UNITED STATES



NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400 ARLINGTON, TEXAS 76011-8064

JUL - 8 1993

Docket: 50-458 License: NPF-47 EA 93-167

Gulf States Utilities ATTN: P. D. Graham Vice President (RBNG) P.O. Box 220 St. Francisville, Louisiana 70775

SUBJECT: ENFORCEMENT CONFERENCE DOCUMENTATION

This refers to the enforcement conference conducted on July 6, 1993, at the Region IV office in Arlington, Texas, concerning activities authorized by NRC License NPF-47 for the River Bend Station. The meeting was attended by those on the attached Attendance List. The subjects discussed at this meeting are described in the enclosed meeting summary.

It is our opinion that this meeting was beneficial and has provided a better understanding of the apparent violations identified in NRC Inspection Report 50-458/93-18 and your corrective actions. Any enforcement action taken will be addressed in separate correspondence.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be placed in the NRC's Public Document Room.

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

Sincerely. Beach Division of Reactor Projects

Enclosure: Meeting Summary w/attachments

cc w/enclosure: Gulf States Utilities ATTN: J. E. Booker, Manager-Safety Assessment/Quality Verification P.O. Box 2951 Beaumont, Texas 77704

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Gulf States Utilities

Winston & Strawn ATTN: Mark J. Wetterhahn, Esq. 1401 L Street, N.W. Washington, D.C. 20005-3502

Gulf States Utilities ATTN: Les England, Director Nuclear Licensing P.O. Box 220 St. Francisville, Louisiana 70775

Mr. J. David McNeill, III William G. Davis, Esq. Department of Justice Attorney General's Office P.O. Box 94095 Baton Rouge, Louisiana 70804-9095

H. Anne Plettinger 3456 Villa Rose Drive Baton Rouge, Louisiana 70806

President of West Feliciana Police Jury P.O. Box 1921 St. Francisville, Louisiana 70775

Cajun Electric Power Coop. Inc. ATTN: Philip G. Harris 10719 Airline Highway P.O. Box 15540 Baton Rouge, Louisiana 70895

Hall Bohlinger, Administrator Radiation Protection Division P.O. Box 82135 Baton Rouge, Louisiana 70884-2135

JUL - 8 1993

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bcc to DMB (IE45) $\$

bcc distrib. by RIV:Resident InspectorJ. L. MilhoanResident InspectorSection Chief (DRP/C)Lisa Shea, RM/MIS SystemDRSS-FIPSRIV FileSection ChiefSenior Resident Inspector, CooperG. F. Sanborn

Resident Inspector Lisa Shea, RM/ALF, MS: MNBB 4503 DRSS-FIPS Section Chief (DRP/TSS) G. F. Sanborn

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bcc to DMB (IE45)

bcc distrib. by RIV:Resident InspectionJ. L. MilhoanResident InspectionSection Chief (DRP/C)Lisa Shea, RM/JMIS SystemDRSS-FIPSRIV FileSection ChiefSenior Resident Inspector, CooperG. F. Sanborn

Resident Inspector Lisa Shea, RM/ALF, MS: MNBB 4503 DRSS-FIPS Section Chief (DRP/TSS) G. F. Sanborn

RIV PE: DRP/C	C:DRP/C/	Tippe wel	
EECollins;df	JEGaglardo	ABBACh	
7/8/93	7/8/93	778/93	

MEETING SUMMARY

Licensee: Gulf States Utilities (GSU)

Facility: River Bend Station (RBS)

License No: NPF-47

Docket No: 50-458

Subject: Enforcement Conference (50-458/93-18)

On July 6, 1993, representatives of Gulf States Utilities met with Region IV personnel in Arlington, Texas, to discuss the apparent violations identified in NRC Inspection Report 50-458/93-18. The conference was held at the request of Region IV.

The licensee presented a summary of the causes for the apparent violations and their corrective actions.

The attendance list and licensee presentation are attached to this summary.

Attachments: 1. Attendance List 2. Licensee Presentation (NRC distribution only)

ATTENDANCE LIST

Attendance at the enforcement conference between Gulf States Utilities and NRC on July 6, 1993:

GSU

- P. Graham, Vice President, River Bend Nuclear Group
- J. Schippert, Plant Manager
- J. Booker, Manager, Safety Assurance and Quality Verification
- D. Derbonne. Assistant Plant Manager, Operations
- S. Radebaugh, Assistant Plant Manager, Maintenance
- J. Venable, Operations Supervisor
- B. Smith, Mechanical Maintenance Supervisor
- P. Barker, Shift Supervisor
- J. Burton, Supervisor, Nuclear Safety Engineering
- R. Biggs, Supervisor, Operations Quality Control
- D. Lorfing, Supervisor, Nuclear Licensing
- D. Dawson, Control Operating Foreman
- M. Hora, Senior Nuclear Engineer

NRC

- J. Milhoan, Regional Administrator, Region IV
- A. Beach, Director, Division of Reactor Projects (DRP)
- T. Gwynn, Deputy Director, DRP
- A. Howell, Deputy Director, Division of Reactor Safety (DRS)
- J. Gagliardo, Chief, Project Section C, DRP
- W. Smith, Senior Resident Inspector, River Bend Station, DRP E. Baker, Project Manager, Office of Nuclear Reactor Regulation
- D. Loveless, Resident Inspector, River Bend Station, DRP
- W. McNeill, Reactor Inspector, DRS
- G. Sanborn, Enforcement Officer, Region IV
- E. Collins, Project Engineer, Project Section C, DRP

ATTACHMENT 2

ENFORCEMENT CONFERENCE JULY 6, 1993

GULF STATES UTILITIES COMPANY RIVER BEND STATION

NRC INSPECTION REPORT 93-18



ENFORCEMENT CONFERENCE AGENDA

JULY 6, 1993

OPENING REMARKS

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PHIL GRAHAM

JOE SCHIPPERT

MANAGEMENT OVERVIEW AND EVENT DESCRIPTION

EVENT INVESTIGATION, ROOT CAUSE, AND CORRECTIVE ACTIONS

MAINTENANCE

QUALITY CONTROL

OPERATIONS

SAFETY ASSESSMENT

CONCLUSIONS

STEVE RADEBAUGH

BOB BIGGS

DON DERBONNE JOE VENABLE

JOE BURTON

PHIL GRAHAM

STUCK OPEN MAIN STEAM ISOLATION VALVE (MSIV)

EVENT HISTORY

12.

- APPARENT VIOLATIONS
- SAFETY SIGNIFICANCE
- ASSESSMENT OF PERSONNEL PERFORMANCE
- CORRECTIVE ACTIONS



RIVER BEND STATION MAIN STEAM LINE SIMPLIFIED DIAGRAM

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APPARENT VIOLATIONS

FAILURE OF MAINTENANCE WORKERS TO ENSURE SAFETY-RELATED WORK GOVERNED BY AND IN ACCORDANCE WITH PROCEDURES

NRC IDENTIFIED

LACK OF ADEQUATE QUALITY CONTROLS CONTRIBUTED TO MSIV FAILURE

SELF IDENTIFIED

FAILURE TO DETECT MSIV FAILURE BY OPERATORS

SELF IDENTIFIED

PLANT OPERATION IN CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS

SELF IDENTIFIED

 SURVEILLANCE PROCEDURE DID NOT ASSURE A FAILED MSIV WOULD BE DETECTED IN ALL CASES

SELF IDENTIFIED

SAFETY SIGNIFICANCE

- NO ACTUAL SAFETY SIGNIFICANCE
- LOW POTENTIAL SAFETY SIGNIFICANCE
- SIGNIFICANT INDICATOR OF BREAKDOWN IN OPERATIONS AND MAINTENANCE PERSONNEL PERFORMANCE

MAINTENANCE

- MANAGEMENT OVERVIEW INSUFFICIENT
- WORK PRACTICE DEFICIENCY

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- WORK INSTRUCTIONS INCOMPLETE
- PROCEDURAL ADHERENCE INADEQUATE
- CRITICAL SELF-ASSESSMENT
- CORRECTIVE ACTIONS
 - FOCUS ON ACCOUNTABILITY
 - MAINTENANCE PACKAGE UPGRADE

6

- FIELD OBSERVATION PROGRAM
- VALVE MODIFICATION
- TRAINING

OPERATIONS

0	MANAGEMENT OVERVIEW INSUFFICIENT
•	TEST PROCEDURE HUMAN FACTORS ISSUES
•	QUESTIONING ATTITUDE NOT FULLY EFFECTIVE
۲	CRITICAL SELF-ASSESSMENT
•	CORRECTIVE ACTION IMPLEMENTATION

- BROADLY BASED
- EXTENSIVE
- · ONGOING

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MSIV MAINTENANCE ISSUES

DESIGN OF VALVE

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- TROUBLESHOOTING EFFORTS PO 93-01
- ROOT CAUSE INVESTIGATION
- ROOT CAUSE
- CORRECTIVE ACTION

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TROUBLESHOOTING EFFORTS

- STEM TRAVEL APPROXIMATELY 1"
- POPPET WEDGED IN UPPER VALVE BORE
- LOWER GUIDE RIB WEAR

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- POPPET TO GUIDE RIB CLEARANCE UNSAT AS FOUND
- STEM RUNOUTS VERIFIED SATISFACTORY
- STELLITE HARDNESS VERIFIED SATISFACTORY

ROOT CAUSE INVESTIGATION

- FORMED MULTI DISCIPLINE TASK FORCE
- TWO INVESTIGATION PATHS
 - SURVEILLANCE TEST FAILURE
 - STUCK OPEN VALVE

HISTORY SEARCH

- MAINTENANCE
- LLRT

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- CONDITION REPORTS
- INDUSTRY INFORMATION

DESIGN REVIEW

- PIPING VIBRATION
- HYDRAULICS
- DESIGN ENGINEERING PIPING WALKDOWN

CHECK INTERNALS OF B21*AOVF022C

LLRT ALL VALVES

ROOT CAUSE

EXCESSIVE GUIDE RIB WEAR

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- INADEQUATE CLEARANCE DUE TO MACHINIST ERROR
- CONTRIBUTING FACTORS
 - OVER RELIANCE ON VENDOR ASSISTANCE
 - LACK OF GUIDANCE IN WORK INSTRUCTIONS
 - LACK OF QUALITY CONTROL VERIFICATION
 - LACK OF AWARENESS OF SAFETY SIGNIFICANCE
 - MINIMAL ACCOUNTABILITY

IMMEDIATE CORRECTIVE ACTION

VENDOR INFORMATION

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- WORK INSTRUCTIONS
- COUNSELING OF MACHINISTS
- MSIV DIMENSION VERIFICATION
- LIMIT SWITCH MODIFICATION
- STROKE TESTING
- MSIV'S REPAIRED AND TESTED SATISFACTORILY

LONG TERM CORRECTIVE ACTION

- ADDITIONAL TRAINING IDENTIFIED
- WORK INSTRUCTIONS IMPROVEMENTS
- EMPHASIS ON DOCUMENTING MEASUREMENTS
- PLANNER REVIEWS/FEEDBACK IMPROVEMENTS
- DISCIPLINE REVIEW

- ACCOUNTABILITY REVIEW PROGRAM
- MAINTENANCE OBSERVATION PROGRAM IMPROVEMENTS
- DESIGNATION OF SAFETY SIGNIFICANT WORK
- PRE JOB BRIEFINGS CHANGES
- ANTI ROTATION MODIFICATION

QUALITY CONTROL INVOLVEMENT IN MSIV REPAIRS

RF-4 MWOs FOR 1B21*AOVF022B & 1B21*AOVF022C REQUIRED POST MACHINING DIMENSIONS TO BE TAKEN

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- QC PLANNER INSERTED NOTIFICATION POINT FOR QC VERIFICATION
- QC PLANNERS DELETED NOTIFICATION POINT
- QUALITY CONTROL FIELD INSPECTORS WERE NOT REQUIRED TO VERIFY DIMENSIONS

ROOT CAUSE INVESTIGATION

- MET WITH ALL QUALITY CONTROL INSPECTORS TO DISCUSS EVENTS
- INTERVIEWED QC PLANNERS

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- MET WITH MAINTENANCE PLANNING AND ENGINEERING
- CONDUCTED REVIEW OF OTHER MSIV WORK PACKAGES
- PARTICIPATED IN MULTI-DISCIPLINE TASK FORCE

ROOT CAUSE

 PERSONNEL USING GENERIC MECHANICAL EQUIPMENT INSPECTION PLAN (QC --0021, REV. 2)

CONTRIBUTION FACTORS

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NON-SPECIFIC INSPECTION PLANNING

GENERIC/AMBIGUOUS PROCEDURES

USE OF GENERAL CONSTRUCTION SPECIFICATION FOR FORMULATION OF GENERIC INSPECTION PLANS

IMMEDIATE CORRECTIVE ACTION

COUNSELED QC PLANNERS

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- INSERTED NOTIFICATION POINTS WITHIN SUBSEQUENT MSIV MWOS TO VERIFY DIMENSIONS
- VERIFIED VENDOR INSTRUCTIONS RECEIVED WERE ENTERED INTO DOCUMENT CONTROL SYSTEM (VTI)

SHORT TERM CORRECTIVE ACTION

IMPLEMENT JOB SPECIFIC MAINTENANCE PLANING FOR Q1/QAPA MWOs

c* ;

- REVISE QUALITY CONTROL PLANNING AND INSPECTION PROCEDURES/INSTRUCTIONS (QCI-3.2 AND QCI-3.7)
- REVIEWED QC PLANNER'S TRAINING REQUIREMENTS

LONG TERM CORRECTIVE ACTION

- EVALUATE IMPROVED OPERATIONAL PHASE
 MAINTENANCE SPECIFIC INSPECTION CRITERIA
- ESTABLISH QUALITY CONTROL PLANNER'S GUIDE
- DEVELOP TRAINING PROGRAM USING A SYSTEMATIC APPROACH
- REVISE GENERIC QUALITY CONTROL INSPECTION PLANS USING MAINTENANCE SPECIFIC CRITERIA

CONCLUSION

 QUALITY CONTROL PLANNERS WERE FOLLOWING PLANNING INSTRUCTIONS AND PROCEDURES IN THE PERFORMANCE OF THEIR ACTIVITIES

4.4

- FOR THIS TYPE OF MAINTENANCE ACTIVITY, THE PRACTICE ALLOWED BY QCIP-0021, REV.
 2, WAS TO VERIFY/WITNESS ON A RANDOM BASIS UNLESS SPECIFICALLY REQUIRED BY AN APPLICABLE SPECIFICATION
- THE DIMENSIONAL MEASUREMENTS WERE NOT RANDOMLY SELECTED FOR VERIFICATION
- THE AWARENESS OF THE CRITICAL NATURE OF THIS MEASUREMENT WAS LACKING

MSIV OPERATIONS ISSUES

- MSIV OPERATION / SURVEILLANCE
- OPERATIONS SPECIAL INVESTIGATION TEAM
- ADDITIONAL CORRECTIVE ACTIONS
- CONCLUSION

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MSIV DESIGN UNIQUENESS

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- PILOT VALVE DESIGN
- DUAL SAFETY RELATED LIMIT SWITCHES
- SINGLE NON-SAFETY RELATED LIMIT SWITCH
- INSERVICE TESTING (IST) PERFORMED BY PARTIAL STROKE (REQUIRED QUARTERLY)
- OPERATOR TRAINING ON THESE UNIQUE FEATURES OF MSIV

STP-051-0201 (RPS - MAIN STEAM LINE ISOLATION -CLOSURE MONTHLY CHFUNCT)

- VERIFY VALVE STROKE BY DUAL LIGHT INDICATION (T.S. 4.0.5)
- VERIFY RPS FUNCTION (1/2 SCRAM) (T.S. 4.3.1.1)
- PRECAUTION STATES
 - 5.1 WHILE SLOW CLOSING THE MSIV'S, USE ALL AVAILABLE INDICATIONS TO DETERMINE THAT THE MSIV IS CLOSING. ONLY ALLOW THE MSIV TO CLOSE TO THE POINT WHERE:
 - 5.1.1 THE MSIV INDICATES MID-POSITION, OR
 - 5.1.2 RPS HALF-SCRAM IS INITIATED, OR
 - 5.1.3 MSL FLOW CHANGES ARE INDICATED.
- PROCEDURE TITLE MISLEADING
- ACCEPTANCE CRITERIA MISLEADING
 - 8.1 CHANNEL FUNCTIONAL TEST LISTS STEP 7.4.5
 - 8.2 PARTIAL STROKE TESTS INDICATES VALVE TO COMPLETE CYCLE OF PARTIAL STROKE TRAVEL

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FAILED TO OBTAIN DUAL LIGHT INDICATION DATE 2-26-93

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- SS REVIEWED TECH SPEC, DRAWINGS, AND STP-051-0201.
- DISCUSSED WITH OFFICE SS AND OFF-GOING SS.
- SS "ACCEPTED WITH COMMENTS" THE RESULTS OF THE STP (VIOLATION OF ADM-0015).
- MWO GENERATED TO FIX LIMIT SWITCH (IN DRYWELL)
- FOLLOWING MONTH SAME RESULTS ON STP-051-0201 WAS OBSERVED BASED ON PERVIOUS MONTH EVALUATION OF OPERABILITY ON SHIFT SS DETERMINED- "ACCEPTED WITH COMMENTS" WAS APPROPRIATE DATE 4-1-93
- COLD SHUTDOWN DATE/TIME 4-18-93 / 0620
 - FOUND VALVE WOULD NOT CLOSE DATE/TIME 4-19-93 / 2312

ROOT CAUSE

PROCEDURE MISLEADING

SHIFT SUPERVISOR - DISPLACING CONTROL ROOM FOREMAN (COF) IN PERFORMANCE OF STP

OPERATIONS KNOWLEDGE OF MSIV INTERNALS AND LIMIT SWITCH OPERATION

MANAGEMENT DID NOT HOLD PERSONNEL ACCOUNTABLE TO SAFETY CULTURE STANDARDS

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PROCEDURE REVISION

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- PERFORMED A COMPLETE REVISION ON STP-051-0201 (RPS-MAIN STEAM LINE ISOLATION VALVE - CLOSURE MONTHLY CHFUNCT).
 - THIS INCLUDED THE USE OF AN IMPROVED OSP-005 CHECK LIST.
- ADDED A DRAWING TO STP-051-0201 FOR VISUALIZATION.
 - THIS PROVIDES THE OPERATORS WITH A SIMPLE DRAWING IDENTIFYING ACTUAL SWITCH LOCATION AND FUNCTION.
- IDENTIFIED IN THE STEPS OF STP-051-0201 THE REQUIRED SWITCH POSITION / FUNCTION.
 - THIS ALONG WITH THE SIMPLE DRAWING WILL PROVIDE A VERY CLEAR IMAGE USABLE BY THE OPERATORS TO DETECT POSSIBLE FAILURES.
- RESOLVED THE CONFLICT BETWEEN PRECAUTION AND LIMITATION 5.1 AND STEP 7.4.5 FOR DUAL INDICATION AND REMOVED ALL CONFLICTING STATEMENTS.
- STP-051-0201 WILL BE PERFORMED MONTHLY (PARTIAL STROKE).

STP-109-6302 WILL BE PERFORMED QUARTERLY (FULL STROKE).

EVALUATION OF STP'S

- REVIEWED THE HISTORY OF STP-051-0201 REVISIONS.
 - SIMILAR EVENT 12-12-86.
- STP-109-6302 (MSIV FULL STROKE / PARTIAL STROKE OPERABILITY TEST, REV. 4) DID NOT HAVE PRECAUTION AND LIMITATION 5.1. IT REQUIRED VALVE TRAVEL UNTIL DUAL INDICATION WAS RECEIVED.
- REVIEWED ALL CURRENT (LAST PERFORMED) STP TEST EXCEPTIONS AND CURRENT STPS MARKED AS "ACCEPTABLE WITH COMMENTS".
- ALL STF'S THAT PERFORM BOTH TYPES OF SURVEILLANCE (STP'S AND IST'S) HAVE BEEN EVALUATED FOR "SPLITTING OUT".
- A COMPLETE TECHNICAL REVIEW WILL BE PERFORMED ON A MIL SPEC SAMPLE OF STP'S.
- ON GOING IST PROCEDURE UPGRADE
- A REVIEW OF A MIL SPEC SAMPLE OF COMPLETED OPERATIONS STP'S DURING LAST 18 MONTHS FOR "ACCEPTABLE WITH COMMENTS"
- THE HPES COORDINATOR HAS PERFORMED A BARRIER ANALYSIS ON ADM-0015.

CREW IMPROVEMENT ITEMS

- OPERATIONAL SAFETY CULTURE
- PROCEDURAL COMPLIANCE
- TECHNICAL SPECIFICATION IMPLEMENTATION
- CONTROL ROOM CONDUCT
- In PLANT) OPERATOR INSTRUCTION / OVERSIGHT
- DEGRADED EQUIPMENT DISPOSITION AND CONTINGENCY OPERATION
- CONTROL ROOM / OUTSIDE DEPARTMENT TEAMWORK
- ROLE RESPONSIBILITIES (SS/COF/STA)

ENHANCE OPERATIONS OVERSIGHT

- OPERATIONS MANAGEMENT
- QA

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- TRAINING
- SELF ASSESSMENT
- INDEPENDENT ASSESSMENT

STP REVIEW

- INDEPENDENT REVIEW BY ON COMING SRO/STA
 - STP GROUP
 - SYSTEM ENGINEERING (ACCEPTABLE WITH COMMENTS)

ADDITIONAL TRAINING ON IST PROGRAM

- WHAT IS IST?
- WHAT CONSTITUTES ACCEPTABLE RESULTS?
- ACTION IF NOT ACCEPTABLE

ADDITIONAL TRAINING ON CRITICAL & TROUBLING COMPONENTS - FOR EXAMPLE

- MSIV
- TARGET ROCK SOLENOID
- MOV'S
- DEVELOP & IMPLEMENT "PROFESSIONAL OPERATORS DEVELOPMENT AND EVALUATION PROGRAM"
- ADMINISTRATIVE PROCEDURE TRAINING

IMPROVE PROFESSIONAL DEMEANOR IN CONTROL ROOM

- COMPLETE CLEANUP IN CONTROL ROOM
- RELOCATE WORK MANAGEMENT OUTSIDE CONTROL ROOM
- COMPLETE PURCHASE OF UNIFORMS
- COMPLETE PAINTING OF CONTROL ROOM PANELS
- COMMUNICATIONS IN CONTROL ROOM
- ACCESS IN THE "AT THE CONTROLS" AREA

CONCLUSION

DETAILED INVESTIGATION

1.4

- ROOT CAUSE IDENTIFIED
- CORRECTIVE ACTION BEYOND EVENT
- PREVENT REPEAT OF PROBLEM

SAFETY SIGNIFICANCE OF STUCK OPEN MSIV

J. L. BURTON, P.E. SUPERVISOR - NUCLEAR SAFETY ENGINEERING RIVER BEND STATION GULF STATES UTILITIES CO.

PRESENTED TO NUCLEAR REGULATORY COMMISSION ENFORCEMENT CONFERENCE JULY 6, 1993



SAFETY SIGNIFICANCE

- DESCRIPTION OF ACCIDENT
- ANALYSIS METHODS/ASSUMPTIONS
- DOSE IMPACT
- PROBABILISTIC SAFETY ASSESSMENT (PSA)
- CONCLUSION



ACCIDENTS ANALYZED WITH STUCK OPEN INBOARD MSIV (LER 93-006)

DESIGN BASIS REALISTIC

MAIN STEAM LINE POTENTIALLY OK* CONTAINMENT (MSLB-OC)

BREAK OUTSIDE RISK SIGNIFICANT

OK

RECIRCULATION LINE OK BREAK INSIDE CONTAINMENT (DBA-LOCA)

* OK = EXCLUSION AREA BOUNDARY (EAB) AND MAIN CONTROL ROOM (MCR) DOSES BELOW REGULATORY LIMITS



MAIN STEAM LINE BREAK OUTSIDE CONTAINMENT (MSLB-OC) PIPING SCHEMATIC



930623RAA: MSLB_V.CDR

MSLB-OC ANALYSES

CASE	DESCRIPTION	*AOVFO22B	*AOVF028B	EAB DOSE	MCR DOSE	PROBABILITY
1A	DBA	STUCK OPEN	SINGLE FAILURE	ОК	REGULATORY LIMIT	LOW
18	DBA W/ACTUAL IODINES	STUCK OPEN	SINGLE FAILURE	ОК	ок	VERY-LOW
2	DBA	STUCK OPEN	HIGH LEAKAGE	ОК	OK	LOW



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MSLB - OC SEQUENCE OF EVENTS

TIME (SEC)

0 MSLB 3-5 MSIV ISOLATIONS 30 LEVEL 2 (-43") HPCS/RCIC INITIATION HVC LOCA INITIATION NS⁴ ISOLATION HVC FILTRATION OPERATING 60 1000 REACTOR PRESSURE ATMOSPHERIC (100% IODINES RELEASED)



MSLB - OC METHODS/ASSUMPTIONS DBA **DBA W/ACTUAL IODINES** MSIV FAILURE ASSUMES INBOARD STUCK OPEN ASSUMES INBOARD STUCK OPEN ASSUMES OUTBOARD STUCK OPEN AS OUTBOARD FAILS OPEN SINGLE FAILURE (INDUSTRY PROBABILITY CONSISTENT WITH RBS EXPERIENCE) MSLB LOCATION OUTSIDE BREAK EXCLUSION ZONE DOWNSTREAM OF 1B21*AOVFO28B (DOWNSTREAM OF JET IMPINGEMENT (MAXIMUM THOMAS CORRELATION WALL, UPSTREAM OF 1B21*MOVF098B) BREAK PROBABILITY) MASS RELEASE ADJUST DBA MASS RELEASE FOR MSLB SAME AS DBA INSIDE DRYWELL TO ACCOUNT FOR FLOW RESTRICTOR, HEAD LOSS THRU MSL AND MSIVs IODINES REG. GUIDE 1.5 USES TECH. SPEC. LIMIT MAXIMUM MEASURED IODINES AT RBS AND 20 TIMES THE TECH. SPEC. LIMIT DUE TO 1993 LEAKERS AND 20 TIMES (IODINE SPIKE) ON IODINES TO CALCULATE MAXIMUM FOR IODINE SPIKE DOSE X/O PUFF RELEASE. CLOUD REACHES MCR PUFF RELEASE. PROBABILITY OF INTAKE PRIOR TO HVC FILTER TRAIN, WIND SPEED AND DIRECTION TO OPERATION. WIND SPEED = 1 M/SEC TO REACH MCR BEFORE HVC FILTER ALLOW TRANSIT WITHOUT DISPERSION OPERATION BASED ON RBS MET. TOWER DATA



MSLB - OC DOSE RESULTS

	DBA		DBA WITH ACTUAL IODINES		
MASS RELEASE (LBS)					
MCR (60 SEC) EAB (1000 SEC)	129,000 276,000		129,000 276,000		
IODINES (µci/gm)	TECH SPEC LIMIT	SPIKE (T/S *20)	1993 LEAKERS	SPIKE (LEAKER * 20)	
	0.2	4.0	0.016	0.33	
THYROID DOSE (REMS)		14.14			
MCR MCR LIMIT	N/A N/A	78 30	N/A N/A	6.3 30	
EAB EAB LIMIT (NUREG-0800)	12 30	220	0.9 30	18	
(10CFR100)		300		300	



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MSLB - OC PROBABILISTIC SAFETY ANALYSIS (PSA)

 PROBABILITY OF MSLB: THOMAS CORRELATION FOR 192 FEET OF MSL = P_{MSLB} = 7.6 x 10⁻⁵/yr
 PROBABILITY OF MSIV FAILURES: INBOARD = P_i = 1.0 OUTBOARD = P_o = 3 x 10⁻³/DEMAND
 PROBABILITY OF RELEASE REACHING MCR: WINDSPEED RANGE 1.0 TO 2.4 M/SEC = P_{ws} = 0.48 WINDSPEED DIRECTION RANGE 161° TO 273° = P_{wd} = 0.25

RESULTS

PROBABILITY OF UNISOLATED MSLB-OC = P_u $P_u = P_{MSLB} * P_i * P_o$

= 7.6 x $10^{-5}/yr = 1.0 = 3 x 10^{-3} = 2.3 x 10^{-7}/yr$

PROBABILITY OF MCR DOSE = P_{MCR}

 $P_{MCR} = P_u * P_{ws} * P_{wd}$

 $= 2.3 \times 10^{-7}/\text{yr} * 0.48 * 0.25 = 2.7 \times 10^{-8}/\text{yr}$



MSLB-OC PSA CONCLUSIONS

THE PROBABILITY OF UNISOLATED MSLB-OC IS 23% OF THE NRC SAFETY GOAL FOR A LARGE RELEASE FOLLOWING A CORE DAMAGE EVENT (1 x 10⁶ PER YEAR). SAFETY GOAL IS FOR MUCH MORE SEVERE EVENT THAN THE MSLB-OC

2) THE PROBABILITY OF MCR PERSONNEL RECEIVING ANY DOSE DUE TO THE UNISOLATED MSLB-OC IS ONLY 2.7% OF SAFETY GOAL.

1)

3) FOR THE ACTUAL IODINE LEVELS AT RBS, THE DOSE TO MCR OPERATORS WOULD HAVE BEEN LESS THAN REGULATORY LIMITS. COUPLED WITH VERY LOW PROBABILITY, THIS EVENT WOULD HAVE LOW SAFETY SIGNIFICANCE.



OPERATIONS POLICY # 14 REVISION 0 May 20, 1993

OPERABILITY OF EQUIPMENT IN A DEGRADED CONDITION

"... Decisions made concerning Operations, Maintenance and Engineering must always be made such that nuclear and personnel safety are never compromised. ..."(Standards and Expectations)

It is the Shift Supervisors responsibility to determine operability of equipment and systems as it relates to the Operating License including the Technical Specifications. The requirements for operation of <u>safety</u> and many <u>non-safety</u> related components/systems are included in the River Bend License.

Operability is verified by day-to-day operation, plant tours, control room observation, surveillance test program, and other similar activities.

Whenever the ability of a system or structure to perform its specified function is called into question, operability must be determined from a detailed examination of the deficiency. The determination of operability is to be made promptly. If initially the system is not declared inoperable, we must have a reasonable expectation that the system is operable and that the review process ("A" level CR if required) will support this expectation. Otherwise the system or component should be declared inoperable.

Guidelines

- The SS/COF shall consider the following effects of operating a component/system in a degraded condition. (This includes annunciators and indicators).
 - personnel safety
 - equipment protection
 - system operation
 - integrated plant operation
- Where appropriate increased surveillance of component/system parameters should be considered
 - Develop, implement and maintain a special log as appropriate.
- STP's shall be <u>performed</u> and <u>reviewed</u> using <u>verbatim</u> procedure comp. :ce (ADM-0015). If a portion of the equipment doesn't function as required, ensure the appropriate level of review is conducted to ensure equipment operability (i.e., formal documentation).

- Evaluation of the condition should determine the appropriate priority for equipment repair and degree of follow-up.
- Repetitive testing to achieve acceptable test results without identifying the root cause or correction of any problem in a previous test is not acceptable as a means to establish or verify operability.
- The use of PRA or probabilities of the occurrence of accident or external event is not acceptable for making operability decisions.
- Memorandums, Condition Reports and EEAR's shall not be utilized for operability determinations unless an Initial Safety and Environmental Evaluation (ISEE) has been completed with an Unreviewed Safety Question Determination (USQD) if necessary (10CFR50.59 review).
- Review the System Design Requirement Document (SDRD's) for further information on previous operability evaluations (Reference ENG-3-028 PROCESSING OF SYSTEM DESIGN REQUIREMENTS DOCUMENTS).

W.J. Trudell Assist. Operations Sup-

OPERATIONS POLICY # 15 REVISION 1 May 24, 1993

CONTROL ROOM CONDUCT

Professionalism is a standing practice or method of a professional as distinguished from those of an amateur.

"Professionalism is a concept that we will strive to implement at all levels of our organization. In this application the concept is simple. We want everyone to do their job the very best that it can be done. This of course, requires not only doing the obvious, but also paying attention to the details. The type of professionalism I am referring to starts with an individual's attitude. This attitude must be inspired with a great respect and sense of responsibility for the reactor core, for reactor safety, and for the accomplishment of each and every task...." (River Bend Standards and Expectations)

The 'ollowing guidelines are being implemented to provide an environment of minimal personnel distractions and allow our licensed operators to maintain a high degree of attentiveness.

COMMUNICATIONS

- All ATC area communications shall be in accordance with Operations Policy #003.
 - This policy is applicable to all personnel (i.e., Ensure the maintenance technician is using formal closed loop communication. (Demand it!))
- All personnel interfaces shall be courteous, formal and not present a distraction to the ATC area operators.
- Loud, boisterous outbursts are not to be tolerated.
- Non-work related conversations are not allowed in the ATC area.
- Use of all communication devices shall be in a professional manner.
- Only work related telephone calls are allowed from the ATC area.
- Paging (gaitronics) of plant personnel for other departments shall not be performed for routine requests.
- Communications with the ATC area operators shall be avoided when an evolution is in progress (i.e., an SNEO should not be providing information fee upack to the ATC operator when a 1/2 SCRAM, 1/2 ISOLATION STP is in progress).

ACCESS CONTROL

- Access to the ATC area shall be for plant related business only.
 - SS, COF, STA and on-shift licensed RO's have free access. (Additional Personnel identified in ADM-0022 retain free access privileges).
 - The Reactor Engineer (RE) is considered part of the Control Room crew during power manipulation and plant startup. One RE trainee is allowed the same access as the on duty RE with the UO and SS permission.
- Shift personnel are expected to <u>ask</u> and <u>understand</u> the nature for access, paying attention to current evolutions and activities in progress prior to granting access.
- On Shift SNEO's will remain outside the ATC area. (Crew briefs, requested entries, use of the kitchen and rest rooms are allowed).

- Extensive shift or evolution briefs shall be held outside the ATC area.
- Turnovers shall be conducted in a manner to minimize operator distraction. A formal statement of assuming the duties shall occur.
- All personnel should be sensitive to preventing and eliminating operator distractions.
- HLO traince's shall have free access, as required, by the assigned training position. The
 requirements of Operations Policy #007 shall be adhered to.
- Maintenance workers may be granted continuing access while performing work of short durations (i.e., a new STP requires requesting permission for continuing access).
- Congregation of personnel at the SS/COF desk shall be minimized. Access control to this
 area shall be the same as for the ATC area.
- The Control Room shall be periodically monitored for unnecessary distractions. Personnel without official business should be asked to leave.
- During periods of increased activity (i.e., outages) Control Room personnel shall ensure work activities are adequately controlled to reduce operator distractions.
- Visitors to the ATC area shall be given a brief as appropriate to ensure the proper concern for reactor safety is understood.
 - Conversation and distractions are to be minimized.
 - Maintain an acceptable distance from control panels.
 - Extensive questioning of RO's on shift should be discouraged.

GENERAL

- Operators shall remain alert and attentive to plant parameters at all times.
- Control Room personnel shall maintain a professional environment at all times.
 - communication
 - appropriate attire
 - proper use of furniture
 - housekeeping
- Procedures shall be used for all normal equipment manipulations.
- Annunciator alarms shall be communicated per Operations Policy #003.
- Non work-related material shall not be allowed in the Control Room.
 - Magazines (i.e. Nuclear News, EPRI, Power Engineering, etc) and newspaper articles shall not be allowed in the ATC area.
- Self Checking shall be deliberate and observable for all equipment manipulations.
- The COF shall maintain oversight of all Control Room activities.
- Chairs in the ATC area are limited to the following:
 - On duty licensed operators
 - The ATC/UO may authorize one additional person permission to sit in this area during long periods of activity. The ATC/UO shall be responsible for this individuals conduct and assure business is efficiently performed.

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