UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

MAR 12 2003

R. T. Ridenoure
Division Manager - Nuclear Operations
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

SUBJECT: SUMMARY OF MEETING WITH FORT CALHOUN NUCLEAR STATION

Dear Mr. Ridenoure:

This refers to the meeting conducted in the Region IV office March 5, 2003. The participants discussed your current plant status, 2002 plant performance, long-term planning by both the Omaha Public Power District and the Fort Calhoun Station, strategic initiatives (steam generator replacement and reactor vessel head replacement), and other current issues.

The attendance list and presentation slides are enclosed with this summary (Enclosures 1 and 2, respectively).

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

Claude E. Johnson, Chief
Project Branch C
Division of Reactor Projects

Docket: 50-285
License: DPR-40

Enclosures:
1. Attendance List
2. Fort Calhoun Station Presentation

cc w/enclosures:
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Nuclear Licensing
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
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Nuclear Assessments
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David J. Bannister, Manager - Fort Calhoun Station
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ENCLOSURE 1

## NRC PUBLIC MEETING ATTENDANCE

| | |
|---|---|
| **LICENSEE/FACILITY** | Omaha Public Power District<br>Fort Calhoun Nuclear Station |
| DATE/TIME | March 5, 2003; 1:00 p.m. |
| LOCATION | Region IV Office, Arlington, Texas |
| **NAME (PLEASE PRINT)** | **ORGANIZATION** |
| WAYNE C WALKER | US NRC REGION IV, SENIOR PROJ. ENG. |
| Ross Ridenoure | OPPD., FORT CALHOUN STATION |
| Dave Bannister | OPPD Fort Calhoun Station |
| Claude E. Johnson | USNRC, BRANCH CHIEF |
| John B. Herman | OPPD, Fort Calhoun Station |
| Gail M. Good | NRC, Dep Dir DRP |
| DWIGHT D. CHAMBERLAIN | NRC, DIRECTOR, DRS |
| Ellis W. Merschoff | NRC, RA |
| W. GARY GATES | OPPD - VP-CNO |
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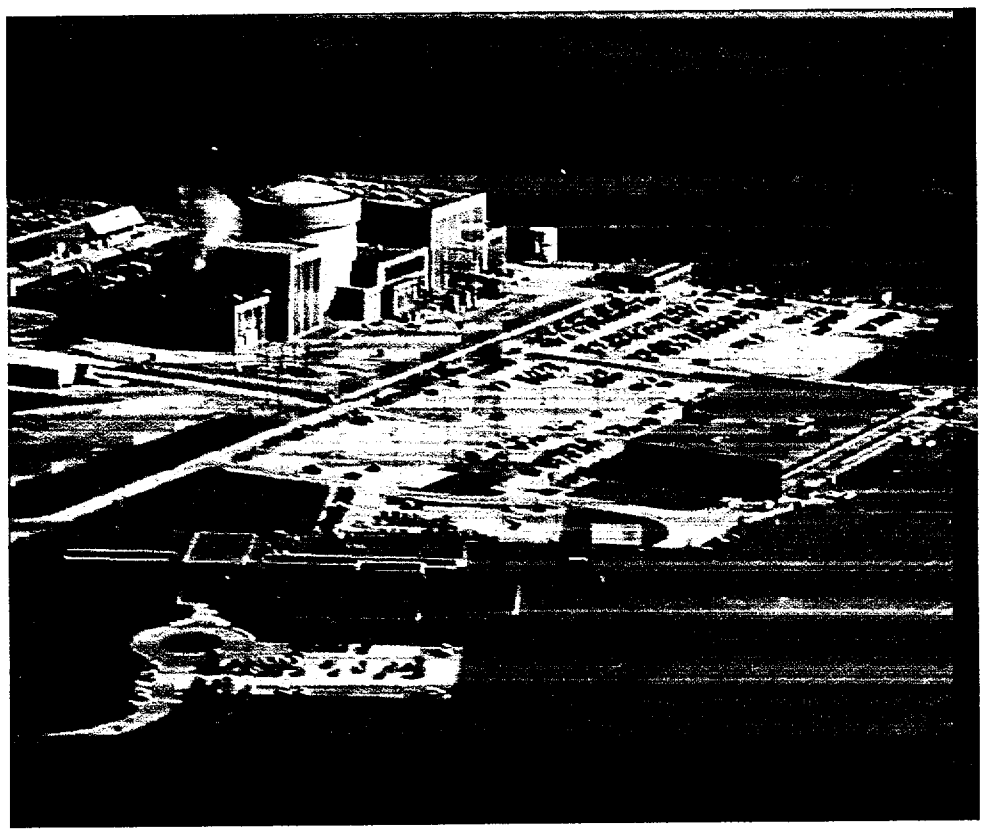
ENCLOSURE 2

# FORT CALHOUN STATION MANAGEMENT

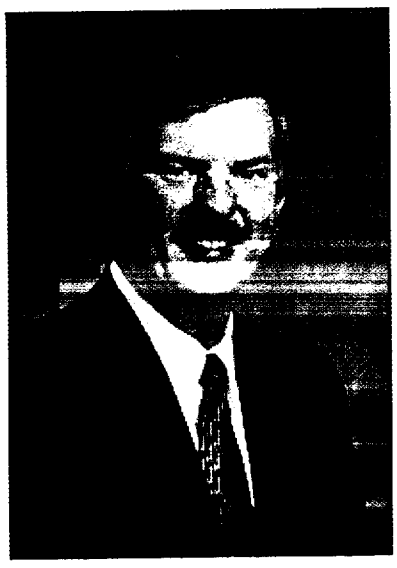
# VISIT TO NRC REGION IV OFFICES

## Arlington, Texas, March 5, 2003, 1300 Hours



**Agenda**
**Arlington, Texas, March 5, 2003, 1300 Hours**

**Introduction – Senior Management Bios**



W. GARY GATES

Vice President

Nuclear Alliances

Nuclear Assessments

Nuclear Engineering

Nuclear Operations

Nuclear Projects

Nuclear Support Services

Gary Gates began his career at OPPD in September 1972.
He joined the staff at Fort Calhoun Station two years later, and has since held several positions in the nuclear organization, including Reactor Engineer, Supervisor – Operations at Fort Calhoun Station and Manager – Fort Calhoun Station. In May 1989, Mr. Gates was named Executive Assistant to the President, and he was appointed Division Manager – Nuclear Operations in February 1990. He was promoted to Vice President with responsibility for OPPD's nuclear organization in November 1992.

Mr. Gates holds a bachelor's degree from Iowa State University, a master's degree in industrial engineering from the University of Nebraska at Lincoln, and a master's degree in business administration from Creighton University.

8/02

ROSS T. RIDENOURE

Division Manager

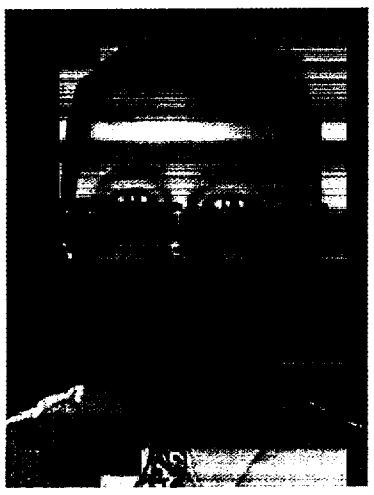
Nuclear Operations

Ross Ridenoure was named Division Manager – Nuclear Operations, and Site Coordinator – Fort Calhoun Station in January 2002. This position is responsible for incorporating OPPD policies and standards of excellence into all station operations, and for ensuring that the plant continues to be a safe, reliable generator of electricity.

Mr. Ridenoure began his career with OPPD in July 1989 as an Operations Training Specialist, and after earning a Senior Reactor Operator's License, was promoted to Shift Supervisor in 1991. He was promoted to Supervisor – Operations in 1996, to Manager of Operations in 1998, and to Assistant Manager – Fort Calhoun Station in 2000. Prior to joining OPPD, Ross was employed by Illinois Power Company as a Nuclear Operations Instructor at Clinton Power Station. He also worked for Westinghouse Electric Co. as a Nuclear Training Engineer at Zion Nuclear Station.

Mr. Ridenoure has been affiliated with the U.S. Navy for more than 25 years, both on active duty as a submariner and in the Naval Reserve. He currently holds the rank of Commander and is an Intelligence Officer for the U.S. Strategic Command at Offutt Air Force Base. He holds a bachelor's degree in nuclear engineering technology from the University of the State of New York, and a master's degree in business administration (executive program) from the University of Nebraska.

8/02



DAVID J. BANNISTER

Manager

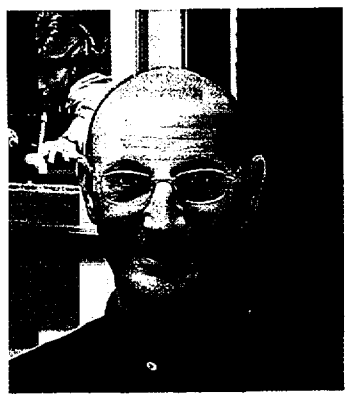
Fort Calhoun Station

Dave Bannister was named Manager – Fort Calhoun Station in February 2002. In this position, Dave has overall responsibility for the day-to-day plant operations.

Mr. Bannister began his career at OPPD in 1983 as an Operations Training Specialist. He has held rotational positions as a Reactor Engineer and as the Manager of Quality. He was promoted to Shift Technical Advisor in 1990 and Operations Engineer in 1991. He was promoted to Operations Shift Manager in 1996, Supervisor – Operations in 1998, and Manager – Operations in 2000.

Mr. Bannister held a senior reactor operator's license from 1990 to 2002, and holds a Bachelor of Science degree in Physics from Nebraska Wesleyan University. He also has completed INPO-accredited training programs for shift managers, shift technical advisors and senior reactor operators.

8/02



JOHN B. HERMAN

Manager

Nuclear Licensing

John Herman was named Manager – Nuclear Licensing at Fort Calhoun Station in June 2002. In this position, John has overall responsibility for coordination of regulatory affairs, inspections, and correspondence related to maintaining the operating license of FCS.

Mr. Herman began his career at OPPD in 1988 as the Supervisor - Operations Training. He has held positions as the Supervisor – Nuclear Licensing (1992 – 1995), Manager – Outage Management (1995 – 1997), and the Manager – Planning and Scheduling (1997 to 2002).

Mr. Herman is a Registered Professional Mechanical Engineer (PE) in the State of Nebraska and a Certified Project Management Professional (PMP). He also holds a Bachelor's degree from the University of the State of New York, a Bachelor's degree from the University of Nebraska at Omaha, and a Masters in Business Administration from Creighton University.

## II. CURRENT PLANT CONDITIONS

### A. Plant Performance

1. Plant has operated continuously since startup from our last refueling outage June 2, 2002 .

2. A Power reduction is planned for mid-March to repair HCV-1108A and troubleshoot condenser tube leakage.

   a. Current plans are that we will down power from 100% to 30% power on Friday, March 14 to allow access to one side of the condenser water boxes on the circulating water side.

   b. Current plans are that we will ascend power from 30% to 100% power beginning Monday, March 24.

### B. Plant Material Condition

1. Overall plant material condition has been good.

2. Noted equipment issues include:

   a. Small secondary Condenser leak has varied from 3 gpd to 35 gpd. The leak averages approximately 12 gpd. (Suspect tube to tube sheet leak).

   b. Control Room HVAC compressor reliability.

   c. Body to bonnet leak on secondary Auxiliary Feedwater valve (HCV-1108A) in Containment.

   d. Elevated vibrations on one Main Feedwater and Condensate pump.

3. Plant Chemistry Performance Index trend has been improving (currently 1.06).

4. RCS total leak rate has been stable normally ranging from 0.1 gpm to 0.2 gpm, with a mean of 0.15 gpm.

5. Fuel performance has been pristine, with chemistry results continuing to indicate no leaking fuel.

## III. Current Plant Topics for Discussion

### A. Security

1. Security Computer Upgrade – this includes hardware/software, training all existing operators and communications to site personnel.

   a. Includes installation of bio-metrics;
   b. Includes issuance of TLD's at the radiologically controlled area.

2. NRC Orders:

   a. Training Order – This will require an enhanced training program and will cost approximately $1 million to develop and implement the training program and to cover watch stations for those attending training.

   b. Working Hours Order – This will limit flexibility in elevated security levels and make it more difficult to cover for people in continuing training.

   c. Access Authorization Order – Revising the entire access authorization program, this includes vendor contract and internal procedures and practices. Some of the requirements will cost money (i.e., re-investigations, credit checks).

3. Installation of an active barrier – This is becoming more of a requirement as opposed to an enhancement.

4. Revised Design Basis Threat – This will likely require additional modifications to meet the proposed changes.

**B. Reactor Pressure Vessel Inspections**

1. The response to NRC bulletin 2002-02 states that FCS is in the "Moderate Susceptibility" category (<12 Effective Degradation Years) until the 2005 refueling outage.

2. Revised response to NRC Bulletin 2002-02 accepted by NRC.

3. Above head nozzle inspection during 2003 RFO.

4. Planning for under head nozzle volumetric inspection during 2005 RFO.

5. Response is in compliance with the Commission Order establishing interim inspection requirements for reactor vessel heads.

## C. Hot Leg Flow Streaming

### 1. History at FCS

a. Hot Leg Streaming refers to the temperature non-uniformity in the reactor hot leg. It is the difference between a resistance temperature detector (RTD) measurement and the average hot leg temperature.

b. There have been 13 flow streaming events at Fort Calhoun Station. The first event occurred during cycle 12 (1/31/89 to 2/17/90) and was the only event in that cycle.

c. There were eight events during cycle 20 (4/29/01 to 5/3/02). The first cycle 20 event occurred on 6/14/01 and the last on 4/16/02.

d. There have been four events so far in cycle 21 (6/3/02 to present). The first cycle 21 event occurred on 1/12/03 and the most recent on 2/9/03. Therefore, there does not seem to be a connection between time of core life and when flow streaming events start.

e. The magnitude of the deviation between $\Delta T$ and NI power is approximately the same for cycles 20 and 21 (4 to 5%). However the duration of the flow streaming events has been less for the events occurring during cycle 21 than they were during cycle 20. The average duration during cycle 20 was 152 minutes, while the average duration during cycle 21 is 114 minutes. Another difference between the cycle 20 and cycle 21 events is that temperature changes were seen in both hot legs during cycle 20 while in cycle 21 the loop 1 hot leg is the most affected.

f. There have been no variable over-power trip (VOPT) reset demand or high power pre-trip alarms received this cycle, and there has been no need to reduce power.

### 2. Corrective Actions Taken To Mitigate The Consequences Of Flow Streaming Included:

a. Abnormal Operating Procedure AOP-15 "Loss of Flux Indication or Flow Streaming was revised to add a section providing the Operators with guidance for handling flow streaming events.

b. Annunciator response procedures for "NUCLEAR $\Delta T$ POWER CHANNEL DEVIATION", VARIABLE OVERPOWER (VOPT) RESET DEMAND" and "HIGH POWER LEVEL CHANNEL TRIP" were revised to assist the Operators in verifying a flow streaming event was in progress.

c. Operations personnel were trained on flow streaming events.

d. For cycle 20 the high power trip setpoint was raised to 108.6% to minimize the possibility of a spurious reactor trip and high power pre-trip alarms.

e. An analysis was performed which increased the allowable limit between the measured reactor power and $\Delta T$ power to 10% to reduce the possibility of having to lower power unnecessarily due to a flow streaming event.

f. Alarms for hot leg temperature indication have been added to the plant computer.

g. A modification to rotate the hot leg RTD's to obtain a better indication of hot temperatures is currently being evaluated.

## D. Frazil Ice

### 1. FCS Position:

a. Frazil ice can occur on the Missouri River, but not to the extent that it would challenge raw water pump operability.

b. Industry experience has shown that the accumulation rate is directly related to flow rates.

c. With circulating water in operation, warm water recirculation significantly reduces accumulation of frazil ice.

d. Without the circulating water pumps in operation, low flow associated with raw water reduces the accumulation rate such that raw water pump suction flow is not inhibited.

e. FCS is commissioning a third party expert to review the engineering position.

### 2. Actions Taken by FCS to Address Frazil Ice:

a. The industry operating experience on frazil ice has driven us to review Structures, Systems and Components (SSC) for the susceptibility at FCS.

b. FCS has not experienced any problems with frazil ice.

c. Operations and Design Engineering have provided the raw water system operability justification, as well as historical information which demonstrates the raw water system operation without reliance on warm water recirculation.

d. Changes were made to the operating procedures at FCS January 10, 2003 to address frazil ice consistent with guidance from US Army Corps of Engineers, Cold Regions Technical Digest No. 91-1, March 1991.

1) If frazil ice were to occur, operators have been provided proper training and guidance to respond to the event using OI-EW-1, Extreme Weather, and AOP-1, Acts of Nature, in that order.
2) OI-EW-1, Attachment 3, was written to provide the operators with an understanding of frazil ice determination. This attachment provides environmental prerequisites, equipment checks plus visual observations and increased equipment rotation frequencies with follow-on procedural guidance to AOP-1 if frazil ice has started to form.
3) AOP-1, Section IV, addresses low circulating water cell level conditions. As an enhancement, Section V was developed to combat low cell level conditions due to frazil ice. This procedure covers Entry Conditions, Precautions, Instructions and Contingency Actions to follow to maintain the plant in a safe condition.

e. During Operations Mini Self-Assessment, interviews determined that the level of knowledge of frazil ice and the actions required to be taken to mitigate frazil ice by equipment operators was outstanding.

## E. Diesel Generator (DG) Fuel Oil Testing

### 1. Background Information

a. During the License Renewal Aging Management Inspection, specific questions were raised about OPPD's commitments regarding DG fuel oil sampling. The licensing commitment for new fuel receipt testing is ambiguous and inconsistent with the FCS Quality Assurance Plan (QAP). The QAP is more restrictive.

b. OPPD is presently in full compliance with all periodic non-receipt fuel oil sampling licensing basis commitments, i.e., confirmation of stored oil properties.

c. RG-1.137 requires testing of the new fuel receipt sample for "other attributes" in accordance with various specifications. Testing of the new fuel receipt sample for these "other attributes" is not being performed as required by the QAP.

d. The new fuel oil receipt sampling procedure, although in compliance with FCS's interpretation of commitments in the licensing basis documents, is not consistent with the testing of the new fuel receipt sampling requirements as stated in the Fort Calhoun Station QA Plan.

e. The QA Plan requires FCS to perform receipt analyses compliant with Regulatory Guide 1.137, Rev 1, Fuel Oil Systems for Standby Diesel Generators for receipt of replacement fuel.

f. The FCS sampling requirements have supported reliable and safe DG operations.

g. Aging effects, i.e. fuel oil storage tank or line corrosion, have not been found by periodic equipment inspections and routine and special maintenance.

### 2. Action Taken

a. The discrepancy between the QAP and the sampling procedure has been reported in the plants condition reporting system and corrective actions are in progress. (CR 200300628, 200200820).

b. A reportability evaluation determined that this condition is not reportable. The QA Plan statement to receipt test in accordance with (IAW) the requirements of RG 1.137 was the result of a 1982 commitment. FCS currently tests IAW SO-T-16, which encompasses some of the 1.137 requirements. Testing requirements in the FCS standing orders have been deemed adequate to ensure operability.

c. The DG's have been determined to be operable.

d. The sampling program is being reviewed against the requirements of Regulatory Guide 1.137.

e. EPRI and other more recent industry standards are being evaluated for possible revision of the QAP.

## F. Containment Integrity for Containment Entry During Power Operation

### 1. Question Raised by Resident inspectors

a. "How can circuits (associated with containment electrical penetrations), not protected by CQE breakers or fuses, be energized during a containment entry and still assure that containment integrity has been adequately considered?"

### 2. FCS Response

a. The design basis for short circuit protection of the FCS Containment Electrical Penetration was reconstituted in EA-FC-98-034 "Electrical Penetration Design Basis Verification for Continuous Load Current, Overload Protection and Short Circuit Protection ELM-2.1-L1SC1," Revision 0.

b. The standard used for the design and construction of the Fort Calhoun Station reactor protection system and engineered safety features systems was IEEE 279-1968 "Proposed IEEE Criteria for Nuclear Power Plant Protection Systems". IEEE 279-1978 does not discuss penetration protection. The FCS design is single breaker protection for electrical penetrations. EA-FC-98-034 found that based on the available information, the FCS penetration short circuit protection design is not in conflict with any design requirements at the time of original plant construction.

c. FCS predates the electrical penetration design standards IEEE 317-1972 and -1976 "Electrical Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations" and Regulatory Guide 1.63 "Electric Penetration Assemblies in Containment Structures for Water-Cooled Nuclear Power Plants."

d. As part of the preparation of EA-FC-98-034 the FCS design was compared with Palisades Nuclear Station. Palisades (using a CE - NSSS) was a Systematic Evaluation Program (SEP) Plant and is of the same vintage as Fort Calhoun Station. The FCS design is similar to the Palisades design. One protection device is used for a penetration circuit. EA-FC-98-034 took a more conservative approach than that required by the applicable design standards by requiring that the single breaker protection be accomplished by a CQE device or that administrative controls be in place to maintain the breakers in the off position. The exception to this was the time needed to energized the containment lighting for containment entrance and for the rod drive surveillance, plant startup and plant shutdown.

e. The Gai-Tronics communication feed into containment is classed as instrumentation. This feed includes an inverter-fed 120V AC power, fused at 10 amps on both the L1 and L2 leads. Although not specifically evaluated in EA-FC-98-034 the discussion on the containment lighting feed is considered to be applicable to the Gai-Tronics system feed into containment.

f. The EA also evaluated the risk associated with the use of containment lighting in support of a containment entry and determined it was acceptable due to the extremely low possibility that the a design basis accident which would challenge containment integrity, requiring the non-CQE breaker or fuse to perform its protective function. The failure of interest to this risk assessment is one of radioactive material release. The sequence of events that would have to occur to result in such a release is as follows:

   1) Containment entry or other activity resulting in the energizing of the containment lighting panel;

   2) High energy line break creating an environment that results in shorting of the lighting panel;

   3) Failure of the breaker to trip and thereby protect the circuit to the lighting panel;

   4) Numerous equipment failures resulting in core melt;

   5) Failure of the cable insulation through the penetration resulting in a leak path from containment.

## IV. Status of Major Upcoming Projects

### A. License Renewal

1. License Renewal Application (LRA) was submitted on January 2002.
2. SER with open items to be issued April 2003.
3. Environmental impact statement to be issued August 2003.
4. Issuance of renewed license is scheduled for November 2003.

### B. Power Uprate

1. Application for a Measurement Uncertainty Recovery (Appendix K) power uprate of ~1.5% will be submitted to NRC in June 2003.
2. Preliminary engineering and economic analysis for an extended power uprate (up to 17%) is currently in progress.

### C. Steam Generator Replacement (RSG)

1. Replacement scheduled for Fall 2006 RFO.
2. $160 million project.
3. Project staff estimated at 25-30 full-time.
4. Contracts awarded to Mitsubishi Heavy Industries (RSG Component) and Framatome ANP (RSG Licensing). Negotiation of RSG installation contract in progress.

### D. Head Replacement

1. Due to Alloy 600 issues, OPPD is planning to replace the reactor vessel head.
2. Head replacement would occur at the same time as steam generator replacement – Fall 2006.

### E. Pressurizer

1. Replacement or repair of pressurizer is currently being studied.
2. Installation is planned for the Fall 2006 RFO.

### F. Spare Main Transformer

1. OPPD has purchased a new main transformer that is sized for the power uprate.
2. Installation is planned for the 2007 RFO (post-RSG installation). The existing unit will be placed in storage as a spare.

### G. Spent Fuel Storage

1. FCS Spent Fuel Pool re-racked in 1994 with high density racks.
2. FCS will exceed current full core offload capacity after Fall 2006 RFO.
3. OPPD plans to purchase and license a temporary fuel storage rack for cask pit area.
4. Temporary rack will maintain full core offload capability until Independent Spent Fuel Storage Installation (ISFSI) construction in 2007.
5. Initial cask filling is planned for second half of 2007.

### H. Rapid Refueling Package

1. Rapid Refueling package will be installed in two phases:
   a. Phase 1 (integrated missile shield and annular neutron shield) is scheduled for installation in the 2003 RFO.

b. Phase 2 (retractable utility bridges/cables and modified ventilation) will be installed either in the 2005 or the 2006 RFO outage. This work will be coordinated with the replacement RV head.

2. Removal of the existing concrete missile shields from containment will happen either in 2005 or 2006 RFO.
3. When complete, the rapid refueling package is expected to save 3 days and 2.5 rem/outage.

**I. Simulator Upgrade**

1. Major upgrades are needed to remodel for the replacement steam generators and the extended power uprate projects.
2. Upgrades are scheduled for completion in December 2005 to allow Operator training prior to start-up from the 2006 RFO (when the steam generators have been replaced).

## V. Fall 2003 Refueling Outage

### A. Schedule Duration:

Outage duration goal is 30 days. Current revision "A" schedule is approximately 27 days. Critical path will run through the refueling backbone with a core off-load window for maintenance and testing work on shutdown cooling related systems and the 10 year ISI inspection of the RX vessel. The steam generator inspection will be a challenge to critical path.

### B. Scheduled Modifications:

| Title |
|---|
| Replace Containment Refueling Machine (FH-1) including; Mast, Hoist Box and Controls |
| Fuel Transfer System Upgrade |
| Amptector Trip Device Jumper Installation |
| Low Pressure Safety Injection (LPSI) Void Detection Instrumentation |
| Control Room Fresh Air Inlet Dampers |
| Thermal Expansion Loops in Charging Lines |
| Small Bore Pipe Restraints in Containment |
| Reactor Protective System (RPS) Hot Leg 1 RTD Reconfiguration |
| Integrated Head Assembly |
| Recirculation Actuation Signal (RAS) Test Switch Changes Dedicated Operator Issue |
| Reroute Appendix R Credited Cables |
| Feedwater Heater FW-15A/B Replacement |

## VI. 2002 INPO Plant Evaluation

### A. New Plant Evaluation Process

1. Plant evaluation was conducted November 11 through 22, 2002.

2. Fort Calhoun Station was the third pilot plant to be evaluated under the new Operational Excellence Outcomes (OEO) process. The OEO process was designed to be a forward looking evaluation. Past evaluations were designed to tell you where you are, the OEO process tells you what your areas of potential vulnerability may be. The OEO process looks at six industry outcomes:

   a. Sustained, significant event-free operations,
   b. Sustained, high levels of plant performance consistent with safety and reliability goals,
   c. Well-managed, understood, and preserved safety, design and operational margins,
   d. A highly skilled and knowledgeable workforce,
   e. Avoidance of unplanned, long duration shutdowns, and
   f. High levels of plant worker safety.

3. Overall Results
   a. FCS was recognized for excellence.
   b. 13 Areas for improvement, 4 negative noteworthy comments.
   c. 9 Strengths identified, 8 positive noteworthy comments.

**B. INPO Evaluation Results - Positives**

1. Strong ownership, alignment, and use of station teams have contributed to high levels of equipment reliability and materiel condition.

2. The station has taken a proactive approach toward identifying stakeholders and building their confidence in the station's ability to operate safely, maintain open communications, and resolve problems.

3. Management has implemented a long-term human resource strategy to ensure that there is adequate leadership depth and that future staffing needs are filled in a planned manner.

4. The station has developed a long-range plan to replace or upgrade several major components, including the steam generators, pressurizer, reactor vessel head, reactor coolant pumps, and control systems.

5. Station workers received significantly less radiation dose during the most recent refueling maintenance outage as a result of source term reduction efforts.

6. The station has implemented a calculation database that allows personnel to easily determine when a calculation is under revision and that provides cross-referencing of calculations by input and output relationships.

## C. INPO Evaluation Results - Challenges

1. Lower-level events are occurring that may represent precursors to a more significant event. Human error is the leading contributor to these events. Improvements are needed in the following areas to address human performance shortfalls:

2. Some supervisors, including coordinators and crew leaders, do not adequately reinforce human error-prevention techniques such as use of self-checking, peer-checking, and seeking additional guidance when work does not proceed as planned. As a result, desired behaviors are not consistently practiced.

3. Sufficiently high industrial safety standards have not been established in some areas, such as electrical safety and handling of insulating materials. Additionally, first-line supervisors do not recognize, coach, or correct some work area safety hazards, and some workers do not comply with established safety procedures. As a result, the personnel injury rate has increased recently, near-miss events are increasing, and supervisors do not recognize or document some hazardous conditions.

4. Expectations are unclear as to when managers need to be engaged to interpret latitude allowed by procedures. Expectations are needed regarding when individuals should raise questions and how managers should be more involved. Strong station performance has been achieved using a management approach that delegates decision-making, empowers workers, and relies on workers' skills and knowledge. However, delegating decision-making to lower levels in the organization without clear expectations for management involvement results in inconsistent application of some administrative procedures.