



U.S. Department of Energy

P.O. Box 450, MSIN H6-60
Richland, Washington, 99352

12-WTP-0160

APR 30 2012

The Honorable Peter S. Winokur
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, D.C. 20004-2901

DEFENSE NUCLEAR FACILITIES SAFETY BOARD (DNFSB) RECOMMENDATION 2010-2 IMPLEMENTATION PLAN (IP) QUARTERLY PROGRESS REPORT FOR JANUARY THROUGH MARCH 2012

Dear Mr. Chairman:

Reference: DOE-HQ letter from S. Chu to P. S. Winokur, DNFSB, "Department of Energy Plan to Address Waste Treatment and Immobilization Plant Vessel Mixing Issues, Revision 0, Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2010-2," dated November 10, 2011.

The Quarterly Progress Report to DNFSB on Recommendation 2010-2 for the period January through March 2012 is attached. This report meets commitment 6.3.1 of the IP to provide quarterly progress reports and describes the status of activities undertaken and results achieved to meet the U.S. Department of Energy's commitments as described in the above Reference.

DOE has continued to make progress this quarter toward closing safety issues related to Pulse Jet Mixing at the Waste Treatment and Immobilization Plant. All deliverables due during this reporting period were submitted on schedule. Details may be found in the attached report.

If you have any questions, please contact me at (509) 376-6727 or your staff may contact Ben Harp, WTP Start-up and Commissioning Integration Manager at (509) 376-1462.

Sincerely,

A handwritten signature in black ink, appearing to read "Dale E. Knutson". The signature is fluid and cursive, with a large initial "D" and "K".

Dale E. Knutson, Federal Project Director
Waste Treatment and Immobilization Plant

WTP:WRW

Attachment

cc w/attach: (See Page 2)

Hon. Peter S. Winokur
12-WTP-0160

-2-

APR 30 2012

cc w/attach:









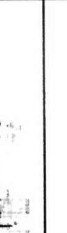



















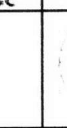









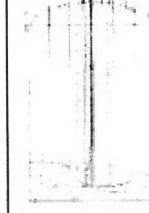

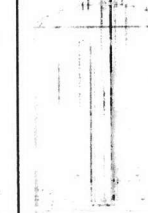





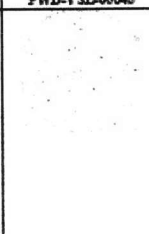

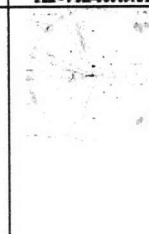
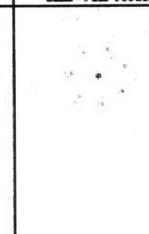

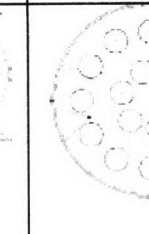
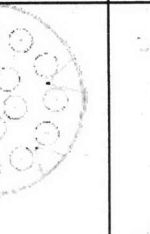


D. M. Busche, BNI
W. w. Gay, BNI
F. M. Russo, BNI
D. McDonald, Ecology
D. G. Huizinga, EM-1
J. D. Lorence, EM-41
M. B. Moury, EM-40
T. P. Mustin, EM-2
K. G. Picha, EM-20
C. S. Trummell, EM-1
A. C. Williams, EM-2.1
D. Chung, HS-1
M. J. Campagnone, HS-1.1
R. H. Lagdon, Jr., US
M. R. Johnson, WRPS
S. A. Saunders, WRPS
R. G. Skwarek, WRPS
M. G. Thien, WRPS
BNI Correspondence
WRPS Correspondence

ATTACHMENT
TO
12-WTP-0160

DEFENSE NUCLEAR FACILITIES SAFETY BOARD (DNFSB)
RECOMMENDATION 2010-2 IMPLEMENTATION PLAN (IP)
QUARTERLY PROGRESS REPORT FOR
JANUARY THROUGH MARCH 2012

PULSE JET MIXING
AT THE WASTE TREATMENT AND IMMOBILIZATION PLANT
7.0 Attachment – VCT Summary Schedule

(No. of Pages: 28, including cover page & VCT Attachment of 15 pgs)

																	
Man	CNP-VSL-00004	CXP-VSL-00004	HOP-VSL-00903904	RDP-VSL-00002A/B/C	RLD-VSL-00007	RLD-VSL-00008	CNP-VSL-00003	LFP-VSL-00002A/B	CXP-VSL-00026A/B/C	LFP-VSL-00001A/B	PEP-VSL-00017A/B	PWD-VSL-00015	PWD-VSL-00044				
																	
																	
PWD-VSL-00033	PWD-VSL-00043	HLP-VSL-00027A/B	TLP-VSL-00009A/B	HLP-VSL-00028	TCP-VSL-00001	HLP-VSL-00022	FRP-VSL-00002A/B/C/D										
																	

DEFENSE NUCLEAR FACILITIES SAFETY BOARD
RECOMMENDATION 2010-2 QUARTERLY PROGRESS REPORT

PULSE JET MIXING AT THE WASTE TREATMENT
AND IMMOBILIZATION PLANT

JANUARY 1 TO MARCH 31, 2012

BEST AVAILABLE COPY

EXECUTIVE SUMMARY

On December 17, 2010, the Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 2010-2, *Pulse Jet Mixing at the Waste Treatment and Immobilization Plant*. The recommendation addressed the need for the U.S. Department of Energy (DOE) to ensure the Hanford Waste Treatment and Immobilization Plant (WTP), in conjunction with the Hanford Tank Farm waste feed delivery system, will operate safely and effectively during a 40-year operating life. The purpose is to eliminate safety hazards posed by Hanford Site tank wastes.

On November 10, 2011, U.S. Department of Energy Secretary Chu forwarded the DOE Implementation Plan (IP) for DNFSB recommendation 2010-2 to Chairman Winokur. This IP includes Commitment 6.3.1 to provide quarterly progress reports and briefings to the DNFSB and DNFSB staff, including updates on the status of completing actions identified in the IP. This quarterly report is for the period from January through March 2012.

All IP deliverables due during this quarterly reporting period were provided on schedule. Progress was made on readying test platforms for Large-Scale Integrated Testing (LSIT). Structural and platform modifications to accommodate an 8-ft acrylic test vessel at Mid-Columbia Engineering (MCE) were completed, and the vessel installed. Construction continued on the facility to house the 14-ft test vessel; the basemat and steel frame were completed, and siding is in the process of being installed.

During this reporting period, ongoing analysis of test results indicated current test data will not support the assumption that Newtonian techniques are appropriate to assess non-Newtonian vessel performance without extensive additional testing and development of new measurement and analysis techniques. IP Commitment 5.3.3.1, *Update Assessment of Use of Newtonian Analysis Techniques to Assess Non-Newtonian Vessel Performance*, will confirm that Newtonian techniques will not be used to assess non-Newtonian vessel performance based on the extent of testing and analyses needed to support the assumption. This commitment, currently scheduled for delivery by August, 31, 2012, is expected to be completed ahead of schedule.

The determination that Newtonian techniques will not be used to assess non-Newtonian vessel performance will require the IP to be revised. This revision will reflect the change in approach for design verification of non-Newtonian vessels by means other than Computational Fluid Dynamics (CFD) models. In addition, progress to date on accomplishing IP Commitments, activities to reconstitute the Pretreatment Facility authorization basis and improvements in integration between Tank Farm and WTP, per the One System approach, will impact IP Commitments. This has resulted in a recognition that a significant systematic review of the technical assumptions and schedule logic is needed to revise the IP in order to meet IP objectives. The revision to the IP is expected to be complete by the fourth quarter of this calendar year. An open dialogue with the DNFSB and its staff will be maintained as DOE proceeds with revising the IP.

The DOE IP for DNFSB Recommendation 2010-2 provides for advance notification if a commitment will not be completed by the planned milestone date. This report provides notice that submission of Deliverable 5.1.3.13, Scaling Basis, will not occur until July 30, 2012, instead of its planned date of April 30, 2012. Although this is a variance to the IP, it does not fundamentally change the scope or overall schedule of the plan.

CONTENTS

Defense Nuclear Facilities Safety Board (DNFSB).....	i
Recommendation 2010-2 Quarterly Progress Report.....	i
January 1 to March 31, 2012.....	i
EXECUTIVE SUMMARY.....	i
1. Purpose.....	1
2. Highlights for this Quarter	1
2.1 Deliverables Submitted.....	1
2.2 WORK COMPLETED	2
3. Summary of Test Results	4
3.1 Tank Farm Feed Staging, Mixing, Sampling, and Transfer Tests.....	4
3.2 WTP Pulse Jet Mixer (PJM) Mixing, Sampling, and Transfer Tests.....	4
4. Discussion	5
4.1 Impact of the Results on WTP Design and Control.....	5
4.2 Issues and Risks in Mixing, sampling, and transfer.....	5
5. Forward Look.....	6
6. Acronyms.....	7
7. Attachments	9

1. PURPOSE

On December 17, 2010, the Defense Nuclear Facilities Safety Board (DNFSB) issued *Recommendation 2010-2, Pulse Jet Mixing at the Waste Treatment and Immobilization Plant*. The recommendation identified safety issues associated with Pulse Jet Mixer (PJM) vessels mixing, sampling, and transfer capabilities in WTP. The Board also identified issues with integrating Tank Farm feed staging system mixing, sampling, and transfer system capabilities.

The DOE commitments outlined in *Implementation Plan for Defense Nuclear Facilities Safety Board Recommendation 2010-2*, submitted to the DNFSB on November 10, 2011, are fulfilled by a program of tests, analyses, and other activities. Each DOE commitment has a corresponding deliverable and a due date falling between January 30, 2012, and May 9, 2016. During this period, Commitment 6.3.1 to the DNFSB requires quarterly progress reports on completion of IP milestones and deliverables, the status of ongoing and planned activities, as well as a description of issues and identified risks and how they are being managed and closed. This Quarterly Progress Report fulfills that commitment.

2. HIGHLIGHTS FOR THIS QUARTER

2.1 DELIVERABLES SUBMITTED

In January 2012, DOE submitted the following deliverables to the DNFSB:

- 5.3.3.4 Analysis of data sets required to support CFD V&V
- 5.5.3.4 Identification of Tank Farm sampling and transfer capability test requirements to be documented in a test requirements document
- 5.7.3.1 Establish the plan and schedule to systematically evaluate the hazards of known technical issues, M3 vessel assessment summary reports, Low-Order Accumulation Model (LOAM) benchmark data, and LSIT results (initial submittal, with updates no less than annually)
- 5.7.3.4 Identify key inputs, assumptions, safety margin uncertainties, and nuclear safety parameters required to be included in the waste acceptance criteria

In March 2012, DOE submitted the following deliverables to the DNFSB:

- 5.1.3.2 Issue responses to recommendations from key stakeholders
- 5.5.3.5 Define simulants for Tank Farm performance testing
- 5.6.3.1 Define functional requirements for heel management system (initial submittal; will be updated after completion of IP Commitment 5.5.3.2, "Evaluation of Waste Transferred to WTP")

2.2 WORK COMPLETED

WTP

Deliverable-Related Activities

The initial deliverable for Commitment 5.7.3.1, 24590-PTF-PL-ENS-11-0007, Rev 0, *Plan and Schedule to Systematically Evaluate the Hazards of Known Technical Issues, M3 Vessel Assessment Summary Reports, LOAM Benchmark Data and LSIT Results*, provided a plan and target schedule for activities discussed in the report. The plan and schedule were summarized in Table 4 of the report. All the actions were entered into Bechtel National, Inc. (BNI) Problem Identification/Evaluation Reports (PIERs) or the Action Tracking System (ATS). Work on completion of these actions is ongoing. None were due during this quarter.

After careful deliberation, the deliverable for Commitment 5.1.3.13, *Scaling Basis*, will not be transmitted until July 30, 2012, instead of its planned date of April 30, 2012. It is a critical foundation document for near full-scale testing that requires careful consideration and review. It will also underpin the application of scaled testing information to assess full-scale mixing performance. This technically complex document must be accorded a thorough review by the technical community, both on and off the WTP Project. Additionally, adequate time must be allowed for full, transparent reconciliation of review comments. Our experience with the initial, less complex IP deliverables has indicated that a longer time must be allowed for this process than accounted for in the initial IP development. This lesson learned will be reflected in the revision of the IP discussed in Section 3.b. of this report.

During review of Deliverable 5.1.3.13 it has become apparent that this large basis document will not be suitable for direct use by the Engineering staff involved in preparing test plans or in applying data from scaled tests. We determined that a companion document, focused on application of the scaling basis, would be highly desirable. Development of this document has begun and is being closely coordinated with the Pacific Northwest National Laboratory (PNNL) authors of the *Scaling Basis* document. It is our intent to submit both documents in fulfillment of Deliverable 5.1.3.13.

This deliverable is a foundation document for scaled testing that will begin after the completion of testing that supports V&V of the CFD tool. The CFD V&V testing will continue into the winter of 2012-2013. Thus, the completion of Deliverable 5.1.3.13 at the end of July 2012 will not adversely impact preparations for follow-on LSIT.

Testing- and Design-Related Activities

Modifications of the scaled test platform at Mid-Columbia Engineering (MCE) continued. Structural and platform modifications to accommodate an 8-ft acrylic test vessel at MCE were completed, and the vessel installed. Work on support systems continues, with component and water tests in progress.

Construction continued on the Engineering Laboratory Building at Washington State University, Tri-Cities. This is the facility that will house the 14-ft test vessel for LSIT of PJM-mixed vessel mixing, sampling, and transfer capabilities. Progress during the quarter included completion of the basemat and steel frame. Siding and roof installations are in progress.

The external review team (ERT) was actively engaged in reviewing the WTP and One-System test programs and preparing the IP deliverable preparation. The ERT reviewed deliverables for Commitments 5.1.3.13, 5.1.3.14, and 5.5.3.6 during this quarter. The ERT has been invited to visit Hanford the week of May 29th, 2012, to observe operation of the 8-ft test platform at MCE.

The previous quarterly report included information on development of the preferred pressure-based PJM control strategy discussed in 24590-WTP-RPT-ENG-10-001, Rev 1, *Integrated Pulse Jet Mixed Vessel Design and Control Strategy*. This approach could significantly reduce the potential for inadvertent overblows of PJMs. During this quarter, a statement of work and request for proposal was issued for a single PJM test platform to support development work on the PJM control system in advance of integrated 14-ft testing. The single PJM test platform will be a full-scale, single train system that uses actual WTP software, a full-length level/density bubbler, a jet pump pair, and a full-size PJM to assess control system performance. The platform will be capable of assessing the impacts on PJM control of chemical simulants and high temperature operations. This will allow confirmation of equipment selections, response times, mass flow rates, temperature and pressure thresholds, nozzle loss coefficients, and other information needed to complete the control system design.

WRPS

Documentation was completed and submitted in support of waste feed delivery mixing and sampling testing. Specifically, WRPS completed *Waste Feed Delivery Mixing and Sampling Program Plan and Test Requirements* document (Commitment 5.5.3.4) and *Waste Feed Delivery Mixing and Sampling Program Simulant Definition for Tank Farm Performance Testing* (Commitment 5.5.3.5). Installation of sample bottle mechanical handling equipment on the Remote Sampler Demonstration platform also was completed.

WRPS completed a three-day Test Plan Summit meeting to discuss and reach concurrence on testing information needs and technical approaches necessary to develop and implement platform specific test plans. This meeting included participation from Savannah River National Laboratory (SRNL), PNNL, mixing consultants, and Hanford personnel.

3. SUMMARY OF TEST RESULTS

3.1 TANK FARM FEED STAGING, MIXING, SAMPLING, AND TRANSFER TESTS

No specific Tank Farm testing was completed during this reporting period. The Tank Farm work has been focused on defining simulant needs and suppliers, developing test plans, and preparing the four test platforms for future testing. Highlights of this work include the following:

- Bench top development work to define simulant sampling techniques and equipment necessary to support the SRNL solids accumulation testing
- Off-tank simulant and equipment performance development work to define capability of the 10-ft tank transfer system to entrain large dense particles under quiescent and mixed conditions
- Installing the Pulse Echo settled solids detection spool piece in the Remote Sampler Demonstration platform
- Evaluating vendor proposals for the full-scale mixer pump limits of performance testing

3.2 WTP PJM MIXING, SAMPLING, AND TRANSFER TESTS

No testing was conducted during this period.

Analysis of data from proof of concept tests indicated that current test data will not support the assumption that Newtonian techniques are appropriate to assess non-Newtonian vessel performance without extensive additional testing and development of new measurement and analysis techniques. IP Commitment 5.3.3.1, *Update Assessment of Use of Newtonian Analysis Techniques to Assess Non-Newtonian Vessel Performance*, will confirm that Newtonian techniques will not be used to assess non-Newtonian vessel performance based on the extent of testing and analyses needed to support the assumption. The commitment, currently scheduled for delivery by August, 31, 2012, is expected to be completed ahead of schedule.

The determination that Newtonian techniques will not be used to assess non-Newtonian vessel performance will require a revision to the IP. This revision will reflect the change in approach for design verification of non-Newtonian vessels by means other than CFD models. The revised IP is expected to be complete by the fourth quarter of this calendar year.

4. DISCUSSION

4.1 IMPACT OF THE RESULTS ON WTP DESIGN AND CONTROL

Nothing to report.

4.2 ISSUES AND RISKS IN MIXING, SAMPLING, AND TRANSFER

4.2.1 PREVIOUSLY IDENTIFIED ISSUES AND RISKS

WTP

Commitment 5.7.3.1, *Establish the Plan and Schedule to Systematically Evaluate the Hazards of Known Technical Issues, M3 Vessel Assessment Summary Reports, LOAM benchmark data, and LSIT Results*, was submitted on January 30, 2012. The deliverable included a list of known technical issues for the Pretreatment (PT) Facility developed by evaluating issues and concerns documented in an established WTP system. The deliverable provided an overall plan and schedule for resolving the current list of known technical issues; however, it did not include specific planning or dates for completion for each individual issue resolution. Actions were established to track completion of activities to plan and accomplish issue resolution, integrate nuclear safety into PT Facility design, and develop a Documented Safety Analysis (DSA). Issues have been captured in Vessel Completion Team (VCT) tracking, and efforts continue to systematically resolve the issues and provide for developing the DSA. Until the WTP rebaselining efforts are complete, the revised schedule for the DSA development cannot be confirmed. WTP has initiated the efforts committed in reconstituting the hazards analysis for both the PT and High Level Waste (HLW) Facilities, which will support the ongoing Preliminary Documented Safety Analysis (PDSA) maintenance and subsequent development of the facility specific DSA's.

Tank Farm Issues and Risks

Previously identified Tank Farm critical risks TOC-12-64 and TOC-12-65 (formerly TOC-08-65) are being addressed through the continued implementation of the Tank Farm Mixing and Sampling Program as recently defined by *Waste Feed Delivery Mixing and Sampling Program Plan and Test Requirements* (Commitment 5.5.3.4) and *Waste Feed Delivery Mixing and Sampling Program Simulant Definition for Tank Farm Performance Testing* (Commitment 5.5.3.5). These two documents define the testing activities scheduled to occur during Fiscal Year 2012 and Fiscal Year 2013.

4.2.2 EMERGING ISSUES AND RISKS

Progress to date on accomplishing IP Commitments, activities to reconstitute the Pretreatment Facility authorization basis and improvements such as developing a

single integrated schedule to address integration between Tank Farm and WTP, per the One System approach, will affect the IP. This has resulted in a recognition that a significant systematic review of the technical assumptions and schedule logic is needed to revise the IP in order to meet IP objective. IP revision activities have been initiated and it is anticipated that an initial draft of a revised IP will be available for discussion with DNFSB staff in June 2012. Discussions with staff will include the approach and proposed changes and will be accomplished before making a formal submittal to the DNFSB.

Multiple test phases with four different Tank Farm test platforms make it impractical to issue one document (Commitment 5.5.3.6) to cover all Tank Farm performance testing. An IP modification will be proposed to allow for multiple test plans that are sequenced in time such that earlier testing informs the later test plans.

BNI requested that DOE provide direction with respect to how new information concerning the form and location of fissile material in the Tank Farms in the design of WTP should be considered. In response, DOE did not direct changes to the current WTP design basis associated with the information concerning the form, size, quantity, and density of plutonium oxide based on the new information. Rather, DOE requested BNI to provide a plan and schedule for updating the Criticality Safety Evaluation Report to evaluate the new information. Work on this plan is ongoing.

5. FORWARD LOOK

The DOE expects to submit conditional IP deliverables associated with CFD V&V testing (e.g., requests for technology development, test specs, test plans, and simulant basis documents) during the period from April 2012 to June 2012. IP deliverables due during this period are summarized below. With efforts ongoing to revise the IP, deliverables that are due between now and when the IP revision is complete are subject to change.

<u>Commitment</u>	<u>Title</u>	<u>Date</u>	<u>Status</u> (F-Forecast)
5.1.3.13	Scaling basis	4-30-12	7-30-12 (F)
5.1.3.14	Vessel configurations for testing	4-30-12	On Track
5.2.3.1	Physical properties important to mixing and scaling	5-1-12	On Track
5.1.3.11	Construction specifications	5-30-12	On Track
5.3.3.5	National Energy Technology Laboratory independent review of data sets to support CFD V&V	5-30-12	On Track

5.6.3.2	Heel management system design	5-30-12	On Track
5.5.3.6	Test plan to establish Tank Farm performance capability	5-31-12	On Track
5.0.1	Safety basis approval strategy document	6-30-12	On Track
5.5.3.2	Evaluation of waste transferred to WTP	6-30-12	On Track
5.3.3.1	Update assessment of using Newtonian analysis techniques to assess non-Newtonian vessel performance	8-31-12	5-31-12 (F)

Work on completing actions discussed in Deliverable 5.7.3.1 is ongoing. The following planned actions with target schedule dates of June 2012 are expected to be completed on time. Implementation is tracked under the indicated PIERs and ATS.

- Update environmental & nuclear safety (E&NS) procedures to implement DOE-WTP contract direction for nuclear safety deliverables. 24590-WTP-ATS-MGT-12-0105
- Update Engineering procedures to implement DOE-WTP contract direction for nuclear safety deliverables. 24590-WTP-PIER-MGT-11-0979
- Issue project execution plan for the Pretreatment Facility safety basis development program. 24590-WTP-ATS-MGT-12-0106
- Complete an extent of condition review to determine safety bases not supported by a technical basis (CPR5-14). 24590-WTP-ATS-MGT-12-0108

6. ACRONYMS

ASME	American Society of Mechanical Engineers
ASX	WTP's automatic sampling system
BNI	Bechtel National, Incorporated
CFD	Computational Fluid Dynamics
CFR	Code of Federal Regulations
CCN	Correspondence control number
cP	Centipoise
CRESP	Consortium for Risk Evaluation with Stakeholder Participation
CSER	Criticality Safety Evaluation Report
DBE	Design Basis Event
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy

DQO	Data Quality Objective
DSA	Documented Safety Analysis
DST	Double-Shell Tank
EFRT	External Flowsheet Review Team
EM	Environmental Management
EPA	Environmental Protection Agency
ERT	Expert Review Team
FEP-17	Evaporator feed vessel 17
FLUENT	Software made by ANSYS Corporation used to model flow, turbulence, heat transfer, and chemical reactions
FRP-02	Feed receipt vessel 02
ft	Feet
FY	Fiscal Year
HAR	Hazards Analysis Report
HLP-22	High-Level Waste Feed Vessel 22
HLW	High-Level Waste
HPAV	Hydrogen In Piping and Ancillary Vessels
ICD	Interface Control Document
IDF	Interim Disposal Facility
IP	Implementation Plan
ISARD	Integrated Sampling and Analysis Requirements Document
LAW	Low-activity waste
LOAM	Low Order Accumulation Model
LSIT	Large-Scale Integrated Testing
ml	milliliter
NETL	National Energy Technology Laboratory
ORP	Office of River Protection
Pa	Pascal
PDSA	Preliminary Documented Safety Analysis
PJM	Pulse Jet Mixer
PNNL	Pacific Northwest National Laboratory
PT	Pretreatment (Facility)
RTD	Request for Technology Development
SAC	Specific Administrative Control
SDS	Safety Design Strategy
SRD	Safety Requirements Document
SRNL	Savannah River National Laboratory
SSC	Structures, Systems, and Components
TOC	Tank Farm Operations Contractor
UFP-01	Ultrafilter feed preparation vessel 01
V&V	Verification and Validation
VCT	Vessel Completion Team
WAC	Waste Acceptance Criteria

WRPS	Washington River Protection Solutions, Limited Liability Corporation (the Hanford Tank Farms operations contractor)
WTP	Waste Treatment and Immobilization Plant

7. ATTACHMENTS

VCT Summary Schedule (Attached Pages 1-15)

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
WP 00 Summary	10-Oct-11 A	27-Apr-17		1107							
01 Summary	31-Oct-11 A	17-Oct-14		1742							
2BPR1LA063	02-Apr-12	02-Apr-12	French	2386							
2BPR1LA411	31-Oct-11 A	27-Apr-12	French	-6	2BPR1LD259, 2BPR1LD251						
2BPR1LA409	05-Dec-11 A	30-Apr-12	French	-223	2BPR1LD206, 2BPR1LD210						
2BPR1LA407	02-Apr-12	12-Jun-12	French	0	2BPR1LE188, 2BPR1LE181						
2BPR1LA413	26-Mar-12 A	18-Jun-12	French	-257	2BPR1LD369, 2BPR1LD215						
2BPR1LA417	16-May-12	19-Jul-12	French	31	2BPR1LE107, 2BPR1LE110						
2BPR1LA061	16-Nov-11 A	07-Jan-13	French	2192	2BPR1QR116, 2BPR1QR101						
2BPR1LA405	26-Jan-12 A	10-May-13	French	382	2BPR1LE807, 2BPR1LD394						
2BPR1LA403		20-Jun-13	French	2077	2BPR1VV306						
2BPR1LA062	30-Nov-12	18-Nov-13	French	1972	2BPR1QR145, 2BPR1QR121						
2BPR1LA401	02-Apr-12	30-Jan-14	French	-21	2BPR1LE180, 2BPR1LE171						
2BPR1LA064	28-Apr-14	16-Jun-14	French	-191	2BPR1QR227, 2BPR1QR163						
2BPR1LA419	19-Mar-14	17-Oct-14	French	1742	2BPR1LE297, 2BPR1LE279						
04 Foot Vessel	15-Jun-12	16-Jan-14		1933							
2BPR1LA331	15-Jun-12	06-Aug-12	French	471	2BPR1LC324, 2BPR1LC323						
2BPR1LA301	19-Jun-12	07-Aug-12	French	-121	2BPR1LC315, 2BPR1LC313						
2BPR1LA302	15-Aug-12	10-Oct-12	French	100	2BPR1LF783, 2BPR1LF790						
2BPR1LA332	07-Aug-12	16-Oct-12	French	471	2BPR1LF843, 2BPR1LF850						
2BPR1LA304	11-Oct-12	30-Nov-12	French	407	2BPR1SM114, 2BPR1SM111						
2BPR1LA303	11-Oct-12	05-Dec-12	French	100	2BPR1LF791, 2BPR1LF798						
2BPR1LA334	17-Oct-12	20-Dec-12	French	541	2BPR1SM144, 2BPR1SM141						
2BPR1LA333	06-Dec-12	01-Mar-13	French	437	2BPR1LF851, 2BPR1LF858						
2BPR1LA305	07-Feb-13	14-Mar-13	French	407	2BPR1SM120, 2BPR1SM118						
2BPR1LA012	11-Oct-12	14-Mar-13	French	407	2BPR1SM116, 2BPR1SM114						
2BPR1LA335	06-Feb-13	03-Apr-13	French	541	2BPR1SM147, 2BPR1SM150						
2BPR1LA022	17-Oct-12	03-Apr-13	French	541	2BPR1SM150, 2BPR1SM145						
2BPR1LA011	19-Jun-12	12-Apr-13	French	-121	2BPR1LC313, 2BPR1LC315						
2BPR1LA021	15-Jun-12	02-May-13	French	471	2BPR1LF850, 2BPR1LC324						
2BPR1LA337		27-Sep-13	French	2008	2BPR1HL325						
2BPR1LA307		27-Sep-13	French	2008	2BPR1LT504						
2BPR1LA013	20-May-13	27-Sep-13	French	382	2BPR1LT504, 2BPR1LT404						
2BPR1LA023	26-Aug-13	27-Sep-13	French	462	2BPR1HL325, 2BPR1HL325						
2BPR1LA336	04-Nov-13	16-Jan-14	French	462	2BPR1LG968, 2BPR1LG961						
2BPR1LA014	04-Jun-13	16-Jan-14	French	486	2BPR1LT507, 2BPR1LT105						
2BPR1LA306	04-Nov-13	16-Jan-14	French	582	2BPR1LG941, 2BPR1LG948						

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LA024	10-Sep-13	16-Jan-14	French	488	2BPR1LG961, 2BPR1HL326,				PT - R&T - Integrated Testing - Heel Management - Summary - 4 Foot Vessel - Test Results / Reporting,		
08 Foot Vessel	24-Oct-11 A	17-Jan-14		1932							
2BPR1LA362	25-Oct-11 A	24-Apr-12	French	-312	2BPR1LF910, 2BPR1LF903				PT - R&T - Integrated Testing - CFD V&V - 8 Foot Vessel - Issue Test Spec,		
2BPR1LA363	28-Nov-11 A	30-Apr-12	French	-311	2BPR1LC721, 2BPR1LF918,				PT - R&T - Integrated Testing - CFD V&V - 8 Foot Vessel - Issue Test Plan,		
2BPR1LA002	23-Nov-11 A	22-May-12	French	-30	2BPR1SM222, 2BPR1SM232,				PT - R&T - Integrated Testing - CFD V&V - Summary - Simulant,		
2BPR1LA001	24-Oct-11 A	23-May-12	French	-316	2BPR1LC411, 2BPR1LF903,				PT - R&T - Integrated Testing - CFD V&V - Summary - Test Preparations,		
2BPR1LA341	02-Apr-12	14-Jun-12	French	-146	2BPR1LC349, 2BPR1LC401				PT - R&T - Integrated Testing - Heel Management - 8 Foot Vessel - Issue RTD,		
2BPR1LA311	02-Apr-12	18-Jun-12	French	-362	2BPR1LC340, 2BPR1LC331				PT - R&T - Integrated Testing - Performance & Scaling - 8 Foot Vessel - Issue RTD,		
2BPR1LA312	07-May-12	27-Jul-12	French	-357	2BPR1LF810, 2BPR1LF803				PT - R&T - Integrated Testing - Performance & Scaling - 8 Foot Vessel - Issue Test Spec,		
2BPR1LA313	26-Jun-12	17-Aug-12	French	-257	2BPR1LF818, 2BPR1LF811				PT - R&T - Integrated Testing - Performance & Scaling - 8 Foot Vessel - Issue Test Plan,		
2BPR1LA342	15-Jun-12	22-Aug-12	French	-146	2BPR1LF863, 2BPR1LF870				PT - R&T - Integrated Testing - Heel Management - 8 Foot Vessel - Issue Test Spec,		
2BPR1LA344	23-Jul-12	24-Sep-12	French	-64	2BPR1SM154, 2BPR1SM151				PT - R&T - Integrated Testing - Heel Management - 8 Foot Vessel - Issue Simulant Basis,		
2BPR1LA343	23-Jul-12	27-Sep-12	French	-64	2BPR1LF878, 2BPR1LF871				PT - R&T - Integrated Testing - Heel Management - 8 Foot Vessel - Issue Test Plan,		
2BPR1LA314	30-Jul-12	01-Oct-12	French	-357	2BPR1SM124, 2BPR1SM121				PT - R&T - Integrated Testing - Performance & Scaling - 8 Foot Vessel - Issue Simulant Basis,		
2BPR1LA381	17-Aug-12	02-Oct-12	French	-133	2BPR1LC359, 2BPR1LC351				PT - R&T - Integrated Testing - Single PJM - 8 Foot Vessel - Issue RTD,		
2BPR1LA003	25-May-12	08-Oct-12	French	-317	2BPR1LT325, 2BPR1LT425,				PT - R&T - Integrated Testing - CFD V&V - Summary - Testing,		
2BPR1LA367		08-Oct-12	French	2253	2BPR1LT436, 2BPR1LT426				◆ PT - R&T - Integrated Testing - CFD V&V - 8 Foot Vessel - Complete Testing		
2BPR1LA382	03-Oct-12	11-Dec-12	French	-133	2BPR1LF963, 2BPR1LF940				PT - R&T - Integrated Testing - Single PJM - 8 Foot Vessel - Issue Test Spec,		
2BPR1LA345	29-Nov-12	04-Jan-13	French	-64	2BPR1SM158, 2BPR1SM160				PT - R&T - Integrated Testing - Heel Management - 8 Foot Vessel - Issue Simulant Qualification Document,		
2BPR1LA027	23-Jul-12	04-Jan-13	French	-64	2BPR1SM151, 2BPR1SM154,				PT - R&T - Integrated Testing - Heel Management - Summary - 8 Foot Vessel - Simulant,		
2BPR1LA315	06-Dec-12	11-Jan-13	French	-357	2BPR1SM128, 2BPR1SM130				PT - R&T - Integrated Testing - Performance & Scaling - 8 Foot Vessel - Issue Simulant Qualification Document,		
2BPR1LA007	30-Jul-12	11-Jan-13	French	-357	2BPR1SM127, 2BPR1SM125,				PT - R&T - Integrated Testing - Performance & Scaling - Summary - 8 Foot Vessel - Simulant,		
2BPR1LA006	02-Apr-12	05-Feb-13	French	-357	2BPR1LF810, 2BPR1LC331,				PT - R&T - Integrated Testing - Performance & Scaling - Summary - 8 Foot Vessel - Test Preparations,		
2BPR1LA026	02-Apr-12	05-Feb-13	French	-93	2BPR1LF871, 2BPR1LF870,				PT - R&T - Integrated Testing - Heel Management - Summary - 8 Foot Vessel - Test Preparations,		
2BPR1LA384	12-Dec-12	15-Feb-13	French	-133	2BPR1SM181, 2BPR1SM184				PT - R&T - Integrated Testing - Single PJM - 8 Foot Vessel - Issue Simulant Basis,		
2BPR1LA383	07-Dec-12	04-Mar-13	French	-73	2BPR1LF941, 2BPR1LF968				PT - R&T - Integrated Testing - Single PJM - 8 Foot Vessel - Issue Test Plan,		
2BPR1LA008	06-Feb-13	10-May-13	French	-357	2BPR1LT144, 2BPR1LT544,				PT - R&T - Integrated Testing - Performance & Scaling - Summary - 8 Foot Vessel - Testing,		
2BPR1LA347		10-May-13	French	2105	2BPR1HL345				◆ PT - R&T - Integrated Testing - Heel Management - 8 Foot Vessel - Complete Testing		
2BPR1LA317		10-May-13	French	2105	2BPR1LT544				◆ PT - R&T - Integrated Testing - Performance & Scaling - 8 Foot Vessel - Complete Testing		
2BPR1LA028	04-Apr-13	10-May-13	French	-104	2BPR1HL345, 2BPR1HL345				PT - R&T - Integrated Testing - Heel Management - Summary - 8 Foot Vessel - Testing,		
2BPR1LA036	12-Dec-12	28-May-13	French	-133	2BPR1SM190, 2BPR1SM185,				PT - R&T - Integrated Testing - Single PJM - Summary - Simulant,		
2BPR1LA385	23-Apr-13	28-May-13	French	-133	2BPR1SM188, 2BPR1SM190				PT - R&T - Integrated Testing - Single PJM - 8 Foot Vessel - Issue Simulant Qualification Document,		
2BPR1LA004	23-Jul-12	20-Jun-13	French	-222	2BPR1VV306, 2BPR1LG911,				PT - R&T - Integrated Testing - CFD V&V - Summary - Test Results / Reporting,		
2BPR1LA366	11-Apr-13	20-Jun-13	French	-222	2BPR1LG911, 2BPR1LG918				PT - R&T - Integrated Testing - CFD V&V - 8 Foot Vessel - Issue Technical Evaluation Report,		
2BPR1LA035	17-Aug-12	26-Jun-13	French	-133	2BPR1LF963, 2BPR1LG811,				PT - R&T - Integrated Testing - Single PJM - Summary - Test Preparations,		
2BPR1LA039	31-Oct-11 A	27-Jun-13	French	-139	2BPR1LF101, 2BPR1LF139,				PT - R&T - Integrated Testing - Single PJM - Summary - EPC,		
2BPR1LA037	28-Jun-13	09-Aug-13	French	-139	2BPR1HL365, 2BPR1HL364				PT - R&T - Integrated Testing - Single PJM - Summary - Testing,		

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LA387		09-Aug-13	French	2042	2BPR1HL365						
2BPR1LA009	12-Feb-13	27-Aug-13	French	-278	2BPR1LT445, 2BPR1LT145,						
2BPR1LA346	18-Jun-13	27-Aug-13	French	25	2BPR1LG971, 2BPR1LG978						
2BPR1LA029	18-Apr-13	27-Aug-13	French	54	2BPR1LG978, 2BPR1HL348,						
2BPR1LA316	04-Jun-13	27-Aug-13	French	-61	2BPR1LG938, 2BPR1LG931						
2BPR1LA386	05-Nov-13	17-Jan-14	French	-139	2BPR1LG921, 2BPR1LG929						
14 Foot Vessel	15-Jun-12	27-Apr-17		1107							
2BPR1LA351	15-Jun-12	27-Jul-12	French	-128	2BPR1LC421, 2BPR1LC389						
2BPR1LA321	19-Jun-12	09-Aug-12	French	-362	2BPR1LC361, 2BPR1LC369						
2BPR1LA371	10-Aug-12	21-Sep-12	French	-74	2BPR1LC471, 2BPR1LC429						
2BPR1LA322	13-Jul-12	14-Nov-12	French	-362	2BPR1LF823, 2BPR1LF830						
2BPR1LA352	23-Aug-12	28-Dec-12	French	-146	2BPR1LF883, 2BPR1LF890						
2BPR1LA324	03-Dec-12	06-Feb-13	French	-362	2BPR1SM131, 2BPR1SM134						
2BPR1LA323	15-Nov-12	11-Feb-13	French	-362	2BPR1SM164, 2BPR1LF831,						
2BPR1LA354	31-Dec-12	06-Mar-13	French	-146	2BPR1SM164, 2BPR1SM161						
2BPR1LA353	31-Dec-12	18-Mar-13	French	-84	2BPR1LF898, 2BPR1LF891						
2BPR1LA325	12-Apr-13	16-May-13	French	-362	2BPR1SM138, 2BPR1SM140						
2BPR1LA017	03-Dec-12	16-May-13	French	-362	2BPR1SM137, 2BPR1SM136,						
2BPR1LA355	09-May-13	13-Jun-13	French	-146	2BPR1SM168, 2BPR1SM170						
2BPR1LA031	31-Dec-12	13-Jun-13	French	-146	2BPR1SM170, 2BPR1SM166,						
2BPR1LA016	19-Jun-12	17-Jun-13	French	-362	2BPR1LC369, 2BPR1LC361,						
2BPR1LA030	15-Jun-12	15-Jul-13	French	-146	2BPR1LF890, 2BPR1LF898,						
2BPR1LA391	22-May-13	16-Jul-13	French	-183	2BPR1LD238, 2BPR1LD231						
2BPR1LA372	06-Nov-13	14-Jan-14	French	-357	2BPR1LF920, 2BPR1LF943						
2BPR1LA392	09-Dec-13	10-Feb-14	French	-104	2BPR1LF608, 2BPR1LF605						
2BPR1LA374	15-Jan-14	20-Mar-14	French	-357	2BPR1SM194, 2BPR1SM191						
2BPR1LA373	15-Jan-14	08-Apr-14	French	-300	2BPR1LF921, 2BPR1LF948						
2BPR1LA394	11-Feb-14	15-Apr-14	French	-104	2BPR1SM171, 2BPR1SM174						
2BPR1LA032	24-Feb-14	22-Apr-14	French	-298	2BPR1HL305, 2BPR1HL305						
2BPR1LA357		22-Apr-14	French	1867	2BPR1HL305						
2BPR1LA393	11-Feb-14	29-Apr-14	French	-44	2BPR1LF609, 2BPR1LF612						
2BPR1LA375	23-May-14	27-Jun-14	French	-357	2BPR1SM200, 2BPR1SM198						
2BPR1LA042	15-Jan-14	27-Jun-14	French	-357	2BPR1SM194, 2BPR1SM195,						
2BPR1LA327		16-Jul-14	French	1808	2BPR1LT574						
2BPR1LA018	18-Jun-13	16-Jul-14	French	-362	2BPR1LT374, 2BPR1LT474,						
2BPR1LA041	10-Aug-12	23-Jul-14	French	-357	2BPR1LG836, 2BPR1LF921,						
2BPR1LA047	26-Mar-14	24-Jul-14	French	-104	2BPR1SM176, 2BPR1SM177,						

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LA395	19-Jun-14	24-Jul-14	French	-104	2BPR1SM180, 2BPR1SM178				PT - R&T - Integrated Testing - Performance Limits - 14 Foot Vessel - Issue Simulant Qualification Document,		
2BPR1LA046	06-Jun-13	18-Aug-14	French	-183	2BPR1LF605, 2BPR1LD238,				PT - R&T - Integrated Testing - Performance Limits - Summary - Test Preparations,		
2BPR1LA033	10-Mar-14	21-Aug-14	French	355	2BPR1HL306, 2BPR1HL308,				PT - R&T - Integrated Testing - Heel Management - Summary - 14 Foot Vessel - Test Results / Reporting,		
2BPR1LA356	29-May-14	21-Aug-14	French	311	2BPR1LG981, 2BPR1LG988				PT - R&T - Integrated Testing - Heel Management - 14 Foot Vessel - Issue Technical Evaluation Report,		
2BPR1LA326	19-Sep-14	30-Oct-14	French	382	2BPR1LG951, 2BPR1LG958				PT - R&T - Integrated Testing - Performance & Scaling - 14 Foot Vessel - Issue Technical Evaluation Report,		
2BPR1LA019	02-Jul-13	30-Oct-14	French	382	2BPR1LT282, 2BPR1LT177,				PT - R&T - Integrated Testing - Performance & Scaling - Summary - 14 Foot Vessel - Test Results / Reporting,		
2BPR1LA377		13-Feb-15	French	1662	2BPR1LS818				PT - R&T - Integrated Testing - Integrated Operations - 14 Foot Vessel - Complete Testing		
2BPR1LA043	31-Jul-14	13-Feb-15	French	-362	2BPR1LS883, 2BPR1LS853,				PT - R&T - Integrated Testing - Integrated 14 Foot Operations - Summary - Testing,		
2BPR1LA050	06-Jun-13	15-Jul-15	French	-155	2BPR1LF604, 2BPR1LF523,				PT - R&T - Integrated Testing - Performance Limits - Summary - EPC,		
2BPR1LA376	19-May-15	29-Jul-15	French	36	2BPR1HL938, 2BPR1HL931				PT - R&T - Integrated Testing - Integrated Operations - 14 Foot Vessel - Issue Technical Evaluation Report,		
2BPR1LA044	14-Aug-14	29-Jul-15	French	36	2BPR1HL931, 2BPR1LS884,				PT - R&T - Integrated Testing - Integrated 14 Foot Operations - Summary - Test Results / Reporting,		
2BPR1LA397		13-May-16	French	1347	2BPR1LT907				PT - R&T - Integrated Testing - Performance Limits - 14 Foot Vessel - Complete		
2BPR1LA048	27-Aug-15	13-May-16	French	-362	2BPR1LT907, 2BPR1LT907				PT - R&T - Integrated Testing - Performance Limits - Summary - Testing,		
2BPR1LA396	16-May-16	09-Aug-16	French	-362	2BPR1LG991, 2BPR1LG998				PT - R&T - Integrated Testing - Performance Limits - 14 Foot Vessel		
2BPR1LA049	16-May-16	27-Apr-17	French	-362	2BPR1LG998, 2BPR1LT908,				PT - R&T - Integrated Testing -		
Test 5	10-Oct-11 A	25-Sep-12		92							
2BPR1LA206	25-Oct-11 A	10-May-12	French	92	2BPR1LF929, 2BPR1LF938,				PT - R&T - Integrated Testing - Test 5 - 12 Foot - Summary - Test Preparations,		
2BPR1LA202	24-Apr-12	18-May-12	French	103	2BPR1LG679, 2BPR1LG667				PT - R&T - Integrated Testing - Test 5 - 34 Inch - Summary - Simulant,		
2BPR1LA207	10-Oct-11 A	18-May-12	French	103	2BPR1LG671, 2BPR1LG711,				PT - R&T - Integrated Testing - Test 5 - 12 Foot - Summary - Simulant,		
2BPR1LA201	31-Oct-11 A	05-Jun-12	French	92	2BPR1LG805, 2BPR1LC334,				PT - R&T - Integrated Testing - Test 5 - 34 Inch - Summary - Test Preparations,		
2BPR1LA203	06-Jun-12	25-Jun-12	French	92	2BPR1LG703, 2BPR1LG701				PT - R&T - Integrated Testing - Test 5 - 34 Inch - Summary - Testing,		
2BPR1LA208	20-Apr-12	16-Jul-12	French	92	2BPR1LG693, 2BPR1LG707,				PT - R&T - Integrated Testing - Test 5 - 12 Foot - Summary - Testing,		
2BPR1LA204	12-Jul-12	06-Aug-12	French	97	2BPR1LG747, 2BPR1LG753				PT - R&T - Integrated Testing - Test 5 - 34 Inch - Summary - Test Results / Reporting,		
2BPR1LA209	17-Jul-12	25-Sep-12	French	92	2BPR1LG901, 2BPR1LG908				PT - R&T - Integrated Testing - Test 5 - 12 Foot - Summary - Test Results / Reporting,		
WP 101 HLP-28	16-May-14	17-Jun-14		1828							
2BPR1LA421		16-May-14	French	2681	2BPR1VS003, 2BPR1VS137				PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - HLP-28		
2BPR1LA422		17-Jun-14	French	2649	2BPR1DV158, 2BPR1DV148				PT - R&T - Integrated Testing - Complete Design Verification for Vessel - HLP-28		
WP 102 PWD-44	04-Apr-14	19-Aug-14		1784							
2BPR1LA423		04-Apr-14	French	2723	2BPR1VS006, 2BPR1VS181				PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - PWD-44		
2BPR1LA424		19-Aug-14	French	2586	2BPR1DV178, 2BPR1DV168				PT - R&T - Integrated Testing - Complete Design Verification for Vessel - PWD-44		
WP 103 HLP-27A/B	16-May-14	16-May-14		1849							
2BPR1LA425		16-May-14	French	2681	2BPR1VS009, 2BPR1VS225				PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - HLP-27A/B		
WP 104 UFP-02A/B	25-Apr-14	27-May-14		1843							
2BPR1LA427		25-Apr-14	French	2702	2BPR1VS012, 2BPR1VS271				PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - UFP-02A/B		
2BPR1LA428		27-May-14	French	2670	2BPR1DV208, 2BPR1DV218				PT - R&T - Integrated Testing - Complete Design Verification for Vessel - UFP-02A/B		
WP 105 UFP-01A/B	04-Apr-14	05-May-14		1858							
2BPR1LA429		04-Apr-14	French	2723	2BPR1VS015, 2BPR1VS315				PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - UFP-01A/B		

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LA430		05-May-14	French	2692	2BPR1DV228, 2BPR1DV238				◆ PT - R&T - Integrated Testing - Complete Design Verification for Vessel - UFP-01A/B		
WP 106 HLW RLD-07	14-Mar-14	14-Apr-14		1873					◆ PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - HLWRLD-07		
2BPR1LA431		14-Mar-14	French	1894	2BPR1VS018, 2BPR1VS353				◆ PT - R&T - Integrated Testing - Complete Design Verification for Vessel - HLWRLD-07		
2BPR1LA432		14-Apr-14	French	1873	2BPR1DV138, 2BPR1DV128						
WP 107 HLW RLD-08	19-Feb-14	01-Apr-14		1882					◆ PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - HLWRLD-08		
2BPR1LA433		19-Feb-14	French	1911	2BPR1VS021, 2BPR1VS393				◆ PT - R&T - Integrated Testing - Complete Design Verification for Vessel - HLWRLD-08		
2BPR1LA434		01-Apr-14	French	1882	2BPR1DV118, 2BPR1DV108						
WP 108 HLP-22	25-Apr-14	28-Jul-14		1800					◆ PT - R&T - Integrated Testing - Complete Design Calculation Updates for Vessel - HLP-22		
2BPR1LA435		25-Apr-14	French	1864	2BPR1VS024, 2BPR1VS435				◆ PT - R&T - Integrated Testing - Complete Design Verification for Vessel - HLP-22		
2BPR1LA436		28-Jul-14	French	1800	2BPR1DV248						
WP 01 CFD New	28-Sep-12	03-Dec-12		492							
08 Foot Vessel	28-Sep-12	03-Dec-12		492							
2BPR1DP105		28-Sep-12	French	536	2BPR1LT326, 2BPR1LT335				◆ PT - R&T - CFD V&V - 8ft Vessel Test 3 - Decision to Move to Scaling Test		
2BPR1DP115		28-Sep-12	French	536	2BPR1LT325, 2BPR1LT326				◆ PT - R&T - CFD V&V - 8ft Vessel Test 3 - Evaluate Trade Study Alternatives		
2BPR1DP107		09-Nov-12	French	506	2BPR1LT436, 2BPR1LT435				◆ PT - R&T - CFD V&V - 8ft Vessel Test 4 - Decision to Move to Scaling Test		
2BPR1DP117		09-Nov-12	French	506	2BPR1LT425, 2BPR1LT436				◆ PT - R&T - CFD V&V - 8ft Vessel Test 4 - Evaluate Trade Study Alternatives		
2BPR1DP101		03-Dec-12	French	492	2BPR1LT125, 2BPR1LT126				◆ PT - R&T - CFD V&V - 8ft Vessel Test 1 - Decision to Move to Scaling Test		
2BPR1DP111		03-Dec-12	French	492	2BPR1LT125, 2BPR1LT126				◆ PT - R&T - CFD V&V - 8ft Vessel Test 1 - Evaluate Trade Study Alternatives		
WP 02 Performa	14-May-13	05-Aug-13		2046							
08 Foot Vessel	14-May-13	05-Aug-13		2046							
2BPR1DP125		14-May-13	French	2103	2BPR1LT344, 2BPR1LT352				◆ PT - R&T - CFD V&V - 8ft Performance Testing - NQA-1 Test 3 - Evaluate Trade Study Alternatives		
2BPR1DP121		20-Jun-13	French	2077	2BPR1LT152, 2BPR1LT144				◆ PT - R&T - CFD V&V - 8ft Performance Testing - NQA-1 Test 1 - Evaluate Trade Study Alternatives		
2BPR1DP123		17-Jul-13	French	2059	2BPR1LT244, 2BPR1LT252				◆ PT - R&T - CFD V&V - 8ft Performance Testing - NQA-1 Test 2 - Evaluate Trade Study Alternatives		
2BPR1DP127		05-Aug-13	French	2046	2BPR1LT452, 2BPR1LT444				◆ PT - R&T - CFD V&V - 8ft Performance Testing - NQA-1 Test 4 - Evaluate Trade Study Alternatives		
WP 10 - EPC	13-Sep-11 A	29-Mar-13		412							
01 Summary	02-Nov-11 A	15-Nov-12		-222							
2BPR1LC560	02-Nov-11 A	15-Nov-12	Underhill	-222	2BPR1LC550, 2BPR1LC524				PT - R&T - Integrated Testing - 14 Foot Vessel - C&I - ICN Hardware/Software Summary,		
2BPR1LC570	07-Nov-11 A	15-Nov-12	Underhill	-222	2BPR1LC538, 2BPR1LC525				PT - R&T - Integrated Testing - 14 Foot Vessel - C&I - PPJ Hardware/Software Summary,		
04 Foot Vessel	13-Sep-11 A	05-Dec-12		490							
2BPR1LU133		01-May-12*	Omel	0					◆ PT - R&T - Integrated Testing - Large Scale - WTP - 4 Foot - HLP-22 Array		
2BPR1LU503	20-Mar-12 A	01-May-12	Omel	0	2BPR1LU123, 2BPR1LU133				PT - R&T - Integrated Testing - Large Scale - 4 Foot Platform Array Summary,		
2BPR1LU121		01-May-12*	Omel	0					◆ PT - R&T - Integrated Testing - Large Scale - WTP - 4 Foot - HLP-27 Array		
2BPR1LU110		01-Jun-12*	Omel	-49	2BPR1LU101, 2BPR1LU105				◆ PT - R&T - Integrated Testing - Large Scale - ES - 42 Inch - Platform Ready to Test		
2BPR1LU105		01-Jun-12*	Omel	-49	2BPR1LU101				◆ PT - R&T - Integrated Testing - Large Scale - ES - 42 Inch - Modification Complete (Platform Outage Required)		
2BPR1LU111		05-Dec-12	Anderson	490	2BPR1SM114, 2BPR1LT425				◆ PT - R&T - Integrated Testing - Large Scale - WTP - 42 Inch - Platform Ready to Test		
2BPR1LU501	13-Sep-11 A	05-Dec-12	Omel	490	2BPR1LU110, 2BPR1LG558				PT - R&T - Integrated Testing - Large Scale - 4 Foot Platform EPC Summary,		

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
08 Foot Vessel	17-Oct-11 A	01-Oct-12		-118							
2BPR1LU221		23-Apr-12*	Omel	-252							
2BPR1LU216		15-May-12	Anderson	-308	2BPR1SM104, 2BPR1LC350,						
2BPR1LU505	17-Oct-11 A	15-May-12	Omel	-22	2BPR1LU216, 2BPR1LU217,						
2BPR1LU217		15-May-12	Anderson	-310	2BPR1LU417, 2BPR1SM203,						
2BPR1LU507	22-Mar-12 A	01-Oct-12	Omel	-120	2BPR1LU222, 2BPR1LU226,						
14 Foot Vessel	28-Feb-12 A	29-Mar-13		-94							
2BPR1LU305		02-Jul-12*	Omel	0							
2BPR1LU306		02-Jul-12*	Omel	0							
2BPR1LU310		31-Aug-12*	Omel	0	2BPR1LU301, 2BPR1LJ917,						
2BPR1LU326		15-Feb-13*	Omel	-65							
2BPR1LU346		15-Feb-13*	Omel	-168							
2BPR1LU356		15-Feb-13*	Omel	-65							
2BPR1LU336		15-Feb-13*	Omel	-283							
2BPR1LU511	19-Feb-13	19-Feb-13	Omel	-283	2BPR1LU346, 2BPR1LU356,						
2BPR1LU316		29-Mar-13	Anderson	-312	2BPR1LC543, 2BPR1LC544,						
2BPR1LU509	28-Feb-12 A	29-Mar-13	Omel	-312	2BPR1LU315, 2BPR1LU301,						
2BPR1LU315		29-Mar-13*	Omel	-312							
WP A Vessel Pl:	02-Apr-12	26-Nov-14		1715							
01 Summary	02-Apr-12	26-Nov-14		1715							
2BPR1LA137	02-Apr-12		French	2386							
2BPR1LA117	02-Oct-13		French	2006	4PP30031C						
2BHR1LA712		08-Apr-14	French	13	2BPR1LE720, 2BPR1LE135						
2BHR1LA710		21-Apr-14	French	4	2BPR1LE135, 2BPR1LE736						
2BHR1LA131	07-May-14		French	1857	4HH3610102						
2BHR1LA135	07-May-14		French	1857	4HH3610103						
2BPR1LA707		12-May-14	French	11	2BPR1LE207, 2BPR1LE726						
2BPR1LA715		12-May-14	French	11	2BPR1LE726, 2BPR1LE196						
2BPR1LA133	04-Jun-14		French	1838	4PP30201A9						
2BPR1LA119	25-Jun-14		French	1823	4PP30032A						
2BPR1LA129	10-Jul-14		French	1813	4PP30012AC						
2BPR1LA125	31-Jul-14		French	1798	4PP30012AB						
2BPR1LA127	21-Aug-14		French	1783	4PP30032B						
2BPR1LA714		26-Aug-14	French	-149	2BPR1LE708, 2BPR1LE192						
2BPR1LA709		17-Sep-14	French	-229	2BPR1LE716, 2BPR1LE154						
2BPR1LA711		17-Sep-14	French	-229	2BPR1LE154, 2BPR1LE716						
2BPR1LA713		17-Sep-14	French	-226	2BPR1LE216, 2BPR1LE724						

- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - CFD RLD-08 4" Full Scale Array (SCN08) - FAB Complete
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 8 Foot - Platform Ready to Test (First Mixing Test)
- ◆ PT - R&T - Integrated Testing - Large Scale - 8 Foot Platform EPC Summary,
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 8 Foot - Platform Ready to Test (Cloud Height Test)
- ◆ PT - R&T - Integrated Testing - Large Scale - 8 Foot Platform Array Summary,
- ◆ PT - R&T - Integrated Testing - Large Scale - ES - 14 Foot - Procurement of 14 Foot Vessel
- ◆ PT - R&T - Integrated Testing - Large Scale - ES - 14 Foot - Procurement of 14 Foot Heads
- ◆ PT - R&T - Integrated Testing - Large Scale - ES - 14 Foot - Construction Complete
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 14 Foot - HLP-27 Array
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 14 Foot - RLD-08 Array
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 14 Foot - HLP-22 Array
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 14 Foot - UFP-02 Array
- ◆ PT - R&T - Integrated Testing - Large Scale - 14 Foot Platform Array Summary,
- ◆ PT - R&T - Integrated Testing - Large Scale - WTP - 14 Foot - Platform Ready to Test
- ◆ PT - R&T - Integrated Testing - Large Scale - 14 Foot Platform EPC Summary,
- ◆ PT - R&T - Integrated Testing - Large Scale - ES - 14 Foot - Platform Ready to Test
- ◆ PT - Vessel Installation - PWD-44
- ◆ PT - Vessel Installation - UFP-1B
- ◆ HLW - R&T - Integrated Testing - DOE Vessel Release - RLD-08 (Early)
- ◆ HLW - R&T - Integrated Testing - DOE Vessel Release - RLD-07 (Early)
- ◆ HLW - Vessel Installation - RLD-07
- ◆ HLW - Vessel Installation - RLD-08
- ◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-1B (Early)
- ◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-1A (Early)
- ◆ PT - Vessel Installation - UFP-1A
- ◆ PT - Vessel Installation - UFP-2A
- ◆ PT - Vessel Installation - HLP-22
- ◆ PT - Vessel Installation - HLP-27B
- ◆ PT - Vessel Installation - UFP-2B
- ◆ PT - R&T - Integrated Testing - DOE Vessel Release - PWD-44 (Early)
- ◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-2A (Early)
- ◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-2B (Early)
- ◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-22 (Early)

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LA701		08-Oct-14	French	-271	2BPR1LE132, 2BPR1LE704				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-28 (Early)		
2BPR1LA703		08-Oct-14	French	12	2BPR1LE193, 2BPR1LE712				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-27A (Early)		
2BPR1LA705		08-Oct-14	French	12	2BPR1LE193, 2BPR1LE712				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-27B (Early)		
2BPR1LA121	09-Oct-14		French	1749	4PP3004002				◆ PT - Vessel Installation - HLP-28		
2BPR1LA123	26-Nov-14		French	1715	4PP30012AA				◆ PT - Vessel Installation - HLP-27A		
WP A Vessel Placement Rel	29-Apr-14	29-Oct-14		-3							
2BHR1LA112		29-Apr-14	French	-2	2BPR1QR183, 2BPR1LE619				◆ HLW - R&T - Integrated Testing - DOE Vessel Release - RLD-08		
2BHR1LA110		12-May-14	French	-11	2BPR1LE135, 2BPR1LE115				◆ HLW - R&T - Integrated Testing - DOE Vessel Release - RLD-07		
2BPR1LA107		03-Jun-14	French	-4	2BPR1LE127, 2BPR1QR177				◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-1B		
2BPR1LA115		03-Jun-14	French	-4	2BPR1QR177, 2BPR1LE196				◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-1A		
2BPR1LA114		17-Sep-14	French	-164	2BPR1LE112, 2BPR1QR168				◆ PT - R&T - Integrated Testing - DOE Vessel Release - PWD-44		
2BPR1LA109		08-Oct-14	French	-244	2BPR1LE616, 2BPR1LE615				◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-2A		
2BPR1LA111		08-Oct-14	French	-244	2BPR1LE616, 2BPR1QR174				◆ PT - R&T - Integrated Testing - DOE Vessel Release - UFP-2B		
2BPR1LA113		08-Oct-14	French	-241	2BPR1LE623, 2BPR1LE116				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-22		
2BPR1LA105		29-Oct-14	French	-3	2BPR1LE612, 2BPR1LE611				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-27B		
2BPR1LA101		29-Oct-14	French	-286	2BPR1QR165, 2BPR1LE132				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-28		
2BPR1LA103		29-Oct-14	French	-3	2BPR1LE612, 2BPR1LE113				◆ PT - R&T - Integrated Testing - DOE Vessel Release - HLP-27A		
WP B - E&NS	14-Nov-11 A	30-Jan-14		-21							
01 Summary	14-Nov-11 A	30-Jan-14		-21							
2BPR1LD270	14-Nov-11 A	14-May-12	Blush	-233	2BPR1LD271, 2BPR1LD275				PT - R&T - Integrated Testing - E&NS Questions for LSIT Resolution - Summary,		
2BPR1LE170	02-Apr-12	30-Jan-14	Blush	-21	2BPR1LE171, 2BPR1LE180				PT - R&T - CSER Summary,		
WP C - Design C	31-Oct-11 A	02-Dec-14		1712							
WP 101 HLP-28	31-Oct-11 A	16-May-14		1849							
2BPR1VS001	31-Oct-11 A	05-Sep-12	Olson	2276	2BPR1VS105, 2BPR1VS101				PT - R&T - VCT - HLP-28 - Develop Input for CFD Analysis,		
2BPR1VS002	14-Nov-11 A	22-Aug-13	Underhill	-88	2BPR1VS117, 2BPR1VS107				PT - R&T - VCT - HLP-28 - Perform CFD Analysis,		
2BPR1VS003	27-Jul-12	16-May-14	Olson	113	2BPR1VS135, 2BPR1VS137				PT - R&T - VCT - HLP-28 - Design Calculation Update,		
WP 102 PWD-44	18-Nov-11 A	04-Apr-14		1879							
2BPR1VS004	18-Nov-11 A	19-Jun-12	Olson	37	2BPR1VS151, 2BPR1VS151				PT - R&T - VCT - PWD-44 - Develop Input for CFD Analysis,		
2BPR1VS005	24-Feb-12 A	22-Aug-13	Underhill	-128	2BPR1VS163, 2BPR1VS157				PT - R&T - VCT - PWD-44 - Perform CFD Analysis,		
2BPR1VS006	28-Jun-12	04-Apr-14	Olson	83	2BPR1VS187, 2BPR1VS171				PT - R&T - VCT - PWD-44 - Design Calculation Update,		
WP 103 HLP-27A/B	28-Nov-11 A	16-May-14		1849							
2BPR1VS007	28-Nov-11 A	12-Sep-12	Olson	296	2BPR1VS195, 2BPR1VS191				PT - R&T - VCT - HLP-27A/B - Develop Input for CFD Analysis,		
2BPR1VS008	05-Jul-12	22-Aug-13	Underhill	195	2BPR1VS199, 2BPR1VS205				PT - R&T - VCT - HLP-27A/B - Perform CFD Analysis,		
2BPR1VS009	17-Jul-12	16-May-14	Olson	352	2BPR1VS227, 2BPR1VS229				PT - R&T - VCT - HLP-27A/B - Design Calculation Update,		
WP 104 UFP-02A/B	12-Dec-11 A	25-Apr-14		1864							
2BPR1VS010	12-Dec-11 A	21-Aug-12	Olson	13	2BPR1VS233, 2BPR1VS235				PT - R&T - VCT - UFP-02A/B - Develop Input for CFD Analysis,		
2BPR1VS011	20-Jun-12	22-Aug-13	Underhill	-103	2BPR1VS247, 2BPR1VS239				PT - R&T - VCT - UFP-02A/B - Perform CFD Analysis,		

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1VS012	10-Apr-12	25-Apr-14	Olson	174	2BPR1VS275, 2BPR1VS257,	PT - R&T - VCT - UFP-02A/B - Design Calculation Update,					
WP 105 UFP-01A/B	12-Dec-11 A	04-Apr-14		1879							
2BPR1VS013	12-Dec-11 A	31-Jul-12	Underhill	3	2BPR1VS285, 2BPR1VS285,	PT - R&T - VCT - UFP-01A/B - Develop Input for CFD Analysis,					
2BPR1VS014	29-Feb-12 A	22-Aug-13	Underhill	-128	2BPR1VS297, 2BPR1VS289,	PT - R&T - VCT - UFP-01A/B - Perform CFD Analysis,					
2BPR1VS015	28-Jun-12	04-Apr-14	Olson	51	2BPR1VS320, 2BPR1VS303,	PT - R&T - VCT - UFP-01A/B - Design Calculation Update,					
WP 106 HLW RLD-07	03-Jan-12 A	14-Mar-14		1894							
2BPR1VS016	03-Jan-12 A	12-Jun-12	Olson	3	2BPR1VS323, 2BPR1VS323,	PT - R&T - VCT - HLW RLD-07 - Develop Input for CFD Analysis,					
2BPR1VS017	17-Jan-12 A	16-Dec-13	Underhill	-222	2BPR1VS337, 2BPR1VS329,	PT - R&T - VCT - HLW RLD-07 - Perform CFD Analysis,					
2BPR1VS018	15-May-12	14-Mar-14	Olson	94	2BPR1VS347, 2BPR1VS351,	PT - R&T - VCT - HLW RLD-07 - Design Calculation Update,					
WP 107 HLW RLD-08	03-Jan-12 A	19-Feb-14		1911							
2BPR1VS019	03-Jan-12 A	12-Jun-12	Olson	3	2BPR1VS365, 2BPR1VS365,	PT - R&T - VCT - HLW RLD-08 - Develop Input for CFD Analysis,					
2BPR1VS020	17-Jan-12 A	19-Nov-13	Underhill	-205	2BPR1VS369, 2BPR1VS375,	PT - R&T - VCT - HLW RLD-08 - Perform CFD Analysis,					
2BPR1VS021	01-Jun-12	19-Feb-14	Olson	74	2BPR1VS391, 2BPR1VS389,	PT - R&T - VCT - HLW RLD-08 - Design Calculation Update,					
WP 108 HLP-22	10-Apr-12	25-Apr-14		1864							
2BPR1VS022	20-Jun-12	21-Aug-12	Olson	3	2BPR1VS403, 2BPR1VS401,	PT - R&T - VCT - HLP-22 - Develop Input for CFD Analysis,					
2BPR1VS023	20-Jun-12	22-Aug-13	Underhill	-113	2BPR1VS409, 2BPR1VS411,	PT - R&T - VCT - HLP-22 - Perform CFD Analysis,					
2BPR1VS024	10-Apr-12	25-Apr-14	Olson	174	2BPR1VS427, 2BPR1VS431,	PT - R&T - VCT - HLP-22 - Design Calculation Update,					
WP 109 CNP-VSL-00003	05-Nov-12	26-Mar-14		1751							
2BPR1VS025	23-Aug-13	13-Sep-13	Olson	1506	2BPR1VS445, 2BPR1VS447,	PT - R&T - VCT - CNP-VSL-00003 - Develop Input for CFD Analysis,					
2BPR1VS026	16-Sep-13	27-Dec-13	Underhill	1506	2BPR1VS459, 2BPR1VS453,	PT - R&T - VCT - CNP-VSL-00003 - Perform CFD Analysis,					
2BPR1VS027	05-Nov-12	26-Mar-14	Olson	1744	2BPR1VS461, 2BPR1VS467,	PT - R&T - VCT - CNP-VSL-00003 - Design Calculation Update,					
WP 110 CNP-VSL-00004	19-Nov-12	09-Apr-14		1751							
2BPR1VS028	09-Sep-13	04-Oct-13	Olson	1531	2BPR1VS487, 2BPR1VS489,	PT - R&T - VCT - CNP-VSL-00004 - Develop Input for CFD Analysis,					
2BPR1VS029	30-Sep-13	13-Jan-14	Underhill	1526	2BPR1VS497, 2BPR1VS495,	PT - R&T - VCT - CNP-VSL-00004 - Perform CFD Analysis,					
2BPR1VS030	19-Nov-12	09-Apr-14	Olson	1751	2BPR1VS501, 2BPR1VS507,	PT - R&T - VCT - CNP-VSL-00004 - Design Calculation Update,					
WP 111 CXP-VSL-00004	05-Nov-12	23-Apr-14		1731							
2BPR1VS031	23-Sep-13	25-Oct-13	Olson	1546	2BPR1VS529, 2BPR1VS527,	PT - R&T - VCT - CXP-VSL-00004 - Develop Input for CFD Analysis,					
2BPR1VS032	14-Oct-13	28-Jan-14	Underhill	1546	2BPR1VS537, 2BPR1VS531,	PT - R&T - VCT - CXP-VSL-00004 - Perform CFD Analysis,					
2BPR1VS033	05-Nov-12	23-Apr-14	Olson	1731	2BPR1VS551, 2BPR1VS539,	PT - R&T - VCT - CXP-VSL-00004 - Design Calculation Update,					
WP 112 CXP-VSL-00026A/B/C	19-Nov-12	14-May-14		1726							
2BPR1VS034	07-Oct-13	15-Nov-13	Olson	1561	2BPR1VS565, 2BPR1VS567,	PT - R&T - VCT - CXP-VSL-00026A/B/C - Develop Input for CFD Analysis,					
2BPR1VS035	28-Oct-13	19-Feb-14	Underhill	1561	2BPR1VS571, 2BPR1VS575,	PT - R&T - VCT - CXP-VSL-00026A/B/C - Perform CFD Analysis,					
2BPR1VS036	19-Nov-12	14-May-14	Olson	1726	2BPR1VS593, 2BPR1VS591,	PT - R&T - VCT - CXP-VSL-00026A/B/C - Design Calculation Update,					
WP 113 UFP-VSL-00062A/B/C	05-Nov-12	03-Jun-14		1673							
2BPR1VS037	21-Oct-13	10-Dec-13	Olson	1578	2BPR1VS609, 2BPR1VS603,	PT - R&T - VCT - UFP-VSL-00062A/B/C - Develop Input for CFD Analysis,					
2BPR1VS038	11-Nov-13	12-Mar-14	Underhill	1588	2BPR1VS615, 2BPR1VS617,	PT - R&T - VCT - UFP-VSL-00062A/B/C - Perform CFD Analysis,					
2BPR1VS039	05-Nov-12	03-Jun-14	Olson	1673	2BPR1VS635, 2BPR1VS619,	PT - R&T - VCT - UFP-VSL-00062A/B/C - Design Calculation Update,					

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
WP 114 FEP-VSL-00017A/B	19-Nov-12	02-Jul-14		1662							
2BPR1VS040	04-Nov-13	02-Jan-14	Olson	1587	2BPR1VS647, 2BPR1VS645,				PT - R&T - VCT - FEP-VSL-00017A/B - Develop Input for CFD Analysis,		
2BPR1VS041	25-Nov-13	08-Apr-14	Underhill	1587	2BPR1VS651, 2BPR1VS657,				PT - R&T - VCT - FEP-VSL-00017A/B - Perform CFD Analysis,		
2BPR1VS042	19-Nov-12	02-Jul-14	Olson	1662	2BPR1VS671, 2BPR1VS667,				PT - R&T - VCT - FEP-VSL-00017A/B - Design Calculation Update,		
WP 115 FRP-VSL-00002A/B/	05-Dec-12	07-Aug-14		1667							
2BPR1VS043	11-Nov-13	24-Jan-14	Olson	1592	2BPR1VS687, 2BPR1VS687,				PT - R&T - VCT - FRP-VSL-00002A/B/C/D - Develop Input for CFD Analysis,		
2BPR1VS044	11-Dec-13	13-May-14	Underhill	1592	2BPR1VS697, 2BPR1VS689,				PT - R&T - VCT - FRP-VSL-00002A/B/C/D - Perform CFD Analysis,		
2BPR1VS045	05-Dec-12	07-Aug-14	Olson	1667	2BPR1VS709, 2BPR1VS703,				PT - R&T - VCT - FRP-VSL-00002A/B/C/D - Design Calculation Update,		
WP 116 RDP-VSL-00002A/B/	05-Dec-12	17-Jul-14		1662							
2BPR1VS048	05-Dec-12	17-Jul-14	Olson	1662	2BPR1VS725, 2BPR1VS717,				PT - R&T - VCT - RDP-VSL-00002A/B/C/D - Design Calculation Update,		
WP 117 HOP-VSL-000903/904	19-Dec-12	14-Aug-14		1662							
2BPR1VS049	25-Nov-13	14-Feb-14	Olson	1602	2BPR1VS735, 2BPR1VS733,				PT - R&T - VCT - HOP-VSL-000903/904 - Develop Input for CFD Analysis,		
2BPR1VS050	26-Dec-13	20-May-14	Underhill	1637	2BPR1VS745, 2BPR1VS739,				PT - R&T - VCT - HOP-VSL-000903/904 - Perform CFD Analysis,		
2BPR1VS051	19-Dec-12	14-Aug-14	Olson	1662	2BPR1VS763, 2BPR1VS765,				PT - R&T - VCT - HOP-VSL-000903/904 - Design Calculation Update,		
WP 118 TCP-VSL-00001	19-Dec-12	05-Sep-14		1647							
2BPR1VS052	11-Dec-13	10-Mar-14	Olson	1597	2BPR1VS771, 2BPR1VS775,				PT - R&T - VCT - TCP-VSL-00001 - Develop Input for CFD Analysis,		
2BPR1VS053	10-Jan-14	11-Jun-14	Underhill	1632	2BPR1VS777, 2BPR1VS779,				PT - R&T - VCT - TCP-VSL-00001 - Perform CFD Analysis,		
2BPR1VS054	19-Dec-12	05-Sep-14	Olson	1647	2BPR1VS799, 2BPR1VS785,				PT - R&T - VCT - TCP-VSL-00001 - Design Calculation Update,		
WP 119 TLP-VSL-00009A/B	19-Dec-12	10-Oct-14		1612							
2BPR1VS055	26-Dec-13	31-Mar-14	Olson	1592	2BPR1VS803, 2BPR1VS803,				PT - R&T - VCT - TLP-VSL-00009A/B - Develop Input for CFD Analysis,		
2BPR1VS056	27-Jan-14	17-Jul-14	Underhill	1612	2BPR1VS809, 2BPR1VS813,				PT - R&T - VCT - TLP-VSL-00009A/B - Perform CFD Analysis,		
2BPR1VS057	19-Dec-12	10-Oct-14	Olson	1612	2BPR1VS835, 2BPR1VS819,				PT - R&T - VCT - TLP-VSL-00009A/B - Design Calculation Update,		
WP 120 PWD-VSL-00015/16	04-Jan-13	24-Oct-14		1612							
2BPR1VS058	10-Jan-14	21-Apr-14	Olson	1587	2BPR1VS845, 2BPR1VS843,				PT - R&T - VCT - PWD-VSL-00015/16 - Develop Input for CFD Analysis,		
2BPR1VS059	22-Apr-14	21-Aug-14	Underhill	1587	2BPR1VS855, 2BPR1VS849,				PT - R&T - VCT - PWD-VSL-00015/16 - Perform CFD Analysis,		
2BPR1VS060	04-Jan-13	24-Oct-14	Olson	1612	2BPR1VS875, 2BPR1VS863,				PT - R&T - VCT - PWD-VSL-00015/16 - Design Calculation Update,		
WP 121 PWD-VSL-00033	04-Jan-13	14-Nov-14		1597							
2BPR1VS061	27-Jan-14	12-May-14	Olson	1592	2BPR1VS881, 2BPR1VS883,				PT - R&T - VCT - PWD-VSL-00033 - Develop Input for CFD Analysis,		
2BPR1VS062	06-May-14	21-Aug-14	Underhill	1587	2BPR1VS893, 2BPR1VS889,				PT - R&T - VCT - PWD-VSL-00033 - Perform CFD Analysis,		
2BPR1VS063	04-Jan-13	14-Nov-14	Olson	1597	2BPR1VS895, 2BPR1VS907,				PT - R&T - VCT - PWD-VSL-00033 - Design Calculation Update,		
WP 122 PWD-VSL-00043	29-Jan-14	02-Dec-14		1587							
2BPR1VS064	10-Feb-14	03-Jun-14	Olson	1587	2BPR1VS915, 2BPR1VS919,				PT - R&T - VCT - PWD-VSL-00043 - Develop Input for CFD Analysis,		
2BPR1VS065	20-May-14	05-Sep-14	Olson	1587	2BPR1VS925, 2BPR1VS923,				PT - R&T - VCT - PWD-VSL-00043 - Perform CFD Analysis,		
2BPR1VS066	29-Jan-14	02-Dec-14	Olson	1587	2BPR1VS935, 2BPR1VS945,				PT - R&T - VCT - PWD-VSL-00043 - Design Calculation Update,		
WP D - Design V	01-Apr-14	19-Aug-14		27							
WP 101 HLP-28	17-Jun-14	17-Jun-14		-212							
2BPR1DV158		17-Jun-14	Keuhlen	-212	2BPR1DV157				◆ PT - R&T - Design Verification HLP-28 - Issue Design Verification Report for Vessel Installation		

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	Year					
						2012	2013	2014	2015	2016	2017
WP 102 PWD-44	19-Aug-14	19-Aug-14		-286							
2BPR1DV178		19-Aug-14	Keuhlen	-286	2BPR1DV177						◆ PT - R&T - Design Verification PWD-44 - Issue Design Verification Report for Vessel Installation
WP 103 HLP-27A/B	19-Aug-14	19-Aug-14		27							
2BPR1DV198		19-Aug-14	Keuhlen	27	2BPR1DV197						◆ PT - R&T - Design Verification HLP-27A/B - Issue Design Verification Report for Vessel Installation
WP 104 UFP-02A/B	27-May-14	27-May-14		-212							
2BPR1DV218		27-May-14	Keuhlen	-212	2BPR1DV217						◆ PT - R&T - Design Verification UFP-02A/B - Issue Design Verification Report for Vessel Installation
WP 105 UFP-01A/B	05-May-14	05-May-14		-212							
2BPR1DV238		05-May-14	Keuhlen	-212	2BPR1DV237						◆ PT - R&T - Design Verification UFP-01A/B - Issue Design Verification Report for Vessel Installation
WP 106 HLW RLD-07	14-Apr-14	14-Apr-14		-212							
2BPR1DV138		14-Apr-14	Keuhlen	-212	2BPR1DV137						◆ PT - R&T - Design Verification HLW RLD-07 - Issue Design Verification Report for Vessel Installation
WP 107 HLW RLD-08	01-Apr-14	01-Apr-14		-203							
2BPR1DV118		01-Apr-14	Keuhlen	-203	2BPR1LE210, 2BPR1DV117						◆ PT - R&T - Design Verification HLW RLD-08 - Issue Design Verification Report for Vessel Installation
WP 108 HLP-22	19-Aug-14	19-Aug-14		-271							
2BPR1DV258		19-Aug-14	Keuhlen	-271	2BPR1DV257						◆ PT - R&T - Design Verification HLP-22 - Issue Design Verification Report for Vessel Installation
WP E Program I	22-Dec-10 A	27-Apr-17		17							
01 Summary	22-Dec-10 A	27-Apr-17		17							
2BPR1HL440	12-Dec-11 A	08-Nov-13	Olson	627	2BPR1HL469, 2BPR1HL458						PT - R&T - VCT - Process Sampling Requirements,
2BPR1LA051	22-Dec-10 A	27-Apr-17	French	17	2BPR1LA073, 2BPR1LT909						PT - R&T - Integrated Testing -
WP F - DNFSB 2	02-Apr-12 A	11-Apr-18		867							
5.0.1 - Safety Basis Approva	09-Apr-12 A	29-Jun-12		0							
2BPR1LJ102		29-Jun-12	Busche	0	2BPR1LJ104						◆ PT - R&T - DNFSB - 5.0.1 - Develop Safety Basis Approval Strategy Document Target
2BPR1LJ103		29-Jun-12*	Busche	0	2BPR1LJ102						◆ PT - R&T - DNFSB - 5.0.1 - Develop Safety Basis Approval Strategy Document
2BPR1LJ104	09-Apr-12 A	29-Jun-12	Busche	0							PT - R&T - E&NS - Develop Safety Basis Approval Strategy Document,
5.1.3 - Large Scale Test Plan	10-Apr-12	21-Sep-16		1257							
2BPR1LJ152		10-Apr-12	Busche	2379	2BPR1LG807						◆ PT - R&T - DNFSB - 5.1.3.05.02 - Define and document functional requirements - CFD V&V
2BPR1LJ210		24-Apr-12	Omel	25	2BPR1LG833						◆ PT - R&T - DNFSB - 5.1.3.11 - Construction specifications Target
2BPR1LJ230		30-Apr-12*	Hanson	0	2BPR1LJ231						◆ PT - R&T - DNFSB - 5.1.3.13 - Scaling Basis
2BPR1LJ240		30-Apr-12*	Hanson	0	2BPR1LJ242						◆ PT - R&T - DNFSB - 5.1.3.14 - Vessel Configurations for testing
2BPR1LJ242		30-Apr-12	Hanson	0	2BPR1LD210						◆ PT - R&T - DNFSB - 5.1.3.14.01 - Vessel Configurations for testing Target - C&S Vessel Selection Basis
2BPR1LJ162		08-May-12	Damerow	-316	2BPR1LG807, 2BPR1LJ202						◆ PT - R&T - DNFSB - 5.1.3.06.02 - Develop test plans - CFD V&V
2BPR1LJ202		08-May-12	Hanson	-316	2BPR1LG806						◆ PT - R&T - DNFSB - 5.1.3.10.02 - Documented test objectives - CFD V&V
2BPR1LJ222		08-May-12	Damerow	-316	2BPR1LG806						◆ PT - R&T - DNFSB - 5.1.3.12.02 - Test Specifications - CFD V&V
2BPR1LJ151		18-May-12	Busche	92	2BPR1LF938, 2BPR1LG804						◆ PT - R&T - DNFSB - 5.1.3.05.01 - Define and document functional requirements - Test 5
2BPR1LJ161		18-May-12	Damerow	840	2BPR1LJ151, 2BPR1LJ201, 2BPR1LG804						◆ PT - R&T - DNFSB - 5.1.3.06.01 - Develop test plans - Test 5
2BPR1LJ201		18-May-12	Hanson	92	2BPR1LG804						◆ PT - R&T - DNFSB - 5.1.3.10.01 - Documented test objectives - Test 5
2BPR1LJ211		30-May-12*	Omel	0	2BPR1LJ210						◆ PT - R&T - DNFSB - 5.1.3.11 - Construction specifications
2BPR1LJ221		05-Jun-12	Damerow	2340	2BPR1LG805						◆ PT - R&T - DNFSB - 5.1.3.12.01 - Test Specifications - Test 5

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LJ110		12-Jun-12	Olson	35	2BPR1LC509, 2BPR1LE188,			◆ PT - R&T - DNFSB - 5.1.3.01 - Issue the Integrated Pulse Jet Mixed Design and Control Strategy Target			
2BPR1LJ133		11-Jul-12	Olson	15	2BPR1LE147, 2BPR1LE149,			◆ PT - R&T - DNFSB - 5.1.3.03.02 - Documentation of stakeholder acceptance of recommendation dispositions - PNNL Concur			
2BPR1LJ132		30-Jul-12	Olson	2	2BPR1LJ121, 2BPR1LE146,			◆ PT - R&T - DNFSB - 5.1.3.03.01 - Documentation of stakeholder acceptance of recommendation dispositions - CRESPP Concur			
2BPR1LJ131		01-Aug-12*	Olson	0	2BPR1LJ122, 2BPR1LJ132,			◆ PT - R&T - DNFSB - 5.1.3.03 - Documentation of stakeholder acceptance of recommendation dispositions			
2BPR1LJ111		01-Aug-12*	Julyk	0	2BPR1LJ110, 2BPR1LC509			◆ PT - R&T - DNFSB - 5.1.3.01 - Issue the Integrated Pulse Jet Mixed Design and Control Strategy			
2BPR1LJ231		10-Aug-12	Hanson	-72	2BPR1LD215, 2BPR1LD380			◆ PT - R&T - DNFSB - 5.1.3.13.01 - Scaling Basis Target - C&S Scaling Basis			
2BPR1LJ171		25-Sep-12	Hanson	911	2BPR1LG705, 2BPR1LG655,			◆ PT - R&T - DNFSB - 5.1.3.07.01 - Analysis of Test Results - Test 5			
2BPR1LJ155		18-Jan-13	Busche	-357	2BPR1LG813			◆ PT - R&T - DNFSB - 5.1.3.05.05 - Define and document functional requirements - 8 Foot Performance Test			
2BPR1LJ205		18-Jan-13	Hanson	-357	2BPR1LG813			◆ PT - R&T - DNFSB - 5.1.3.10.04 - Documented test objectives - Performance and Scaling - 8 Foot			
2BPR1LJ208		18-Jan-13	Hanson	-64	2BPR1LG823			◆ PT - R&T - DNFSB - 5.1.3.10.07 - Documented test objectives - Heel Management - 8 Foot			
2BPR1LJ165		18-Jan-13	Damerow	-357	2BPR1LG813, 2BPR1LJ155,			◆ PT - R&T - DNFSB - 5.1.3.06.05 - Develop test plans - 8 Foot Performance Test			
2BPR1LJ168		18-Jan-13	Damerow	-64	2BPR1LG823, 2BPR1LJ158,			◆ PT - R&T - DNFSB - 5.1.3.06.06 - Develop test plans - 8 Foot Heel Mgmt Test			
2BPR1LJ158		18-Jan-13	Busche	-64	2BPR1LG823			◆ PT - R&T - DNFSB - 5.1.3.05.08 - Define and document functional requirements - 8 Foot Heel Mgmt Test			
2BPR1LJ228		05-Feb-13	Damerow	2172	2BPR1LG824			◆ PT - R&T - DNFSB - 5.1.3.12.07 - Test Specifications - Heel Management - 8 Foot			
2BPR1LJ225		05-Feb-13	Damerow	2172	2BPR1LG814			◆ PT - R&T - DNFSB - 5.1.3.12.04 - Test Specifications - Performance and Scaling - 8 Foot			
2BPR1LJ154		28-Mar-13	Busche	407	2BPR1LG816			◆ PT - R&T - DNFSB - 5.1.3.05.04 - Define and document functional requirements - 4 Foot Performance Test			
2BPR1LJ204		28-Mar-13	Hanson	407	2BPR1LG816			◆ PT - R&T - DNFSB - 5.1.3.10.03 - Documented test objectives - Performance and Scaling - 4 Foot			
2BPR1LJ164		28-Mar-13	Damerow	407	2BPR1LG816, 2BPR1LJ154,			◆ PT - R&T - DNFSB - 5.1.3.06.04 - Develop test plans - 4 Foot Performance Test			
2BPR1LJ224		12-Apr-13	Damerow	2125	2BPR1LG817			◆ PT - R&T - DNFSB - 5.1.3.12.03 - Test Specifications - Performance and Scaling - 4 Foot			
2BPR1LJ167		17-Apr-13	Damerow	541	2BPR1LG826, 2BPR1LJ157,			◆ PT - R&T - DNFSB - 5.1.3.06.07 - Develop test plans - 4 Foot Heel Mgmt Test			
2BPR1LJ207		17-Apr-13	Hanson	541	2BPR1LG826			◆ PT - R&T - DNFSB - 5.1.3.10.06 - Documented test objectives - Heel Management - 4 Foot			
2BPR1LJ157		17-Apr-13	Busche	541	2BPR1LG826			◆ PT - R&T - DNFSB - 5.1.3.05.07 - Define and document functional requirements - 4 Foot Heel Mgmt Test			
2BPR1LJ227		02-May-13	Damerow	2111	2BPR1LG827			◆ PT - R&T - DNFSB - 5.1.3.12.06 - Test Specifications - Heel Management - 4 Foot			
2BPR1LJ166		31-May-13	Damerow	-362	2BPR1LG819, 2BPR1LJ156,			◆ PT - R&T - DNFSB - 5.1.3.06.06 - Develop test plans - 14 Foot Performance Test			
2BPR1LJ206		31-May-13	Hanson	-362	2BPR1LG819			◆ PT - R&T - DNFSB - 5.1.3.10.05 - Documented test objectives - Performance and Scaling - 14 Foot			
2BPR1LJ156		31-May-13	Busche	-362	2BPR1LG819			◆ PT - R&T - DNFSB - 5.1.3.05.06 - Define and document functional requirements - 14 Foot Performance Test			
2BPR1LJ153		11-Jun-13	Busche	-133	2BPR1LG810			◆ PT - R&T - DNFSB - 5.1.3.05.03 - Define and document functional requirements - Single PJM			
2BPR1LJ163		11-Jun-13	Damerow	-133	2BPR1LG810, 2BPR1LJ153,			◆ PT - R&T - DNFSB - 5.1.3.06.03 - Develop test plans - Single PJM			
2BPR1LJ203		11-Jun-13	Hanson	-133	2BPR1LG810			◆ PT - R&T - DNFSB - 5.1.3.10.09 - Documented test objectives - Single PJM			
2BPR1LJ226		17-Jun-13	Damerow	2080	2BPR1LG820			◆ PT - R&T - DNFSB - 5.1.3.12.05 - Test Specifications - Performance and Scaling - 14 Foot			
2BPR1LJ172		20-Jun-13	Hanson	726	2BPR1LG918, 2BPR1LJ162,			◆ PT - R&T - DNFSB - 5.1.3.07.02 - Analysis of Test Results - CFD V&V			
2BPR1LJ223		26-Jun-13	Damerow	2073	2BPR1LG811			◆ PT - R&T - DNFSB - 5.1.3.12.09 - Test Specifications - Single PJM			
2BPR1LJ209		27-Jun-13	Hanson	-146	2BPR1LG829			◆ PT - R&T - DNFSB - 5.1.3.10.08 - Documented test objectives - Heel Management - 14 Foot			
2BPR1LJ169		27-Jun-13	Damerow	-146	2BPR1LG829, 2BPR1LJ159,			◆ PT - R&T - DNFSB - 5.1.3.06.09 - Develop test plans - 14 Foot Heel Mgmt Test			
2BPR1LJ159		27-Jun-13	Busche	-146	2BPR1LG829			◆ PT - R&T - DNFSB - 5.1.3.05.09 - Define and document functional requirements - 14 Foot Heel Mgmt Test			
2BPR1LJ229		15-Jul-13	Damerow	2061	2BPR1LG830			◆ PT - R&T - DNFSB - 5.1.3.12.08 - Test Specifications - Heel Management - 14 Foot			
2BPR1LJ175		18-Sep-13	Hanson	664	2BPR1LT544, 2BPR1LG938			◆ PT - R&T - DNFSB - 5.1.3.07.05 - Analysis of Test Results - 8 Foot Performance Test			

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LJ178		18-Sep-13	Hanson	664	2BPR1LG978, 2BPR1HL345			◆ PT - R&T - DNFSB - 5.1.3.07.08 - Analysis of Test Results - 8 Foot Heel Mgmt Test			
2BPR1LJ141		31-Dec-13*	Busche	0	2BPR1LJ140			◆ PT - DNFSB - 5.1.3.04 - Update the CSER			
2BPR1LJ177		16-Jan-14	Hanson	582	2BPR1LT325, 2BPR1LT326			◆ PT - R&T - DNFSB - 5.1.3.07.07 - Analysis of Test Results - 4 Foot Heel Mgmt Test			
2BPR1LJ173		17-Jan-14	Hanson	581	2BPR1HL365, 2BPR1LG928			◆ PT - R&T - DNFSB - 5.1.3.07.03 - Analysis of Test Results - Single PJM			
2BPR1LJ140		30-Jan-14	Busche	-20	2BPR1LE180			◆ PT - DNFSB - 5.1.3.04 - Update the CSER Target			
2BPR1LJ174		07-Feb-14	Hanson	567	2BPR1LT504, 2BPR1LG948			◆ PT - R&T - DNFSB - 5.1.3.07.04 - Analysis of Test Results - 4 Foot Performance Test			
2BPR1LJ251		10-Feb-14	Daniel	566	2BPR1VV306			◆ PT - R&T - DNFSB - 5.1.3.15.01 - Decision point on the need for larger scale testing - CFD			
2BPR1LJ253		25-Jun-14	Daniel	471	2BPR1HL372			◆ PT - R&T - DNFSB - 5.1.3.15.03 - Decision point on the need for larger scale testing - Heel Management			
2BPR1LJ144		08-Jul-14	Busche	-357	2BPR1LG835			◆ PT - R&T - DNFSB - 5.1.3.05.10 - Define and document functional requirements - Integrated 14 Foot Operations Test			
2BPR1LJ145		08-Jul-14	Damerow	-357	2BPR1LF948, 2BPR1LG835			◆ PT - R&T - DNFSB - 5.1.3.06.10 - Develop test plans - Integrated 14 Foot Operations Test			
2BPR1LJ245		08-Jul-14	Hanson	-357	2BPR1LG835			◆ PT - R&T - DNFSB - 5.1.3.10.10 - Documented test objectives - Integrated 14 Foot Operations			
2BPR1LJ215		23-Jul-14	Damerow	1803	2BPR1LG836			◆ PT - R&T - DNFSB - 5.1.3.12.10 - Test Specifications - Integrated 14 Foot Operations			
2BPR1LJ150		01-Aug-14	Busche	274	2BPR1LJ156, 2BPR1LJ151			◆ PT - R&T - DNFSB - 5.1.3.05 - Define and document functional requirements			
2BPR1LJ146		01-Aug-14	Busche	-104	2BPR1LD238, 2BPR1LG838			◆ PT - R&T - DNFSB - 5.1.3.05.11 - Define and document functional requirements - Performance Limits Testing			
2BPR1LJ147		01-Aug-14	Damerow	-104	2BPR1LG838, 2BPR1LF612			◆ PT - R&T - DNFSB - 5.1.3.06.11 - Develop test plans - Performance Limits Test			
2BPR1LJ246		01-Aug-14	Hanson	-104	2BPR1LG838			◆ PT - R&T - DNFSB - 5.1.3.10.11 - Documented test objectives - Performance Limits Testing			
2BPR1LJ200		01-Aug-14	Hanson	285	2BPR1LJ206, 2BPR1LC369			◆ PT - R&T - DNFSB - 5.1.3.10 - Documented test objectives			
2BPR1LJ216		18-Aug-14	Damerow	1785	2BPR1LG839			◆ PT - R&T - DNFSB - 5.1.3.12.11 - Test Specifications - Performance Limits Testing			
2BPR1LJ160		18-Aug-14	Damerow	274	2BPR1LJ166, 2BPR1LJ164			◆ PT - R&T - DNFSB - 5.1.3.06 - Develop test plans			
2BPR1LJ220		18-Aug-14	Damerow	1785	2BPR1LJ228, 2BPR1LJ223			◆ PT - R&T - DNFSB - 5.1.3.12 - Test Specifications			
2BPR1LJ179		28-Aug-14	Hanson	426	2BPR1LG988, 2BPR1HL305			◆ PT - R&T - DNFSB - 5.1.3.07.09 - Analysis of Test Results - 14 Foot Heel Mgmt Test			
2BPR1LJ176		20-Nov-14	Hanson	367	2BPR1LG958, 2BPR1LT574			◆ PT - R&T - DNFSB - 5.1.3.07.06 - Analysis of Test Results - 14 Foot Performance Test			
2BPR1LJ252		08-Jun-15	Daniel	232	2BPR1LT582			◆ PT - R&T - DNFSB - 5.1.3.15.02 - Decision point on the need for larger scale testing - Performance and Scaling			
2BPR1LJ135		29-Jul-15	Hanson	196	2BPR1HL938, 2BPR1LS818			◆ PT - R&T - DNFSB - 5.1.3.07.10 - Analysis of Test Results - Integrated 14 Foot Test			
2BPR1LJ254		27-Oct-15	Daniel	133	2BPR1LS891			◆ PT - R&T - DNFSB - 5.1.3.15.04 - Decision point on the need for larger scale testing - Integrated 14 Foot O			
2BPR1LJ136		21-Sep-16	Hanson	-94	2BPR1LG998, 2BPR1LT907				◆ PT - R&T - DNFSB - 5.1.3.07.11 - Analysis of Test Results - F		
2BPR1LJ190		21-Sep-16	Underhill	-94	2BPR1LT582, 2BPR1LJ180				◆ PT - R&T - DNFSB - 5.1.3.09 - Rpt addressing extrn of PJM le		
2BPR1LJ170		21-Sep-16	Hanson	-94	2BPR1LJ172, 2BPR1LJ171				◆ PT - R&T - DNFSB - 5.1.3.07 - Analysis of Test Results		
2BPR1LJ180		21-Sep-16	Underhill	-94	2BPR1LJ170, 2BPR1LS891				◆ PT - R&T - DNFSB - 5.1.3.08 - Assess the need to test lvl inst		
2BPR1LJ250		21-Sep-16	Daniel	-94	2BPR1LJ253, 2BPR1LJ252				◆ PT - R&T - DNFSB - 5.1.3.15 - Decision point on the need for		
5.2.3 - Waste Simulant	10-Apr-12	01-Aug-14		445							
2BPR1LJ272		10-Apr-12	Hanson	-296	2BPR1LG807			◆ PT - R&T - DNFSB - 5.2.3.02.02 - Qualification reports for simulants - CFD V&V			
2BPR1LJ261		27-Apr-12	Hanson	2	2BPR1LD259, 2BPR1LD319			◆ PT - R&T - DNFSB - 5.2.3.01 - Physical properties important to mixing and scaling Target			
2BPR1LJ260		01-May-12*	Hanson	0	2BPR1LJ261			◆ PT - R&T - DNFSB - 5.2.3.01 - Physical properties important to mixing and scaling			
2BPR1LJ271		18-May-12	Hanson	92	2BPR1LG804			◆ PT - R&T - DNFSB - 5.2.3.02.01 - Qualification reports for simulants - Test 5			
2BPR1LJ274		18-Jan-13	Hanson	-357	2BPR1LG813			◆ PT - R&T - DNFSB - 5.2.3.02.04 - Qualification reports for simulants - Performance and Scaling - 8 Foot			
2BPR1LJ277		18-Jan-13	Hanson	-64	2BPR1LG823			◆ PT - R&T - DNFSB - 5.2.3.02.07 - Qualification reports for simulants - Heel Management - 8 Foot			

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LJ273		28-Mar-13	Hanson	407	2BPR1LG816		◆ PT - R&T - DNFSB - 5.2.3.02.03 - Qualification reports for simulants - Performance and Scaling - 4 Foot				
2BPR1LJ276		17-Apr-13	Hanson	541	2BPR1LG826		◆ PT - R&T - DNFSB - 5.2.3.02.06 - Qualification reports for simulants - Heel Management - 4 Foot				
2BPR1LJ275		31-May-13	Hanson	-362	2BPR1LG819		◆ PT - R&T - DNFSB - 5.2.3.02.05 - Qualification reports for simulants - Performance and Scaling - 14 Foot				
2BPR1LJ279		11-Jun-13	Hanson	-133	2BPR1LG810		◆ PT - R&T - DNFSB - 5.2.3.02.09 - Qualification reports for simulants - Single PJM				
2BPR1LJ278		27-Jun-13	Hanson	-146	2BPR1LG829		◆ PT - R&T - DNFSB - 5.2.3.02.08 - Qualification reports for simulants - Heel Management - 14 Foot				
2BPR1LJ264		08-Jul-14	Hanson	-357	2BPR1LG835			◆ PT - R&T - DNFSB - 5.2.3.02.10 - Qualification reports for simulants - Integrated 14 Foot Operations			
2BPR1LJ265		01-Aug-14	Hanson	-104	2BPR1LG838			◆ PT - R&T - DNFSB - 5.2.3.02.11 - Qualification reports for simulants - Performance Limits Testing			
2BPR1LJ270		01-Aug-14	Hanson	445	2BPR1LJ278, 2BPR1LJ279			◆ PT - R&T - DNFSB - 5.2.3.02 - Qualification reports for simulants			
5.3.3 - Model Verification and Validation	15-May-12	08-Jun-15		232							
2BPR1LJ281		15-May-12	Olson	76	2BPR1LG737, 2BPR1LG898	◆ PT - R&T - DNFSB - 5.3.3.01.01 - Update assess of use of Newtonian analysis techniques - Test 5					
2BPR1LJ331		30-May-12	ORP	-17	2BPR1LJ320	◆ PT - R&T - DNFSB - 5.3.3.06 - Decision on need for LSIT to support CFD V&V Target					
2BPR1LJ320		30-May-12*	ORP	0	2BPR1LJ310, 2BPR1LJ321	◆ PT - R&T - DNFSB - 5.3.3.05 - NETL independent review of data sets to support CFD V&V					
2BPR1LJ282		19-Jul-12	Olson	31	2BPR1LE110	◆ PT - R&T - DNFSB - 5.3.3.01.02 - Update assess of use of Newtonian analysis techniques					
2BPR1LJ291		19-Jul-12	ORP	113	2BPR1LE110, 2BPR1LJ281	◆ PT - R&T - DNFSB - 5.3.3.02 - Ind rrv of paper concluding non-Newtonian cond can be assessed Target					
2BPR1LJ301		19-Jul-12	ORP	153	2BPR1LE110, 2BPR1LJ291	◆ PT - R&T - DNFSB - 5.3.3.03 - Conclusion regarding use of Newtonian techniques to assess non-Newtonian conditions Target					
2BPR1LJ330		31-Jul-12*	ORP	0	2BPR1LJ331	◆ PT - R&T - DNFSB - 5.3.3.06 - Decision on need for LSIT to support CFD V&V					
2BPR1LJ280		31-Aug-12*	Olson	0	2BPR1LJ281, 2BPR1LJ282	◆ PT - R&T - DNFSB - 5.3.3.01 - Update assess of use of Newtonian analysis techniques to assess non-Newtonian vessel perf					
2BPR1LJ370		31-Oct-12*	Hanson	0	2BPR1LJ110, 2BPR1LJ371, 2BPR1LJ341	◆ PT - R&T - DNFSB - 5.3.3.10 - Data required to support assessment of CFD against LSIT					
2BPR1LJ340		31-Oct-12*	Julyk	0	2BPR1LJ341	◆ PT - R&T - DNFSB - 5.3.3.07 - Complete V&V of CFD					
2BPR1LJ371		14-Nov-12	Hanson	-10	2BPR1LF830, 2BPR1LC369	◆ PT - R&T - DNFSB - 5.3.3.10 - Data required to support assessment of CFD against LSIT Target					
2BPR1LJ290		31-Dec-12*	ORP	0	2BPR1LJ291	◆ PT - R&T - DNFSB - 5.3.3.02 - Ind rrv of paper concluding non-Newtonian cond can be assessed using Newtonian techniques					
2BPR1LJ300		28-Feb-13*	ORP	0	2BPR1LJ301	◆ PT - R&T - DNFSB - 5.3.3.03 - Conclusion regarding use of Newtonian techniques to assess non-Newtonian conditions					
2BPR1LJ350		28-Feb-13*	ORP	0	2BPR1LJ351	◆ PT - R&T - DNFSB - 5.3.3.08 - External review of complete V&V of CFD					
2BPR1LJ341		20-Jun-13	Underhill	-159	2BPR1VV306, 2BPR1LJ331	◆ PT - R&T - DNFSB - 5.3.3.07 - Complete V&V of CFD Target					
2BPR1LJ351		27-Jun-13	ORP	-84	2BPR1VV307, 2BPR1LJ341	◆ PT - R&T - DNFSB - 5.3.3.08 - External review of complete V&V of CFD Target					
2BPR1LJ361		27-Jun-13	Daniel	45	2BPR1VV306, 2BPR1LJ351	◆ PT - R&T - DNFSB - 5.3.3.09 - Assessment of whether CFD has required precision Target					
2BPR1LJ381		05-Jul-13	Underhill	40	2BPR1VV308, 2BPR1LJ371	◆ PT - R&T - DNFSB - 5.3.3.11 - CFD analysis of planned LSIT Target					
2BPR1LJ380		30-Aug-13*	Underhill	0	2BPR1LJ381	◆ PT - R&T - DNFSB - 5.3.3.11 - CFD analysis of planned LSIT					
2BPR1LJ360		30-Aug-13*	Daniel	0	2BPR1LJ350, 2BPR1LJ361	◆ PT - R&T - DNFSB - 5.3.3.09 - Assessment of whether CFD has required precision					
2BPR1LJ390		08-Jun-15	Underhill	232	2BPR1LF830, 2BPR1LC369	◆ PT - R&T - DNFSB - 5.3.3.12 - CFD prediction of LSIT performance assessment					
5.4.3 - Sampling in Vessels	10-Aug-12	18-Mar-16		36							
2BPR1LJ431		10-Aug-12	Olson	34	2BPR1HL448	◆ PT - R&T - DNFSB - 5.4.3.04 - WTP process control sampling requirements Target					
2BPR1LJ411		24-Aug-12	Olson	24	2BPR1LE348	◆ PT - R&T - DNFSB - 5.4.3.02 - WTP sampling requirement input considering tank farm sampling capability Target					
2BPR1LJ410		28-Sep-12*	Olson	0	2BPR1LJ103, 2BPR1LJ102	◆ PT - R&T - DNFSB - 5.4.3.02 - WTP sampling requirement input considering tank farm sampling capability					
2BPR1LJ430		28-Sep-12*	Olson	0	2BPR1LJ102, 2BPR1LJ103	◆ PT - R&T - DNFSB - 5.4.3.04 - WTP process control sampling requirements					
2BPR1LJ400		30-Dec-13*	Olson	0	2BPR1LJ401, 2BPR1HL469	◆ PT - R&T - DNFSB - 5.4.3.01 - Identify sampling requirements to support definition of required sampling system testing					
2BPR1LJ420		31-Dec-13*	Busche	0	2BPR1LJ102, 2BPR1LJ103	◆ PT - R&T - DNFSB - 5.4.3.03 - Develop criticality sampling requirements					

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LJ421		30-Jan-14	Busche	-21	2BPR1LE180				◆ PT - R&T - DNFSB - 5.4.3.03 - Develop criticality sampling requirements Target		
2BPR1LJ401		30-Jan-14	Olson	-21	2BPR1LJ411, 2BPR1LJ421				◆ PT - R&T - DNFSB - 5.4.3.01 - Identify sampling requirements to support definition of required SST Target		
2BPR1LJ441		30-Jan-14	Busche	-21	2BPR1LE180, 2BPR1LJ411				◆ PT - R&T - DNFSB - 5.4.3.05 - Sampling required to maintain safety design basis Target		
2BPR1LJ450		20-Mar-14	Damerow	539	2BPR1LF955, 2BPR1LJ441				◆ PT - R&T - DNFSB - 5.4.3.06 - Sampling system test plan		
2BPR1LJ440		31-Mar-14*	Busche	0	2BPR1LJ103, 2BPR1LJ102				◆ PT - R&T - DNFSB - 5.4.3.05 - Sampling required to maintain safety design basis		
2BPR1LJ460		29-Jul-15	Hanson	196	2BPR1HL938, 2BPR1LJ450				◆ PT - R&T - DNFSB - 5.4.3.07 - Initial sampling system test report		
2BPR1LJ470		29-Jul-15	Hanson	36	2BPR1HL938, 2BPR1LJ160				◆ PT - R&T - DNFSB - 5.4.3.08 - Integrated testing report		
2BPR1LJ480		18-Mar-16	Hanson	36	2BPR1LJ460, 2BPR1HL938				◆ PT - R&T - DNFSB - 5.4.3.09 - Assessment of sampling system performance and gap analysis		
5.5.3 - Representative Samp	02-Apr-12	11-Apr-18		867							
2BPR1LJ491		02-Apr-12	Olson	190		◆ PT - R&T - DNFSB - 5.5.3.01 - Initial gap analysis between WTP WAC and tank farm sampling and transfer capability Target					
2BPR1LJ571		02-Apr-12	Thien	610	2BPR1LJ491	◆ PT - R&T - DNFSB - 5.5.3.09 - Gap Analysis Target					
2BPR1LJ541		31-May-12*	Thien	0	2BPR1LJ531	◆ PT - R&T - DNFSB - 5.5.3.06 - Test plan to establish Tank Farm performance capability					
2BPR1LJ500		29-Jun-12*	Thien	0		◆ PT - R&T - DNFSB - 5.5.3.02 - Evaluation of waste transferred to WTP					
2BPR1LJ490		31-Dec-12*	Olson	0	2BPR1LJ491, 2BPR1LJ500	◆ PT - R&T - DNFSB - 5.5.3.01 - Initial gap analysis between WTP WAC and tank farm sampling and transfer capability					
2BPR1LJ561		31-Dec-12*	Thien	0		◆ PT - R&T - DNFSB - 5.5.3.08 - Issue remote sampler test report					
2BPR1LJ551		29-Mar-13*	Thien	0	2BPR1LJ541	◆ PT - R&T - DNFSB - 5.5.3.07 - Results from Tank Farm performance testing					
2BPR1LJ570		29-Aug-14*	Thien	0	2BPR1LJ551, 2BPR1LJ571	◆ PT - R&T - DNFSB - 5.5.3.09 - Gap Analysis					
2BPR1LJ580		29-May-15*	Olson	0	2BPR1LJ581	◆ PT - R&T - DNFSB - 5.5.3.10 - Optimized WAC DQC					
2BPR1LJ581		09-Aug-16	Olson	-362	2BPR1LG998, 2BPR1LT907	◆ PT - R&T - DNFSB - 5.5.3.10 - Optimized WAC DQC Target					
2BPR1LJ510		11-Apr-18	Olson	867	2BPR1LT909, 2BPR1LJ480						
5.6.3 - Functional Design Cr	08-May-12	05-Aug-15		1542							
2BPR1LJ601		08-May-12	Julyk	15	2BPR1HL409	◆ PT - R&T - DNFSB - 5.6.3.02 - Heel management system design Target					
2BPR1LJ611		08-May-12	Julyk	143	2BPR1HL428, 2BPR1LJ601	◆ PT - R&T - DNFSB - 5.6.3.03 - Heel management system description Target					
2BPR1LJ600		30-May-12*	Julyk	0	2BPR1LJ590, 2BPR1LJ601	◆ PT - R&T - DNFSB - 5.6.3.02 - Heel management system design					
2BPR1LJ610		30-Nov-12*	Julyk	0	2BPR1LJ611	◆ PT - R&T - DNFSB - 5.6.3.03 - Heel management system description					
2BPR1LJ620		29-Mar-13*	Busche	0	2BPR1LJ621	◆ PT - R&T - DNFSB - 5.6.3.04 - Heel management system hazard analysis					
2BPR1LJ640		27-Jun-13	Damerow	602	2BPR1LJ169, 2BPR1LJ168	◆ PT - R&T - DNFSB - 5.6.3.06 - Heel management test plan					
2BPR1LJ621		05-Nov-13	Busche	-154	2BPR1LE534, 2BPR1LE564	◆ PT - R&T - DNFSB - 5.6.3.04 - Heel management system hazard analysis Target					
2BPR1LJ650		21-Aug-14	Hanson	311	2BPR1LJ640, 2BPR1LG978	◆ PT - R&T - DNFSB - 5.6.3.07 - Heel management test report					
2BPR1LJ660		13-Feb-15	Olson	311	2BPR1HL438, 2BPR1LJ650	◆ PT - R&T - DNFSB - 5.6.3.08 - Heel management performance gap analysis					
2BPR1LJ670		13-Feb-15	Olson	311	2BPR1LJ650, 2BPR1HL466	◆ PT - R&T - DNFSB - 5.6.3.09 - Assessment of need for Heel Management in Additional Vessels					
2BPR1LJ630		05-Aug-15	Olson	1542	2BPR1HL415, 2BPR1LJ650	◆ PT - R&T - DNFSB - 5.6.3.05 - Heel management system committed design					
5.7.3 - Technical & Safety Ri	25-Jul-12	21-Sep-16		-94							
2BPR1LJ690		25-Jul-12*	ORP	0		◆ PT - R&T - DNFSB - 5.7.3.02 - Strengthen IMP to improve the integrated mgmt of the tech & safety risks					
2BPR1LJ707		30-Jan-13	ORP	825	2BPR1LJ720	◆ PT - R&T - DNFSB - 5.7.3.03.07 - Eval the closure doc for each sub-recommendation to verify results can be implemented					
2BPR1LJ720		30-Jan-13*	DOE HQ	0	2BPR1LJ690	◆ PT - R&T - DNFSB - 5.7.3.05 - Conduct independent review of the IMP strengthened under Com.5.7.3.02 to eval effectiveness					
2BPR1LJ681		30-Jan-13*	Busche	0	2BPR1LJ680	◆ PT - R&T - DNFSB - 5.7.3.01 - Update plan and sched. to eval the hazard of known tech issues - 2013					

VCT Summary Schedule

Activity ID	Start	Finish	Resp Person	Total Float	Predecessors	2012	2013	2014	2015	2016	2017
2BPR1LJ682		30-Jan-14*	Busche	0	2BPR1LJ681				◆ PT - R&T - DNFSB - 5.7.3.01 - Update plan and sched. to eval the hazard of known tech issues - 2014		
2BPR1LJ704		30-Jan-14	ORP	573	2BPR1LJ401, 2BPR1LJ421				◆ PT - R&T - DNFSB - 5.7.3.03.04 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
2BPR1LJ702		01-Aug-14	ORP	445	2BPR1LJ270				◆ PT - R&T - DNFSB - 5.7.3.03.02 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
2BPR1LJ683		30-Jan-15*	Busche	0	2BPR1LJ682				◆ PT - R&T - DNFSB - 5.7.3.01 - Update plan and sched. to eval the hazard of known tech issues - 2015		
2BPR1LJ706		13-Feb-15	ORP	311	2BPR1LJ670				◆ PT - R&T - DNFSB - 5.7.3.03.06 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
2BPR1LJ703		08-Jun-15	ORP	232	2BPR1LJ390, 2BPR1LJ361,				◆ PT - R&T - DNFSB - 5.7.3.03.03 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
2BPR1LJ684		01-Feb-16*	Busche	0	2BPR1LJ683				◆ PT - R&T - DNFSB - 5.7.3.01 - Update plan and sched. to eval the hazard of known tech issues		
2BPR1LJ705		09-Aug-16	ORP	-64	2BPR1LJ581				◆ PT - R&T - DNFSB - 5.7.3.03.05 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
2BPR1LJ700		21-Sep-16*	ORP	-94	2BPR1LJ702, 2BPR1LJ706,				◆ PT - R&T - DNFSB - 5.7.3.03 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
2BPR1LJ701		21-Sep-16	ORP	-94	2BPR1LJ250, 2BPR1LJ571				◆ PT - R&T - DNFSB - 5.7.3.03.01 - Eval the closure doc for each sub-recommendation to verify results can be implemented		
6.3.1 - Reporting	30-Apr-12	31-Oct-14		0							
2BPR1LJ735		30-Apr-12*	ORP	0	2BPR1LJ730	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Apr 2012					
2BPR1LJ740		31-Jul-12*	ORP	0	2BPR1LJ735	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Jul 2012					
2BPR1LJ745		31-Oct-12*	ORP	0	2BPR1LJ740	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Oct 2012					
2BPR1LJ750		30-Jan-13*	ORP	0	2BPR1LJ745	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Jan 2013					
2BPR1LJ755		30-Apr-13*	ORP	0	2BPR1LJ750	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Apr 2013					
2BPR1LJ760		31-Jul-13*	ORP	0	2BPR1LJ755	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Jul 2013					
2BPR1LJ765		31-Oct-13*	ORP	0	2BPR1LJ760	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Oct 2013					
2BPR1LJ770		30-Jan-14*	ORP	0	2BPR1LJ765	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Jan 2014					
2BPR1LJ775		30-Apr-14*	ORP	0	2BPR1LJ770	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Apr 2014					
2BPR1LJ780		31-Jul-14*	ORP	0	2BPR1LJ775	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Jul 2014					
2BPR1LJ785		31-Oct-14*	ORP	0	2BPR1LJ780	◆ PT - R&T - DNFSB - 6.3.1 - Quarterly Progress Report and briefing to the DNFSB and staff - Oct 2014					