

Davis-Besse Nuclear Power Station



Return to Service Plan Update

December 10, 2002

Introduction



Lew Myers
FENOC Chief Operating Officer

FENOC

Desired Outcomes

- Demonstrate that we are preparing for core reload and operational testing of Containment and the Reactor Coolant System
- Provide an update on the November 26 NRC meeting regarding the Reactor Vessel Bottom Nozzles and the Containment Emergency Sump Modification
- Provide updates on key Building Blocks
- Demonstrate our progress on 0350 actions
- Describe the recent FENOC and vendor alignment for sustained operations, and QA's oversight of this alignment

Management and Human Performance Plan



Lew Myers
FENOC Chief Operating Officer

Management and Human Performance Excellence Plan

Completed (significant) Improvement Initiatives

- **Safety Conscious Work Environment Training**
 - 257 Davis-Besse and contract supervisors
- **Management Team Alignment meeting**
 - 126 Davis-Besse supervisors and above

Management and Human Performance Excellence Plan

Management Team Alignment



FENOC

Management and Human Performance Excellence Plan

Completed (significant) Improvement Initiatives

- Operations Root Cause Report
- Corrective Action Program Root Cause
- Implementation of Management Observation Program

Management and Human Performance Excellence Plan

Completed (significant) Improvement Initiatives

- 4-C's Meetings with groups of employees
 - 318 attendees
- RHR Assessments

Management and Human Performance Excellence Plan

Activities in Progress

- Engineering Organizational Review
- Operations Section Review
- Functional Area Reviews
- Operability Determination Training

Management and Human Performance Excellence Plan

Management Observation Program

- **Activities scheduled and assigned**
 - All “deep drain” valves assigned for oversight
- **Good management response**
 - 100 percent of observations completed
- **Interfacing / interacting with our people**
- **Evidence of focus on standards**
- **Intrusive management involvement**

Management and Human Performance Excellence Plan

Management Observation Program

- 616 observations in November
- 4,195 safety attributes evaluated
 - 91 percent were satisfactory
- 3,910 standards verifications
 - 91 percent were satisfactory

Management and Human Performance Excellence Plan

Management Observation Program

- Opportunities:
 - Housekeeping
 - Quality of Observation documentation (specifics)
 - Inconsistent use of Condition Reports for observation coaching opportunities
 - Preparation activities
 - ▶ proper tools on station
 - ▶ safety gear on station

Operations Root Cause

Root Cause

- Senior Management support for Operations' Leadership Role in assuring Plant Safety was lacking

Operations Root Cause

Actions in Progress

- Meetings with Operations Crews
- Standing Order for duties and responsibilities of the Shift Manager
- Good vertical alignment
- High Level of Operational involvement
 - System Operational Reviews
 - Latent Issues Reviews
 - Outage Modifications
 - Work Support Center
- Key managerial roles filled with Operational experience

Restart Preparations



Mike Stevens

Director - Nuclear Maintenance

Restart Preparations

Core Reload Preparations

- Complete Reactor Coolant System Drained activities
 - Valve Maintenance
 - Reactor Coolant System Cold Leg Resistance Temperature Detector
 - High Pressure Injection Thermal Sleeves
 - Reactor Coolant Pumps leak tight

Restart Preparations

Core Reload Preparations (Continued)

- Complete Mode 6 preparations
 - Mode 6 Checklist completion
 - Main Fuel Handling Bridge modification
 - Emergency Sump strainer
 - RC46 and RC47 drain piping
 - Permanent Seal Plate installed

Restart Preparations

Operational Testing Preparations

- **Containment**
 - Reload the core
 - Install Reactor Head and Enter Mode 5
 - Fill and vent the Reactor Coolant System
 - Perform Integrated Leak Rate Test

Restart Preparations

Operational Testing Preparations (Continued)

- **Reactor Coolant System**
 - Mode 4 and Mode 3 checklist completion
 - ▶ Decay Heat Pit Modification
 - ▶ Emergency Sump
 - ▶ Reactor Coolant Pumps
 - ▶ Containment Air Coolers
 - All other Mode 4 and 3 systems complete
 - Completion of Safety Functionality Review

Restart Preparations

Operational Testing Preparations (Continued)

- **Reactor Coolant System (Continued)**
 - Secondary system in service to support Main Condenser vacuum
 - Operations Simulator training
 - Heatup Reactor Coolant System to Normal Operating Pressure/Normal Operating Temperature to Mode 3 for plant demonstration

Containment Health Plan



Randy Fast
Plant Manager

Containment Health Plan

Inspection Programs – Discovery Complete

- Boric acid extent of condition in Containment
- EQ equipment inspections
- Containment and liner inspections
- Containment coatings inspections

Containment Health Plan

Inspection Results

- 511 condition reports initiated by inspection program
- 941 total condition reports associated with boric acid
 - No significant material issues identified with the exception of Containment Air Coolers
 - ▶ Evaluations in Progress 250
 - ▶ Evaluations in Review 478
 - ▶ Evaluation Complete 181
 - ▶ Closed 32
- Boric acid did not affect operability of Environmentally Qualified equipment

Containment Health Plan

Ongoing Containment Work

- Emergency Sump
- Decay Heat Valve Pit
- Containment Air Coolers
- Paint and coatings
- Containment valve upgrades

Containment Health Plan

Emergency Sump



Containment Health Plan

Decay Heat Pit



Containment Health Plan

Containment Air Coolers at 585' elev.



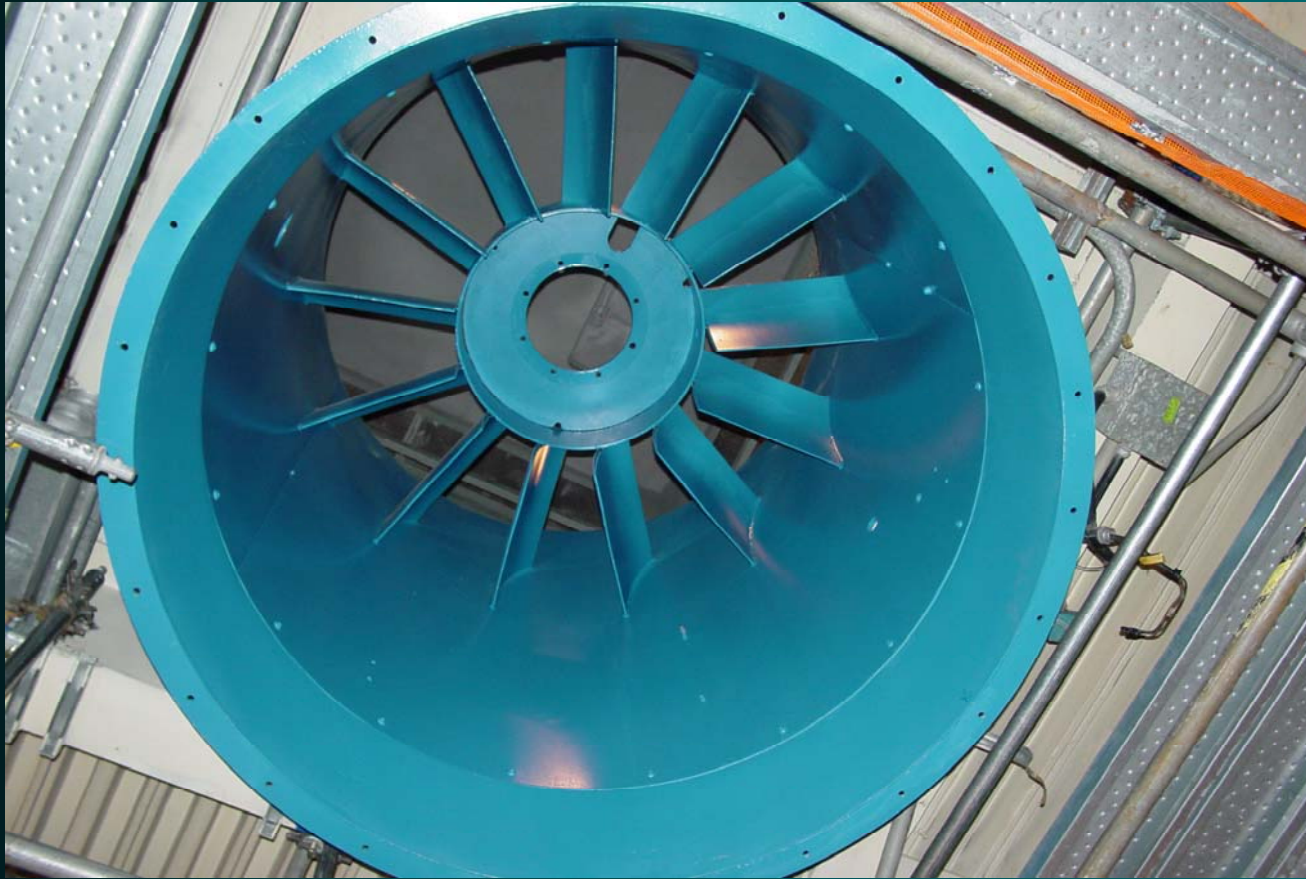
Containment Health Plan

Containment Air Coolers at 585' elev.



Containment Health Plan

Containment Air Coolers at 565' elev. looking up



Containment Health Plan

Core flood tank #1 tented for sponge blasting, 585' elev.



Containment Health Plan

Core flood tank #2, 585' elev.



System Health Assurance and Update on November 26, 2002 NRC Meeting

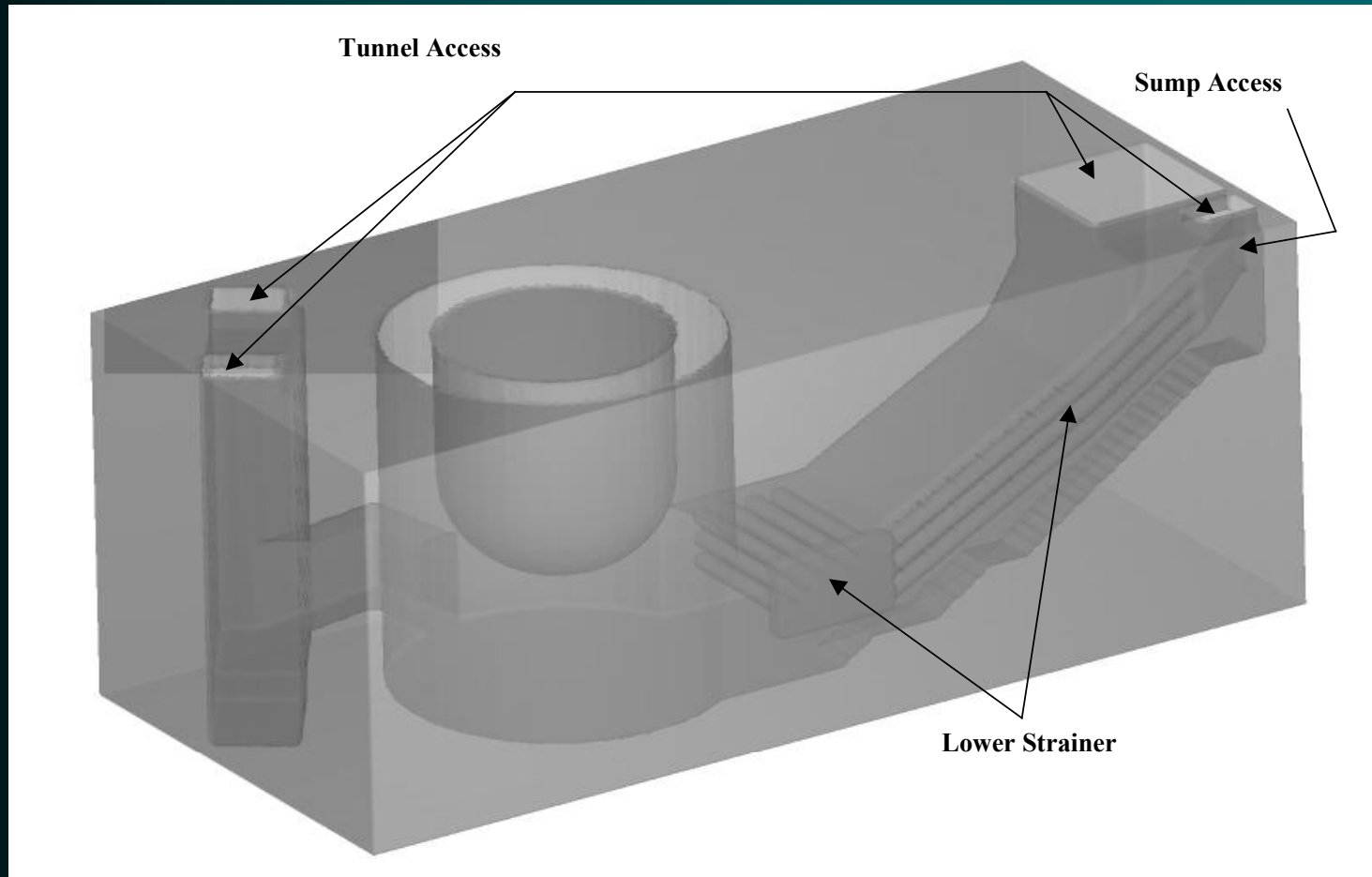


Jim Powers

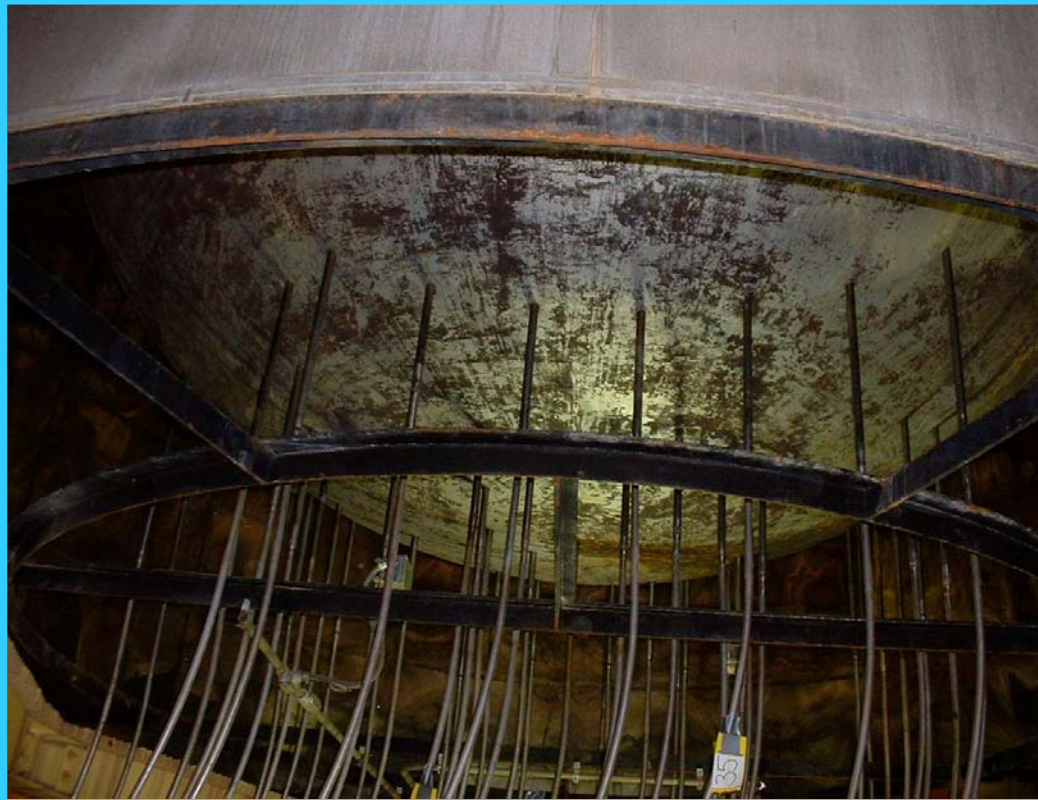
Director - Nuclear Engineering

Containment Emergency Sump

Model for the Industry

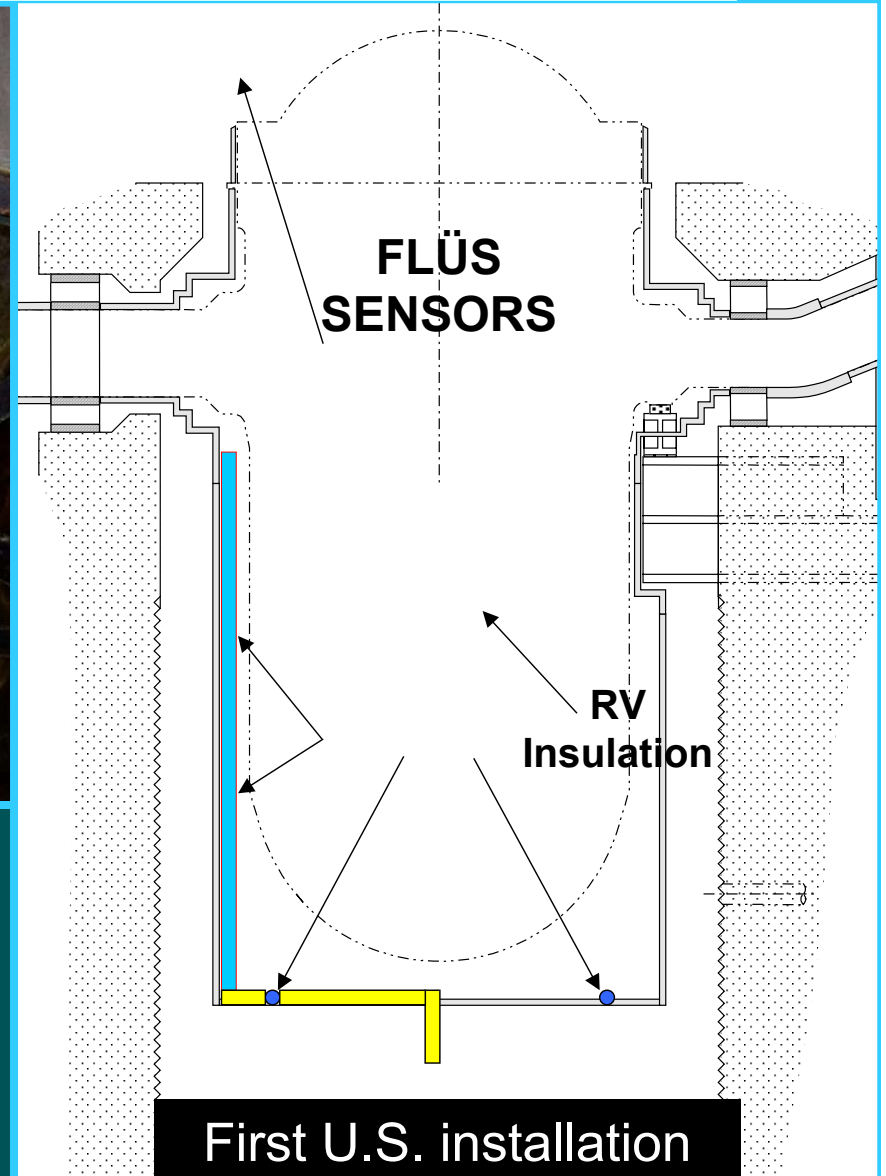


Reactor Vessel Bottom Nozzles



First Plant to conduct
a thorough Bare-Metal
Inspection

FENOC



First U.S. installation

System Health Assurance Plan

Discovery Complete for Initial Scope

- Latent Issues Review Reports Issued
- System Health Readiness Review Reports Issued

Identified Design/Calculation Issues

- Instrument tolerances in calculations
- Emergency Diesel Generator loading sequence
- Service Water temperature
- High Pressure Injection minimum flow
- Heat Exchanger code relief protection

System Health Assurance Plan

Restart Focus

- 189 Mode 6 Condition Reports
- Major ongoing modifications:
 - Permanent Cavity Seal
 - Containment Emergency Sump
 - Containment Air Cooler

Plant Program Reviews



Neil Morrison

Program Compliance Plan Owner

Plant Program Reviews

Current Status

- **Performed 65 Phase 1 reviews**
 - 19 of 65 reviews complete
- **Four of six Phase 2 (detailed reviews) are complete**
 - Boric Acid Corrosion Control
 - Corrective Action Program
 - In-Service Inspection Program
 - Operating Experience

Plant Program Reviews

Current Status (continued)

- Remaining two are near completion
 - Modification Program
 - Radiation Protection
- One program is being developed using this review process as a guideline
 - RCS Integrated Leakage Program

Plant Program Reviews

Taking the Next Step

- Plant Program Reviews will be an ongoing activity at Davis-Besse
- New procedure under development using knowledge gained from the Program Compliance Plan Building Block activities
- Program Reviews will become a FENOC-wide initiative under the Nuclear Services Department

Plant Program Reviews

Taking the Next Step (Continued)

- FENOC list of priority plant programs is being developed
- Selected programs from this list will be evaluated each year FENOC wide
- Special attention will be focused on regulatory compliance, industry guidance, interfaces/handoffs, and implementation will be verified

0350 Action Progress



*Clark Price
Owner - Restart Action Plan*

Basic Building Blocks



0350 Action Progress

Alignment of 0350 Restart Items

- Building Blocks
- NRC 0350 Panel Checklist Items
- Davis-Besse 0350 Restart Actions
- Monitor Progress
- Schedule Inspections

DAVIS-BESSE RETURN TO SERVICE PLAN PROGRESS CHART

OSO Item	Discovery				Implementation				RSMT	NRC Inspection			
	Responsible Individual	Building Block	Plan Approved	Percent Complete	CP's Received / Validated / Total	Ready for Inspection	Plan Approved	Percent Complete	CP's Received / Validated / Total	Ready for Inspection	Ready for Restart	Final Def. Status	Final Def. Status
1 a	S.Loehlein	No	N/A	Technical Root Cause 82-8991	1 / 0 / 1	Yes			0 / 0 / 0			18.2.4.02	Being closed. Awaiting final IR.
b	S.Loehlein	No	N/A	90	0 / 0 / 8				0 / 0 / 0				
2 a	E Baker	Yes			0 / 0 / 8		8/2/02	98	0 / 0 / 7				
b	E Baker / T.Stallard	Yes			0 / 0 / 8		8/2/02	98	0 / 0 / 3				
c	T.Chambers	Yes	3/6/02	100	4 / 1 / 19		Various	20	0 / 0 / 15				
c.1	T.Chambers	Yes	8/28/02	100	0 / 0 / 5		11/6/02	27	0 / 0 / 1				
d	J.Rogers / J.Cummings	Yes	9/13/02	100	2 / 3 / 3		10/22/02		0 / 0 / 3				
3 a	N.Morrison / D.Gudger	Yes	3/24/02	100	1 / 1 / 1	Yes	TBD	50	0 / 0 / 0				
b	N.Morrison / D.Gudger	Yes	3/24/02	100	1 / 1 / 1	Yes	TBD	15	0 / 0 / 0				
c.1	S.Loehlein	Yes	TBD	90	0 / 0 / 2		TBD		0 / 0 / 0				
c.2	N.Morrison	Yes			0 / 0 / 8		N/A	25	0 / 0 / 2				
d	N.Morrison / J.Cummings	Yes	3/24/02	100	1 / 1 / 1	Yes	11/6/02	40	0 / 0 / 8				
e	N.Morrison	Yes			0 / 0 / 8		N/A	50	0 / 0 / 1				
f	N.Morrison / M.Shepherd	Yes	3/24/02	100	1 / 1 / 1	Yes	11/19/02		0 / 0 / 6				
g	N.Morrison / J.Grabner	Yes	3/24/02	98	0 / 0 / 1		TBD		0 / 0 / 0				
h	N.Morrison / R.Pell	Yes	3/24/02	90	0 / 0 / 1		TBD		0 / 0 / 0				
4 a-b	D.E.shelman	Yes			1 / 0 / 27		3/5/02	90	0 / 0 / 8				
5 a	C.Price / L.W.Pearce	Yes			0 / 0 / 8				0 / 0 / 0				
b	J.Rogers	Yes	9/15/02	100	47 / 47 / 48	Partial			0 / 0 / 0				
c	D.E.shelman	Yes	TBD	90	0 / 0 / 4				0 / 0 / 0				
d	T.Stallard	Yes			0 / 0 / 8		11/6/02	20	0 / 0 / 5				
6 a-f	P.McCloskey	No			0 / 0 / 8		10/17/02	80	0 / 0 / 6				
7 a	C.Price / L.Myers	No			0 / 0 / 8		N/A	Integrated Restart Report	0 / 0 / 1				

Complete/Closed
 In-progress
 Behind Schedule
 N/A - Not Applicable

1. Adequacy of Root Cause Determinations
 - a. Penetration cracking and reactor pressure vessel corrosion
 - b. Organizational, programmatic and human performance issues
2. Adequacy of Safety Significant Structures, Systems and Components
 - a. Reactor Pressure Vessel (RPV) head replacement
 - b. Containment vessel restoration following RPV head replacement
 - c. Structures, Systems and Components inside Containment
 - d. Containment Emergency Sump
 - e. Systems outside Containment

3. Adequacy of Safety Significant Programs
 - a. Corrective Action Program
 - b. Operating Experience Program
 - c.1 Quality Audits
 - c.2 Self-Assessments of Programs
 - d. Boric Acid Corrosion Management Program
 - e. Reactor Coolant System Undetected Leakage Monitoring Program
 - f. In-Service Inspection Program
 - g. Modification Control Program
 - h. Radiation Protection Program
4. Adequacy of Organizational Effectiveness and Human Performance
 - a. Adequacy of Corrective Action Plan
 - b. Effectiveness of Corrective Actions

5. Readiness for Restart
 - a. Review of Licensee's Restart Action Plan
 - b. System's Readiness for Restart
 - c. Operations Readiness for Restart
 - d. Test Program Development
6. Licensing Issue Resolution
 - a. Verification that Relief Requests A8 & A12 is not impacted by Midland Head
 - b. ASME relief request for for failure to maintain original radiographic tests
 - c. ASME relief request for inability to rad. test 100% of Midland Head
 - d. ASME relief request A2 for inability to perform 100% examination of flange weld
 - e. Letter that new RPV head correlates w/ ASME Code
7. Confirmatory Action Letter Resolution
 - a. Verification that confirmatory action letter items are resolved

0350 Action Progress

Positive Indicators and Trends

- Completion of Discovery
- Open Restart Condition Reports Decreasing
- Open Restart Corrective Actions Decreasing
- Operational Performance Indicators are Steady
- Organizational Readiness Performance Indicators are Steady to Improving

FENOC Alignment for Sustained Performance



Lew Myers
Chief Operating Officer

Bill Pearce
Vice President - Oversight



FENOC's Alignment for Sustained Operations

Philosophy

- Building Block Discovery complete
- Sustained performance
- Increased oversight during transition

QA Oversight of FENOC Alignment

Assessment of Impact

- New make-up of Engineering Assessment Board
- Effectiveness and quality of Engineering Assessment Board review of Latent Issue Reports
- Quality of System Health Readiness Review Reports without Engineering Assessment Board review

QA Oversight of FENOC Alignment

Oversight Response to Reduction in Contractor Support:

- **Restart Station Review Board**
 - Increased QA Oversight level
 - Increased use of NQA evaluators with Operations background
- **Engineering Assessment Board**
 - Revised membership is examined for background and credentials
 - Activities and results of board meetings are carefully observed to ensure no loss in quality of process

Closing Remarks



Lew Myers
FENOC Chief Operating Officer

Conclusions

- **Reactor Head is on Stand and ready for re-installation**
- **System Readiness Reviews are complete**
- **Containment Health is good**
 - **Containment Emergency Sump will be a model for the industry**
 - **Integrated Leak Rate Program establishes a new industry standard**
 - **Davis-Besse will be the industry leader with the RCS Leakage detection system**
- **Preparations underway for core reload, Containment testing, and Operational testing**
- **Management and Human Performance Plan is well underway**