TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT

UNIT 1 RESTART OVERSIGHT PANEL MEETING

October 20, 2006

Enclosure 3

Introduction

- Welcome to the Browns Ferry Unit 1 Restart Oversight Panel meeting

- Purpose
  - Review the project status
  - Discuss upcoming activities
  - Discuss challenges
  - Solicit feedback

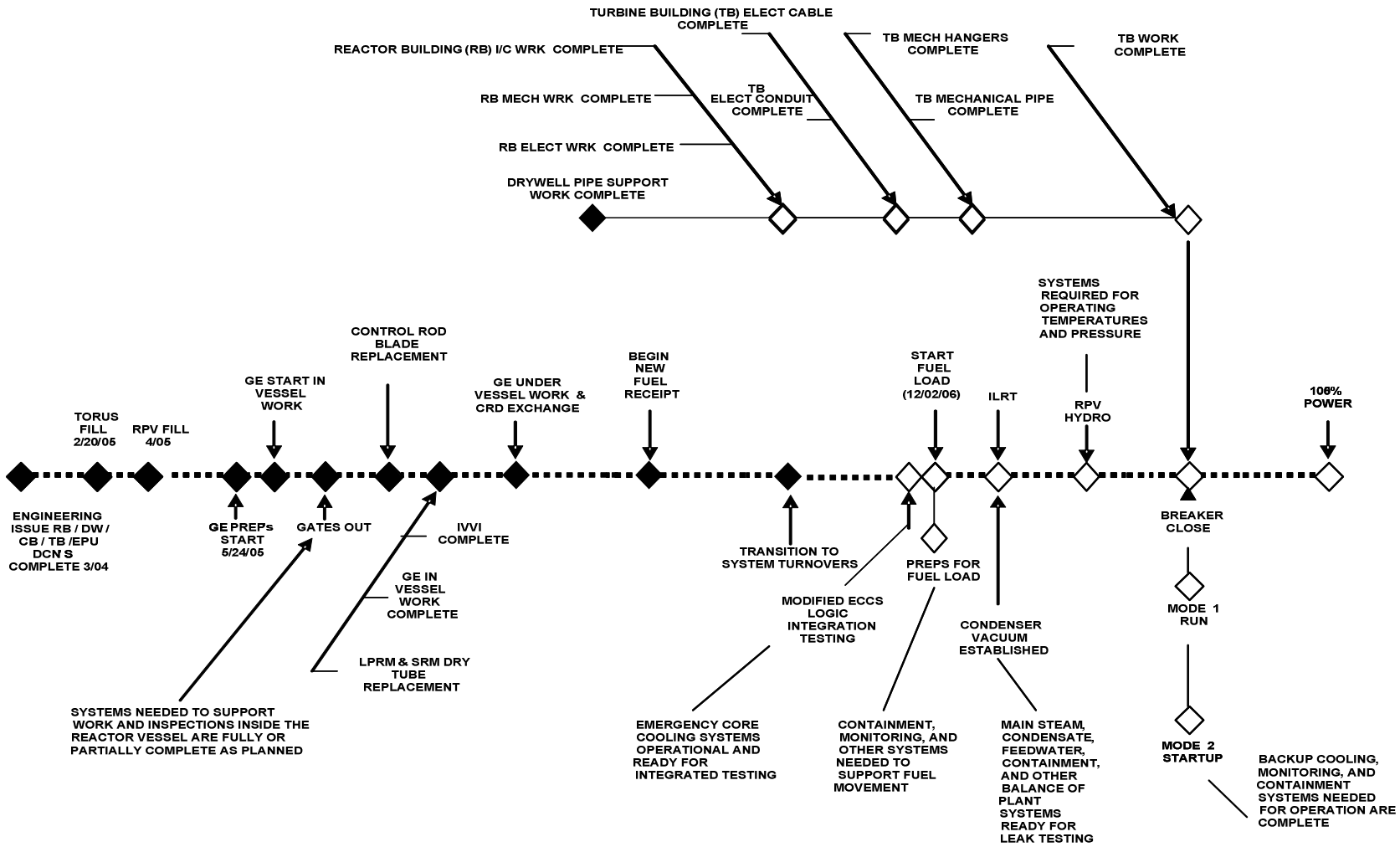
Agenda

• Introduction	B. Crouch
• Unit 1 Overview and Schedule	M. Bajestani
• Returning Systems to Service	B. Moll
• Regulatory Status	J. McCarthy
• Fire Protection Appendix R	J. Valente
• Nuclear Assurance	R. Baron
• BFN Operational Readiness	T. McGrath
• BFN Site Status	A. Bhatnagar
• Fuel Load Readiness	A. Bhatnagar
• Closing	A. Bhatnagar

Unit 1 Overview and Schedule

- Overall Unit 1 Restart Project 95% Complete
  - Engineering is 95% complete
  - Modifications are 95% complete
- System Completion Work
  - System Testing
  - Integrated Testing – November 2006
- On Schedule for Start-Up Early 2007

Significant Milestones



Unit 1 Overview and Schedule

- Major Work Completed (examples)
  - Replaced Reactor Feedwater pumps
  - Drywell cable and conduit installation
  - Reactor Building mechanical supports and piping
  - Replaced Condensate and Condensate Booster pumps
  - Testing of Standby Liquid Control System pumps and logic
  - Testing of Core Spray System logic
  - Testing of 480v Load Shed logic
  - Drywell large and small bore piping

Unit 1 Overview and Schedule

- Major Work In-Progress (examples)
  - Control Room Design Review modifications
  - Testing of Reactor Protection System logic
  - Testing of Residual Heat Removal pumps and logic
  - Modifications to the Fire Protection System
  - Steam Dryer modifications
  - Drywell and Reactor Building terminations and splices
  - Generic Letter 89-10 Motor Operated Valve Testing
  - Preparations for Diesel Generator load acceptance testing (integrated safety test)
  - Digital control systems

Unit 1 Overview and Schedule

- Status of Major Commodities – Reactor Building

COMMODITY	CURRENTLY INSTALLED	% COMPLETE	END OF PROJECT TOTAL
Piping - Large Bore	5,628 feet	**100**	5,628 feet
Hangers - Large Bore	1,092	**100**	1,092
Piping - Small Bore	14,881 feet	**99**	14,912 feet
Hangers - Small Bore	4,508	**99**	4,574
Conduit	123,968 feet	**100**	123,968 feet (~ 23 miles)
Conduit Supports	14,142	**99**	14,146
Cable Terminations/Splices	43,459	**93**	46,937
Cable	608,833 feet	**99**	609,485 feet (~ 116 miles)
Cable Tray	6147 feet	**100**	6,147 feet
Cable Tray Supports	1,028	**100**	1,028

* Installed as of October 08, 2006

Unit 1 Overview and Schedule

- Status of Major Commodities – Turbine Building

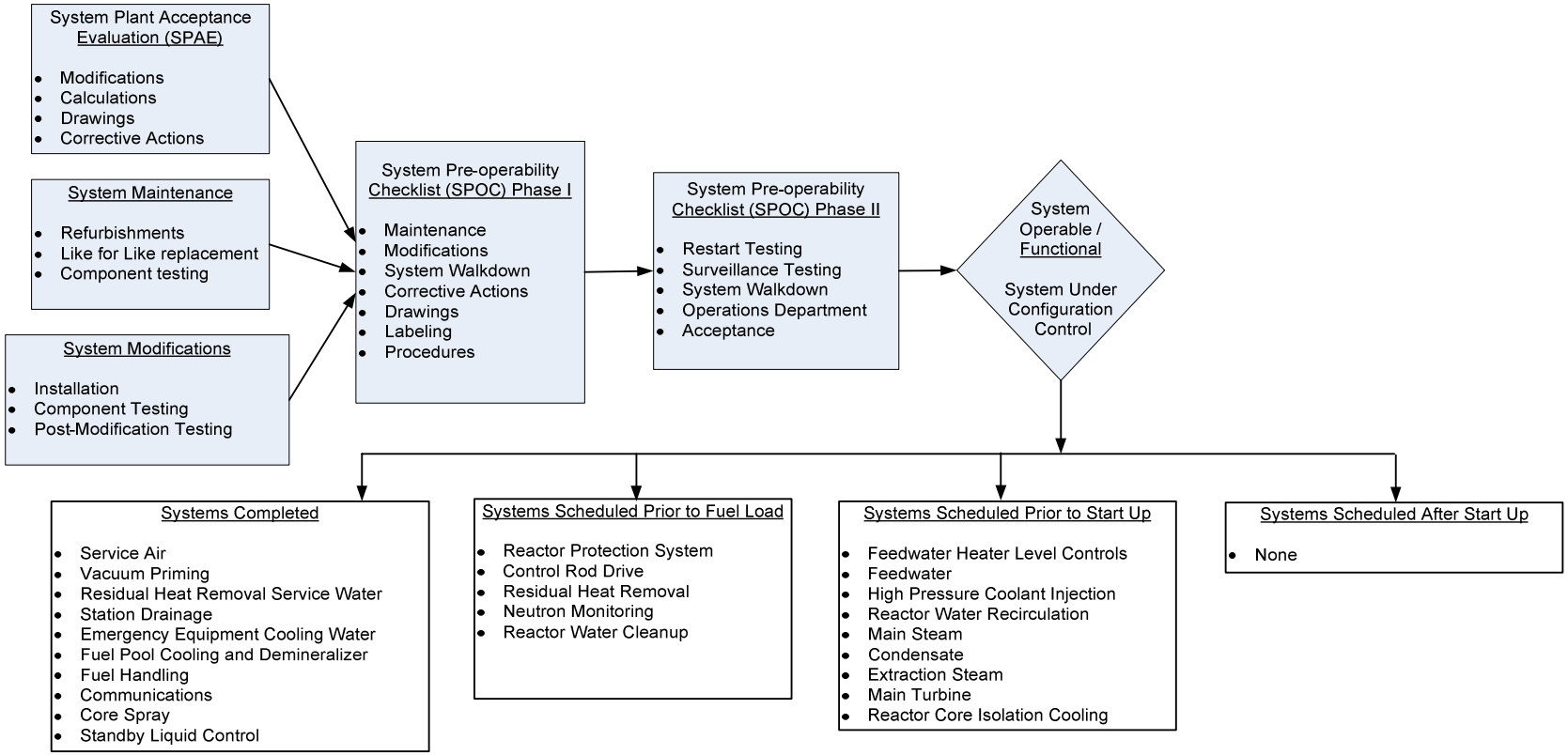
COMMODITY	CURRENTLY INSTALLED	% COMPLETE	END OF PROJECT TOTAL
Piping - Large Bore	7,800 feet	**95**	8,179 feet
Hangers - Large Bore	288	**85**	339
Piping - Small Bore	8,180 feet	**91**	8,988 feet
Hangers - Small Bore	509	**64**	795
Conduit	17,473 feet	**75**	23,438 feet (4.43 miles)
Conduit Supports	2,129	**78**	2,738
Cable Terminations/Splices	10,118	**46**	21,790
Cable	57,480 feet	**29**	196,228 feet (37.16 miles)
Cable Tray	564 feet	**98**	578 feet
Cable Tray Supports	72	**99**	73

* Installed as of October 08, 2006

Returning Systems to Service

- System Pre-Operability Checklists (SPOCs) Phase I
  - Ready for restart testing
  - SPOC Board Meetings
  - 33 completed
  - Remaining 21 scheduled in the next four months
- System Pre-Operability Checklists (SPOCs) Phase II
  - Testing complete and ready for operability
  - Maintenance / surveillance requirements maintained
  - SPOC Board Meetings
  - 22 completed
  - Remaining 39 scheduled in the next four months

Returning Systems to Service



Returning Systems to Service

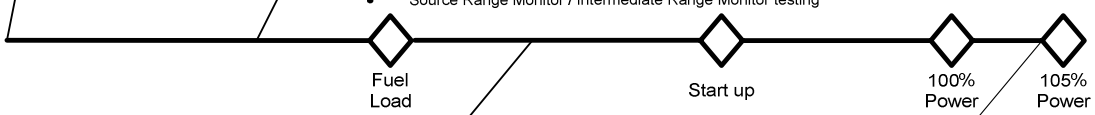
SUMMARY OF SIGNIFICANT UNIT 1 TESTING

Post Modification / Maintenance Testing

- Verification of proper rotation and setting limits on valves
- Motor-operated valve (MOV) setting and baseline diagnostics (for GL 89-10 valves)
- Leak-rate testing for Primary Containment isolation valves
- Pump operability testing (verification of rated flow within specified period)
- Valve operability testing
- System flow balancing
- System and component leak testing
- Instrument channel calibration and functional testing
- Protective relay calibration and functional testing
- Logic system functional testing,
- System run and confirmation that process parameters are within expected ranges

Testing Leading to Fuel Load

- Unit 1 Common Accident Signal logic testing
- Residual Heat Removal / Core Spray logic system functional testing
- Diesel Generator Load Acceptance testing
- 480V Load Shed testing
- Source Range Monitor / Intermediate Range Monitor testing



Leading to Start up (Restart Testing)

- Control Rod timing and testing
- Recirculation flow control testing
- Primary Containment leak rate testing
- Reactor Pressure Vessel hydrostatic pressure testing
- High Pressure Coolant Injection / Reactor Core Isolation Cooling on Auxiliary Boiler steam testing
- Turbine Stop Valve / Turbine Control Valve Reactor Protection System trip functional testing
- Main Steam Isolation Valve testing and timing
- Backup Control Panel testing
- Condensate / Booster Pumps post-modification testing
- Condensate Demineralizers
- Main Steam Relief Valve setpoint testing
- Main Steam Relief Valve pressure switch logic testing

Start up to 105% Power (Power Ascension Testing)

- Shutdown Margin testing
- Source / Intermediate / Average Power Range Monitors overlap testing
- Thermal Expansion walkdowns
- Electro-hydraulic Control / Bypass Valve testing at 150 psig
- Reactor Feedwater Pump overspeed testing / tuning at 250 psig
- Safety Relief Valve manual cycle testing
- Average and Low Power Range / Rod Block monitors calibration
- Process Computer and Core Performance testing
- High Pressure Coolant Injection / Reactor Core Isolation Cooling cold quick start testing
- High Pressure Coolant Injection / Reactor Core Isolation Cooling vessel injection testing
- Reactor Feedwater Pump testing / tuning
- Reactor Feedwater Level Control System tuning
- Recirculation flow control testing
- Electro-hydraulic Control pressure regulator tuning
- Main Turbine overspeed testing
- Full Scram at greater than 1% power
- Turbine valve testing (Stop Valves, Control Valves and Bypass Valves)
- Scram time testing
- Baseline radiation surveys
- Recirculation System flow calibration
- Vibration monitoring
- Large Transient Testing
- Condensate, Condensate Booster and Feedwater Pump Trip Testing

Unit 1 Regulatory Status

- Unit 1 License Amendments
  - 19 amendments identified
  - 18 submitted to date
  - 14 approved by NRC

- Relief Requests
  - 7 relief requests submitted and 6 approved by NRC
  - Risk informed ISI to be submitted for post-restart implementation

Unit 1 Regulatory Status

- Other Unit 1 Submittals
  - 90 topics require programmatic and/or completion submittals
    - Quarterly status letter being used to notify NRC upon the completion of items
- Inspection of Special Programs
  - Implementation of Units 2 and 3 programs
  - Planned inspections complete for 18 of 30 programs

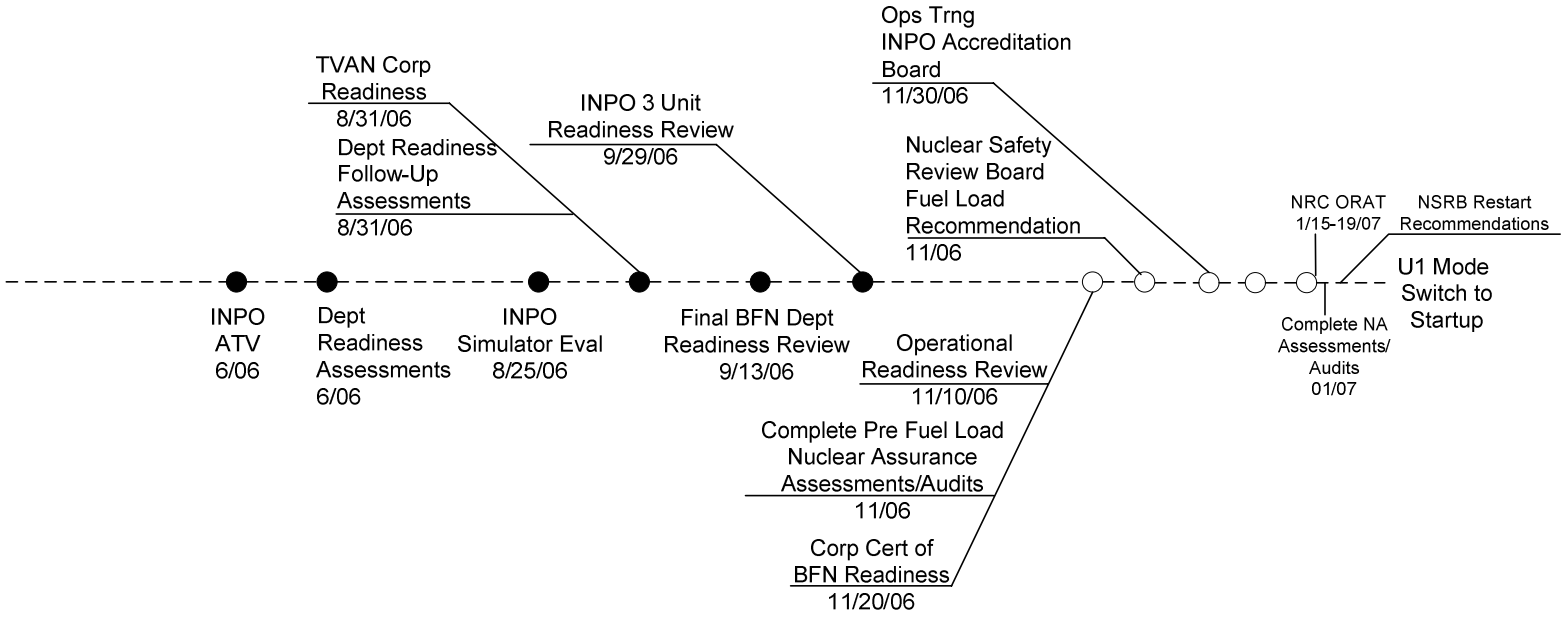
Fire Protection / Appendix R

- Fire Protection
  - Fire Suppression modifications complete
  - Fire Detection modifications installed and being tested
- Appendix R manual actions
  - Modifications in progress to make Unit 1 consistent with Unit 2 and 3
  - Similar post - fire manual actions credited for Unit 1 as for Unit 2/3
  - Evaluated using Significance Determination Process
- Implement Appendix R at restart for Units 1, 2, and 3 in accordance with current license condition
- Manual actions (compensatory measures) documented in Corrective Action Program in accordance with recent Regulatory Information Summary and Federal Register Notice
- Feasibility of Safe Shutdown Instructions to be demonstrated by timed walkdowns
- Safe Shutdown Instructions to be issued to support January inspection

Nuclear Assurance

- **Focus Areas**
  - **System Turnover**
    - Open Item Punch List, System/Plant Milestone Coding
  - **Restart Testing**
    - Test Performance
    - Test Results
    - Restart Test Program Review Group
  - **Closure**
    - Turnover Packages
    - Test Results Packages
    - Work Order Closure Packages
    - Design Change Return to Operation Packages

BFN Operational Readiness



BFN Site Status

- Three Unit Operation
  - Status of operational units
  - Site staffing plan
  - Involvement in system turnover process
  - Ownership of systems
  - Department readiness
  - INPO 3 Unit readiness review

Fuel Load Readiness

- 1-TI-270 “Fuel Load and Restart Prerequisite Checklists”
  - Systematic method to ensure regulatory and administrative requirements to return Unit 1 to service are satisfied
  - System status for fuel load verified
    - SPOC Phase II complete
    - Testing complete including SPOC deferrals and exceptions
    - System declared operable
    - Integration Task Equipment List (ITEL) review
    - System health including Maintenance Rule information reviewed
    - Work order backlog reviewed
    - System configuration

Fuel Load Readiness

- 1-TI-270 “Fuel Load and Restart Prerequisite Checklists” (cont.)
  - Other areas evaluated for completeness (examples):
    - Licensing commitments
    - Corrective action documents
    - Required Area Turnovers
    - Chemistry and radiological controls
    - Housekeeping condition
    - Procedure readiness
    - Temporary modifications
  - Department / Organizational Readiness
  - Similar checklist to be used for Unit startup

Closing