

OCT 16 1995

Official copy

MEMORANDUM TO: Ellis Merschoff, Director
Division of Reactor Projects

FROM: Mark S. Lesser, Branch Chief
Reactor Projects Branch 6
Division of Reactor Projects

SUBJECT: PLANT PERFORMANCE REVIEW MEETING SUMMARY

On September 14, 1995, the Region II technical staff met to discuss the performance of the Sequoyah Nuclear Plant and Browns Ferry Nuclear Plant. This meeting was conducted as part of the periodic Plant Performance Review process. The discussion included a review of plant performance in the four functional areas, as well as allocation of inspection resources for the coming six months. The results of this meeting are as follows:

Sequoyah:

Operations: The licensee continues to perform at the current level, with no substantial improvement or decline in performance observed. Operation's personnel errors have decreased during this period, however, some errors continue to occur. Abnormal conditions continue to challenge operators, and operators have not always responded appropriately. Improvement has been observed in several areas associated with management expectations, however, examples have been identified which indicate that these expectations have not been fully realized. Operators continue to react to plant transients events due mainly to equipment problems. Management focus on increased training activities for management, supervisors, and Operation's personnel have been evident. Although this increased focus is positive, a perceptible improvement in performance has yet to occur. Management involvement in coaching and holding personnel accountable for performance expectations was weak until recently. The effect of this was stagnation of the improvement observed during the last SALP cycle. Good operator performance to trips and transients has continued, as well as good performance in configuration control. The operating staff continues to be challenged by degraded equipment, however, deliberate focus on correcting these problems was evident. In addition to these areas, the licensee continues to identify additional focus areas for improvement of Operations performance through internal and external self assessment.

Maintenance: A slight overall improvement has been observed from the previous SALP assessment, in which the maintenance area was evaluated as a Category 2. Plant equipment problems continue to cause reactor trips and shutdowns and continue to challenge operators and other plant personnel. Corrective action problems in the maintenance area continue,

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although the frequency has been reduced. The 12 week rolling schedule implementation resulted in significant reduction in maintenance backlog. Poor documentation of maintenance activities, especially for troubleshooting activities, was observed. Good implementation of management expectations have been observed in several areas. The material condition of the plant continues to improve, however, many degraded equipment items remain.

Engineering - Performance in Engineering was mixed. There were more positive issues noted during this review than past reviews. Those strengths included use of industry information; event reviews and critiques; awareness of system status by System Engineers; and technical evaluation of the Unit 1 RVLIS fitting failure. Problems were noted in the areas of: engineering review and support of plant transient root cause identification; secondary plant reliability; fire protection and backlog reduction. Inspections over the next review period will complete the core engineering program and regional initiative will be applied to review the effectiveness of root cause and activities associated with secondary plant reliability.

Plant Support - The radiation protection program continues to adequately maintain external and internal radiation exposures within regulatory limits. The audit program was well conducted and documented, and identified items of substance with adequate corrective actions taken to prevent recurrence. The licensee continued efforts to reduce respirator usage with engineering controls and did not observe an increase in positive uptakes. The licensee conducted adequate radiological surveys, and maintained adequate postings and control policies for radiation areas. One IFI was identified to review licensee actions regarding followup to a contamination event resulting in contamination particles on the Auxiliary Building roof. In the Emergency Preparedness area, a satisfactory annual exercise was conducted March 29, 1995. Although some minor items were identified for improvement, the licensee's emergency response capability was being maintained in a satisfactory state of operational readiness. In security, a negative trend has been identified. An unattended vehicle in the protected area, two inattentive guards, security personnel unfamiliarity with the escorted visitor process, and an out of date access list, have been identified in recent inspections. The training program continues to be a program strength. All other areas were adequate. The new Security System will be reviewed during the January, 1996 OSRE inspection.

Upcoming inspections for the Sequoyah facility are located in Enclosure 2.

BROWNS FERRY

Operations - The overall performance in the Operations area for this review period has been stable and has leveled off from previous declining trends. The previous assessment noted several operations problems during the fall 1994 outage, with better performance during power operations. The Operations Manager has initiated an Operations Improvement Plan which addresses the identified issues. The areas with continuing problems were identified as communications and interfaces between plant personnel and attention to detail. The overall significance of the identified problems was low with the exception of a recent CRD air valve found out of position and a Unit 3 event involving

problems with the inadvertent insertion of control blades. Observations of Unit 3 testing activities indicate that some operations personnel have not yet fully transitioned to a "operational unit" attitude. Some improvement in questioning attitude such as PER initiation was noted. Operator response to transients was identified as a strength and quality of shift turnover briefings was noted to be good. However, NRC review of initial license exams concluded that knowledge of emergency/abnormal evolutions was not strong. Management involvement in daily plant operations continued to be high.

Maintenance - The overall performance in the area of Maintenance was considered unchanged from the previous review period. Performance indicators show an increased reactor trip frequency. Since the Fall 1994 outage, there have been four scrams (three due to BOP equipment malfunctions and one due to maintenance personnel error). Assessments in the area of Maintenance identified continuing problems with self checking and component identification. NRC is concerned that these deficiencies could cause significant problems considering multiple unit operation in the near future, if not aggressively addressed. Weak implementation of FME controls was recently identified by the NRC as a repetitive problem. A review of the Unit 2 transients over the last two years concluded that 80% were attributed to BOP/support systems (16 out of 20 events), which is fairly typical of most plants. The review also noted that the BOP/Support system problems were divided among 10 different systems/components, indicating that increased licensee/NRC attention on any specific BOP system was not warranted. It was also noted that there were some transients in which the licensee's review did not clearly identify the root cause of the problems. The licensee has initiated plans to address some BOP single failure scram vulnerabilities. Overall plant material condition continued to be a strength and management attention to backlogs and the 12 week schedule was noted to be strong. The tracking of Unit 3 backlogs on restored Unit 3 systems has been initiated. Various challenges identified in the previous SALP Assessment have not yet been inspected.

Engineering - The overall number of Engineering issues has declined during this review period. There remain problems in the area of attention-to-detail. Inspections show several instances where drawings were not current, actions went undocumented; and the service water self-assessment identified a number of errors in program details. Strengths noted in the inspection program included: System Engineer knowledge, scheduling and reviewing modifications, self assessment criteria and a good initiative for upgrading the plant batteries.

Plant Support - The radiation protection program continues to adequately maintain external and internal radiation exposures ALARA and within regulatory limits. During recent inspections one violation and two NCVs had been identified. The violation was for failure of licensee personnel to follow procedures for proper RWP implementation. The NCVs were for failure of the licensee to control access for high radiation areas and failure for an individual to follow procedures prior to exiting the RCA. The licensee continued to complete work activities associated with Unit 3 restart. The work activities included the installation, calibration and testing for Area Radiation Monitoring Systems and containment high range monitors. An NCV was

identified for failure of the licensee to maintain configuration control drawing in accordance with regulatory requirements.

Radiological releases were effectively monitored and controlled with releases significantly below regulatory limits. Chemistry parameters are controlled well within limits. Radwaste control programs continue to be effective. On Unit 3, open TMI items in the area of control room habitability and PASS continue to be evaluated.

The overall emergency preparedness program continued to be well maintained. The commitment to testing staff and organizational readiness in drills and exercises was considered a strength. A recent exercise strength was the activation and control of the Operations Support Center. The emergency response facilities, supplies, and equipment were well-maintained. Coordination with offsite supporting emergency organizations was good. Drill critiques were well-documented with good tracking of corrective actions for critique findings.

The Physical Security program was maintained at a good level. Security training was considered a strength. CCTV picture quality and the security computer system continues to be marginal and will not meet regulatory requirements until the security upgrade program is completed. Appropriate compensatory measures have been implemented for the identified deficiencies. All other areas were adequate.

Housekeeping was generally good, although less attention was directed towards the infrequently accessed areas of the plant. Control of foreign material was specifically noted as a weakness.

Upcoming inspections for the Browns Ferry facility are located in Enclosure 3.

- Enclosures:
1. Attendees
 2. Sequoyah Six Month Inspection Schedule
 3. Browns Ferry Six Month Inspection Schedule
 4. Sequoyah Background Material
 5. Browns Ferry Background Material

SEND TO PUBLIC DOCUMENT ROOM?		YES	NO				
OFFICE	DRP/RII	DRP/RII					
SIGNATURE	<i>SES</i>	<i>SES</i>					
NAME	SSpark:vyg	SShaeffler					
DATE	10 / 13 / 95	10 / 13 / 95	10 / / 95	10 / / 95	10 / / 95	10 / / 95	10 / / 95
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cc w/atts:

E. Merschoff, RII
J. Johnson, RII
A. Gibson, RII
M. Lesser, RII
L. Wert, RII
W. Holland, RII
S. Sparks, RII
S. Shaeffer, RII
D. LaBarge, NRR
F. Hebdon, NRR
C. Casto, RII
K. Barr, RII

ATTENDEES

NRC REGION II

E. Merschoff
J. Johnson
A. Gibson
M. Lesser
L. Wert
W. Holland
S. Sparks
S. Shaeffer
D. LaBarge (telecon)
F. Hebdon (telecon)
C. Casto
K. Barr
J. Blake
P. Kellogg

SEQUOYAH NUCLEAR PLANT SIX MONTH INSPECTION PLAN

INSPECTION	TITLE	# OF INSPECTORS	INSPECTION DATES	TYPE OF INSPECTION
IP 62703 IP 61726	Maintenance Observation, Surveillance Observation	1	10/95, 1/96, 4/96 (1 week each)	Core inspection provided by Region II inspectors due to reduced resident staff.
IP 71001	Operator Licensing Requalification Program Evaluation	3	11/27/95 - 12/1/95 12/4/95 - 12/8/95	Core and Regional Initiative. Operator Requalification inspection, and review of Operation's management oversight associated with operator training JPMs.
IP 93808	Integrated Performance Assessment Process (IPAP)	5	11/27/95 - 12/1/95 12/4/95 - 12/8/95	Special Team Inspection.
IP 82701	Emergency Preparedness inspection	1	1/8-12/96	Core inspection.
	Operational Safeguards Response Evaluation	4	1/10/96 - 1/13/96	Special Team inspection - To confirm adequacy of security measures at the site.

SEQUOYAH NUCLEAR PLANT SIX MONTH INSPECTION PLAN

INSPECTION	TITLE	# OF INSPECTORS	INSPECTION DATES	TYPE OF INSPECTION
IP 40500	Site Improvement Plan progress.	2	2/96 (1 week)	Regional Initiative - Site Improvement Plan progress and activities associated with secondary plant reliability study due to balance of plant equipment failures.
IP 71707	Plant Operations	1	3/96	Regional Initiative - To review effectiveness of licensee management oversight of field operations. This inspection to be conducted by the Resident staff, and will supplement normal Operational inspection activities.
IP 81700	Safeguards inspection	1	3/96 (1 week)	Core inspection.
IP 81700	Safeguards inspection	1	To be determined	Regional Initiative - To review effectiveness of implementation of new security upgrade.
IP 37550	Engineering	3	3/96 (2 weeks)	Regional Initiative - Arrowhart contactors, engineering support to maintenance, fire protection, activities associated with generic communications, to determine trend from past performance.

SEQUOYAH NUCLEAR PLANT SIX MONTH INSPECTION PLAN

INSPECTION	TITLE	# OF INSPECTORS	INSPECTION DATES	TYPE OF INSPECTION
IP 40500	Root cause effectiveness	2	3/96 (1 week)	Regional Initiative - To review effectiveness of root cause and corrective actions associated with recent plant transients, to review trend from past performance.
IP 62703	Review of on-line maintenance activities	1	4/96 (1 week)	Regional Initiative - Prior to Unit 2 Spring refueling outage, to determine appropriateness of licensee considerations.
IP 37550	Engineering	3	4/96 (1 week)	Core inspection.
IP 92902 IP 92903	Service Water Operational Performance Inspection Followup	2	Spring 96	Special Team inspection followup.
IP 84750, 86750	Radiological Effluent and Chemistry inspection	1	4/96 (1 week)	Core inspection.
IP 83750	Facilities Radiation Protection	1	4/96 (1 week)	Core inspection.

BROWNS FERRY NUCLEAR PLANT SIX MONTH INSPECTION PLAN

INSPECTION	TITLE	# OF INSPECTORS	INSPECTION DATES	TYPE OF INSPECTION
	Operational Readiness Assessment Team (ORAT)	12	Inspection dates 10/9 - 20/95	Regional Initiative to support Unit 3 restart
IP 92903	Environmental Qualification	1	10/16/95 - 10/20/95	Regional Initiative to support Unit 3 restart
IP 92903	Electrical Issues Followup	1 per week	10/16/95 - 11/3/95	Unit 3 Restart
IP 38703	Review of commercial grade components	2	10/24/95	Regional Initiative to review Unit 3 program for restart
TI 2512/111	EDSFI Followup	1	10/30/95 - 11/3/95	Followup of special team inspection
TI 2515/118	Service Water Operational Performance Inspection followup	3	10/30/95	Special Team inspection followup

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IP 92901 TI 2512/99	Unit differences training BWR Power Oscillation	1	10/30/95 - 11/3/95	Regional initiative to support Unit 3 restart
IP 84750 IP 86750	Radiological Effluent and Chemistry inspection	1	10/30/95 - 11/3/95 1/8/96 - 1/12/96	Unit 3 Restart Core inspection
IP 71715	Augmented Unit 3 startup coverage	3 per week	11/15 to 12/15, 1995	Regional initiative to support Unit 3 restart
IP 71001	Operator Licensing Requalification Program Evaluation	3	11/13/95 - week of prep 11/27/95 - 12/1/95 inspection	Core inspection
IP 62703 IP 61726	Maintenance Observation, Surveillance Observation	Resident staff assisted by 1 regional inspector for one week/month	6 weeks TBD	Core inspection provided by Region II inspectors to support resident staff

BROWNS FERRY NUCLEAR PLANT SIX MONTH INSPECTION PLAN

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IP 40500	Root cause effectiveness, scram reduction, FME controls, component identification, self checking, equipment failure trending.	2	12/4/95 - 12/8/95	Regional Initiative due to SCRAM performance indicators and continuing FME problems
IP 62703	Review of on-line maintenance activities	1	February 1996	Regional Initiative to review the evaluation process for deciding to perform maintenance on-line or during outage
IP 37550	Review of digital modifications	1	April 1996	Regional initiative to review modification installation and testing
IP 63700	Review of setpoint methodology	1	April 1996	Regional initiative due to previously identified industry problems
IP 37550	Engineering	3	May/June 1996	Core inspection
IP 37550	Core Physics	1	May 1996	Regional initiate to review modifications per Generic Letter 94-02

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PLANT PERFORMANCE REVIEW
SALP CYCLE 13

January 8, 1995 through September 2, 1995

NOTE-----THIS REVIEW STUFF WAS UPDATED ON 9-7-95-----NOTE

STRENGTHS AND CHALLENGES LISTED AFTER EACH
FUNCTIONAL AREA WERE PRESENTED TO LICENSEE
DURING LAST SALP ASSESSMENT MEETING

OPERATIONS 2 2 Declining 3 2

STRENGTHS

- Improved Management Involvement
- Good Operator Performance and Involvement
- Improved Configuration Control
- Less Tolerance of Degraded Equipment
- Effective Self Assessment

CHALLENGES

- Personnel Errors
- Slow Resolution of Abnormal Conditions
- Management Expectations Not Fully Realized
- Reactive Organization

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LER 327/95-07 - Auxiliary Building Crane Interlocks and Physical Stops Were Defeated to Facilitate Replacement of the Spent Fuel Racks - December 30, 1994 - Submitted July 18, 1995

IR 95-01 E. Girard - January 9-13, 1995 - GL 89-10 Implementation
- Strength in operability checks following MOV testing

IR 95-02 Holland - December 28 thru Jan 20, 1995
- The issue in this report occurred during last SALP cycle

- IR 95-03 W. Rogers - Service Water System Operational Performance Inspection - January 9 through March 9, 1995
- VIO - Inadequate procedures or improper procedure implementation for AOI-7 and operational administrative procedures.
 - Weakness in LCO consideration for select room coolers
- IR 95-04 Resident - January 8 through February 4, 1995
- Improvement in control of drill evolutions associated with control room accessibility
 - Operations maneuvering of Unit 2 for maintenance activities well controlled.
- IR 95-05 G. Hopper - January 25, 1995 - Closeout of open items only - no other inspection activities accomplished
- IR 95-06 Resident - February 5 through March 4, 1995
- Operator response to Unit 1 RCS leak event was very good
 - Weakness regarding appropriate level of safety sensitivity to cold leg accumulator level deviation prior to Unit 1 restart
 - URI for resolution of potential procedure compliance issues associated with spent fuel rerack project
 - Appropriate management attention was being focused on PCF reduction
- IR 95-07 N. Salgado - March 6-10, 1995 - TI 2515/122, Evaluation of Rosemont Pressure Transmitter Performance inspection
- Input discussed in Maintenance area
- LER 327/95-04 - Missed Surveillance on both units Auxiliary Control Room's Source Range Monitors Resulting from Inadequate Procedural Guidance - March 31, 1995
- IR 95-08 Resident - March 5 through April 8, 1995
- VIO - TS missed surveillances for backup source range monitors
 - VIO - partial - Failure to perform and document prereqs and notes in accordance with procedures
- IR 95-09 A. Long - April 17 through 20, 1995 - Drawing program backlogs/commitments review
- Input discussed in Engineering area
- IR 95-10 D. Forbes - March 20 through 24, 1995 - Rad Protection Program review
- Input discussed in Plant Support area
- IR 95-11 D Jones - April 10 through 14, 1995 - Met monitoring, control room emergency ventilation, training for PASS
- Input discussed in Maintenance and Plant Support area

IR 95-12 Resident - April 9 through May 6, 1995

- Good operator performance during the Unit 2 restarts; however, continuing GOI deficiencies placed additional burdens on operators prior to unit status changes
- VIO - Failure to provide adequate procedure and/or drawings for configuration control of containment sump recirculation valve's declutch lever reach rods
- Weakness in communication of corrective action for Arrow-Hart contactor issue resulting in repeat of problem/issue

IR 95-13 S. Rudisail - May 1 through 5, 1995 - Arrow-Hart C/A

- VIO - Inadequate Corrective Actions for Arrow-Hart problems

ER 95-300 J. Bartley - May 8 through 12, 1995 - NRC license exam administration for 6 SROs - All passed exam; however, four of six were marginal passes

- Three significant performance deficiencies noted associated with lack of operator reference to annunciator response procedure, lack of clear understanding of FR procedure, and lack of timely transition to ECA after total loss of RHR

LER 327/95-05 - Containment Isolation Valves for Unit 1 Returned to Service Without Performance of the Stroke Time Test - May 23, 1995

IR 95-14 Resident - May 7 through June 4, 1995

- Mixed performance during period - Good operator response to Unit 2 trip, and failed control circuit for a Unit 2 letdown heat exchanger temperature controller - Weak areas included timeliness of identification of leakage past a Unit 2 MDAFW pump condensate supply valve and lack of awareness and/or initiative in identifying and correcting deficiencies related to area rad monitors
- NCV - Failure to perform valve stroke time verification as required by TS

LER 328/95-05 - Closure of the 2A-A Safety Injection Pump Suction Valve Placed the Unit in Limiting Condition for Operation 3.0.3 - June 20, 1995

LER 327/95-08 - Unit 1 Reactor Trip Occurred as a Result of Lo-Lo Steam Generator Level Caused by Personnel Error - June 23, 1995

LER 327/95-09 - Unit 1 Rod Position Indication Out of Step with Demand Position Indication System - June 24 and July 18, 1995

IR 95-15 Resident - June 5 through July 1, 1995

- VIO - Failure to implement adequate corrective actions for past operator personnel error problems resulting in a reactor trip this period
- Weakness involving operator inattention to detail during performance of main turbine overspeed and oil system testing
- Third party assessment and INPO evaluation briefs during period indicated NRC perception of licensee performance is consistent with other assessments

IR 95-16 Resident - July 2 through 29, 1995

- Mixed performance observed regarding safety sensitivity and attention to detail. Examples were: GOOD - operator response to Unit 1 reactor trip on July 17, reduction of administrative burden on operators, PORC review of the Unit 1 post trip report, identification of degraded condition on the 2B-B CCP speed changer unit by an operator during rounds POOR - communication between test personnel and operators during Unit 1 airlock testing, operator troubleshooting of a main bank transformer cooling system problem, operator sensitivity to abnormal temperature conditions in Vital Battery Board Room V, and operator sensitivity for assuring that displayed alignments of valves for CCS on control room Panel 0-M-27B was maintained

IR 95-17 W. Tobin - August

- No issues - Closeout of items only

IR 95-18 Resident - July 30 through September 2, 1995

- In the area of Operations, improved operator performance was observed in the areas of operations shift turnovers (paragraph 3.a.(3)), and good operator sensitivity in questioning a potential boron dilution condition on Unit 1, (paragraph 4.c). In addition, observation of training activities for licensee management in the areas of organizational and programmatic improvements appeared effective and appropriately focused on industry experience (paragraph 3.c). However, one inspection observation indicated that better coordination was needed between operations and maintenance in preparation for the Unit 1 Cycle 7 outage early in the period (paragraph 3.a.(1)); and another observation indicated a lack of attention to detail during surveillance documentation and review (paragraph 5.a).

MAINTENANCE 2 Improving 2 3 2

STRENGTHS

- Improved Management Involvement
- Improved Material Condition
- Improved Control of Backlogs
- Self Assessment

CHALLENGES

- Equipment Performance
- Corrective Action
- Planning

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LER 328/95-01 - Unit 2 Turbine and Reactor Trips Caused from an Electrical Short Tripping the Main Transformer - January 5, 1995

IR 95-01 E. Girard - January 9-13, 1995 - GL 89-10 Implementation

- Weakness in documentation of MOV maintenance
- Strength in diagnostic measurement of torque and thrust

IR 95-03 W. Rogers - Service Water System Operational Performance Inspection - January 9 through March 9, 1995

- Weaknesses in scope and implementation of GL89-13 actions on deadleg flushing, chemical treatment, HPFP System, and airside cooler testing.

IR 95-04 Resident - January 8 through February 4, 1995

- Identification and corrective action associated with a main bank transformer maintenance issue was well controlled
- Maintenance activity for EDG was adequate
- tow surveillances were performed in adequate manner; however, one surveillance procedure contained numerous temporary changes.

LER 327/95-02 - Unit 1 Reactor Coolant System Leak as a Result of a Fitting not Properly Assembled on the Reactor Vessel Level Indication System - February 23, 1995

LER 327/95-03 - Inadvertent Main Feedwater Isolation During Testing of the Unit 1 Reactor Trip Bypass Breakers - February 24, 1995

- IR 95-06 Resident - February 5 through March 4, 1995
- Three maintenance activities were performed in an adequate manner
 - Two surveillances were accomplished in a adequate manner
- IR 95-07 N. Salgado - March 6-10, 1995 - TI 2515/122, Evaluation of Rosemont Pressure Transmitter Performance inspection
- Trending program, technician training, and calibration procedures were effective in identifying loss of fill-oil in Rosemont Transmitters
- IR 95-08 Resident - March 5 through April 8, 1995
- VIO - partial - Failure to provide adequate instructions as part of a work order during performance of the spent fuel pool rerack project
 - Several areas noted where equipment reliability/material condition was recognized as poor (control air compressors and HVAC chillers)
 - Weakness in preventative maintenance program related to the security diesel generator
 - One surveillance was accomplished in an adequate manner
 - Plant transient problems on Unit 2 (feedwater heater level control problems and water hammer failure of level control valve) required unit shutdown Good long term fixes were instituted based on these problems
- IR 95-11 D Jones - April 10 through 14, 1995 - Met monitoring, control room emergency ventilation, training for PASS
- Effective program for maintaining meteorological monitoring instrumentation operable
 - Operational and surveillance requirements for control room emergency ventilation system complied with
- LER 328/95-02 - Unit 2 Turbine and Reactor trips Resulting from Actuation of the Main Generator Neutral Overvoltage Relay - April 28, 1995
- IR 95-12 Resident - April 9 through May 6, 1995
- Several component problems, including known degraded equipment (control rod step counters, feedwater regulation valve, main feedwater isolation valve, individual rod position indicator) continued to challenge operators in performance of duties
 - Better preventative maintenance of iso-phase bus inspection activities could have prevented the Unit 2 trip on April 28. Opportunities existed during past PM to identify the problem that caused the trip
 - Two troubleshooting activities accomplished in good manner. However, documentation for one activity needed additional attention
 - One surveillance accomplished in adequate manner

LER 328/95-03 - Unit 2 Turbine and Reactor Trips Resulting from Actuation of the Main Generator Stator Cooling Water Failure Circuit

IR 95-14 Resident - May 7 through June 4, 1995

- Good performance noted during observations of several maintenance activities

IR 95-15 Resident - June 5 through July 1, 1995

- Good support to event critiques/reviews for two events (waste gas analyzer and main generator stator cooling water system problems) resulted in conclusions that reviews/critiques were thorough and proposed good corrective actions
- Good performance in reacting to plant problems (1B CBP and 1B MFP check valve problems); however, fact that reaction was needed indicated continuing poor BOP material condition.
- Two surveillances performed in adequate manner
- Continuing failures of important equipment (SPDS for Unit 2 and TSC inverter 1) placed additional burden on operators in performance of routine duties.

IR 95-16 Resident - July 2 through 28, 1995

- Observation of activities indicated maintenance being accomplished in satisfactory manner. However, several days work involving maintenance craft and engineering support in troubleshooting low flow condition for a rad monitor could have been curtailed if the licensee had recognized that a realignment of the Unit 2 steam generator blowdown flowpath from the condensate system to the river would result in a low pressure condition at the point where the sample line tied into the process line.

IR 95-18 Resident - July 30 through September 2, 1995

- In the area of Maintenance, review of maintenance activities associated with a safety related motor operated valve, a air operated valve, and a vital inverter indicated the activities were accomplished in a good manner. One observation indicated that documentation for troubleshooting activities could be improved, and another observation indicated that better planning of a post maintenance test could have reduced a safety-related component outage time in a Technical Specification LCO Action statement (paragraph 4).

ENGINEERING 2 2 Improving 2 2

STRENGTHS

- Individual Qualifications
- Support to Maintenance
- Self Assessment

CHALLENGES

- Quality of Engineering Evaluations
- Backlog Reductions
- Raising Expectations

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IR 95-01 E. Girard - January 9-13, 1995 - GL 89-10
Implementation

- Weakness in MOV calculation
- Weaknesses in documentation of PER evaluation/corrective actions

LER 327/95-01 - Gas Accumulation in the Unit 1 Residual Heat
Removal System Results in a Water Hammer in the System - January
18, 1995

IR 95-03 W. Rogers - Service Water System Operational Performance
Inspection - January 9 through March 9, 1995

- VIO - Inadequate design control measures for ERCW, HPFP, and EDG batteries
- URI - Interpretation of Design Basis Flood
- VIO - Failure to identify conditions adverse to quality
- Weakness in incorporation of instrument inaccuracy into tests
- Strength in design control measures for tube plugging of containment spray heat exchangers

IR 95-04 Resident - January 8 through February 4, 1995

- Example of insufficient sensitivity to ensuring that BOP plant design reflects as-build configuration (temporary supports for EHC reservoir tank sight glasses)
- URI associated with accumulation of gas in Unit 1 RHR line resulting in water hammer event

- IR 95-06 Resident - February 5 through March 4, 1995
- Weakness in initial evaluation of potential problem regarding SSPS power supplies not being electrically isolated from non-safety field inputs
 - Technical evaluation of the Unit 1 fitting failure and the extent of condition review accomplished in very good manner
- IR 95-08 Resident - March 5 through April 8, 1995
- VIO - partial - Failure to provide adequate drawing for safety-related activities
 - Component Engineering Group monthly report to management presented a clear status of degraded plant chillers that warranted increased attention
- IR 95-09 A. Long - April 17 through 20, 1995 - Drawing program backlogs/commitments review
- Drawing backlog commitments met, significant resources allocated to remaining backlog, management attention evident, with performance indicators being effectively trended - No adverse trends identified which were not already being addressed by licensee
- IR 95-12 Resident - April 9 through May 6, 1995
- Good performance in conducting timely evaluation of Arrow-Hart contactor problems associated with three MOVs. Good root cause determination and appropriate corrective action
- LER 328/95-04 - A Containment Purge Air Isolation Valve May Not Have Sufficient Clearance for the Valve to Function Properly During a Loss of Coolant Accident - May 25, 1995
- IR 95-14 Resident - May 7 through June 4, 1995
- Review of system engineering's system status reports (AFW and CCS) indicated good awareness of equipment status, problem areas, proposed improvements, and system knowledge
 - Review of vibration analysis group performing work in field indicated these activities were accomplished in good manner
- LER 327/95-06 - Waste Gas Analyzer Setpoint Calibration for Hydrogen Concentrations - June 6, 1995

IR 95-15 Resident - June 5 through July 1, 1995

- Weakness in communication of possible unanticipated rod movement condition to operators on units
- Good support to event critiques/reviews for two events (waste gas analyzer and main generator stator cooling water system problems) resulted in conclusions that reviews/critiques were thorough and proposed good corrective actions
- Weakness in sensitivity for assurance that proper lubricant ranges are specified/maintained for safety/related components both in procedures and training
- Operability evaluation for MOV issue identified at Watts Bar appropriately dispositioned at Sequoyah. However, documentation for Operability review not available until questioned by inspectors.

IR 95-16 Resident - July 2 through 28, 1995

- Licensee root cause evaluation for sudden pressure relay failure which caused Unit 1 trip appeared thorough with appropriate actions taken based on cause. Followup activities associated with identification of potential problem to industry demonstrated good sensitivity to use of operating experience data

IR 95-18 Resident - July 30 through September 2, 1995

- One violation was identified during this report period. In the area of Engineering a violation was identified for failure to promptly identify and correct the adverse condition associated with degraded safety-related throttle valves (paragraph 6.a). In the area of Engineering, mixed performance was observed. The violation for inadequate prompt corrective action for degraded safety-related throttle valve was the most significant issue. In addition, grading deficiencies around ERCW cable vaults resulted in rain water runoff entering the vault during heavy rains (paragraph 3.b). Better performance was observed during review of an evaluation associated with potential Component Cooling System pump runout during establishment of residual heat removal recirculation flow after a postulated accident (paragraph 6.b).

PLANT SUPPORT 1 2

STRENGTHS

- Radiological Controls
- Emergency Preparedness
- Primary Chemistry
- Improved Housekeeping
- Self Assessment

CHALLENGES

- Fire Protection Material Condition
- Secondary Chemistry On-Line Instruments
- PASS
- Access Control

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IR 95-03 W. Rogers - Service Water System Operational Performance
Inspection - January 9 through March 9, 1995

- Weakness involving Inattentive Guard
- Weakness in implementation of ERCW chemical treatment due to equipment problems

IR 95-04 Resident - January 8 through February 4, 1995

- Examples where radiological controls activities and/or requirements were not being effectively communicated throughout the plant organizations (area rad monitor in alarm due to testing without Radcon knowledge and changing of Radcon requirements for entry to RCA at elevation 734).

IR 95-06 Resident - February 5 through March 4, 1995

- Radcon's overall response to the Unit 1 RCS leak and subsequent decontamination efforts were very good and handled in a professional manner

IR 95-08 Resident - March 5 through April 8, 1995

- Annual emergency exercise met the established objectives. Event scenario was diverse, and licensee's critiques exhibited good self-assessment capability
- Security response to loss of power for security equipment was adequate

- IR 95-10 D. Forbes - March 20 through 24, 1995 - Rad Protection Program review
- RP program functioning adequately, staffing levels adequate, effective implementation of exposure control programs, ALARA program effective
- IR 95-11 D Jones - April 10 through 14, 1995 - Met monitoring, control room emergency ventilation, training for PASS
- Personnel involved in PASS were being trained as required and plans for enhancements to program had been initiated
- IR 95-12 Resident - April 9 through May 6, 1995
- Inattentive Radcon technician observed by inspector during plant walkdown
- ER 95-300 J. Bartley - May 8 through 12, 1995
- URI identified for declining trend in Security associated with security officer inattentiveness
- IR 95-14 Resident - May 7 through June 4, 1995
- Radcon activities observed were being accomplished in good manner
 - Observation of unannounced fire drill noted activities accomplished in professional manner with good communication. However, PA system announcements were difficult to hear in some plant areas
- IR 95-15 Resident - June 5 through July 1, 1995
- Good sensitivity of licensee Emergency Response Manager in notifying residents of equipment unavailability.
- IR 95-16 Resident - July 2 through 28, 1995
- Plant housekeeping improved in some areas; however, needs additional attention in others. GOOD - RHR pump rooms
POOR - CCS pump rooms due mainly to poor material condition of pump room coolers
- IR 95-18 Resident - July 30 through September 2, 1995
- In the area of Plant Support, continued good performance was observed in the areas of Radiological Protection, specifically relating to the licensee's ALARA program, and a review of an external assessment of the licensee's dosimetry monitoring program (paragraph 7.a). In addition, observations of the plant security program implementation indicated good performance (paragraph 7.b).

SEQUOYAH PLANT PERFORMANCE REVIEW
 SALP CYCLE 13 - January 8, 1995 through September 2, 1995
 (SALP CYCLE SCHEDULED TO END IN JULY OF 1996)

OPERATIONS - LAST ASSESSMENT - 2	
PREVIOUS ASSESSMENT OR ATTRIBUTE REVIEWED	CURRENT ASSESSMENT
<p>CHALLENGE Personnel Errors continue</p>	<p>Operations personnel errors have decreased during this period; however, some errors continue to occur. Examples are: AUC operation of incorrect breaker during tagout, resulting in Unit 1 trip, failure to perform valve stroke time testing as required by TS, missed TS surveillances for backup source range monitors,</p>
<p>CHALLENGE Slow Resolution of Abnormal Conditions</p>	<p>Abnormal conditions continued to challenge operators during this period. Examples were failure to implement interim corrective actions for past Arrow-Hart contactor problems, failure to provide adequate procedure for configuration control of containment sump recirculation valve's declutch lever reach rods, and lack of adequate procedures for implementation of AOI-7 requirements.</p>
<p>CHALLENGE Management Expectations Not Fully Realized</p>	<p>Operator performance improvement was mixed during this period.</p> <p>Areas where expectations were being met included good sensitivity in questioning a potential boron dilution condition, improvement in operations shift turnovers, identification of degraded condition on CCP speed changer unit, improvement in control of drill evolutions associated with control room accessibility, and operability checks following MOV testing.</p> <p>Areas where management expectations were not achieved included: lack of attention to detail during surveillance documentation and review, poor operator sensitivity to abnormal temperature conditions in vital battery rooms and mimic alignments for CCS valves in the control room, poor communications between operators and test personnel during airlock testing, operator inattention to detail during performance of main turbine system overspeed and oil system testing, lack of awareness and/or initiative in identifying efficiencies related to area rad monitors, weakness involving appropriate safety sensitivity to cold leg accumulator level deviation prior to unit restart, and weakness in LCO considerations for select room coolers.</p>

<p>CHALLENGE Reactive Organization</p>	<p>Operators continued to react to plant transient events due mainly to equipment problems discussed in Maintenance area. After unit trips, operator response to trips continued to be very good. Also response to other unit maneuvers was good. Examples included response to failed control circuit for letdown heat exchanger controller, unit shutdowns for RCS leak and main bank transformer swapout, and several unit restarts after shutdown periods.</p>
<p>NEW CHALLENGE Management Commitment to Continued Performance Improvements</p>	<p>Management focus during period on increased training activities for both management, supervisors, and Operations personnel. Examples include Pecos River and Root Cause Evaluation training for Managers/Supervisors at Fairfield Glades in February/March of 1995. In addition, several departments have instituted special training provided by FPI for their personnel during the last three months. Examples of improvements were; institution of floor ASOS (SRO) position for operator coaching on expectations/standards, and institution of operator evaluations to provide extra instruction for operators with performance weaknesses.</p>
<p>STRENGTH Improved Management Involvement</p>	<p>Management involvement in coaching and holding personnel accountable for performance expectations leveled off until recently. Effect was stagnation of improvement trend observed during last SALP cycle. Several Management realignments were recently instituted in the Operations Department below the level of the Operations Manager. In addition, additional Senior Management focus has been placed on holding all levels of personnel accountable for achievement of expectations.</p>
<p>STRENGTH Good Operator Performance and Involvement</p>	<p>Good operator performance in response to plant trips and most transients continued from last SALP period. Examples included response to 5 reactor trips, response to failed control circuit for letdown heat exchanger controller, unit shutdowns for RCS leak and main bank transformer swapout, and several unit restarts after shutdown periods.</p>
<p>STRENGTH Improved Configuration Control</p>	<p>Continued good performance in this area based on lack of identification of significant configuration control issues.</p>
<p>STRENGTH Less Tolerance of Degraded Equipment</p>	<p>Degraded equipment continues to challenge operators; however, deliberate focus on correcting of problems evident. Examples discussed in Maintenance area under improved material condition STRENGTH.</p>

<p>STRENGTH Effective Self Assessment</p>	<p>Self assessments, both internal and external, and resulting training activities continue, and have provided additional focus areas for improvement of operations performance. Examples were observation of training activities for licensee management in the areas of organizational and programmatic improvements appeared effective and appropriately focused on industry experience, review of internal nuclear assurance assessments, third party assessments (Site wide culture index assessment and site wide common cause assessment) and the INPO evaluation briefs provided focus areas for improvement.</p>
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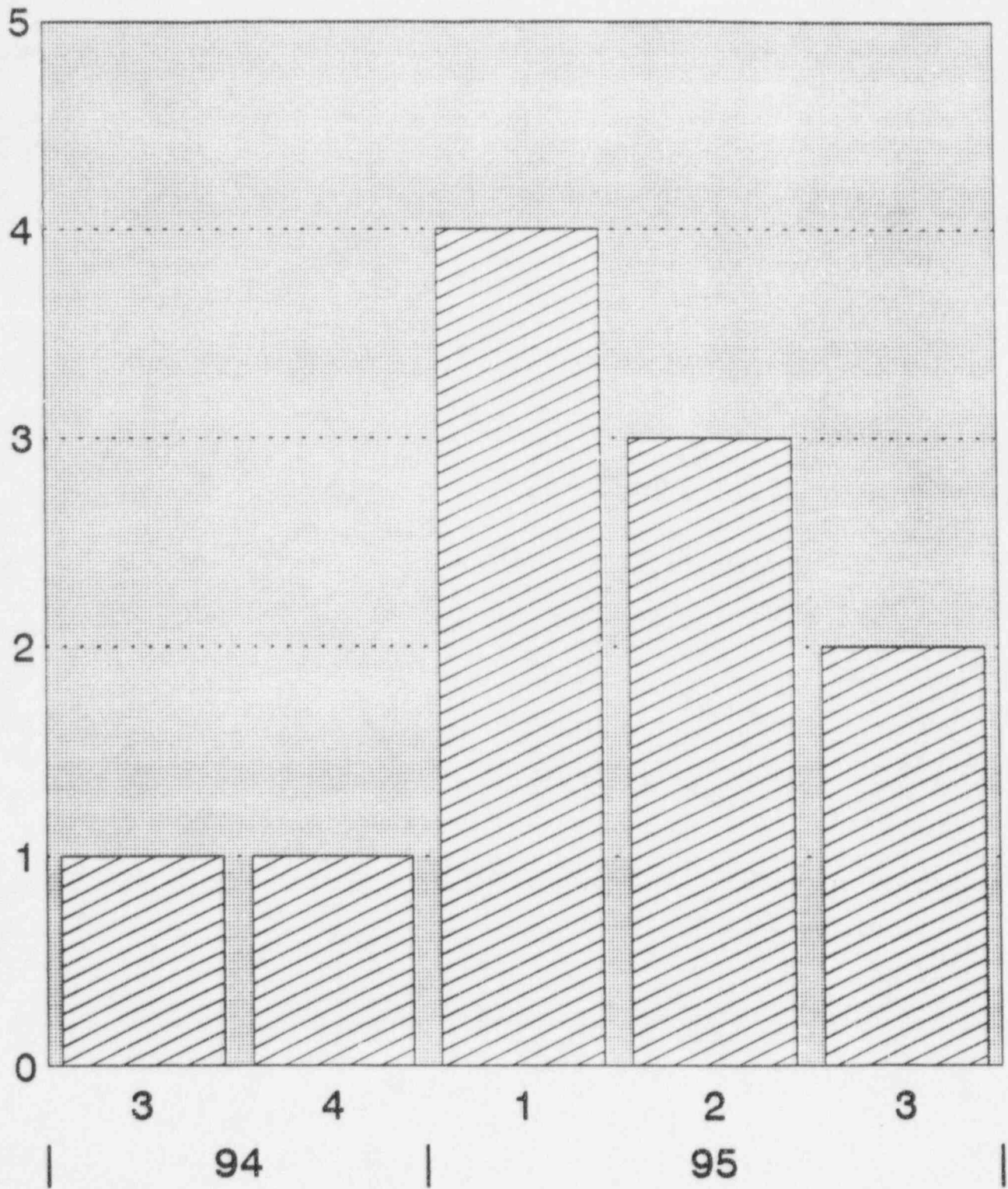
MAINTENANCE - LAST ASSESSMENT - 2

PREVIOUS ASSESSMENT	CURRENT ASSESSMENT
<p>CHALLENGE Equipment Performance continues to be a challenge</p>	<p>Plant equipment problems continued to challenge operators and other plant personnel. Examples were 4 plant trips associated with sudden pressure relay actuation, raw cooling water stator temperature element installation, improper installation of iso-bus duct gasket, and loose light bulb socket on benchboard. Other equipment problems observed involved MFP turbine low pressure steam supply check valve failure, closure of CBP 1A suction valve, steam seal anomalies after turbine roll, test valve from hp turbine blew off, control air compressor problems, step counter problems during startup, unit shutdown due to extraction steam line bellows degradation, FWH 4B LCV severed downstream of disk, Unit 1 RCS leak requiring unit shutdown, simmering pressurizer code safety valve, and main bank transformer changeout due to high temperature on transformer ground.</p>
<p>CHALLENGE Corrective Action problems</p>	<p>Corrective action problems continued during this period; however, frequency was reduced. Examples include continuing rad monitor problems, cause of reactor trip involving improper installation of iso-bus duct gasket, control rod step counters problems, feedwater regulation valve problems, IRPI drift, and implementation of GL89-13 activities associated with deadleg flushing, chemical treatment, HPFP system, and airside cooler testing.</p>
<p>CHALLENGE Planning improvements needed</p>	<p>12 week rolling schedule implementation resulted in significant reduction in Maintenance backlog. However, planning process needed additional attention to improve work package product. Part of issue discussed below under documentation of maintenance activities.</p>

<p>NEW CHALLENGE Documentation of Maintenance Activities</p>	<p>Poor documentation of maintenance activities identified, especially for troubleshooting activities. Although maintenance activities usually accomplished in adequate manner, documentation of activities required further dialogue between inspectors and craft/engineering personnel to conclude activities accomplished in satisfactory manner. Examples included safety-related MOV, troubleshooting low flow conditions for rad monitor, documentation for troubleshooting of a S/G level indication channel, and documentation of MOV maintenance.</p>
<p>AREAS TO WATCH</p>	<p>Post maintenance test quality, Preventative maintenance activities, and number of temporary changes in procedures and surveillances.</p>
<p>STRENGTH Improved Management Involvement</p>	<p>Continued management involvement evident in implementation of several new processes. Examples include FIN team and Maintenance Shift Manager. Positive attributes for following programs/activities indicated good implementation of management expectations in these areas. Good event critiques/reviews for two events (waste gas analyzer and generator stator cooling water system problems) resulted proposed good corrective actions. Effective program for maintaining meteorological monitoring instrumentation operable. Effective Rosemont pressure transmitter inspection/trending program. Diagnostic measurement of torque and thrust in MOV testing program.</p>
<p>STRENGTH Improved Material Condition</p>	<p>Material condition of several components improved; however, many degraded equipment items remained. Examples of equipment problems addressed in good manner include MFPS, CBPs, and heater drain pumps. Examples of degraded equipment needing attention included items discussed in Maintenance challenge areas. In addition, other areas needing attention included safety-related chillers, plant computers, main condenser tube leakage, and SPDS computers.</p>
<p>STRENGTH Improved Control of Backlogs</p>	<p>Most maintenance activities performed in adequate or better manner. This fact, along with 12 week rolling schedule resulted in continuing reduction of maintenance backlog.</p>

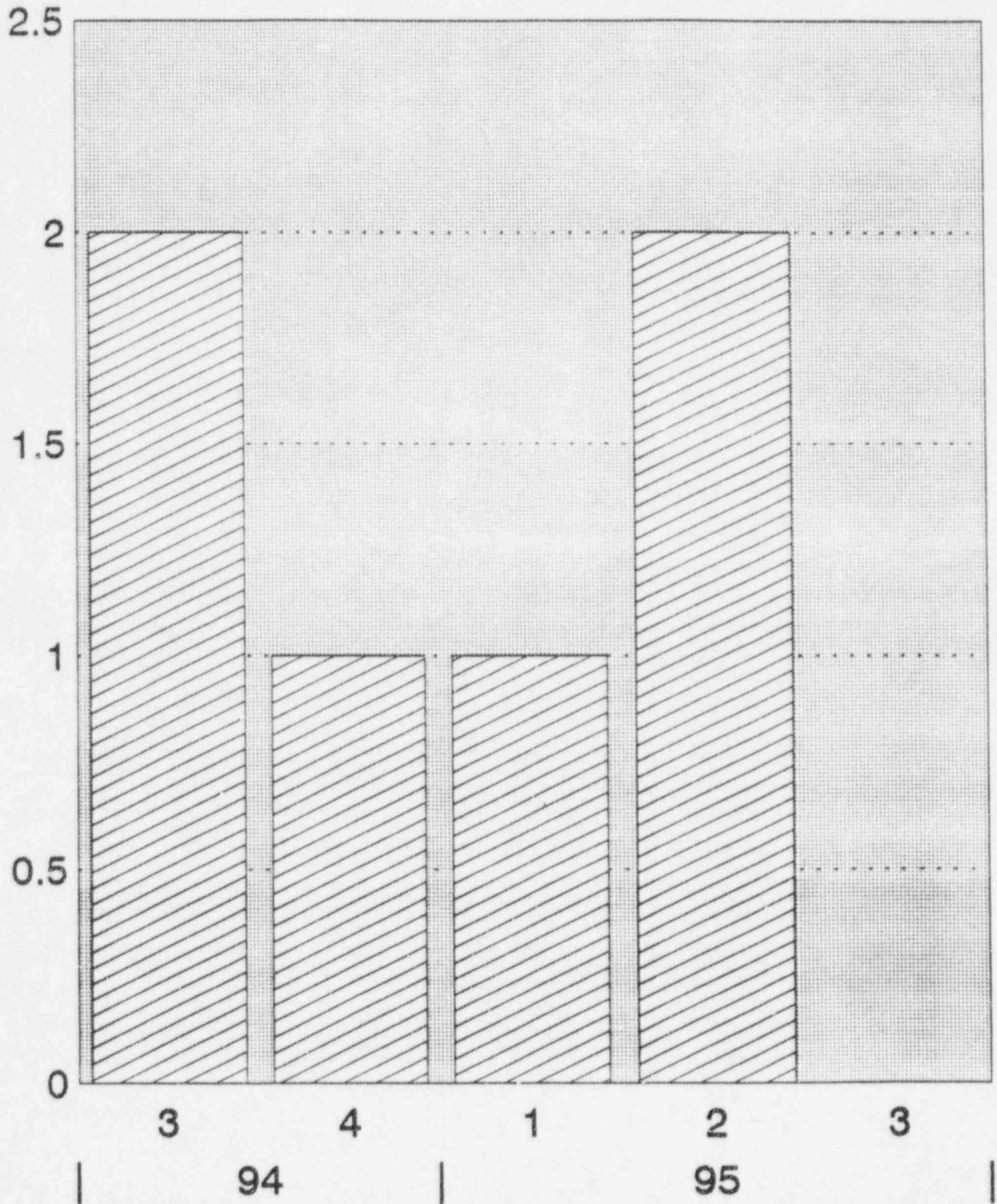
<p>STRENGTH Self Assessment good</p>	<p>Nuclear Assurance maintenance assessments indicated continuing good performance in Maintenance areas. Effective self assessment writeup Operations area also applied here.</p>

SEQUOYAH TRIPS/SHUTDOWNS BY EQUIPMENT PROBLEMS



SEQUOYAH SITE EVENT MATRIX DATA

OPERATIONS ERRORS PER QUARTER



Sequoyah - OPERATOR LICENSING

Although the following is not in the operator licensing area, it was identified by examiners and documented in examination reports.

Exam report 94-301 documents an exam conducted 12/12-16/94. This reports contains a violation related to the site security plan. Examiners found a truck inside the protected area that was not "immobilized or secured" as required by the security plan and a violation was written.

Exam report 95-300 documents an exam conducted 5/8-12/95. This report contains a URI concerning examiner observations of security practices. The examiners found: a sleeping guard; guards not checking a access list; guards not issuing visitor badges IAW site policy; and guards that were unfamiliar with visitor badge. As a result, the report stated that there was a declining trend in security.

PLANT STATUS REPORT

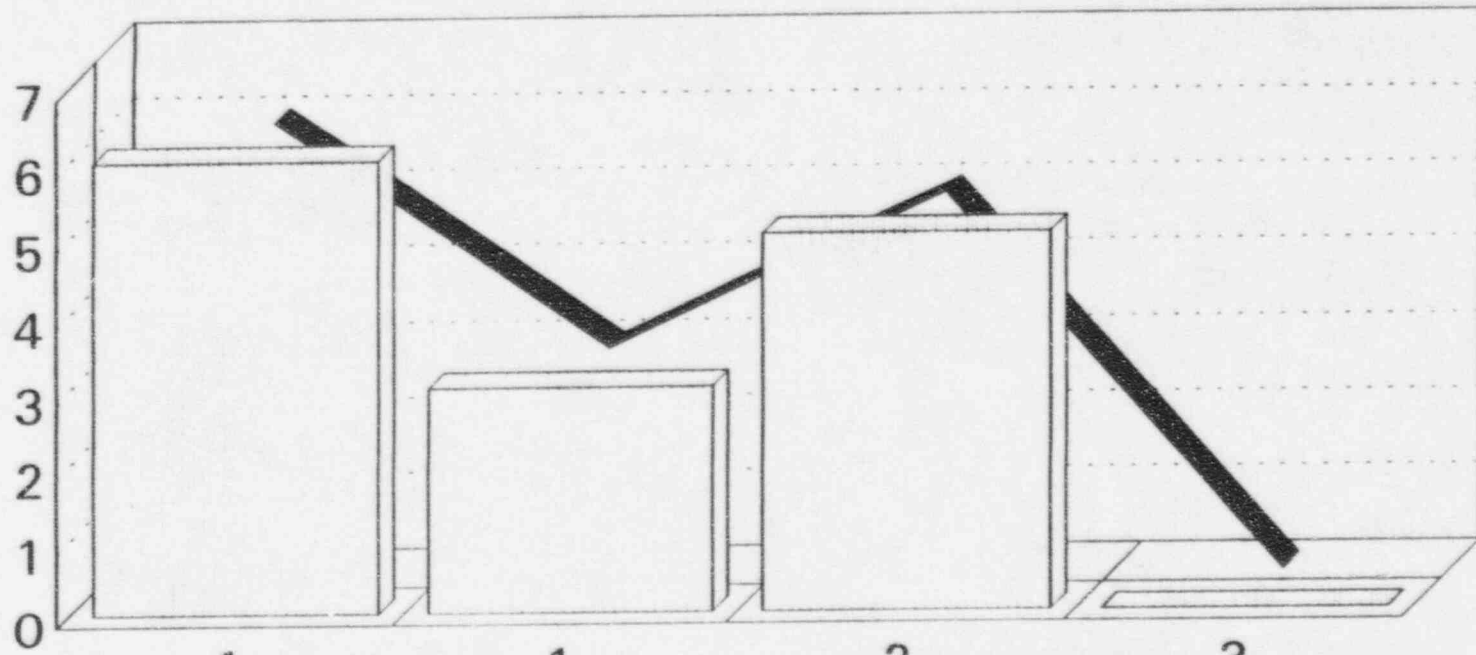
Sequoyah:

The radiation protection program continues to adequately maintain external and internal radiation exposures within regulatory limits. The audit program incorporated well conducted and documented, and identified items of substance with adequate corrective actions taken to prevent recurrence. The licensee continued efforts to reduce respirator usage with engineering controls and did not observe an increase in positive uptakes. The licensee conducted adequate radiological surveys maintained adequate postings and control policies for radiation areas. One IFI was identified to review licensee actions regarding followup to a contamination event resulting in contamination particles on the Auxiliary Building roof.

SEQUOYAH ENGINEERING ISSUES TREND

September 1995

Number of Items



4
94

1

2
95

3

ISSUES



6

3

5

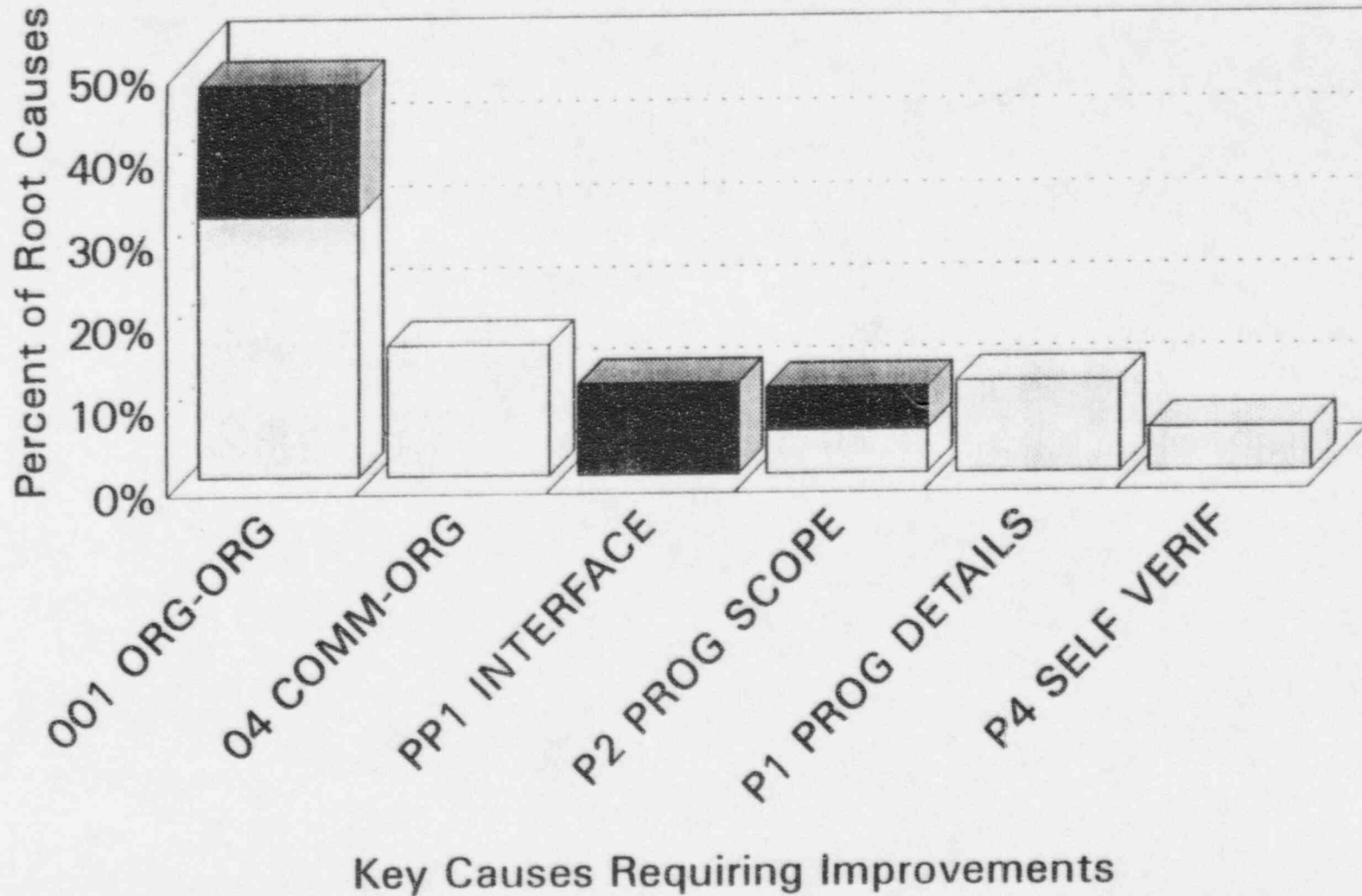
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Engineering Issues

Based on Site Integration Matrix

SEQUOYAH ENGINEERING COMMON CAUSE ANALYSIS

October 1994 - September 1995



Based on Site Integration Matrix
Bold items - last 6 mos.

SEQUOYAH

ORGANIZATION TO ORGANIZATION

EHC power supply failure
Flow accelerated erosion failure
Spent fuel building crane
Fuel handling problems with rerack project
Simmering Code Safety Valves
Service water issues
Bellows failure
Test Valve from HP turbine blow out

STRENGTHS

TECHNICAL EVALUATION OF THE UNIT 1 FITTING FAILURE
EVENT REVIEWS AND CRITIQUES WERE GOOD
USE OF OPERATING EXPERIENCE DATA IN RESPONSE TO SUDDEN PRESSURE RELAY FAILURE
AWARENESS OF SYSTEM STATUS BY SYSTEM ENGINEERS

INSPECTIONS

ISI - 80 hrs - E/C & Steam Generators
ETS - 107 hrs core remaining until end of SALP
MOV -
TI'S - NO
RI - Arrowhart? Fire protection
ALLEGATIONS - NO

SALP

7/27/96

OUTAGE

U-1 9/9/95 50d
U-2 4/19/96 50d

MAINTENANCE

SEQUOYAH

Recent significant Events/Findings

DATE/SALP	CAUSE(S)	ID	ISSUE/EVENT (REFERENCE)	FPI CODE
05/01/95 Maint Eng	High Cycle Fatigue. This same line also failed on 11/18/94. Licensee could not identify specific cause of the short component life.	Self Disclosing	B-VLV-7-542, ¾" TEST VALVE FROM HP TURBINE, BLEW OFF.	001
04/95 IR 95-12	Communications		2-FCV-3-33 Feedwater Isolation Valve	001
04/05/95 Eng	Bellows Failures due to operational wear.	Licensee	U2 Shutdown - Condenser water box damage - extraction steam line bellows for FW heaters.	001 P2
04/03/95 Eng	Water hammer due to line configuration in condenser.	Licensee	U2 FWH 4B LCV severed downstream of value disk.	PP1
02/13-17/95, 01/23-27/95 OPS, Maint, & Eng	Review of IR to determine specific issues for cause.	NRC Inspection Team	Service water team inspection - three violations identified - APP B Criterion III, V, & XVI.	001 P1 P2
02/15/95 Maint & Eng	Unknown	Self Disclosing	Unit 2 Simmering Pressurizer Code Safety Valve.	001
02/02/95 OPS & Eng	Inadequate technical review of evolution resulting in problem - - job continuation when first indicator of problem noted.	Self Disclosing & NRC Concerns	Fuel handling problems associated with SFP rerack project involving dummy fuel assembly handling over other fuel.	001
06/20/95 Eng	Design of SIA-A pump (A-train) flowpath requires pump suction flowpath to be available for B-train operation when B-train RHR pump is being used to supply suction water to B-train high head pump during recirculation phase after small break loca.	Licensee	Unit 2 TS LCO 30.3 entry due to both trains of ECCS inop due to tagout for SI pump A-A flowpath for maintenance. (IR 95-15)	PP1

(SEQUOYAH - cont'd)

DATE/SALP	CAUSE(S)	ID	ISSUE/EVENT (REFERENCE)	FPI CODE
12/30/95 Eng			NOED rejected regarding TS 4.9.7.1 which requires interlocks and physical stops, associated with the spent fuel building crane, which prevent crane hook travel over the spent fuel pool. Residents previously identified that this requirement prohibited using the crane during the ongoing spent fuel pool rerack project. The licensee had been disabling the interlocks in order to use the crane to lift old fuel racks. The NRC staff rejected the request because the licensee did not provide a basis which meets the NOED policy guidance. The licensee was requested to submit a written TS amendment request that the staff could process on an exigent basis.	001
11/29/94 Eng	Equipment malfunction	Self disclosing	Flow accelerated erosion caused rupture of 16" FW Line between #4B and #3B FWH, approximately 3 hours after Unit 1 trip.	001
11/29/94	Personnel error	Self disclosing	Unit 1 turbine trip/Rx trip from 100% due to simultaneous trip of turbine EHC power supplies.	001
IR 94-18	Incorrect Documentation		RWST level transmitters not in calibration.	P1 04
IR 94-18	Poor work package		EDG 2A-A NOED for change out of Electric Governor	P4 04
IR 94-29	Incorrect Documentation		Excessive flow control valve misidentified.	04

BROWNS FERRY
 PERFORMANCE EVALUATION
 UNIT 2 SALP CYCLE 12

March 19 through September 2, 1995.

Note: While the SALP process is suspended on U3, some selected U3 performance input was utilized in this assessment. The restart of U3 is approaching and for all practical purposes, U3 is essentially an "outage" unit. U3 Operations utilizes the same personnel/practices as on U2.

OPERATIONS-CHALLENGES	
PREVIOUS ASSESSMENT	CURRENT ASSESSMENT
Communications and Interfaces	Continuing to cause/contribute to problems: 5/6-Tornado AOI 5/30-Valve not locked 6/5-U3 Blades inserted during precharging 8/25-Comms during U3 CS flow test
Attention to detail and questioning attitude	Attention to detail-some issues still surfacing: 8/16-Caution tags 8/19-CRD air header valve out of position, AUO error Questioning Attitude-Some improvement noted: Missed EFCV LLRT identified after ops questioning
Sensitivity to Decay Heat Removal Functions	Not observed this period, ORAM training being conducted for U3 restart and U2 outage.
Potential Distractions in Control Room	Improved in U2 CR: 8/19-Scram recovery
Full Implementation of Self Assessment and Corrective Action Program	Improvement in PER initiation by Operations noted.
	U3 CR personnel not yet transitioned to "operational unit" approach: 6/5-blade insertion not noted 8/25-CS flow test, too many activities in CR

OPERATIONS-CHALLENGES	
PREVIOUS ASSESSMENT	CURRENT ASSESSMENT
	NRC review of initial license exams concluded that knowledge of emergency/abnormal evolutions was not strong.

March 19 through September 2, 1995

OPERATIONS-STRENGTHS	
PREVIOUS ASSESSMENT	CURRENT ASSESSMENT
Safety Oversight	
Management Involvement	Management involvement in daily plant ops continued to be high.
Operator Response to Transients	Continued to be a strength: 3/31-Scram 6/15-Partial LOSP on U3 8/19-scram
Configuration Control of Safety Systems	One significant problem noted: 8/19-CRD air header valve found out of position
Procedures and Training Programs	
	Quality of Operations shift turnover briefings good.

March 19 through September 2, 1995

MAINTENANCE-CHALLENGES	
PREVIOUS ASSESSMENT	CURRENT ASSESSMENT
Self Checking and Component Identification	Self Checking errors still occurring: 3/30-Scram on ATWS switch error by I&C 6/9-Workers did not read RWP Component Identification not strong considering multiple unit ops in near future.
Equipment Failure Trending	
Scram Reduction Efforts	
Plant Condition Consideration for Maintenance and Testing	
Post Maintenance Test Planning	
	Weak implementation of FME controls: 8/30-Material in CS pump 8/30-FME programmatic deficiencies identified by NRC. (Apparent repeat violation)
	Missed LLRTs: 8/14-EFCV not on dwgs (In late 94, other missed LLRTs were identified)
	Consistent Implementation of Industrial Safety Practices

March 19 through September 2, 1995

MAINTENANCE-STRENGTHS	
PREVIOUS ASSESSMENT	CURRENT ASSESSMENT
Identification of Potential Problems	
Low Maintenance Backlogs	Strong management attention on backlogs and the 12 week cycle
Plant Material Condition	Continued to be a strength, U3 areas being turned over and maintained in excellent condition.
Inservice Inspection Program	
Surveillance Tracking	
Improvement in MT&E	
	Tracking of U3 backlogs as systems are restored.

REVIEW OF UNIT 2 TRANSIENTS/REDUCTIONS

The resident inspectors reviewed all Unit 2 transients/reductions in last two years for the following reasons:

1. Several recent U2 scrams/transients have been BOP initiated problems.
2. If a particular BOP/support system contributed to a majority of the problems, then increased NRC attention (both on U2 and U3 restart) may be appropriate.

RESULTS:

1. 20 total transients: 16 BOP/Support equipment involved
4 Primary equipment
2. The 16 BOP/Support issues involved equipment in 10 different systems or major components. No single BOP system/major component was responsible for more than 3 transients/reductions.
3. Primary side issues were: CRD accumulator problems (2) and 2 instances of personnel error (scram header PCV and ATWS test switch).

DATA

TRANSIENTS 08/93 - 08/95

BOP/SUPPORT RELATED

<u>Date</u>	<u>Equipment</u>	<u>Transient</u>	<u>Issue</u>
11/19/93	2C Condensate Pump motor cooler	Pwr. Reduced to 70% to repair cooler leaks	Water in oil due to motor cooler leak
01/10/94	ICS Computer	Pwr. Reduced 1% to ensure thermal limits were not exceeded	

01/18/94	ICS Computer	Pwr. Reduced 1% to ensure thermal limits were not exceeded	
02/06/94	Rx Feed Pump	Pwr. Reduction to 85% when pump tripped	Could not identify cause of trip.
03/14/94	Feedwater Heater string	Pwr. Reduction to 79% when LP heater string isolated	Level control valves malfunction
04/18/94	EHC Pressure Regulator	Scram when all BPV opened	Regulator malfunction
05/12/94	Reactor Recirc Flow Controller	Pwr. Reduced 1% to adjust controller reset.	
06/25/94	2B Condensate Pump motor cooler	Pwr. Reduced to 65% to repair cooler leaks	
12/02/94	Stator cooling temp. switch	Scram due to faulty switch	
12/20/94	Reactor Feed Pump	Pwr. Reduced to 82% to remove the pump from service	Pump was emitting smoke. Cause determined to be residual oil from outage activities.
02/09/95	Exciter Field Ground	Scram when turbine tripped due to exciter cooling water leak causing ground	

02/24/95	Reactor Feed Pump	Pwr. reduced to 85% to remove pump from service.	Second time pump emitted smoke. No source of smoke identified.
05/16/95	Reactor Recirc Pump	Power reduced to 62% when pump tripped.	Cause of trip was not identified
07/17/95	Bus Duct Temp. Switches	Pwr. Reduced to 90% due to increased bus duct temps.	Problem thought to be due to grid fluctuations
08/15/95	Bus Duct Temp. Switches	Pwr. Reduced to 90% due to increased bus duct temps.	Problem determined to be faulty switches
08/19/95	Offgas condenser level control valves	Scram due to loss of vacuum when level control valves failed.	

PRIMARY SIDE RELATED

<u>Date</u>	<u>Equipment</u>	<u>Transient</u>	<u>Issue</u>
10/25/93	HCU Accumulator	Pwr. Reduction to 85% to replace valve	N2 leak
04/15/94	Scram Air Header PCV	Scram during preventive maintenance	Drawing and personnel error

03/30/95

ATWS-RPT
test switch

Scram due to
personnel
error during
SI
performance

04/16/95

HCU
Accumulator

Pwr. Reduced
to 85% to
replace
accumulator.

BROWNS FERRY UNIT 2 REFUELING OUTAGE SUMMARY

Browns Ferry Unit 2 will begin reducing power March 22, 1996 to begin the Unit 2 Cycle 8 refueling outage. The mode switch will be in shutdown on March 23. The mode switch is scheduled to be placed in startup on April 21, with the generator breaker being closed on April 23. The following major activities are scheduled to be performed:

- Replace 192 fuel assemblies. There will not be a core offload. This is currently scheduled to be a shuffle.
- Replace 42 control rod blades.
- Perform core shroud weld inspections.
- Install Power Range Neutron Monitor system. (This will remove all existing APRM equipment and install new NUMAC drawers and digital recorders)
- Institute ARTS/MELLA (APRM, Rod Block, Tech Specs/Max Extended Load Limit Analysis). This modifies the existing RBM and provides analysis to operate at high flow conditions and low flow/high rod line conditions.
- Install Digital FW controls. (Will include new RFP controls and front standard upgrades and new water level controllers)
- Install Digital FW heater level controls.
- Perform 8 MOVATS tests.
- Remove Thermolag Fire Barrier from the plant.
- Install RWCU App. R. fusible link valve.
- Complete approximately 1100 WOs and 35 DCNs.
- Disassemble, inspect, miscellaneous maintenance on LP turbine A.

IFS REVIEW

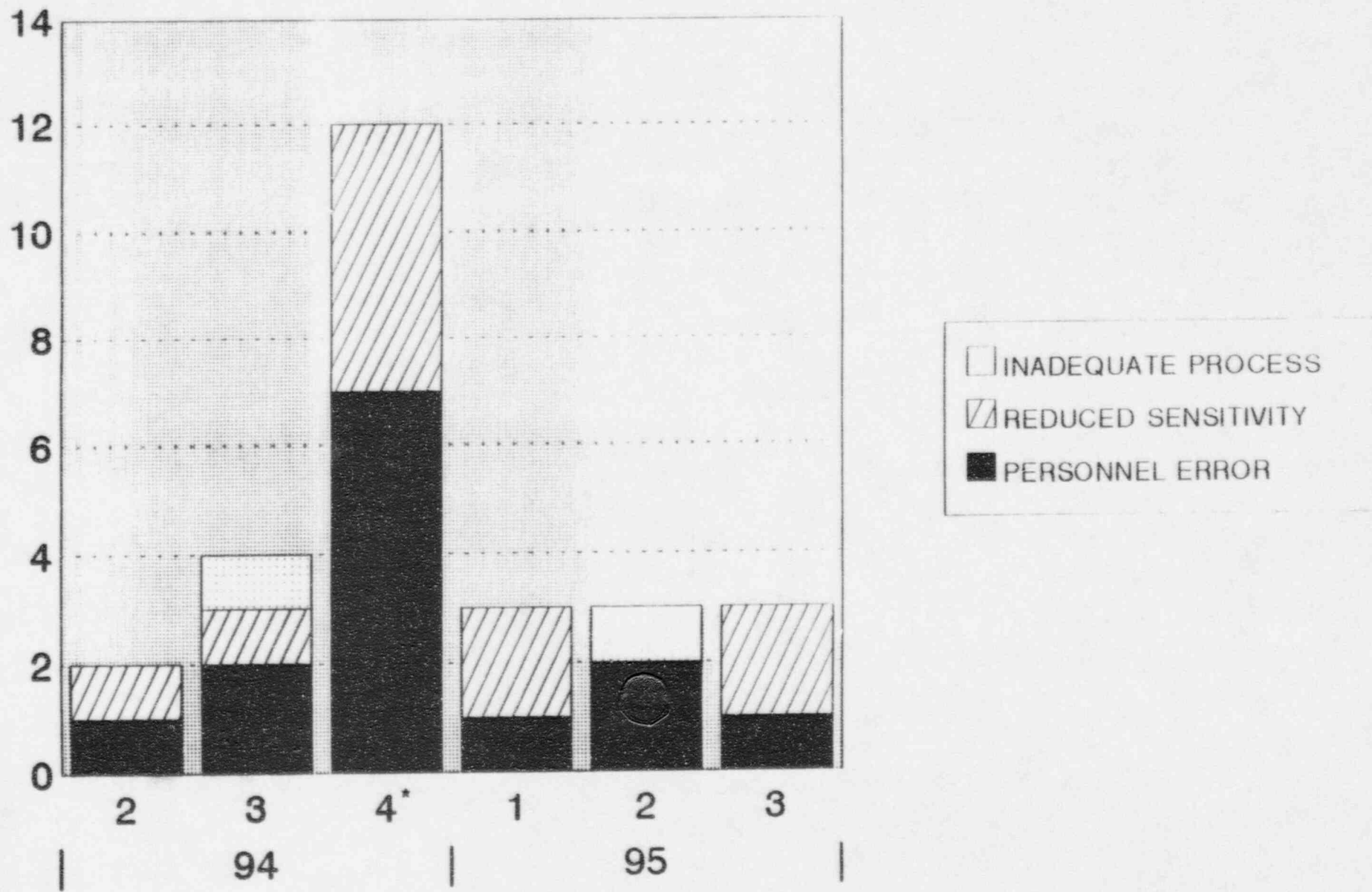
Residents reviewed 7/24 IFS printout. Submitted list of corrections to Region. As of August 25, resident office data shows:

Total Open Items	128
U1 Open Items	51
U2 Open Items	37
U3 Open Items	40

Unit 2: 37 total open, 23 are DRP assigned. Only 1 open item is 1993, all other open items are 1994 or later. Plans are to review all 1994 items prior to end of 1995, with priority on URIs and VIOs.

Unit 3: With few exceptions, open items are being tracked/closed as part of the Unit 3 restart list. Plans are to have very few open items on Unit 3 at restart.

BROWNS FERRY OPERATIONS PERFORMANCE ISSUES



* OUTAGE

Browns Ferry 2 Operations Performance (Cycle 12)

Quarter 4-93

Personnel error issues:

Clearance Error-Licensee failed to recognize that a breaker that was opened to remove power MS line radiation monitors also supplied power to Unit 3 reactor and refueling zone radiation monitors. Actuation of certain safety ventilation occurred. See IR 93-45, para 4d

Safety sensitivity issues:

Control Room instrument channel check procedures did not have any acceptance criteria. Operations had not questioned this. NRC identified (IR 93-39)

TVAs interp. of 10CFR50.72 and NUREG 1022 NRC identified; Failure to made required Notifications (three examples), See IR 94-01, para 8c

Quarter 1-94

Personnel error issues:

U1/U2 DG CO2 System was declared operable without being returned to an operable state, See IR 94-01, Para 7a

Quarter 2-94

Personnel error issues:

Reactor Scram-Two valves not specified in the work order were closed resulting in loss of air pressure. See IR 94-12

Safety Sensitivity issues:

Operations had routinely been draining Unit 1 fuel pool liner leakage however had not measured the leak rate nor questioned whether a trend was developing. NRC identified (IR 94-12, 94-17)

Quarter 3-94

Personnel error issues:

Weaknesses in Resolution of Problems EDG building flood check valves not properly addressed-licensee had identified testing and material condition deficiencies; operations shift was unaware of required compensatory actions due to inadequate interface with engineering and communications. NRC identified (IR 94-20)

Safety sensitivity issus:

Not testing EDG properly because of interpretation of TS requirements.

(Alignment checks of power supplies not performed when EDG out of service for "planned" testing) After meeting with NRC, licensee agreed to perform checks. TS change submitted. NRC identified (IR 94-20)

Inadequate Procedure issue:

IRM and APRM Surv testing not performed as req'd by TS NRC
Testing not performed after S/D when plant conditions supported testing.
Also not performed prior to most recent startup. Caused by TS
requirements not incorporated into the operating procedures. (Violation,
IR 94-24)

Quarter 4-94

Personnel error issues:

During reactor cooldown, reactor coolant temperature was not monitored at 15 minute intervals as required by TS due to ineffective communications that the procedure had been changed to compensate for an inoperable temperature detector

During reactor cooldown, reactor water level was not continuously monitored as required by procedures. The display which is required to be dedicated for level, was being used for other reasons. (IR 94-24)

Operators did not follow procedures for placing an indicator on fuel lifting grapple to monitor for fuel bundle depth during movements. NRC identified (IR 94-24)

Operators failed to return a SBT system damper to its normal position following a test as required by procedure. NRC identified (IR 94-24)

Secondary Containment clearance for MSIV maintenance did not include all valves necessary to ensure secondary containment (IR 94-27)

Momentary Interruption of SDC flow, during jumper placement caused SDC outboard suction valve to go shut and RHR pump to trip. Condition was immediately corrected. (IR 94-32, example of VIO 94-24-02)

RI identified that during a planned U2 secondary containment LCO entry (4 hrs) for U3 shutdown battery work, workers had completed actions beyond those reviewed by management and briefed to the inspectors. Doors were opened for approx 25 minutes instead of the expected few minutes. Cause was poor communications (IR 94-36)

Licensee identified that electrical board check was not performed when a DG was removed from service. Plant management had directed that the checks be performed after RI questioned the issue and a TS change requiring the checks had been submitted. Cause was CR personnel error. (IR 94-36)

Safety sensitivity issues:

Operators did not follow annunciator response procedure for HPCI turbine

exhaust condensate pot high level, by draining and then isolating. Operators normally operated outside the procedure and did not question the reason for the chronic high level. NRC identified (IR 94-24)

PER Implementation Issues; Management expectations of PER process not being met; PERs not initiated, generic reviews not initiated, actions not prompt. NRC identified (IR 94-24, IFI)

Outage Schedule Safety Assessment, Outage risk management program and licensee's assessment of scheduled activities did not highlight vulnerable conditions during outage. High decay heat loading and alternate SDC not reviewed in detail. After inspectors informed licensee of conclusions, licensee stated that recent INPO visit had also commented on similar issues. (IFI 94-27-04)

SDC isolation valve auto closure not operable; SRI identified that the outbd SDC outbd isol valve did not have power due to a local bkr switch "bumped" to between positions. Operators were unaware of condition which existed for 7 hr prior to NRC identification. Isolation function not req'd by BFN TS, but was expected to be operable. Problem had occurred before and a work order to repair the condition had been written several months before the inspectors identified the deficiency. Inspectors noted that another example of insufficient attention/emphasis on SDC operability during outage. (IFI 94-27-04, above) (IR 94-27,32)

Weakness identified in area of line management routine observation of simulator training. NRC identified IR 94-11.

Operators were not completing all 10CFR 55.53 reqs prior to reactivating their operating licenses. During review of operator requal program, inspector identified that in 1992 and 1993 several operators had not fulfilled all of the required "parallel" watch hours prior to reactivation of their license. Problem attributed to operators not aware of management expectations—Operators performed other tasks instead of duties for activation. Licensee had very recently strengthened procedures. NRC identified (VIO 94-11-01)

Quarter 1-95

Safety sensitivity issues:

Actions not appropriate for "offnormal" incidents on U3 Unit 2 system annunciator (RBCCW) was not being addressed by CR operators. Inspectors also noted that the same condition exists on Unit 2 regarding the RBCCW system, however operations has not taken the initiative to revise procedure to operate in accordance with existing plant condition. (IR 95-16)

Excessive personnel traffic and high number of operators/trainees in the horseshoe during critical operations (IR 95-10).

Quarter 1-95 - continued

Personnel errors:

Head vents opened briefly before conditions met to open due to personnel error. (IR 95-22)

Quarter 2-95

Inadequate process:

SOS did not direct reactor building crane be secured during tornado watch conditions per procedure. Miscommunication with management played role in issue. NRC identified. (IR 95-26, Violation)

Personnel errors:

NRC identified that the South EECW isolation valve to the Unit 1/2 emergency condensing unit was not locked as required. (IR 95-31, NCV)

During precharging of the Unit 3 accumulators after CRD installation, 24 control blades were inserted. Procedure required that rods be inserted before evolution. (IR 95-31, NCV)

Quarter 3-95

Reduced Sensitivity:

NRC review of results of licensed operator initial exams indicated that applicants had difficulty with abnormal and emergency evolutions section of exam. (IR 95-300)

CR equipment (RB fans) caution tagged without explanation on tags or in clearance. CR personnel not clear on reason for tags. Previous examples of "use only in emergency" caution tags noted by NRC. (IR 95-51)

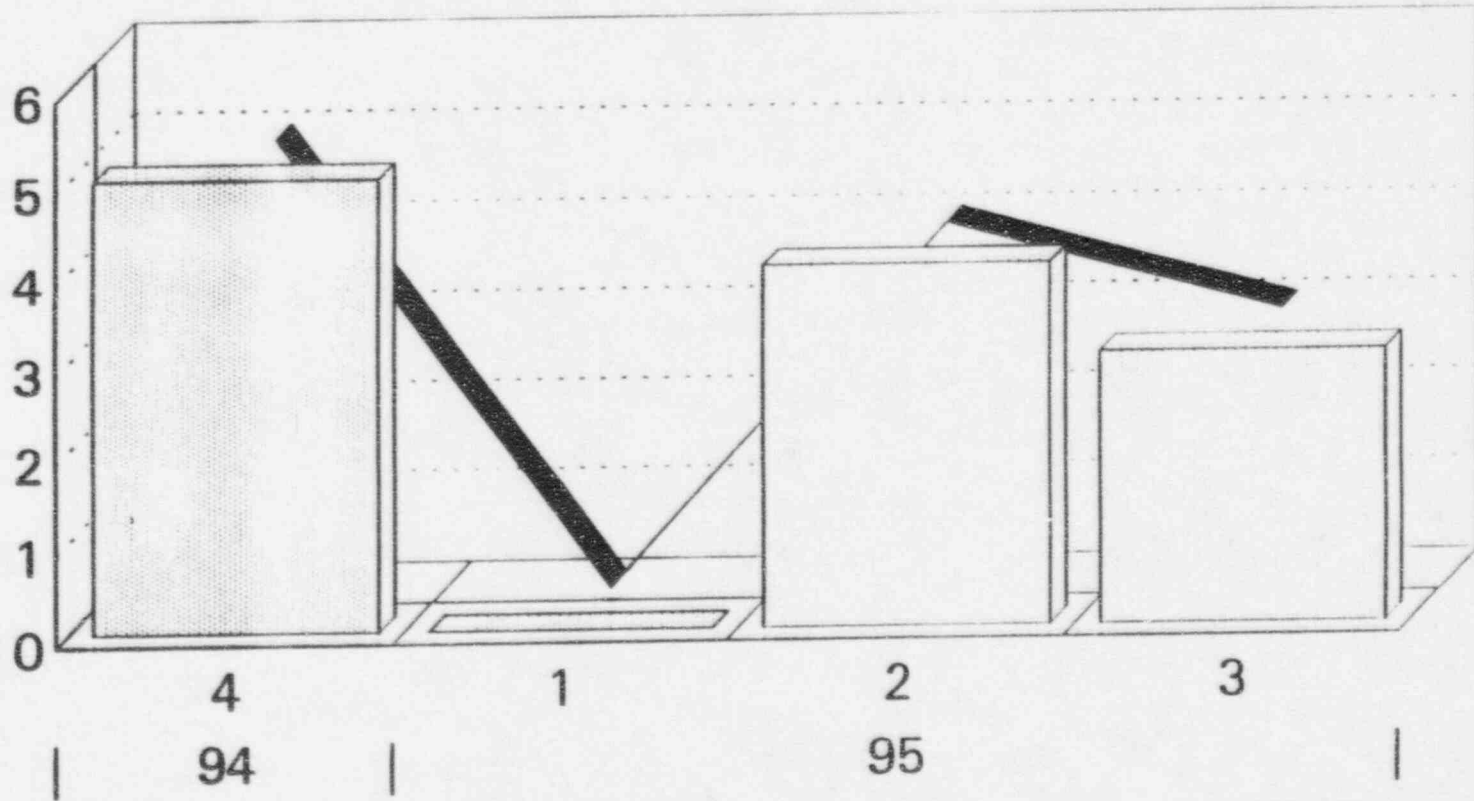
Personnel error:

Half scram during scram pilot air filter changeout. U2 shutdown at the time. Valve 2-85-244 found closed, lineup required open. AU0 also incorrectly checked valve to be in the open position. (95-51)

BROWNS FERRY ENGINEERING ISSUES TREND

September 1995

Number of Items



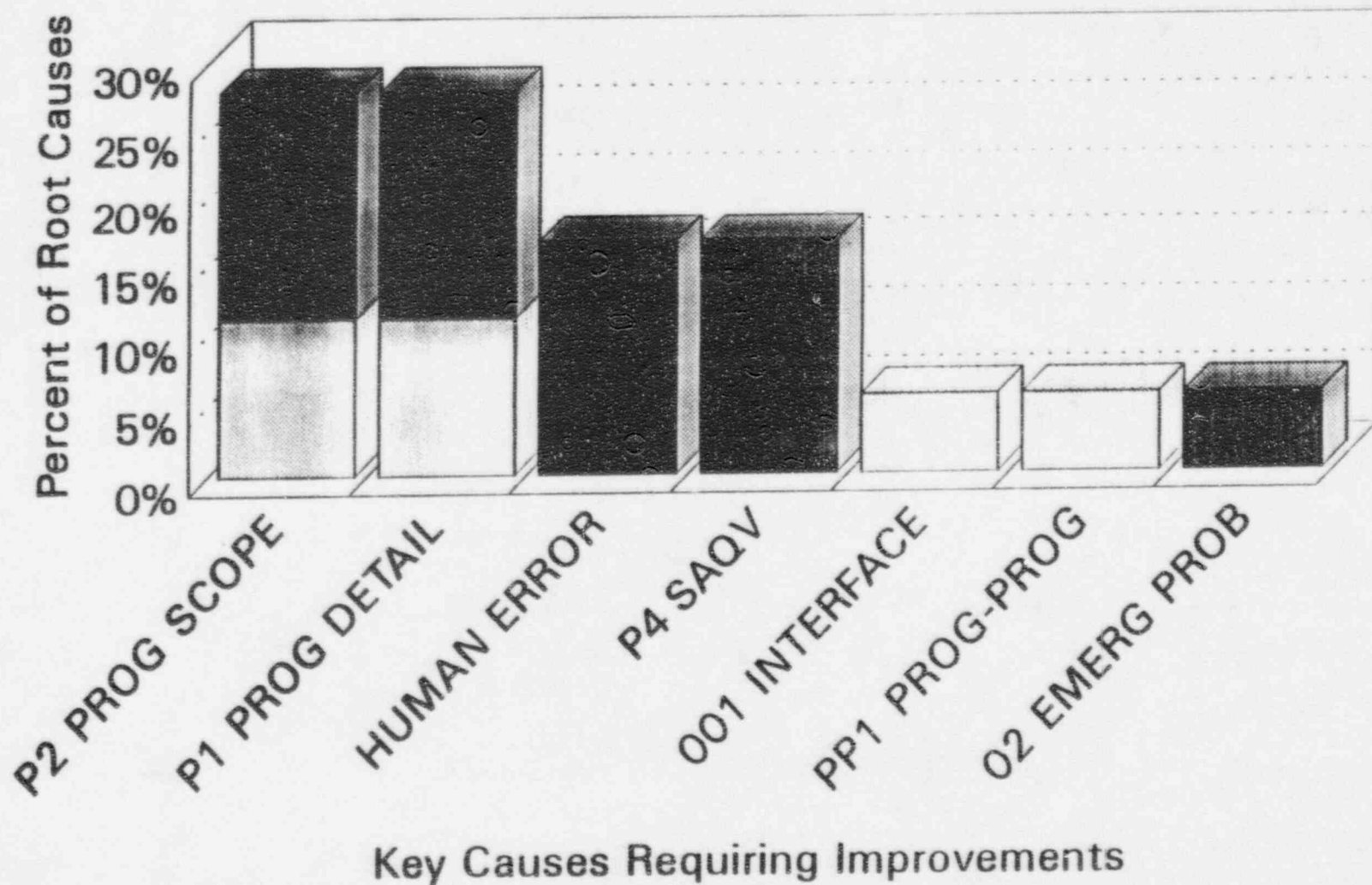
ISSUES	5	0	4	3
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Engineering Issues

Based on Site Integration Matrix

BROWNS FERRY ENGINEERING COMMON CAUSE ANALYSIS

October 1994 - September 1995



Based on Site Integration Matrix

Bold items - last 6 mos.

BROWNS FERRY

LAST 6 MONTHS

Trend of individual items has gone down slightly, however, the number of organizational issues has increased slightly. Inadequate program scope continues to be a challenge. Also, three human errors were noted during this period.

INADEQUATE PROGRAM SCOPE (P2)

Containment Coatings

Recirc Valve Failure

Air Entrainment in RCIC oil

Core Spray Testable Check Valve

INSUFFICIENT PROGRAM DETAIL (P1)

Excessive RTV on Head

Outage Decay Heat Management

Findings in IR 95-15 Drawings

STRENGTHS

SYSTEM ENGINEER KNOWLEDGE
COMPREHENSIVE PROGRAM FOR SCHEDULING AND REVIEWING MODIFICATIONS
SELF ASSESMENT CRITERIA WAS MORE RESTRICTIVE THAN OTHER GROUPS
GOOD INITIATIVE FOR UPGRADING BATTERIES

INSPECTIONS

ISI - NO - LIMITED SCOPE OUTAGE
ETS - 90 HOURS REMAINING UNTIL END OF SALP
MOV - FOLLOWUP ON PROGRAM SCOPE CONCERNS, NO INSP
TI'S - NO
RI - NO
ALLEGATIONS - NO

OUTAGE
JAN 1996

11
BROWNS FERRY

Recent significant Events/Findings

DATE/SALP	CAUSE(S)	ID	ISSUE/EVENT (REFERENCE)	FPI CODE
05/19/95 Eng & TS	Weakness in testing procedures and personnel knowledge	NRC	Failure to test core spray discharge testable check valves in accordance with IST program requirements. Adjustment of disk position indication not adequate addressed in procedures, disk stroked to only 30 degree vice the 75 degree full travel. Onsite personnel not knowledgeable of details of the valve functioning. (IR 95-31, Proposed Violation)	P2
05/05/95 Eng & TS	Personnel error in implementation of drawing procedures	NRC	NRC questioning about an apparently missing conduit support led to the identification that a drawing had not been properly revised after modification work was completed. Problem was the an F-DCN had not been incorporated into the base drawing properly. (IR-95-15, URI)	P1
05/05/95 Eng & TS	Failure to follow Corrective action Procedures	NRC	Extent of condition review for PER issue did not evaluate potential effect of operability on Unit 2. Issue was drywell structural steel platforms. A negative comment was included on IR cover page. (IR 95-15, Violation)	P2 02
05/19/95 Eng & TS	Licensee did not see need for additional support of operability conclusion	NRC	Technical Operability Evaluation did not contain details to support operability of the Core Spray testable check valves - relied on vendor statement that if valve moved off seat, it would full open with flow. No test data referenced or listed, flow through valve at intermittent position not included, force actuator applied compared to flow not addressed. (IR 95-31)	P1

(BROWNS FERRY - cont'd)

DATE/SALP	CAUSE(S)	ID	ISSUE/EVENT (REFERENCE)	FPI CODE
07/14/95 Eng & TS	-----	Licensee (Ogden)	Contractor performed SWOPI. Major findings: surv testing results not evaluated to worst case DBA LOCA, some GL 89-13 actions not documented, trended, some EECW alarm setpoints and procedures need improvement, air side of ECCS room coolers not cleaned and calcs assumed zero air side fouling factor, chemical check valves not in IST program, UT/RT not utilized as diagnostic tool for pipe thinning or MIC pitting, and RHRSW calcs show flashing can occur at RHRHX discharge. No immediate operability issues, primarily due to large margins in system.	P2 P4
07/11/95 Eng & TS	1. QC and workers not aware of requirements. 2. Personnel error during DCA development.	NRC	During inspection of ongoing Thermolag material replacement on RHRSW cables in intake structure, NRC identified two problems. Required QC checks of trowel material which was just beyond expiration date were not performed. DCA being used to implement work contained incorrect specifications for thermolag material overlap. Work had not been completed when issues were identified. (IR 95-38, examples in VIO of Criterion V)	P1 HE-CA-IT HE-ID
07/95 Eng & TS	Personnel errors-drawing not corrected properly, subsequent urgent procedure change incorrect	Self-disclosing	Inadvertent ESF actuation (RHRSW pump start) during surv. Drawing incorrectly depicted circuit contacts. Problem with drawing had been identified previously but drawing not corrected properly. Subsequent urgent change was incorrect. (IR 95-38: one example in ViO of Criterion V, LER 259/95001)	P4 HE

(BROWNS FERRY - cont'd)

DATE/SALP	CAUSE(S)	ID	ISSUE/EVENT (REFERENCE)	FPI CODE
11/94 OPS, Eng & TS	Outage Scheduled Safety Assessment	NRC	Outage risk management program and licensee's assessment of scheduled activities did not highlight vulnerable conditions during outage. High decay heat loading and alternate SDC not reviewed in detail. After inspectors informed licensee of conclusions, licensee stated that recent INPO visit had also commented on similar issues. (IFI 94-27-04)	001 PP1
10/94 Eng & TS	Recirc Loop Discharge Valve Motor Failure	Self Disc.	Magnesium rotor failed due to overheating. Other loop motor had corrosion. Failure attributed to local high humidity/temperatures with excess cycling of valve. Discussions regarding local humidity conditions and overall DW EQ profile as well as exact cause of rotor failure still in progress. Licensee intends to submit voluntary LER. Residents will initiate IN when info is obtained. Similar failures have apparently occurred since mid 80s at other BWRs. (URI 94-24, IR-94-27)	P2
10/94 Eng & TS	Additional "Unqualified" coatings identified in torus	Licensee	Additional coatings not qual for SS application discovered in U2 torus. (conduit, junction boxes, bellows). Residents had earlier questioned coatings on these items in U3 torus. Coatings evaluated as "noncontributing" by licensee. Issues not of safety significance except failure to find earlier. (IR 94-27)	P2
10/94 Mnt & Eng-TS	Inadequate Surveillance	Licensee	Unit 2 Drywell Head seal LLRT was not valid (last outage) because excessive amount of RTV applied to sealing surface blocked test line and volume. Although licensee identified the problem when DW head was lifted, the condition had been questioned previously but not properly resolved. (Violation 94-24)	P1

Browns Ferry - OPERATOR LICENSING

from Inspection Report 94-11, -this was an inspection of the licensed operator requal program -

conducted 11/14-18/94 and 11/28-12/2/94

Strength - the detailed content of the procedures used by the training department was considered a strength

Weakness - Line operations management did not routinely observe performance of operators during requal simulator exams. Observation of exams helps the ops department determine the effectiveness of training and assess the performance of the operators. This also gives the ops people the opportunity to enforce ops policies, such as improved communications and professionalism, that are otherwise difficult to enforce.