 A	30-Sep-14	91	41	16%	146	WRPS- Hanson, CE								
HZB-13122B05	Prepare AP Farm design for WRS Winterization	02-Jun-14 A	30-Sep-14	91	41	16%	146	WRPS- Hanson, CE								
HZB-13122B01	Prepare AP Farm design for Freeze Protection Monitoring (Electrical Systems)	27-Jun-14 A	30-Sep-14	91	41	16%	127	WRPS- Hanson, CE								
HZB-13122B04	Prepare AP Farm design for Freeze Protection Monitoring (ISA-84)	27-Jun-14 A	30-Sep-14	91	41	16%	117	WRPS- Hanson, CE								
HZB-13122B02	Prepare AP Farm installation design for Electrical Equipment (General)	10-Sep-14	25-Nov-14	55	55	0%	112	WRPS- Hanson, CE								
HZB-13122C04	Prepare AP Farm design for Freeze Protection Monitoring (ISA-84)	01-Oct-14	04-Nov-14	25	25	0%	117	WRPS- Hanson, CE								
HZA-13122C01	Prepare AP Farm design for Freeze Protection Monitoring (Electrical Systems)	01-Oct-14	04-Nov-14	25	25	0%	127	WRPS- Hanson, CE								
HZB-13122C03	Prepare AP Farm design for Freeze Protection Monitoring (Mechanical)	01-Oct-14	08-Oct-14	6	6	0%	146	WRPS- Hanson, CE								
HZB-13122C05	Prepare AP Farm design for WRS Winterization	01-Oct-14	08-Oct-14	6	6	0%	146	WRPS- Hanson, CE								



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014		FY2015				FY2016				FY2017		
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2
HZB-13122B06	Review and comment on AP Farm Electrical Installation design	12-Nov-14	11-Dec-14	20	20	0%	112	WRPS- Hanson, CE													
HZB-13122B07	Disposition review comments on AP Farm Electrical Installation design	12-Dec-14	18-Dec-14	5	5	0%	112	WRPS- Hanson, CE													
HZB-13122B08	Finalize AP Farm Electrical Installation design	19-Dec-14	06-Jan-15	10	10	0%	112	WRPS- Hanson, CE													
HZB-13122B09	Review, approve, and release AP Farm Electrical Installation design	07-Jan-15	13-Jan-15	5	5	0%	112	WRPS- Hanson, CE													
HZM-13122B00	AP Farm Installation Design Complete		04-Mar-15	0	0	0%	130	WRPS- Hanson, CE													
1.3.12.6 - AP-02A Pit Installation Design		01-Oct-14	07-Jan-15	66	66		112														
HZA-13126A1	Prepare installation design for AP-02A Pit Installation	01-Oct-14	26-Nov-14	41	41	0%	112	WRPS- Hanson, CE													
HZA-13126A2	Review and comment on installation design for AP-02A Pit Installation	01-Dec-14	12-Dec-14	10	10	0%	112	WRPS- Hanson, CE													
HZA-13126A3	Disposition review comments on installation design for AP-02A Pit Installation	15-Dec-14	19-Dec-14	5	5	0%	112	WRPS- Hanson, CE													
HZA-13126A4	Finalize installation design for AP-02A Pit Installation	22-Dec-14	30-Dec-14	5	5	0%	112	WRPS- Hanson, CE													
HZA-13126A5	Review, approve, and release installation design for AP-02A Pit Installation	31-Dec-14	07-Jan-15	5	5	0%	112	WRPS- Hanson, CE													
1.3.12.7 - SN Pump HPU Installation (AP-102) Design		05-Nov-14	04-Mar-15	80	80		88														
HZA-13127A1	Prepare installation design for AP-102 SN Pump HPU Installation	05-Nov-14	18-Dec-14	30	30	0%	88	WRPS- Hanson, CE													
HZA-13127A2	Review and comment on installation design for AP-102 SN Pump HPU Installation	19-Dec-14	06-Jan-15	10	10	0%	88	WRPS- Hanson, CE													
HZA-13127A3	Disposition review comments on installation design for AP-102 SN Pump HPU Installation	07-Jan-15	03-Feb-15	20	20	0%	88	WRPS- Hanson, CE													
HZA-13127A4	Finalize installation design for AP-102 SN Pump HPU Installation	04-Feb-15	18-Feb-15	10	10	0%	88	WRPS- Hanson, CE													
HZA-13127A5	Review, approve, and release installation design for AP-102 SN Pump HPU Installation	19-Feb-15	04-Mar-15	10	10	0%	88	WRPS- Hanson, CE													
1.3.12.10 - In-Tank Video Equipment Installation Design		27-Aug-14	11-Feb-15	115	115		130														
HZA-1312AA1	Prepare installation design for In-Tank Video Equipment Installation	27-Aug-14*	26-Nov-14	65	65	0%	130	WRPS- Hanson, CE													
HZA-1312AA2	Review and comment on installation design for In-Tank Video Equipment Installation	01-Dec-14	12-Dec-14	10	10	0%	130	WRPS- Hanson, CE													
HZA-1312AA3	Disposition review comments on installation design for In-Tank Video Equipment Installation	15-Dec-14	14-Jan-15	20	20	0%	130	WRPS- Hanson, CE													
HZA-1312AA4	Finalize installation design for In-Tank Video Equipment Installation	15-Jan-15	28-Jan-15	10	10	0%	130	WRPS- Hanson, CE													
HZA-1312AA5	Review, approve, and release installation design for In-Tank Video Equipment Installation	29-Jan-15	11-Feb-15	10	10	0%	130	WRPS- Hanson, CE													
5.01.01.15.05.01 AP-102 Misc. Procurements & Support		11-Jun-14 A	30-Sep-14	70	37		264														
AP-102 SN Transfer Pump & HPU Procurement		11-Jun-14 A	30-Sep-14	70	37		264														
HZA-2310A01	Prepare RFP for SN Transfer Pump & HPU	11-Jun-14 A	25-Jun-14 A	10	0	100%		WRPS- Lau, E													
HZA-2310A02	Review RFP for SN Transfer Pump & HPU	26-Jun-14 A	27-Jun-14 A	2	0	100%		WRPS- Lau, E													
HZA-2310A03	Incorporate Review Comments into RFP for SN Transfer Pump & HPU	30-Jun-14 A	01-Jul-14 A	2	0	100%		WRPS- Lau, E													
HZA-2310A04	Buyer Obtain Approvals & Issue RFP for SN Transfer Pump & HPU	02-Jul-14 A	09-Jul-14 A	3	0	100%		WRPS- Lau, E													
HZA-2310A06	Vendor Prepare & Submit Proposal for SN Transfer Pump & HPU	09-Jul-14 A	28-Jul-14 A	10	0	100%		WRPS- Lau, E													
HZM-2310A05	RFP Issued for SN Transfer Pump & HPU		09-Jul-14 A	0	0	100%		WRPS- Lau, E													
HZA-2310A07	Evaluate Vendor Proposals for SN Transfer Pump & HPU	24-Jul-14 A	28-Jul-14 A	1	0	100%		WRPS- Zentler, T													
HZA-2310A08	Prepare Contract for SN Transfer Pump & HPU	28-Jul-14 A	04-Aug-14	3	1	90%	7	WRPS- Lau, E													
HZA-050100	AP-102 Procurement Support	04-Aug-14*	30-Sep-14	37	37	0%	264	WRPS- Robinson, RS													
HZM-2310A09	Award Contract to Selected Vendor for SN Transfer Pump & HPU		04-Aug-14	0	0	0%	7	WRPS- Lau, E													
5.01.01.15.05.02 AP-102 Major Procurements		05-Aug-14	30-Apr-15	95	107		127														
AP-102 SN Transfer Pump & HPU Procurement		05-Aug-14	07-Jan-15	95	95		127														
HZA-2310A10	Manufacture & Test SN Transfer Pump & HPU	05-Aug-14	01-Oct-14	37	37	0%	127	WRPS- Robinson, RS													
HZA-2310A10A	Manufacture & Test SN Transfer Pump & HPU	02-Oct-14	09-Dec-14	42	42	0%	127	WRPS- Robinson, RS													
HZA-2310A11	Source Inspect SN Transfer Pump & HPU	10-Dec-14	16-Dec-14	5	5	0%	127	WRPS- Robinson, RS													
HZA-2310A12	Ship SN Transfer Pump & HPU	17-Dec-14	26-Dec-14	5	5	0%	127	WRPS- Robinson, RS													
HZA-2310A13	Perform Receipt Inspection for SN Transfer Pump - AP-102	29-Dec-14	30-Dec-14	2	2	0%	127	WRPS- Robinson, RS													
HZA-2310A14	Green Tag & Stage SN Transfer Pump HPU	31-Dec-14	05-Jan-15	2	2	0%	127	WRPS- Robinson, RS													
HZA-2310A15	Deliver SN Transfer Pump to Fabricator	06-Jan-15	07-Jan-15	2	2	0%	127	WRPS- Robinson, RS													
AP-102 Supernatant Pump Assembly Procurement		10-Sep-14	30-Apr-15	144	144		106														
HZB-231B01	Prepare RFP for AP-102 SN Pump Assembly Fabrication & Test	10-Sep-14	17-Sep-14	5	5	0%	106	WRPS- Lau, E													
HZB-231B02	Review RFP for AP-102 SN Pump Assembly Fabrication & Test	18-Sep-14	19-Sep-14	2	2	0%	106	WRPS- Lau, E													
HZB-231B03	Incorporate Review Comments into RFP for AP-102 SN Pump Assembly Fabrication & Test	22-Sep-14	24-Sep-14	3	3	0%	106	WRPS- Lau, E													
HZB-231B04	Buyer Obtain Approvals & Issue RFP for AP-102 SN Pump Assembly Fabrication & Test	25-Sep-14	02-Oct-14	5	5	0%	106	WRPS- Lau, E													
HZB-231B05	RFP Issued for AP-102 SN Pump Assembly Fabrication & Test		02-Oct-14	0	0	0%	106	WRPS- Lau, E													
HZB-231B06	Vendor Prepare & Submit Proposal for AP-102 SN Pump Assembly Fabrication & Test	03-Oct-14	17-Oct-14	10	10	0%	106	WRPS- Lau, E													
HZB-231B07	Evaluate Vendor Proposals for AP-102 SN Pump Assembly Fabrication & Test	20-Oct-14	21-Oct-14	2	2	0%	106	WRPS- Zentler, T													
HZB-231B08	Prepare Contract for AP-102 SN Pump Assembly Fabrication & Test	22-Oct-14	29-Oct-14	5	5	0%	106	WRPS- Lau, E													
HZB-231B09	Award Contract to Selected Vendor for AP-102 SN Pump Assembly Fabrication & Test		29-Oct-14	0	0	0%	106	WRPS- Lau, E													
HZB-231B10	AP-102 SN Pump Assembly Fabrication & Test	30-Oct-14	08-Apr-15	98	98	0%	106	WRPS- Robinson, RS													
HZB-231B11	Source Inspect AP-102 SN Pump Assembly	09-Apr-15	16-Apr-15	5	5	0%	106	WRPS- Robinson, RS													
HZB-231B12	Ship AP-102 SN Pump Assembly	17-Apr-15	23-Apr-15	5	5	0%	106	WRPS- Robinson, RS													
HZB-231B13	Perform Receipt Inspection for AP-102 SN Pump Assembly	27-Apr-15	28-Apr-15	2	2	0%	106	WRPS- Robinson, RS													
HZB-231B14	Green Tag & Stage AP-102 SN Pump Assembly	28-Apr-15	30-Apr-15	2	2	0%	106	WRPS- Robinson, RS													
5.01.01.15.06.01 AP-102 Pit Exam and Video		12-May-14 A	09-Sep-14	76	21		13														
Video Inspection of AP-02A Pit (TFC-WO-14-2081)		12-May-14 A	09-Sep-14	76	21		13														
HZA-2412A0	Process Change Order for AEI	12-May-14 A	27-May-14 A	5	0	100%		WRPS- Zentler, T													
HZA-2412A01	Prepare & Release Contract Modification to AEI	30-May-14 A	23-Jun-14 A	10	0	100%		WRPS- Lau, E													
HZA-2412A5	Prepare/Release Work Package for Video Examination of AP-02A Pit (TFC-WO-14-2081)	24-Jun-14 A	30-Jul-14 A	21	0	100%		WRPS- Esvelt, CA													



■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

Detailed Schedule

Activity ID	Activity Name	Start	Finish	OD	RD	% Comp	TF	RESP	FY2014				FY2015				FY2016				FY2017	
									FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	FQ3	FQ4	FQ1	FQ2	
Install AY Farm HIHTL Transfer Line		05-Mar-15	22-Jun-15	60	60			91														
HZM-64A31	(INTERFACE MILESTONE) - AX Steam Line Removal Complete		05-Mar-15	0	0	0%		91														
HZA-64A30	Construct AY/AX-Farm Transfer Route	09-Mar-15	22-Jun-15	60	60	0%		91														
Inter Farm HIHTL Installation Work Package Preparation		03-Feb-15	19-Mar-15	32	32			104														
HZX-64A22	Inter-Farm Transfer Route Work Package Prep.	03-Feb-15	19-Mar-15	22	22	0%		94														
HZX-64A23	Inter-Farm Transfer Route WP JRG/Approval/USQ/RTW	06-Mar-15	19-Mar-15	10	10	0%		104														
Install Inter Farm HIHTL Transfer Line		23-Mar-15	06-Jul-15	60	60			83														
HZX-64A31	Construct Inter-Farm Transfer Route	23-Mar-15	06-Jul-15	60	60	0%		83														
AP Farm HIHTL Installation Work Package Preparation		18-Feb-15	02-Apr-15	32	32			94														
HZB-64A24	AP Farm Transfer Route Work Package Prep.	18-Feb-15	19-Mar-15	22	22	0%		94														
HZB-64A25	AP Farm Transfer Route WP JRG/Approval/USQ/RTW	20-Mar-15	02-Apr-15	10	10	0%		94														
Install AP Farm HIHTL Transfer Line		06-Apr-15	20-Jul-15	60	60			75														
HZB-64A32	Construct AP Farm Transfer Route	06-Apr-15	20-Jul-15	60	60	0%		75														
5.01.01.15.07.01 AY-102 & AP-102 Integrated Startup & Readiness		13-Aug-15	04-Mar-16	125	125			185														
WRS Readiness for Operations		25-Nov-15	04-Mar-16	60	60			0														
HZA-26A1	Readiness for Operations - WRS	25-Nov-15	04-Mar-16	60	60	0%		0														
AO-4	Readiness to Pump AY-102 per Administrative Order (Item #4)		01-Dec-15*	0	0	0%		0														
AO-4PP-C	Readiness to Pump AY-102 (Pumping Plan Rev-C Date 04-Mar-16)		04-Mar-16*	0	0	0%		0														
HZM-26A0	Decalration of Readiness to Pump AY-102		04-Mar-16	0	0	0%		0														
Test Program Worksheet		13-Aug-15	04-Sep-15	15	15			185														
HZA-26A11	Prepare Test Program Worksheet (TPW)	13-Aug-15	27-Aug-15	10	10	0%		185														
HZA-26A12	JTG Chairperson Review	31-Aug-15	04-Sep-15	5	5	0%		185														
Test Plan		08-Sep-15	16-Nov-15	45	45			185														
HZA-26A13	Prepare Test Plan (TP)	08-Sep-15	07-Oct-15	20	20	0%		185														
HZA-26A14	Cross-Dicipline Review TP	08-Oct-15	30-Oct-15	15	15	0%		185														
HZA-26A15	Management Review TP	02-Nov-15	09-Nov-15	5	5	0%		185														
HZA-26A16	JTG Approve TP (only required if TP-1)	10-Nov-15	16-Nov-15	5	5	0%		185														
Review FAT Plans		17-Nov-15	03-Dec-15	10	10			185														
HZA-26A17	Review FAT Plan(s)	17-Nov-15	03-Dec-15	10	10	0%		185														
Operational Acceptance Test (OAT)		07-Dec-15	18-Feb-16	45	45			185														
HZA-26A18	Prepare Operational Acceptance Test (OAT)	07-Dec-15	08-Jan-16	20	20	0%		185														
HZA-26A19	Cross-Dicipline Review OAT	11-Jan-16	25-Jan-16	10	10	0%		185														
HZA-26A20	Perform OAT	26-Jan-16	18-Feb-16	15	15	0%		185														
Test Results Report		19-Feb-16	04-Mar-16	10	10			185														
HZA-26A21	Prepare Test Results Report (TRR)	19-Feb-16	25-Feb-16	5	5	0%		185														
HZA-26A22	JTWG Review TRR	29-Feb-16	04-Mar-16	5	5	0%		185														
5.01.01.15.07.02 AY-102 Retrieval Operations		05-Mar-16	21-Nov-16	183	183			23														
AY-102 Waste Transfer Operations		05-Mar-16	21-Nov-16	183	183			23														
HZA-27A1	Perform AY-102 Slurry Waste Transfer	05-Mar-16	20-Aug-16	169	169	0%		130														
HZA-27A0	AY-102 Waste Transfer Complete		22-Aug-16	0	0	0%		79														
AO-5	AY-102 Waste Transfer Complete Administrative Order (Item #5)		21-Nov-16	0	0	0%		21														

■ Remaining Work
 ■ Actual Work
 ■ Critical Remaining Work
■ Hammock Activity
 ■ Hammock % Comp
 ◆ Milestone

RPP-PLAN-59931, Rev. 2

ATTACHMENT C
ERSS VENDOR WORK PLAN AND SCHEDULE

RPP-PLAN-59931, Rev. 2

AGI Manufacturing

Technical Proposal for 241-AY-102 Extended Reach Sluicer System (ERSS) Verification

**Washington River Protection
Solutions, LLC**

Technical Approach

A. Scope of Work

This proposal is for verification in order to ensure that the Extended Reach Sluicer System meets the requirements of the current specification for retrieval of radioactive waste from tanks in the 241-AY tank farm.

B. Statement of Work

The specification for the 241-AY tank farm versions of the Extended Reach Sluicer System has been updated to account for differences in tank geometry and retrieval conditions. Additionally, previous operational experience with the 241-C series Extended Reach Sluicers and updates to the customers design standards and requirements have also been considered.

The summary below outlines the primary items to be verified during this project:

1. ERSS/Tank interface
 - a. Riser adapter with interface similar to the 12" pipe flange found on 241-C tanks.
 - b. Clearance for dowel pins on the tank riser flange.
 - c. Force and moment loads on riser adapter.
 2. In-Tank Environment
 - a. Operating conditions (i.e. waste temperature, specific gravity, viscosity)
 - b. Waste chemical constituents
 3. Ex-Tank Environment
 - a. Wind speed
 4. HPU
 - a. Prevent over-cooling of hydraulic fluid during winter service.
 - b. Level indicator that can be read without stooping or crouching.
 - c. Measurement of bulk hydraulic fluid temperature.
 5. ERSS
 - a. Non Teflon (PTFE) hydraulic hoses that are resistant to electrostatic discharge.
 6. Ancillary Systems
 - a. High-level shutoff on the reservoir fill circuit of the High Pressure Wash Supply Skid
 7. Transportability, Storage, Hoisting and Rigging
 - a. Revisions to address programmatic changes
 8. Administrative Requirements
 - a. Submittal of B31.3 piping analysis
-

- b. Qualifications of analyst for pipe stress per ASME B31.3
- c. Submittal of shop drawings for stainless steel piping and component qualification
- d. New procedure for NRTL listing and labeling of electrical components

Work Plan & Schedule

Estimated completion is 6-8 weeks after receipt of order. Subject to timely approval of submittals, inspection and test procedures.

Washington River Protection Solutions, LLC
241-AY-102 Extended Reach Sluicer System (ERSS) Design Upgrades
Solicitation No.: 631
Proposal No.: Q-1406-14A

	1	2	3	4	5	6
Tefzel Hose Engineering						
Tefzel Hose Procurement						
Tefzel Hose Test						
ERSS/Tank Interface Verification						
Environmental Conditions Verification						
HPU Verifications/Updates						
Ancillary Systems Verifications/Updates						
Trans., Storage, Hoisting & Rigging Verification						
Administrative Verifications						

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ATTACHMENT D

HISTORICAL COMMERCIAL GRADE DEDICATION REPORTS (CGD-03189, CGD-3212, CGD-03213)

Equipment Procurement Is Part of the Project Critical Path

- **The following long lead time AY-102 equipment procurements define the critical path schedule:**
 - Isolation valves (precursor to Splitter Boxes)
 - Extended Reach Sluicers System pumps (Manufactured)
 - Slurry and supernatant pumps (Fabricated)

- **The activities driving the procurement process are:**
 - Contract Procurement:
 - Develop Statement of Work – 4 weeks
 - Send RFP to vendors/manufacturers – 2 days
 - Receive Vendor/Manufacturer Proposals – 4 weeks
 - Perform Technical evaluation and Award Contracts – 4 weeks
 - Commercial Grade Dedication Procurement:
 - Request for Material – 1 day
 - Determine Procurement Strategy – 1 day
 - Prepare Draft CGD (comments/review) – 1 week
 - Prepare draft survey plan and checklist – 1 week
 - Execute Survey and prepare report – 30 days
 - Obtain Initial CGD Approvals – 1 week
 - Prepare/Approve MR - 1 week
 - Issue PO/Resolve vendor/manufacturers inquires – 2 weeks
 - Vendor /Manufacturer Lead Time – 1 to 26 weeks
 - AVS Receipt Inspection – 1 week
 - WRPS CGD Dedication Activities – 1 to 2 weeks
 - CGD Package Closure – 1 week
 - Schedule Item to be Green Tagged - 1 week

- The following table summarizes a few examples of the typical timeframes experienced in past projects for the critical long lead items for AY-102 Recovery Project.

Equipment/Component	Historical Data (Cradle to Grave)	Currently Scheduled (Cradle to Grave)
Valves CGD-03189	281 Days (This does not include creating draft CGD, Survey Activities, or Green Tagging)	259 Days (This includes the complete procurement process) See Attachment B
ERSS Waste Transfer Piping CGD-03112	377 Days (This does not include creating draft CGD, Survey Activities, or Green Tagging)	176 Days (This includes the complete procurement process) See Attachment B
ERSS Hydraulic Pressure Control Device CGD-03213	372 Days (This does not include creating draft CGD, Survey Activities, or Green Tagging)	176 Days (This includes the complete procurement process) See Attachment B
Pumps	225 Days	124 Days
Splitter Boxes*	213 Days	175 Days

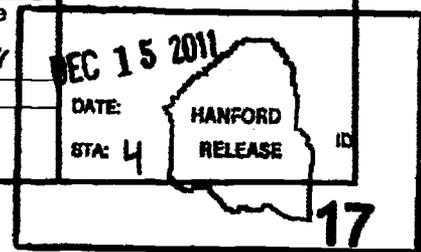
*Valves are required before this fabrication can be started.

- AY-102's project schedule is aggressively being developed to reduce the durations of long lead items by:
 - Early identification of long lead procurement items.
 - Anticipating lead time for procurements items
 - Initiating the CGD process as soon as the design is complete to the point where the suitability of the item for which the items intended application has been determined.
 - Work design/Engineering documents that support the procurement process in parallel.
 - Work with the vendors/manufactures to reduce delivery time.
- CGD documentation (3189, 3212, and 3213) from past procurements is provided in the following pages.

Procurement History For Long Lead Items

<i>CGD No.</i>	<i>Description of Equip./Comp. Ordered</i>	<i>(Historical) Date CGD Was Initiated</i>	<i>(Historical) Date CGD Has Final Approvals And Ready For Green Tag</i>	<i>Historical Data (Cradle to Grave)</i>	<i>Currently Scheduled (Cradle to Grave)</i>
Valves					
CGD-03185	Flow Tek 1" Triad Series, Ball Valve	1/14/2011	8/10/2011	146	N/A
CGD-03188	Flow Tek 1" Triad Series, Ball Valve	5/20/2011	10/12/2011	100	N/A
CGD-03186	Flow Tek 2" Triad Series, Ball Valve	1/11/2011	8/10/2011	189	N/A
CGD-03189 (Documentation Attached)	Flow Tek 2" Triad Series, Ball Valve	5/20/2011	7/2/2012	281	N/A
					259
ERSS's Waste Transfer Piping					
CGD-03193	ERSS /Sluicer Cannon	2/11/2011	11/18/2011	195	N/A
CGD-03212 (Documentation Attached)	ERSS /Sluicer Cannon	12/20/2012	5/20/2014	377	N/A
					176
ERSS Hydraulic Pressure Control Device					
CGD-03213 (Documentation Attached)	ERSS HPCD	12/20/2012	5/3/2014	372	N/A
					176
	PO No.	Date Initiated	Date Green Tagged @ AVS	Historical Data (Cradle to Grave)	Currently Scheduled (Cradle to Grave)
Pumps					
Documentation Attached	46863	3/2/2011	1/24/2012	225	N/A
	46863	7/28/2011	1/24/2012	122	N/A
					124
Splitter Boxes					
Documentation Attached	45516	10/26/2011	8/29/2012	213	N/A
	45752	1/5/2011	8/30/2011	166	N/A
					175

COMMERCIAL GRADE DEDICATION FORM			CGD No.	
ECN No. N/A		Work Package No. <i>MR-11-82152</i>		CGD-03189
Rev No. 2		Reason for Revision Updated Form		CGD Dash Nos.
Title: <i>Flow Tek Valve 2 Inch 2 Way Triad Series Ball Valve</i>				
Responsible Engineer Information				
Name/Company: RS Robinson/WRPS		Location: 2704HV/E208/200E		Phone: 373-1236
Section 1 Part Information				
Item No.:	Manufacturer:		Supplier:	
Mfg. Part/Model No.:		Supplier's P/N:		
Part Description:				
End Use Description: Flow-Tek Ball Valves isolate and divert waste within waste transfer systems.				
Section 2 Component Information				
Equipment No.: N/A	Specification No.: N/A	Manufacturer: Flow-Tek	Past P.O. No.: PO 44771	
Manufacturer's Part/Model No.:		Equipment Supplier (if different from manufacturer):		Equip. Supplier's Part No.:
See Component Descript		Unit Process Company		
Component Description: Part. No. FP-3308-3-UCF-G-L Valve, Ball, 2 Inch 2 Way Assembly Stainless Steel ASTM A351 CF8M, Butt Weld, Full Port, Triad Series, Graphite Stem Packing and UHMWPE Seat/Cavity Filler				
Designation-Design Selection Codes. FP-Full Port 3-Body Material CF8M 3-End Connection Butt Weld Sch 40 CF3M 08-Size 2 Inch 3-316 Stainless Steel U-UHMWPE Seats CF-Cavity Filler UHMWPE G-Graphite Packing L-Lever				
CLEARANCE			Release Stamp	
Clearance Review: Print Name <i>LN Solano</i>		Signature <i>LN Solano</i>	Date <i>12/15/11</i>	
Cleared for Public Release? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Restricted Use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Restriction Type:				



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COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03189	
ECN No. N/A	Work Package No. MR-11-05033	CGD Dash Nos.	
Rev No. 2	Reason for Revision Updated Form		
Section 3 Determination of Critical Characteristics			
Technical Basis Info Document Ref(s): RPP-RPT-42297 Rev.9A Safety-Significant Waste Transfer Primary Piping Systems - Functions and Requirements Evaluation Document. RPP-RPT-41859, Rev 4C "Safety-Significant Isolation Valves for Double Valve Isolation - Functions and Requirements Evaluation Documents"		Technical Evaluation Report No.: TE-10-012 Rev 1, "Technical Evaluation of 241-C SSCs Design Temperature RPP-TE-48538 Rev 0, "TE and Risk Analysis for Flow-Tek Triad Series Ball Valves" TE-09-012, Rev 0"TE for POR134 Box Valve Alignment Testing"	
Critical Characteristic	Item (X)	Safety Function (X)	CGID Acceptance (X)
Material Compatibility	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Design Pressure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Design Temperature	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Item Identification	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Dimensional Tolerance for Valve Positioning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Basis for the Critical Characteristics for Acceptance: RPP-RPT-42297 Rev.9A "Safety-Significant Waste Transfer Primary Piping Systems - Functions and Requirements Evaluation Document" Basis for the critical characteristics and acceptance criteria for material compatibility. TFC-ENG-STD-22 Rev.E-5 "Piping, Jumpers, and Valves" Basis for acceptance criteria for temperature, pressure, and ball travel tolerance. RPP-RPT-41859, Rev 4C "Safety-Significant Isolation Valves for Double Valve Isolation - Functions and Requirements Evaluation Documents" Basis for the critical characteristics. RPP-TE-48538 Rev 0, "Technical Evaluation and Risk Analysis for Flow-Tek Triad Series Ball Valves"			
Section 4 References (for Safety Classification and Suitability Evaluation)			
National Codes/Standards: ASME B16.25 ASME B16.34	Safety Analysis Report (SAR): Documented Safety Analysis RPP-13033, Rev 4J	Drawings:	
Vendor Manuals:	Mfg./Supplier Information:		
Other: Triad series Valves are designed to meet ASME B16.34. Valves are Hydrostatically Shell tested to 3300 psi, and are 100% air seat tested at 81-100 psi per API 598. Pressure Range: For 2 inch Valve is 2200 psi rated for water, oil and Gas and has a ASME Class of 600 with a 1240 psig pressure rating at 200 °F. Note, this is the pressure rating of the shell only the Valve with UHMWPE seats and cavity filers have a lower pressure range at 200 °F Temperature Range: -50°F to + 200°F.			

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COMMERCIAL GRADE DEDICATION FORM (continued)								CGD No.	
ECN No.			Work Package No.			CGD-03189		CGD Dash Nos.	
N/A			MR-11-05033						
Rev No.	Reason for Revision								
2	Updated Form								
Section 5 Verification of Critical Characteristics									
Critical Characteristics					Receipt Inspection/Test Results				
Critical Characteristic for Acceptance	Acceptance Criteria/Tolerances	Number to Test	Accept Method	Test Procedure	No. Tested	No. Failed	Verifying Organization	Printed Name Signature	Date
Material Compatibility Certificate of Conformance, PMI Tests, Specific Gravity (Float) Test, Risk Analysis, and QAIP	Body/Ball/End Caps/Stem/Bolts/ Lock Nut/Valve Stop Bolt and Sleeve Stainless steel, and Seat /Cavity Filler UHMWPE. Verify vendor's PMI Results of Body, End Caps, and Stem material, Perform and/or Witness PMI on the Ball, Body Bolts, Lock Nut, Valve Stop Bolt and Sleeve. Also witness Specific Gravity (Float) Test of UHMWPE Seat/Cavity Filler, and verify C of C meets the requirements of the PO.	3	1,2	TFC-ESHQ-Q_INSP-D-01 RPP-TE-48538 ATT. 3	3	0	WRPS QA	Pat Bravioff <i>Pat Bravioff</i> Flow-Tek PMI report - Subs order No. SC1003548 WRPS PMI Report Flow-Tek C of C and WRPS PO 48182	6-15-12
Design Temperature C of C, TE-10-012 and QAIP	Temperature rating -25 to ≥ 180°F Verify C of C meets the requirements in the PO.	100%	1,2				WRPS ENG	R.S. Robinson <i>R.S. Robinson</i>	6-25-12

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COMMERCIAL GRADE ITEM DEDICATION FORM (continued)								CGI No. CGD-03189	
ECN No. N/A		Work Package No. MR-11-05033				CGI Dash Nos.			
Rev No. 2	Reason for Revision Updated Form								
Critical Characteristics					Receipt Inspection/Test Results				
Critical Characteristic for Acceptance	Acceptance Criteria/Tolerances	Number to Test	Accept Method	Test Procedure	No Tested	No Failed	Verifying Organization	Printed Name Signature	Date
Design Pressure Certificate of Conformance and/or Material Test Report (MTR), and QAIP	Pressure rating ≥ 400 psig Verify C of C and/or MTR states hydrostatic shell pressure test results ≥ 667 psig, and Verify C of C meets the requirements in the PO.	100%	1,2		20	0	WRPS QA	Pat Bravroff Pat Bravroff Flow-Tek Co/C and Inspection Certification WRPS PO 48182	6-15-12
Item Identification Certificate of Conformance and QAIP	Model Number FP-3308-3-UCF-G-L Verify item's description, and receipt documentation match Flow Tek's catalogue, and Verify C of C meets the requirements in the PO.	100%	1,2		20	0	WRPS QA	Pat Bravroff Pat Bravroff Flow-Tek Catalog and Co/C WRPS PO 48182	6-15-12
Dimensional Tolerance for Valve Positioning Certificate of Conformance and QAIP	Rotational tolerance is ± 5° in the closed position Verify Part # and C of C meets the requirements in the PO.	100%	1,2		20	0	WRPS ENG	R.S. Robinson R.S. Robinson	6-25-12

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COMMERCIAL GRADE ITEM DEDICATION FORM (continued)			CGI No. CGD-03189
ECN No. N/A	Work Package No. MR-11-05033		CGI Dash Nos.
Rev No. 2	Reason for Revision Updated Form		
Notes:	Method:	Comments	
1 Critical characteristics for acceptance to be verified during post installation testing are identified by an asterisk*.	1 Special Test and Inspection 2 Commercial Grade Survey 3 Source Verification 4 Vendor/Item History	A commercial grade survey was performed on Flow Tek and their distributor Unit Process Texas. TF-10-QSR-243 and TF-10-QSR-237. An annual review has also been performed documented in TF-11-QSR-268 and TF-11-QSR-269.	
Initial Approvals:		Final Approvals: Jul 09, 2012 (17)	
Design Agent: N/A	Date:	Design Agent: N/A	Date:
Resp. Engr.: RS Robinson	(Print/sign) <u>RS Robinson</u> Date: <u>11/24/11</u>	Resp. Engr.: RS Robinson	(Print/sign) <u>RS Robinson</u> Date: <u>6-25-12</u>
QA Engr.: RK Friesz	(Print/sign) <u>RK Friesz</u> Date: <u>11-30-11</u>	QA Engr.: RK Friesz	(Print/sign) <u>RK Friesz</u> Date: <u>6-20-12</u>
CGD Spec.: DD Zinter	(Print/sign) <u>DD Zinter</u> Date: <u>11-30-11</u>	Resp. Engr. Mgr.: RE Bauer	(Print/sign) <u>RE Bauer</u> Date: <u>7/2/12</u>
Lead Disc. Engr.: MS Quintana	(Print/sign) <u>MS Quintana</u> Date: <u>12/13/11</u>		

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03189
ECN No. N/A	Work Package No. MR-11-05033	CGD Dash Nos.
Rev No. 2	Reason for Revision Updated Form	
<p>Additional Info:</p> <p>Safety Function: The safety function of the Primary Piping system is to provide confinement of waste. Providing confinement of waste decreases the frequency and mitigates the consequences of a fine spray leak. In addition, providing confinement of waste protects the facility worker from wetting spray/jet/stream leaks into a normally occupied area and from flammable gas deflagrations in a waste transfer-associated structure due to a waste transfer leak.</p> <p>The safety function of safety-significant isolation valves is to limit the leakage of waste (through valve leakage). Limiting through valve leakage decreases the consequences of a fine spray leak due to a transfer misroute. In addition, through valve leakage protects the facility worker from wetting spray/jet/stream leaks into a normally occupied area and from flammable gas deflagrations in a waste transfer associated structure due to a waste transfer misroute.</p> <p>Evaluation of Critical Characteristics:</p> <p>•Material Compatibility: To gain reasonable assurance that the valve is compatible with Tank Farm waste the Body, Ball, End Caps, Bolts, Valve Stop Bolt and Sleeve, Lock Nut and Stem must be verified to be Stainless steel and Seat/Cavity Filler needs to be verified to be UHMWPE. All materials have also been evaluate to meet the engineering standard TFC-ENG-STD-34.</p> <p style="text-align: center;">Method 1 Special Tests, Inspection, and/or Analyses</p> <p>WRPS has elected to test 3 of the 20 Flow-Tek 2" ball valves based upon the reduced sampling plan defined in Table 2-1 of EPRI-Sampling Guide TR-017218-R1. The following sub-components from the 3 Flow-Tek ball valves shall be PMI tested upon receipt: the ball, body bolts, lock nut, valve stop bolt and sleeve. WRPS TOC shall also visually inspect the UHMWPE seat/cavity filler to verify color and conduct a specific gravity (float) test on the seat/cavity filler material. It has been established that UHMWPE has a specific gravity less than one enabling it to float on water. A test shall be conducted in accordance with attachment 3 of RPP-TE-48538. The specific gravity test is accomplished by placing the UHMWPE seat/cavity filler in water. If the material floats, WRPS TOC has achieved reasonable assurance they are getting UHMWPE. If any seat material sinks, it shall be tagged as non-conforming. A reduced sampling plan is sufficient for this inspection because WRPS has been using Flow-Tek ball valves for over 10 years and WRPS does not expect the valve material to fail this inspection.</p> <p style="text-align: center;">Method 2 Commercial Grade Survey</p> <p>Flow-Tek has adequate programmatic controls in their procurement, receipt inspection, and material handling. Flow-Tek also has Material Test Reports (MTR) that accompanies the valve. To satisfy the critical characteristic "Material Compatibility", Flow-Tek shall perform PMI testing on the valve Body, End Caps, and Stem in accordance with their PMI testing procedure WI-136 and incoming sampling procedure WI-110.</p> <p>•Design Temperature: Materials determine the temperature rating. According to Flow-Tek's Pressure/Temperature Specifications, the UHMWPE seat material is the limiting factor for the temperature rating of the Triad Series Ball Valve.</p> <p style="text-align: center;">Method 1 Special Tests, Inspection, and/or Analyses</p> <p>WRPS has evaluated the valve for its temperature rating in TE-10-012 Rev 1. The valve design and materials dictate the temperature rating. WRPS' technical evaluation states these Flow-Tek ball valves are capable of withstanding temperatures up to 180 °F. By validating the materials stated in the critical characteristic "Material Compatibility"</p>		

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03189
ECN No. N/A	Work Package No. MR-11-05033	CGD Dash Nos.
Rev No. 2	Reason for Revision Updated Form	
<p>Additional Info: WRPS establishes reasonable assurance the item will perform its safety function. In addition, in a past procurement WRPS contracted with Nuclear Logistics Inc. (NLI) to perform a high temperature, high pressure test on Flow-Tek Triad Series valves to validate their design temperature. NLI tested the Flow Tek Triad Series valve at 186 °F at 438 psig for 10 minutes. The valves passed the test with no leakage and no damage validating the valve is capable of withstanding 180 °F by design. The NLI qualification testing validated Flow-Tek's design and process controls over materials, additional temperature testing is not required.</p> <p style="text-align: center;">Method 2 Commercial Grade Survey</p> <p>Flow-Tek Ball Valves are designed, manufactured and tested in accordance with ASME B16.34. All materials and temperature ratings are consistent with that standard. Flow-Tek's pressure/temperature chart identifies that the Valves with UHMWPE seat/cavity filler material have a pressure rating of 2200 psi at 100°F, but UHMWPE only has a max temperature of 200°F. From data received from Flow-Tek's Engineering Manager, the UHMWPE seat/cavity filler has a pressure rating of 450 psig at 180°F. Material confirmation measures are therefore considered sufficient to demonstrate reasonable assurance of design temperature and pressure.</p> <p>•Design Pressure: Triad Series Ball Valves are designed to meet ASME B16.34 and have the ASME Class of 600 with a design pressure of 1240 psi at 200°F.</p> <p style="text-align: center;">Method 2 Commercial Grade Survey</p> <p>All Valves are hydrostatically shell tested at 3300 psig, and valves are 100% air seat tested. The seat leak test is performed under water at 80-100 psi per API 598.</p> <p>•Item Identification: Flow-Tek uses two part numbers. One is for the Catalog and ordering of parts. The other is for manufacturing and assembling of the valve. WRPS has requested Flow-Tek to add serial numbers on the valves to maintain traceability. The Certificate of Conformance and QAIP validate the valve's part number, serial number, and valve traceability. These activities ensure WRPS is getting the right item.</p> <p>• Dimensional Tolerance for Valve Positioning: Triad Series Ball Valves</p> <p style="text-align: center;">Method 1 Special Test , Inspections and/or Analyses</p> <p>WRPS has performed additional analyses by dimensional calculations documented in TE-09-012. These dimensional calculations were performed to determine if valve alignment is in accordance with TFC-ENG-STD-22. Based on this information it can be concluded that the triad series ball valves have more than the 5 degrees of over-travel that is required by TFC-ENG-STD-22. No addition testing or verification is necessary.</p> <p style="text-align: center;">Method 2 Commercial Grade Survey</p> <p>Flow Tek Engineering Manager Cliff Johnston has provided documented evidence that the Triad Series Ball Valves are designed to have a 10 Degree over/under ± 1 travel tolerance and still be closed.</p>		

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03189																		
ECN No. N/A	Work Package No. MR-11-05033	CGD Dash Nos.																		
Rev No. 2	Reason for Revision Updated Form																			
Additional Info: Quantity: <u>3</u> Serial #: <u>W1J0354, W1J0359, W2A1108</u>																				
<p>A.1 Material Identification - UHMWPE seat and Cavity Filler Float Test Description: To gain reasonable assurance of material composition, WRPS TOC has determined that a visual inspection to verify color (translucent white) and a specific gravity test would be adequate. It has been established that UHMWPE has a specific gravity less than one enabling it to float in water. The specific gravity test is accomplished by placing the UHMWPE seat/cavity filler in water. If the material floats, WRPS TOC has achieved confidence they are getting UHMWPE. If any seat material sinks, it shall be tagged as non-conforming.</p>																				
Accept: <u>✓ PB</u> Reject: _____ Verified by: <u>Pat Braviroff, Pat Baumhoff 6-13-12</u>																				
<p>A.2 Material Identification- Metallic Material PMI Testing Description: Conduct a Positive Material Identification (PMI) test on the Flow-Tek Ball, Body Bolts, Lock Nut, Valve Stop Bolt and Sleeve. Flow Tek published literature states the material will be:</p>																				
<table style="width:100%; border: none;"> <tr> <td style="width: 40%;">Ball 1/valve</td> <td style="width: 20%;"></td> <td style="width: 40%;">316 SS</td> </tr> <tr> <td>Body Bolts 4/valve</td> <td></td> <td>304 SS</td> </tr> <tr> <td>Lock Nut 1/valve</td> <td></td> <td>304 SS</td> </tr> <tr> <td>Valve Stop Bolt 1/valve</td> <td></td> <td>300 SS</td> </tr> <tr> <td>Valve Stop Sleeve 1/valve</td> <td></td> <td>304 SS</td> </tr> <tr> <td>Valve Stem 1/valve</td> <td></td> <td>316 SS</td> </tr> </table>			Ball 1/valve		316 SS	Body Bolts 4/valve		304 SS	Lock Nut 1/valve		304 SS	Valve Stop Bolt 1/valve		300 SS	Valve Stop Sleeve 1/valve		304 SS	Valve Stem 1/valve		316 SS
Ball 1/valve		316 SS																		
Body Bolts 4/valve		304 SS																		
Lock Nut 1/valve		304 SS																		
Valve Stop Bolt 1/valve		300 SS																		
Valve Stop Sleeve 1/valve		304 SS																		
Valve Stem 1/valve		316 SS																		
Acceptance Criteria: Any 300 Series Stainless Steel The effects of process pressure, erosion, corrosion, chemical exposure, and ionizing radiation are applicable and are part of the design basis. The design basis material selection process considers these effects. Stainless steel is compatible with tank waste, not affected by radiation, and suitable for the required process pressures and temperatures. Therefore from a waste compatibility standpoint any 300 series stainless steel is adequate. In addition the PMI gun is not as accurate with smaller components. The smaller components diffract the x-ray at a broader scale which affects the accuracy of the results. The PMI accuracy is also affected by the orientation of the small components. Since the surface area of the small components is limited, the PMI results are contaminated by adjacent components. Therefore the results on the smaller components such as the valve stop sleeve and bolt may not read correctly, but as long as it is within the spectrum of 300 series stainless steel the material can be accepted.																				
Accept: <u>✓ PB</u> Reject: _____ Verified by: <u>Pat Braviroff, Pat Baumhoff 6-13-12</u>																				

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Attachment A
CGD Crosswalk
Page A-1

Title, (CGD-03189 R2)						
Safety Function from RPP-13033 (DSA)		Safety Function from RPP-RPT-42297 (Primary Piping FRED)	Critical Characteristics from RPP-RPT-42297	Verification Methods from RPP-RPT-42297	CGD-03189 R2	
Critical Characteristics for Acceptance	Acceptance Criteria/Tolerance	Method of Acceptance				
4.4.3.1 Safety Function(s) The safety function of waste transfer primary piping systems is to provide confinement of waste. Providing confinement of waste decreases the frequency of the fine spray leak. In addition, providing confinement of waste protects the facility worker from a wetting jet/spray/stream leak, deflagration in the DST annulus due to the manroute, and from a flammable gas deflagration in the DST annulus structure due to a waste transfer leak.	Section 4.0 Safety Function The safety function of the primary piping is to provide confinement of waste. Providing confinement of waste decreases the frequency of the fine spray leak. In addition, providing confinement of waste protects the facility worker from a wetting jet/spray/stream leak, deflagration in the DST annulus due to the manroute, and from a flammable gas deflagration in a waste transfer-associated structure due to a waste transfer leak.	Section 8.0 SSC Critical Characteristics Table 8.1, Waste Transfer Primary Piping Affected Components and Critical Characteristics Max. Operating Temperature (Design Temperature) Max. Operating Pressure (Design Pressure) Material Compatibility	Section 2.0 Approach The following approaches have been appropriately selected from Section 2.0 of RPP-RPT-42297:	Material Compatibility	Body/End Caps/Stem/Body Bolts/Valve Stop and Sleeve/Lock Nut/ and Stem are to be Stainless steel. Seats/ gromy filler is UHMWPE Verify PMI Results of SS materials, and verify C of C meets the requirements of the PO. Temperature rating -25 to ≥ 180°F Verifying material validates temperature rating. Verify C of C meets the requirements in the PO. Pressure rating ≥ 400 psig Verify C of C and/or MTR states hydrostatic-shell pressure test results, and Verify C of C meets the requirements in the PO. Model Number FP-3308-3-UCF-G-1 Verify item's description, and receipt documentation match Flow Test's catalogue, and Verify C of C meets the requirements in the PO.	Certificate of Performance, PMI Tests, Specific Gravity (float) Test, and OAMP Certificate of Performance, OAMP PMI test results, and RPP-TL-16538. Certificate of Performance and/or Material Test Report(MTR), and OAMP Certificate of Performance and OAMP

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Attachment A
CGD CROSSWALK
Page A-2

LS 7/9/12

(2" Flowtek Triad Ball Valve) (CGD-03189) R2						
Safety Function from RPP-13033	Safety Function from RPP-RPT-41859	Critical Characteristics from RPP-RPT-41859	Verification Methods from RPP-RPT-41859	CGD-03189 R2		
				Critical Characteristics for Acceptance	Acceptance Criteria/Tolerance	Verification Document
<p>4.4.3.1 Safety Function(s).</p> <p>The safety function of safety-significant isolation valves is to limit the leakage of waste (through valve leakage). Limiting through valve leakage decreases the consequences of a fine spray leak due to a misroute. In addition, limiting through valve leakage protects the facility worker from a wetting spray/jet/stream leak and from a flammable gas deflagration in a waste transfer-associated structure or other facility due to a misroute.</p>	<p>Section 4.0 Safety Function</p> <p>The safety function of safety-significant isolation valves is to limit the leakage of waste (through valve leakage). Limiting through valve leakage decreases the consequences of a fine spray leak due to a misroute. In addition, limiting through valve leakage protects the facility worker from a wetting spray/jet/stream leak and from a flammable gas deflagration in a waste transfer-associated structure or other facility due to a misroute.</p>	<p>8.0 SSC CRITICAL CHARACTERISTICS</p> <p>The critical characteristics of DVI valves are: design pressure, design temperature, material compatibility, and dimensional tolerances for components used to position the valve.</p> <p>Max. Operating Temperature</p> <p>Max. Operating Pressure</p> <p>Material Compatibility</p> <p>Dimensional Tolerance for Valve Positioning</p>	<p>Section 2.0 Approach</p> <p>The following approaches have been appropriately selected from Section 2.0 of RPP-RPT-41859:</p>	Material Compatibility	Body/Ball/End Caps/Stem/Body Bolts/Valve Stop and Sleeve/Lock Nut/ and Stem are to be Stainless steel. Seats/ cavity filler is UHMWPE	Certificate of Conformance, PMI Tests, Specific Gravity (Float) Test, and QAIP
				Design Temperature	Temperature rating -25 to ≥ 180°F	Certificate of Conformance and QAIP.
				Design Pressure	Pressure rating ≥ 900 psig	Certificate of Conformance and/or Material Test Report(MTR), and QAIP
				Item Identification	Model Number FP-3308-3-UCF-G-L	Certificate of Conformance and QAIP
				Dimensional Tolerance for Valve Positioning	Rotational tolerance is ≥ ±5° in the closed position	Certificate of Conformance and QAIP
				Verify PMI Results of SS materials, and verify C of C meets the requirements of the PO.		
				Verify material validates temperature rating. Verify C of C meets the requirements in the PO.		
				Verify C of C and/or MTR states hydrostatic shell pressure test results, and Verify C of C meets the requirements in the PO.		
				Verify item's description, and receipt documentation match Flow Tek's catalogue, and Verify C of C meets the requirements in the PO.		
				Verify Part # and C of C meets the requirements in the PO.		

01 9 01

Material Request - MR Key: MR-11-02152

PO 45976

Page 1 of 4

WRPS MATERIAL REQUEST

Date: 05/09/2011		Requestor: Bullock, Marshall C			Phone: 372-1237		Org. Code: 2KG00		CACN/COA: 200822/AF20		
Deliver To: HOWE HUMPHREY/MR-11-2152/218A 2E				Premium Freight: <input checked="" type="checkbox"/>		Date Required: 07/05/2011		Date Promised:		MR: MR-11-02152	
Suggested Vendor(s): Unit Process/Flow-Tek			Special Instructions/Emergency Justification: **** ISSUED ITEMS 1, 3 & 4 TO DUANE SHULTS/2101HV PER MARSHALL BULLOCK. HH 10/12/11 ***** Chris Burke authorizes premium freight to expedite fabrication for MARS C-105. These items are to be commercial grade dedicated per CGD 03173, 03188, 03189, and 03200.				End Use: MARS C-105 Flow-Tek Valves				
CGI: See special instruct											
Requestor Bullock, Marshall C (372-1237)			Date 06/07/2011		Manager Barton, Blaine (376-5118)			Date 05/23/2011			
Engineer Boettger, Jeff (372-2609)			Date 06/07/2011		QA Engineer Rivera, Juan M (376-7002)			Date 05/23/2011			
Not Required per DRA					Not Required per DRA						
RadCon			Date		Environmental			Date			
Not Required per DRA					Not Required per DRA						
Industrial Health			Date		Chemical Management			Date			
Not Required per DRA					Not Required per DRA						
Safety & Health			Date		Resp. Protection			Date			
Burke, Christopher A (372-3305)			05/23/2011		Duncan, Vella (373-3852)			05/24/2011			
Cost Account Manager			Date		TFMSS Lead			Date			
Humphrey, Howie (373-0482)			06/07/2011		Humphrey, Howie (373-0482)			10/13/2011			
Material Coordinator			Date		Closed By			Date			
Item 1	Quantity 3	Estimated Cost 5000.00	Safety SS	Hazardous	Approval Desig. Q*	Quality Level 2	Date/Qty Ordered 05/24/2011, 3.00	Order No. 10004385	Catalog No. 0000658013		
QAIP	Unit EACH	MSDS	NRTL Y	Storage Level C - INDOORS (WEATHER TIGHT)			Date/Qty Complete 08/02/2011, 3.00	Storage Bldg/Area 218A/200E	Storage Location A RECEIVING BAY		
Quality Clauses: B34, B37, B49, B52, B65, B76, B80											
Material Description: VALVE, BALL, 2 IN. 2 WAY ASSEMBLY, TRIAD SERIES, 30 DEGREE V PORT BODY CF8M						Additional Description: W/BUTT WELD ENDS SCH. 40 CF3M. GRAPHITE STEM PACKING. W/ BRAY ACTUATOR ASTM A351 CF8M BODY AND BALL, ASTM A351 CF3M END CAPS, ASTM A479 316 STAINLESS STEEL STEM. UHMWPE SEATS AND CAVITY FILLER, GRAPHITE STEM PACKING AND SECONDARY SEALS, TFM PRIMARY BODY SEAL, PEEK PROTECTORS, TEK-FIL THRUST WASHER, ASTM A193 304 STAINLESS STEEL BODY BOLTS. VENDOR SHALL PERFORM PMI TESTING ON THE VALVE BODY, END CAPS, AND STEM. PMI TESTING OF VALVE BODY, END CAPS, AND STEM SHALL BE PERFORMED PER FLOW-TEK PROCEDURE WI-136 (PMI TESTING) AND SAMPLING PLAN PROCEDURE WI-110 (INCOMING INSPECTION SAMPLING PLAN). PMI TESTING RESULTS SHALL BE DOCUMENTED ON THE COF COMR. VALVES SHALL BE MOUNTED WITH 120 VAC BRAY ACTUATORS. PART NO. 70-0 201-113A0-536/A, HEATER 70-0006-22950-536, AND SERVO KIT 70-0000 -22941-536. VALVES SHALL BE MARKED WITH SERIAL NUMBERS TO MAINTAIN MATERIAL TRACEABILITY. ALL VALVES SHALL BE SHELL AND SEAT LEAK TESTED PER FLOW-TEK PROCEDURE WI-130 (TEST PRESSURE INSTRUCTIONS). PROVIDE A CERTIFICATE OF CONFORMANCE WHICH IDENTIFIES SERIAL NUMBERS OF VALVES PROVIDED, THE PART NUMBER OF THE VALVES AND A CERTIFICATION THAT VALVES CONFORM TO REQUIREMENTS SPECIFIED ON THE PURCHASE ORDER. A CERTIFICATE OF CONFORMANCE SHALL BE SUPPLIED ATTESTING THAT THE VALVES ARE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASME B16.34 AND FLOW-TEK'S QUALITY SYSTEM MANUAL, REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008. THE CERTIFICATE SHALL ALSO STATE THE MATERIALS OF CONSTRUCTION CONFORM TO ALL FLOW-TEK REQUIREMENTS AND CONFORM TO THOSE MATERIALS SPECIFIED BY THE PURCHASE ORDER.					
Purchasing Description:						Comments: Note to Buyer: These valves are safety significant and are to be procured from the Flow-Tek facility located in Houston TX (Phone 1-832-912-2300) through Unit					

<p>Process that have had a Commercial Grade Survey performed on them. For B80 clause the critical characteristics are: "Item Identification, Design Temperature 180 Deg. F, Design Pressure 400 psig, and Material Compatibility" Program and processes: "FLOW-TEK PROCEDURE "WI-136" (PMI TESTING) FLOW-TEK SAMPLING PLAN PROCEDURE "WI-110" (INCOMING INSPECTION SAMPLING PLAN) AND "WI-130" (TEST PRESSURE INSTRUCTIONS). FLOW-TEK'S, "QUALITY SYSTEM MANUAL", REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008.</p>									
<p>Part Number FP3308-3-UCF-G-EL-V30</p>		<p>Equipment Type VALVES</p>			<p>Manufacturer FLOW-TEK</p>		<p>Drawing/ECN/Spec Number H-14-107928</p>		
<p>Item 2</p>	<p>Quantity 2</p>	<p>Estimated Cost 5000.00</p>	<p>Safety SS</p>	<p>Hazardous</p>	<p>Approval Desig. Q*</p>	<p>Quality Level 2</p>	<p>Date/Qty Ordered 05/24/2011, 2.00</p>	<p>Order No. 10004385</p>	<p>Catalog No. 0000658014</p>
<p>QAIP</p>	<p>Unit EACH</p>	<p>MSDS</p>	<p>NRTL Y</p>	<p>Storage Level C - INDOORS (WEATHER TIGHT)</p>		<p>Date/Qty Complete 08/02/2011, 2.00</p>	<p>Storage Bldg/Area 218A/200E</p>	<p>Storage Location A RECEIVING BAY</p>	
<p>Quality Clauses: B34, B37, B49, B52, B65, B76, B80</p>									
<p>Material Description: VALVE, BALL, 2 IN. 2 WAY ASSEMBLY, TRIAD SERIES, 30 DEGREE MODIFIED V PORT BODY</p>					<p>Additional Description: CF8M W/BUTT WELDED ENDS SCH. 40 CF3M. GRAPHITE STEM PACKING W/ BRAY ACTUATOR 30 DEG V-PORT BALL SHALL BE MODIFIED BY DRILLING A .750 INCH DIA HOLE WITH +0.03 TO -0.0 INCH TOLERANCE THROUGH THE BALL 90 DEG TO V. ASTM A351 CF8M BODY AND BALL, ASTM A351 CF3M END CAPS, ASTM A479 3 16 STAINLESS STEEL STEM. UHMWPE SEATS AND CAVITY FILLER, GRAPHITE STEM PACKING AND SECONDARY SEALS, TFM PRIMARY BODY SEAL, PEEK PROTECTORS, TEK-FIL THRUST WASHER, ASTM A193 304 STAINLESS STEEL BODY BOLTS. VENDOR SHALL PERFORM PMI TESTING ON THE VALVE BODY, END CAPS, AND STEM. PMI TESTING OF VALVE BODY, END CAPS, AND STEM SHALL BE PERFORMED PER FLOW-TEK PROCEDURE WI-136 (PMI TESTING) AND SAMPLING PLAN PROCEDURE WI-110 (INCOMING INSPECTION SAMPLING PLAN). PMI TESTING RESULTS SHALL BE DOCUMENTED ON THE COF COR MTR. VALVES SHALL BE MOUNTED WITH 120 VAC BRAY ACTUATORS. PART NO. 70-0201-113A0-536/A, HEATER 70-0006-22950-536, AND SERVO KIT 70-0000-22941-536. VALVES SHALL BE SUPPLIED WITH CONTROL STATION # 70-0000-12411-536, MOUNTING # EZ-007D-3C, AND REMOTE BRACKET # 70-0000-70600-896. VALVES SHALL BE MARKED WITH SERIAL NUMBERS TO MAINTAIN MATERIAL TRACEABILITY. ALL VALVES SHALL BE SHIELD AND SEAT LEAK TESTED PER FLOW-TEK PROCEDURE WI-130 (TEST PRESSURE INSTRUCTIONS). PROVIDE A CERTIFICATE OF PERFORMANCE WHICH IDENTIFIES SERIAL NUMBERS OF VALVES PROVIDED, THE PART NUMBER OF THE VALVES AND A CERTIFICATION THAT VALVES CONFORM TO REQUIREMENTS SPECIFIED ON THE PURCHASE ORDER. A CERTIFICATE OF PERFORMANCE SHALL BE SUPPLIED ATTESTING THAT THE VALVES ARE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASME B16.34 AND FLOW-TEK'S, QUALITY SYSTEM MANUAL, REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008. THE CERTIFICATE SHALL ALSO STATE THE MATERIALS OF CONSTRUCTION CONFORM TO ALL FLOW-TEK REQUIREMENTS AND CONFORM TO THOSE MATERIALS SPECIFIED BY THE PURCHASE ORDER.</p>				
<p>Purchasing Description:</p>					<p>Comments: Note to Buyer: These valves are safety significant and are to be procured from the Flow-Tek facility located in Houston TX (Phone 1-832-912-2300) through Unit Process that have had a Commercial Grade Survey performed on them. For B80 clause the critical characteristics are: "Item Identification, Design Temperature 180 Deg. F, Design Pressure 400 psig, and Material Compatibility" Program and processes: "FLOW-TEK PROCEDURE "WI-136" (PMI TESTING) FLOW-TEK SAMPLING PLAN PROCEDURE "WI-110" (INCOMING INSPECTION SAMPLING PLAN) AND "WI-130" (TEST PRESSURE INSTRUCTIONS). FLOW-TEK'S, "QUALITY SYSTEM MANUAL", REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008.</p>				
<p>Part Number FP3308-3-UCF-G-EL-V30-SF</p>		<p>Equipment Type VALVES</p>			<p>Manufacturer FLOW-TEK</p>		<p>Drawing/ECN/Spec Number H-14-109126</p>		
<p>Item 3</p>	<p>Quantity 8</p>	<p>Estimated Cost 10000.00</p>	<p>Safety SS</p>	<p>Hazardous</p>	<p>Approval Desig. Q*</p>	<p>Quality Level 2</p>	<p>Date/Qty Ordered 05/24/2011, 8.00</p>	<p>Order No. 10004385</p>	<p>Catalog No. 0000658015</p>
<p>QAIP</p>	<p>Unit EACH</p>	<p>MSDS</p>	<p>NRTL</p>	<p>Storage Level C - INDOORS (WEATHER TIGHT)</p>		<p>Date/Qty Complete 08/02/2011, 8.00</p>	<p>Storage Bldg/Area 218A/200E</p>	<p>Storage Location A RECEIVING BAY</p>	

Material Request - MR Key: MR-11-02152

Quality Clauses: B34, B37, B49, B52, B76, B80																																											
Material Description: VALVE, BALL, 2 INCH 2 WAY ASSEMBLY, TRIAD SERIES W/ BODY CF8M W/BUTTWELD ENDS		Additional Description: SCH. 40 CF3M. GRAPHITE STEM PACKING. ASTM A351 CF8M BODY AND BALL, ASTM A351 CF3M END CAPS, ASTM A479 316 STAINLESS STEEL STEM, UHMWPE SEATS AND CAVITY FILLER, GRAPHITE STEM PACKING AND SECONDARY SEALS, TFM PRIMARY BODY SEAL, PEEK PROTECTOR, TEK-FIL THRUST WASHER, ASTM A193 304 STAINLESS STEEL BODY BOLTS. VENDOR SHALL PERFORM PMI TESTING ON THE VALVE BODY, END CAPS, AND STEM, PMI TESTING OF VALVE BODY, END CAPS, AND STEM, SHALL BE PERFORMED PER FLOW-TEK PROCEDURE WI-136 (PMI TESTING) AND SAMPLING PLAN PROCEDURE WI-110 (INCOMING INSPECTION SAMPLING PLAN). PMI TESTING RESULTS SHALL BE DOCUMENTED ON THE COFCOR MTR. VALVES SHALL BE MARKED WITH SERIAL NUMBERS TO MAINTAIN MATERIAL TRACEABILITY. ALL VALVES SHALL BE SHELL AND SEAT LEAK TESTED PER FLOW-TEK PROCEDURE WI-130 (TEST PRESSURE INSTRUCTIONS). PROVIDE A CERTIFICATE OF CONFORMANCE WHICH IDENTIFIES SERIAL NUMBERS OF VALVES PROVIDED, THE PART NUMBER OF THE VALVES AND A CERTIFICATION THAT VALVES CONFORM TO REQUIREMENTS SPECIFIED ON THE PURCHASE ORDER. A CERTIFICATE OF CONFORMANCE SHALL BE SUPPLIED ATTESTING THAT THE VALVES ARE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASME B16.34 AND FLOW-TEK'S, QUALITY SYSTEM MANUAL, REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008. THE CERTIFICATE SHALL ALSO STATE THE MATERIALS OF CONSTRUCTION CONFORM TO ALL FLOW-TEK REQUIREMENTS AND CONFORM TO THOSE MATERIALS SPECIFIED BY THE PURCHASE ORDER.																																									
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Part Number FP-3308-3-UCF-G-L	Equipment Type VALVES	Manufacturer FLOW-TEK	Drawing/ECN/Spec Number H-14-107928																																								
<table border="1"> <thead> <tr> <th>Item</th> <th>Quantity</th> <th>Estimated Cost</th> <th>Safety</th> <th>Hazardous</th> <th>Approval Desig.</th> <th>Quality Level</th> <th>Date/Qty Ordered</th> <th>Order No.</th> <th>Catalog No.</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>3</td> <td>1000.00</td> <td>SS</td> <td></td> <td>Q*</td> <td>2</td> <td>05/24/2011, 3.00</td> <td>10004385</td> <td>0000658017</td> </tr> <tr> <td>QAIP</td> <td>Unit EACH</td> <td>MSDS</td> <td>NRTL</td> <td>Storage Level</td> <td></td> <td></td> <td>Date/Qty Complete</td> <td>Storage Bldg/Area</td> <td>Storage Location</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>C - INDOORS (WEATHER TIGHT)</td> <td></td> <td></td> <td>08/02/2011, 3.00</td> <td>218A/200E</td> <td>A RECEIVING BAY</td> </tr> </tbody> </table>	Item	Quantity	Estimated Cost	Safety	Hazardous	Approval Desig.	Quality Level	Date/Qty Ordered	Order No.	Catalog No.	4	3	1000.00	SS		Q*	2	05/24/2011, 3.00	10004385	0000658017	QAIP	Unit EACH	MSDS	NRTL	Storage Level			Date/Qty Complete	Storage Bldg/Area	Storage Location					C - INDOORS (WEATHER TIGHT)			08/02/2011, 3.00	218A/200E	A RECEIVING BAY			
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Material Description: VALVE, BALL, 1 INCH 2 WAY ASSEMBLY, TRIAD SERIES W/ BODY CF8M W/BUTTWELD		Additional Description: ENDS SCH. 40 CF3M. GRAPHITE STEM PACKING ASTM A351 CF8M BODY AND BALL, ASTM A351 CF3M END CAPS, ASTM A479 316 STAINLESS STEEL STEM, UHMWPE SEATS AND CAVITY FILLER, GRAPHITE STEM PACKING AND SECONDARY SEALS, TFM PRIMARY BODY SEAL, PEEK PROTECTOR, TEK-FIL THRUST WASHER, ASTM A193 304 STAINLESS STEEL BODY BOLTS. VENDOR SHALL PERFORM PMI TESTING ON THE VALVE BODY, END CAPS, AND STEM, PMI TESTING OF VALVE BODY, END CAPS, AND STEM, SHALL BE PERFORMED PER FLOW-TEK PROCEDURE WI-136 (PMI TESTING) AND SAMPLING PLAN PROCEDURE WI-110 (INCOMING INSPECTION SAMPLING PLAN). PMI TESTING RESULTS SHALL BE DOCUMENTED ON THE COFCOR MTR. VALVES SHALL BE MARKED WITH SERIAL NUMBERS TO MAINTAIN MATERIAL TRACEABILITY. ALL VALVES SHALL BE SHELL AND SEAT LEAK TESTED PER FLOW-TEK PROCEDURE WI-130 (TEST PRESSURE INSTRUCTIONS). PROVIDE A CERTIFICATE OF CONFORMANCE WHICH IDENTIFIES SERIAL NUMBERS OF VALVES PROVIDED, THE PART NUMBER OF THE VALVES AND A CERTIFICATION THAT VALVES CONFORM TO REQUIREMENTS SPECIFIED ON THE PURCHASE ORDER. A CERTIFICATE OF CONFORMANCE SHALL BE SUPPLIED ATTESTING THAT THE VALVES ARE MANUFACTURED AND TESTED IN ACCORDANCE WITH ASME B16.34 AND FLOW-TEK'S, QUALITY SYSTEM MANUAL, REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008. THE CERTIFICATE SHALL ALSO STATE THE MATERIALS OF CONSTRUCTION CONFORM TO ALL FLOW-TEK REQUIREMENTS AND CONFORM TO THOSE MATERIALS SPECIFIED BY																																									

RPP-PLAN-59931, Rev. 2

Material Request - MR Key: MR-11-02152

Page 4 of 4

<u>Purchasing Description:</u>		<u>THE PURCHASE ORDER.</u>	
		<u>Comments:</u> Note to Buyer: These valves are safety significant and are to be procured from the Flow-Tek facility located in Houston TX (Phone 1-832-912-2300) through Unit Process that have had a Commercial Grade Survey performed on them. For B80 clause the critical characteristics are: "Item Identification, Design Temperature 180 Deg. F, Design Pressure 400 psig, Dimensional Tolerance, and Material Compatibility" Program and processes: "FLOW-TEK PROCEDURE "WI-136" (PMI TESTING) FLOW-TEK SAMPLING PLAN PROCEDURE "WI-110" (INCOMING INSPECTION SAMPLING PLAN) AND "WI-130" (TEST PRESSURE INSTRUCTIONS). FLOW-TEK'S, "QUALITY SYSTEM MANUAL", REV 3, JUNE 2010; REGISTERED AND CERTIFIED TO ISO 9001:2000 BY MOODY INTERNATIONAL, CERTIFICATE NUMBER 0807004, ISSUED 9/8/2008.	
<u>Part Number</u> FP-3305-3-UCF-G-L	<u>Equipment Type</u> VALVES	<u>Manufacturer</u> FLOW-TEK	<u>Drawing/ECN/Spec Number</u> H-14-107928

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

Select to view receipt or Invoice detail.

PO Line Item Detail	Description	Schedule	Manufacturers	Summary	Revision History
Purchase Order	00045976 002		PO Line	0001	
Catalog ID	0000658013 2		Line Status	CLOSED	08/02/2011
Description	VALVE, BALL, 2 IN. 2 WAY ASSEMBLY, TRIAD SERIES, 30 DEGREE V PORT				
Quantity Ordered UP	3		Quantity Due UP		
UP	EA		UVL Recon	N	

Receipt Date	Receipt	Status	UI	Accept	Reject	Hold/QC	Final	Confirms	OSD&D
08/01/2011	00003501	COMPLETE	EA		3				

Invoice Date	Invoice	Amount USD	Qty (UP)	Invoice Status	Payment Status
08/02/2011	10012345	\$13,362.00	3	COMPLETE	PAID

RPP-PLAN-59931, Rev. 2

COMMERCIAL GRADE DEDICATION FORM			CGD No. CGD-03212
ECN No. N/A	MR/POWP No. TFMSS MR-12- 05413 ⁰⁵⁴⁷⁹ ⁷¹²⁵ ⁶⁻⁴⁻¹⁴	CGD Dash Nos. -08	
Rev No. 0	Reason for Revision		
Title: Extended Reach Sluicer Waste Transfer Piping System			
Reason for Dash Number: The CGD is for multiple items, the dash #s are for each assembly received.			
Responsible System Engineer Information			
Name/Company: KW O'Leary		Location: 2704HV/E201/200E	Phone: 372-1116
Section 1 Item Information			
Item No.: N/A	Manufacturer: AGI Manufacturing, Inc.	Supplier: N/A	
Mfg. Part/Model No.: Series 12MAS21-100		Supplier's P/N:	
Item Description: ERSS is a maneuverable nozzle system that is designed to break up, mobilize and facilitate removal of sludge and compacted solids from the interior of the waste storage tank. The ERSS assembly consists of a vertically orientated mast with an articulating extension arm (boom) and jetting nozzle, EPDM hose assembly including chemjoint fittings with EPDM O-rings, swivel joints with Buna-N O-rings, hard piping, fittings, and fasteners.			
End Use Description: <input checked="" type="checkbox"/> Component <input type="checkbox"/> Piece Part Designed for deployment in C-112 tank risers but can be installed in other locations given the design requirements are still within the original enveloped parameters.			
Safety Function From DSA: The safety function of the Primary Piping System is to provide confinement of waste. Providing confinement of waste decreases the frequency and mitigates the consequences of a fine spray leak. In addition, providing confinement of waste protects the facility worker from wetting spray/jet/stream leaks into a normally occupied area and from flammable gas deflagrations in a waste transfer-associated structure due to a waste transfer leak.			
Equipment No.: N/A	Specification No.: RPP-SPEC-47739 Rev 3	Past P.O. No.: PO 46807	
Section 2 Clearance			Release Stamp
Clearance Review: Print Name		Signature APPROVED By Allen Bouslaugh at 9:52 am, Dec 26, 2012	Date
Cleared for Public Release? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Restricted Use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Restriction Type:			DATE: Dec 26, 2012 

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212		
ECN No.	MR/POWP No.	CGD Dash Nos.		
N/A	TFMSS MR-12-05413	-08		
Rev No.	Reason for Revision			
0				
Section 3 Determination of Critical Characteristics				
Technical Basis Info Document Ref(s): RPP-RPT-42297, Rev. 10, "Safety-Significant Waste Transfer Primary Piping Functions and Requirements Evaluation Document." Provides critical characteristics as design pressure, design temperature, and material compatibility to ensure component functions as a primary piping component.		Technical Evaluation Report No.: TE-10-012 Rev 1, Technical Evaluation of 241-C WRS SSCs Design Temperature Ratings ASME B31.3 Unlisted Component Evaluation RPP-RPT-36801 Rev 3a		
Critical Characteristic		Item (X)	Safety Function (X)	CGD Acceptance (X)
ADD ROW				
Item Identification		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Design Temperature		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Design Pressure		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Material Compatibility		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Comments on Critical Characteristics: ERSS SS Primary Piping Components				
1. 1 1/2" EPDM Riverbend Hose with 1 1/2" male NPT on both ends 2. 2" EPDM Hose with 2" female chemjoint fittings on both ends 3. 2" Male Threaded Chem Joint adaptor, PN "JBES-8" 4. 2" Male Welded Chem Joint adaptor, PN "JBW6-8" 5. 2" AGI Hose Reel Swivel Joint Socket, PN "MAS-10-158" 6. 2" AGI Hose Reel Swivel Joint Plug, PN "MAS-10-115" 7. 2" OPW Series 3900, Style 20, Stainless Steel Swivel Joint, PN "3920-0201" 8. Swivel Joint Set Screws 9. Swivel Joint primary and secondary O-rings seals 10. 2" Sch. 40 Stainless Steel pipe 11. 2" Sch. 40 Elbow (90 Deg. Stainless Steel) 12. 1 1/2" Sch. 40 Stainless Steel Pipe 13. 1 1/2" Sch. 40 Elbow (90 Deg. Stainless Steel) 14. Pipe Reducer 2" to 1 1/2" Sch. 40, Stainless Steel 15. 1 1/2" Pipe Coupling (Stainless Steel (2 1/2" O.D. x 1 1/2" I.D. x 2" LG)				
Critical Characteristics The critical characteristics of the ERSS Primary Piping System are: Item Identification, design pressure ≥ 400 psig and design temperature ≥ 180 °F and material compatibility (waste compatible).				
Component Evaluation The following is a breakdown of the AGI ERSS on the component level addressing the critical characteristics of each component and identifying the acceptable verification method based upon the items associated safety function.				

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COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
ECN No. N/A	MR/PO/WP No. TFMSS MR-12-05413	CGD Dash Nos. -08
Rev No. 0	Reason for Revision	
<p>1 1/2" and 2" EPDM Hose Assemblies</p> <p>Design requirements for primary EPDM hose assemblies are given in Section 3.3.1 of TFC-ENG-STD-21 where it states that the "Primary and secondary hose shall be designed to the requirements of RMA IP-2..." (Referring to requirements set forth in The Rubber Manufacturer's Association, Inc., RMA IP-2, and "Hose Handbook"). Riverbend Transfer System LLC is the only evaluated supplier for hose assemblies. Riverbend performs a battery of tests on the hose assemblies in accordance with the hose procurement specification RPP-14859, "Specification for Hose-in-Hose Transfer Line and Hose Jumpers". Per this specification, the hose assemblies are subjected to a design qualification test that, in part, tests assemblies of the hose coupons and associated end connections to 300 cycles of pressure and temperature loading (between design pressure at design temperature condition and a design pressure at ambient temperature condition, to a burst pressure test (testing a primary hose coupon to no less than four times the rated working pressure, and to a tensile strength test). A hose lot qualification test including a destructive proof test is also performed with a coupon of the hose to be used in the assemblies to verify that minimum burst pressure criteria in the specification are satisfied. In addition to the standard tests WRPS requested a high temperature burst test under a high tensile loading. This test will verify the burst strength of the 1 1/2" hose while under a tensile load of 1847 lbs. +10%-0% and at a minimum temperature of 180 °F. Three test coupons will be tested. These tests establish the hose's burst rating under high tensile loads. These tests also establish the limiting hydraulic pressure values for preventing hose failure due to overextension.</p> <p>These hoses have been evaluated and tested for tank farm waste. These hoses have been evaluated to operate in conditions of 425 psig and 180 °F with a RMA-based safety factor. The hoses with swaged end fittings have been utilized on the Hanford Site circa 1999 and have experienced no associated failures in materials or workmanship. Based upon these results and the fact that Riverbend is a NQA-1 supplier, WRPS has confidence in Riverbend's processes and controls over the critical characteristics "Design Pressure, Design Temperature and Material Compatibility" are adequate. No supplemental tests for validation of the critical characteristics are required to accept the hoses. WRPS inspector or representative shall verify that Riverbend attested to the implementation of the WRPS procurement spec RPP-14589 on their Certificate of Conformance, accompanied with the required test reports. Receipt inspection shall be performed to verify that required documentation has been received and is traceable to the identified and marked hoses.</p> <p>2" Chemjoints Connectors</p> <p>The Chemjoint fittings, which are swaged onto ends of EPDM hoses, have been tested as part of the design qualification testing and individual testing per RPP-14859. Chemjoints, which can be either male or female, are used to connect the flexible primary hoses to the waste transfer hard piping. The Chemjoints are welded or threaded to the waste transfer primary piping. These Chemjoints are provided by River Bend and contain set screws that are tightened after installation. The set screw is provided as a good engineering practice, but is not required for the Chemjoint to perform its safety function. The ChemJoints are made from 316 stainless steel. The male ends of the flexible hose are swaged and are equipped with EPDM O-rings to properly seal against leakage. Each end fitting requires the vendor to hydrostatically pressurize the fitting with water at ambient temperature to a pressure between 800 and 850 psig for 10 minutes without leakage or damage.</p> <p>Riverbend Transfer System LLC is the only evaluated supplier for Chemjoint fittings. Given the provision of the Riverbend pressure design calculation and the burst (proof) testing of the Chemjoint end fittings per RPP-14859, they are judged to meet the criteria</p>		

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COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
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<p>for an ASME B31.3 unlisted component per ASME B31.3 paragraph 304.7.2 for service up to 425 psig at 180°F. Based upon these results and the fact that Riverbend is a NQA-1 supplier, WRPS has confidence in Riverbend's processes and controls over the critical characteristics "Design Pressure, Design Temperature and Material Compatibility". No supplemental tests for validation of the critical characteristics are required to accept the fittings and the EPDM O-rings. WRPS inspector or representative shall verify that Riverbend attested to the implementation of the procurement spec RPP-14589 on the Certificate of Conformance, verify that the material is correct and verify that required documentation has been received.</p> <p>2" Swivel joints including ball bearings, bearing plugs and seals</p> <p>The ERSS uses two brands of swivel joints; an OPW Series 3900, style 20 and an AGI Swivel joint. The OPW 3900 series swivel joint has had extensive and successful service experience for the past 30 years in the petroleum industry. The swivel joint pressure boundary components consist of the body, tail, bearings, bearing plugs and seals. Body and tail sections are locked together by a double row of ball bearings. Balls are held in place by bearing plugs that never need to be adjusted to maintain bearing performance. The 3900 series swivel joint is rated for pressures up to 850 psi at 200 °F. The OPW Series 3900, Style 20 swivel joint has been evaluated for ASME B31.3 service in accordance with ASME B31.3 paragraph 304.7.2. That evaluation qualified the OPW swivel joint for tank farm service and satisfied the critical characteristics of Design Pressure and Temperature. The OPW swivel joint shall pass a hydrostatic pressure test of ≥ 667 psig for 10 minutes with zero leakage. This pressure test shall be used to confirm the swivel joint including its body, tail, ball bearings, bearing plugs, and seals have sufficient strength to maintain pressure boundary integrity. To satisfy the critical characteristic Material Compatibility the body and tail (or coupon thereof) shall be PMI tested to validate its chemical properties, and sample O-ring seals shall be collected from the same purchase order and analyzed for material identification. The ball bearings and bearing plug are not wetted components and do not need to be analyzed for material composition. Upon completion of these tests the CGD inspector (QAT) shall ensure the documentation is complete and attached to the CGD package.</p> <p>The AGI swivel joint was reversed engineered from the OPW swivel joint. AGI required tighter dimensional tolerances for their application. The design between the two brands of swivel joints is almost identical, however they differ in materials. The OPW swivel joint is comprised of cast ASTM A351-CF3M/CF8M 316 stainless steel. The AGI swivel joint is comprised of forged ASTM 276/479 304 stainless steel. Both swivel joints contain Buna-N (Nitrile) O-ring seals of the same size. Some of the spare OPW O-rings bought for material analysis were installed into the AGI swivel joint. The AGI swivel joint has also been evaluated for ASME B31.3 service in accordance with ASME B31.3 paragraph 304.7.2. This evaluation qualified the AGI swivel joint for tank farms service and satisfied the critical characteristics of Design Pressure and Temperature. However, the AGI swivel joint shall pass all the tests and inspections (i.e. material compatibility) required for the OPW swivel joint before it can be placed in service.</p> <p>2" and 1 1/4" Pipe including elbows, reducers and couplings</p> <p>All of the piping components shall be accompanied with CMTRs and purchased referencing the applicable ASTM standard. The piping components are either 304 or 316 sch. 40 stainless steel. 304 and 316 sch. 40 stainless steel is used throughout tank farms and has been evaluated to meet the critical characteristic of Design Pressure, Design Temperature and Material Compatibility. To ensure the piping components will perform their safety function of waste confinement all piping shall be hydrostatically pressure tested at ≥ 667 psig for 10 minutes with zero leakage and PMI tested to a documented</p>		

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COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
ECN No. N/A	MR/PO/WP No. TFMSS MR-12-05413	CGD Dash Nos. -08
Rev No. 0	Reason for Revision	
<p>statistical sampling plan (Reference Page 12 of this CGD) to establish the components are compatible with tank farm waste. Upon completion of these tests the CGD inspector (QAT) shall ensure the documentation is complete and attached to the CGD package.</p>		
<p>Conclusion</p> <p>Item Identification: Upon receipt confirming the item meets the design requirements establishes a confidence that the item was manufactured and tested properly. The QAIP shall be the verification document.</p> <p>Design Temperature: Material establishes the item's design temperature. WRPS TOC has evaluated the material properties related to the item's design temperature by performing technical and ASME B31.3 evaluations. No additional tests or inspections are required. The verification documentation includes TE-10-012 and RPP-RPT-36801.</p> <p>Design Pressure: WRPS has previously evaluated the ERSS's design pressure by performing technical and ASME B31.3 evaluations. Therefore by performing a hydrostatic pressure test in accordance with ASME B31.3 WRPS TOC gains confidence the item will perform satisfactory under Tank Farm pressures. The Verification Documentation includes the AVS source trip reports, Test reports, and RPP-RPT-36801.</p> <p>Material Compatibility: WRPS TOC will invoke by contract that AGI purchase Riverbend Hose and Chemjoints from our ESL vendor and with our procurement spec RPP-14859 Rev 8. This will establish reasonable assurance that those materials are genuine (i.e. waste compatible). The other materials will be tested by a sampling plan in accordance with EPRI Guideline TR-017218 Rev 1 "Guidelines for Sampling in commercial Grade Item Acceptance Process" (reference page 12 of this CGD for sampling justification). WRPS will witness PMI testing of the metallic components and analyze the O-rings to verify chemical composition of the material. These activities confirm the item is compatible with Tank Farm Waste. WRPS will augment the material testing with source verification activities throughout the manufacturing and testing of the item. The verification documentation includes the AVS source trip reports and the material analysis (PMI) test reports.</p>		
Section 4 References (for Safety Classification and Suitability Evaluation)		
National Codes/Standards: ASME B31.3 2002 RMA IP-2	Documented Safety Analysis (DSA): RPP-13033 Tank Farms DSA Report	Drawings: Vendor Drawings MAS-10-00A MPU-08-00B MPU-08-00E
Vendor Manuals:	Mfg./Supplier Information:	
<p>Engineering Justification/Other: ASME B31.3 Unlisted Component Evaluation RPP-RPT-36801 Rev 3a TE-10-012 Rev 1, Technical Evaluation of 241-C WRS SSCs Design Temperature Ratings TFC-ENG-STD-22, Rev.E7, "Piping, Jumpers, and Valves." Design Requirements are: Design Pressure ≥ 400 psig for SST; Design Temperature ≥ 180°F for SST;</p>		

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COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
ECN No. N/A	MR/POWP No. TFMSS MR-12-05413	CGD Dash Nos. -08
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Section 5 Verification of Critical Characteristics

Critical Characteristics				Receipt Inspection/Test Results						
Critical Characteristic for Acceptance ¹	Acceptance Criteria/Tolerances	Number to Test	Accept Method	Test Procedure	No. Tested	No. Failed	Verifying Organization	Printed Name Signature	Date	
Item Identification	ERSS SERIES 12MAS21 shall meet the description stated in RPP-SPEC-47739 Verify QAIP is complete and all inspections have been completed and signed.	100%	1		1	0	WRPS QA	See Attachment A Completed QAIP Richard Friesz RKF	6-12-14	
Design Temperature	Design Temperature (≥ 180 °F)	100%	1				WRPS ENG	TE-10-012 Rev 1 RPP-RPT-36801 Rev 3A Note: See page 5 under Conclusion and Design Temperature.		
Design Pressure	Design Pressure (≥ 400 psig) Verify Hydrostatic Pressure Test Pressure was ≥ 667 psig and held for ten minutes with zero leakage.	100%	3		1	0	WRPS QA/ENG	See Attachment A QAIP Inspection #1 + Attachment D ERSS FAT TEST. Richard Friesz 6-12-14 RKF		
Material Compatibility	Hard Pipe including pipe, elbows, reducers, and couplings shall be	50%	1,3		100%	0	WRPS QA	See Attachment A QAIP Inspection # 2, 3, & 4. Also see Attachment C PMI Reports		

Richard Friesz
RKF 6-12-14

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
ECN No. N/A	Work Package No. TFMSS MR-12-05413	CGD Dash Nos. -08
Rev No. 0	Reason for Revision	

Section 5 Verification of Critical Characteristics (continued)

Critical Characteristics					Receipt Inspection/Test Results				
Critical Characteristic for Acceptance	Acceptance Criteria/Tolerances	Number to Test	Accept Method	Test Procedure	No. Tested	No. Failed	Verifying Organization	Printed Name Signature	Date
	constructed of 300 series stainless steel. Verify PMI Test reports state 300 series SS.							<i>See Signature on previous page RT- 6-13-14</i>	
	Flexible Hose shall be EPDM and comply with RPP-14859 Rev 8 (Riverbend).	100%			2	0		<i>see Attachment A QAIP Inspection #12 + Attachment E River Bend cut sheet + C of C RIKF 6-13-14 Richard Friess</i>	
	ChemJoints and Seals shall comply with RPP-14859 Rev 8 (Riverbend).	100%			4	0	WRPS QA	<i>see Attachment A QAIP Inspection 12 + 13 Richard Friess RIKF 6-12-14</i>	
	Swivel Joints shall be constructed of 300 series SS with Buna N O-rings. Verify Material Test Reports and PMI/FTIR Test Reports validate material.	100%			4	0	WRPS QA	<i>see Attachment C PMI Reports Richard Friess RIKF 6-13-14</i>	
		100%			4	0	WRPS QA	<i>see Attachment F Swivel Joint Documentation Richard Friess RIKF 6-13-14</i>	

*FTIR may not identify rubbers
M10-90 O-ring
+ ester may be used as an alternative
MRF
6-13-14*

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
ECN No. N/A	Work Package No. TFMSS MR-12-05413	CGD Dash Nos. -08
Rev No. 0	Reason for Revision	

Section 5 Verification of Critical Characteristics (continued)

Notes:	Method:	Comments
1 Critical characteristics for acceptance to be verified during post installation testing are identified by an asterisk*.	1 Special Test and Inspection 2 Commercial Grade Survey 3 Source Verification 4 Vendor/Item History	

ADDITIONAL INSPECTION DETAILS from above (IF REQUIRED)

Critical Characteristic:

Description/Verification:

Acceptance Criteria/Tolerances:

Notes:

Disposition of Unverified or Failed Critical Characteristics:

Basis for the Critical Characteristics for Acceptance (if limited) and for the Acceptance Criteria:

Initial Approvals for Dash Number (if applicable):		Advance Procurement: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> Reason:	
Resp. System Engineer:	KW O'Leary <i>[Signature]</i> (Print/sign)	Date: 12/20/12	QA Manager: _____ (Print/sign) Date: _____
Proc. Eng. Lead:	DD Zinter <i>[Signature]</i> (Print/sign)	Date: 12/20/12	Chief Engineer: _____ (Print/sign) Date: _____

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COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03212
ECN No.	MR/PO/WP No.	CGD Dash Nos. 08
Rev No.	Reason for Revision	
Additional Information:		
Attachments:		
Attachment A	Purchase Orders, QAIP, and C of C	
Attachment B	AVS Trip Reports	
Attachment C	PMI Reports	
Attachment D	AGI Hydrostatic Test Reports	
Attachment E	River Bend Hose and Fitting Documentation	
Attachment F	Swivel Joint Documentation	

WRPS MATERIAL REQUEST

Date: 12/31/2012	Requestor: Bellomy, Jim	Phone: 372-1673	Org. Code: 2KP00	CACN/COA: 201396/AF20
Deliver To: D. Shults/2101HV/373-4244		Premium Freight: <input type="checkbox"/>	Date Required: 04/30/2013	Date Promised: MR-12-05479
Suggested Vendor(s): AGI Manufacturing		Special Instructions/Emergency Justification: Item 1 to undergo Commercial Grade Dedication per CGD-3212-8 and CGD-3212-9. Item 2 to undergo Commercial Grade Dedication per CGD-3213-8 and CGD-3213-9.		End Use: C-112 ERSS Units
CGI: 03212 and 03213				

Requestor Bellomy, Jim (372-1673)	Date 12/31/2012	Manager Bauer, Roger E (376-5908)	Date 12/31/2012
Engineer Bellomy, Jim (372-1673)	Date 08/22/2013	Procurement Engineer Bullock, Marshall C (372-1237)	Date 08/22/2013
QA Engineer Friesz, Richard K (373-3676)	Date 08/22/2013	RadCon Not Required per DRA	Date
Environmental Not Required per DRA	Date	Chemical Management Not Required per DRA	Date
Industrial Health Not Required per DRA	Date	Safety & Health Wagner, Vikki (373-2206)	Date 01/07/2013
Resp. Protection Duncan, Vella (373-3852)	Date 01/08/2013	Cost Account Manager Shults, Duane L (373-4244)	Date 08/29/2013
TFMSS Lead	Date	Material Coordinator	Date

Item	Quantity	Estimated Cost	Safety	Hazardous	Approval Desig.	Quality Level	Date/Qty Ordered	Order No.	Catalog No.
1	2	500000.00	SS		Q*	2	01/11/2013, 1.00 01/11/2013, 1.00	10006208 10006208	0000664518
QAIP	Unit	MSDS	NRTL	Storage Level			Date/Qty Complete	Storage Bldg/Area	Storage Location
	EACH			D - OUTDOORS			04/07/2014, 1.00	PROJ.MARSHALLING YD	YARD

Quality Clauses:
B13, B16, B22, B34, B43, B49, B52, B65, B76, B79, B85

Material Description: SLUICER, LONG ARM EXTENDED REACH (ERS) PER SPEC RPP-SPEC-47739, REV. 3.	Additional Description: W/INTEGRATED HIGH PRESSURE WASHER SYSTEM. BUYER TO WITNESS ALL TESTING SPECIFIED BY RPP-SPEC-47739. VENDOR TO PROVIDE 2 SPARE SWIVEL JOINT O-RINGS FROM THE SAME LOT AS INSTALLED O-RINGS (FOR EACH ERS) TO BUYER FOR MATERIAL TESTING. PMI TO BE PERFORMED ON ALL SAFETY SIGNIFICANT METALLIC MATERIALS AT VENDORS FACILITY. IF A SAFETY SIGNIFICANT COMPONENT IS NOT ACCESSIBLE AT THE TIME OF PMI, A COUPON TRACEABLE TO THE INSTALLED COMPONENT MAY BE USED. PMI TO BE VALIDATED USING BUYER SUPPLIED STANDARD & WITNESSED BY BUYER. THE ASSEMBLED ERS SHALL BE HYDROSTATICALLY TESTED AT 710 PSIG +20/-0 FOR 10 MIN. W/NO LEAKAGE. THE VENDOR MAY REQUEST THE USE OF THE BUYERS EVALUATED SUPPLIERS LIST TO ORDER SAFETY SIGNIFICANT COMPONENTS. FORMAL APPROVAL FROM THE BUYER IS REQUIRED PRIOR TO PLACING ANY PROCUREMENT ORDER. LENGTH OF ERS UNITS TO BE VERIFIED W/THE BUYER PRIOR TO ASSEMBLY.
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Purchasing Description:

Comments:
NOTE TO BUYER: This procurement to go to AGI Manufacturing. They are the only source for this equipment.

Part Number SERIES 12MAS21	Equipment Type MECHANICAL EQUIPMENT	Manufacturer AGI ENGINEERING	Drawing/ECN/Spec Number RPP-SPEC-47739, Rev. 3, RPP-14859 ,Rev. 8
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Item	Quantity	Estimated Cost	Safety	Hazardous	Approval Desig.	Quality Level	Date/Qty Ordered	Order No.	Catalog No.
2	2	50000.00	SS		Q*	2	01/11/2013, 2.00	10006208	0000664519
QAIP	Unit	MSDS	NRTL	Storage Level			Date/Qty Complete	Storage Bldg/Area	Storage Location
	EACH			D - OUTDOORS					

Quality Clauses:
B13, B16, B22, B34, B43, B52, B65, B76, B79, B85

Material Description: MANIFOLD, HYDRAULIC CONTROL, PER RPP-SPEC-	Additional Description: FOR USE W/EXTENDED REACH SLUICER SYSTEM (ERSS). BUYER TO WITNESS
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Material Request - MR Key: MR-12-05479

Page 2 of 2

47739, REV. 3.		ALL TESTING SPECIFIED BY RPP-SPEC-47739. THE FOLLOWING WILL BE PROVIDED AS GFE: SAFETY SIGNIFICANT HYDRAULIC FILTER.	
<u>Purchasing Description:</u>		<u>Comments:</u> NOTE TO BUYER: This procurement to go to AGI Manufacturing. They are the only source for this equipment.	
<u>Part Number</u> MAS-SECC110-SFC-150-R2	<u>Equipment Type</u> MECHANICAL EQUIPMENT	<u>Manufacturer</u> AGI ENGINEERING	<u>Drawing/ECN/Spec Number</u> RPP-SPEC-47739, Rev. 3.

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

Select to view receipt or Invoice detail.

PO Line Item Detail	Description	Schedule	Manufacturers	Summary	Revision History
Purchase Order	00051960 004		PO Line	0001	
Catalog ID	0000664518 2		Line Status	CLOSED	05/27/2014
Description	SLUICER, LONG ARM EXTENDED REACH (ERS) PER SPEC RPP-SPEC-47739, RE				
Quantity Ordered UP	2		Quantity Due UP		
UP	EA		UVL Recon	N	

Receipt Date	Receipt	Status	UI	Accept	Reject	Hold/QC	Final	Conforms	OSD&D
04/07/2014	00006699	COMPLETE	EA		1				
05/27/2014	00006876	COMPLETE	EA		1				

Invoice Date	Invoice	Amount USD	Qty (UP)	Invoice Status	Payment Status
04/24/2014	1262	\$469,859.02		2 CANCELED	PENDING
05/14/2014	1269	\$234,929.50		2 COMPLETE	PAID

ORIGINAL

COMMERCIAL GRADE DEDICATION FORM		CGD No.
		CGD-03213
ECN No. N/A	MR/PO/WP No. TFMSS MR-12-05413 <i>DS 479 72 6-4-14</i>	CGD Dash Nos. 08
Rev No. 0	Reason for Revision	
Title: Extended Reach Sluicer Hydraulic Pressure Control Device		
Reason for Dash Number: The CGD is for multiple items, the dash #s are for each assembly received. This dash 08 is for an assembly for tank C-112. No change to item fit, form or function.		
Responsible System Engineer Information		
Name/Company: KW O'Leary	Location: 2704HV/E201/200E	Phone: 372-1116
Section 1 Item Information		
Item No.: N/A	Manufacturer: Sun Hydraulics	Supplier: AGI Manufacturing, Inc.
Mfg. Part/Model No.: PPDB-8DN with RBAN-XBN-2D24V and PBDB-LAN	Supplier's P/N: N/A	
Item Description: PPDB-8DN and PBDB-LAN are three port, pilot-operated, pressure reducing valves designed to reduce high primary pressures at the inlet port (Port 2) to a constant reduced pressure at the outlet port (Port 1). The valves reduce pressures by discharging the excess fluid from the inlet port (Port 2) to the discharge or drain port (Port 3). The reduced pressure is determined by the spring adjustment plus any pressures at port 3. The Electro-Proportional Relief Valve RBAN-XBN-2D24V that goes with the PPDB-8DN is a 2-port spring loaded relief cartridge which is proportionally controlled by electric current to decrease or increase the pressure setting.		
End Use Description: <input checked="" type="checkbox"/> Component <input type="checkbox"/> Piece Part Designed for deployment in Extended Reach Sluicers System's (ERSS) Manifold Control System MAS-SECC110-SFC-150-R2. The ERSS is located in an enclosure located at an aboveground riser on the Single-Shell Tanks (SST) with the hydraulic manifold assembly that includes the pressure reducing valves on the HPU manifold located above ground some distance away.		
Safety Function From DSA: The safety function of ERSS safety significant hydraulic system components is to prevent the loss of the safety function of the ERSS process hose. The ERSS safety-significant hydraulic system process control components limit the hydraulic pressure and, therefore, the tension forces that can be applied on the process hose by the hydraulic cylinders that extend and retract the ERSS sluicer bloom and hose reel hydraulic motor.		
Equipment No.: N/A	Specification No.: RPP-SPEC-47739 REV 3	Past P.O. No.: N/A
Section 2 Clearance		Release Stamp
Clearance Review: Print Name	Signature: APPROVED <i>By Allen Bouslaugh at 1:32 pm, Dec 20, 2012</i>	Date
Cleared for Public Release? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		DATE: Dec 20, 2012 
Restricted Use? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

ORIGINAL

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03213
ECN No. N/A	MR/PO/WP No. TFMSS MR-12-05413	CGD Dash Nos. 08
Rev No. 0	Reason for Revision	
Restriction Type:		

Section 3 Determination of Critical Characteristics

Technical Basis Info Document Ref(s): RPP-RPT-51989, Rev. 1	Technical Evaluation Report No.:
Safety-Significant Extended Reach Sluicer System Hydraulic System Pressure Control Components - Functions and Requirements Evaluation Document	

Critical Characteristic	Item (X)	Safety Function (X)	CGD Acceptance (X)
ADD ROW			
Item Identification	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Set or Reducing Pressure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Temperature Rating	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Design Pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Material Of Construction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

Comments on Critical Characteristics:
 AGI Manufacturing Inc., is the designer and manufacturer of the ERSS. AGI will be procuring the pressure reducing valves. WRPS will be the dedicating entity. The following activities will be verified at AGI's facility during the manufacturing and testing of the ERSS.

M.S. 6-12-14

Item Identification
 The item's part/model number is a critical characteristic because it provides a method to link the item with the manufacturer's product description and published data. WRPS or an approved representative shall inspect the valves and their corresponding receipt documentation to ensure that the received items Part #s match description identified on the procurement documents.

Set or Reducing Pressure
 The items set pressure is crucial for the item to perform its safety function. WRPS or an approved representative shall witness or otherwise observe the functional performance test that validates the valve's relieving pressure is ≤ 2802 psig for the Sun Hydraulic PPDB-8DN relief valve with the electro-proportional RBAN-XBN-2D24V and ≤ 847 psig for the Sun Hydraulic PBDB-LAN valve.

Temperature Rating
 The items temperature rating is a design characteristic not identified as a critical characteristic in the FRED but is still important to ensure the items can operate and withstand Hanford environment. The valves shall be able to withstand low temperatures at -25 °F and operate at temperatures as low as -15 °F. The valves shall also be able to withstand and operate at high temperatures 195 °F. WRPS Engineering shall evaluate the selected components to ensure that they can withstand Hanford environmental and process temperatures.

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03213
ECN No. N/A	MR/PO/WP No. TFMSS MR-12-05413	CGD Dash Nos. 08
Rev No. 0	Reason for Revision	
<p>Design Pressure Pressure Rating is a design characteristic not identified as a critical characteristic in the FRED but is still important to ensure the items can operate and withstand the pressures the HPU pump can put out. The manifold control system that the valves will be installed in is rated for 3,000 PSI. WRPS Engineering shall evaluate the selected components to ensure that they can withstand pressures up to 3,000 PSI.</p> <p>Material of Construction Material of Construction is a design characteristic not identified as a critical characteristic in the FRED but is identified here to ensure the item meets specification requirements. The main body is constructed of steel, grade 12L14 (AISI-SAE), with either zinc or nickel plating. Internal components are constructed out of carbon steel leaded alloy. WRPS cannot validate the materials without destroying the valves, with the exception of the plating. WRPS shall perform PMI analysis on the plating to ensure that it is either zinc or nickel and perform a magnet test to ensure the body is a carbon steel alloy. This will provide reasonable assurance the manufacturer provides valves according to their published literature.</p>		
Section 4 References (for Safety Classification and Suitability Evaluation)		
National Codes/Standards:	Documented Safety Analysis (DSA): RPP-13033 Tank Farms DSA	Drawings:
Vendor Manuals:	Mfg./Supplier Information:	
<p>Engineering Justification/Other: These valves are principal components required to protect the process hose from excess tension forces on both the mast extension/retraction circuit and the hose reel circuit.</p> <p>The hydraulic system is run by a hydraulic power unit (HPU) that is located above the ground some distance away. The pressure and return line of the HPU feeds to a separate valve manifold that then splits the hydraulic power into different circuits, depending on what function is actuated. A hose reel with an attached hydraulic motor provides a smooth feed of the hose as it travels through the structure. Multiple hydraulic system pressure control components are installed to protect the EPDM hose from tension force that exceeds the force applied during hose burst testing. These include pressure reducing valves and inline filters on the individual hydraulic circuits. Only the pressure reducing valves and inline filters on these circuits are required to be safety significant to protect the process hose. The pressure reducing valves on these circuits are general, industry used, hydraulic pressure reducing valves that regulate to a set pressure. The inline filters will be commercial grade dedicated under CGD-03214.</p>		

RPP-PLAN-59931, Rev. 2

COMMERCIAL GRADE DEDICATION FORM (continued)								CGD No. CGD-03213	
ECN No. N/A			MR/PO/WP No. TFMSS MR-12-05413			CGD Dash Nos. 08			
Rev No. 0	Reason for Revision								
Section 5 Verification of Critical Characteristics									
Critical Characteristics					Receipt Inspection/Test Results				
ADD ROW									
Critical Characteristic for Acceptance ¹	Acceptance Criteria/Tolerances	Number to Test	Accept Method	Test Procedure	No. Tested	No. Failed	Verifying Organization	Printed Name Signature	Date
Item Identification	Verify Valve's Part #s are PPDB-8DN with RBAN-XBN-2D24V and PBDB-LAN and the items received matches product description.	100%	1or3		1	0	WRPS QA	See Attachment A QAIP Inspection #6 Richard Friesz Rudolf Fj	6-12-14 <input checked="" type="checkbox"/>
Set/Reducing Pressure	Verify by witnessing the functional performance test the PPDB-8DN with RBAN-XBN-2D24V reduces pressures to ≤ 2802 psig and the PBDB-LAN reduces pressure to ≤ 847 psig.	100%	3		1	0	WRPS QA	See Attachment A QAIP Inspection # 2 + 3. Richard Friesz Rudolf Fj	6-12-14 <input checked="" type="checkbox"/>
Temperature Rating	Verify the valves are capable of withstanding environmental temperatures of -25 to 130 °F and capable of operating at temperatures of -15 to 195 °F	100%	1		1	0	WRPS ENG	Paul Fogarty REED FOGLEY ATTACHMENT E	6-12-14 <input checked="" type="checkbox"/>
Design Pressure	Verify the valves are capable of withstanding pressures up to	100%	1		1	0	WRPS ENG	Paul Fogarty REED FOGLEY ATTACHMENT E	6/12/14 <input checked="" type="checkbox"/>

ORIGINAL

ORIGINAL

COMMERCIAL GRADE ITEM DEDICATION FORM (continued)		CGI No. CGD-03213
ECN No. N/A	Work Package No. TFMSS MR-12-05413	CGI Dash Nos. 08
Rev No. 0	Reason for Revision	

Section 5 Verification of Critical Characteristics (continued)

Critical Characteristics				Receipt Inspection/Test Results					
Critical Characteristic for Acceptance ¹	Acceptance Criteria/Tolerances	Number to Test	Accept Method	Test Procedure	No. Tested	No. Failed	Verifying Organization	Printed Name Signature	Date
	3,000 PSI								
Material of Construction	Perform PMI and magnet testing to verify the plating material on the valves is either zinc or nickel and body is a carbon steel alloy.	100%	1or3		1	0	WRPS QA	See Attachment A QAIP Inspection # 7 & 8. Also see PMI Report Richard Friesz RKF	6-12-14
Notes:	Method:		Comments						
1 Critical characteristics for acceptance to be verified during post installation testing are identified by an asterisk*.	1 Special Test and Inspection 2 Commercial Grade Survey 3 Source Verification 4 Vendor/Item History								

ADDITIONAL INSPECTION DETAILS from above (IF REQUIRED)

Critical Characteristic:
Description/Verification:
Acceptance Criteria/Tolerances:
Notes:

ORIGINAL

COMMERCIAL GRADE ITEM DEDICATION FORM (continued)		CGI No. CGD-03213
ECN No. N/A	Work Package No. TFMSS MR-12-05413	CGI Dash Nos. 08
Rev No. 0	Reason for Revision	

Section 5 Verification of Critical Characteristics (continued)

Disposition of Unverified or Failed Critical Characteristics:

Basis for the Critical Characteristics for Acceptance (if limited) and for the Acceptance Criteria:

Initial Approvals for Dash Number (if applicable):		Advance Procurement: Yes: <input type="checkbox"/> No: <input checked="" type="checkbox"/> Reason:	
Resp. System Engineer:	KW O'Leary <i>[Signature]</i> (Print/sign)	Date:	12/20/12
Proc. Eng. Lead:	DD Zinter <i>[Signature]</i> (Print/sign)	Date:	12/20/12
QA Manager:	_____ (Print/sign)	Date:	_____
Chief Engineer:	_____ (Print/sign)	Date:	_____

Initial Approvals:		Final Approvals:	
Originator:	N/A (Print/sign)	Date:	_____
Resp. System Engr.:	N/A (Print/sign)	Date:	_____
QA Engr.:	N/A (Print/sign)	Date:	_____
Proc. Engr. Lead:	N/A (Print/sign)	Date:	_____
Resp. Engr. Mgr.:	N/A (Print/sign)	Date:	_____
Resp. System Engr.:	R. FINEY <i>[Signature]</i> KW O'Leary (Print/sign)	Date:	6-12-14
QA Engr.:	RK Friesz <i>[Signature]</i> (Print/sign)	Date:	6-13-14
Proc. Engr. Lead:	DD Zinter <i>[Signature]</i> (Print/sign)	Date:	6/13/14
Resp. Engr. Mgr.:	R.A. BURK <i>[Signature]</i> WB Barton (Print/sign)	Date:	6/13/14

ORIGINAL

COMMERCIAL GRADE DEDICATION FORM (continued)		CGD No. CGD-03213
ECN No.	MR/PO/WP No.	CGD Dash Nos. 08
Rev No.	Reason for Revision	
Additional Information:		
Attachments:		
Attachment A	Purchase Orders, QAIP, and C of C	
Attachment B	AVS Trip Reports	
Attachment C	PMI Reports	
Attachment D	AGI Hydrostatic Test Reports	
Attachment E	Equipment Specifications/Vendor Cut Sheet	
Attachment F	Pictures	

WRPS MATERIAL REQUEST

Date: 12/31/2012		Requestor: Bellomy, Jim			Phone: 372-1673		Org. Code: 2KP00		CACN/COA: 201396/AF20	
Deliver To: D. Shults/2101HV/373-4244				Premium Freight: <input type="checkbox"/>		Date Required: 04/30/2013		Date Promised:		MR: MR-12-05479
Suggested Vendor(s): AGI Manufacturing CGI: 03212 and 03213			Special Instructions/Emergency Justification: Item 1 to undergo Commercial Grade Dedication per CGD-3212-8 and CGD-3212-9. Item 2 to undergo Commercial Grade Dedication per CGD-3213-8 and CGD-3213-9.			End Use: C-112 ERSS Units				
Bellomy, Jim (372-1673)		12/31/2012		Bauer, Roger E (376-5908)		12/31/2012				
Requestor		Date		Manager		Date				
Bellomy, Jim (372-1673)		08/22/2013		Bullock, Marshall C (372-1237)		08/22/2013				
Engineer		Date		Procurement Engineer		Date				
Friesz, Richard K (373-3676)		08/22/2013		Not Required per DRA						
QA Engineer		Date		RadCon		Date				
Not Required per DRA				Not Required per DRA						
Environmental		Date		Chemical Management		Date				
Not Required per DRA				Not Required per DRA						
Industrial Health		Date		Safety & Health		Date				
Not Required per DRA				Wagner, Vikki (373-2206)		01/07/2013				
Resp. Protection		Date		Cost Account Manager		Date				
Duncan, Vella (373-3852)		01/08/2013		Shults, Duane L (373-4244)		08/29/2013				
TFMSS Lead		Date		Material Coordinator		Date				
Item 1	Quantity 2	Estimated Cost 500000.00	Safety SS	Hazardous	Approval Desig. Q*	Quality Level 2	Date/Qty Ordered 01/11/2013, 1.00 01/11/2013, 1.00	Order No. 10006208 10006208	Catalog No. 0000664518	
QAIP	Unit EACH	MSDS	NRTL	Storage Level D - OUTDOORS		Date/Qty Complete 04/07/2014, 1.00	Storage Bldg/Area PROJ.MARSHALLING YD	Storage Location YARD		
Quality Clauses: B13, B16, B22, B34, B43, B49, B52, B65, B76, B79, B85										
Material Description: SLUICER, LONG ARM EXTENDED REACH (ERS) PER SPEC RPP-SPEC-47739, REV. 3.					Additional Description: W/INTEGRATED HIGH PRESSURE WASHER SYSTEM . BUYER TO WITNESS ALL TESTING SPECIFIED BY RPP-SPEC-47739. VENDOR TO PROVIDE 2 SPARE SWIVEL JOINT O-RINGS FROM THE SAME LOT AS INSTALLED O-RINGS (FOR EACH ERS) TO BUYER FOR MATERIAL TESTING. PMI TO BE PERFORMED ON ALL SAFETY SIGNIFICANT METALLIC MATERIALS AT VENDORS FACILITY. IF A SAFETY SIGNIFICANT COMPONENT IS NOT ACCESSIBLE AT THE TIME OF PMI, A COUPON TRACEABLE TO THE INSTALLED COMPONENT MAY BE USED. PMI TO BE VALIDATED USING BUYER SUPPLIED STANDARD & WITNESSED BY BUYER. THE ASSEMBLED ERS SHALL BE HYDROSTATICALLY TESTED AT 710 PSIG +20/-0 FOR 10 MIN. W/NO LEAKAGE. THE VENDOR MAY REQUEST THE USE OF THE BUYERS EVALUATED SUPPLIERS LIST TO ORDER SAFETY SIGNIFICANT COMPONENTS. FORMAL APPROVAL FROM THE BUYER IS REQUIRED PRIOR TO PLACING ANY PROCUREMENT ORDER. LENGTH OF ERS UNITS TO BE VERIFIED W/THE BUYER PRIOR TO ASSEMBLY.					
Purchasing Description:					Comments: NOTE TO BUYER: This procurement to go to AGI Manufacturing. They are the only source for this equipment.					
Part Number SERIES 12MAS21		Equipment Type MECHANICAL EQUIPMENT			Manufacturer AGI ENGINEERING		Drawing/ECN/Spec Number RPP-SPEC-47739, Rev. 3, RPP-14859, Rev. 8			
Item 2	Quantity 2	Estimated Cost 50000.00	Safety SS	Hazardous	Approval Desig. Q*	Quality Level 2	Date/Qty Ordered 01/11/2013, 2.00	Order No. 10006208	Catalog No. 0000664519	
QAIP	Unit EACH	MSDS	NRTL	Storage Level D - OUTDOORS		Date/Qty Complete	Storage Bldg/Area	Storage Location		
Quality Clauses: B13, B16, B22, B34, B43, B52, B65, B76, B79, B85										
Material Description: MANIFOLD, HYDRAULIC CONTROL, PER RPP-SPEC-					Additional Description: FOR USE W/EXTENDED REACH SLUICER SYSTEM (ERSS). BUYER TO WITNESS					

Material Request - MR Key: MR-12-05479

Page 2 of 2

47739, REV. 3.		ALL TESTING SPECIFIED BY RPP-SPEC-47739. THE FOLLOWING WILL BE PROVIDED AS GFE: SAFETY SIGNIFICANT HYDRAULIC FILTER.	
<u>Purchasing Description:</u>		<u>Comments:</u> NOTE TO BUYER: This procurement to go to AGI Manufacturing. They are the only source for this equipment.	
<u>Part Number</u> MAS-SECC110-SFC-150-R2	<u>Equipment Type</u> MECHANICAL EQUIPMENT	<u>Manufacturer</u> AGI ENGINEERING	<u>Drawing/ECN/Spec Number</u> RPP-SPEC-47739, Rev. 3.

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

Select to view receipt or Invoice detail.

PO Line Item Detail	Description	Schedule	Manufacturers	Summary	Revision History
Purchase Order	00051960 004		PO Line	0002	
Catalog ID	0000664519 2		Line Status	CLOSED	05/27/2014
Description	MANIFOLD, HYDRAULIC CONTROL, PER RPP-SPEC-47739, REV. 3.				
Quantity Ordered UP	2		Quantity Due UP		
UP	EA		UVL Recon	N	

Receipt Date	Receipt	Status	UI	Accept	Reject	Hold/QC	Final	Conforms	OSD&D
04/16/2014	00006737	COMPLETE	EA		1				
05/01/2014	00006800	COMPLETE	EA			1			0007525
05/27/2014	00006876	COMPLETE	EA		1				

Invoice Date	Invoice	Amount USD	Qty (UP)	Invoice Status	Payment Status
04/24/2014	1262	\$51,048.98		2 CANCELED	PENDING
05/14/2014	1269	\$25,524.50		2 COMPLETE	PAID

Material Request - MR Key: MR-11-00972

Page 1 of 2

WRPS MATERIAL REQUEST

Date: 02/25/2011	Requestor: Robinson, Randall S	Phone: 373-1236	Org. Code: ZKP00	CACN/COA: 200628/AF20
Deliver To: SHULTS/2101HV/373-4244		Premium Freight: <input type="checkbox"/>	Date Required: 08/26/2011	Date Promised: MR: MR-11-00972
Suggested Vendor(s): AGI Manufacturing		Special Instructions/Emergency Justification:		End Use: C-Farm Hydraulic SL Pumps & HPU
CGI: N/A				

Robinson, Randall S (373-1236)	03/03/2011	Bauer, Roger E (378-5908)	03/01/2011
Requestor	Date	Manager	Date
Bellomy, Jim (372-1873)	03/09/2011	Friesz, Richard K (373-3678)	03/10/2011
Engineer	Date	QA Engineer	Date
Not Required per DRA		Not Required per DRA	
RadCon	Date	Environmental	Date
Not Required per DRA		Not Required per DRA	
Industrial Health	Date	Chemical Management	Date
Not Required per DRA		Not Required per DRA	
Safety & Health	Date	Resp. Protection	Date
Carpenter, Keith E (372-2452)	03/10/2011	Duncan, Vella (373-3852)	03/10/2011
Cost Account Manager	Date	TFMSS Lead	Date
Shults, Duane L (373-4244)	03/10/2011		
Material Coordinator	Date		

Item 1	Quantity 2	Estimated Cost 120000.00	Safety GS	Hazardous	Approval Desig. Q	Quality Level 3	Date/Qty Ordered 03/10/2011, 2.00	Order No. 10004132	Catalog No. 0000656795
QAIP	Unit EACH	MSDS	NRTL	Storage Level D - OUTDOORS		Date/Qty Complete	Storage Bldg/Area	Storage Location	

Quality Clauses:
B-16, B-22, B-52, B-76, B-85

Material Description: PUMP, HYDRAULIC, TURBINE SLURRY PER RPP-SPEC-37122 REV.0.	Additional Description: W/ ADDITIONAL UPGRADES AS FOLLOWS: CARBI DE L SHAPED HARD BOWL WEAR RINGS; IMPELL ER HARD SURFACING; HARDENED STUFFER RING S; BENT AXIS HYDRAULIC MOTOR UPGRADE; HA RD CHROME SHAFT CUTLASS BEARING JOURNALS : HARD SURFACING OF SHAFT SUCTION BEARIN G JOURNAL: CARBIDE SUCTION BEARINGS; UPD ATED DISCHARGE PIPING TO REPLACE PIPE TH READED CONNECTION; 440C 50 RC HARDENED & REDESIGNED STUFFER RING; ISO MAG BEARIN G HOUSING SEAL; 3 WIRE DIGITAL SUBMERSIB LE TACHOMETER; CHEMJOINT DISCHARGE FITTI NG INCLUDED; SPARE 3/16 OPENING SUCTION STRAINER. UNIT WILL BE CONFIGURED FOR OP ERATION WITH THE AGI MODEL 100HPU 480V3- 75 HYDRAULIC POWER UNIT. ASSEMBLY DRAWIN G & HYDRAULIC SCHEMATICS W/ BILL OF MATE RIALS & OEM CUT SHEETS WILL BE SHIPPED W / DELIVERY. FULLY FACTORY TESTED TO BE F REE OF DEFECTS AT THE TIME OF DELIVERY, INCLUDING HYDROSTATIC LEAK TEST & FUNCTI ONAL TESTING. BUYER TO WITNESS TESTING.
Purchasing Description:	Comments: SPLIT CHARGE BETWEEN CACN 200179 & 200635. THIS ORDER IS REQUIRED TO GO TO AGI MANUFACTURING. ONLY SOURCE FOR THIS EQUIPMENT. THIS ITEMS MAY BE ABLE TO BE PROCURED ON THE OPTIONS UNDER PO 38330. IF NEW PO IS REQUIRED WRPS WANTS OPTIONS FOR AT LEAST THREE MORE PUMPS IN THE FUTURE.

Part Number 12HTPSP100-1	Equipment Type MECHANICAL EQUIPMENT	Manufacturer AGI ENGINEERING	Drawing/ECN/Spec Number RPP-SPEC-37122 Rev. 0
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Item 2	Quantity 1	Estimated Cost 120000.00	Safety GS	Hazardous	Approval Desig. Q	Quality Level 3	Date/Qty Ordered 03/10/2011, 1.00	Order No. 10004132	Catalog No. 0000656798
QAIP	Unit EACH	MSDS	NRTL	Storage Level D - OUTDOORS		Date/Qty Complete 11/01/2011, 1.00	Storage Bldg/Area OTHER	Storage Location HILINE	

Quality Clauses:
B-16, B-22, B-34, B-65, B-52, B-76, B-85

Material Request - MR Key: MR-11-00972

Page 2 of 2

<p>Material Description: UNIT, 100 HP SLURRY PUMP HYDRAULIC POWER PER RPP-SPEC-37122 REV.0.</p>		<p>Additional Description: 3000 PSI WORKING PRESSURE. 480 VOLT 3 PH ASE UNIT W/ FAN COOLED AIR OIL HEAT EXCH ANGER, REMOTE OPERATED FLOW CONTROLS. HYDRAULIC POWER UNIT INCLUDES PRESSURE & RETURN FILTRATION, SYSTEM PRESSURE GAGE AND QUICK DISCONNECTS FOR EACH HYDRAULIC CONNECTION. THE UNIT HAS LOW HYDRAULIC OIL LEVEL SWITCH, HIGH OIL TEMPERATURE INTERLOCKS, FAN TEMPERATURE CONTROL THERMO STAT & 2 IMMERSION HEATERS. 150 GALLON RESERVOIR HAS A DESICCANT FILLER / BREATHER, SIGHT GLASS & TEMPERATURE GAUGE. RESERVOIR IS FILLED WITH QUAKER QUINTOLUBRIC 888-46 HYDRAULIC OIL (MSDS INCLUDED) & HAS FULL PERIMETER DRIP PAN INCLUDED. HPU WILL BE CONFIGURED FOR 3 - 3 WIRE DIGITAL TACHOMETERS, NRTL - UL AND UL 508A APPROVED ELECTRICAL CONTROL PANEL, FULLY FACTORY TESTED TO BE FREE OF DEFECTS AT THE TIME OF DELIVERY, INCLUDING HYDRAULIC LEAK TEST, FLOW TEST AND FUNCTIONAL TESTING OF HYDRAULIC & ELECTRICAL CIRCUITS FOR PROPER CONDITIONS, FLOWS & PRESSURES. UNIT INCLUDES CONTROL PANEL HEATER & AIR CONDITIONER. SLURRY PUMP HPU HOSE BUNDLE INCLUDING, HEAT TRACING, INSULATION BLANKET, 3-3 WIRE DIGITAL TACHOMETER CABLES, 3/4 IN., 1 IN., 1-1/4 IN. X 50 FT. HYDRAULIC HOSES W/ PARKER & DIXON QUICK DISCONNECTS PER AGI DWG # TSP-07-00G. HOSES TO BE BUNDLED TOGETHER WITH HEAT TRACE & TACHOMETER CABLE IN HEAT SHRINK TUBING W/ RAYCHEM MFG. LABEL INSTALLED. SPIRAL WRAP HEAT TRACE AROUND THE HOSES W/ 1.3:1 RATIO. INSTALL END SEAL KIT ON THE HPU END OF THE HOSES, 3 FEET OF EXTRA HEAT TRACE CABLE (PIGTAIL) ON THE PUMP END FOR FUTURE SPLICING. INSULATE USING 2 IN. CERAMIC FIBER, GRAY SILICONE JACKETED INSULATION. HYDROSTATIC PRESSURE TEST FOR HYDRAULIC HOSES WILL BE CONDUCTED INDIVIDUALLY ON HOSE ASSEMBLIES (WITH QUICK CONNECT FITTINGS INSTALLED) TESTED TO 2 TIMES THE WORKING PRESSURE, HOLD FOR 30 SECONDS NOT MORE THAN ONE MINUTE, PER RMA IP-2, FILLED USING QUAKER QUINTOLUBRIC 888-46 HYDRAULIC FLUID. BUYER TO WITNESS TESTING.</p>	
<p>Purchasing Description:</p>		<p>Comments: THIS ITEMS MAY BE ABLE TO BE PROCURED ON THE OPTIONS UNDER PO 38330.</p>	
<p>Part Number 100HPU480V3-75</p>	<p>Equipment Type MECHANICAL EQUIPMENT</p>	<p>Manufacturer AGI ENGINEERING</p>	<p>Drawing/ECN/Spec Number RPP-SPEC-37122 Rev. 0</p>

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

Select to view receipt or Invoice detail.

PO Line Item Detail	Description	Schedule	Manufacturers	Summary	Revision History
Purchase Order	00045527 001		PO Line	0001	
Catalog ID	0000656795 3		Line Status	CLOSED	09/28/2011
Description	PUMP, HYDRAULIC, TURBINE SLURRY PER RPP-SPEC-37122 REV.0,				
Quantity Ordered UP	2		Quantity Due UP		
UP	EA		U/L Recon	N	

Receipt Date	Receipt	Status	UI	Accept	Reject	Hold/QC	Final	Conforms	OSD&D
09/01/2011	00003688	COMPLETE	EA		2				

Invoice Date	Invoice	Amount USD	Qty (UP)	Invoice Status	Payment Status
09/09/2011	1130	\$68,528.54	2	COMPLETE	PAID

WRPS MATERIAL REQUEST

Date: 09/07/2011		Requestor: Robinson, Randall S			Phone: 373-1236		Org. Code: 2KP00		CACN/COA: 201043/AF20		
Deliver To: CONTACT MATERIAL COORDINATOR					Premium Freight: <input type="checkbox"/>		Date Required: 01/27/2012		Date Promised: MR-11-03719		
Suggested Vendor(s): Hiline			Special Instructions/Emergency Justification:				End Use: C-101/102 Splitter Box				
CGI: N/A											
Robinson, Randall S (373-1236)		10/26/2011		Bauer, Roger E (376-5908)		10/26/2011					
Requestor		Date		Manager		Date					
Fink, Peter K (373-4470)		05/17/2012		Zinter, Donald D (373-1416)		11/07/2011					
Engineer		Date		Procurement Engineer		Date					
Friesz, Richard K (373-3676)		05/17/2012		Not Required per DRA							
QA Engineer		Date		RadCon		Date					
Not Required per DRA				Not Required per DRA							
Environmental		Date		Chemical Management		Date					
Not Required per DRA				Not Required per DRA							
Industrial Health		Date		Safety & Health		Date					
Not Required per DRA				Carpenter, Kelth E (372-2452)		11/08/2011					
Resp. Protection		Date		Cost Account Manager		Date					
Duncan, Vella (373-3852)		11/08/2011		Shults, Duane L (373-4244)		11/08/2011					
TFMSS Lead		Date		Material Coordinator		Date					
Item	Quantity	Estimated Cost	Safety	Hazardous	Approval Desig.	Quality Level	Date/Qty Ordered	Order No.	Catalog No.		
1	1	200000.00	SS		Q	2	11/08/2011, 1.00	10004896	0000659672		
QAIP	Unit	MSDS	NRTL	Storage Level		Date/Qty Complete	Storage Bldg/Area	Storage Location			
	EACH			D - OUTDOORS							
Quality Clauses: B01, B04, B13, B16, B22, B49, B52, B76, B79, B85											
Material Description: ASSEMBLY, SPLITTER BOX (POR 314), FABRICATE, INSPECT & TEST.						Additional Description: PER RPP-SPEC-47740 R1, H-14-109628 SHT 1-12 & H-14-109629 SHT 1-2. ITEMS SPECIFIED AS SAFETY SIGNIFICANT ARE REQUIRED TO BE PROCURED FROM SUBCONTRACTORS OR SUPPLIERS ON THE VENDORS EVALUATED SUPPLIERS LIST UNLESS SPECIFIC APPROVAL IS GIVEN BY THE BUYER. PROVIDE CERTIFICATE OF CONFORMANCE STATING COMPLETED ASSEMBLY CONFORMS TO PURCHASE ORDER REQUIREMENTS; ASSEMBLY IS CONSTRUCTED OF MATERIALS SPECIFIED BY THE APPROVED DRAWINGS & ASSEMBLY CONFORMS TO DRAWING DIMENSIONS WITHIN ALLOWABLE TOLERANCES. BUYER TO WITNESS TESTING. ALL WELDS SHALL BE EXAMINED BY AN AWS QC-1 CERTIFIED WELD INSPECTOR. THE SUMP HEATER TO BE TESTED TO VERIFY SETPOINT USING M&TE. CMTRS ARE REQUIRED FOR ALL SAFETY SIGNIFICANT MATERIALS INCLUDING WELD FILLER. VALVE LEAKAGE TESTS SHALL BE PERFORMED ON EACH VALVE IN BOTH DIRECTIONS. THE FOLLOWING MATERIAL WILL BE SUPPLIED AS GOVERNMENT FURNISHED EQUIPMENT (GFE): H-14-109628, 14 OF ITEM 20 (2 IN. BALL VALVES); 16 OF ITEM 44 (2 IN. MALE CHEM JOINTS); 24 OF ITEM 45 JOINTS); 3 OF ITEM 63 (1 IN. BALL VALVES); 1 OF ITEM 66 (TRANSMITTER); 1 OF ITEM 70 (RTD TEMPERATURE ELEMENT) & 1 OF ITEM 75 (THREADED THERMOWELL).					
Purchasing Description:						Comments: NOTE TO BUYER: This is a Safety Significant Procurement and is required to go to a fabricator on or capable of being put on the WRPS/MSA Evaluated Suppliers List for the quality criteria listed in below. RECOMMENDED VENDORS: Hiline Engineering, Monarch, Intermach, Mid Columbia Engineering, Orbit. THE VENDOR SHALL BE LISTED ON OR CAPABLE OF BEING PUT ONTO THE APPROVED WRPS/MSA EVALUATED SUPPLIERS LIST TO MEET ASME-NQA-1, PART 1, 2004 EDITION (ALL REQUIREMENTS APPLY EXCEPT AS NOTED BELOW). Exceptions: QR-1, sect. 200 and 300; QR-2, sect. 303.3; QR-3, none apply (vendor will not provide design services); QR-4, subsection 207; QR-7, sect. 300, subsection 504 & 506, 700, 800; QR-11, sect. 200 c & sect. 400; QR-13, sect. 200, 300, 400 & 500; QR-14 excluded; QR-17, sect. 400, 500, 600, 700 & 800.					
Part Number *N/A		Equipment Type MECHANICAL EQUIPMENT			Manufacturer NOT APPLICABLE		Drawing/ECN/Spec Number RPP-SPEC-47740 R1, H-14-109628 SHT 1-12, H-14-109629 SHT 1-2				

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

TIMP324 - PO LINE RECEIPT AND INVOICE SUMMARY

Select to view receipt or Invoice detail.

PO Line Item Detail	Description	Schedule	Manufacturers	Summary	Revision History
Purchase Order	00048616 007		PO Line	0002	
Catalog ID	0000659672 2		Line Status	CLOSED	08/29/2012
Description	ASSEMBLY, SPLITTER BOX (POR 314), FABRICATE, INSPECT & TEST,				
Quantity Ordered UP	1		Quantity Due UP		
UP	EA		UVL Racon	N	

Receipt Date	Receipt	Status	UI	Accept	Reject	Hold/QC	Final	Conforms	OSD&D
08/14/2012	00004719	COMPLETE	EA		1				

Invoice Date	Invoice	Amount USD	Qty (UP)	Invoice Status	Payment Status
08/29/2012	PSI000376	\$148,973.45		1 COMPLETE	PAID

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ATTACHMENT E

241-C-101 SST RETRIEVAL AND CLOSURE PROJECT SCHEDULE

Life Cycle Baseline FY09-16 10/24/13 Current Status (14-002)			C-Farm Monthly Performance							Data Date 23-Jun-14	
Activity ID	Activity Name	EV	Act %	Dur % Cpt	OD	RD	Current Start	Current Finish	BCWS	BCWP	
Life Cycle Baseline FY09-16 10/24/13 Current Status (14-002)			73.32%	1278	341		01-Oct-10 A	27-Oct-15	\$355,807.77	\$420,448.86	
River Protection Project			73.32%	1278	341		01-Oct-10 A	27-Oct-15	\$355,807.77	\$420,448.86	
Retrieval and Close SSTs			73.32%	1278	341		01-Oct-10 A	27-Oct-15	\$355,807.77	\$420,448.86	
SST Retrieval East Area			73.32%	1278	341		01-Oct-10 A	27-Oct-15	\$355,807.77	\$420,448.86	
C-Farm Retrieval			73.32%	1278	341		01-Oct-10 A	27-Oct-15	\$355,807.77	\$420,448.86	
C-101 Retrieval			73.32%	1278	341		01-Oct-10 A	27-Oct-15	\$355,807.77	\$420,448.86	
C-101 Retrieval Project Management			74.42%	1259	322		01-Oct-10 A	30-Sep-15	\$323,858.08	\$323,848.12	
5.02.02.06.01.01	HHA-3C001A	C-101 Retrieval Project Management FY11	%	100%	100%	252	0	01-Oct-10 A	30-Sep-11 A	\$0.00	\$0.00
5.02.02.06.01.01	HHA-3C001A01	C-101 Retrieval Project Management FY12	%	100%	100%	251	0	03-Oct-11 A	28-Sep-12 A	\$0.00	\$0.00
5.02.02.06.01.01	HHA-3C001A03	C-101 Retrieval Project Management FY13	%	100%	100%	252	0	01-Oct-12 A	30-Sep-13 A	\$0.00	\$0.00
5.02.02.06.01.01	HHA-3C001A05	C-101 Retrieval Project Management - FY14	%	72.22%	72.22%	252	70	01-Oct-13 A	30-Sep-14	\$323,858.08	\$323,848.12
5.02.02.06.01.01	HHA-3C001S01	C-101 Retrieval Project Management - FY15	%	0%	0%	252	252	01-Oct-14	30-Sep-15	\$0.00	\$0.00
C-101 Retrieval Design and Engineering				100%	526	0	01-Oct-10 A	31-Oct-12 A	\$0.00	\$0.00	
5.02.02.06.01.02	HHA-3C001B	C-101 Retrieval Design	%	100%	100%	144	0	01-Oct-10 A	28-Apr-11 A	\$0.00	\$0.00
5.02.02.06.01.02	HHA-3C001D	C-101 Engineering Support FY11	%	100%	100%	252	0	01-Oct-10 A	30-Sep-11 A	\$0.00	\$0.00
5.02.02.06.01.02	HHA-3C001D1	C-101 Engineering Support FY12	%	100%	100%	251	0	03-Oct-11 A	28-Sep-12 A	\$0.00	\$0.00
5.02.02.06.01.02	HHA-3C001D2	C-101 Engineering Support FY13	%	100%	100%	23	0	01-Oct-12 A	31-Oct-12 A	\$0.00	\$0.00
C-101 Retrieval Procurement				100%	498	0	29-Apr-11 A	19-Apr-13 A	\$0.00	\$0.00	
5.02.02.06.01.03	HHA-3C001C	C-101 Retrieval Procurement - Receive Equipment	%	100%	100%	28	0	23-Aug-11 A	30-Sep-11 A	\$0.00	\$0.00
5.02.02.06.01.03	HHA-3C001C1	C-101 Retrieval Procurement - Bid/Award Purchase Orders	%	100%	100%	40	0	29-Apr-11 A	24-Jun-11 A	\$0.00	\$0.00
5.02.02.06.01.03	HHA-3C001C2	C-101 Retrieval Procurement - Bid/Award Purchase Orders	%	100%	100%	60	0	03-Oct-11 A	29-Dec-11 A	\$0.00	\$0.00
5.02.02.06.01.03	HHA-3C001CA	C-101 Retrieval Procurement - Receive Equipment	%	100%	100%	60	0	27-Mar-12 A	19-Jun-12 A	\$0.00	\$0.00
5.02.02.06.01.03	HHA-3C001CB	C-101 Retrieval Procurement - Spare ERSS	%	100%	100%	139	0	01-Oct-12 A	19-Apr-13 A	\$0.00	\$0.00
C-101 Retrieval System Installation				100%	352	0	29-Apr-11 A	19-Sep-12 A	\$0.00	\$0.00	
5.02.02.06.01.04	HHA-3C001E	C-101 Retrieval System Installation	%	100%	100%	48	0	26-Jul-11 A	30-Sep-11 A	\$0.00	\$0.00
5.02.02.06.01.04	HHA-3C001E1	C-101 Retrieval System Installation Bid/Award Contract	%	100%	100%	60	0	29-Apr-11 A	25-Jul-11 A	\$0.00	\$0.00
5.02.02.06.01.04	HHA-3C001E2	C-101 Retrieval System Installation - FY12	%	100%	100%	40	0	03-Oct-11 A	29-Nov-11 A	\$0.00	\$0.00

WRPS Tank Operations Contract

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TASK filters: ! - CLIN 2 - CFARM_1 - C101 C102, C-101 Only.

C-101 SLCS Schedule

GWBS	Activity ID	Activity Name	EV	Act %	Dur % Cpt	OD	RD	Current Start	Current Finish	BCWS	BCWP
	5.02.02.06.01.04	HHA-3C001EA C-101 Retrieval System Installation	%	100%	100%	204	0	30-Nov-11 A	19-Sep-12 A	\$0.00	\$0.00
	5.02.02.06.01.04	PBI-2.6.1 PBI-2.6.1 C-101 Retrieval System Installation	C	100%	100%	0	0		19-Sep-12 A	\$0.00	\$0.00
	C-101 Retrieval Startup and Readiness				100%	70	0	25-Jul-12 A	31-Oct-12 A	\$0.00	\$0.00
	5.02.02.06.01.05	HHA-3C001F C-101 Retrieval Startup and Readiness - FY12	%	100%	100%	47	0	25-Jul-12 A	28-Sep-12 A	\$0.00	\$0.00
	5.02.02.06.01.05	HHA-3C001F1 C-101 Retrieval Startup and Readiness - FY13	%	100%	100%	23	0	01-Oct-12 A	31-Oct-12 A	\$0.00	\$0.00
	C-101 Retrieval Operations - 1st and 2nd Tech				100%	312	0	01-Nov-12 A	27-Jan-14 A	\$26,461.62	\$26,461.62
	5.02.02.06.01.06	HHA-3C001G C-101 Retrieval Operations - 1st and 2nd Technology (MS)	%	100%	100%	178	0	01-Nov-12 A	18-Jul-13 A	\$0.00	\$0.00
	5.02.02.06.01.06	HHA-3C001GCY C-101 Retrieval Operations - 1st and 2nd Technology (MS)	%	100%	100%	64	0	01-Oct-13 A	27-Jan-14 A	\$26,461.62	\$26,461.62
	5.02.02.06.01.06	PBI-2.6.2 PBI-2.6.2 C-101 Retrieval Operations 50% Complete	C	100%	100%	0	0		06-Mar-13 A	\$0.00	\$0.00
	5.02.02.06.01.06	PBI-2.6.3 PBI-2.6.3 C-101 Complete Retrieval	C	100%	100%	0	0		18-Jul-13 A	\$0.00	\$0.00
	C-101 Post Retrieval Sampling and Analysis				0%	107	153	27-Jan-14 A	30-Jan-15	\$0.00	\$60,078.67
	5.02.02.06.01.07	HHA-3C001N1 C-101 Retrieval - Equipment Removal for Post Retrieval Sampling	%	2.69%	0%	107	153	27-Jan-14 A	30-Jan-15	\$0.00	\$10,798.06
	5.02.02.06.01.07	HHA-3C001P C-101 Post-Retrieval Sampling & Analysis	%	3.24%	0%	107	153	27-Jan-14 A	30-Jan-15	\$0.00	\$49,280.61
	C-101 Retrieval Data Report				0%	231	231	26-Nov-14	27-Oct-15	\$0.00	\$0.00
	5.02.02.06.01.08	HHA-3C001Q C-101 Retrieval Data Report	%	0%	0%	231	231	26-Nov-14	27-Oct-15	\$0.00	\$0.00
	5.02.02.06.01.08	M-45-86a M-45-86a, C-101 Retrieval Data Report	T	0%	0%	0	0		29-Sep-15	\$0.00	\$0.00
	C-101 Retrieval Operations - 3rd Technology				76.9%	303	70	19-Jul-13 A	30-Sep-14	\$5,488.07	\$10,060.46
	5.02.02.06.01.09	HHA-3C001M1 C-101 Sample 3rd Technology Decision - FY13	%	100%	100%	51	0	19-Jul-13 A	30-Sep-13 A	\$0.00	\$0.00
	5.02.02.06.01.09	HHA-3C001RCC C-101 Retrieval Completion Certification	%	33.33%	18.18%	55	45	04-Jun-14 A	25-Aug-14	\$5,488.07	\$10,060.46
	5.02.02.06.01.09	HHA-3C001V C-101 Equipment Removal - Sample for 3rd Technology Decision	%	100%	100%	40	0	19-Jul-13 A	13-Sep-13 A	\$0.00	\$0.00
	5.02.02.06.01.09	HHM-3C001RCT C-101 Retrieval Completion Certification Report ORP Transmt to Ecology	M	0%	0%	0	0		30-Sep-14	\$0.00	\$0.00
	5.02.02.06.01.09	HHM-3C001Z C-101 Complete Retrieval Completion Certification Report	M	0%	0%	0	0		25-Aug-14	\$0.00	\$0.00

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ATTACHMENT F

DST - DST TRANSFERS AND 242-A EVAPORATOR CAMPAIGNS

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Final Sort	Order	TBS	Task Name	Start Date	End Date	Notes
	1		AY-102 Recovery Project - Preparatory Transfers			
	2	1.01	AP-102 to AZ-102	4/22/2015	4/26/2015	AP-102 decant
	3	1.02	AP-102 to AZ-101	10/10/2015	10/14/2015	AP-102 decant
	4	1.03	19 M Caustic to AP-102	10/27/2015	10/27/2015	AP-102 conditioning
	5	1.04	AN-106 to AP-102	10/28/2015	10/30/2015	AP-102 sludge fluid SpG reduction
	6	1.05	AP-101 to AN-106	10/31/2015	10/31/2015	Backfill AN-106
	7	2.	AY-102 Recovery Project - Waste Retrieval Transfers			
	8	2.01	AY-102 to AW-105	12/1/2015	12/5/2015	AY-102 decant
	9	2.02	AY-102 to AN-106	12/17/2015	12/18/2015	AY-102 decant
	10	2.03	AY-102 to AP-102	12/19/2015	3/31/2016	AY-102 sludge retrieval via sludging
	11	3.	DST Space Management and 242-A Evaporator Campaigns (Common to AY-102, SST Retrievals, and LAWPS preparations)			
	12	3.01	AW-102 to 242-A	8/17/2014	8/17/2014	242-A Campaign 13-01: First Pass
	13	3.02	242-A to AP-107	8/23/2014	8/23/2014	242-A Campaign 13-01: First Pass
	14	3.03	AP-107 to AW-102	9/4/2014	9/8/2014	Staging for 242-A Campaign 13-01: Second Pass
	15	3.04	AW-102 to 242-A	9/11/2014	9/11/2014	242-A Campaign 13-01: Second Pass
	16	3.05	242-A to AP-107	9/25/2014	9/25/2014	242-A Campaign 13-01: Second Pass
	17	3.06	AW-106 to AW-102	9/28/2014	10/1/2014	Staging for 242-A Campaign 14-01
	18	3.07	AP-104 to AW-106	10/2/2014	10/6/2014	Staging for 242-A Campaign 14-03
	19	3.08	AP-103 to AW-106	10/7/2014	10/11/2014	Staging for 242-A Campaign 14-03
	20	3.09	AW-102 to 242-A	11/3/2014	11/3/2014	242-A Campaign 14-01
	21	3.10	242-A to AP-107	11/17/2014	11/17/2014	242-A Campaign 14-01
	22	3.11	AZ-102 to AW-102	12/22/2014	12/26/2014	Staging for 242-A Campaign 14-02
	23	3.12	AP-103 to AZ-102	12/28/2014	12/30/2014	Staging for 242-A Campaign 15-01
	24	3.13	AY-101 to AZ-102	1/20/2015	1/26/2015	Staging for 242-A Campaign 15-01
	25	3.14	AW-106 to AW-102	1/31/2015	3/16/2015	Staging for 242-A Campaign 14-03
	26	3.15	AP-103 to AY-101	2/16/2015	2/16/2015	Creating space for 242-A Campaign 14-02 bottoms
	27	3.16	AW-102 to 242-A	3/1/2015	3/1/2015	242-A Campaign 14-02
	28	3.17	242-A to AP-103	3/8/2015	3/8/2015	242-A Campaign 14-02
	29	3.18	AW-102 to 242-A	3/18/2015	3/18/2015	242-A Campaign 14-03
	30	3.19	242-A to AP-103	3/30/2015	3/30/2015	242-A Campaign 14-03
	31	3.20	AZ-102 to AW-102	4/6/2015	4/10/2015	Staging for 242-A Campaign 15-01
	32	3.21	AP-107 to AP-102	4/10/2015	4/11/2015	Operating Level Rise
	33	3.22	AP-102 to AP-107	4/18/2015	4/19/2015	Operating Level Rise
	34	3.23	AP-107 to AP-102	4/20/2015	4/20/2015	Operating Level Rise
	35	3.24	AW-102 to 242-A	6/1/2015	6/1/2015	242-A Campaign 15-01
	36	3.25	242-A to AP-103	6/8/2015	6/18/2015	242-A Campaign 15-01
	37	3.26	242-A to AP-104	6/19/2015	6/19/2015	242-A Campaign 15-01
	38	3.27	AZ-101 to AW-106	6/20/2015	6/21/2015	AZ-101 Blending; 242-A Campaign 16-01 Preparation
	39	3.28	AZ-101 to AW-102	6/23/2015	6/26/2015	AZ-101 Blending; 242-A Campaign 15-02 Preparation
	40	3.29	AP-108 to AW-102	7/1/2015	7/3/2015	AZ-101 Blending; 242-A Campaign 15-02 Preparation
	41	3.30	AP-108 to AW-106	7/6/2015	7/8/2015	AZ-101 Blending; 242-A Campaign 15-03 Preparation
	42	3.31	AZ-101 to AP-108	7/10/2015	7/12/2015	AZ-101 Blending; 242-A Campaign 15-03 Preparation
	43	3.32	AP-106 to AW-102	8/10/2015	8/12/2015	AZ-101 Blending; 242-A Campaign 15-02 Preparation
	44	3.33	AP-106 to AP-108	9/28/2015	9/30/2015	AZ-101 Blending; 242-A Campaign 15-03 Preparation
	45	3.34	AP-106 to AW-106	11/10/2015	11/12/2015	AZ-101 Blending; 242-A Campaign 16-01 Preparation
	46	3.35	AW-102 to 242-A	11/30/2015	11/30/2015	242-A Campaign 15-02
	47	3.36	242-A to AP-106	12/14/2015	12/14/2015	242-A Campaign 15-02
	48	3.37	AP-108 to AW-102	12/15/2015	12/19/2015	Staging for 242-A Campaign 15-03: First Pass
	49	3.38	AW-102 to 242-A	12/28/2015	12/28/2015	242-A Campaign 15-03: First Pass
	50	3.39	242-A to AP-106	1/4/2016	1/4/2016	242-A Campaign 15-03: First Pass
	51	3.40	AP-108 to AW-102	1/5/2016	1/5/2016	Staging for 242-A Campaign 15-03: Second Pass
	52	3.41	AW-102 to 242-A	1/6/2016	1/6/2016	242-A Campaign 15-03: Second Pass
	53	3.42	242-A to AP-108	1/12/2016	1/19/2016	242-A Campaign 15-03: Second Pass
	54	3.43	AW-106 to AW-102	2/1/2016	2/5/2016	Staging for 242-A Campaign 16-01
	55	3.44	AW-102 to 242-A	2/12/2016	2/12/2016	242-A Campaign 16-01
	56	3.45	242-A to AP-108	2/24/2016	2/24/2016	242-A Campaign 16-01
	57	3.46	AP-104 to AW-102	2/25/2016	2/25/2016	Staging for 242-A Campaign 16-02; creating space for AP-102 decant
	58	3.47	AP-108 to AZ-101	2/25/2016	2/28/2016	Creating space for 242-A Campaign 16-03 bottoms
	59	3.48	AW-102 to 242-A	3/1/2016	3/5/2016	242-A Campaign 16-02
	60	3.49	242-A to AP-104	3/19/2016	3/19/2016	242-A Campaign 16-02
	61	3.50	AW-103 to AW-102	3/20/2016	3/23/2016	Staging for 242-A Campaign 16-03
	62	3.51	AW-102 to 242-A	3/24/2016	3/24/2016	242-A Campaign 16-03
	63	3.52	242-A to AW-106	3/30/2016	3/30/2016	242-A Campaign 16-03
	64	3.53	AW-105 to AW-102	4/1/2016	4/1/2016	Staging for 242-A Campaign 16-04
	65	3.54	AW-102 to 242-A	4/2/2016	4/2/2016	242-A Campaign 16-04
	66	3.55	242-A to AP-108	4/15/2016	4/15/2016	242-A Campaign 16-04
	67	3.56	AP-104 to AP-106	5/1/2016	5/1/2016	Operating Level Rise
	68	3.57	AP-106 to AP-104	5/8/2016	5/8/2016	Operating Level Rise
	69	3.58	AP-104 to AP-106	5/15/2016	5/15/2016	Operating Level Rise
	70	3.59	AY-101 to AW-102	8/17/2016	8/21/2016	Staging for 242-A Campaign 17-01
	71	3.60	AW-102 to 242-A	10/1/2016	10/1/2016	242-A Campaign 17-01
	72	3.61	242-A to AP-108	10/15/2016	10/15/2016	242-A Campaign 17-01
	73	3.62	AZ-102 to AW-102	8/20/2017	8/24/2017	Staging for 242-A Campaign 17-02: First Pass; decant for AX retrieval
	74	3.63	AW-102 to 242-A	10/25/2017	10/25/2017	242-A Campaign 17-02: First Pass
	75	3.64	242-A to AW-103	11/7/2017	11/7/2017	242-A Campaign 17-02: First Pass
	76	3.65	AW-103 to AW-102	11/8/2017	11/12/2017	Staging for 242-A Campaign 17-02: Second Pass
	77	3.66	AW-102 to 242-A	11/15/2017	11/15/2017	242-A Campaign 17-02: Second Pass
	78	3.67	242-A to AW-103	11/29/2017	11/29/2017	242-A Campaign 17-02: Second Pass
	79	3.68	AZ-102 to AW-102	6/21/2018	6/25/2018	Staging for 242-A Campaign 17-03; Supports AX retrieval
	80	3.69	AW-102 to 242-A	8/28/2018	8/28/2018	242-A Campaign 17-03
	81	3.70	242-A to AW-103	9/14/2018	9/14/2018	242-A Campaign 17-03
	82	3.71	AZ-102 to AW-102	9/23/2018	9/27/2018	

Color	Meaning	Supports	Allocate to (for purposes of AY-102 Recovery Project Work Plan)	TBS
Grey	Historical transfers	n/a	n/a	0
Purple	SST Retrieval (actual retrieval or supporting transfers)	SST Retrievals (C, AX, A)	n/a	0
Red	AY-102 support (not including Evaporator Campaign or Staging)	AY-102 Recovery (except for actual retrieval)	AY-102 Recovery Project - Preparations	1
Red	AY-102 support (not including Evaporator Campaign or Staging)	AY-102 Recovery (actual retrieval only)	AY-102 Recovery Project - Retrieval	2
Blue	Evaporator Campaign	Multiple via DST space management (AY-102, SST Retrievals, LAWPS)	242-A Campaigns (Common)	3
Yellow	Evaporator Staging (feed or bottoms)	Multiple via DST space management (AY-102, SST Retrievals, LAWPS)	DST Space Management (Common)	3
Orange	DST level rise	Multiple via DST space management (AY-102, SST Retrievals, LAWPS)	DST Space Management (Common)	3
Green	AZ-101 Blending for Evaporator Staging	Multiple via DST space management (AY-102, SST Retrievals, LAWPS)	DST Space Management (Common)	3

Note: Allocation of Transfers and Evaporator Campaigns to AY-102 proposal for cost purposes may be different than these allocations which were based on manual inspection. The DST Space Management related transfers and