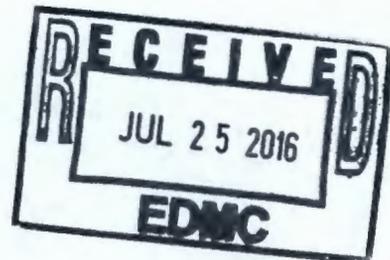


**SEMI-ANNUAL REPORT CONSISTENT WITH CONSENT
DECREE SECTION IV-C-1, WASHINGTON v. DEPARTMENT
OF ENERGY, CASE NO. 08-5085 FVS, FOR WASTE
TREATMENT AND IMMOBILIZATION PLANT (WTP)
CONSTRUCTION AND STARTUP ACTIVITIES AND TANK
RETRIEVAL ACTIVITIES**

January 1, 2010 – June 30, 2010



**U.S. DEPARTMENT OF ENERGY
OFFICE OF RIVER PROTECTION
2440 Stevens Center Place
Richland, Washington 99354**

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LIST OF ACRONYMS

AB	Authorization Basis
BNI	Bechtel National, Inc.
BOF	Balance of Facilities
CalTech	California Institute of Technology
CNP	Cesium Nitric Acid Recovery Process
CY	Calendar Year
CXP	Cesium Ion Exchange Process
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EOC	Extent of Condition
FY	Fiscal Year
HEPA	High-efficiency Particulate Air (filter)
HFFACO	Hanford Federal Facility Agreement and Consent Order
HLW	High-Level Waste [Facility]
HPAV	hydrogen in piping and ancillary vessel
HVAC	Heating, ventilation and air conditioning
IRP	Issue Response Plan
LAB	Analytical Laboratory
LAW	Low-Activity Waste [Facility]
MAR	Material at Risk
MSA	Mission Support Alliance (Hanford)
ORP	Office of River Protection
P&ID	Piping and Instrumentation Drawing
PDSA	Preliminary Documented Safety Analysis
PEP	Pretreatment Engineering Platform
PJM	pulse jet mixer
PMB	Performance Measurement Baseline
PT or PTF	Pretreatment [Facility]
RCRA	Resource Conservation and Recovery Act of 1976, as amended
RPP	River Protection Project
SC	Safety Class
SER	Safety Evaluation Report
SRD	Safety Requirements Document
SS	Safety Significant
TSG	Technical Steering Group
WRPS	Washington River Protection Solutions, LLC
WTP	Waste Treatment and Immobilization Plant

1.0 INTRODUCTION

The following Semi-Annual Report documenting the accomplishments and issues for WTP construction and startup activities and tank retrieval activities that occurred from January 1, 2010, through June 30, 2010 is submitted consistent with the proposed Consent Decree, *Washington v. DOE*, Case No. 08-5085-FVS(E.D. Wa), between the U.S. Department of Energy (DOE) and the State of Washington, Department of Ecology, Section IV-C-1, Semi-Annual Reports and, per agreement of DOE and Ecology, satisfies the requirements of the Hanford Federal Facility Agreement and Consent Order Milestone Series M-062-01, Semi-Annual Project Compliance Report.

The project and facility progress, budget, and cost information in the report is based on the period of January through May 2010.

2.0 WTP

2.1 Project Accomplishments and Issues

2.1.1 WTP Project Overview

Design, procurement, and construction activities continue for all of the facilities. Design/Engineering for the WTP Project is 80 percent complete, construction is 51 percent complete, and the overall WTP Project is 55 percent complete. Currently, BNI employs about 3,300 personnel, with an average of about 1,600 personnel (900 craft, 300 subcontractor, and 400 non-manual staff) working at the construction site.

Accomplishments during the reporting period position the project to be on track for all milestones in the Proposed Consent Decree. During the period, the Contractor's technical evaluations were completed on the last of 28 flowsheet issues raised by the "Comprehensive External Review of the Hanford Waste Treatment Plant Flowsheet and Throughput" (as well as the 3 additional issues identified by an internal Department of Energy review). This issue dealt with mixing in Pretreatment (PT) Facility vessels. BNI has completed all technical evaluations and submitted results for DOE review and DOE has completed review and approval of all but one of the submitted evaluation results for the M3 mixing issue. No issues have been projected that would jeopardize milestone achievement during the next six months.

2.1.2 Pretreatment Facility

Civil construction, concrete and structural steel, continued this period on the PT Facility. The design/engineering for the PT Facility is approximately 79 percent complete, procurement is about 42 percent complete, and construction is approximately 31 percent complete.

Construction activities for the last six months concentrated on the placement of concrete walls and slabs at the 56-foot (ft) to 77-ft elevations (4th lift) and installation of structural steel. Slab placements for the west half of the 77-ft elevation are now complete with the exception of those slabs above cells that are required to remain open for future "Over the Top" vessel installations. Construction of the 4th lift walls is now essentially complete, with only a few interior walls remaining. Installation of rebar curtains for the 77-ft to 98-ft elevation (5th lift) walls was initiated in mid April. Over the last six months baseline schedule requirements were exceeded for concrete by 950 cubic yards, and were met for structural steel. During the period, construction craft placed 12 slabs and 8 walls totaling more than 3,400 cubic yards (CY) of concrete, and erected structural steel totaling over 900 tons.

Other construction activities include: installation of Black Cell piping in six facility Planning Areas; installation of heating, ventilation and air conditioning (HVAC) ductwork continue to recover from past minor schedule slippage; installation of drain piping, and stainless steel liner plate. Hot cell crane rail girder, fireproofing, and special protective coating applications also continued during the reporting period.

Engineering remains focused on supporting construction acceleration for the slabs and walls. In addition to civil construction, engineering also issued approximately 2,000 isometric drawings representing nearly 16,500 linear feet of piping.

During the next six month period, PT engineering will complete the design for all piping racks and for the 5th lift concrete walls, and finalize the Material at Risk (MAR) and hydrogen in piping and ancillary vessel (HPAV) design changes. Structural steel for 56-ft to 98-ft elevation and Pulse Jet Vent demisters for the PT filter cave will be procured. Construction activities will include placement of an estimated eight 77-ft elevation slabs and two 5th lift walls, installation of Tier 4 structural steel, installation of the hot cell crane and crane rails, and the horizontal and vertical shield doors to the hot cell.

Testing and assessment reports for the resolution of the mixing issue (M3) identified by the External Flowsheet Review Team have been completed. The BNI/ORP Technical Steering Group (TSG) has been reviewing these reports for closure of this issue. Of the 38 vessels, 9 are currently anticipated to require Pulse Jet Mixer (PJM) design modification. Six of these vessels have already been installed in the facility, and any resulting modifications will be performed in conjunction with required seismic modifications. The three currently in vendor fabrication shops will be modified prior to delivery to the project.

To provide defense-in-depth and ensure the WTP vessels can be operated successfully for the life of plant, BNI plans to implement changes to support inspection and heel removal capability in 10 vessels. These vessels will handle the highest concentration of solids in the PT Facility and are being modified with additional ports for monitoring and mitigation of the potential waste heel growth.

Re-analysis and possible modification of vessels is required since the 2007 change in seismic criteria and other concerns such as PJM overblow loads and system process revisions.

Additional vendors are being sought to mitigate BNI resource constraints for the vessel analysis. Design and fabrication or modification of four of these vessels is on the current critical path for PT. Evaluations of the vendor's schedules are being performed to identify areas where schedule improvements can be achieved. Ecology has been briefed regarding the schedules for the analysis and fabrication of all these vessels, and discussions are ongoing with Ecology regarding the types of permit modifications required for the on-site vessel modifications, and their potential impact to schedule. A plan will be issued by September to address and integrate remaining design revisions for technical issues such as M3, Cesium Ion Exchange Process (CXP)/Cesium Nitric Acid Recovery Process (CNP), and MAR/HPAV, into a single path forward to efficiently implement resolution of these technical issues into the design.

2.1.3 High-Level Waste Vitrification Facility

The design/engineering for the HLW Facility is approximately 85 percent complete, and construction is approximately 27% complete. The number of direct hire craft personnel at the HLW Facility has increased from 210 to 233 in support of the acceleration in the placement of concrete walls and slabs, erection of structural steel, and installation of other commodities. From January to June 2010, construction erected 251 tons of structural steel, 1,093 tons of rebar and placed over 3775 CY of concrete.

The continuing focus of the HLW Engineering Team is the design effort to relocate the second-stage High Efficiency Particulate Air (HEPA) filters from the filter cave to the 37-ft elevation. The filters were relocated as one of the conditions to provide a comparable level of safety as delineated in DOE-STD-1066 for protection of final filter systems. Relocating the filters allows personnel access to manually replace filter units safely if the primary filters are damaged by fire and cannot be changed or maintained remotely. General engineering activities for this period included the review of structural steel shop drawings; issuance of concrete, structural steel, piping and joggle drawings; and issuance of instrument data sheets and isometric drawings.

During this period, procurement had two significant achievements. The first was the completion of fabrication and the delivery of the HLW Melter #1, and the second was the delivery of the second crane maintenance shield door for Melter #2. The shield door vendor completed fabrication and shipped an additional five shield doors through the reporting period, January to June.

Construction completed installation of the 0-ft to 14-ft elevation structural steel in January 2010. Other achievements included completion of wall placements from the 0-ft to the 14-ft elevation and the completion of slab placements at both the 0-ft and 14-ft elevations. Construction forces continue to install structural steel, decking, rebar, concrete embedments, forms, and concrete from the 14-ft to 37-ft elevation. At the lower elevations, construction forces continue to install shield doors, crane rails, liner plate, piping, HVAC ductwork, and electrical cable tray and conduit.

Major accomplishments planned for the next six months include the completion of HVAC Title II Design, delivery of an additional six shield doors to the facility, completion of the stainless steel liner plate in the HLW Wet Cell and the setting of Melter # 2 C5 shield door (door #15).

2.1.4 Low-Activity Waste Vitrification Facility (LAW)

Design/engineering is approximately 91% complete and construction is approximately 59 percent complete. The LAW critical path is procurement and installation of the offgas treatment unit operation components including the thermal catalytic oxidizer. The Request for Proposals for the thermal catalytic oxidizer was issued on April 29, 2010, with an anticipated award in August 2010. In addition, BNI completed engineering design for the LAW mechanical handling equipment and received the submerged-bed scrubber condensate pumps.

Construction forces completed installation of liner plate on the walls and ceilings of the two pour caves and exterior wall siding on the elevator penthouse and began installation of the freight and personnel elevators. Construction forces continued installing piping and hangers, conduit, cable tray, instrument enclosures and lighting fixtures, gypsum wallboard, perimeter sealants, and grillage and liner plate.

A path forward has been determined for the excessive heat retention issue in Melter Pour Cave equipment. The detailed design modification and analysis work is scheduled for completion in September of this year.

Major accomplishments scheduled for the next six months include receipt of Melters #1 and #2 and the related connections, the offgas mercury absorbers, the auto sampler units, shield windows, and the carbon dioxide decontamination system.

2.1.5 Balance of Facilities (BOF)

Overall design/engineering for BOF is approximately 81% complete and construction is approximately 57 percent complete. The Emergency Diesel Generator Request for Proposals (RFP) was drafted and put on hold to allow time to include any potential power requirement changes to be incorporated into the RFPs stemming from the M3 issue resolution. The RFP was subsequently issued on June 23, 2010.

Construction forces began excavating the anhydrous ammonia storage facility base mat and completed the first hydro test of the demineralized water system and pressure-testing the process service water system lines at the Water Treatment Facility. Construction activities were mainly focused on trench work, the Water Treatment Facility, the Glass Former Facility and the Chiller Compressor Plant.

ORP continues to work with the Tank Farms Operating Contractor to analyze and prepare viable options for upgrading the A6 Substation to deliver up to 70 MW under worst case substation configuration (only 1 transformer available). ORP received a letter from WRPS stating that the study will be completed and a report issued by July 26, 2010.

Major accomplishments scheduled for the next six months include construction completion of the Fuel Oil Pumphouse and the LAW and HLW waste feed transfer lines.

2.1.6 Analytical Laboratory (LAB)

LAB design/engineering is approximately 81 percent complete while construction is approximately 65 percent complete.

Construction forces completed installing the commercial HVAC equipment and began installing the waste drum bogie/transfer hatch. Installation of the HEPA filters, piping and hangers, conduit, gypsum wall board, lighting and electrical equipment, and steam piping continued. During the period, engineering completed design of the LAB mechanical handling equipment.

BNI Engineering continues to focus on confirmation of LAB design. Major accomplishments scheduled for the next six months include receipt of the LAB Autosampling Equipment and completing design of the LAB HVAC systems.

ORP has worked with BNI to resolve the issue of the use of combustible insulation in the LAB roof assembly. To resolve this issue, BNI will add a 2-hour rated upper boundary above the C5 HEPA Filter room and additional fireproofing materials to the roof trusses in the area encompassing the C5 Filter room. The plan is to execute the work in three to six months during the 2010-2011 timeframe. There are no anticipated impacts to LAB milestones or critical path.

2.2 Milestone Compliance and Impact Evaluation

WTP accomplishments continue to position the project to be on track for all milestones in the Proposed Consent Decree. Two Interim Milestones were completed before their milestone completion dates: A-18, Complete Structural Steel Erection Below Elevation 56' in PT Facility, was completed on July 29, 2009, 5 months early, and A-20, Complete Construction of Structural Steel to Elevation 14' in HLW, was completed January 13, 2010, 11 months early. The following future near term Interim Milestones are forecast to complete on or ahead of schedule: A-5 LAB Construction Substantially Complete, 12/31/2012; A-12 Steam Plant Construction Complete, 12/31/2012; and A-21 Complete Construction of Structural Steel to Elevation 37' in IILW Facility, 12/31/2012.

2.3 Schedule Mitigation

No schedule mitigation has been necessary during this reporting period.

2.4 Budget/Cost Status

Budget: Total funding available for the WTP Project in FY 2010 is \$1.009 billion, which includes \$690 million new budget authority, and \$319 million of FY 2009 carryover funds. To date, the WTP Project has received \$6.296 billion of funding.

Spend: For FY 2010, the WTP Project spent \$478.9 million through May 2010. Through FY 2010 to date, the total WTP Project spend is \$5.864 billion. The current anticipated spend for FY 2010 is approximately \$810 million bringing the total project spend through the fiscal year to \$6.195 billion. This would result in a carryover of about \$200 million of uncosted funds to FY 2011.

3.0 SINGLE SHELL TANK WASTE RETRIEVALS

3.1 Accomplishments and Issues

During the period of January through June, 2010, tank C-104 was retrieved to 75 percent when an obstruction at the bottom of the retrieval pump was encountered and the final 18 inches of waste could not be pumped. Several attempts were made but were not successful in moving what is anticipated to be a foot plate from a previously retired pumping system. In the next few months, an articulated mast system (AMS) will be deployed to move the obstruction. Additionally, this AMS will also have an attached backstop that will be used in combination with re-start of modified sluicing; it is anticipated that this combination will enable DOE to complete retrieval of this tank in December 2010.

Construction has continued on the 241-C-111 retrieval system using a modified sluicing system; DOE anticipates starting retrieval in early September. Using operations 24 hours per day, five days per week, DOE anticipates completing retrieval to the limit of technology in approximately one month, retrieving 57,000 gallons of waste. To support this retrieval, a problematic supernatant pump at 241-AN-101 (double shell receiver tank for the 241-C-104, 241-C-111, 241-C-112, 241-C-101, and 241-C-105) is also being replaced with a new pump to handle retrieval needs for this double shell tank through 2014.

In addition, design work has proceeded with both 241-C-107 and 241-C-112 during the time period for this report, and construction starting with 241-C-107 is planned to start in September 2010. The 241-C-107 tank construction will include construction of a 42-inch riser in the tank to enable placement of a mobile arm retrieval system that will be a retrieval platform for modified sluicing and, if needed, a second retrieval technology for this tank.

3.2 Milestone Compliance and Impact Evaluation

DOE work schedules have been completed and work initiated to complete consent decree project B-1 by the milestone date.

3.3 Schedule Mitigation

WMA-C SST retrievals are on schedule to meet proposed consent decree milestones.

3.4 Budget/Cost Status

The total budget at completion for SST retrieval activities in fiscal year 2010 is \$77,136,000. 2010; for this fiscal year through May 2010, SST retrieval activities cost-to-date is \$43,743,000. The estimate-at-completion (EAC) for FY 2010 is \$64,044,000.