UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

AUG 26 2002

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 August 21, 2002. The participants discussed your recent successes, current initiatives, 2002 refueling outage, and performance goals. The new Fort Calhoun licensing manager was introduced.

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. NRC Presentation

cc w/enclosures:
John B. Herman, Manager
Nuclear Licensing
Omaha Public Power District
Fort Calhoun Station FC-2-4 Adm.
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

Richard P. Clemens, Division Manager
Nuclear Assessments
Fort Calhoun Station
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

David J. Bannister, Manager - Fort Calhoun Station
Omaha Public Power District
Fort Calhoun Station FC-1-1 Plant
P.O. Box 550
Fort Calhoun, Nebraska 68023-0550

James R. Curtiss
Winston & Strawn
1400 L. Street, N.W.
Washington, D.C. 20005-3502

Chairman
Washington County Board of Supervisors
P.O. Box 466
Blair, Nebraska 68008

Sue Semerena, Section Administrator
Nebraska Health and Human Services System
Division of Public Health Assurance
Consumer Services Section
301 Centennial Mall, South
P.O. Box 95007
Lincoln, Nebraska 68509-5007

Daniel K. McGhee
Bureau of Radiological Health
Iowa Department of Public Health
401 SW 7th Street, Suite D
Des Moines, Iowa 50309

Enclosure 1

**Meeting Group:** MEETING WITH OPPD/FT. CALHOUN **Date:** 8-21-02

| Name | Organization | Phone No. | e-Mail Addr. | Fax No. |
|---|---|---|---|---|
| 1. Dave Bannister | OPPD | (402) 533-6625 | dbannister@oppd.com | |
| 2. w GARY GATES | OPPD | (402) 636-3210 | wGATES@OPPD.COM | (402) 636-3229 |
| 3. Ross Ridenoure | OPPD | (402) 533-7426 | rridenoure@oppd.com | (402)-533-7696 |
| 4. John Herman | OPPD | (402) 533-6905 | Jherman@oppd.com | (402) 533-7696 |
| 5. WAYNE C WALKER | USNRC | 817-276-6523 | WCW@NRC.GOV | |
| 6. DALE POWERS | NRC | (817) 860-8195 | dap@nrc.gov | (817) 860-8212 |
| 7. ELLIS W. MERSCHOFF | | | | |
| 8. W.D. Johnson | NRC | | | |
| 9. Claude E. Johnson | NRC | (817) 860 8282 | cej1@NRC.gov | (817) 860-8212 |
| 10. | | | | |
| 11. | | | | |
| 12. | | | | |
| 13. | | | | |
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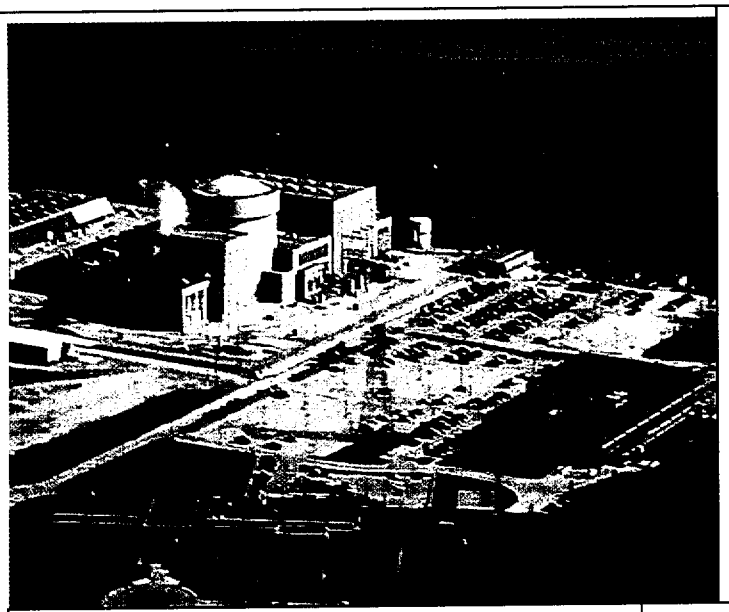
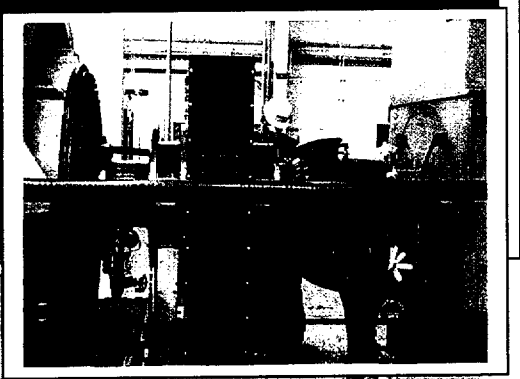
Enclosure 2

# Fort Calhoun Station . . . . . .2002

Who We Are . . . . . What We Do!

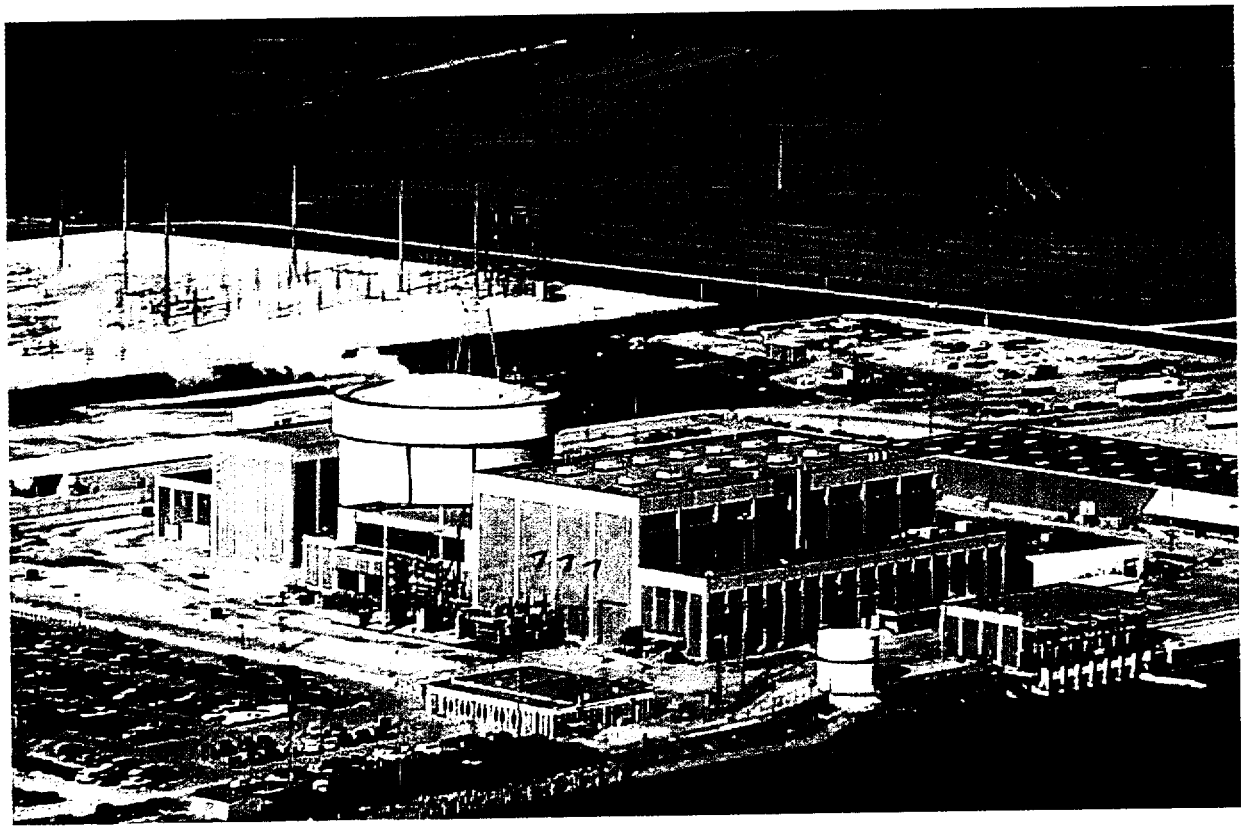




8/15/02

# Fort Calhoun Station
# Fact Sheet

| | |
|---|---|
| August 9, 1973 | Full Power Operation License Issued |
| September 26, 1973 | Commercial Operation |
| December 3, 1993 | Operating License Expiration Date Extended to August 8, 2013 |
| Current Operating Cycle | Fuel Cycle 20 |
| Current Electric Rating (Gross) | 502 Megawatts |
| Percent of Total OPPD Net Generation (September 1973 – December 2001) | 39.5% |



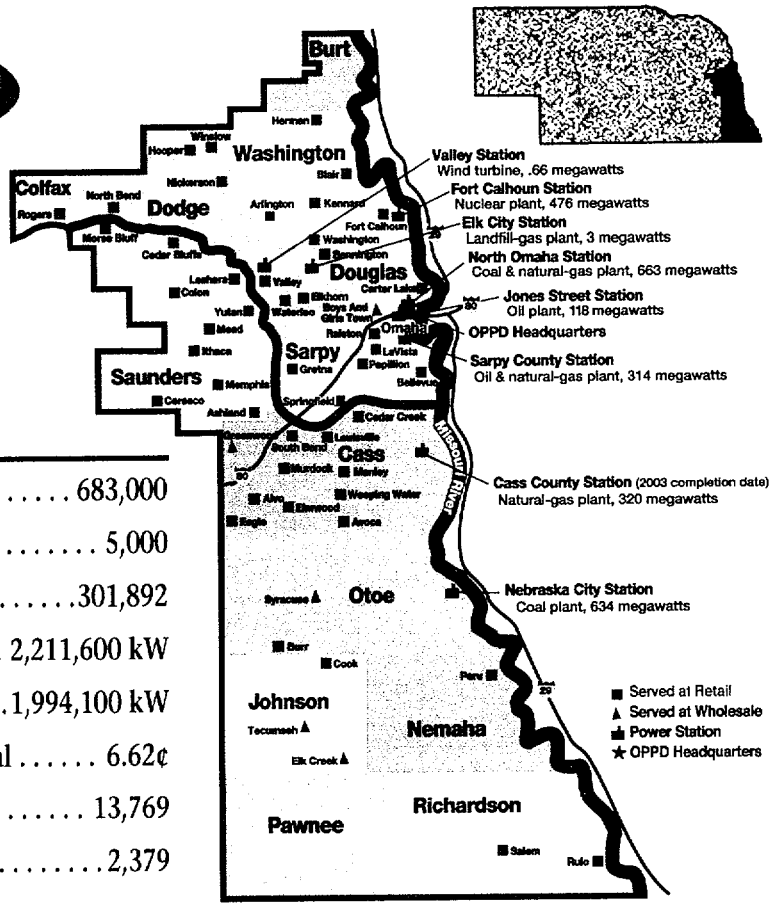
OPPD

Omaha Public Power District

# Quick Facts

| | |
|---|---|
| Population served | 683,000 |
| Service area in square miles | 5,000 |
| Number of electric customers | 301,892 |
| Generating capability | 2,211,600 kW |
| System peak load | 1,994,100 kW |
| Average cost per kWh – residential | 6.62¢ |
| Miles of electric line | 13,769 |
| Number of employees | 2,379 |

As of 12/31/01



# NUCLEAR ORGANIZATION

## Management Team

**W. Gary Gates**
**Vice President**

**Ross T. Ridenoure**
**Division Manager**
**Nuclear Operations**
**Site Coordinator**

# NUCLEAR ORGANIZATION

## Management Team

**W. Gary Gates**
**Vice President**

**Ross T. Ridenoure**
**Division Manager**
**Nuclear Operations/**
**Site Coordinator**

**Ralph L. Phelps**
**Division Manager,**
**Nuclear Engineering**

**Mary A. Tesar**
**Division Manager**
**Nuclear Support**
**Services**

**Richard (Rich) P. Clemens**
**Division Manager**
**Nuclear Assessments**

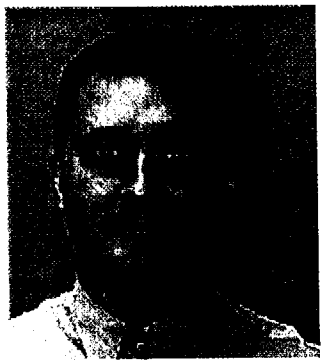
**James (Jim) W. Chase**
**Division Manager**
**Nuclear Alliances**

**Sudesh K. Gambhir**
**Division Manager**
**Nuclear Projects**

# NUCLEAR OPERATIONS DIVISION

## Management Team

**Ross T. Ridenoure**
**Division Manager, Nuclear Operations/**
**Site Coordinator**



**David (Dave) J. Bannister**
**Manager, Fort Calhoun Station**

**John B. Herman**
**Manager, Nuclear Licensing**

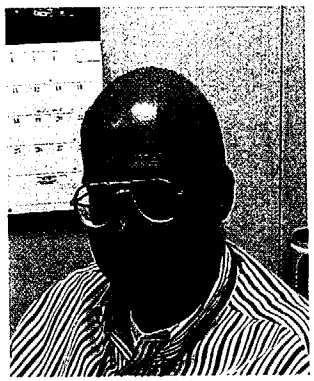
**H. John Sefick**
**Manager, Security & Emergency Planning**

**Richard (Rick) E. Westcott**
**Manager, Training**

# NUCLEAR ENGINEERING DIVISION

## Management Team

**Ralph L. Phelps**
**Division Manager, Nuclear Engineering**



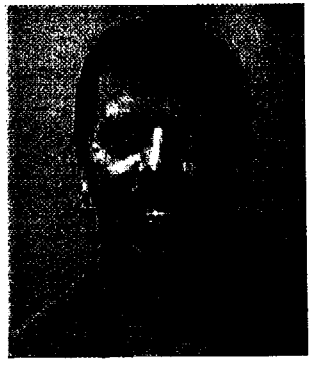
**Merl R. Core**
**Manager, System Engineering**

**Joe L. McManis**
**Manager, Design Engineering Nuclear**

# NUCLEAR SUPPORT SERVICES DIVISION

## Management Team

**Mary A. Tesar**
**Division Manager**
**Nuclear Support Services**



**Ronald (Ron) A. Johansen**
**Manager, Nuclear**
**Procurement Services**

**Kathleen (Kathy) E. Perdue**
**Manager, Nuclear**
**Administrative Services**

**Timothy (Tim) D. Pilmaier**
**Manager, Corrective**
**Action Group**

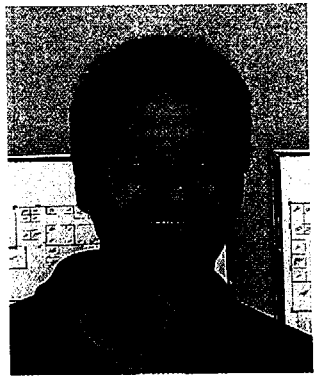
# NUCLEAR ASSESSMENTS DIVISION

## Management Team

**Richard (Rich) P. Clemens**
**Division Manager**
**Nuclear Assessments**

**Jean Chamberlain**
**Manager-Nuclear Process Computing Services**

**Steve W. Gebers**
**Corporate Health Physicist**



**Delvin (Del) R. Trausch**
**Manager - Nuclear Safety Review Group**

# NUCLEAR ALLIANCES DIVISION

## Management Team

**James (Jim) W. Chase**
**Division Manager**
**Nuclear Alliances**

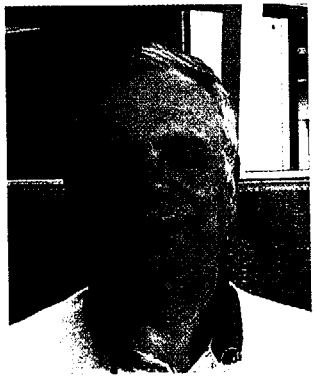
**William (Bill) J. Ponec**
**Manager, Nuclear Business Processes (RAMS)**

**Eugene(Gene) E. Morris**
**Employee Concerns Program Coordinator**

# NUCLEAR PROJECTS DIVISION

## Management Team

**Sudesh K. Gambhir**
**Division Manager**
**Nuclear Projects**



**Joseph (Joe) K. Gasper**
**Manager, Nuclear Projects**

**Frederic (Rick) L. Scofield**
**Manager, Nuclear Projects**

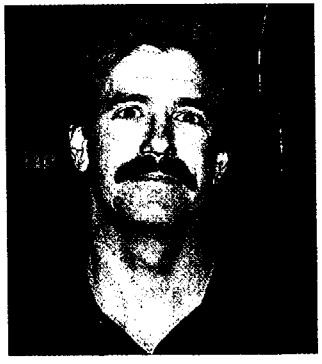
**Ronald (Ron) W. Short**
**Manager, Nuclear**
**Special Projects**

# FORT CALHOUN STATION

## Management Team

**David (Dave) J. Bannister**
**Manager, Fort Calhoun Station**

**Mark T. Frans**
**Assistant Plant Manager**



**John (Woody) Goodell**
**Manager, Operations**

**James (Jim) W. Tills**
**Manager, Maintenance**

**Richard (Rich) G. Haug**
**Manager, Chemistry**

**Mark J. Puckett**
**Manager, Radiation Protection**

**Harry J. Faulhaber**
**Manager, Outage**

**Vacant**
**Manager, Planning and Scheduling**

# 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.

# 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 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 from the University of Nebraska.

8/02

# SUDESH K. GAMBHIR

## Division Manager

### Nuclear Projects

Sudesh Gambhir was named Division Manager – Nuclear Projects at Fort Calhoun Station in January 2002. This position is responsible for oversight of major projects such as license renewal, steam generator replacement, dry cask storage, extended power up-rate, and a variety of information technology upgrades.

Mr. Gambhir began his career at the Omaha Public Power District in 1978 as a Senior Engineer responsible for the design and implementation of various Three Mile Island-related and fire-protection-related modifications for Fort Calhoun Station. He held several positions in the Engineering Division, including Department Manager – Electrical and Nuclear Engineering and Section Manager – Generating Station Engineering.

In July 1988, Mr. Gambhir was appointed Division Manager – Production Engineering, with responsibility for providing technical and engineering support for Fort Calhoun Station. He was appointed Division Manager – Engineering & Operations Support in February 1997, and was responsible for providing engineering services and operations support for the station. In August 1998, he was named Division Manager – Nuclear Operations, with responsibility for the day-to-day operation of the station, including Plant Operation & Maintenance, Security, Training, Nuclear Licensing, and Emergency Planning.

Mr. Gambhir is a Registered Professional Engineer, has completed Management Plant Certification at Fort Calhoun Station, and holds a master's degree in nuclear engineering from the Polytechnic Institute of New York, and a master's degree in business administration from the University of Nebraska at Omaha.

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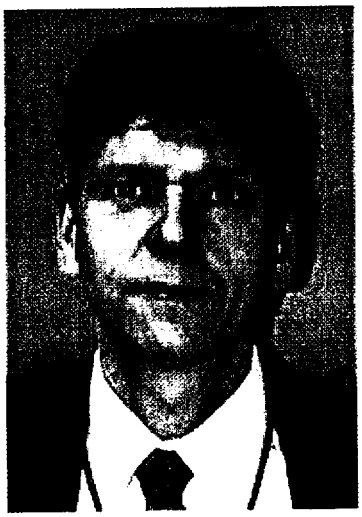


# RALPH L. PHELPS

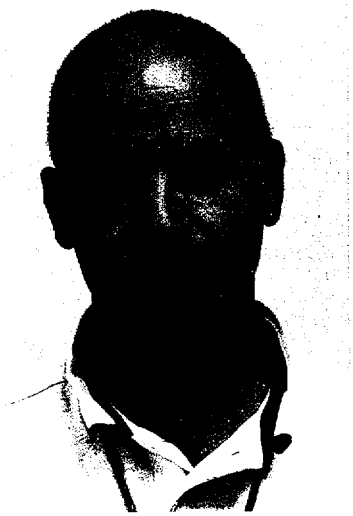
## Division Manager

### Nuclear Engineering

Ralph Phelps was named Division Manager – Nuclear Engineering at Fort Calhoun Station in 1999. In this position, Ralph is responsible for all engineering support functions, including fuel-reload analyses and major projects at the station.

Mr. Phelps began his career at OPPD in 1989 as Manager – Design Engineering. He served as Acting Division Manager – Production Engineering from 1993 to 1995, and managed plant certification training in 1996. He was named Manager – Station Engineering in 1997, and served as Acting Division Manager – Nuclear Engineering from 1998 to 1999, when he was named to his current position.

Mr. Phelps holds the title of Professional Engineer, and has a bachelor of science degree in electrical engineering from Manhattan College, and a master of science degree in nuclear engineering from the University of Virginia.



# RICHARD P. CLEMENS

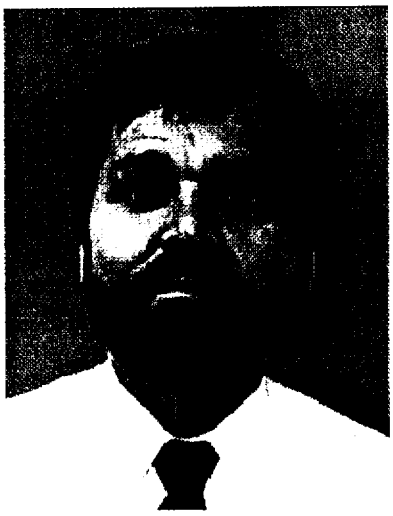
## Division Manager

### Nuclear Assessments

Rich Clemens was named Division Manager – Nuclear Assessments at Fort Calhoun Station in January 2002. In this position, Rich is responsible for the functions of Health Physics, Quality Compliance, Nuclear Safety and Nuclear Process Computing.

Mr. Clemens began his career at OPPD in 1981 as an Electrical Engineer. He held several supervisory positions from 1988 through 1998, when he was named Manager – Maintenance. He was promoted to Manager – Fort Calhoun Station in 2000.

Mr. Clemens has participated in the Institute of Nuclear Power Operations loanee program, and has successfully completed both the INPO-accredited senior nuclear plant manager course and the management plant certification class. He holds a Professional Engineer's license in the state of Nebraska, and holds a bachelor of science degree in electrical engineering from the University of Nebraska at Lincoln.



# JAMES W. CHASE

## Division Manager

### Nuclear Alliances

Jim Chase was named Division Manager -- Nuclear Alliances in January 2002. In this position, Mr. Chase coordinates Fort Calhoun Station's effort to take a leading role in groups such as the the Utilities Services Alliance (USA), a national organization of utilities that operate nuclear generating plants. USA seeks to make its member utilities stronger through the sharing of personnel, expertise and physical resources, which serves to maximize each plant's cost-effectiveness.

Mr. Chase began his career with the Omaha Public Power District in 1989. He was named Manager -- Fort Calhoun Station in 1993, and promoted to Division Manager -- Nuclear Assessments in 1998.

Mr. Chase hold a bachelor's degree in political science from the University of Southern Alabama, and a master's degree in business administration from the University of Nebraska at Omaha.

# MARY A. TESAR

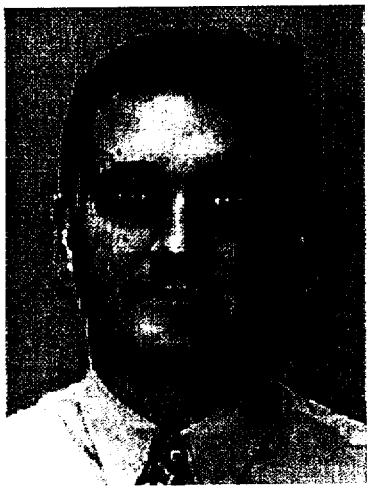
## Division Manager

### Nuclear Support Services

Mary Tesar was named Division Manager – Nuclear Support Services at Fort Calhoun Station in November 1998. In this position, Mary is responsible for procurement, the corrective action program and administrative services.

Ms. Tesar began her career at OPPD in 1973. After serving in several laboratory and chemistry positions, she was promoted to Supervisor – Environmental Services, then to Supervisor – Technician and Radiation Training. Most recently, she served as Manager – Corrective Action Group.

Ms. Tesar holds a bachelor's degree in biology from the College of St. Mary. She recently completed the Senior Nuclear Plant Management Training Program, and is involved in the Conference for the Development of Women at the Fort Calhoun Station.



# DAVID J. BANNISTER

## Manager

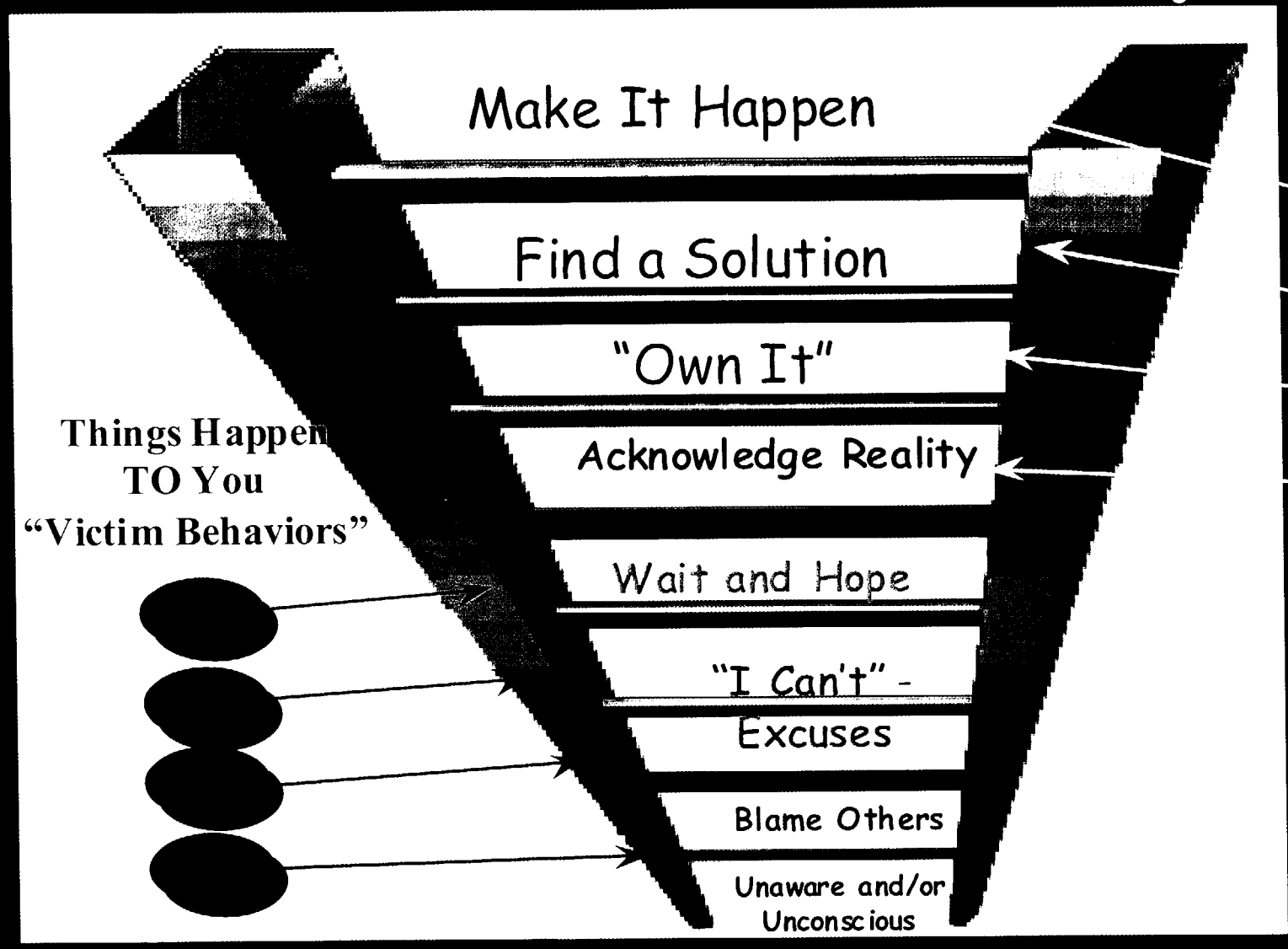
### Fort Calhoun Station

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

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 named 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.

# Ladder of Accountability



## Year 2001 Successes

- Successful 2001 ERO Exercise.
- Successful NRC Problem Identification & Resolution Inspection.
- 100% Pass Rate on NRC Operator Exams.
- All NRC Performance Indicators were Green.
- Implemented a Performance Based Compensation Program.
- Increased the Unit Capability Factor.
- Developed a Plan to Eliminate Leaking Fuel.
- No reactor trips or unplanned shutdowns.
- FCS Security transitioned to post 9/11.
- Finalized License Renewal Documents with a successful self-assessment.
- Developed a Site Wide Leadership Program.
- Work Management Process Improvements were implemented.
- Implemented the 50.59 Revision.
- Re-accredited Operations Training.
- FCS completed the full implementation of 10CFR50.65(a)(4) (i.e. Maintenance Rule). This included expanding the scope of maintenance assessments to include an evaluation of initiating events using both qualitative and quantitative criteria.

## Year 2002 Successes

- 100% pass rate on last NRC Generic Fundamentals Exam .
- Completed analysis and implementation of Tech. Specs. and procedures for Alternate Source Term and Radiological Consequences.
- Submittal of FCS license renewal application.
- Completed several modifications to enhance security at FCS for OSRE and 9/11 Security Orders.
- Breaker to breaker run prior to 2002 Refueling Outage (RFO).
- 2002 RFO:
  - Completed preparations six months ahead of schedule.
  - Completed RFO with no Temporary Modifications .
  - Replaced leaking fuel.
  - Completed visual inspection of reactor head with no indications of boric acid corrosion.
  - Circulating water debris filter for condensate cooler for increase MVAR capacity.
  - Safety injection valve modifications and replacements.
  - Under dose goal.
  - Use of hydrogen peroxide was successful.
  - Under budget.
  - Met all safety goals.
  - Under 30 days .
- Transition to new leadership team/succession planning/leadership development.
- Board approved negotiating contracts for:
-
  - Steam generator replacement.
  - Measurement uncertainty power up-rate.
  - Replacement of reactor vessel head.

# Fort Calhoun Station Initiatives

**Going Forward Plan**

**Precursors to Success and Longevity**

**Maintain NRC Performance Indicators Green**

**Leadership Development and Staffing**

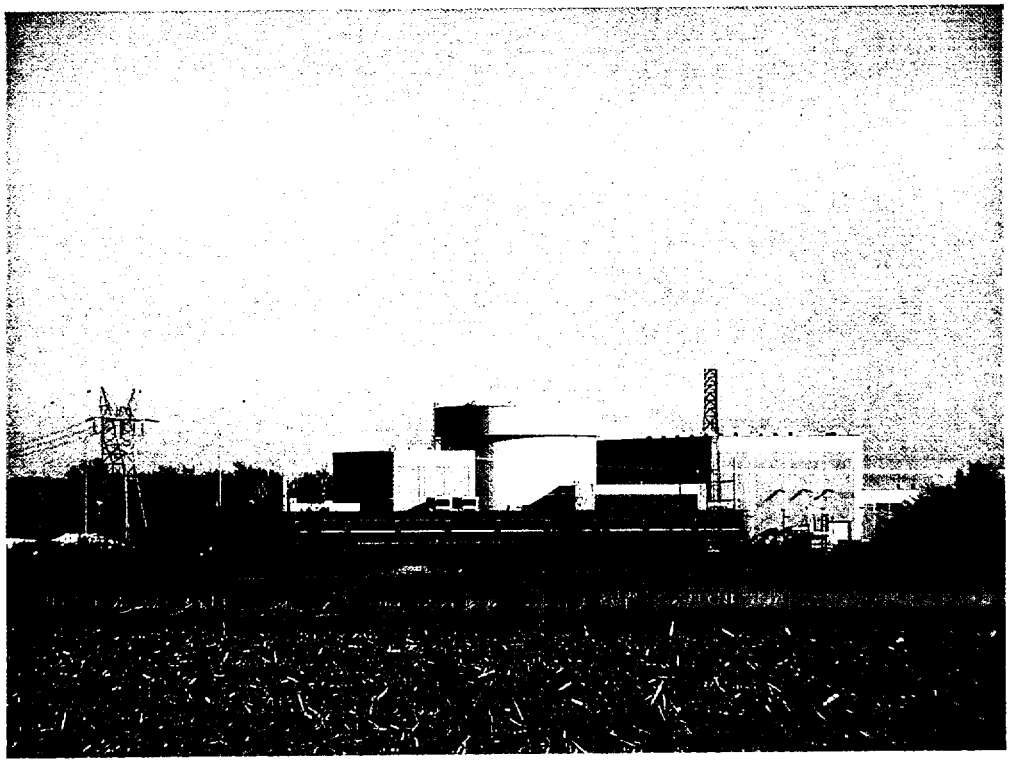
**Steam Generators**

**Alloy 600 and Control Element Housing Cracking Issues**

**Security**

**Electrical Grid Reliability**

**Human Performance**



## Going Forward Plan

- OPPD evaluated the single unit business climate and initiated an action plan to maintain high performance and industry leadership.

- Key success factors are people, performance, cost, leadership, organization and structure, and recognition of regulatory and industry opportunities & threats.

- Conclusions and actions recognize:

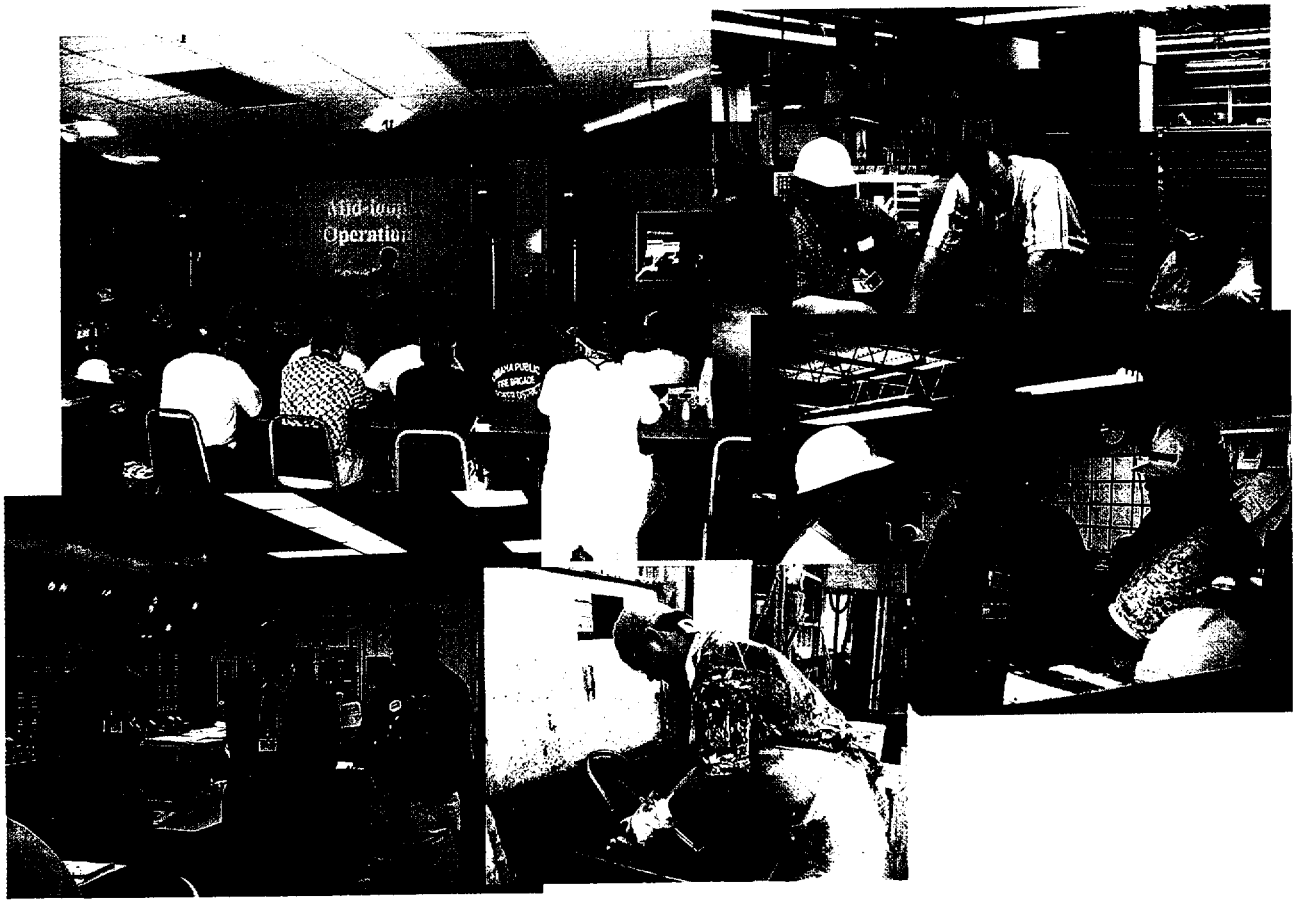
  - Focus is on the future and the Main Thing

    Main Thing: Safe, Event-Free, Cost-Competitive, Nuclear Production of Electricity.

  - Leaders will set the course

  - People will get us there

  - Follow through is critical



## Precursors to Success and Longevity

- **License Renewal**
  - License Renewal Application (LRA) was submitted on January 10, 2002.

- **Power Up-rate**
  - Project is currently performing preliminary engineering and economic analysis.
  - Target uprate percentage is 20%.
  - OPPD has been in contact with NRC Power Uprate Project Manager.
  - Uprate to be performed to existing licensing bases.
  - Preliminary project schedule developed.

- **Steam Generator Replacement**
  - Replacement scheduled for fall 2006.
  - $150 million project.
  - Project staff estimated at 25-30 full-time.
  - Bid specs under development.
  - Board of Directors has authorized management to negotiate contracts.
  - Major contract to be awarded in early 2003.

- **Head Replacement**
  - Due to Alloy 600 issues, FCS is planning to replace the reactor vessel head.
  - Specifications are currently in development to be released with steam generator bidding package.
  - Head replacement would occur at the same time as steam generator replacement – 2006.

- **Dry Cask Storage**
  - FCS Spent Fuel Pool re-racked in 1994 with high density racks; cannot be re-racked again.
  - FCS will exceed current full core offload capacity in fall 2006.
  - OPPD plans to purchase and license temporary fuel storage rack for cask pit area.
  - Temporary rack can defer construction of $2 million Independent Spent Fuel Storage Installation (ISFSI).

- **Spare Main Transformer**
  - OPPD has purchased a new main transformer that is sized for the power uprate project.
  - Installation is planned for the 2007 refueling outage. The existing unit will be placed in storage as a spare.

## Maintain NRC Performance Indicators Green

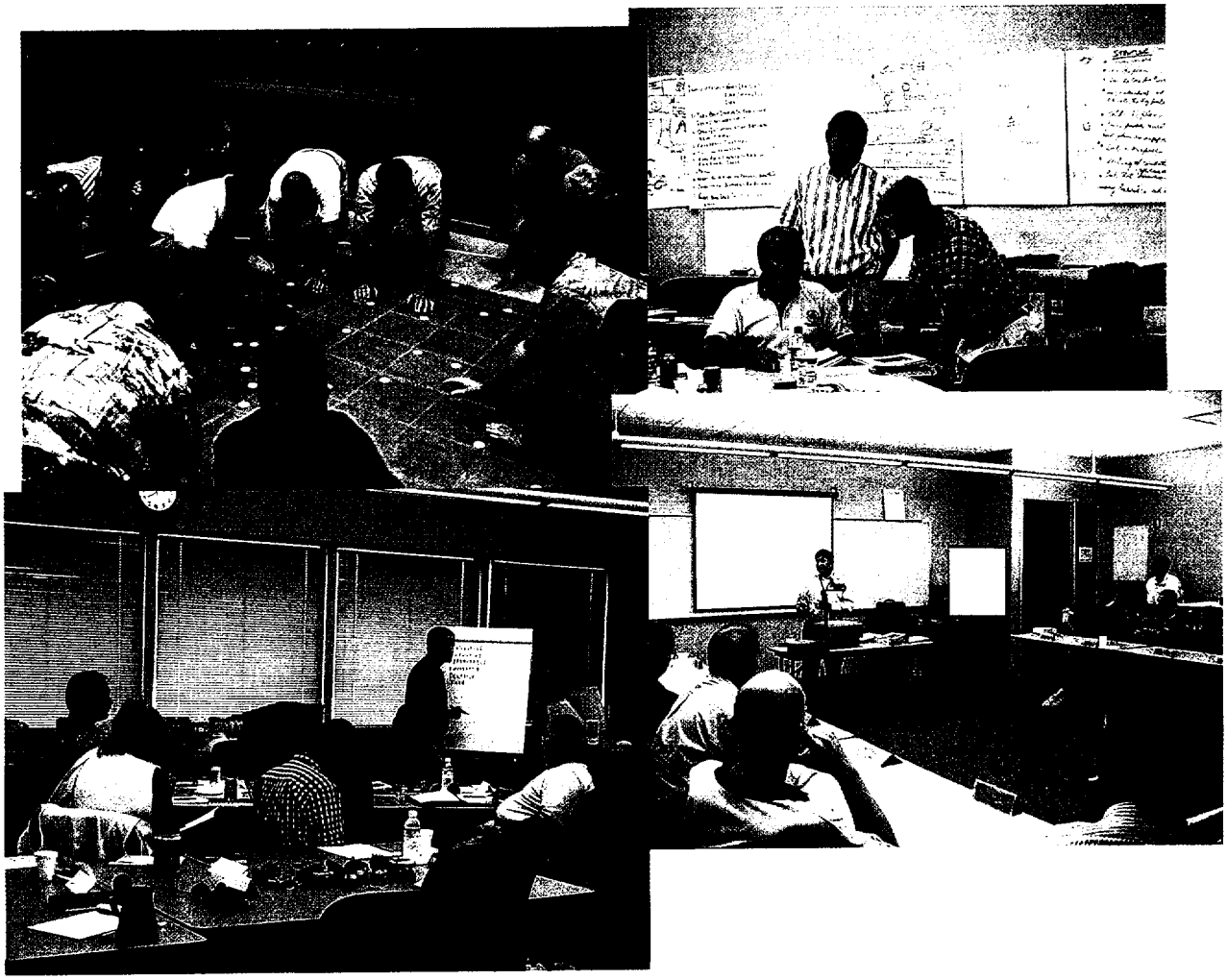
- All NRC Performance Indicators are green.
- By OPPD's internal color ranking system, 5 PIs are "White" requiring increased management attention:
  - Emergency AC Power Unavailability.
  - Reactor Coolant System Activity.
  - ERO Drill / Exercise Performance.
  - Emergency Response Organization Drill Participation.
  - Occupational Exposure Control Effectiveness.

## NRC PERFORMANCE INDICATORS MONTHLY SUMMARY

| Cornerstones and their Indicators | NRC Color |
|---|---|
| **Initiating Events** | |
| Unplanned Scrams per 7000 Critical Hours (Automatic & Manual Scrams) | |
| Scrams with Loss of Normal Heat Removal | |
| Unplanned Power Changes per 7000 Critical Hours | |
| **Mitigating Systems** | |
| Emergency AC Power Unavailability | |
| High Pressure Safety Injection System Unavailability | |
| Heat Removal AFW System Unavailability | |
| Low Pressure Safety Injection (RHR) System Unavailability | |
| Safety System Functional Failures | |
| **Barriers** | |
| Reactor Coolant System Activity | |
| Reactor Coolant System Identified Leak Rate | |
| **Emergency Preparedness** | |
| ERO Drill / Exercise Performance | |
| Emergency Response Organization Drill Participation | |
| Alert & Notification System Reliability | |
| **Occupational Radiation Safety** | |
| Occupational Exposure Control Effectiveness | |
| **Public Radiation Safety** | |
| RETS / ODCM Radiological Effluent Occurrences | |
| **Physical Protection** | |
| Protected Area (PA) Security Equipment Performance Index | |
| Personnel Screening Program Performance | |
| Fitness for Duty (FFD) Personnel Reliability | |

## Leadership Development and Staffing

- Leadership Academy training has continued.
- Staff levels in operations and security have increased.
- New hires are obvious throughout all organizations to address demographics of aging workforce.
- Leadership changes are addressing the Going Forward Plan.
- Promote Positive Cultural Behavior Changes



## Steam Generators

- The steam generators are aging as expected, resulting in a tube plugging rate each outage that is consistent with explicit model predictions.
- Number of tubes plugged is low, (SG-A 4.4%, SG-B 4.5%) considering the age of the Inconel tubing.
- Proactive improvements in the secondary side conditions and systems have minimized SG degradation.
- Planned SG replacement in 2006 does not jeopardize performance and reliability of the generators.

## Alloy 600 and Control Element Housing Cracking Issues

- CEDM housing cracking, as observed at Palisades, is not expected to occur at FCS until 2010. This prediction is based on explicitly modeled FCS and Palisades CEDM housing stagnancy, materials, and stress conditions.

- The current material reliability of the reactor vessel (RV) head and control assemble housings appears to be good based on indirect information such as: visuals of the RV head, leakage rates and head work dosage that can be dispositioned as normal conditions. These suggest the 2002 outage visual examination will conclude similar results.

- FCS is classified as moderately susceptible to primary water stress corrosion cracking (PWSCC). FCS projects no immediately vulnerable to issues associated with Alloy 600 until 2020.

- FCS performed an integrity inspection of the RV head and CEDMs in the 2002 outage well before industry experience dictated immediate inspections.

- FCS has proactively addressed Alloy 600 issues through leadership of industry working committees and model development.

- Insulation removal and/or head cleaning during the 1983, 1991 and 1992 Refueling Outages did not find boric acid crystal build-up around the RV head nozzles.

- FCS Alloy 600 Program Plan will address site-specific concerns for material reliability and management of PWSCC issues.

- FCS is working with EPRI to enhance industry understanding of PWSCC.

## Alloy 600 and Control Element Housing Cracking Issues

- CEDM housing cracking, as observed at Palisades, is not expected to occur at FCS until 2010. This prediction is based on explicitly modeled FCS and Palisades CEDM housing stagnancy, materials, and stress conditions.

- The results of the 2002 RFO visual inspection of the reactor vessel head and volumetric exams of the control assembly housings concluded that there was no significant boric acid corrosion on the reactor vessel head or cracking of the control assembly housings. The current material reliability of the reactor vessel (RV) head and control assembly housings appears to be good based on the visual and volumetric inspections. In addition, the unknown leakage and dose rates remain stable.

- FCS is classified as moderately susceptible to primary water stress corrosion cracking (PWSCC). FCS projects no immediately vulnerable to issues associated with Alloy 600 until 2020.

- FCS performed an integrity inspection of the RV head andCEDMs in the 2002 outage well before industry experience dictated immediate inspections.

- FCS has proactively addressed Alloy 600 issues through leadership of industry working committees and model development.

- Insulation removal and/or head cleaning during the 1983, 1991 and 1992 Refueling Outages did not find boric acid crystal build-up around the RV head nozzles.

- FCS Alloy 600 Program Plan will address site-specific concerns for material reliability and management of PWSCC issues.

- FCS is working with EPRI to enhance industry understanding of PWSCC.

## Electrical Grid Reliability

- OPPD spent over $50M to make improvements in substation and transmission systems connected to FCS (FCS is connected to the grid through three 161 KV lines and three 345 kV lines).

- Actions to ensure that the offsite power (the grid) remains a viable source of power for safe reactor shutdown were performed in response to SOER 99-1 "Loss of Grid" include:

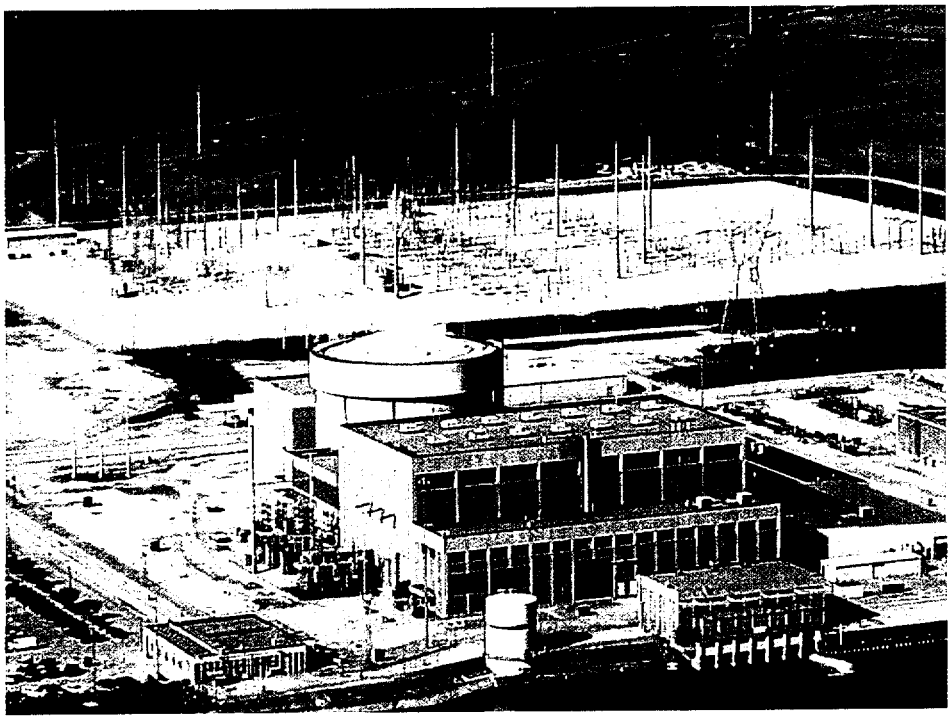
  - Ensuring the offsite power associated equipment is properly maintained,

  - Defining the required offsite voltage for proper DBA response (including transmission and generation outages),

  - Providing a near real time display of the ability of the grid to safely shutdown the plant in the event of a DBA (identify a degraded grid condition),

  - Defining Plant Operator actions (compensatory measures) in the event a degraded grid is identified,

  - A 2002 modification has been initiated to provide a wider range of grid frequency display in the control room. This provides an additional diagnostic tool for determining the condition of the grid.



## Human Performance

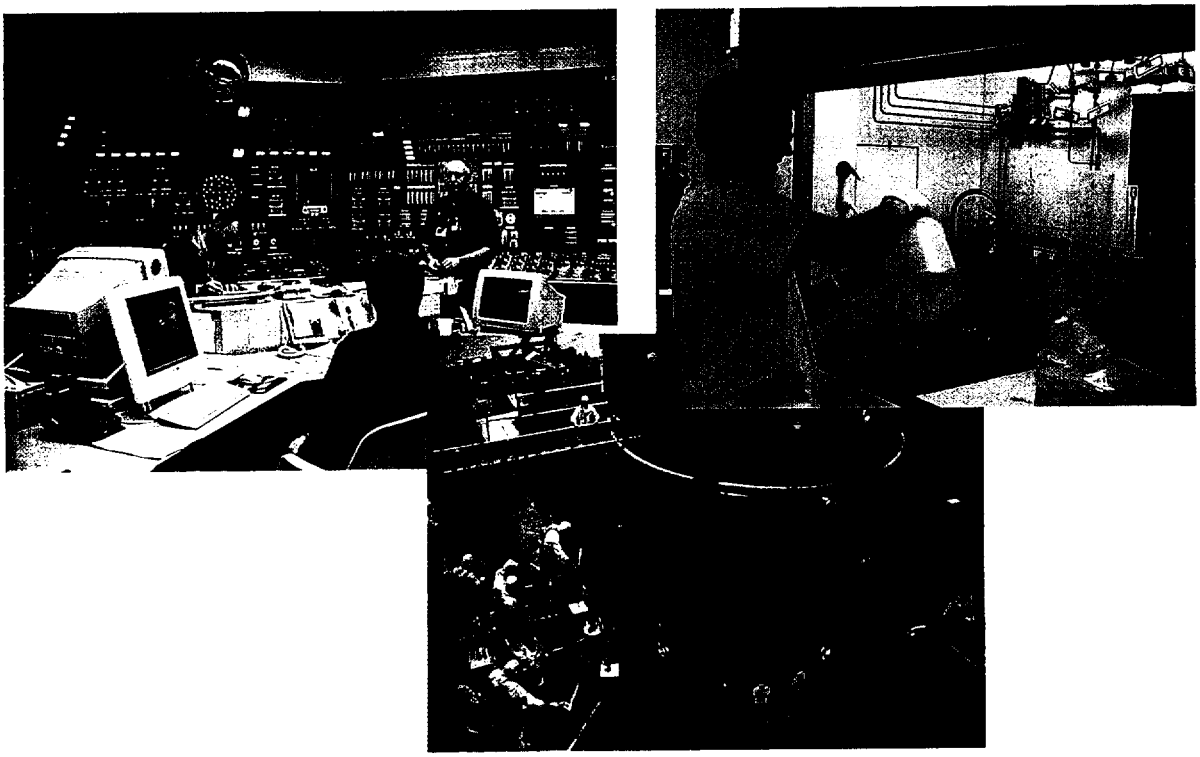
- FCS is conducting a site-wide human performance picnic during the month of September. This is an extremely popular event that has each department develop a booth or activity that focuses the participants on a human performance topic.

- The FCS Site Coordinator has readily accepted becoming the senior management sponsor of the human performance program for the site.

- An addition to the Corrective Action Group staffing has been approved. This position will focus a majority of his or her effort in the human performance arena.

- An effort is underway to improve the human performance program at the site. This initiative will drive improvements in areas such as use of the human performance tools, improved error coding, and defining expectations for human performance improvements.

- The Corrective Action Group 2003 business plan includes several improvement opportunities in the area of human performance. Among these items are improved benchmarking both inside and outside of the nuclear industry, the use of focus groups to determine human performance program needs, and improving the availability of OE on human performance.



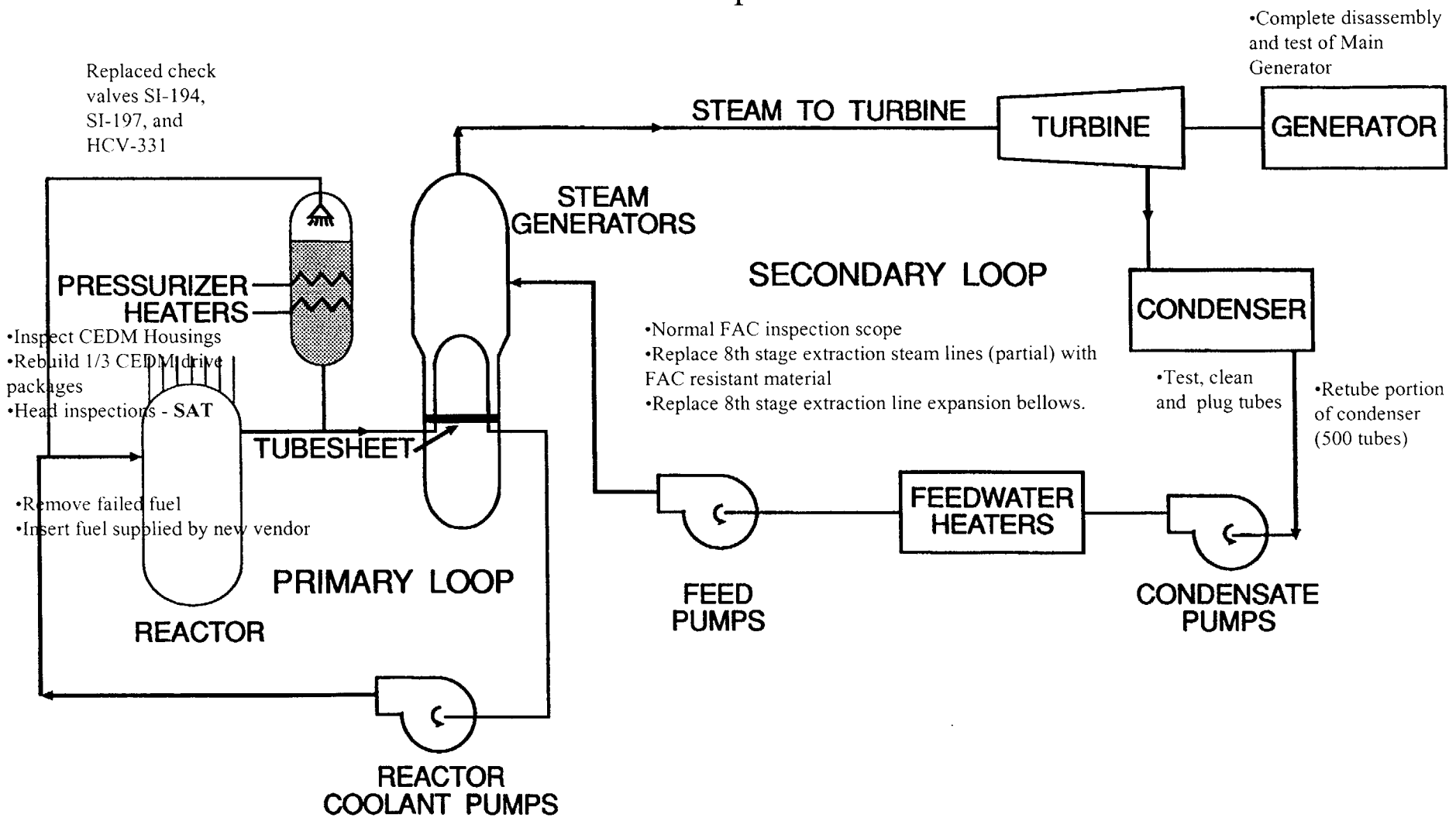
# 2002 Refueling Outage

## 2002 Refueling Outage Summary of Positive Outcomes

- Shortest FCS RFO, 29 Days, 3hours, 19 minutes – Improvement of 11 days over previous record
- SI check valve work
- N-type RCP seals installed
- Condenser Plugging
- S/G Inspection

# 2002 Refueling Outage
# Plant Improvements

•Inspect containment liner
•Repair coatings in containment




•Replaced 1 RCP rotating assembly
•Replaced CCW piping to one RCP
•Upgrade/Replace all 4 seals to N-7500s

RVPWRSYS

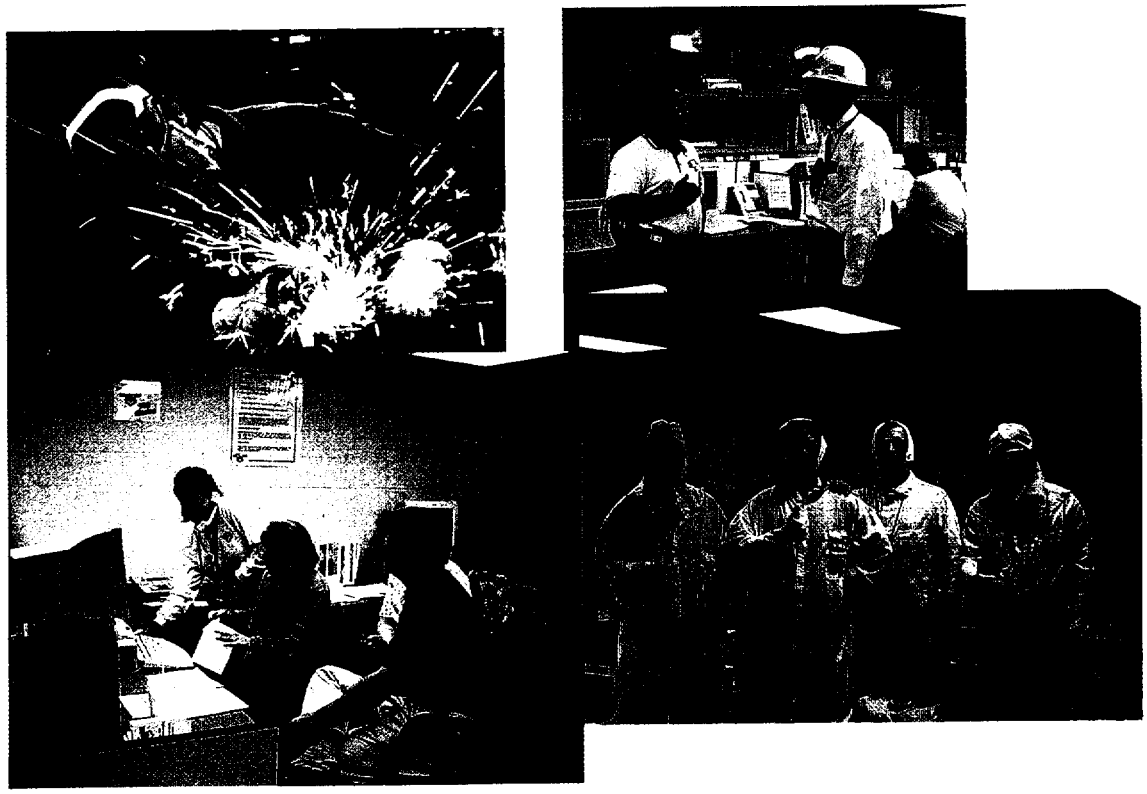
## Observed Effects of the Leadership Development and Staffing Initiative During the 2002 RFO

- **Communications:** Improved communications. Part of the improvement was driven by technology (the cell phones we used), however, face-to-face communications improved with an increased emphasis on ensuring the message was delivered and understood. Simplicity and timing of the message was stressed to bring up issues to the right person at the right time in the right way.

- **Teamwork:** Teamwork was excellent. Exceptional teamwork was the norm from day one and continued without interruption through the outage until breakers closed. No finger pointing, no "blame game" when something went wrong. Individuals stepped up to the plate and asked "What can I do to help?"

- **Accountability:** This was the norm from day one until breakers closed. There were frequent examples of personnel being "above the line" on the Ladder of Accountability to make things happen.

- **Positive, Winning Attitude:** You could feel the positive attitude and the energy during the outage. There was the belief that, "We Can Do This." A typical comment heard at the beginning of the outage was "Hey…I don't know what it is, but something is different here…." A typical comment heard toward the end of the outage was "I expected this attitude to fizzle out by now but….it's still here! What's going on?"



## Fuel Integrity Status and Plan

- OPPD experienced a considerable fuel integrity challenge during the last three cycles.
- OPPD changed fuel vendors from Westinghouse to Framatome.
- Fall 2002 outage was moved to spring 2002 to reduce the effects of the leaking fuel.
- The post-2002 refueling outage core make-up is:
  - 40 new Framatome bundles
  - 53 once burnt Framatome bundles
  - 40 Westinghouse modified design with Inconel grids
- All Leaking fuel has been removed from the core.
- OPPD conducted chemical clean-up of the Reactor Coolant System..
- OPPD continues to maintain heightened awareness on this issue.

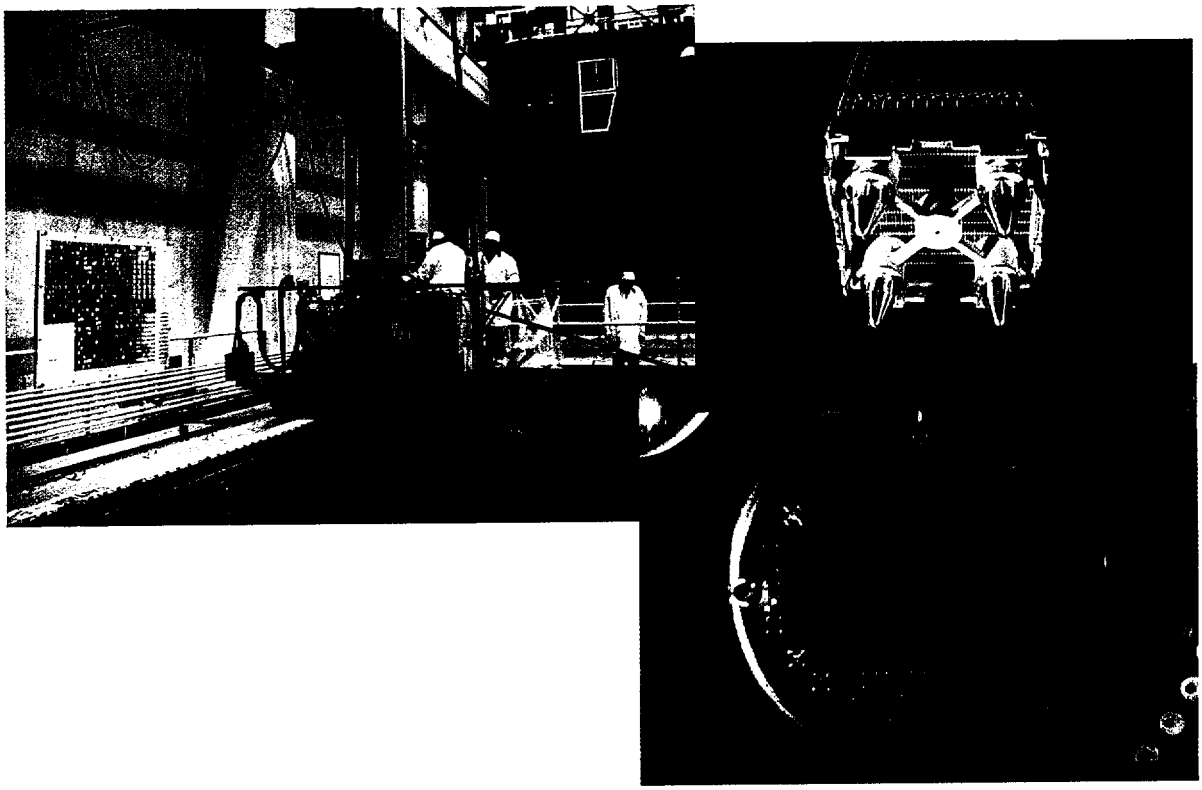
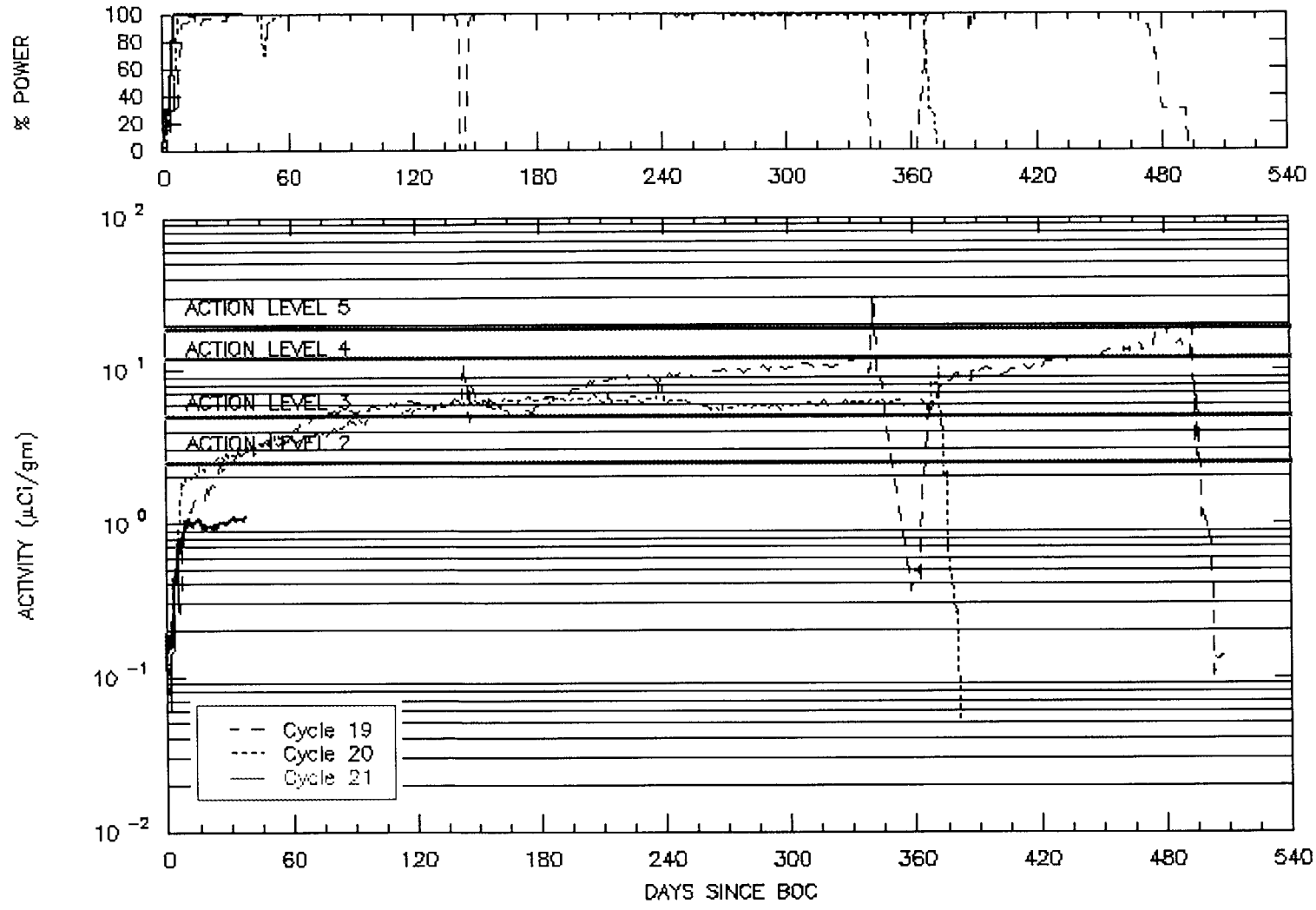


FIGURE 4

# CYCLE 21 TOTAL COOLANT ACTIVITY




BOC: June 1, 2002

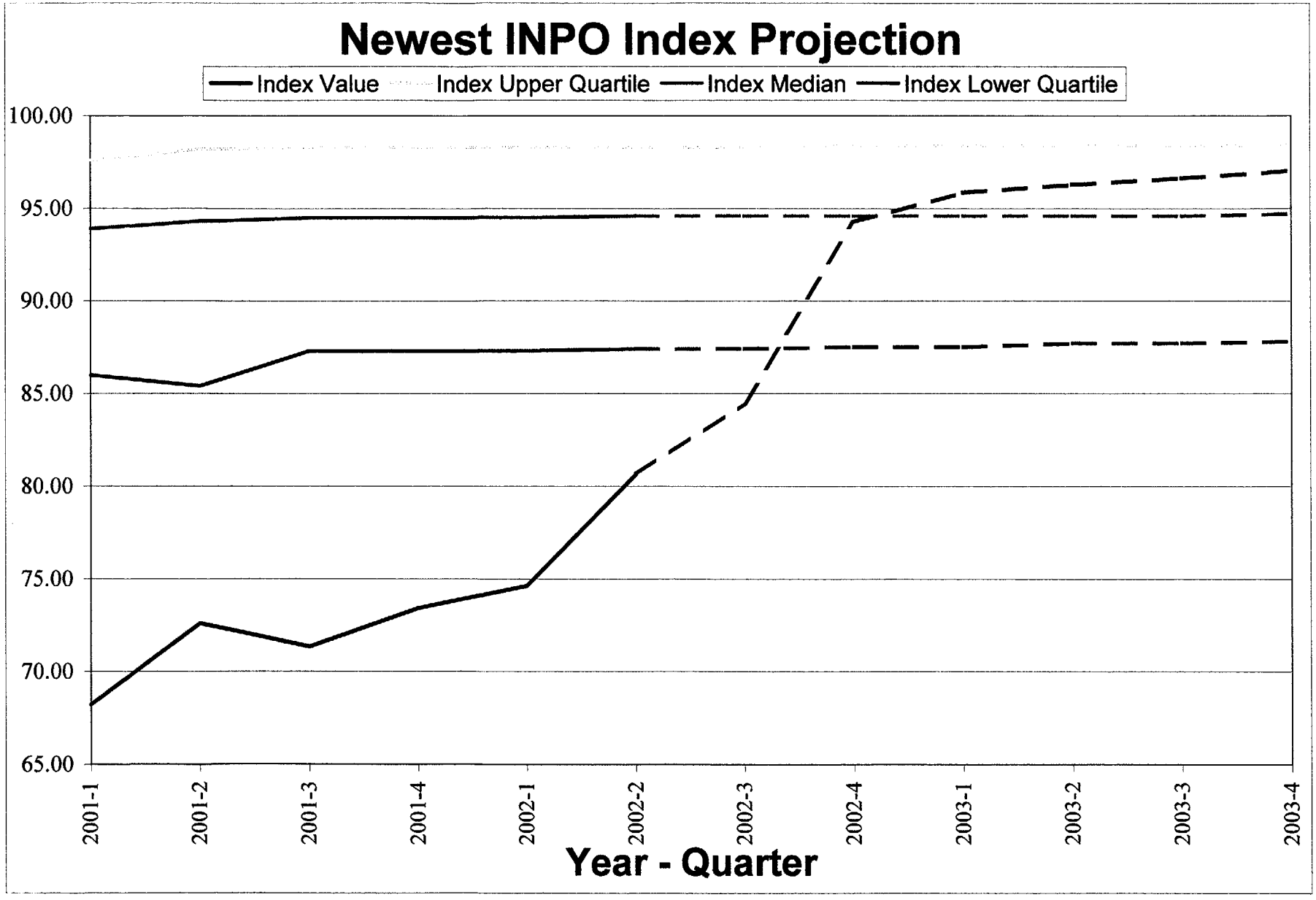
Day 38: July 9, 2002

# FORT CALHOUN STATION NEW FUEL CHARACTERISTICS
# CYCLES 14-20

| Cycle | New Fuel Vendor Mid-grid Type | Grid Material | # Enriched Assy's | # Non-enriched Assy's | New Fuel Design Features |
|---|---|---|---|---|---|
| 14: **R** | **Westinghouse** Original | Zircalloy | 48 | 4 (Natural) | Type C design with diagonal holddown spring in mid-grids. Top and bottom grids made of Inconel. Removable top and bottom nozzles. Debris resistant bottom nozzle. |
| 15: **S** | **Westinghouse** Original | Zircalloy | 41 | 0 | Low cobalt end fittings. |
| 16: **T** | **Westinghouse** Original | Zircalloy | 48 | 0 | Lower six inches of each fuel rod is pre-oxidized to improve debris resistance |
| 17: **U** | **Westinghouse** Revision 1 | Zircalloy | 40 | 4 (Tails) | Revision 1 of mid-grid design. Changes to reduce grid-to-rod fretting include: 1) reduced grid cell spring rate to retain better contact with rod cladding, 2) axially alternate spring/dimple alignment to eliminate formation of rod gaps, 3) rearrange diagonal spring directions to remove a net assembly twist mechanism, and 4) lower profile outer grid strips to reduce fluid coupling with core shroud motion. Also switched to ZIRLO rod cladding to provide more rod corrosion margin. Rod free volume increased by lengthening the rods made possible by lower strain rate of ZIRLO, thereby providing more internal rod pressure margin (needed due to increase in assumed hydrogen release in the IFBA coated rods). Axial blankets at top and bottom ends of each fuel rod (reduces neutron leakage and reduces overall fuel costs). |
| 18: **W** | **Westinghouse** Revision 1 | ZIRLO | 44 | 0 | ZIRLO CEA guide tubes and mid-grids (improved corrosion resistance and dimensional stability under irradiation). Grooved end caps to more easily detect an incomplete end cap weld (result from one Batch T bad end cap weld). Annular pellet design for axial blankets for IFBA fuel only (increased fuel rod plenum volume reduces max. rod internal pressure during operation as well as economic benefit in reduced fuel costs). |
| 19: **X** | **Westinghouse** Revision 2 | Inconel | 40 | 0 | Revision 2 of mid-grid design. Inconel material with **vertical holddown springs**. Very similar to design provided to Millstone 2 during mid-1980's. |
| 20: **Y** | **Siemens** High Thermal Performance (HTP) | Zircalloy | 49 | 4 (Tails) | Zircalloy low-tin cladding, FUELGUARD debris resistant lower tie plate. Removable upper tie plate. Gadolinia as the integral fuel burnable absorber. |
| 21: **Z** | **Siemens** High Thermal Performance (HTP) | Zircalloy | 40 | 0 | Zircalloy low-tin cladding, FUELGUARD debris resistant lower tie plate. Removable upper tie plate. Gadolinia as the integral fuel burnable absorber. |

# FCS Progress toward 2005 Industry Performance Goals

| | 2nd Qtr 2002 Data | Projected 2002 4th Qtr Data | 2005 Industry Goal | Status |
|---|---|---|---|---|
| **Unit Capacity Factor** | 84.0 | 93.3 | 91 | will meet |
| **Forced Loss Rate** | 1.1 | 0.5 | 2 | will meet |
| **Unplanned Capability Loss Factor** | 3.85 | 0.3 | 2 | will meet |
| **Unplanned Automatic Scrams per 7000 Hours Critical** | 0 | 0 | $\leq 1$ | meeting |
| **Safety System Performance** | | | | |
| **PWR High Pressure Safety Injection** | 0.001 | 0.001 | 0.02 | meeting |
| **PWR Auxilliary Feedwater** | 0.004 | 0.003 | 0.02 | meeting |
| **Emergency AC Power** | 0.015 | 0.016 | 0.025 | meeting |
| **Fuel Reliability** | 1.0E-06 | 1.0E-06 | 0 defects | meeting |
| **Chemistry Performance Indicator** | 1.18 | 1.13 | 1.1 | 3rd Qtr 2003 |
| **Collective Radiation Exposure** | 266 | 128 | 65 | 2008 |
| **Industrial Safety Accident Rate per 200,000 hours worked** | 0.20 | 0.30 | 0.3 | meeting |


Newest INPO Index Projection
Index Value
Index Upper Quartile
Index Median
Index Lower Quartile
100.00
95.00
90.00
85.00
80.00
75.00
70.00
65.00
2001-1
2001-2
2001-3
2001-4
2002-1
2002-2
2002-3
2002-4
2003-1
2003-2
2003-3
2003-4
Year - Quarter

# Utilities Service Alliance, Inc.

**Fort Calhoun Station – Omaha Public Power District**

Fort Calhoun Station has been a full member of the Utilities Service Alliance (USA) since its conception in 1995. Formed primarily for single nuclear unit utilities to share resources and purchasing power while facing an "unknown" era of deregulation, the alliance has grown and matured over the years to also focus on improving performance of individual members and the "fleet" as a whole.

Alliance Conception Adopted: September 20, 1994
Alliance MOU Signed: January 1, 1995
Alliance Incorporated: August 23, 1996

**Fleet Operations Concept: November 7, 2001**

- To achieve and maintain consistent, cost-effective top quartile performance within the industry
- To establish codes of conduct and standards of operational excellence for the various functional divisions of the nuclear plant
  - Operations
  - Maintenance
  - Radiation Protection
  - Chemistry
  - Outage Management
  - Training
  - Engineering
- To encourage industry communications and fleet sharing of ideas and concepts to prevent "isolationism"
- To maintain a level of influence in the industry

**Supply Chain Management Business Unit**

Savings reported over past four years:

- 1998 – **FCS: $1,040,562**
  - USA total: $4,633,003 ($661,858 average – 7 sites)
- 1999 – **FCS: $1,225,044**
  - USA total: $4,843,898 ($691,985 average – 7 sites)
- 2000 – **FCS: $1,043,850**
  - USA total: $5,023,857 ($837,310 average – 6 sites)
- 2001 – **FCS: $1,417,918**
  - USA total: $5,965,705 ($1,193,141 average – 5 sites)

Over 40 USA contracts with various vendors currently in place (11 more in various stages of creation)

**Alliance Members:** 12 Utilities, 19 Reactors (14 PWR, 5 BWR), 20094 MW

| *Full Members* | *Participating Members ("STARS")* |
|---|---|
| DC Cook, Susquehanna, Fermi 2, Fort Calhoun, Cooper, Wolf Creek | South Texas Project, Comanche Peak, Diablo Canyon, Palo Verde, Callaway, Wolf Creek (also member of STARS) |