



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

April 3, 2013

LICENSEE: Omaha Public Power District (OPPD)
FACILITY: Fort Calhoun Station
SUBJECT: SUMMARY OF MARCH 27, 2013 MEETING WITH OMAHA PUBLIC
POWER DISTRICT

On March 27, 2013, a Category 1 meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and Omaha Public Power District (OPPD) at the Doubletree Hotel at 1616 Dodge St, Omaha, Nebraska.

The NRC presented the status of Inspection Manual Chapter 350 oversight inspections, the revised Confirmatory Action Letter, associated Restart Checklist, and Restart Checklist Basis Document (Enclosure 1) The licensee presented details of their progress for issue resolution and plant restart activities (Enclosure 2).

A video of the public meeting will be posted on the website devoted to the special oversight at Fort Calhoun Station, available at:
<http://www.nrc.gov/info-finder/reactor/fcs/special-oversight.html>.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agency wide Documents Access and Management System (ADAMS). ADAMS is accessible from the Public Electronic Reading Room page of the NRC's public web site at:
<http://www.nrc.gov/readingrm/adams.html>.

To receive a summary of future meetings and other plant-specific e-mail distributions you may subscribe to the Operating Reactor Correspondence electronic distribution for this plant via:
<http://www.nrc.gov/public-involve/listserver/plants-by-region.html>
Once subscribed, if you wish to discontinue receiving electronic distribution, you may unsubscribe at any time by visiting the same web address above.

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Docket No.: 50-285

Enclosure 1: NRC Presentation Slides
Enclosure 2: OPPD Presentation Slides

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ADAMS ML 13093A473

ADAMS: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> SUNSI Review Complete	Reviewer Initials:
Keyword:	<input checked="" type="checkbox"/> Publicly Available	<input checked="" type="checkbox"/> Non-Sensitive
Public Release Date:	<input type="checkbox"/> Non-publicly Available	<input type="checkbox"/> Sensitive
RIV/C:DRP/F		
MHay		
<i>/RA/</i>		
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Fort Calhoun Station Public Meeting

Nuclear Regulatory Commission
March 27, 2013
Omaha, Nebraska

Opening and Introductions

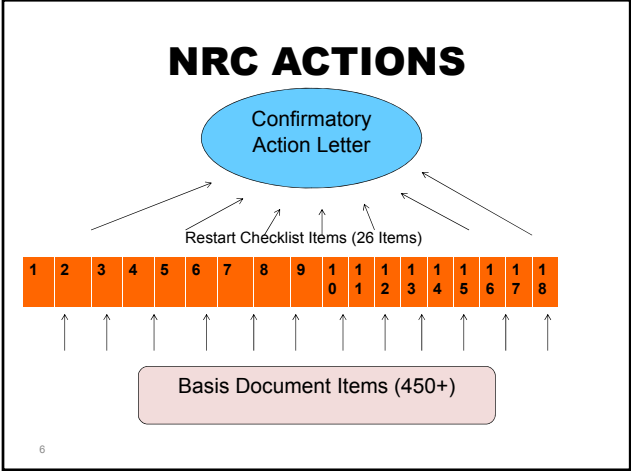
- Welcome
- Introduction of NRC personnel

NRC Personnel

- Tony Vogel – MC 0350 Panel Chair
- Louise Lund – MC 0350 Panel Vice Chair
- Mike Hay – Branch Chief
- Joe Sebrosky – Project Manager
- John Kirkland – Senior Resident Inspector
- Rick Deese – Senior Project Engineer

Purpose

- Status of NRC and OPPD actions
 - NRC will present status of inspections and issuance revised CAL and Basis Documents
 - OPPD will present details of plant issue resolution
- Allow for public interaction and questions



Revised Confirmatory Action Letter

- Issued February 26, 2013
<http://www.nrc.gov/info-finder/reactor/fcs/special-oversight.html>
- Added 3 items to the Restart Checklist
 - Safety System Functional Failures (SSFF's)
 - Qualification of Containment Electrical Penetrations
 - Containment Internal Structures

Revised Basis Document

- Issued March 7, 2013
<http://www.nrc.gov/info-finder/reactor/fcs/special-oversight.html>
- SSFF's consisted of 9 Licensee Event Reports (LER's)
- Containment Penetrations and Internal Structures
 - Root Cause
 - Extent of Condition and Cause Evaluation
 - Corrective Actions



Status of Inspections and Reviews

- CAL Inspection Team – On Site Inspection Complete
- Security – On Site Inspection Complete
- Safety Culture – On Site Inspection Complete
- Operational Assessment – April 2013
- Containment Structure – Ongoing
- Containment Penetration – Ongoing
- Flooding – Review in Progress
- Special Inspection – On Site Inspection Complete

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Status of Items Completed

- All Restart Checklist Items Remain Open
- Approximately 150 of 460 Restart Checklist Basis Document Items Closed
- Majority of Flood Recovery Items Near Completion



Flood Recovery Items

- Original CAL had 231 individual items
- Restart Checklist Basis Document split out items not directly related to flood
 - 162 directly related to flood, including 22 specifically related to geotechnical inspection
 - 102 have been inspected and closed



Current Assessment

- Improvements:
 - Overall Site Safety Culture
 - Nuclear Oversight Assessments
 - Plant Equipment
- Challenges:
 - Inconsistent quality of Fort Calhoun Station's reviews and actions to address CAL and Basis Document items
 - Station actions were not always complete
 - Lack of consistent thoroughness of station evaluations



Path Forward

- Fort Calhoun Station
 - Complete Identification and Implementation of Corrective Actions for Restart Checklist Items in a High Quality Manner
 - Determine Readiness for Inspection Activities
 - Provide NRC in Writing Results and Readiness for Inspection of CAL Items



Path Forward

- NRC
 - Operational Assessment Team Inspection
 - Security Follow Up Inspection
 - MC 0350 and CAL Follow Up Inspections

**PERFORM THOROUGH AND
INDEPENDENT VERIFICATION OF
PLANT SAFETY**

OPPD Presentation

Lou Cortopassi
Vice President and Chief Nuclear Officer
Omaha Public Power District



NRC Remarks

Closing Remarks

Open Discussion

Open to the Public

- The NRC places a high priority on keeping the public and stakeholders informed of its activities
- At www.nrc.gov, you can:
 - Find public meeting dates and transcripts;
 - Read NRC testimony, speeches, press releases, and policy decisions;
 - Access the agency's Electronic Reading Room to find NRC publications and documents; and
 - Subscribe to automatically receive correspondence from the NRC

Contacting the NRC

- Report an emergency
 - (301) 816-5100 (call collect)
- Report a safety concern
 - (800) 695-7403
 - Allegation@nrc.gov
- General information or questions
 - www.nrc.gov

Fort Calhoun Station Driving Through Restart

Public Meeting with the U.S. Nuclear Regulatory Commission



March 27, 2013



Topics for Discussion

- Plant Status – Readiness for Restart
- Progress on Commitments for Restart
- Plan for Sustained Improvement
- Independent Assessment
- Closing Remarks

Fort Calhoun Station

Vision
Safe and efficient restart of Fort Calhoun Station and achievement of sustained excellence

Mission
Safe, event-free, cost-effective, nuclear production of electricity

Values

- Safety – Nuclear, Industrial, Radiological, & Environmental
- Alignment
- Accountability
- Bias for Action
- Strong Nuclear Safety Culture



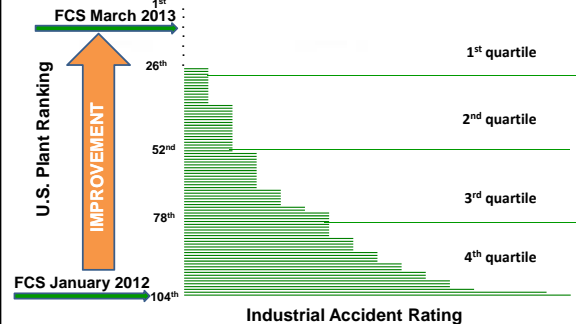
Plant Status

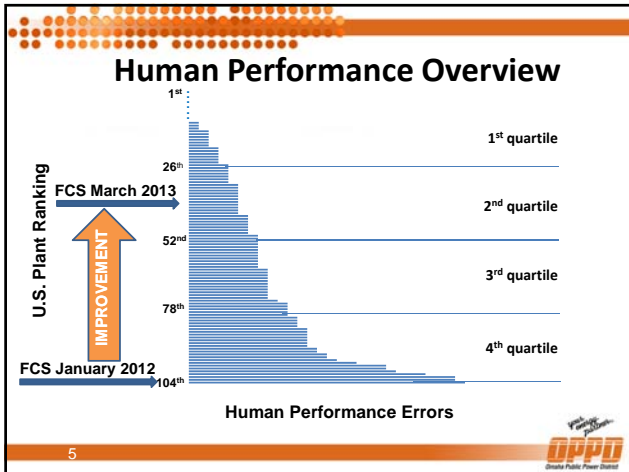


- Safety Performance
- Human Performance
- Fixing the Plant
- Readiness for Restart



Industrial Safety Overview





- ### Fixing the Plant
- Approximately 20,000 tasks completed (November 2012 through February 2013)
 - Approximately 5,000 tasks remaining to be ready for restart
 - Approximately 3,900 tasks to complete reloading fuel into the reactor
 - Approximately 1,000 additional tasks to heat up the plant
- 6
- OPPD
Oroville Public Power District

- ### Major Tasks to Complete Loading Fuel into the Reactor
- Complete maintenance work on electrical distribution system
 - Complete major safety system testing
 - Load fuel into the reactor
- 7
- OPPD
Oroville Public Power District

- ### Major Tasks to Complete Plant Heat-Up
- Complete high-energy line break and electrical equipment qualification modifications
 - Complete maintenance work to resolve equipment service life issues
 - Complete installation of new containment penetrations
 - Heat up the plant
- 8
- OPPD
Oroville Public Power District

Major Tasks Remaining to Ready the Plant for Start-Up

- Complete Systems, Programs and Departments Readiness Reviews
- Complete Operational Readiness Assessment
- Verify Confirmatory Action Letter commitments and Restart Checklist items are resolved
- Chief Nuclear Officer submits Restart Report to NRC (Confirmatory Action Letter Commitment 6)
- Operators confirm plant ready for start-up and Plant Review Committee recommends restart
- Plant ready for start-up

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Current Schedule

Load fuel into the reactor

- Mid-April 2013

Heat up the plant with non-nuclear heat

- Mid-May 2013

Plant ready for start-up

- Late May 2013



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Driving to Restart



Our Supervisors are Driving our Improved Performance

- Station Priorities
 - **Safety**
 - **Human Performance**
 - **Fix the Plant**
 - **Corrective Action Program**
 - **Training Program**
- Human Performance Continues to Improve
- Remaining Work is Known and Scheduled
- We are Driving to Restart

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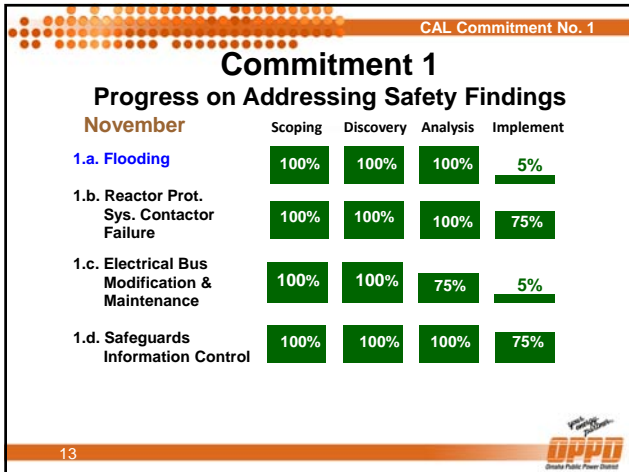



OPPD Commitments for Restart


1. Identify causes and implement corrective actions for safety significant findings (Checklist 1.a through 1.d and 1.g)
2. Assess safety culture and organizational effectiveness and implement improvement actions (Checklist 1.e and 1.f)
3. Assess and resolve flooding impact, evaluate systems, and ensure plant is ready for restart (Checklist 2.a through 2.d)
4. Assess and improve programs and processes that caused significant performance decline (Checklist 3.a through 3.f)
5. Implement the Integrated Performance Improvement Plan (Checklist 4)
6. Submit Fort Calhoun Station Restart Report

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- CAL Commitment No. 1
- ## 1.a. Flooding Yellow Finding
- Completed scoping, discovery and analysis
 - Completed root cause analyses
 - Completed key corrective actions
 - Replaced certain flood barriers
 - Inspected conduit/piping seals
 - Successfully completed penetration seal testing
 - Improved flood procedures
 - Restart Checklist item closure package approved and ready – One action remains for restart readiness
- 15 

- CAL Commitment No. 1
- ## 1.a. Flooding Yellow Finding
- ### Intake Cell Level Control
- Modification for level control - complete
 - Cell level controlled through four 10-inch manual throttle valves off 18-inch pipes
 - Operators will monitor level during extreme flood and adjust valves to control flow
 - Significant improvement – ease of operation and system function
 - Remaining action for restart readiness
 - Piping classification being updated
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Protecting Fort Calhoun Station from Flooding

Topics

- Display the Missouri River dam and reservoir system
- Explain the NRC approved Design Basis Flood in the Fort Calhoun license
- Describe Fort Calhoun protection for the Design Basis Flood
- Describe mitigation strategies OPPD put in place for much more severe floods

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Missouri River Mainstem Reservoir System



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Fort Calhoun Station License Requirements

- NRC established license requirements for safe plant operation
- Design Basis Flood in Fort Calhoun license - extreme precipitation and failure of the Oahe or Fort Randall Dam
- Fort Calhoun Station has physical protection from that flood

Fort Calhoun Station is safe from Design Basis Flood

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Protection from Design Basis Flood

- Site grade was established at the level of the estimated 1000 year flood with no dam failures (1960s USACE Analysis)
- Critical structures permanently sealed an additional three feet higher for safety margin and wave action
- Estimated three foot higher probable maximum flood (PMF) – extreme precipitation with no dam failure (1960s USACE Analysis)
- Permanently sealed structures protected an additional six feet higher with removable engineered barriers
- Estimated PMF with failure of Oahe or Ft. Randall Dam (1960s USACE Analysis) – Design Basis Flood (DBF) in License
- Removable engineered barriers with one foot of temporary barriers (sandbags) in limited areas protect against DBF

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Voluntary Mitigation Strategies for More Severe Flooding

- OPPD Initiated Individual Plant Examination for External Events (IPEEE) in 1990s following NRC Generic Letter
- Fort Calhoun IPEEE included evaluation of external flooding far beyond the original licensing basis



- Procedures in place to mitigate a flood 21 feet higher than DBF – will keep the plant safe from a PMF plus failure of the Oahe Dam with cascading failures of Big Bend, Fort Randall and Gavins Point downstream dams (1990s USACE Analysis)
- Procedures involve temporary gasoline-powered pumps and hoses to cool the reactor

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Risk from Floods at Fort Calhoun Station

- IPEEE estimated plant risk from floods
 - All analyzed floods, including IPEEE flood from significant precipitation and four dam failures
 - Included plant protection features and use of mitigating strategies
 - Resulting plant accident risk is 4 in 1,000,000 for all external flooding scenarios – similar to other plant risks

Fort Calhoun is safe from flooding

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CAL Commitment No. 2

Commitment 2

Progress on Safety Culture and Organizational Effectiveness

November

	Scoping	Discovery	Analysis	Implement
1.e. Safety Culture	100%	100%	100%	93%
1.f. Organizational Effectiveness	100%	100%	100%	89%

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CAL Commitment No. 2

Commitment 2

Progress on Safety Culture and Organizational Effectiveness

Current

	Scoping	Discovery	Analysis	Implement
1.e. Safety Culture	100%	100%	100%	100%
1.f. Organizational Effectiveness	100%	100%	100%	100%

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1.e. Safety Culture

What is Safety Culture

An organization's values and behaviors, modeled by its leaders and internalized by its members that serve to make nuclear safety the overriding priority.

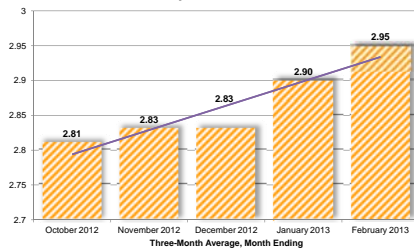


Actions Taken

- Root Cause Analyzed
 - Management changed
 - Governance and Oversight Policy implemented
 - Leaders and staff trained
 - Dozens of staff “2C’s” (Compliments and Concerns) meetings held with Chief Nuclear Officer
 - Corrective Action Program improved
 - Employee Concerns Program enhanced
 - Survey our staff monthly to monitor effectiveness and adjust actions

Industry-Leading Safety Culture Monthly Survey Results

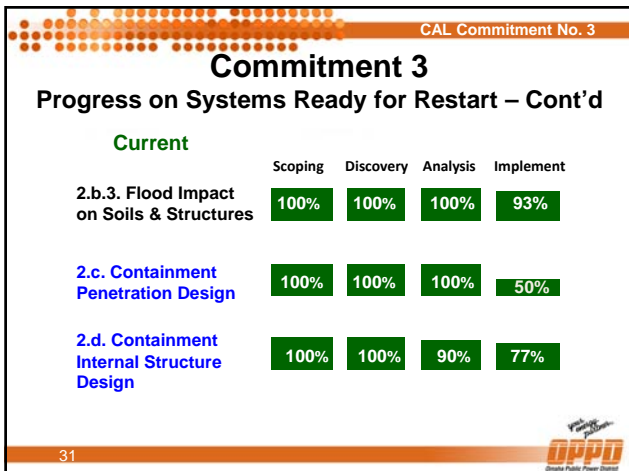
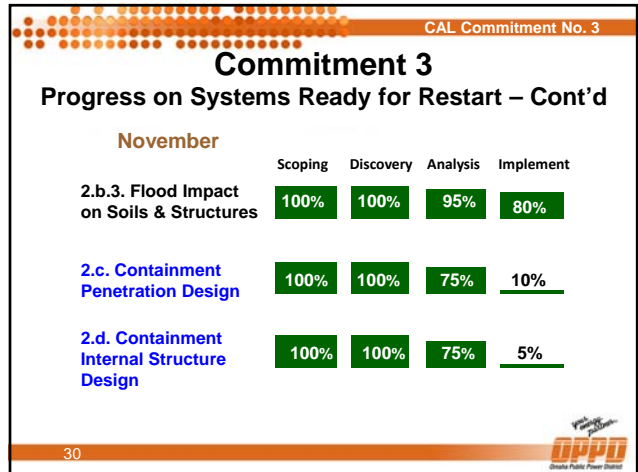
Safety Culture Index




Commitment 3

Progress on Systems Ready for Restart

	Scoping	Discovery	Analysis	Implement
2.a. Flood Recovery Restoration Actions	100%	100%	100%	91%
2.b.1. System Health Reviews	100%	70%	50%	10%
2.b.2. Reactor Safety Strategic Performance Area Review	100%	100%	100%	50%



- CAL Commitment No. 3
- ## 2.b.1 System Health Reviews
- 27 Risk-significant systems reviewed
- Detailed review and evaluation of the most important components in each system.
 - » Selected based on historical performance and risk worth
 - Historical review of open and closed Condition Reports and Work Orders
 - Comprehensive system walkdowns were performed to evaluate the physical condition of the equipment
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2.b.1 System Health Reviews

(Continued)

- Each System Health Review was performed by the system engineer, an operator and a member of the maintenance staff
- Comprehensive reports prepared documenting the health of the systems
- Reviewed by senior reactor operator and senior maintenance staff prior to approval
- Reviewed and Approved by Plant Health Committee

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2.b.1 System Health Reviews

(Continued)

- Many System Health Improvement Items were identified and entered into the Corrective Action Program including:
 - A wire jumper was found in poor condition during a diesel generator starting air system walkdown. It has been repaired.
 - Turbine Generator review revealed several work orders that should be worked prior to start up. Work orders added to the outage schedule.
 - Minor seal leakage on Component Cooling Water pump 3C, and minor surface corrosion on piping that is cosmetic in nature. Not required to be fixed prior to start up.
- Continuing reviews performed quarterly by Plant Health Committee

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2.c. Containment Penetrations

- Fort Calhoun staff identified Teflon in some containment electrical penetration feed-throughs that could degrade under accident conditions
- Recent testing demonstrated that the outboard seal on the feed-throughs did not leak when exposed to the Fort Calhoun post-accident conditions
- Safety-focused decision made to:
 - Upgrade penetration feed-throughs with fully qualified design that does not include Teflon
 - Remove feed-throughs and cap unused penetrations

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2.c. Containment Penetrations – Cont'd



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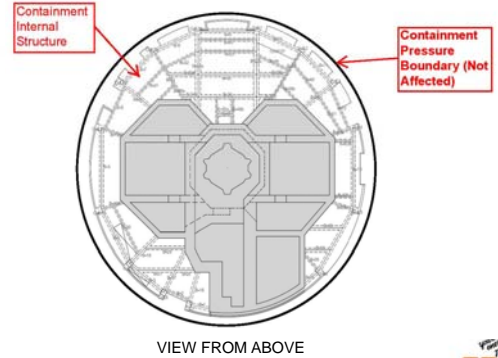
2.d Containment Internal Structure

- Self-identified issue involves concrete beams, and columns inside containment that support plant components and systems
- Containment Internal Structure (CIS) does NOT include the containment boundary or the containment liner

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Containment Shell and Structures



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History and Identification of Issue

- Original design calculations were performed during the 1960s
- Discrepancy self-identified by Fort Calhoun staff during extended power uprate analysis for pipe supports
- Multiple deficiencies identified in original calculations

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Containment Internal Structure Reanalysis

- Confirmed as-built configuration through extensive walkdowns
- Developed three-dimensional computer-based model
- Validated assumptions and input parameters
- Conducted challenge boards and independent third-party reviews
- New analyses rigorously documented

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Reanalysis Results

- Containment internal structures are capable of meeting their required safety function and safe for restart
- Modifications to restore design margins will be completed during future outages
- Significant planning, design work and preparation completed during this outage
- Fort Calhoun Station containment is safe for restart



Commitment 4 Progress on Programs and Processes Ready for Restart

November

	Scoping	Discovery	Analysis	Implement
3.a. Corrective Action Program	100%	100%	100%	70%
3.a.1. Identify, Analyze & Correct Performance Deficiencies	100%	100%	100%	50%
3.b.1. Safety Related Parts	100%	100%	75%	5%
3.b.2. Equipment Qualification	100%	90%	60%	20%



Commitment 4 Progress on Programs and Processes Ready for Restart

Current

	Scoping	Discovery	Analysis	Implement
3.a. Corrective Action Program	100%	100%	100%	100%
3.a.1. Identify, Analyze & Correct Performance Deficiencies	100%	100%	100%	87%
3.b.1. Safety Related Parts	100%	100%	100%	68%
3.b.2. Equipment Qualification	100%	100%	90%	72%

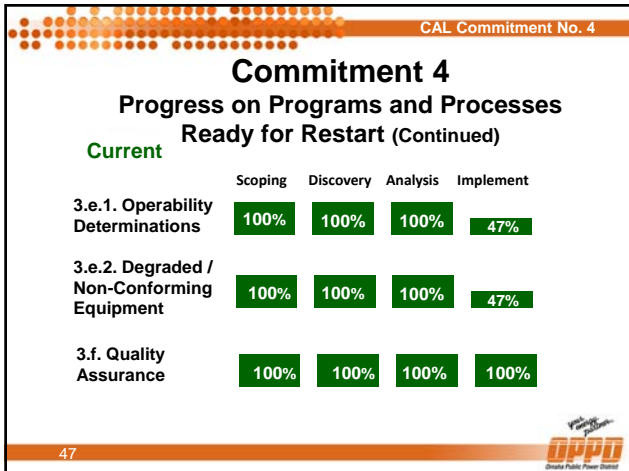
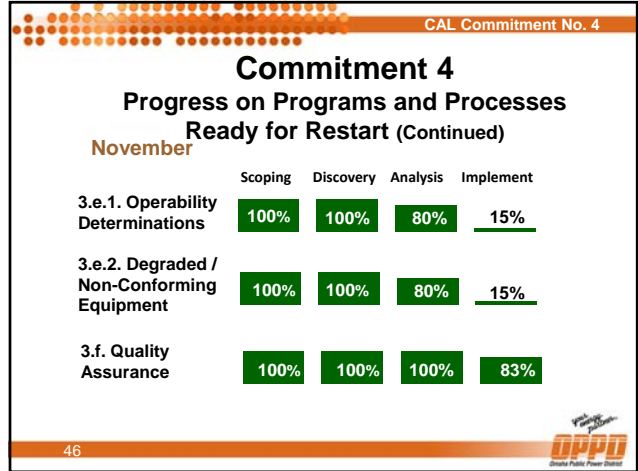
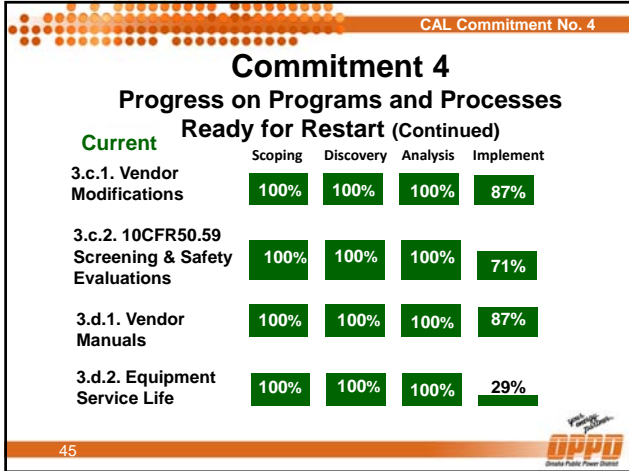


Commitment 4 Progress on Programs and Processes Ready for Restart (Continued)

November

	Scoping	Discovery	Analysis	Implement
3.c.1. Vendor Modifications	100%	100%	95%	10%
3.c.2. 10CFR50.59 Screening & Safety Evaluations	100%	98%	75%	20%
3.d.1. Vendor Manuals	100%	100%	95%	55%
3.d.2. Equipment Service Life	100%	100%	95%	5%







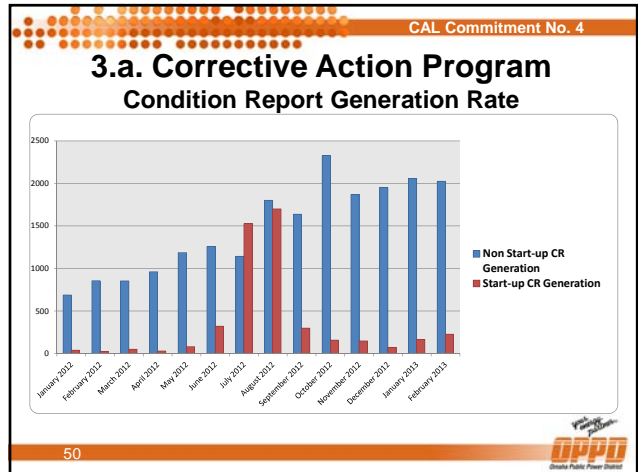
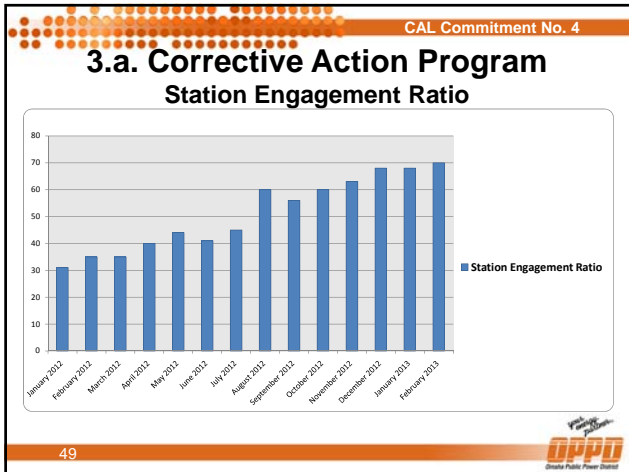
CAL Commitment No. 4

3.a Corrective Action Program

- Program improvements implemented 11 months ago
 - New Corrective Action Program procedures and guidance
 - Additional staff – CAPCOs
 - Training
 - Accountability
- Performance is improving



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- CAL Commitment No. 4
- ### Corrective Action Program (Continued)
- Capturing issues in the Corrective Action Program has improved
 - Resolving issues through the Corrective Action Program is improving
 - Safety Culture improvement
 - Containment penetration and structural design issue resolution
 - Flood preparedness and mitigation
 - Continued improvement in the Corrective Action Program is under way
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-

CAL Commitment No. 5

Commitment 5 Integrated Performance Improvement Plan (IPIP)

Fort Calhoun Station
Integrated Performance Improvement Plan

- IPIP Revision 5 will be docketed in April 2013
- Will address the three additional Restart Checklist items
- Will expand detail in post-restart Plan for Sustained Improvement

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Plan for Sustained Improvement Actions to continue performance improvement after restart

- Continued emphasis on
 - Corrective Action Program and Training Program effectiveness
 - Safety culture and human performance
 - Engineering effectiveness
 - Corrective Actions to Prevent Recurrence
- Continue assessing FCS programs against the Exelon Nuclear Management Model (ENMM)
- Implement action plans to close gaps to ENMM
- Fully integrate Fort Calhoun into the Exelon fleet
- Perform periodic self assessments of Corrective Action Program effectiveness, safety culture, and engineering effectiveness

Independent Assessments

OPPD's Commitment

Tonight We Updated You on

- Plant Status and Readiness
- Driving to Restart
- Progress on Commitments
for Restart
- Plan for Sustained
Improvement after
Restart
- Independent Assessments

Fort Calhoun Station

Vision

Safe and efficient restart of Fort Calhoun Station and achievement of sustained excellence

Mission

Safe, event-free, cost-effective, nuclear production of electricity

Values

- Safety – Nuclear, Industrial, Radiological, & Environmental
- Alignment
- Accountability
- Bias for Action
- Strong Nuclear Safety Culture