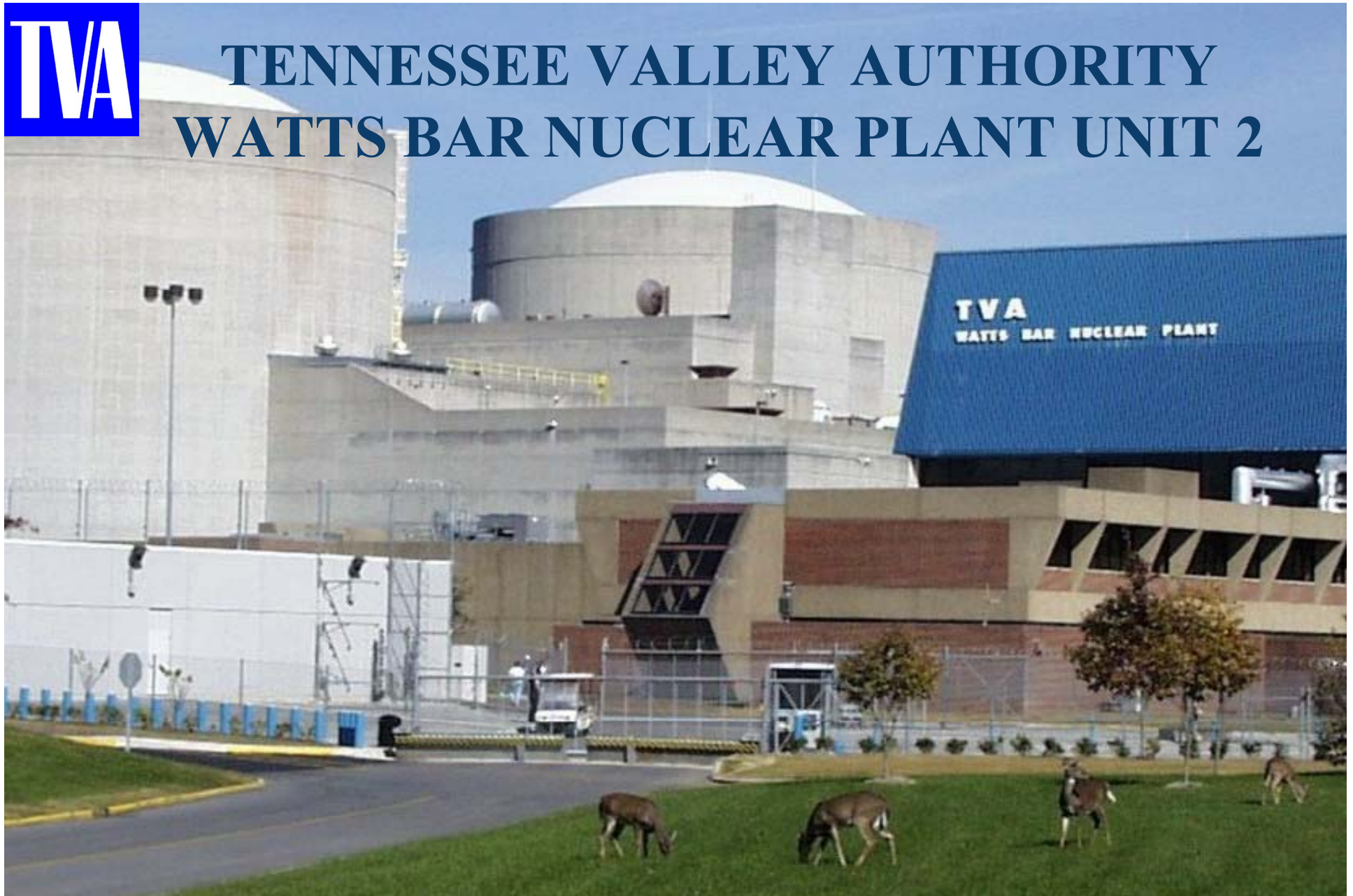




TENNESSEE VALLEY AUTHORITY WATTS BAR NUCLEAR PLANT UNIT 2



WBN Unit 2 WRAG Presentation

August 24, 2011



Agenda

- Completion Status - Stinson
- Transition to Operations - Lorek
- Closure Packages / Inspection Status - Crouch
- Heinemann Breaker Issue – Elliott
- Fukushima Response - Freeman
- Questions



WBN2 Completion Status

- Project Status Update
- Construction Productivity / Summer Push
- Startup Productivity / Fall Push
- Backlog / Program Reduction
- Major Milestone Schedule



WBN2 Completion Status

Engineering

- Overall Progress – 89% complete
- Current Focus Areas and Challenges
 - Field Support
 - Corrective Action Programs and Special Programs Completion
 - Inspection Support

Construction

- Successfully completed scope required for the Unit 1 outage
- Improved direct work productivity (19.7% to 25%)
- Overall Progress – >70.0% complete
- Current Focus Areas and Challenges
 - Closing PERs and Work Order Backlogs
 - Writing new work plans
 - Completing Systems



WBN2 Completion Status

Startup Testing

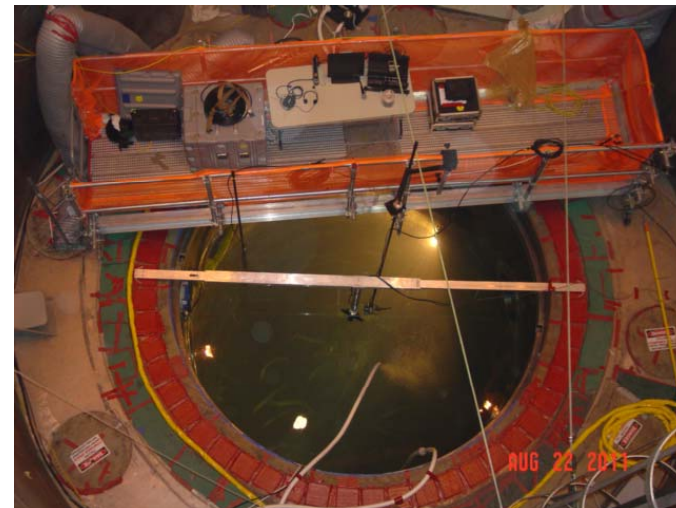
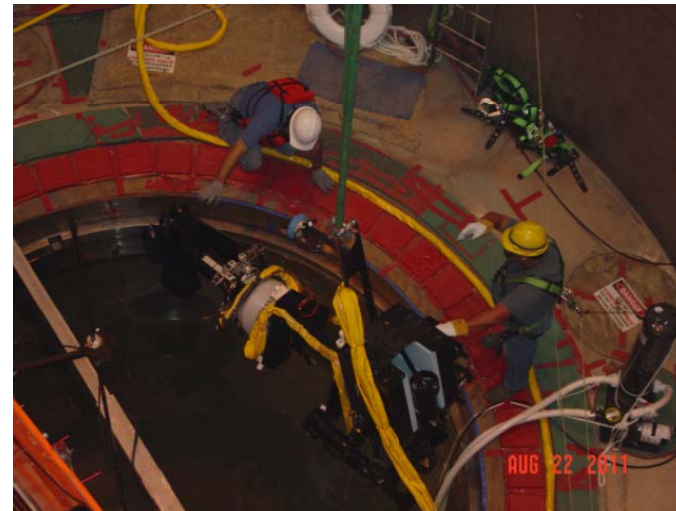
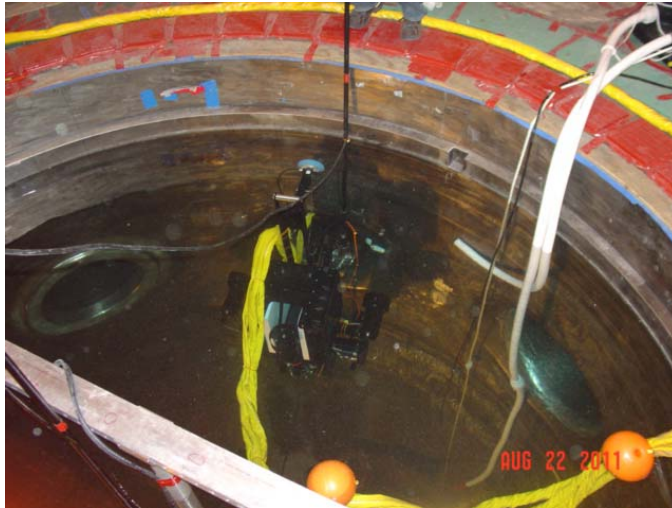
- Thirty-two systems turned over to Startup Test Organization with four completed in July

- Near Term Milestones
 - Condenser Hydro Complete
 - Partial Fill of U2 Reactor Vessel Complete
 - Turbine on the Turning Gear Complete
 - Condenser Short Cycle Operation Complete
 - Condenser Long Cycle Operation 10/1/11

- Turnover to Operations
 - System 44 (Turbine Building Heat) 8/19/11A

WBN2 Completion Status

Component Testing – Reactor Vessel Pre-Service Inspection





WBN2 Completion Status

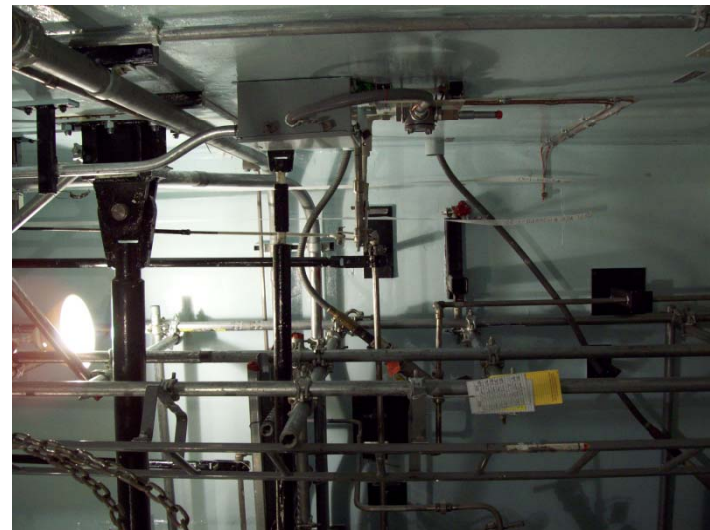
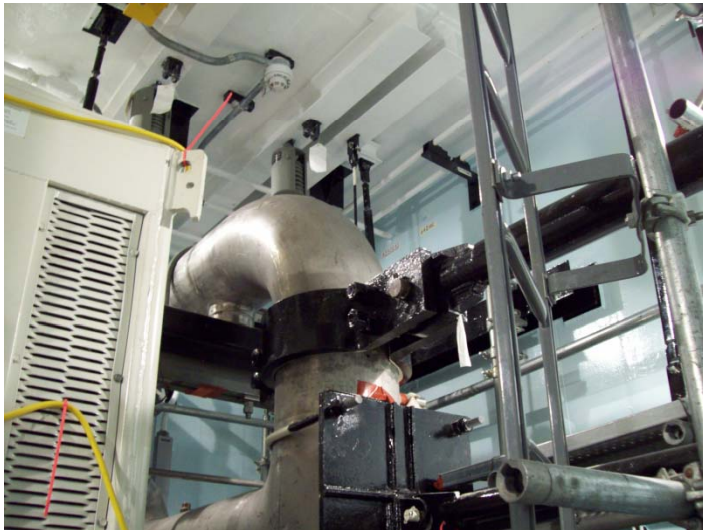
Area Completion – Control Room





WBN2 Completion Status

Area Completion – RHR Pump Room





WBN2 Completion Status

Area Completion – Turbine Deck



WBN2 Completion Status

Area Completion – Turbine Building 729 Elevation





WBN2 Completion Status

Area Completion – Main Turbine Deck





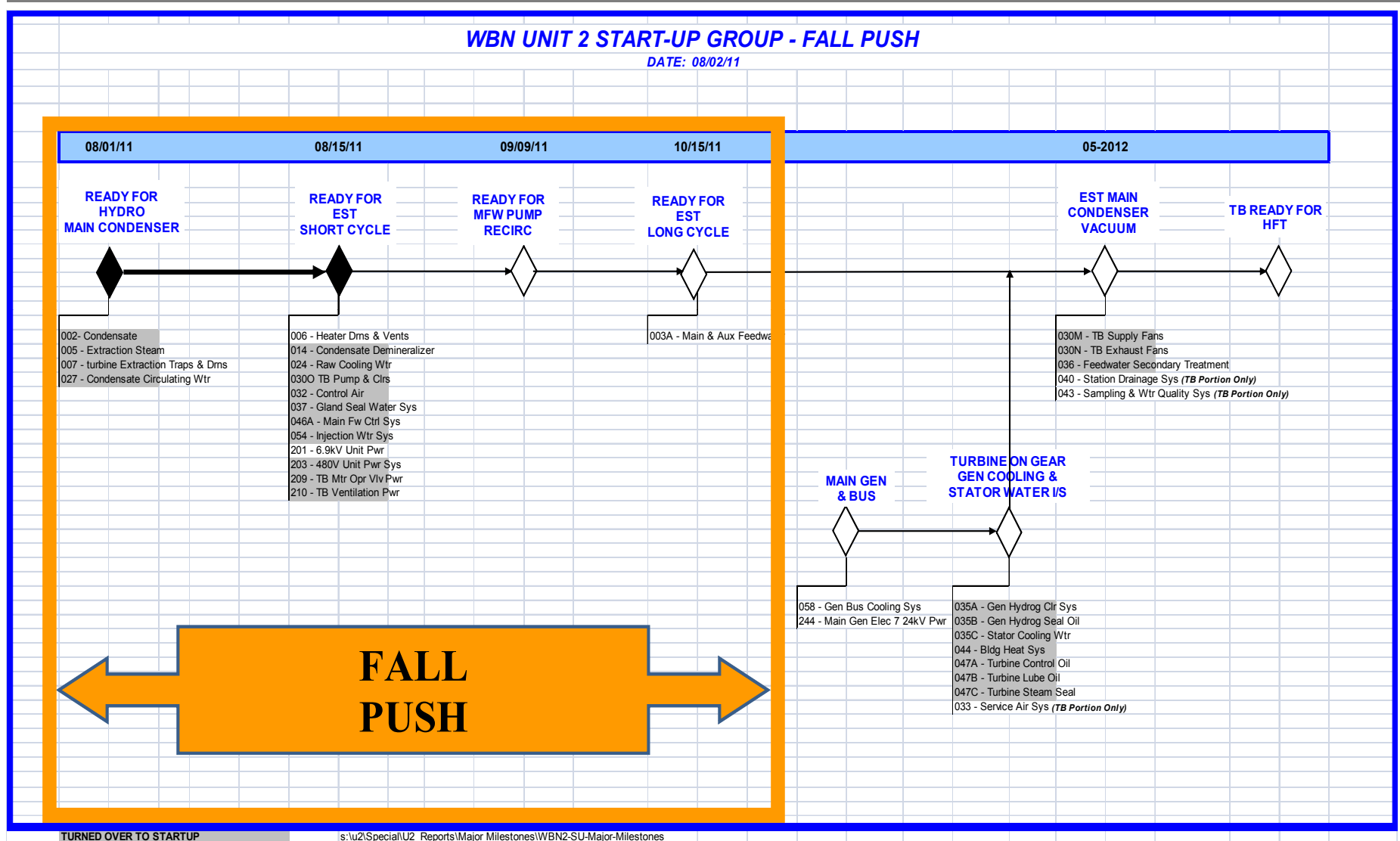
WBN2 Completion Status

Area Completion – Main Turbine Deck





Startup Productivity - Fall Push





Backlog Reduction / Development

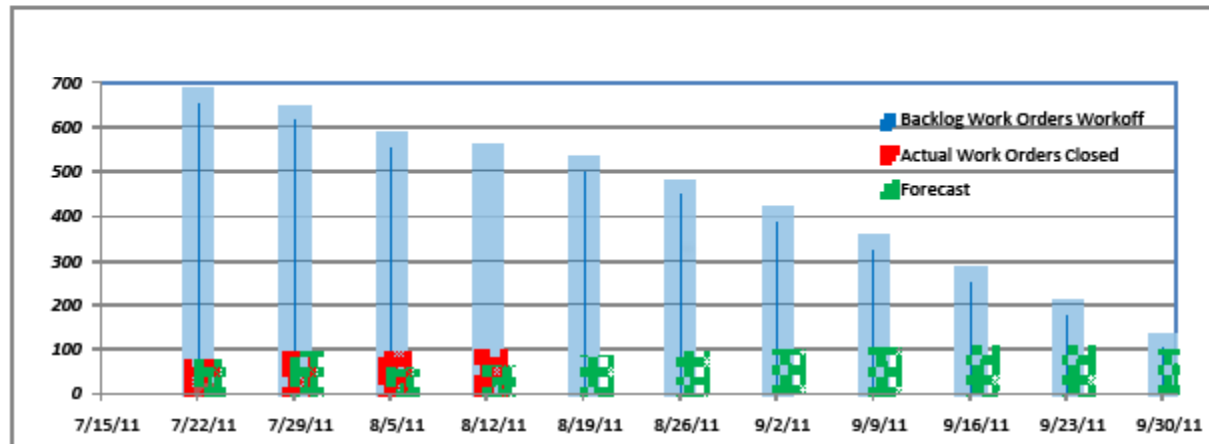
- Work Order Closure
- PER Closure
- Work Plan Backlog Development



Work Order Backlog Reduction

TOTAL BACKLOG WORK ORDERS VS WORK OFF CURVE BASED ON 50 HR WEEK

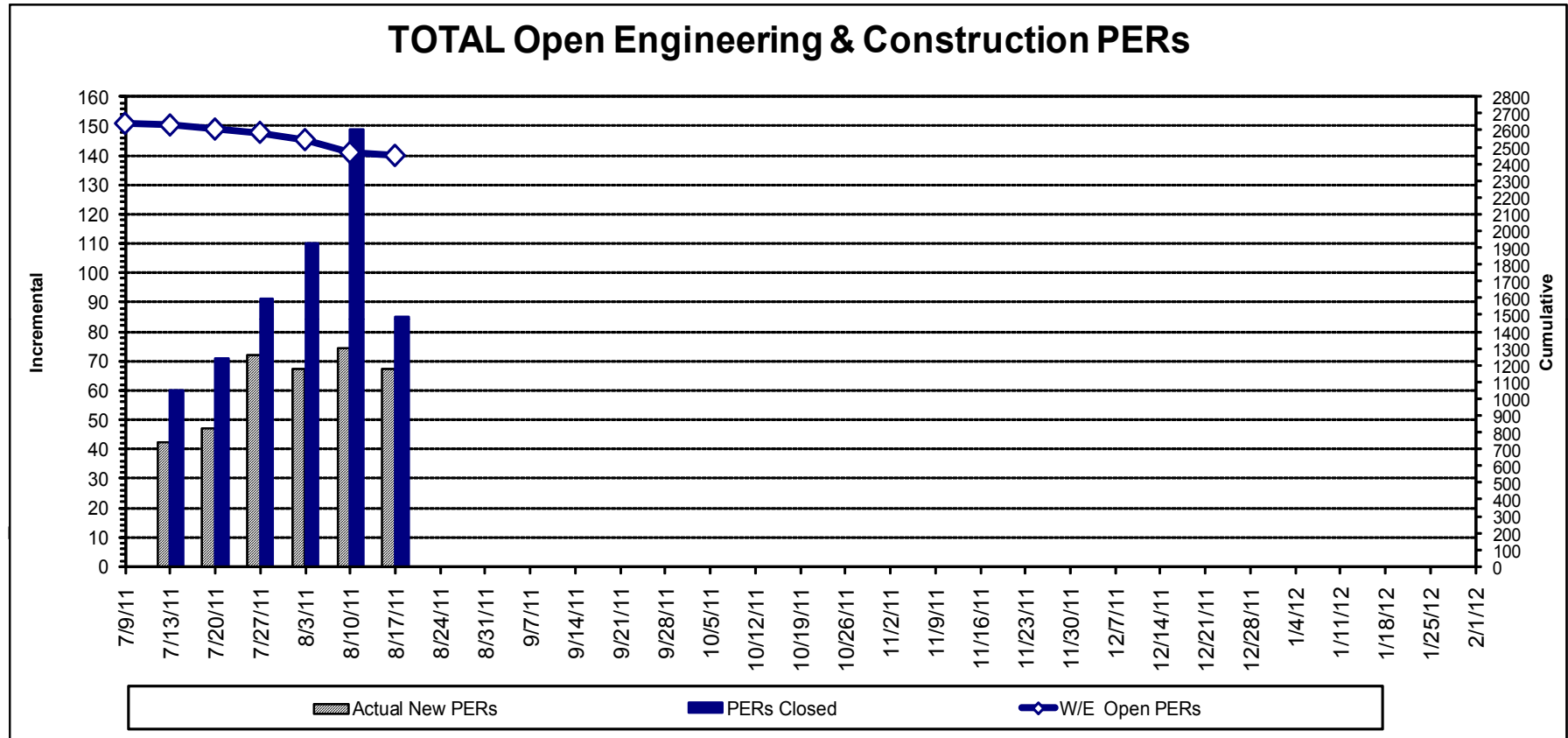
Week Ending	7/15/11	7/22/11	7/29/11	8/5/11	8/12/11	8/19/11	8/26/11	9/2/11	9/9/11	9/16/11	9/23/11	9/30/11
WO Totals		655	613	554	529	499	449	389	324	254	179	104
Forecast Work Off		42	59	25	30	50	60	65	70	75	75	65
Work Off Actuals		42	59	62	64	0	0	0	0	0	0	0
Actual Remaining Totals		613	554	492	428							



The baseline number on 7/18 did not include the entire population of WO's (D&Z, Westinghouse etc.)
The re-baseline of total WOs was verified by the Bechtel Supervisor of Closures and is reflected as 655 in WO totals.



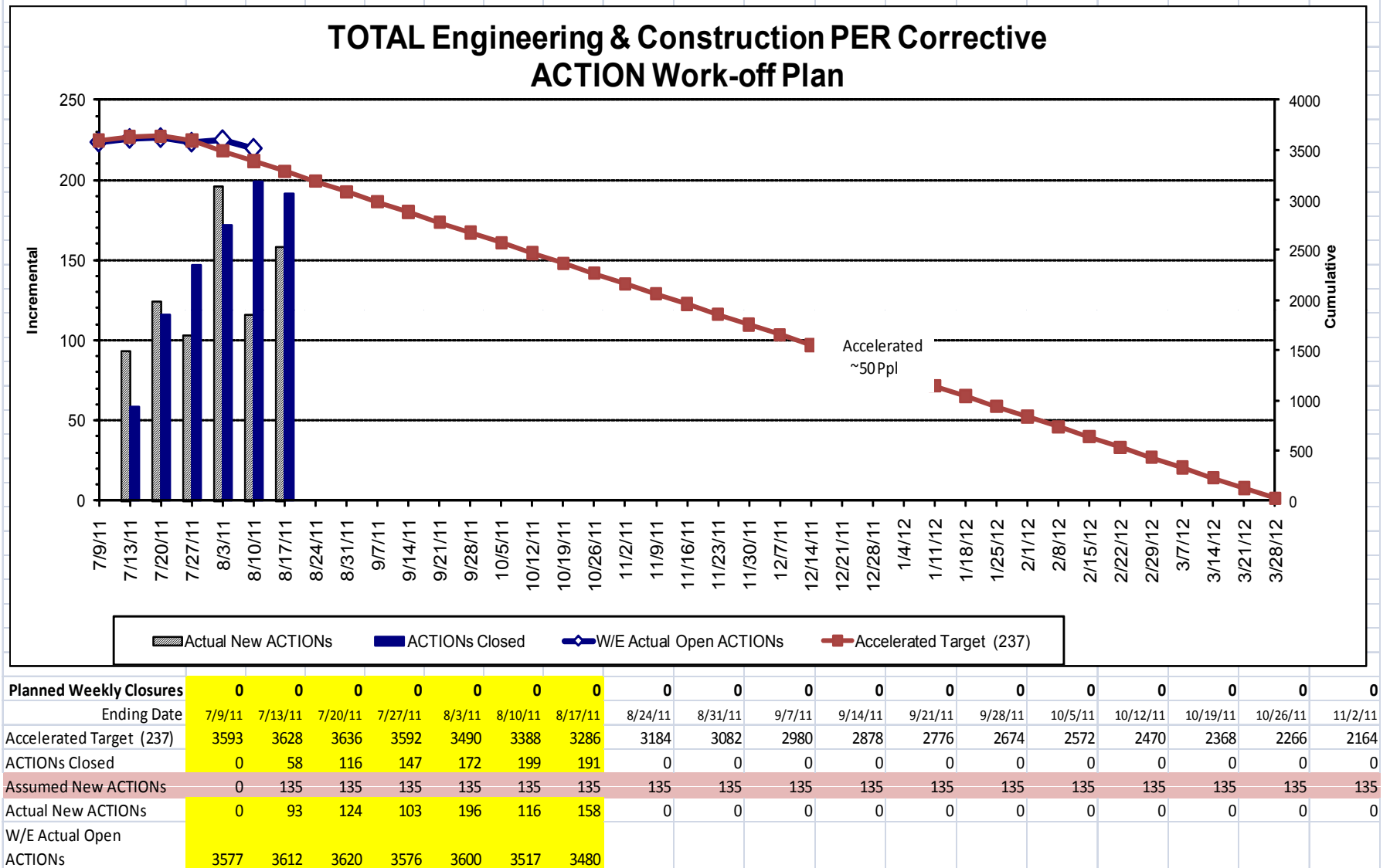
PER Closure



Week Ending	7/9/11	7/13/11	7/20/11	7/27/11	8/3/11	8/10/11	8/17/11	8/24/11	8/31/11	9/7/11	9/14/11	9/21/11	9/28/11	10/5/11
PERs Closed	0	60	71	91	110	149	85							
Actual New PERs	0	42	47	72	67	74	67							
W/E Open PERs	2639	2629	2605	2586	2543	2468	2450							
Assumed New PERs	68	68	68	68	68	68	68	68	68	68	68	68	68	68



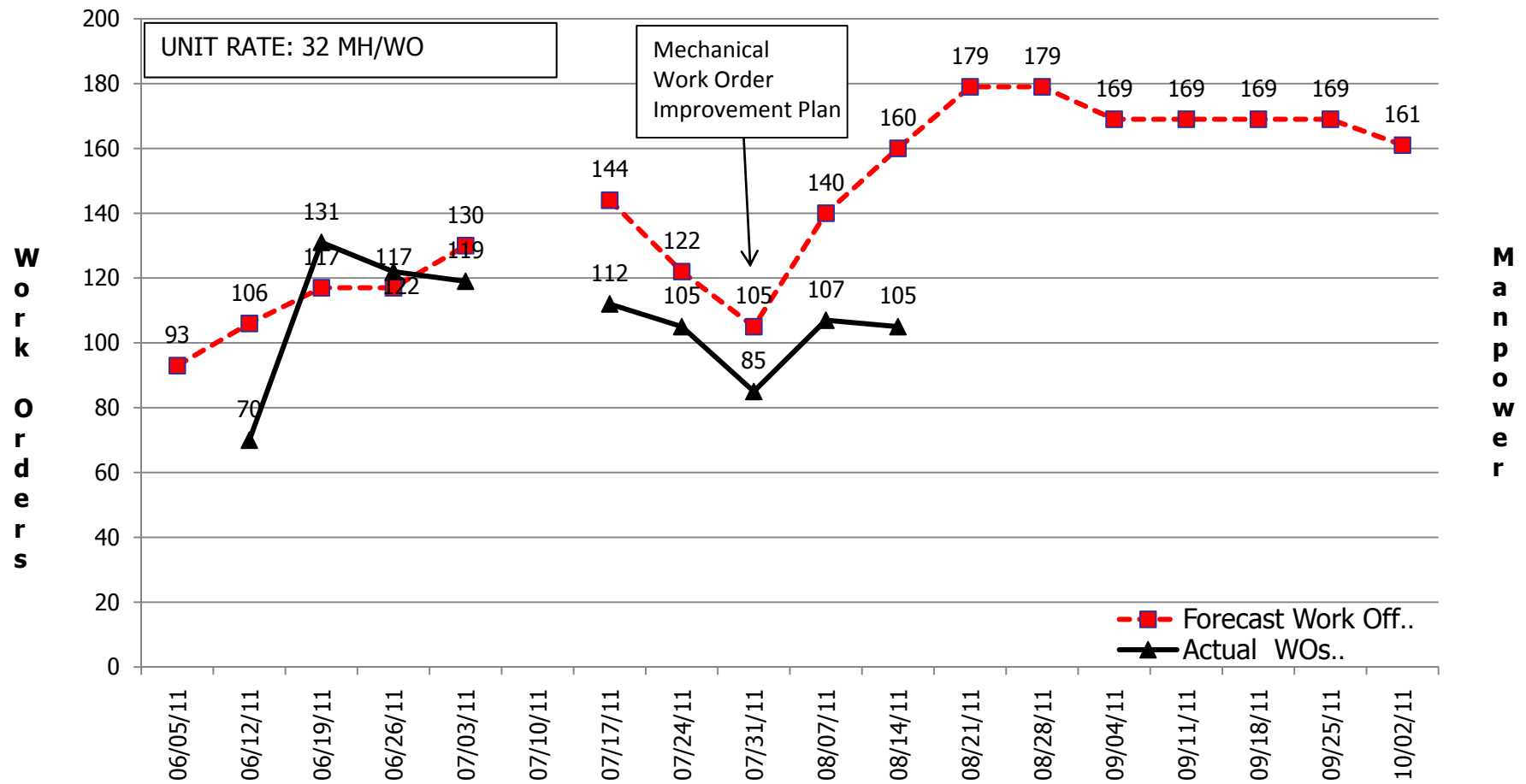
PER Closure





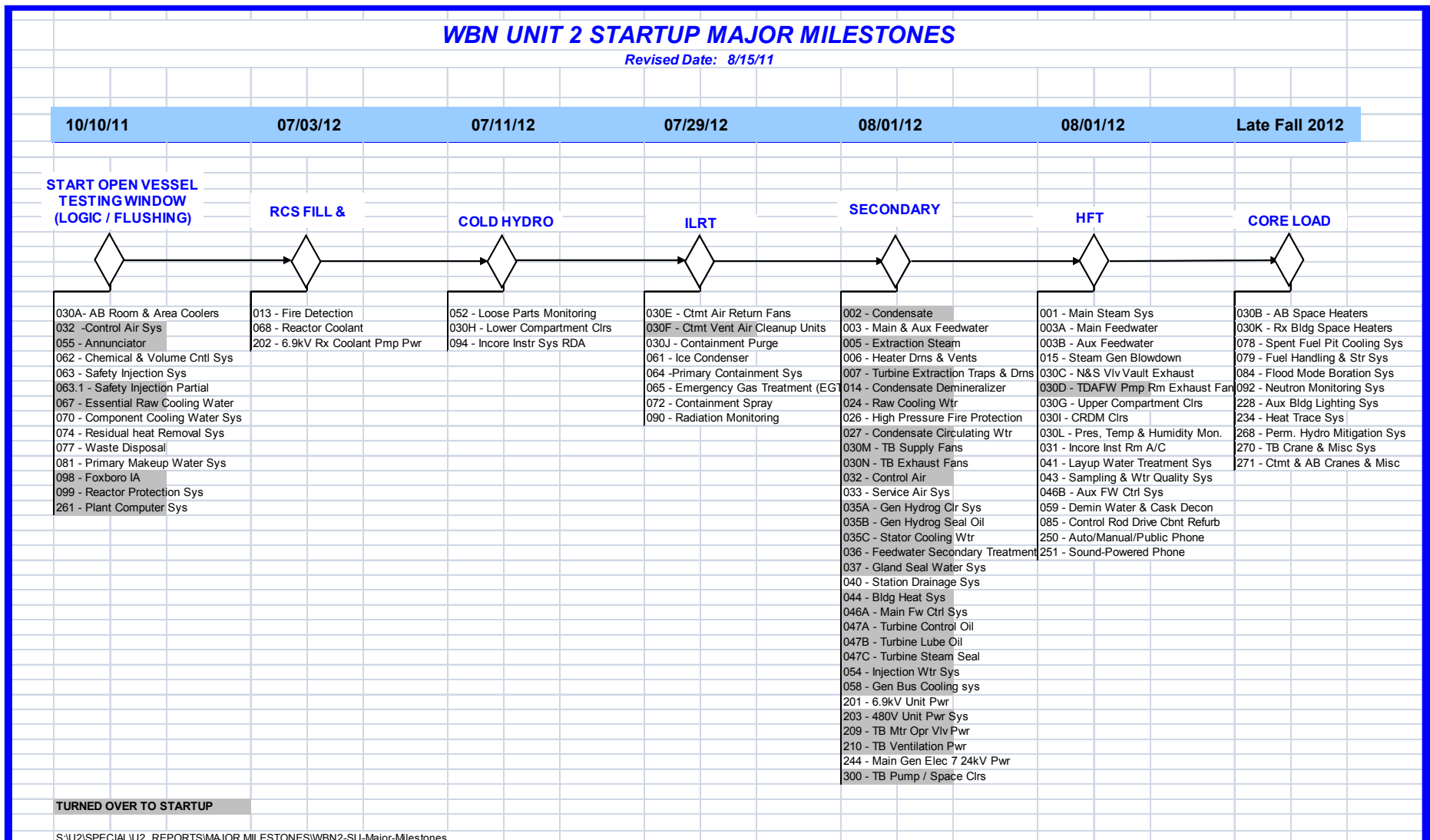
Construction Planning Summary

Forecast Completion of Present Backlog





Major Milestone Schedule





Transition to Operations

- Management Review Meetings (Oversight by CNO, VP of Operations, NSRB, etc)
- Permanent Staffing Additions & Operator Training
 - Dual Unit Licenses
 - Unit Differences
 - Common System Operation
- Department Transition Plans
 - Self Assessments/Open Items
- Procedure Development/Revision
- System Turnover



Closure Packages

- Programmatically Closing Commitments
 - Closure Procedure Established
 - NPP Volume IV Corrective Action Programs (CAP)/Special Programs (SP)
 - Commitments (NRC Generic Communications, TVA Letters, etc)
 - Tracking/Information Exchange Mechanism Established
 - Incorporation of Lessons Learned Regarding Package Quality
 - Dedicated/Trained Closure Team Established
 - Quality Assurance Oversight
- Closure Status
 - CAP and Special Programs
 - Commitments



CAP/SP Closure Status

CAP/SP Completion Status
August 22, 2011

	NRR Plan Approval	Imp. Plan	Closure Self Assess.	Closure Report	QA Review	NRC Inspect.	CAP/SP Closure
CAP: Adhes Backed Cable Support Mount	●	●	NR	●	●	●	●
CAP: Cable Bend Radius	●	●	●	●	○	●	○
CAP: Cable Jamming	●	NR	NR	●	●	●	●
CAP: Cable Proximity to Hot Pipes	●	●	NR	○	○	○	○
CAP: Cable Pullbys	●	●	●	●	○	○	○
CAP: Cable Sidewall Bearing Pressure	●	NR	NR	●	●	●	●
CAP: Cable Splices	●	●	●	●	○	○	○
CAP: Cable Support in Vert. Conduits	●	●	●	●	○	○	○
CAP: Cable Support in Vertical Trays	●	●	●	●	○	○	○
CAP: Cable Tray & Tray Supports	●	●	NR	●	○	○	○
CAP: Computerized Cable Routing Sys	●	●	○	○	○	○	○
CAP: Conduit Support	●	●	●	●	○	○	○
CAP: Contact Coil Rating of Elec Device	●	●	NR	●	○	○	○
CAP: Design Baseline and Verification	●	●	●	●	○	○	○
CAP: Equipment Seismic Qualification	●	●	●	○	○	○	○
CAP: Fire Protection	●	●	●	○	○	○	○
CAP: Flexible Conduit Installations	●	●	●	●	○	○	○
CAP: Hanger and Analysis Update	●	●	NR	○	○	○	○
CAP: Heat Code Traceability	●	●	●	●	○	○	○
CAP: HVAC Duct and Duct Supports	●	●	●	●	○	○	○
CAP: Instrument Sensing Lines	●	●	NR	○	○	○	○
CAP: Phys Cable Separ and Elec Isol.	●	●	●	●	○	○	○
CAP: Pulling Cable through 90° Conduit	●	NR	NR	●	●	●	●
CAP: QA Records	●	●	○	○	○	○	○
CAP: Q-List	●	●	●	○	○	○	○
CAP: Replacement Items	●	●	●	●	●	●	●
CAP: Seismic Analysis	●	●	●	●	●	●	●
CAP: Silicone Rubber Insulated Cables	●	●	●	●	○	○	○
CAP: Torq Switch/Overload Relay Bypass	●	●	NR	●	○	○	○
CAP: Vendor Information	●	●	●	●	○	○	○
CAP: Welding	●	●	○	○	○	○	○
SP: Containment Cooling	●	●	NR	●	●	●	●
SP: Control Room Design Review	●	●	●	○	○	○	○
SP: EQ of Electrical Equipment	●	●	○	○	○	○	○
SP: Master Fuse List	●	●	NR	●	○	○	○
SP: Mechanical Equip. Qualification	●	●	●	○	○	○	○
SP: Microbiologically Induced Corrosion	●	●	●	●	○	○	○
SP: Moderate Energy Line Break	●	●	●	○	○	○	○
SP: Radiation Monitoring System	●	●	○	○	○	○	○
SP: Use-As-Is	●	●	●	●	○	○	○

● 100% Fully complete ○ 50% complete ○ No activity
 ● 75% complete ○ 25% complete NR Not required

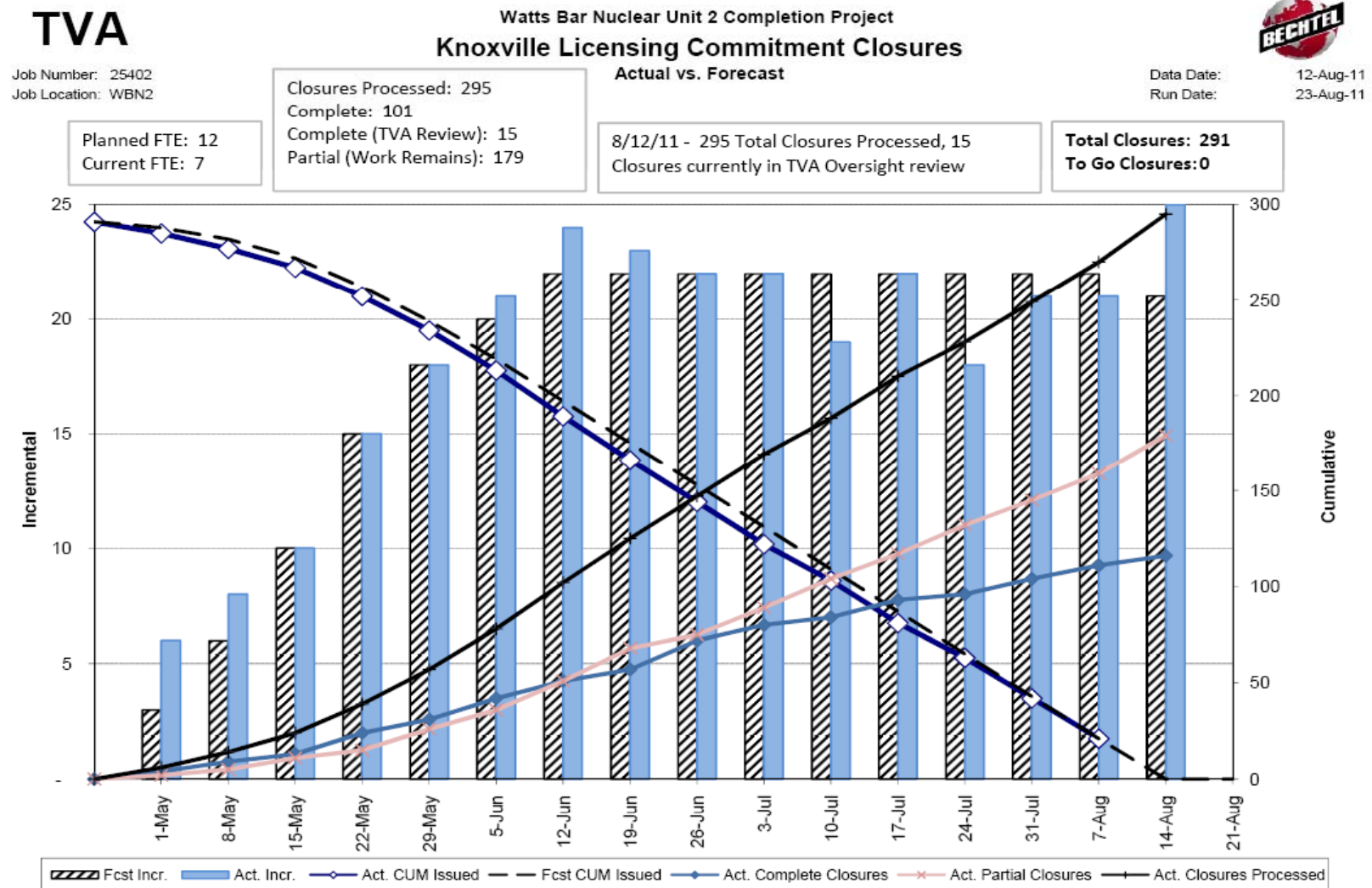


Commitments Closure Status

- Closure Group - NRC Communications and Commitments
 - Total Items - ~1040 (beginning mid-2010 to date)
 - Closed - ~435; Open - ~605
 - 211 added since 1/1/11; 258 closed since 1/1/11
- Developing Closure Packages
 - Engineering Complete
 - Field Complete

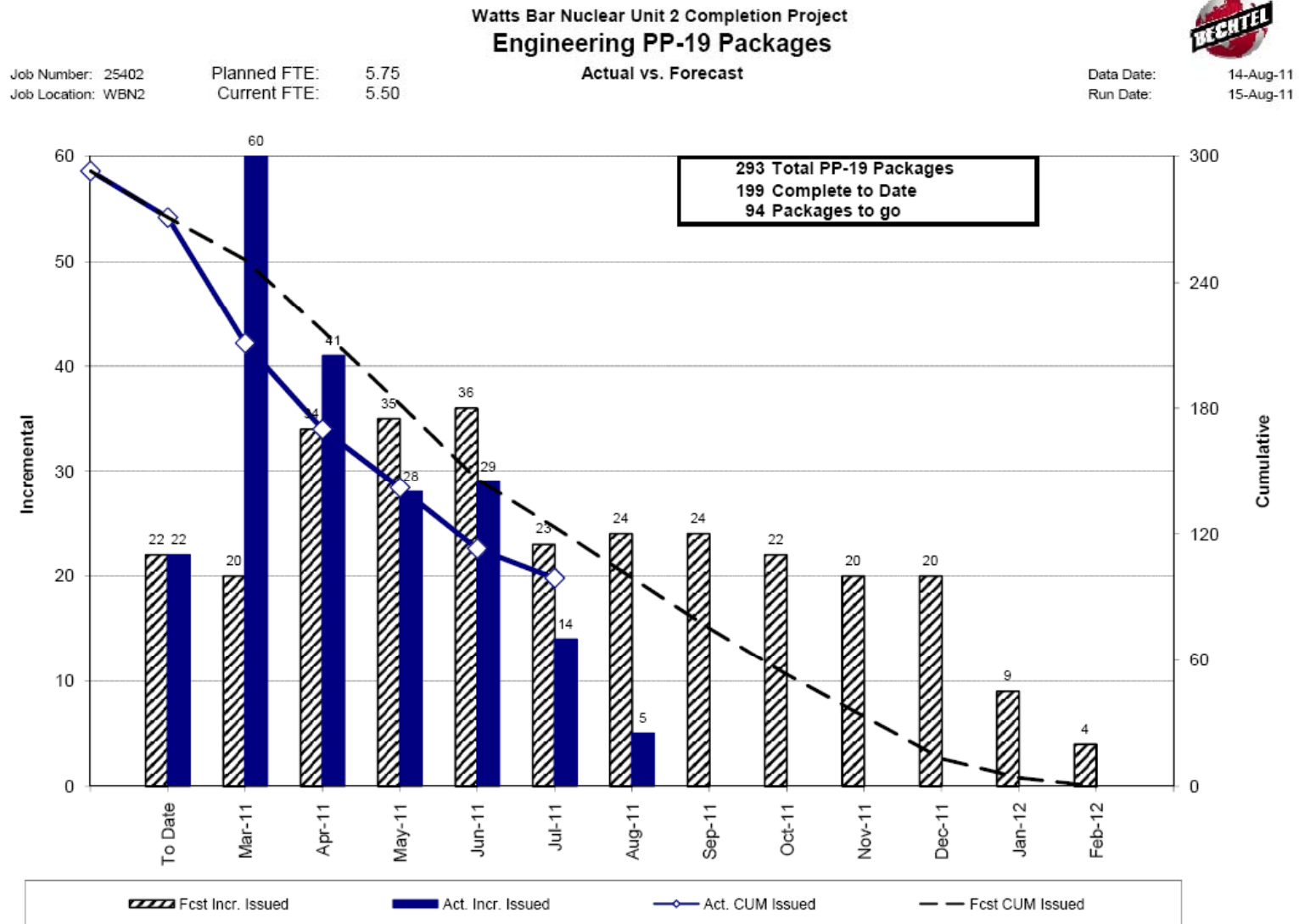


Commitment Closure Status





Commitment Closure Status





Commitment Closure Status

TVA

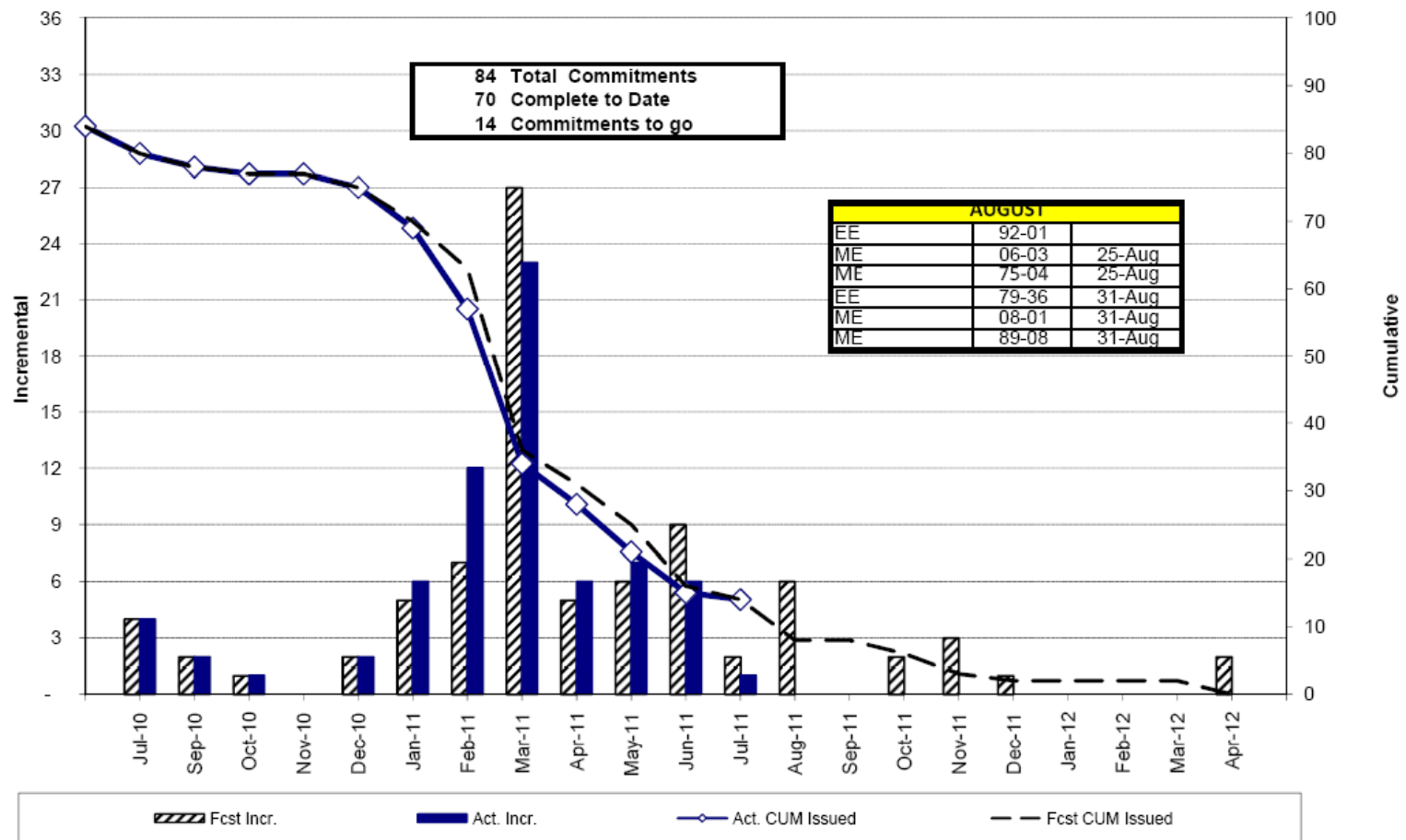
Job Number: 25402
Job Location: WBN2

Planned FTE: 4
Current FTE: 4

Watts Bar Nuclear Unit 2 Completion Project Total Engineering Licensing Commitments Actual vs. Forecast



Data Date: 14-Aug-11
Run Date: 15-Aug-11





Inspection Support Status

- WBN2 Resident Inspectors / Region II Inspection Teams
- One to Four Inspections per Week
 - CAPs/SPs
 - Generic Communications
- Dedicated WBN2 Support Teams
 - Engineering
 - Construction
 - Procurement
- Approximately 70 Inspections Performed To Date



Heinemann Circuit Breaker

- Issues
 - Notice of Violation – Adequacy of Design and Suitability of Testing Related to Molded Case Circuit Breakers
- Actions
 - TVA Responses Provide Justification for Testing Performed
 - Example 1 - Mounting Method Adequacy
 - Breakers Rigidly Mounted in Boards (Tightly Clamped between Front Panel (10 Gauge Steel Plate with Rolled Edges) and 2 Steel Angles (3/16" Thick)
 - Bolted Connection to Copper Buss Bar Provides Additional Rigidity
 - No Localized Flexibility of Mounting and Hence No Movement Induced Impacts
 - 1974 Tested Entire Assembly and Measured Local Accelerations
 - 1974 Qualification Test in Compliance with Requirements of IEEE 344-1971
 - 1992 Test of Single Breaker Attached Directly to a Rigid Fixture on Shake Table Using Conservative Values from 1974 Testing
 - 1992 Test Used a Suitable Mounting Method Meeting the Requirements of IEEE 344-1975



Heinemann Circuit Breaker

— Example 1 - Mounting Method Adequacy (Cont'd)

- 1992 Test - Industry Standard Method of Seismic Qualification for Device Testing
- 1974 and 1992 Qualification Tests Reviewed to Confirm Consistency with Field Configuration
- TVA Performed Calculation to Demonstrate Actual Mounting is Rigid
- TVA Revised Drawing to Document the Acceptability of EPDM as an Installation Aid
- Clamping Pressure Does Not Hinder Operation of Breakers
- Independent Review Performed by Seismic Qualification Expert Validated Above Approach
- Breakers are Mounted So That There is No Local Amplification and Thus 1974 and 1992 Test Data is Applicable

— Mounting Method Corrective Actions

- Breakers Confirmed Properly Mounted with Bezel Extending Through Front Panel and Angles in Contact with Rear of the Breakers
- Revision to Installation Procedure Guidance – September 2011
- Revised Calculation and Drawings to be Consistent with Configuration and to Document Qualification

Conclusion: Current Breaker Mounting Configuration in Full Compliance with Requirements of IEEE 344-1975



Heinemann Circuit Breaker

— Example 2 – Equivalency Evaluation

- Breaker Reconfigured Slightly but No Impact on Seismic Qualification
- Manufacturer Made Production Change but Did Not Change Part Number or Schematic
- Non-Safety Related Auxiliary Contact Switch Mounting Revised
- Micarta Spacer Board Added by TVA– Insignificant Weight Addition
- Performed Equivalency Evaluation Addressing Vendor Changes and Use of Spacer Board
- Breaker Configuration Changes Captured in TVA Inventory Control and Drawing

Conclusion: Equivalency Evaluation, Inventory Control and Drawings Consistent with Modified Breakers. Modified Breakers Covered By Seismic Qualification Testing Discussed Above.



Fukushima Response

- WBN Licensing Basis Addresses Flooding Including Wave Run Up
 - Maximum Possible Precipitation
 - Upstream Dam Failures
- WBN Licensed as a “Wet Site” with Selected Equipment Protected
 - Shield Building (Containment) Sealed
 - Emergency Diesel Generators and Fuel Tanks Protected from Flooding
 - Essential Raw Cooling Water Pumps Above Flood Level
 - Turbine, Control and Auxiliary Buildings Allowed to Flood with Required Equipment Protected
- Seismic Design Exceeds Maximum Expected Earthquake
 - Equipment Seismic Qualification
 - Piping System Seismic Design
- Backup Capabilities Onsite
 - Electrical
 - Water Delivery



Fukushima Response

- TVA Evaluating Task Force Report
- Evaluating Options to Extend:
 - Flood Protection
 - Station Blackout Electrical Coping Duration
 - Water Delivery Capability
 - Procedural Enhancements
 - Multi-Unit Events
 - Emergency Planning

QUESTIONS?