



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

July 23, 2008

Virginia Electric and Power Company
ATTN.: Mr. David A. Christian
President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060

**SUBJECT: MEETING ANNOUNCEMENT - PUBLIC MEETING CATEGORY 1 -
PERFORMANCE DISCUSSION MEETING, NORTH ANNA POWER STATION,
DOCKET NOS. 50-338 AND 50-339**

Dear Mr. Christian:

This refers to the Category 1 public meeting conducted at your request in the Region II Office on July 16, 2008, at 10:00 a.m. The meeting's purpose was to discuss performance related activities at your North Anna Power Station. Enclosed is a list of attendees and the presentation handout.

It is our opinion that this meeting was beneficial, in that, it provided the NRC staff with an understanding of your focus goals and direction for operating units.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be made 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 letter, please contact me at (404) 562 - 4612.

Sincerely,

/RA/

Mark A. Bates, Acting Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket No.: 50-338, 50-339
License No.: NPF-4, NPF-7

Enclosures: (See next page)

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Enclosures: (See next page) ☒ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE ☒

NON-SENSITIVE

ADAMS: ☐ Yes ☐ No ACCESSION NUMBER: _____

OFFICE	RII:DRP								
SIGNATURE	/RA By MBates /								
NAME	JDodson								
DATE	7/ /2008								
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY

DOCUMENT NAME:

VEPCO

2

Enclosures: 1. List of Attendees
2. Presentation Handouts

cc w/encls:

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Eric Hendrixson
Director, Nuclear Safety and Licensing
Virginia Electric and Power Company
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Daniel G. Stoddard
Site Vice President
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3

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RIDSNRRDIRS

PUBLIC

S. P. Lingam, NRR (PM: NA, SUR)

Richard Jervey, NRR

LIST OF ATTENDEES

Virginia Electric and Power Company

Daniel G. Stoddard (Dan)	Site Vice President
Nason L. Lane (Larry)	Plant Manager
Eric S. Hendrixson	Director Nuclear Station Safety & Licensing
Thomas R. Huber (Tom)	Director, Nuclear Site Engineering
Page A. Kemp	Supervisor, Station Licensing

Nuclear Regulatory Commission - Region II Personnel

L. Reyes, Regional Administrator
L. Wert, Director, Division of Reactor Projects
H. Christianson, Deputy Director, Division of Reactor Safety
R. Croteau, Deputy Director, Division of Reactor Safety
M. Bates, Acting Chief, Reactor Projects Branch 5
J. Dodson, Senior Project Engineer

North Anna Power Station

North Anna Equipment Reliability Policy Statement

February 2008



Policy Statement:

North Anna will implement and utilize an integrated and systematic approach to Equipment Reliability in concert with Dominion's process, with the key foundation principles being intolerance for equipment failures and low threshold for problem identification.

Objectives:

The overall objective of the equipment reliability process at North Anna is to ensure we can safely, reliably, and cost-effectively operate the station to meet the needs of the company and our customers. Our approach to equipment reliability must maintain a focus on forward-looking *prevention* of critical equipment failures. Failure of any equipment that is not specifically designated as "run-to-failure" must be considered as an organizational failure, and must be thoroughly understood and have actions taken to prevent recurrence.

Roles and Responsibilities:

An industry best equipment reliability process requires the passionate commitment of all members of the North Anna team. While not all-inclusive, some specific roles and responsibilities include:

Mgmt and Leadership Team:

- Providing the appropriate alignment and resources to resolve equipment issues commensurate with threats to station safety and reliability.
- Providing effective oversight of the key processes and programs supporting equipment reliability.

Operations:

- Operate the plant and equipment in accordance with station procedures and in a manner consistent with its design intent.
- Carefully monitor plant and equipment parameters during routine rounds and duties, and identify and promptly investigate any off-normal conditions or trends. Document these conditions on WR's and CR's as appropriate.
- Actively support maintenance and engineering in equipment performance monitoring, preventive maintenance, and corrective maintenance activities.

Maintenance:

- Maintenance owns component performance and reliability.
- Perform high quality preventive and corrective maintenance on plant equipment. *The expectation for maintenance of plant equipment is that any time we perform maintenance on a piece of equipment, we should not have to touch that equipment again until its next scheduled maintenance activity.*
- When performing maintenance on equipment, have an understanding of not only *what* you are doing, but also *why* you are doing it.
- Take a leadership role in troubleshooting of component failures and abnormalities.
- Provide high quality PM feedback including recommendations for PM content and periodicity changes.

Engineering:

- Engineering owns **all aspects** of system performance and reliability.
- Develop Life Cycle Management plans to ensure long term health of plant equipment.
- Actively trend and monitor system and component performance data to provide early detection and correction of degraded performance.
- Take an active leadership role in complex component or system troubleshooting activities.
- Rigorously maintain the plant design basis.
- Effectively implement regulatory programs.
- Interface frequently with operations and maintenance to gain a better understanding of equipment performance from a "customer" perspective.
- Effectively use station, fleet, and industry operating experience to identify and take appropriate corrective action for potential equipment failures.
- Develop high quality plant modifications to improve plant safety and reliability.
- Identify critical components and take action to ensure proper preventive maintenance and testing is in place for each of these components.
- Identify single point vulnerabilities and margin management challenges. Take action to ensure they are eliminated or appropriate mitigating actions are in place to prevent failures.
- Effectively use benchmarking and self-assessment to ensure NAPS is positioned as an industry leader in ER.

Supply Chain:

- Conduct rigorous and thorough receipt inspections of spare parts and ensure full capability to correct plant deficiencies upon installation.
- Collaborate with key station departments to ensure availability of critical spares.

Outage and Planning:

- Optimize Functional Equipment Group maintenance periods to maximize the accomplishment of preventive and corrective maintenance items while minimizing out of service time.
- Ensure forced outage lists consider opportunities to conduct maintenance or modifications to improve equipment reliability
- Coordinate input from key station departments in order to maintain the Long Range Plan as a living document to ensure best match of resources to improve ER.

Key Processes:

Scoping and Identification of Critical Components
Corrective Action
Continuing Equipment Reliability Improvement

Performance Monitoring
PM Implementation
Long Term Planning/Life Cycle Management

The Bottom Line:

Anticipating and Preventing Problems = Excellent Equipment Reliability = Excellent Plant Performance + High Quality of Life



Daniel G. Stoddard
Site Vice President – North Anna Power



North Anna Power Station Plant Performance

*Dan Stoddard
Site Vice President*

NRC Region II - July 16, 2008

Dominion
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Focus Areas

- *Safety*
- *Human Performance*
- *Equipment Reliability*
- *Corrective Actions*
- *Outage Performance*
- *Leadership and Personnel Development*



Safety Nuclear/Industrial/Radiological

Dominion
“Nuclear Safety First”



Nuclear Safety

Alloy 600

- *Preemptive Mitigation of Alloy 600 by Full Structural Weld Overlay (FSWO)*
- *Installed on PZR Surge Line, Spray Line, Safety Valve Lines (3), and Relief Valve Line Nozzles*
- *Implementation was completed during 2007*
- *Remaining locations include Unit 1 S/G Hot and Cold Leg Nozzles*
 - *Volumetric Inspection currently scheduled for Spring 2009 Outage*
 - *Contingency mitigation strategy is being planned*



Nuclear Safety

GSI 191 Implementation

- *New Containment Sump Strainers Installed*
- *Required Insulation was Replaced to Minimize Potential Debris Loading on the New Containment Sump Strainers*
- *Physical Implementation was Completed During 2007*



Nuclear Safety

GSI 191 Implementation

- *Chemical Effects Testing*
- *Downstream Component and System Wear Effects Analysis*
- *Total Project Cost*
 - *Unit 1 - \$14.4 Million*
 - *Unit 2 - \$14.6 Million*
- *On Schedule to meet Relief Request Extension Date of 9/30/08*



Nuclear Safety

Bulletin 2007-01 Security Officer Attentiveness

- *Mitigation Measures*
 - *Rotation Frequency*
 - *Alternative Activities*
 - *Attentiveness Aids*
 - *Communications Checks*
 - *Post Checks*
 - *Shift briefing/discussions on FFD daily*



Nuclear Safety

10 CFR 26 Subpart I Work Hours

- *28 Additional Security Officers*
 - *Recruiting*
 - *Hiring*
 - *Training*
 - *Outfitting*
 - *Salaries*
- *Staffing completion – March 09*



Nuclear Safety

Security Enhancements / Upgrades

- *Since 2005*
 - *Elevated Fighting Positions*
 - *Hardening*
 - *Delay Barriers*
 - *Cameras*
- *Planned Upgrades through 2009*
 - *Additional OCA Cameras*
 - *Security Computer Upgrade*
 - *Replacement of Turnstiles*
 - *Entrance/Exit*

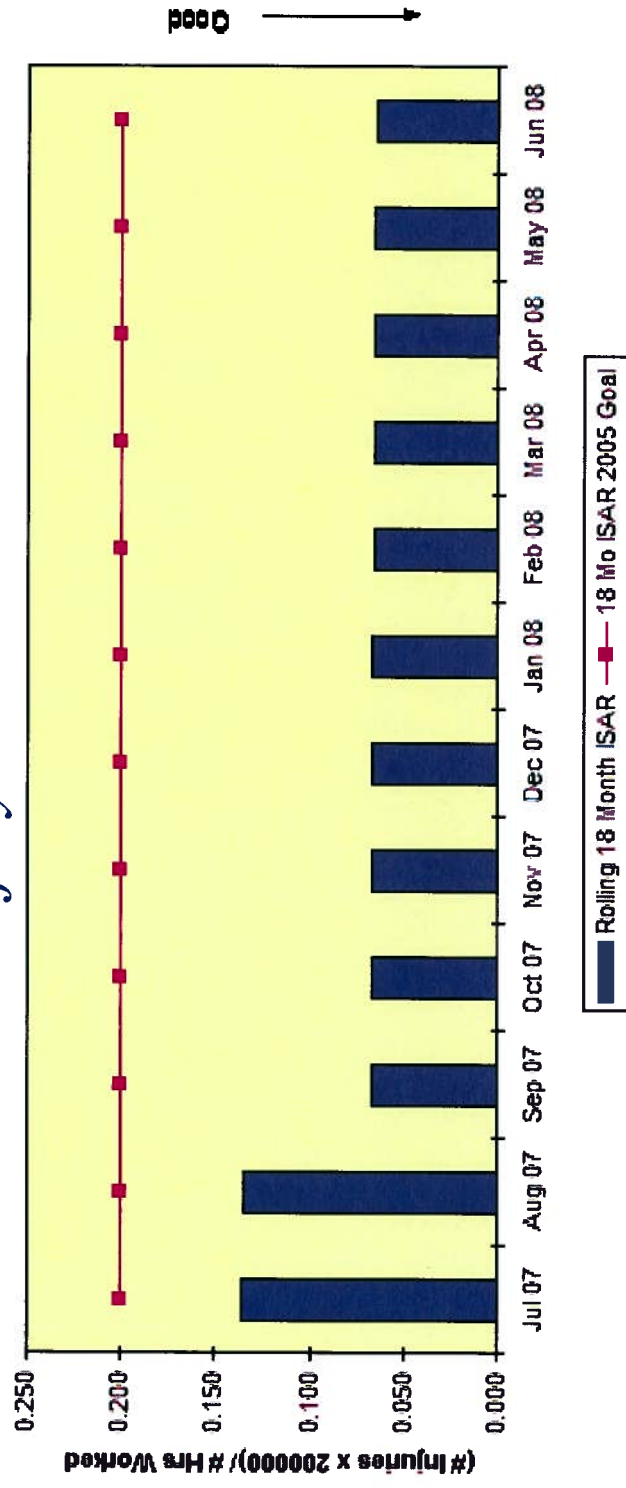


Dominion

Industrial Safety

- 467 days since last Lost Time Accident
- OSHA Volunteer Protection Program Certification May 05
 - Recertification Inspection in Feb. 09

Total Safety Accident Rate



Dominion

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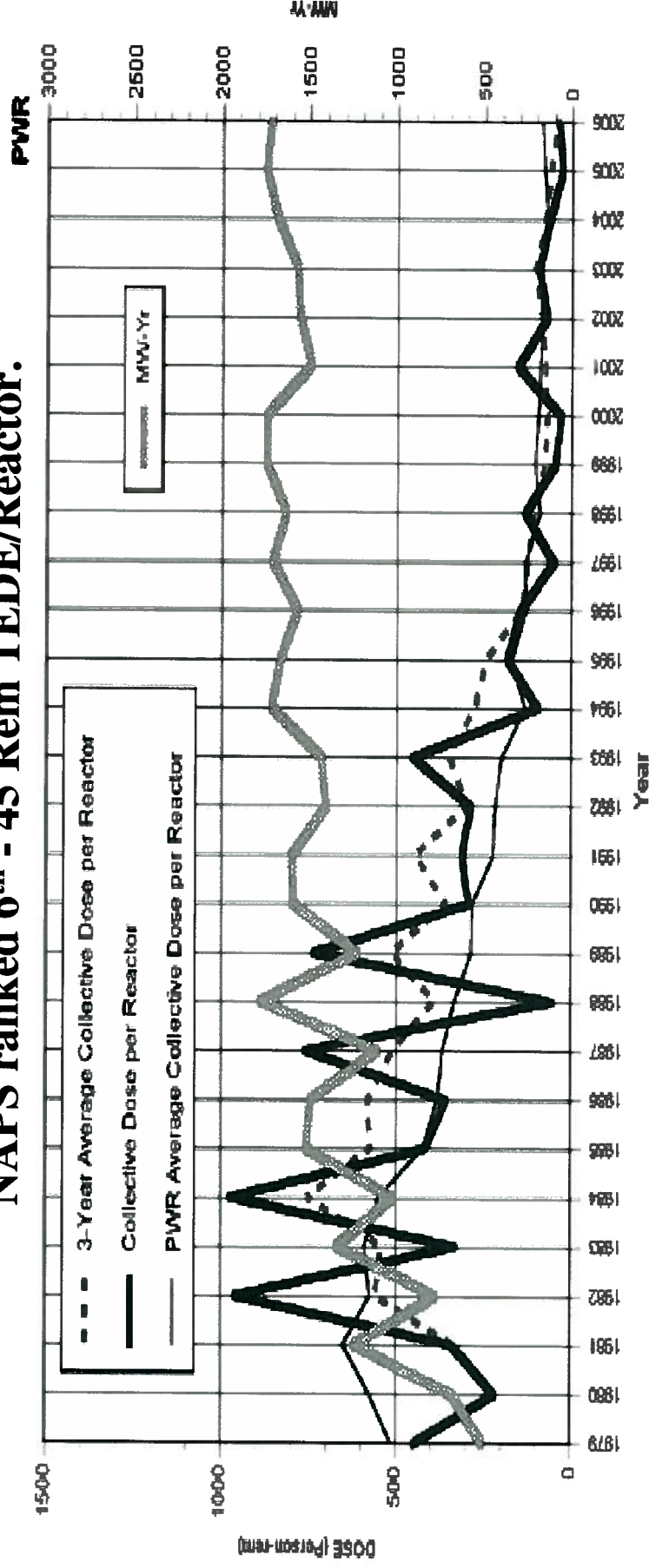
Dominion

Occupational Radiation Safety

NORTH ANNA 1, 2

Dose Performance Indicators

NAPS ranked 6th - 45 Rem TEDE/Reactor.



Source NUREG-0713 Vol. 28

Dominion

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Dominion

Occupational Radiation Safety

- *2007 Challenges*

- *Alloy 600 Mitigation*
 - *28.716 REM Unit 1 PZR*
 - *16.407 REM Unit 2 PZR*
 - *9.231 REM Unit 1 RTDs*
 - *7.385 REM Unit 2 RTDs*



- *GSI-191 Mods*

- *27.089 REM Unit 1*
- *30.115 REM Unit 2*



- *Total Impact 118.943 REM*

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Occupational Radiation Safety

Actions for Improvement

- *Implementation of a Fleet CRE reduction Strategic Plan*
- *Completed EPRI study on Primary Chemistry Controls*
 - *Enhanced RCS filtration strategies*
 - *RHR flushing prior to placing in-service*
 - *Enhancements to letdown flow during RCS clean-up*
 - *Use of Specialty Resins*
 - *Evaluating Zinc Injection*
- *Dose Reduction Outage High Impact Teams*



Public Radiation Safety

Liquid Effluents

Initiatives

- *Installing new liquid waste processing system to reduce particulate and iodine releases*
- *Partial system operational 06/08*
- *Completion date 09/08*
- *Top Quartile performance predicted for 2009*



Dominion

Public Radiation Safety

Ground Water Protection (Tritium)

Initiatives

- *Installed nine new ground water wells*
- *Implemented ground water protection procedure to comply with NEI initiative*
- *Sampling of wells and subsurface building drains included in program*

Results

- *No detectable tritium in groundwater*

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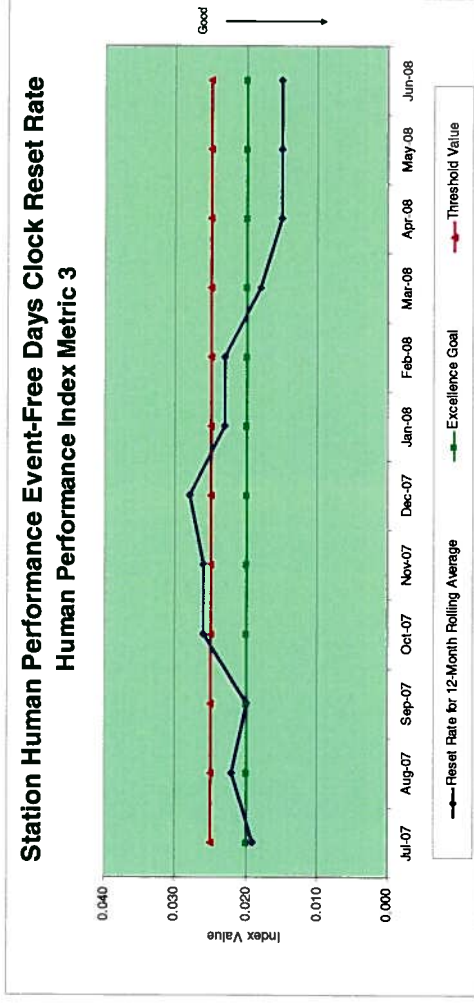
Human Performance

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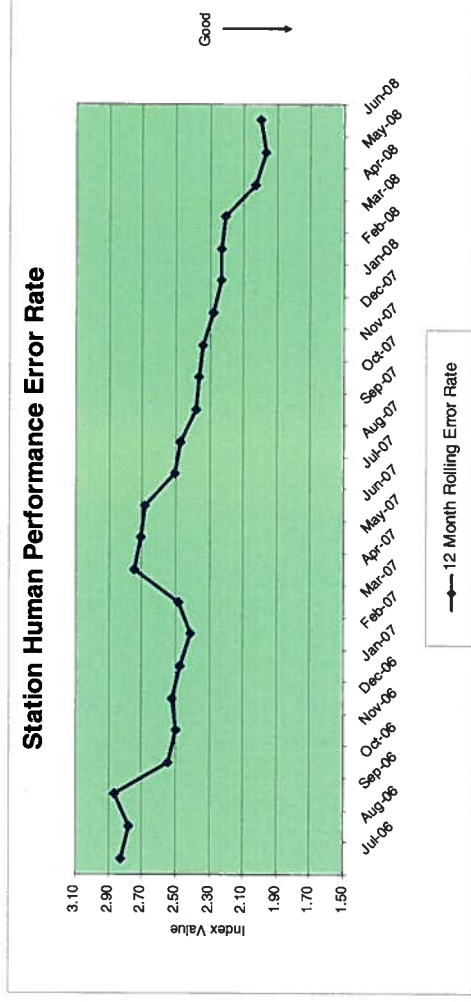


Human Performance Focus

- The station has improved human performance trends from 2007 to 2008



Event Rate has dropped from eight clock resets in 2007 to one to date in 2008



Error Rate has dropped 30% over a two-year period

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Focus on Procedure Quality and Procedure Use and Adherence

- *Provide quality procedures that allow employees to perform activities safely and efficiently*
- *Capture and document “tribal” and “skill of the craft” knowledge in procedures*
- *Ensure rigorous use of the Human Performance tools during Procedure Use and Adherence (PUA)*



Dominion

Procedure Quality

- *Quality procedures must be written for all levels of experience*
- *Procedures must reflect the level of skill in the workforce as demographics shift*
- *Some workers require more directive procedures to avoid errors*
 - *Procedure users have varying degrees of experience and expectations*

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Procedure Quality

- *Improvement Actions*
 - *Common cause analysis by industry expert in progress*
 - *Developing component specific procedures to replace more generic procedures*
 - *Implement electronic Peer Check Review process*
 - *Increasing use of place keeping aids and second party verifications*



Procedure Use and Adherence (PUA)

- *While good Human Performance is occurring at NAPS, additional focus on PUA is underway*
- *Excellence in Procedure Use requires quality procedures performed by workers using the HU tools to question, check, and ensure compliance and performance of the correct actions*



Procedure Use and Adherence

- *Actions for improvement in PUA*
 - *Use Common Cause tool to determine causal factors for PUA errors*
- *Procedure Human Factors/Ease of Use/Detail*
- *Training and Access for large numbers of Administrative Procedures*
- *Actions in Place*
 - *Procedure quality upgrades in progress*
 - *Department Self-Evaluation Meetings and Training Review Boards are addressing PUA issues in the aggregate*
 - *A corrective action from the common cause is underway to develop and issue a Handbook for Administrative Excellence to provide an “onboard” tool to aid workers in administrative requirements*

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Equipment Reliability

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ER Performance

- *3 Unplanned Outages since June 2007*
 - *June 2007, invalid single train SI due to failed Zener diode on A3I3 universal card*
 - *December 2007, 2-RC-P-1B motor ground*
 - *February 2008, 2-RC-P-1A degrading seal performance*
 - *Root cause evaluations performed to determine causes and corrective actions*



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Equipment Reliability

- *Eliminate critical equipment failures*
- *Establish a process that will anticipate and prevent future failures*



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Equipment Reliability

- *Established and communicated Station ER Policy*
- *Established Cross-functional ER Improvement Team*
- *Performed Gap Analysis against INPO AP 913*
- *Developed and communicated Key ER Performance Indicators*



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ER Focus Areas

- *Single Point Vulnerability Reviews*
- *PM Technical Basis*
- *Long Range Planning*
- *Card Reliability*
- *Large Motors*



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ER Action Plan

- *Conduct site wide training on ER and WM – July 08*
- *Implement formalized Troubleshooting Methodology site wide – July 08*
- *Align Plant Health Issues List with System Health Report, Long Range Planning and Budget – Aug. 08*
- *Complete SPV Reviews – Sept. 08*
- *Improve Just-In-Time PM reviews for critical component classifications – Jan. 09*
- *Complete sustainable PM Basis data base – June 09*
- *Continue development of Life Cycle Management plans for key components*
- *Continue improvement/implementation of Large Motor Monitoring Program*

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N2R19 RFO

Planned ER Improvements

- *Main Generator rewind / replacement*
- *Generator Voltage Regulator replacement*
- *SSPS card and power supply testing and replacement*
- *EHC card testing and replacement*
- *Rod Control System modifications to eliminate SPV's*
- *6th point FW heater replacement*
- *RCP seals, motors, and seal injection system flushing*
- *LO Cooler bundle replacement*
- *“H” and “A” bus dry 4160/480V transformer replacements*



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EDG Reliability



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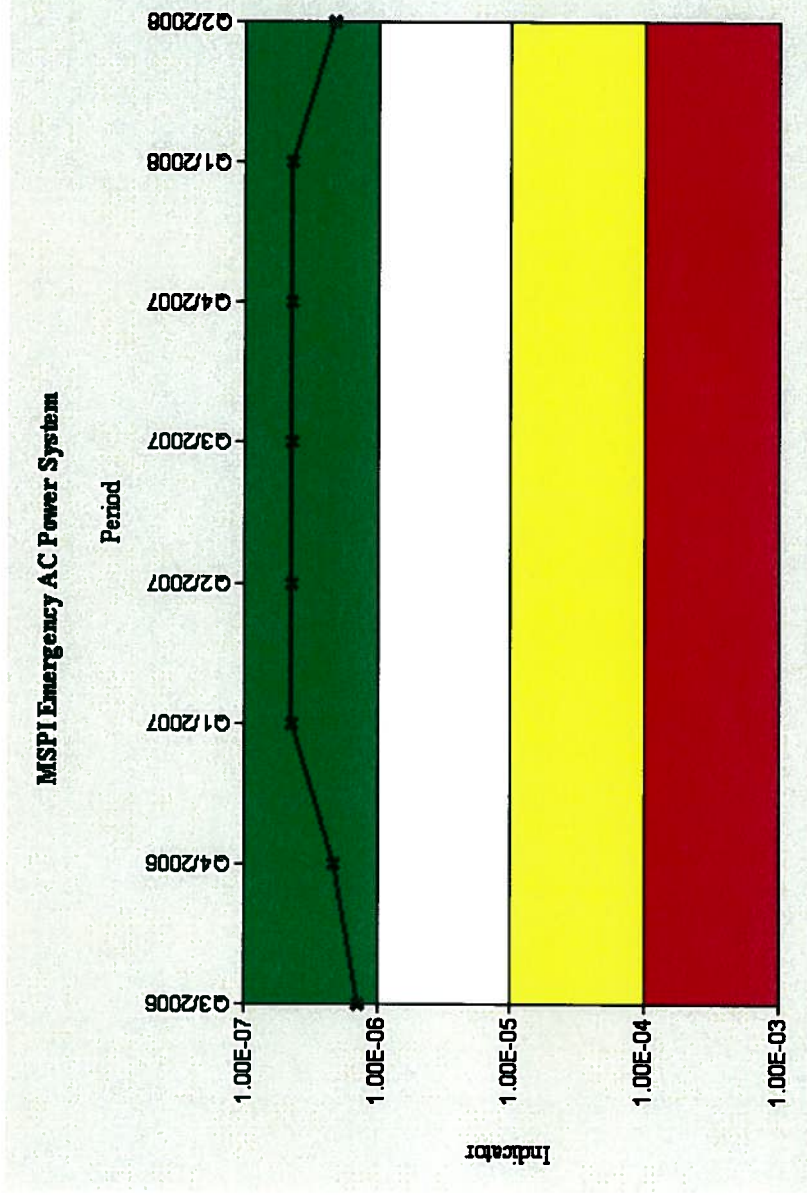
U1 EDG Performance

PI Summary

Cornerstone: Mitigating Systems

PI: MS06 MSPI Emergency AC Power System

Thresholds: White >0.000001 | Yellow >0.000010 | Red >0.000100 |



Dominion

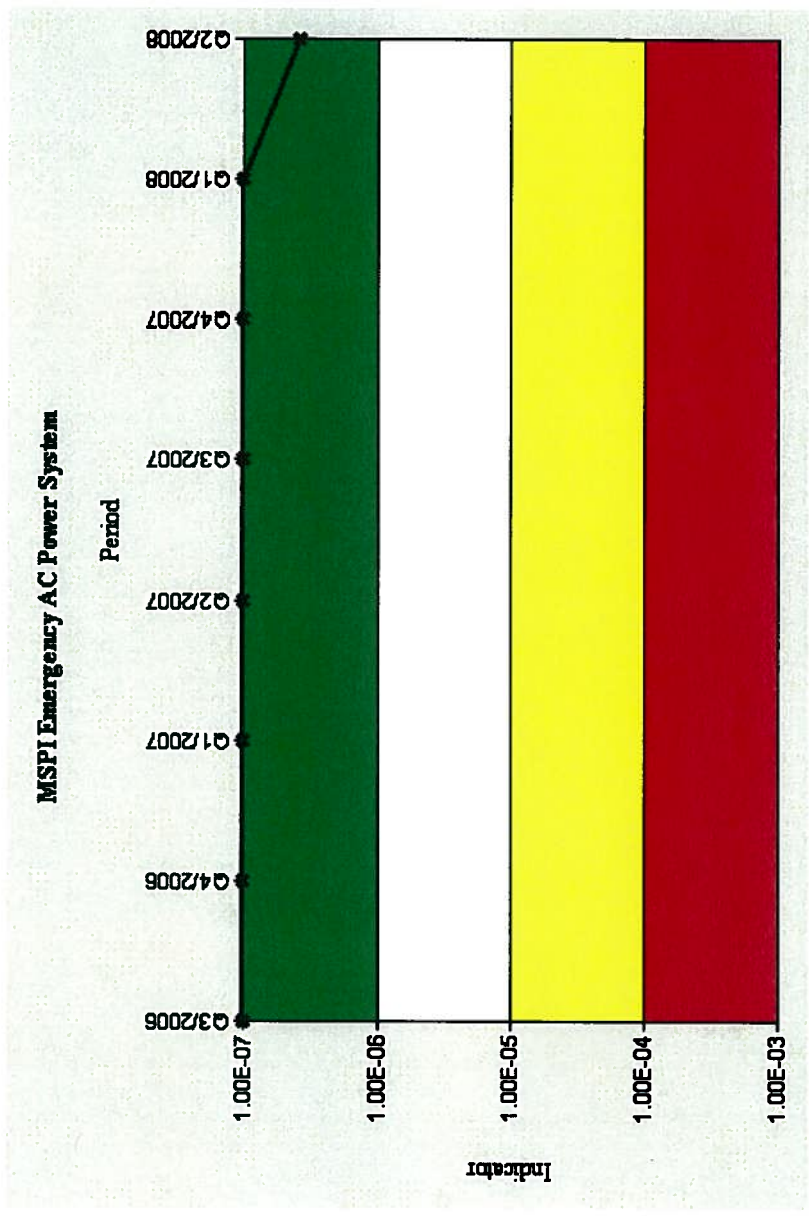
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U2 EDG Performance

PI Summary
Cornerstone: Mitigating Systems
PI: MS06 MSPI Emergency AC Power System
Thresholds: White >0.000001 | Yellow >0.000010 | Red >0.000100 |



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EDG Performance Plan

- *Improve Availability / Reliability*
 - *Diesel Quality Team Created*
 - *Cross functional team*
 - *Focus on diesel worker practices and procedures*
 - *Industry peer performing independent assessment*
 - *Review and verification of industry operating experience*



EDG Performance Improvements

- *Replaced all critical copper tubing with SS*
- *Modified and replaced all exhaust gaskets to reduce system leakage*
- *Replaced all radiators*
- *Implemented 5 year Level 2 Schedule with PM optimization*
- *Implemented critical spares list*



EDG Performance Improvements

- *Replaced battery chargers 1J, 1H, 2H – 2J remaining July 08*
- *Replaced voltage regulator potentiometers 1J, 1H, 2H – 2J remaining July 08*
- *Emergency Start (K1) Relay replacements starting July 08*
- *Coolant Water Expansion Tank replacements starting July 08*



Corrective Action

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Focus on Corrective Action

- *Root Cause Evaluation (RCE) quality remains high with consistent performance at the Focus on Four Excellence goal of 90%*
- *High RCE quality is also validated*
 - *By review and approval of each RCE through the Corrective Action Review Board*
 - *By an effectiveness review of each Corrective Action to Prevent Recurrence (CAPR)*
 - *And by an RCE effectiveness review after all actions are complete*

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Focus on Corrective Action

- *Apparent Cause Evaluation (ACE) quality has shown marked improvement over the last 12 months*
- *Actions taken to improve performance include*
 - *Increased department management involvement in ACE approval process*
 - *Additional training provided to ACE evaluators and Department Corrective Action Coordinators (DCACs)*
 - *Peer checks of ACEs by Station Nuclear Safety (SNS) prior to final submittal for approval*

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Focus on Corrective Action

- *Backlog of open Corrective Action Assignments continues to challenge Corrective Action metrics*
- *Actions to address performance improvement included:*
 - *Department Self Evaluation Meeting (DSEM) restructured to better model Metrics for Corrective Action*
 - *Metric Performance and contributors are reviewed at least monthly at Management Level Meetings*
 - *Greater Line Department focus on reviewing open items*
- *The metrics for the back logs for both non-routine and routine assignments are improving*

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Outage Performance

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Outage Performance

- *North Anna employs a conservative outage scheduling policy to preserve defense in depth for shutdown safety*
- *No challenges to shutdown safety during 2007 refueling or forced outages*



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Outage Initiatives

- *Identification of “critical” maintenance activities to craft*
- *Increased management outage project challenge meetings with emphasis on contingency planning*
- *Assigned additional resources to maintenance supervision and oversight*
- *Increased station resources assigned to outage readiness*
- *Implemented new fleet milestones on outage readiness*



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Outage Performance

- *N2R19 Major Scope*
 - *Main Generator rewind / replacement*
 - *Voltage Regulator replacement*
 - *6th Point FW heater replacement*
 - *BACC Reduction – AOV/MOV/Programmatic Repacks*
 - *RCP bolt stretching*
 - *Excore Neutron Detector replacement (2)*
 - *Ultrasonic Flow Meters*

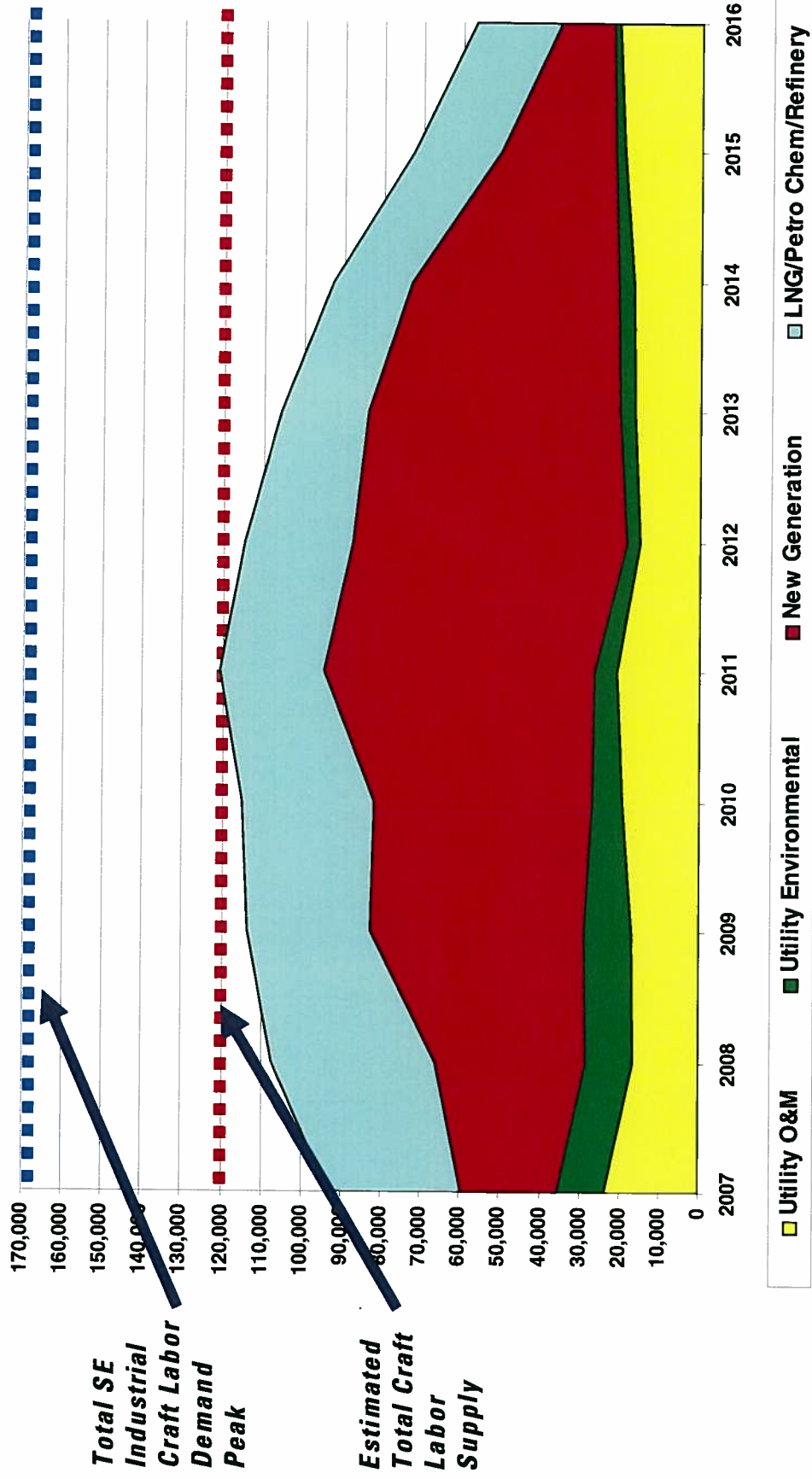


Leadership and Personnel Development

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Southeast Construction Labor Challenges

Southeast Energy Industry Craft Labor Demand



Data drawn from SEMTA and Southern Company market research.

Dominion Nuclear - Workforce Planning Strategy

NBU's Workforce Planning Strategy

The Workforce Planning Strategy will ensure that the NBU seamlessly transitions to face new construction and changes in demographics with no significant adverse effects to company operations or performance

Key goal

Key Elements of Workforce Management Process

Define Needs

Granular and accurate workforce planning analysis that identifies with a high degree of confidence current and future workforce needs

Source & Recruit

An efficient, well-structured recruiting approach that maximizes the NBU brand, successfully attracts top quality candidates, and deepens the overall talent pipeline - internally, locally, and from other new channels

Develop & Manage

Ensure that the NBU develops its internal talent to the highest possible level, provides clarity on career paths and opportunities, and enhances its leadership bench strength.

Reward & Retain

Ensure the NBU retains all types of valuable workers - new, seasoned, and retirement eligible - by implementing cost-effective programs that directly drive greater retention

Manage & transfer knowledge

Retain critical knowledge and skills through the use of the best alternatives available to the NBU

Objectives

Expected outcomes

- Clear understanding of staffing requirements fleet-wide and by discipline & site
- Accurate retirement forecasting
- Improved workforce planning capabilities including clear view on advanced fills and staffing margin
- Understanding on internal sourcing and transfers

- Well developed recruiting strategy that is efficient and successful at sourcing and hiring new talent
- Deeper pipeline with access to candidates that match the NBU's needs
- Enhanced image and brand recognition in the local community and in target talent pools

- Re-evaluation and enhancement of the management process
- Robust career management process that focuses on developing and training employees through their entire career
- Fully developed succession planning and career mapping process

- Clear understanding of retention and attrition drivers
- Greater use of employee reward and recognition tools
- Efforts to directly retain workers eligible to retire (e.g., phased retirement)
- Understanding of work-life balance programs to use in a proactive and targeted manner

- Identification of knowledge loss risks
- Comprehensive knowledge management strategy that determines best options to transfer knowledge for each situation
- Path to implement a new knowledge management system within the NBU



Leadership Development

- *Station Leadership Training*
 - *Leadership Training Review Board*
 - *Quarterly Leadership Training*
- *Succession Planning*
 - *Supervisors and critical positions*
- *Mentoring*
 - *Formal and informal*
- *Dominion Nuclear Leadership Academy*



Questions

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“Nuclear Safety First”

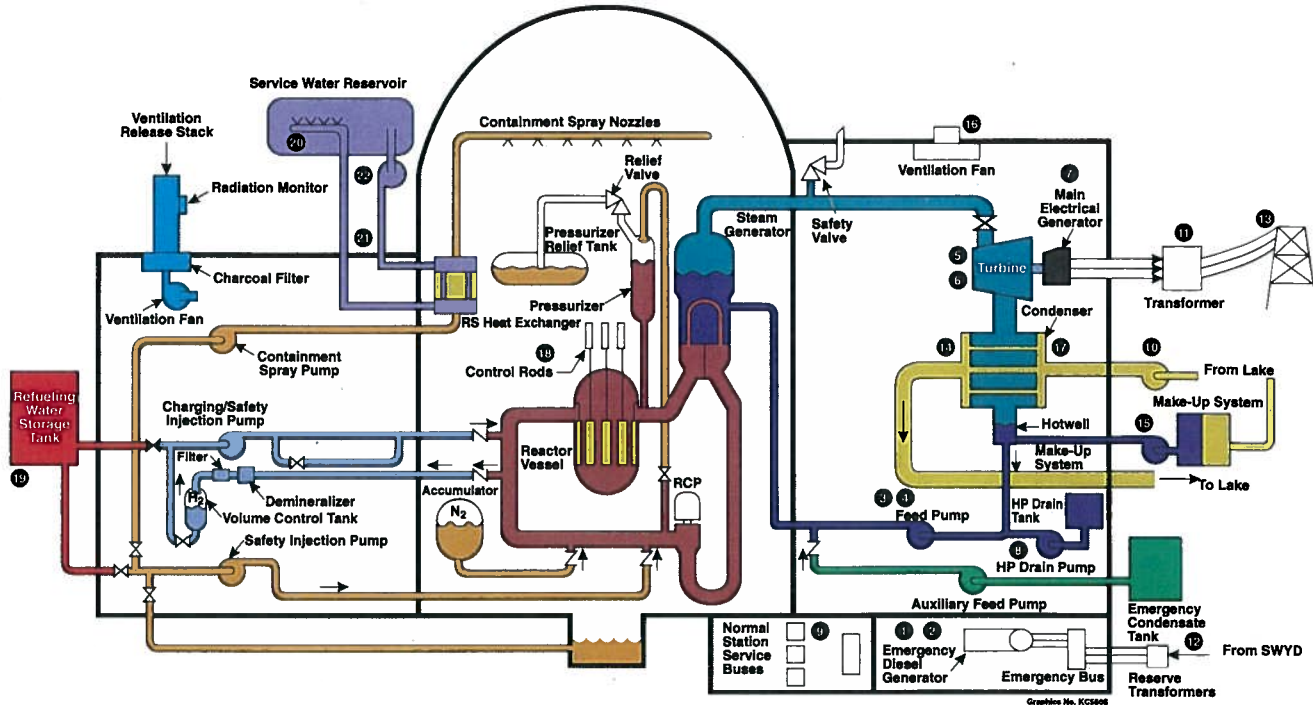
North Anna Power Station Equipment Reliability Improvements

Improvements Completed and In Progress

- 1 EDG Radiators and Batteries replaced
- 2 EDG Battery Charger replacements
- 3 Main Feed Pump bearing and seal mods
- 4 Main Feed Pump check valve and MOV mods
- 5 Main Lube Oil Cooler tube upgrades
- 6 Cross-under Expansion Joint replacement
- 7 Bus Duct Cooling system mods
- 8 HP Drain Pump Motor bearing upgrades
- 9 4160 / 480 VAC Transformer replacements
- 10 Circ Water Pump Motor rewinds
- 11 Main Transformer replacements
- 12 RSST supply cable replacements
- 13 Major SWYD upgrades - transformers, switches, and supports
- 14 Waterbox CW limit switch modifications
- 15 Make-up water system replacement project
- 16 TB roof fan cable replacements
- 17 Steam Dump valve upgrades
- 18 7300 Reactor Protection System card replacements
- 19 RWST Chillers Upgraded
- 20 SW Spray Array Replacements
- 21 SW Pipe Manway Installation, Pipe Inspection, and Coatings
- 22 SW Pump Motor Rewinds

Potential Equipment Reliability Challenges

RCP pump and motors
ECCS Dampers
EHC Cards
Underground feeder cables
Power Range NIs



Equipment Reliability Tools

Performance Monitoring:	Operations and Engineering – rounds and trending All – prompt identification and documentation of noted deficiencies (CR's and WR's)
Corrective action:	Maintenance – perform high quality preventative and corrective maintenance, Engineering and Maintenance – take a leadership role in troubleshooting component failures to ensure the root cause of failures is properly identified for correction All – prompt and thorough completion of corrective action assignments
PM implementation:	Engineering - accurate PM bases, Maintenance – quality PM feedback, Outage & Planning – schedule to balance availability and reliability
Long Range Planning and Life Cycle Management:	Engineering – develop life cycle management plans to ensure long term health of plant equipment, Outage & Planning – coordinate input from station departments, maintain the LRP as a living document to ensure the best match of resources to improve ER Management & Leadership – Provide alignment of resources to resolve equipment issues commensurate with the associated threat to station safety and reliability