Watts Bar Nuclear Plant – Unit 2

Public Meeting

June 11, 2013

Opening Remarks

Raymond Hruby, General Manager, Technical Services

Agenda

Construction Completion Status Update

Raymond Hruby, General Manager, Technical Services

Watts Bar Unit 2 Estimate to Complete

- TVA Board authorized completion of the Watts Bar 2 Project in accordance with the revised Estimate to Complete (ETC) on April 26, 2012
- The ETC developed a range for project completion between September 2014 and June 2016
  - Probable completion date December 2015
  - A construction permit extension request was submitted on May 17, 2012
- Project leadership has confidence in the revised ETC
- Though several project risks and opportunities remain, they are manageable

Watts Bar Unit 2 Construction - Summary

- Project Completion Activities are Tracking Consistent with the ETC

- Safety
  - 20 Million Man-Hours without Lost Time Incident
  - Fiscal Year to Date Recordable Injury Rate (RIR) 0.19
  - Safety Conscience Work Environment

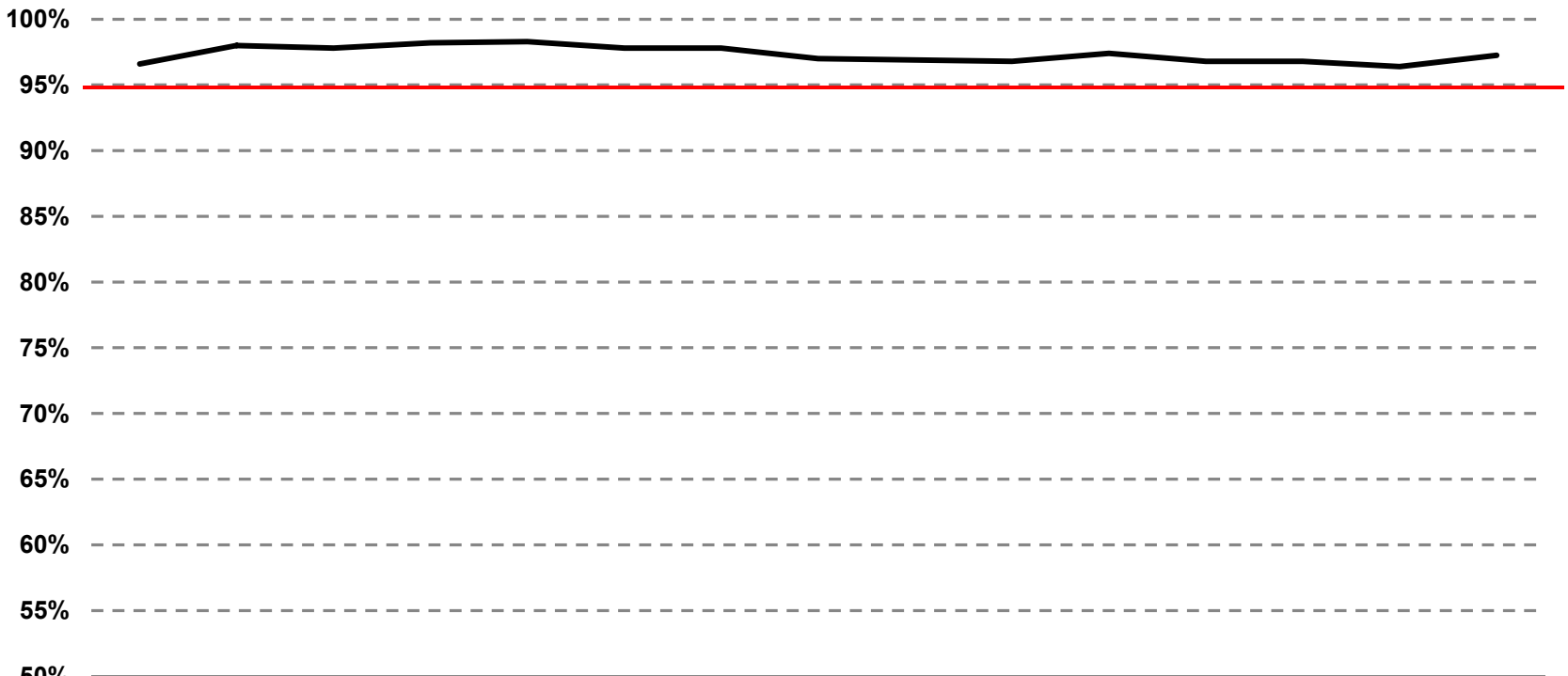
- Quality
  - Project Quality >97%

- Cost & Schedule
  - Cost and Schedule Adherence are Meeting Expectations

Watts Bar Unit 2 Construction - Summary

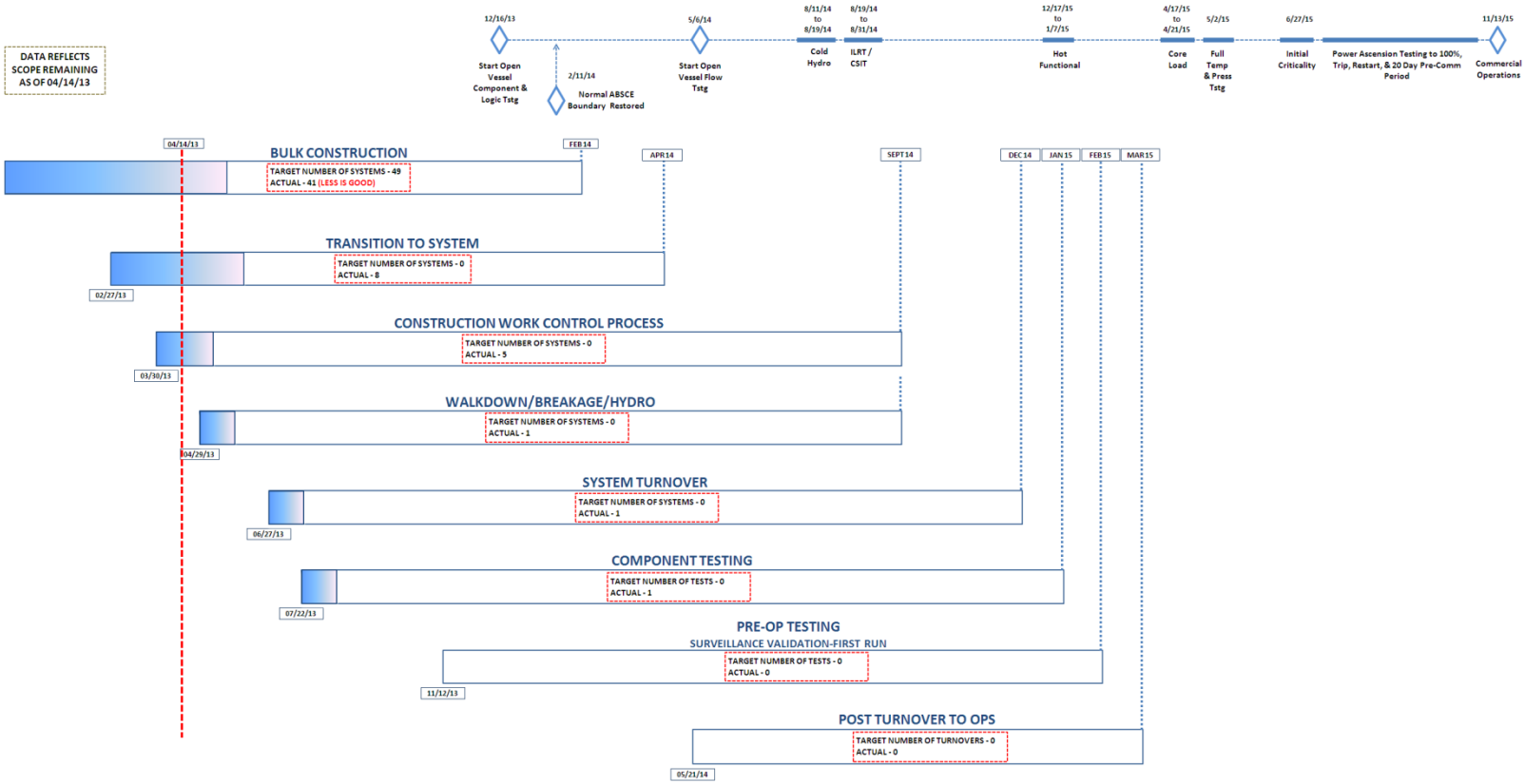
- Accomplishments
  - Transitioning from Bulk Construction to System Turnover for Start-up Testing
  - Released 1st System to Testing since revised Estimate to Complete (ETC)
  - Stamped 1st ASME System (Service Air)

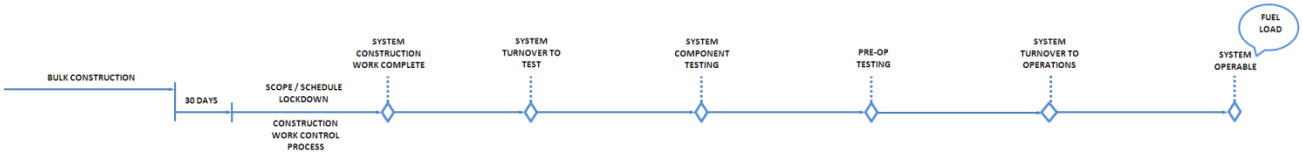
Watts Bar Unit 2 Construction – Project Quality



	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Total	96.6%	98.0%	97.8%	98.2%	98.3%	97.8%	97.8%	97.0%	96.9%	96.8%	97.4%	96.8%	96.8%	96.4%	97.3%

Watts Bar Unit 2 Construction – Completion Status



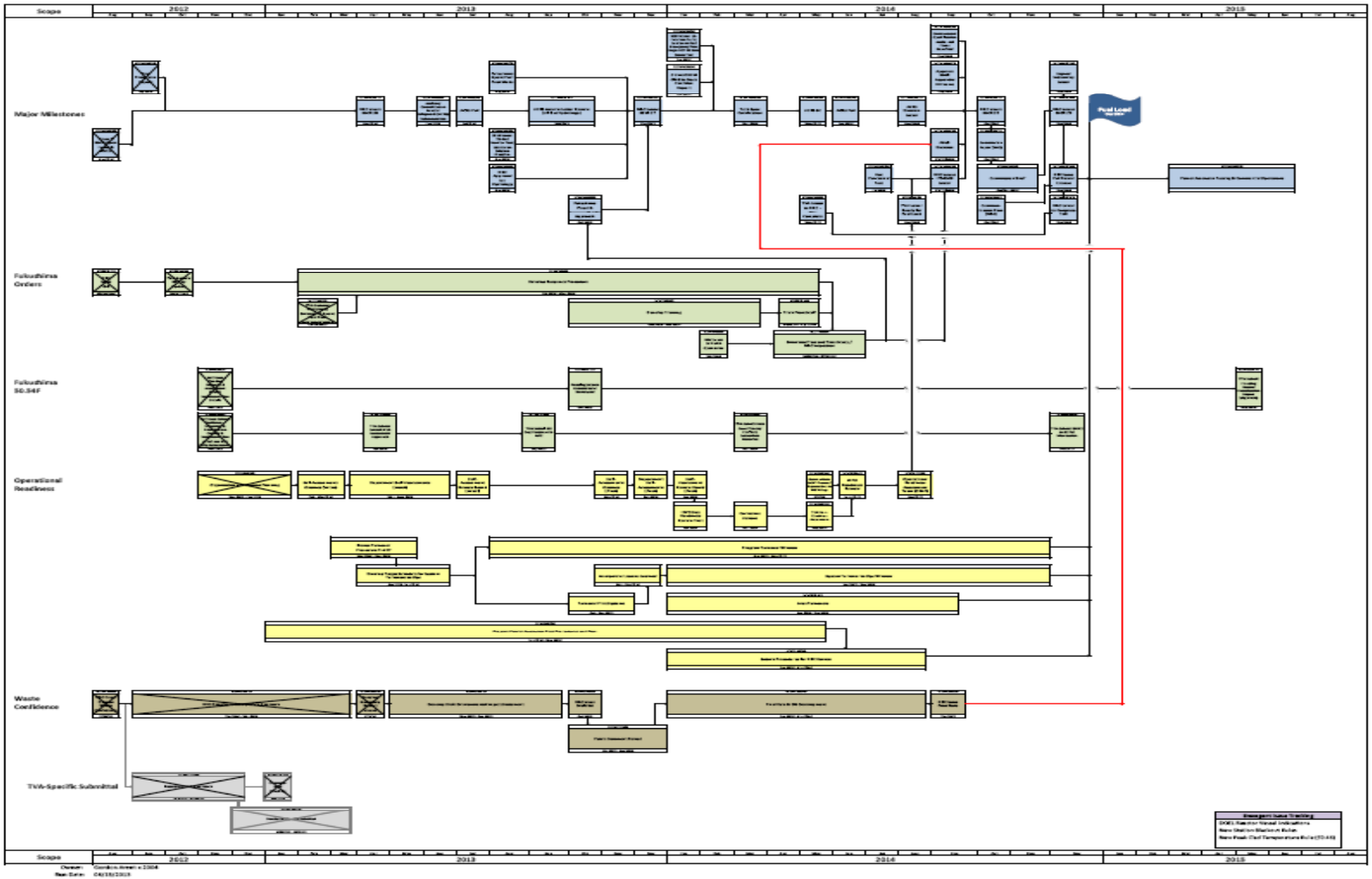


Licensing Path Forward

- Schedule to Completion
  - Safety Evaluation Report (SER) – 99% Complete
    - Supplemental SER Open Items
  - Final Environmental Statement – June 2013
  - Closure of Regulatory Commitments
  - Regional Inspections
  - ACRS Full Committee Meeting – Fall of 2013
  - ASLB Hearing – Commence January – February 2014

Licensing Path Forward

LICENSING FUEL LOAD SCHEDULE



Dual Unit Operation

Chris Church, Vice President, Watts Bar Unit 2 Startup

Dual Unit Operation – Roles and Responsibilities

- WBN Site Vice President

  General responsibility for the WBN site, the safe operation of Unit 1, facilitation of the construction project with reasonable controls to protect Unit 1 operation, and ensuring the plant operating organizations transition for 2 unit operations

- Nuclear Construction U2 General Managers

  Responsible for the design engineering, construction completion, preoperational testing, system and area completions and turnover, and licensing of Unit 2

- Unit 2 Startup Vice President

  Responsible for the evaluation, scoping, and planning of all actions required to establish the programs and processes and transition the WBN organizations for two unit operations. Also responsible for ensuring turnover review processes deliver quality systems and areas upon completion of construction and testing, and for establishing the power ascension testing program

Dual Unit Operation – Readiness Team

- Governance and coordination role:
  - Prepare organizational transition plans
  - Provide operational readiness self assessment oversight
  - Ensure every process, program, and procedure has owner and schedule for completion that supports the project schedule
  - Coordinate and oversee system and area turnover
  - Coordinate resolution of issues/items where the objectives of U1 operations and U2 completions appear to conflict

Dual Unit Operation – Readiness Team

- Ensure WBN's transition from safe, reliable single unit operation to safe, reliable dual-unit operation
  - Ensure operational excellence achieved in transition of WBN2 from Nuclear Construction (NC) to Nuclear Power Group (NPG) and other deliverables conducted in quality manner to ensure safe, reliable dual unit operations
  - Minimize, control, document, and effectively train on any WBN1 – WBN2 operational differences
  - Successfully support INPO Readiness Review and NRC Operational Readiness Assessment Team (ORAT) inspections
  - Safely conduct initial fuel load and operational testing necessary to achieve dual-unit commercial operations

Dual Unit Operation – Transition Status

- Dual Unit Operations:
  - Department specific transition plans completed
  - Implementing transition plan actions
  - Site and corporate transition plans in development (July 2013)
  - Performing current round of self assessments (July 2013)

- Major Inspections (inspection dates tentative):
  - Test strategy and plan complete
  - TVA plant readiness assessment (May 2014)
  - INPO readiness review (June 2014)
  - NRC operational readiness assessment (August 2014)

Special Topic – Startup Testing

Nick Welch, Startup Manager, Watts Bar Unit 2

Special Topic – Startup Testing Overview

- All testing/flushing will be performed by Startup test group under Nuclear Construction.

- Component level testing (Circuit checks, valve strokes, motor runs, calibration)
  - Current count is 8618 component tests, 37.9% complete

- System flushing
  - Total number of Clean Plans 68, currently have 1 completed.

- Preoperational Test and Acceptance Test Performance
  - 87 of 121 procedures approved,
  - Performances of 2 Acceptance Test Procedures completed.
  - Overall procedure generation is 71.9% complete

- 39 of 87 systems turned over to startup

- 4 system turnovers completed to Nuclear Power Group.

Special Topic – Startup Testing Focus

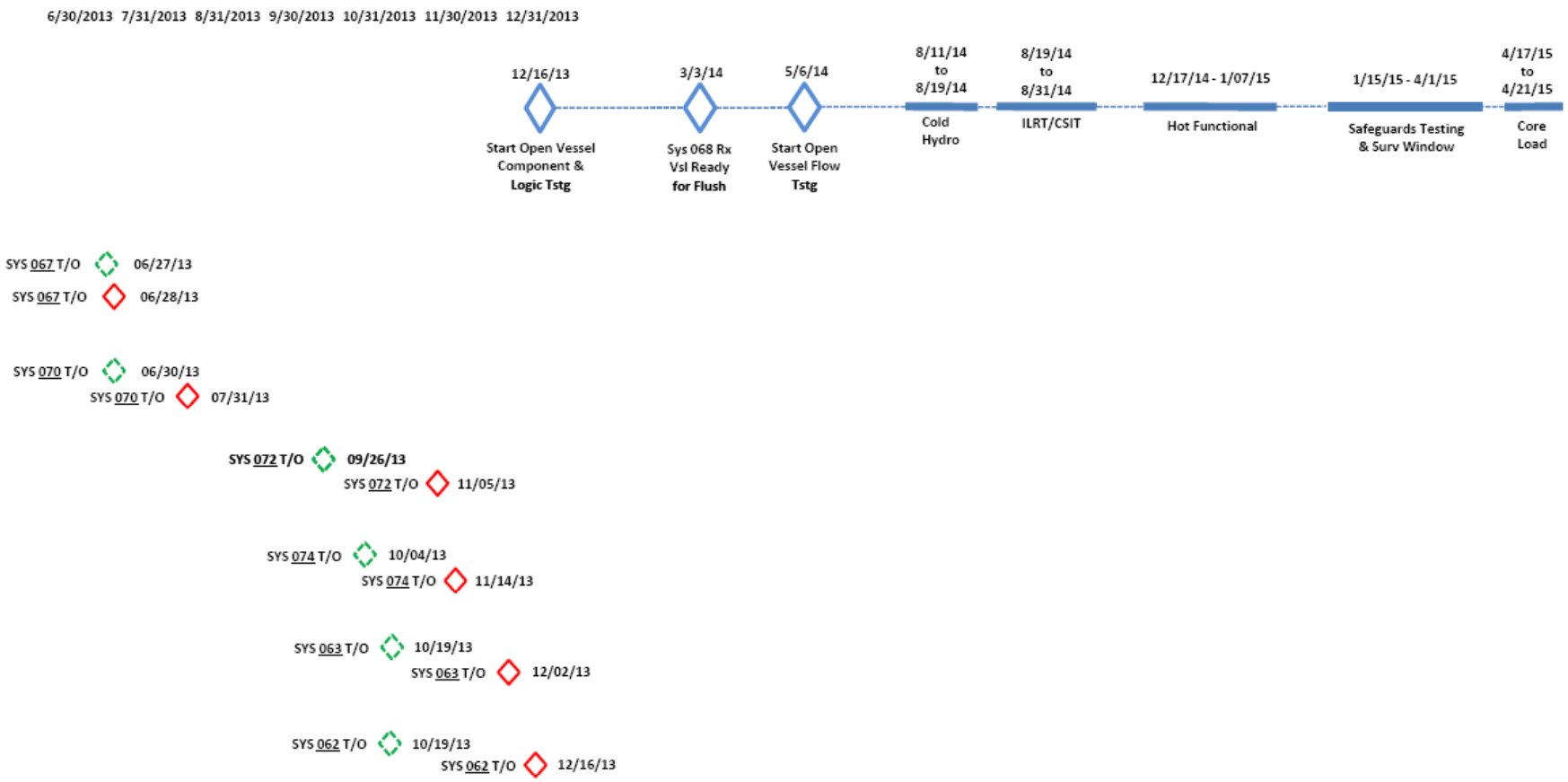
- Preparations are in progress to start testing systems required to support Open Vessel Testing (OVT).
- Near term OVT system turnovers to startup by the end of June are:
  - System - 67 Essential Raw Cooling Water
  - System - 70 Component Cooling Water
- Challenged by Unit 1/Unit 2 interface system testing on Systems 67 and 70

Special Topic – Startup Testing – Region II Interface

- Primary Systems for Inspection Identified
- Activities scheduled to notify inspector of system milestones
- Sending periodic reports to inspector
- Working on procedure developmental and submittal to NRC well in advance of the 60 day requirement

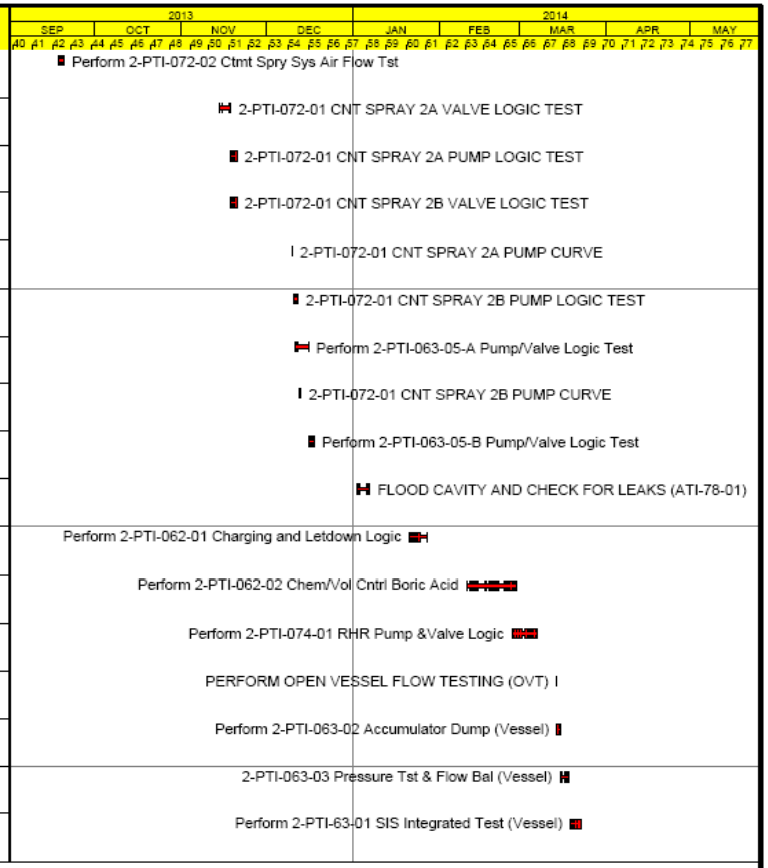
Special Topic – Startup Testing

MAJOR MILESTONES TO SUPPORT OPEN VESSEL TESTING AND APRIL 2015 FUEL LOAD



Special Topic – Startup Testing

Activity ID	Activity Description	FRAG	PLOT	Early Start	Early Finish	Total Float	Resource ID
ST00720100	Perform 2-PTI-072-02 Ctmt Spry Sys Air Flow Tst	CPC	CS	18SEP13 09:00	20SEP13 08:59	-582	CPC
ST00720120	2-PTI-072-01 CNT SPRAY 2A VALVE LOGIC TEST	THY	CS	14NOV13 16:00	18NOV13 15:59	-549	
ST00720121	2-PTI-072-01 CNT SPRAY 2A PUMP LOGIC TEST	THY	CS	18NOV13 16:00	20NOV13 15:59	-549	
ST00720131	2-PTI-072-01 CNT SPRAY 2B VALVE LOGIC TEST	THY	CT	18NOV13 16:00	20NOV13 15:59	-345	
ST00720122	2-PTI-072-01 CNT SPRAY 2A PUMP CURVE	THY	CS	10DEC13 07:00	10DEC13 16:59	-546	
ST00720130	2-PTI-072-01 CNT SPRAY 2B PUMP LOGIC TEST	THY	CT	11DEC13 07:00	12DEC13 16:59	-446	
114113728W	Perform 2-PTI-063-05-A Pump/Valve Logic Test	SU	OV	11DEC13 08:00	16DEC13 07:59	-457	
ST00720124	2-PTI-072-01 CNT SPRAY 2B PUMP CURVE	THY	CT	13DEC13 07:00	13DEC13 16:59	-546	
114113731W	Perform 2-PTI-063-05-B Pump/Valve Logic Test	SU	OV	16DEC13 08:00	18DEC13 07:59	-457	
ST00680380	FLOOD CAVITY AND CHECK FOR LEAKS (ATI-78-01)		OV	02JAN14 14:00	07JAN14 07:59	-551	
ST00620081	Perform 2-PTI-062-01 Charging and Letdown Logic	THY	OV	21JAN14 08:00	27JAN14 07:59	-461	
ST00620082	Perform 2-PTI-062-02 Chem/Vol Cntrl Boric Acid	SU	OV	10FEB14 08:00	28FEB14 07:59	-471	
ST00740090	Perform 2-PTI-074-01 RHR Pump &Valve Logic	SU	OV	26FEB14 18:00	07MAR14 07:59	-1,320	
BM00000276	PERFORM OPEN VESSEL FLOW TESTING (OVT)		MM	14MAR14 17:00	14MAR14 17:59	-2,160	
114113726W	Perform 2-PTI-063-02 Accumulator Dump (Vessel)	SU	OV	14MAR14 17:00	15MAR14 16:59	-1,320	
114113727W	2-PTI-063-03 Pressure Tst & Flow Bal (Vessel)	CP1	OV	15MAR14 17:00	19MAR14 02:59	-1,320	
114113717W	Perform 2-PTI-63-01 SIS Integrated Test (Vessel)	CP1	OV	19MAR14 07:00	23MAR14 02:59	-1,320	



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Sheet 1 of 1

WBN UNIT 2
PRIMARY SYSSTEM PTIs & OVT

Early Bar
Progress Bar
Critical Activity

Special Topic – Fukushima

Bob Williams, Fukushima Project Manager, Watts Bar Unit 2

Special Topic - Fukushima

- Imposes new requirements for:
  - Flood
  - Mitigation of Beyond Design Basis Events (FLEX)
  - Seismic
  - Spent Fuel Pool Level Instrumentation

Special Topic - Fukushima

- The NRC order pushed WBN2 to the front of the TVA fleet and the industry to be in compliance
- Due to wide diversity of requirements and multiple site impacts, we assembled a multi-organizational team to scope and manage the work
  - Nuclear Construction
  - Nuclear Power Group
  - River Operations and Renewables
  - Fossil Construction Group

Special Topic - Fukushima

- Flood Issues
  - New Hydrology/Flood Hazard Study
  - Dam Stability Issues – Cherokee & Douglas
  - Temporary Flood Barriers at Four Dams
  - Analysis of 18 Upstream Dams

Special Topic - Fukushima

- Beyond Design Basis Events
  - FLEX Equipment Storage Building
  - Portable (FLEX) Equipment
  - 225 KVA Diesel Generators
  - Extended Loss of All (AC) Power
  - Replacement for Condensate Storage Tank

Special Topic - Fukushima

- Seismic
  - Ground Motion Responses Spectrum from EPRI
  - Advanced Ground Motion Response Spectrum
  - Seismic Probabilistic Risk Assessment (SPRA) required for high risk plants
  - Enhanced Unit 2 seismic individual plant examination of external events (IPEEE)

Special Topics - Fukushima

- Milestones
  - NRC Issues Orders and 50.54 (f) letter – Complete
  - Initial TVA Response with Answer to Orders – Complete
  - NRC Issue of Interim Guidance – Complete
  - Status Reports for orders – Complete
  - Submit results of Seismic and Flooding Walk-downs – Complete
  - Submit plans for mitigating strategies – Complete
  - Unit 1 Cycle 12 Outage Designs – 06/27/13
  - Completion of known Fukushima hydrology work – June 2014
  - Fukushima Compliance (both units) – Summer 2014

Special Topics - Fukushima

- Risks
  - Evolving Regulatory Requirements and Guidance
  - Results of new hydrology studies on dams
  - Potential Impact of new seismic criteria
  - Majority of Unit 2 work is on systems shared with Unit 1 – accessibility and schedule
  - Watts Bar 2 will be first in industry to address Fukushima – regulatory uncertainty
  - Impacts on procedures and training

Special Topic – Inspection Planning & Scheduling (IPS) Status

Gordon Arent, Senior Licensing Manager, Watts Bar Unit 2

Special Topic – Inspection Planning and Scheduling (IP&S)

- Validation of IP&S Final Package Closure Complete
  - Closure Tied to System Turnover to Operations
  - Closure Activities Logic Tied to Precursor Work Activities in Project Schedule
    - Aids Inspectors Ability to Track Field Implementation
    - Informs When Closure is Anticipated
    - Identifies When “Partial” Closure Package is Required
- Region II Inspection Initiatives
  - Central Focus on IP&S Management
  - Definition of Requirements for Closure

Special Topic – IPS Status

OVERVIEW OF ITEMS ON NRC'S IP&S LIST (light shading indicates changes since last report)

	AS OF: 05/31/2012				AS OF: 05/24/2013			
	TVA's DATABASE			NRC's LIST	TVA's DATABASE			NRC's LIST
	OPEN	CLOSED	TOTAL	TOTAL	OPEN	CLOSED	TOTAL	TOTAL
ITEMS FOR WHICH NRC IS RESPONSIBLE								
ALLEGATIONS (HISTORICAL)	22	0	22	22	22	0	22	22
IPs	45	30	75	75	45	30	75	75
OTHER	3	0	3	3	3	0	3	3
SSER OPEN ITEMS	8	10	18	18	8	10	18	18
TIs	28	27	55	55	28	27	55	55
NRC Subtotal:	**106**	**67**	**173**	**173**	**106**	**67**	**173**	**173**
ITEMS FOR WHICH TVA IS RESPONSIBLE								
Bulletins	17	30	47	47	17	30	47	47
CDRs	65	69	134	134	65	69	134	134
Generic Letters	14	9	23	23	14	9	23	23
IFIs	2	7	9	9	2	7	9	9
NON-CITED VIOLATIONS	2	21	23	23	2	21	23	23
NUREG-0737 (TMI) Items	17	17	34	34	17	17	34	34
OTHER	1	2	3	3	1	2	3	3
SSER OPEN ITEMS	15	0	15	15	15	0	15	15
TIs	27	8	35	35	27	8	35	35
URIs	5	27	32	32	5	27	32	32
VIOLATIONs	7	6	13	13	7	6	13	13
TVA Subtotal:	**172**	**196**	**368**	**368**	**172**	**196**	**368**	**368**
TOTAL:	**278**	**263**	**541**	**541**	**278**	**263**	**541**	**541**

* F: ALL of the commitments for the IPS item have FINAL Completion Packages.
EC: 1 or more of the commitments for the IPS items has an Engineering Complete Package.
PER: ALL of the PERs (NON-Commitment) for the IPS item are CLOSED on MAXIMO. Also includes MEMOs.

OPEN IPS ITEMS READY FOR NRC REVIEW*
(AS OF: 05/31/2013)

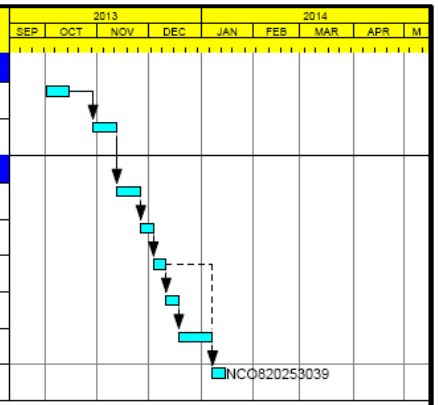
F	EC	PER	TOTAL
3	8		11
8	53	1	62
	6		6
	1		1
		2	2
	7		7
1			1
1	3	1	5
	20		20
1	2	2	5
	5		5
14	105	6	125

Change(s) since last time:

0	0	0	0

Special Topic – IPS Status

ID	DESCRIPTION	ES	EF	OD	Total Float	Pred
EDCR 52338 - RAD MON SYS RX BLDG-QUALITY RELATED						
WCS5233800	ISSUE WCS: EDCR-2 52338	01OCT13	15OCT13	80	1199	110836982F, 110836983F,
BE4CLS2338	ENGR CLOSEOUT: EDCR 52338	29OCT13	12NOV13	80	1199	BE2OPN4070, BE2OPN4072,
IPS 178						
BE4IP178A0	FNL IPS 178 - Prep/Submit Pkg NCO820253039	12NOV13	26NOV13	80	1579	BE4CLS2338*
BE4IP178B0	FNL IPS 178 - 1st Lic Review NCO820253039	26NOV13	04DEC13	40	1579	BE4IP178A0*
BE4IP178C0	FNL IPS 178 - 1st Incorp Comments NCO820253039	04DEC13	11DEC13	40	1579	BE4IP178B0*
BE4IP178C2	FNL IPS 178 - 2nd Lic Review NCO820253039	11DEC13	19DEC13	50	1579	BE4IP178C0*
BE4IP178C4	FNL IPS 178 - 2nd Incorp Comments NCO820253039	19DEC13	08JAN14	50	1579	BE4IP178C2*
BE4IP178E0	FNL IPS 178 - Lic Submit to NRC Pkg NCO820253039	08JAN14	15JAN14	40	1579	BE4IP178C0, BE4IP178C4*



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Early Bar
Progress Bar
Critical Activity

WBN U2
Example of IPS Schedule Logic

LAYOUT: LT-0A LIC PP19 Research
FILTER: FL-0B LIC Research PP19s

Sheet 1 of 1

Special Topic – Waste Confidence

Gordon Arent, Senior Licensing Manager, Watts Bar Unit 2

Special Topic – Waste Confidence

- NRC Scoping effort completed March 2013
- Commission draft of rule and GEIS due in June 2013
- Draft rule and GEIS expected in September 2013
- 10 public meetings planned for comment period.
- Final rule on schedule for September 2014

Special Topic – Emergent Regulation

Gordon Arent, Senior Licensing Manager, Watts Bar Unit 2

Special Topic – Emergent Regulation

- Hydrology – License Amendment Request and NRC Violations
- New Station Blackout Rule
  - Actual rule is now likely to be delayed until Spring 2014
- New 10 CFR 50.46 Rule
- NRC Bulletin 2012-01, Design Vulnerability In Electric Power System
- Degraded Voltage (SSER Open Item 30)

Closing Remarks

Raymond Hruby, General Manager, Technical Services

Questions