

MAY 09 1994

Docket Nos. 50-338, 50-339
License Nos. NPF-4, NPF-7

Virginia Electric and Power Company
ATTN: Mr. W. L. Stewart
Senior Vice President - Nuclear
5000 Dominion Boulevard
Glen Allen, VA 23060

Gentlemen:

SUBJECT: MEETING SUMMARY - NORTH ANNA SELF-ASSESSMENT

This refers to the meeting conducted at your request at the NRC Region II Office in Atlanta, Georgia on May 6, 1994. The meeting's purpose was to discuss Virginia Electric and Power Company's self-assessment of the North Anna power station.

It is our opinion that this meeting was beneficial, in that, it provided us with a better understanding of your accomplishments and challenges in the areas of performance, self-assessment, quality focus and integrated trending.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10 Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please contact us.

Sincerely,

Orig signed by David M. Verrelli

David M. Verrelli, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosures:

1. List of Attendees
2. North Anna Power Station
Self-Assessment - May 6, 1994

cc w/encls: (See page 2)

010035

9406020021 940509
PDR ADOCK 05000338
P PDR

IE45

Virginia Electric and
Power Company

2

MAY 09 1994

cc w/encls:

M. L. Bowling, Jr., Manager
Nuclear Licensing
Virginia Electric & Power Company
5000 Dominion Boulevard
Glen Allen, VA 23060

G. E. Kane, Station Manager
North Anna Power Station
P. O. Box 402
Mineral, VA 23117

Executive Vice President
Old Dominion Electric Cooperative
4201 Dominion Boulevard
Glen Allen, VA 23060

Dr. W. T. Lough
Virginia Corporation Commission
Division of Energy Regulation
P. O. Box 1197
Richmond, VA 23209

William C. Porter, Jr.
County Administrator
Louisa County
P. O. Box 160
Louisa, VA 23093

Michael W. Maupin, Esq.
Hunton and Williams
Riverfront Plaza, East Tower
951 E. Byrd Street
Richmond, VA 23219

Attorney General
Supreme Court Building
101 North 8th Street
Richmond, VA 23219

Robert B. Strobe, M.D., M.P.H.
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
P. O. Box 2448
Richmond, VA 23218

bcc w/encls: (See page 3)

Virginia Electric and
Power Company

3

MAY 09 1994

bcc w/encls:
G. Belisle, RII
L. Garner, RII
L. Engle, NRR
Document Control Desk

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
Route 2, Box 78-A
Mineral, VA 23117

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
Surry Nuclear Power Station
5850 Hog Island Road
Surry, VA 23883

RII:DRP
LG
LGarner
5/9 /94

RII:DRP
AB
ABelisle
5/9 /94

ENCLOSURE 1

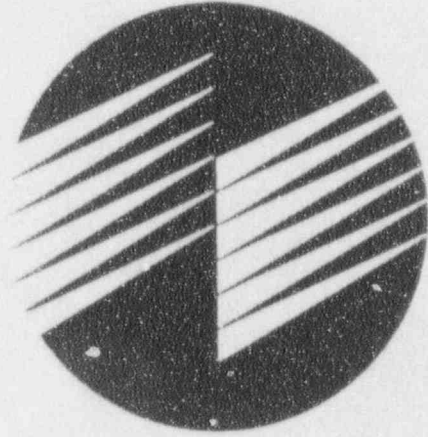
LIST OF ATTENDEES

NRC

S. D. Ebnetter, Regional Administrator, Region II (RII)
A. F. Gibson, Director, Division of Reactor Safety, RII
J. R. Johnson, Acting Director, Division of Reactor Projects (DRP), RII
B. S. Mallett, Deputy Director, Division of Radiation Safety and Safeguards,
RII
J. P. Jaudon, Acting Deputy, DRP, RII
D. M. Verrelli, Chief, Reactor Projects Branch 2, DRP, RII
G. A. Belisle, Chief, Reactor Projects Section 2A, DRP, RII
R. D. McWhorter, Senior Resident Inspector - North Anna, DRP, RII
D. R. Taylor, Resident Inspector - North Anna, DRP, RII
L. W. Garner, Project Engineer, Reactor Projects Section 2A, DRP, RII
H. N. Berkow, Director, Project Directorate II-2, Office of Nuclear Reactor
Regulation (NRR)
L. B. Engle, Project Manager, Project Directorate II-2, NRR
L. W. Camper, Section Leader, Medical and Academic Section, Office of Nuclear
Materials Safety and Safeguards

Virginia Electric and Power Company

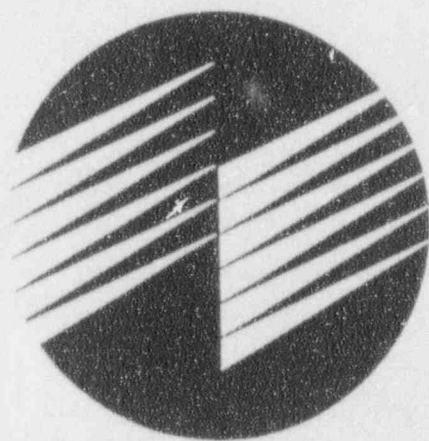
J. P. O'Hanlon, Vice President, Nuclear Operations
J. A. Stall, Station Manager, North Anna
D. E. Heacock, Assistant Station Manager, Nuclear Safety and Licensing, North
Anna
M. L. Bowling, Jr., Manager, Nuclear Licensing and Programs, Nuclear Services
L. N. Hartz, Manager, Quality Assurance
J. P. Smith, Manager, Quality Assurance, North Anna



VIRGINIA POWER

**NORTH ANNA POWER STATION
SELF ASSESSMENT**

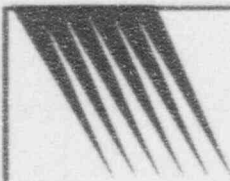
MAY 6, 1994



VIRGINIA POWER

INTRODUCTION

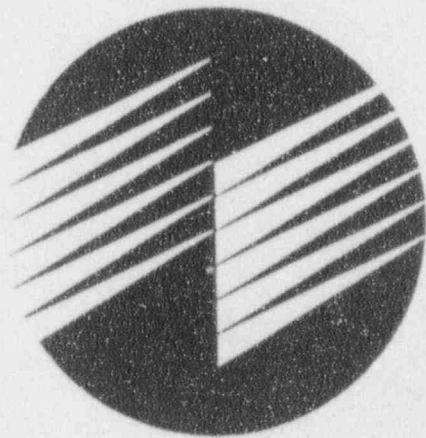
J. P. O'Hanlon



AGENDA



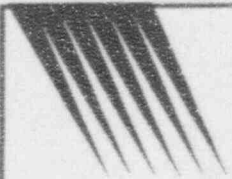
- **Introduction** **J. P. O'Hanlon**
- **Performance Review** **J. A. Stall**
- **Self Assessment** **D. A. Heacock**
- **Quality Focus Areas** **J. P. Smith**
- **Integrated Trending** **M. L. Bowling**




VIRGINIA POWER

STATION PERFORMANCE REVIEW

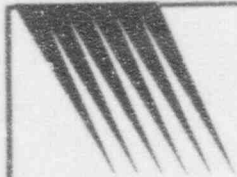
J. A. Stall



**NORTH ANNA
PERFORMANCE INDICATORS**



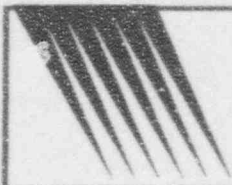
<u>April 4, 1993 to March 31, 1994</u>	<u>Unit 1</u>	<u>Unit 2</u>
• Plant Capacity Factor	97.36%	78.14%
• Forced Outage Rate	0.00%	3.13%
• Unit Automatic Trips	0	2
• Emergency Diesel Generator Reliability (Both Units)		100%
• Steam Generator Replacement Cumulative Dose		239.906 R
• Steam Generator Replacement Outage Duration		96 Days



MANAGEMENT FOCUS AREAS



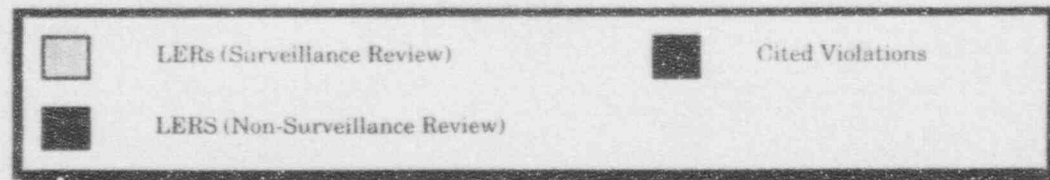
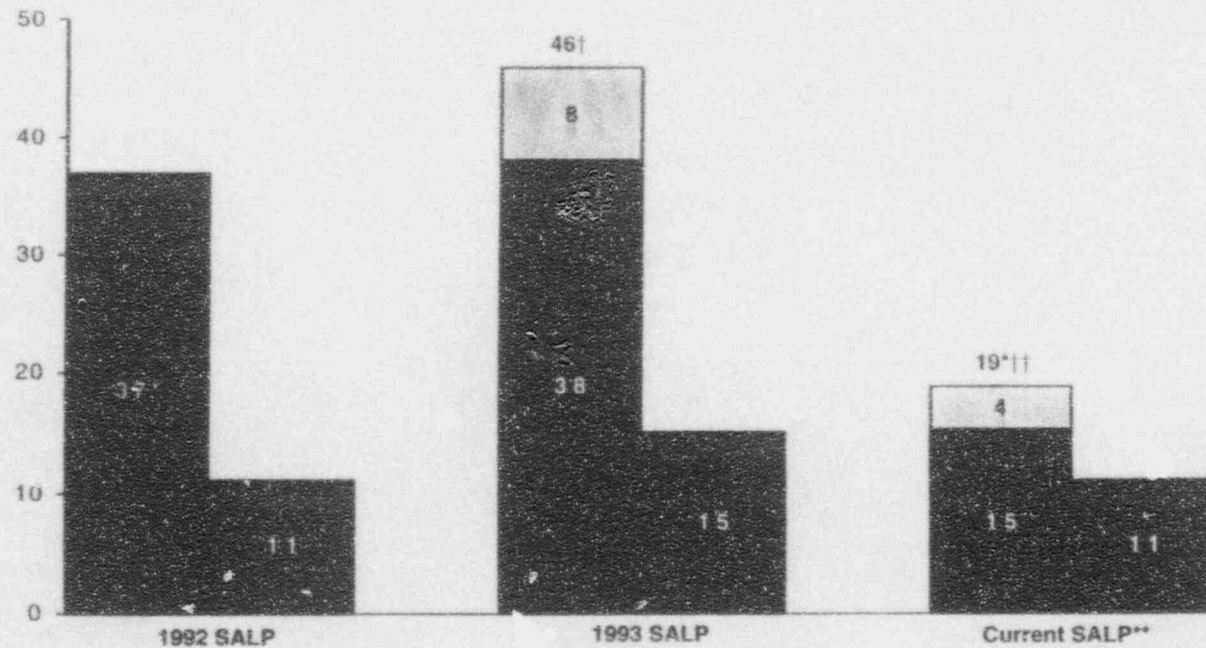
- ★ ***New Management Team***
- ★ ***Strong Management Oversight and Involvement***
- ★ ***Continue to Encourage Innovation***
- ★ ***Maintain World Class Performance***
- ★ ***Fix Repeat Problems***
- ★ ***Prevent Complacency***



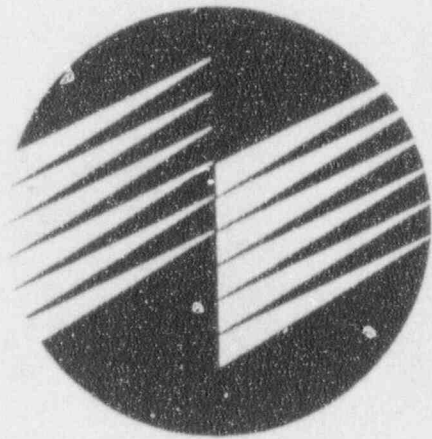
Regulatory Performance



(Comparison of Last 3 SALP Periods)



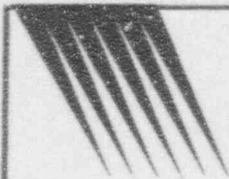
- † Includes Eight LERs submitted due to Technical Specification Surveillance Review
†† Includes Four LERs submitted due to Technical Specification Surveillance Review
* Includes One Voluntary LER during the SALP Period
** As of May 5, 1994



VIRGINIA POWER

STATION SELF ASSESSMENT

D. A. Heacock



North Anna Performance Annunciator Panels



First Quarter, 1994

**PERSONNEL
PERFORMANCE**

OPERATION	MAINTENANCE	RADIOLOGICAL PROTECTION	NSS	ENGINEERING	STATION SUPPORT

**EQUIPMENT
PERFORMANCE**

REACTOR TRIPS	ESF ACTIVATIONS	ROS AND SECONDARY SYSTEM INTEGRITY	FUEL RELIABILITY	KEY SAFETY SYSTEM PERFORMANCE/ AVAILABILITY	SYSTEM MATERIEL CONDITION
NET GENERATION THERMAL EFFICIENCY	PLANT AVAILABILITY	EMERGENCY PREPAREDNESS EQUIPMENT AVAILABILITY	CHEMISTRY PERFORMANCE		

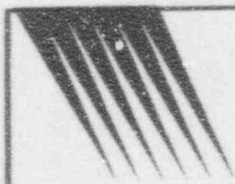
**PROGRAM
PERFORMANCE**

OPERATING PROGRAM	MAINTENANCE PROGRAM	RADIATION PROTECTION PROGRAM	SITE SERVICES PROGRAM	SITE ENGINEERING PROGRAM	SECURITY PROGRAM
REGULATORY PERFORMANCE PROGRAM	EMERGENCY PREPAREDNESS PROGRAM	INDUSTRIAL SAFETY PROGRAM	SAFETY ASSESSMENT AND QUALITY PROGRAM	MATERIALS PROGRAM	TRAINING PROGRAM
PLANNING & SCHEDULING PROGRAM	PROCEDURE PROGRAM	BUSINESS PLAN PERFORMANCE	ADHERENCE TO NUCLEAR SAFETY POLICY		

- RED ■ - SIGNIFICANT WEAKNESS
- YELLOW □ - IMPROVEMENT NEEDED
- WHITE □ - SATISFACTORY
- GREEN ■ - SIGNIFICANT STRENGTH

LEGEND

2Q/93	3Q/93	4Q/93	
FIRST QUARTER 1994			

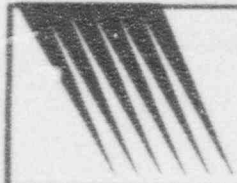


North Anna Performance **ACCOMPLISHMENTS**



PLANT OPERATIONS

- **Safe and Reliable Reactor Operation**
- **Operator Control of Plant Evolutions**
- **Few Reactor Trips**
- **Effective Operator Training Program**
- **Improved Procedures**
- **Operations Trending**
- **Computerized Tracking System**
- **Effective Shutdown Risk Management Program**
- **Cold Weather Operation**
- **SRO Oversight of Refueling Activities**

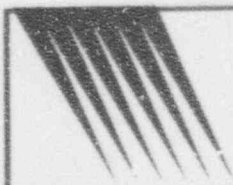


North Anna Performance
CHALLENGES



PLANT OPERATIONS

- **Communications**
- **Defeat of Automatic Functions**
- **Procedure Compliance**

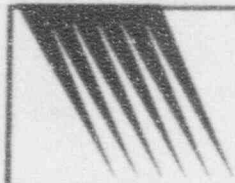


North Anna Performance
ACCOMPLISHMENTS



MAINTENANCE

- **Low Forced Outage Rate**
- **Low RCS Leakage**
- **Low Work Order Backlog and Age**
- **Root Cause Analysis for Equipment Failures**
- **Effective Corrective Maintenance**
- **Maintenance Procedures**
- **Outage Planning**
- **Plant/Equipment Materiel Condition**

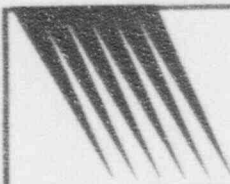


North Anna Performance
CHALLENGES



MAINTENANCE

- **Procedure Adherence**
- **Corrective Actions**
 - **Turbine Driven AFW Pump Moisture in Lube Oil**
 - **Air Ejector Divert Valve**
 - **Reactor Trip Breaker**

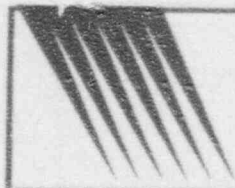


North Anna Performance **ACCOMPLISHMENTS**



ENGINEERING

- **Engineering Support of Plant Modifications**
- **Engineering Support of Operations and Outages**
- **Technical Specification Surveillance Review**
- **Testing and Analysis of LHSI added Vent Valves**
- **Effective Design Change Program**
- **Effective Flow Assisted Corrosion Program**
- **Strong MOV Program**
- **Effective Service Water Restoration Project**

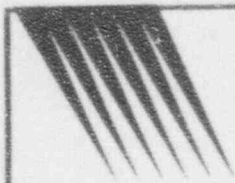


North Anna Performance
CHALLENGES



ENGINEERING

- **Permanent Fix on HHSI Flow Balance Issues**
- **Complete Corrective Actions on LHSI Pressure Spiking**
- **Setpoint Change Control**

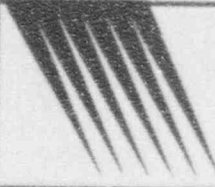


North Anna Performance **ACCOMPLISHMENTS**




PLANT SUPPORT

- **Management Involvement and Oversight**
 - **Management Safety Review Committee (MSRC)**
 - **Management Review Board (MRB)**
 - **Modification Management Review Team (MMRT)**
 - **Management Problem Review Team (MPRT)**
 - **Operations Review Board (ORB)**
- **Professional and Well Trained Security Personnel**
- **Self-Critical Emergency Drill**

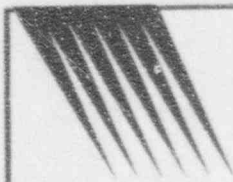


North Anna Performance
ACCOMPLISHMENTS



PLANT SUPPORT (continued)

- **Zero Contaminated Area**
- **Respirator Reduction Program**
- **Radiological Protection Job Controls**
- **Effective Water Chemistry Program**
- **Low Radiation Exposure**

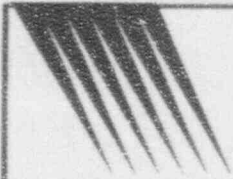


North Anna Performance
ACCOMPLISHMENTS



PLANT SUPPORT (continued)

- **“Top 10” Licensing Task Effectiveness**
- **Regulatory Reduction Program**
- **Deficiency Reporting Process**
- **Self Assessment Program**
 - **Station Performance Annunciator Panels**
 - **CNS Event Review**
 - **Integrated Trending**
 - **QA Performance Assessments**

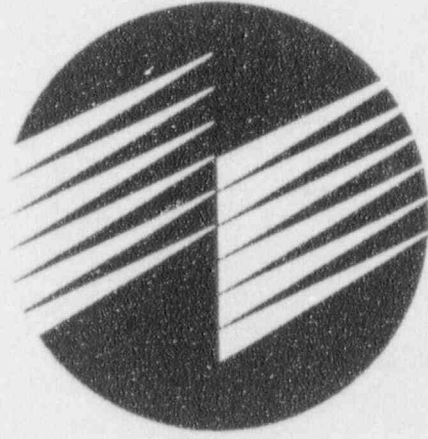


North Anna Performance
CHALLENGES



PLANT SUPPORT

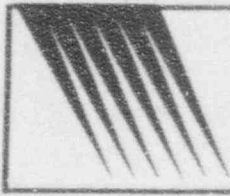

- **Safeguards Information Control**
- **Root Cause Program**
- **Fire Protection/ Appendix R
Equipment Maintenance**

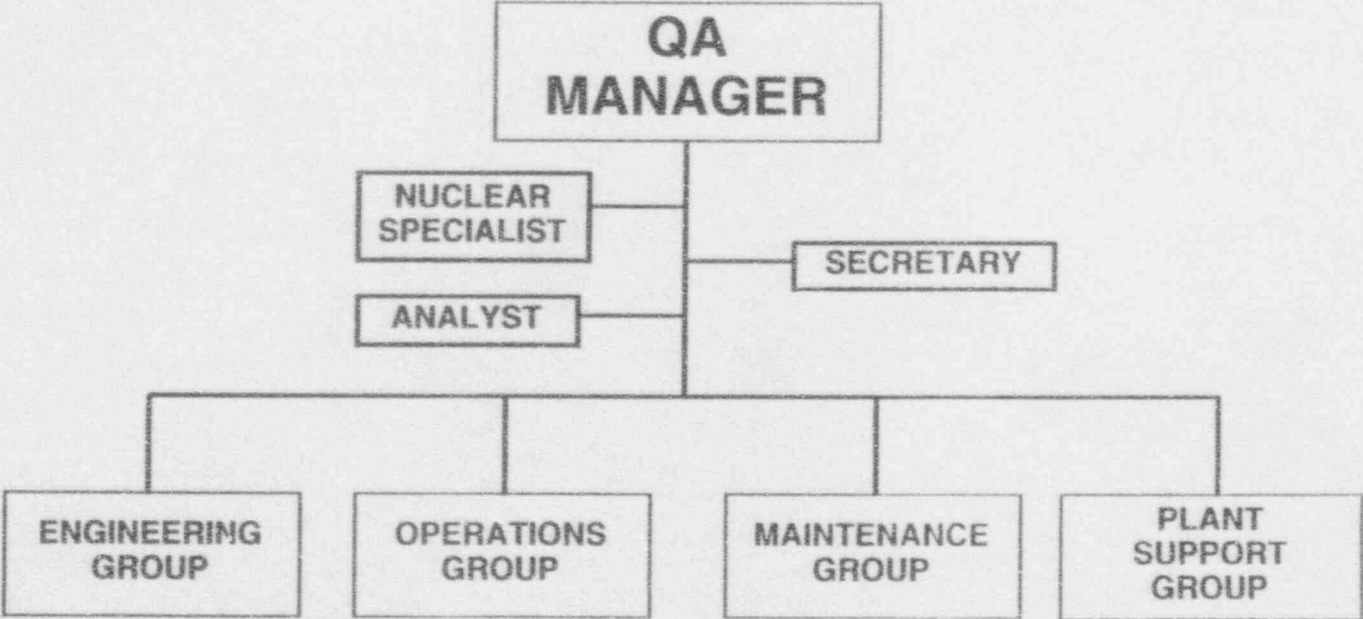


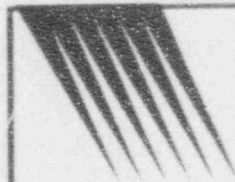
VIRGINIA POWER

QUALITY FOCUS AREAS

J. P. SMITH

 **QUALITY ASSURANCE ORGANIZATION CHART** 

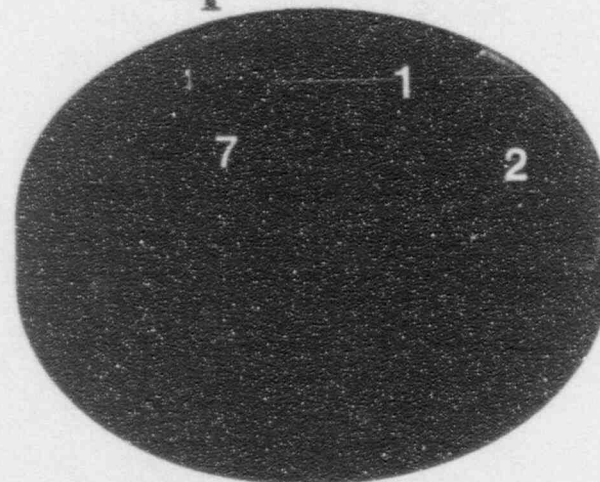




QUALITY OVERSIGHT RESULTS



Operations

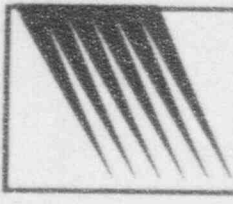



Total 10

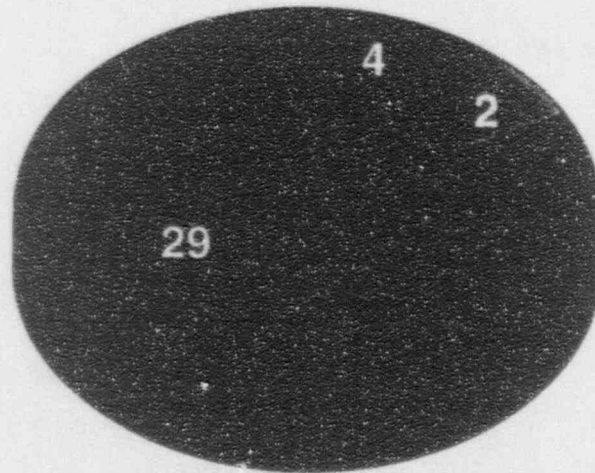
■ Deviation Reports ■ Audit Findings ■ Emerging Issues

OPERATIONS EXAMPLES:

- Communication and coordination during equipment control evolutions
- U1 safeguards HV supply duct openings blocked and supply damper closed
- RWST level transmitters freeze protection

 **QUALITY OVERSIGHT
RESULTS** 

Maintenance

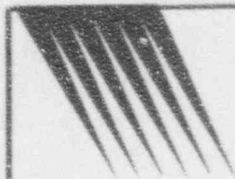


Total 35

■ Deviation Reports ■ Audit Findings ■ Emerging Issues

MAINTENANCE EXAMPLES:

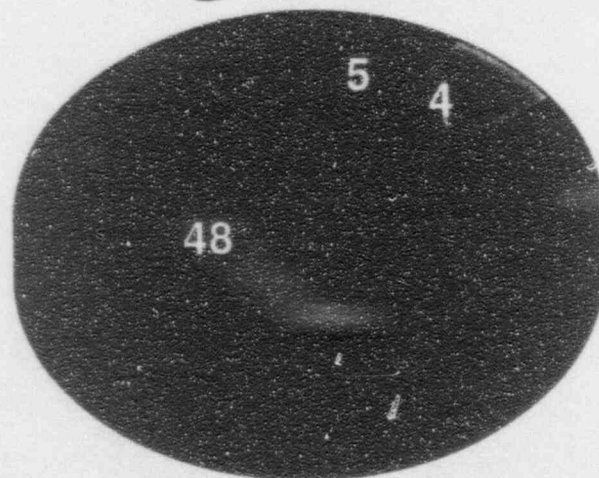
- **Work Package/Surveillance Test Documentation**
- **FME program adherence and effectiveness**
- **Weld package accuracy and adequacy**



QUALITY OVERSIGHT RESULTS



Engineering

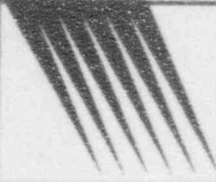



Total 57

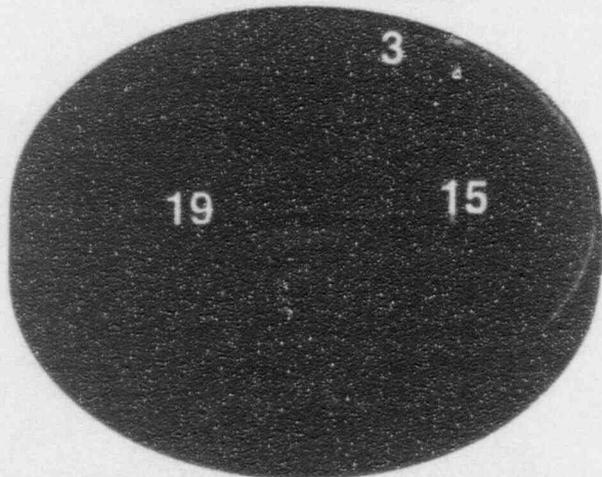
■ Deviation Reports ■ Audit Findings ■ Emerging Issues

ENGINEERING EXAMPLES:

- Adequacy of foam sealed fire barriers
- Untimely corrective action for IPE/PRA flooding report
- Appendix A requirements for station blackout project

 **QUALITY OVERSIGHT
RESULTS** 

Plant Support

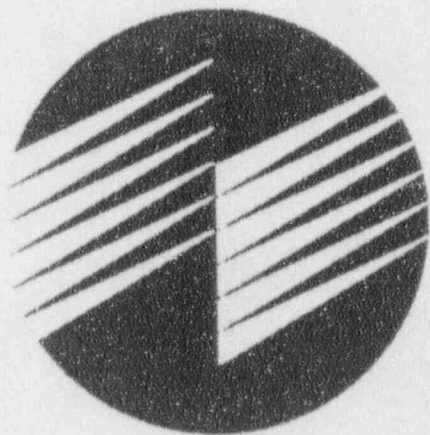


Total 37

■ Deviation Reports ■ Audit Findings ■ Emerging Issues

PLANT SUPPORT EXAMPLES:

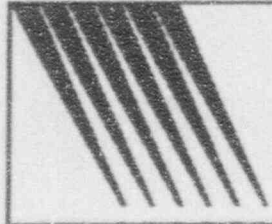
- **Inadequate knowledge of RWP requirements**
- **Control of radioactive material**
- **Correction of recurring equipment problems**



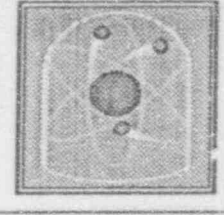
VIRGINIA POWER

INTEGRATED TRENDING

M. L. Bowling



Integrated Trending

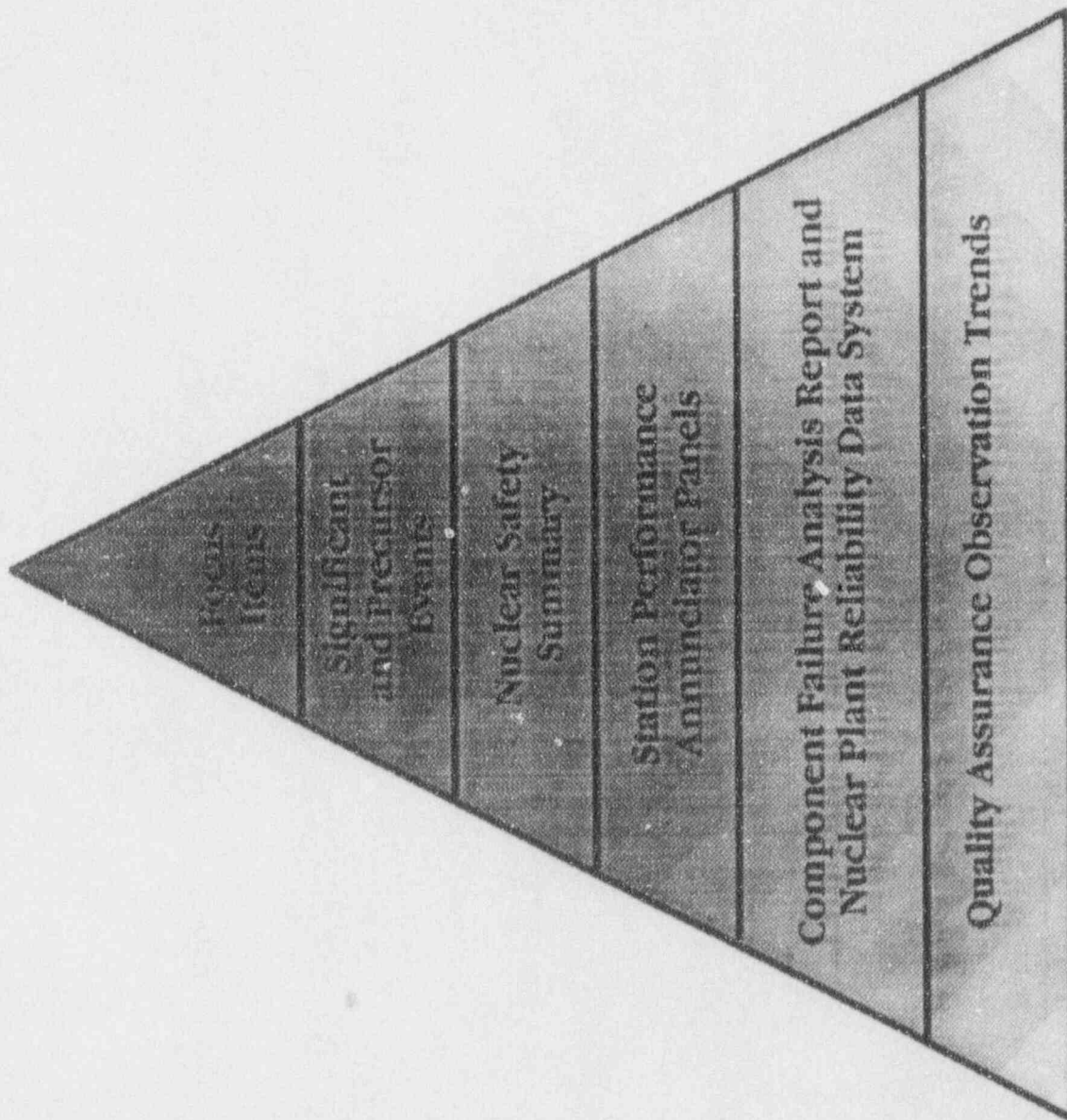
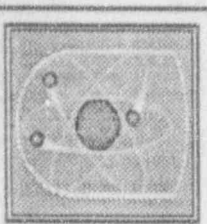


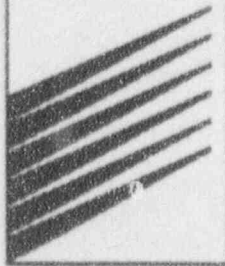
Objectives

- **Focus Senior Management on Key Issues**
- **Verify Effectiveness of the Corrective Action Program.**
- **Assure Coordination of Corrective Actions for Resolution of Complex Problems.**

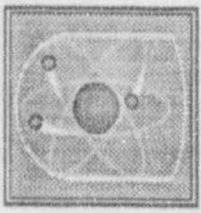


Integrated Trending





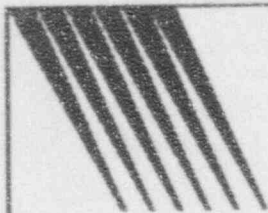
Integrated Trending



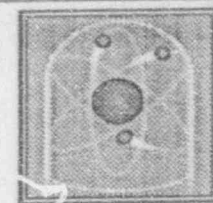
Criteria For Determining

Roll-up Issues

- **Significance of the Events or Issues**
- **Number of Events, DRs, Observations**
- **Trend of the Events, DRs, Observations**



Integrated Trending

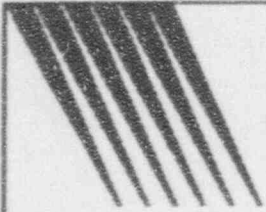


Significant & Precursor Events

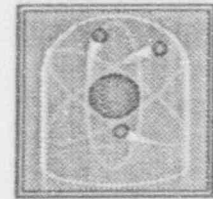
Significant Events - Utilize INPO 91-018 "Event Significance Guide"

Precursor Event - Utilize a Virginia Power guide which contains four (4) categories:

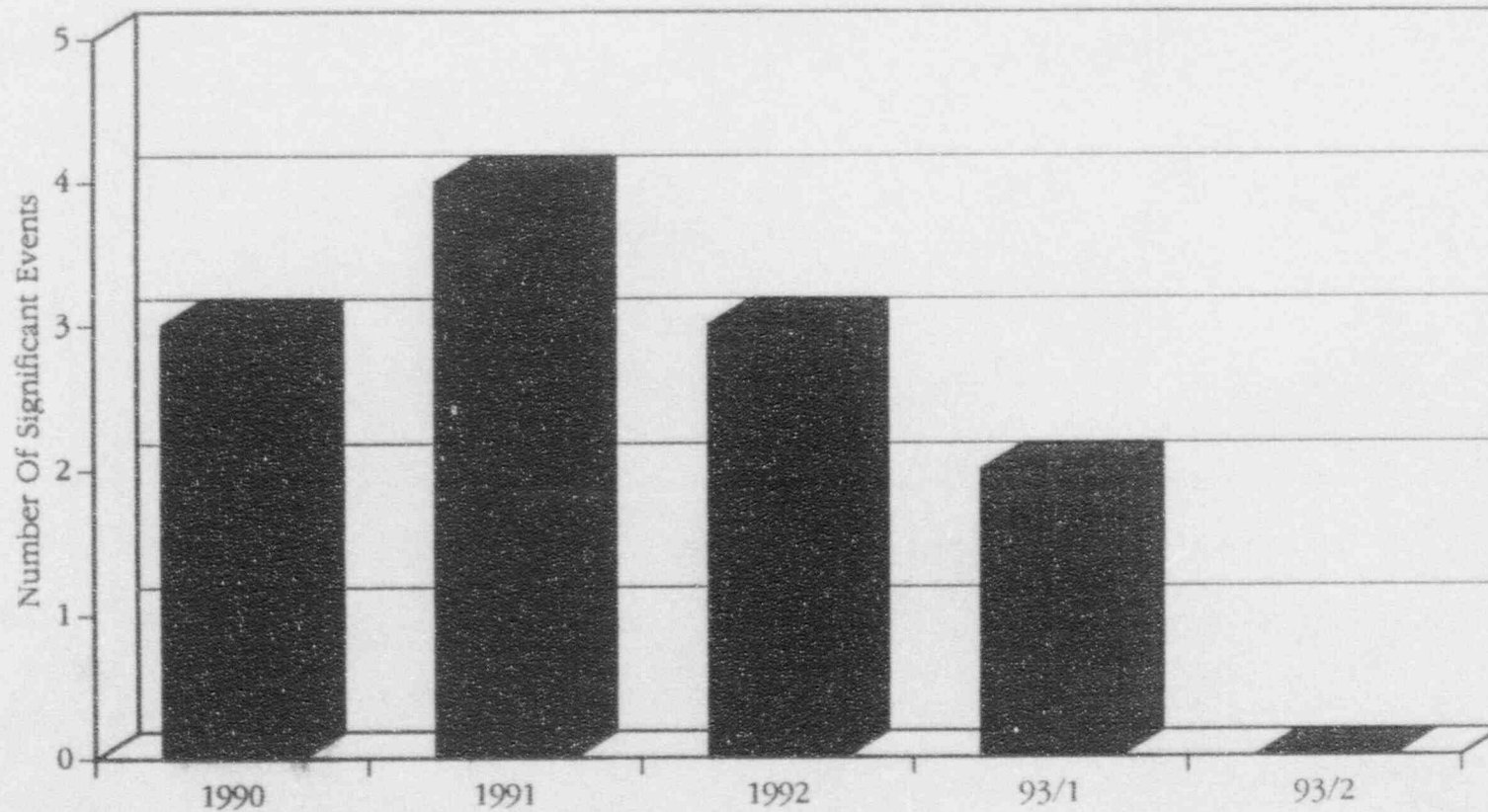
- **Unplanned Plant Transients**
- **Reduction In Nuclear Safety Margin**
- **Reduction In Radiological Safety Margin**
- **Plant Design or Configuration Control**

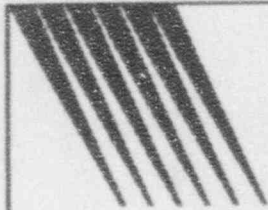


Integrated Trending

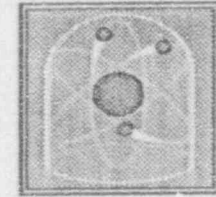


North Anna Power Station Significant Event History

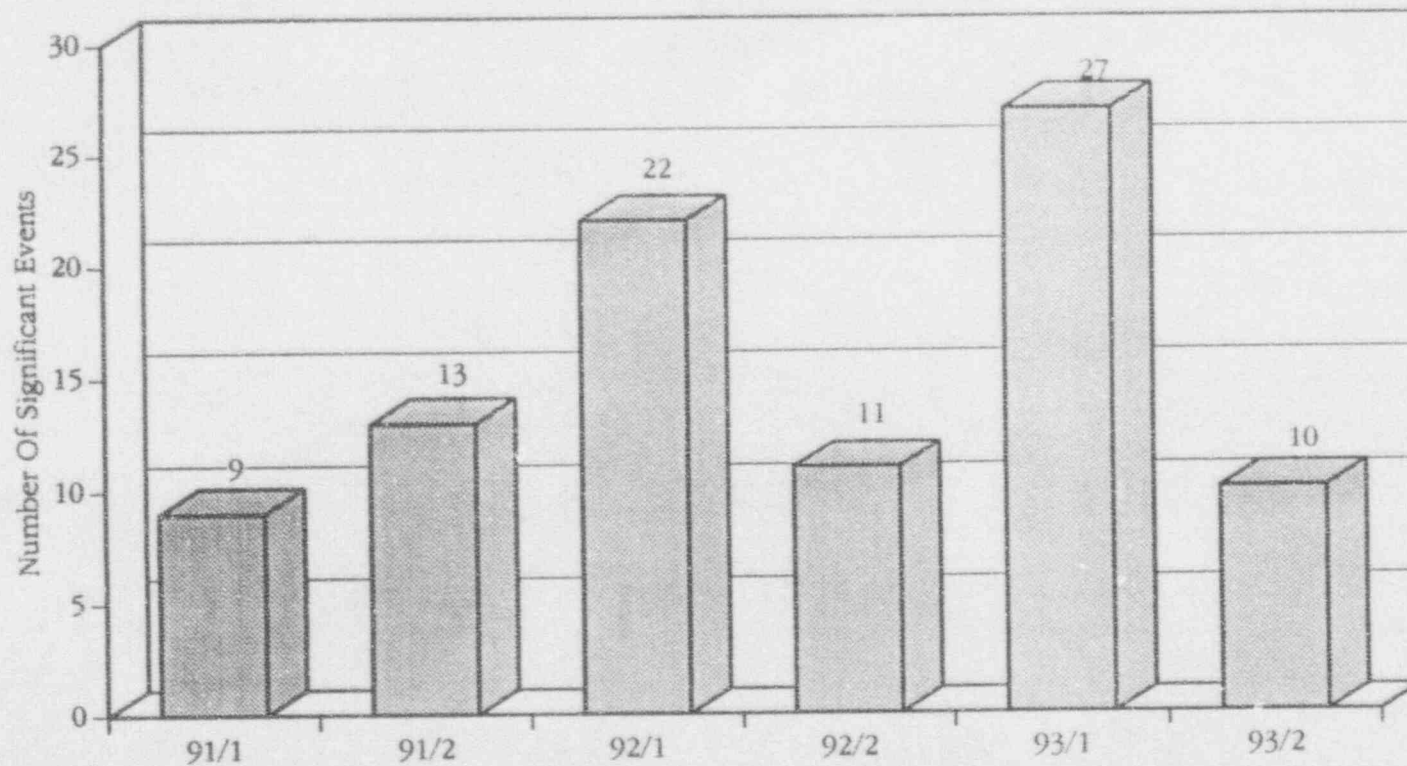




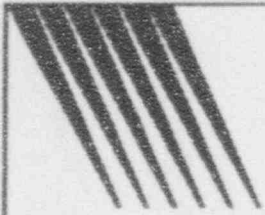
Integrated Trending



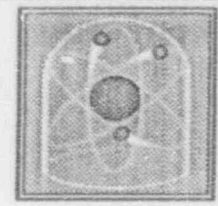
North Anna Power Station Precursor Event History



	1991	1992	1993
Precursor Events	22	33	37



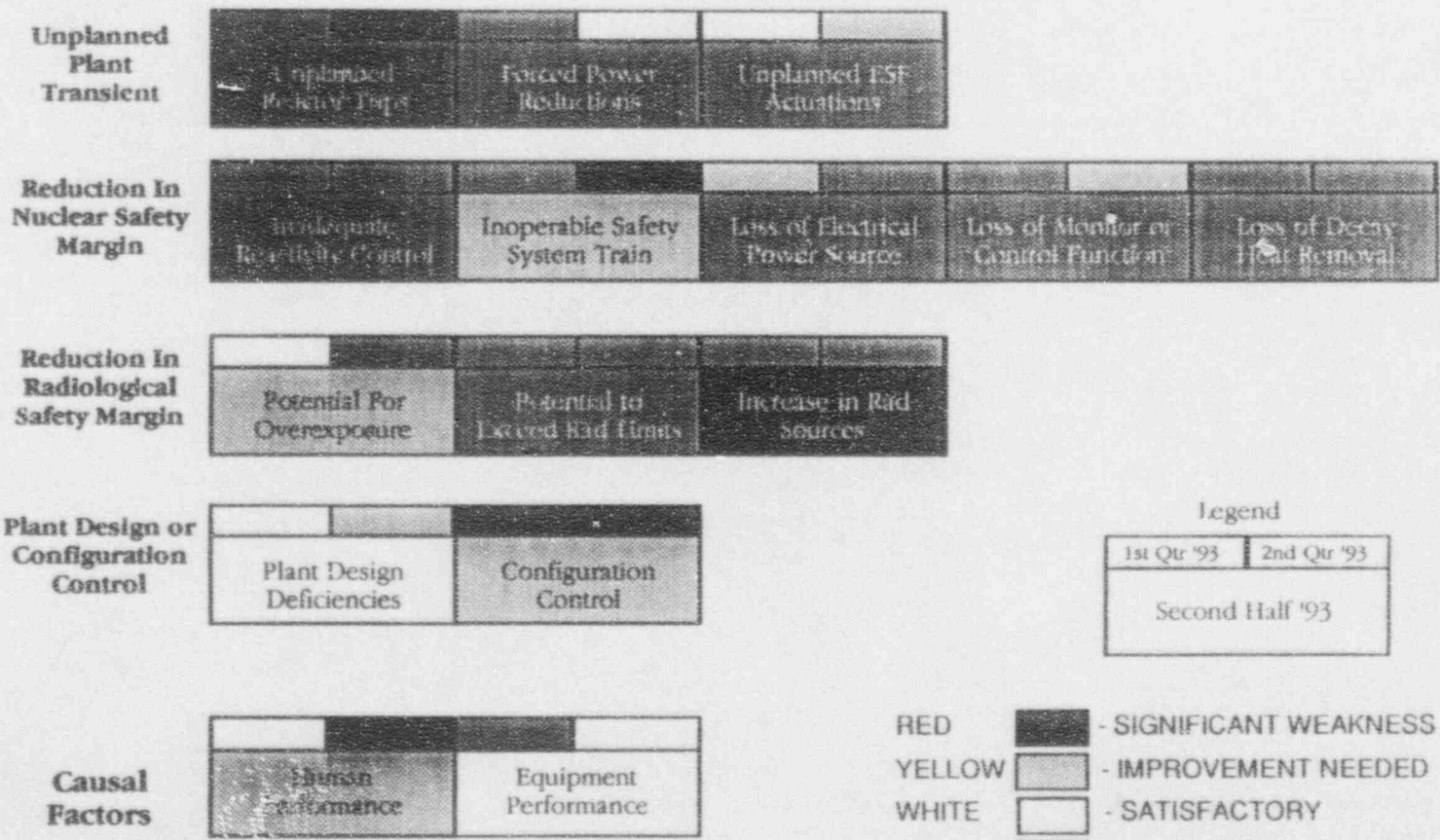
Integrated Trending



Precursor Events Panel July - December 1993

North Anna Power Station

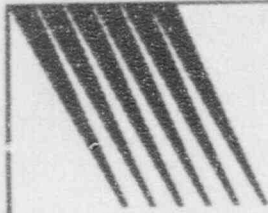
EVENT TYPE



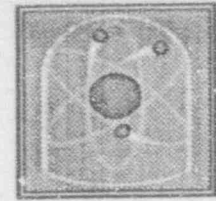
Legend

1st Qtr '93	2nd Qtr '93
Second Half '93	

- RED [Red Box] - SIGNIFICANT WEAKNESS
- YELLOW [Yellow Box] - IMPROVEMENT NEEDED
- WHITE [White Box] - SATISFACTORY
- GREEN [Green Box] - SIGNIFICANT STRENGTH



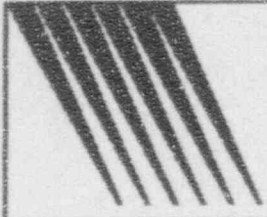
Integrated Trending



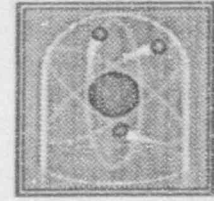
Focus Items

July - December 1993

- **Human Performance**
- **Relief / Safety Valves**
- **Reactor Trips**
- **Steam Generator Stability**
- **Fuel Failures**
- **Recurring Equipment Problems**



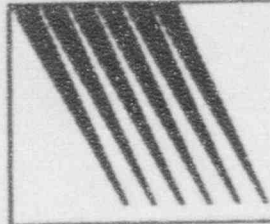
Integrated Trending



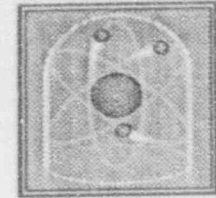
FOCUS ITEM: Recurring Equipment Problems

North Anna Power Station

- **High Head Safety Injection Flow Balance**
- **Low Head Safety Injection Pressure Spikes**
- **Moisture in the Lube Oil of 2-FW-P-2**
- **Reactor Trip Breaker Problems**



Integrated Trending



FOCUS ITEM: Recurring Equipment Problems

ONGOING CORRECTIVE ACTIONS:

1. The Root Cause Program is being enhanced to improve the identification and analysis of recurring problems under Level I 969-01.
2. Station Level I projects have been established for these recurring problems.

RECOMMENDATIONS:

1. Evaluate the existing Level I projects to assure that root causes are identified and actions will resolve the problems. **Action: Assistant Station Manager Nuclear Safety & Licensing.**
2. Evaluate the methods used to identify recurring problems and communicate it to management. - **Action: Assistant Station Manager Nuclear Safety & Licensing.**
3. Evaluate the replacement or elimination of the Lube Oil Cooler SW TCVs at Surry. **Action: Manager Nuclear Engineering.**