

ENCLOSURE 1

NOTICE OF VIOLATION

Florida Power Corporation  
Crystal River 3

Docket No.: 50-302  
License No.: DPR-72  
EA 92-094

During an NRC inspection conducted on May 6-8, 1992, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1991), the violation is listed below:

10 CFR Part 50, Appendix B, Criterion XVI, Corrective Actions, requires in part, that measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, prompt corrective action related to the failure of emergency feedwater valve EFV-14 to fully close during testing on October 13, 1991, was not completed prior to restart of the reactor on November 25, 1991. The operability determination made on November 17, 1991, was not based on objective evidence, but rather on assumed conservatism in the differential pressure calculation for EFV-14.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, Florida Power Corporation is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector, Crystal River, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include [for each violation]: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that will be taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. If an adequate reply is not received

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within the time specified in this Notice, an order may be issued to show cause why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

Dated at Atlanta, Georgia  
this 3rd day of June 1992

Attachment 1

List of Attendees

Florida Power Corporation

P. M. Beard, Senior Vice President, Nuclear Operations  
P. R. Tanguay, Director, Nuclear Operations Engineering and Projects  
G. N. Halton, Manager, Nuclear Plant Systems Engineering  
K. R. Wilson, Manager, Nuclear Licensing

Nuclear Regulatory Commission

A. F. Gibson, Director, Division of Reactor (DRS), NRC Region II (RII)  
L. A. Reyes, Director, Division of Reactor Projects (DRP), RII  
J. R. Johnson, Deputy Director, DRP, RII  
\*H. N. Berkow, Director, Project Directorate II-2, Office of Nuclear Reactor  
Regulatory (NRR)  
C. A. Julian, Chief, Engineering Branch, DRS, RII  
M. V. Sinkule, Chief, Reactor Projects Branch 2, DRP, RII  
F. Jape, Chief, Test Programs Section, DRS, RII  
G. R. Jenkins, Director, Enforcement and Investigation Coordination Staff, RII  
K. D. Landis, Chief, Reactor Projects Section 2B, DRP, RII  
\*W. M. Trokoski, Enforcement Specialist, Office of Enforcement  
\*J. F. Wechselberger, Regional Coordinator, Office of the Executive Director for  
Operations  
P. Holmes-Ray, Senior Resident Inspector  
M. Thomas, Reactor Inspector, Test Programs Section, DRS, RII  
R. P. Schin, Project Engineer, DRP, RII  
B. Uryc, Senior Enforcement Specialist, RII  
C. F. Evans, Regional Counsel, RII  
R. K. Hoefling, Office of the General Counsel  
\*T. G. Scarbrough, Mechanical Engineering Branch, NRR  
\*F. Rinaldi, Project Manager, NRR  
\*W. T. Lefave, Plant Systems Branch, NRR  
\*N. L. Stinson, Intern, NRR

\*Participated via Telephone

Enclosure 2

Enforcement Conference Summary

Florida Power Corporation  
Crystal River 3

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An Enforcement Conference was held in NRC Region II offices, Atlanta Georgia at the NRC's request on May 27, 1992. This meeting concerned activities authorized for your Crystal River 3 facility. The issues discussed at this conference related to the inadequate corrective actions taken associated with the failed test of emergency feedwater valve EFV-14 prior to restarting the reactor on November 26, 1991, and the less than timely reporting of this item to the NRC between April 24-28, 1992. Information provided to the NRC during this meeting, was helpful in our review of these issues to determine the appropriate enforcement action. A list of attendees and a copy of your handout are attached.

Attachments:

1. List of Attendees
2. Information Provided by FPC

AGENDA  
ENFORCEMENT CONFERENCE  
MAY 27, 1992

- I. Introduction P. M. Beard
- II. Technical Background/Sequence of Events G. H. Halnon
  - A. Overall GL 89-10 Strategy
  - B. EFV-14 History
  - C. SM Testing
  - D. SM Operability Assessment
  - E. Corrective Action Plan/Schedule
  - C. Corrective Action Expansion During SR
- III. Licensing/Legal Issues K. R. Wilson
  - A. FPC's Responsibilities Associated With Test Failures
  - B. Review FPC's Actions
  - C. Response to NRC Staff Criticisms
  - D. Enforcement Policy Considerations
- IV. Conclusion P. M. Beard

## INTRODUCTION

- FPC STRONGLY BELIEVES IN THE IMPORTANCE OF MOV RELIABILITY
- FPC DOES NOT BELIEVE THAT WE VIOLATED 10 CFR 50, APPENDIX B, CRITERION XVI

SENIOR MANAGEMENT HAS REVIEWED THE DETAILS OF THE ACTIONS TAKEN AND WHILE THERE IS ALWAYS ROOM FOR APPROPRIATE CONSTRUCTIVE CRITICISMS, WE STRONGLY BELIEVE THE ACTIONS TAKEN WERE APPROPRIATE AND IN CONFORMANCE WITH ALL REGULATORY REQUIREMENTS.

YOUR INSPECTION REPORT NOTED THAT WE DID NOT DISSENT IN THE EXIT INTERVIEW. WE DO NOT DISSENT WHEN WE UNDERSTAND THE ISSUES. THAT SHOULD NOT BE INTERPRETED AS AGREEMENT THAT OUR ACTIONS WERE IN VIOLATION OF ANY REQUIREMENTS.

- FPC HAS TAKEN SIGNIFICANT CORRECTIVE ACTIONS DIRECTLY AND INDIRECTLY ASSOCIATED WITH THE EFV-14 SITUATION. WE BELIEVE THAT YOU WILL AGREE THAT WE ARE CONTINUING TO ACT IN A VERY CONSERVATIVE MANNER.

## MOTOR OPERATED VALVES

### LONG TERM

## STRATEGY FOR GENERIC LETTER 89-10

- DESIGN BASIS ASSESSMENT
  
- ANALYTICAL PREDICTION OF MOV PERFORMANCE DURING DESIGN BASIS DIFFERENTIAL PRESSURE TEST
  - USE CONSERVATIVE FACTORS:
    - VALVE FACTORS
    - STEM FACTORS
    - "RATE OF LOADING"
    - INSTRUMENT INACURACIES
  
- PERFORM DIFFERENTIAL PRESSURE TEST WITH DIAGNOSTICS
  
- USE DATA TO FINE TUNE CALCULATION

## EFV-14 HISTORY

- SUCCESSFULLY PASSED DIFFERENTIAL PRESSURE TEST IN 1987 AT 1265 PSID

- DESIGN BASIS ASSESSMENT  
\*\*\*\* COMPLETED SAT \*\*\*\*

USING:

LIMITORQUE SELECTION GUIDELINES  
1367 PSID CLOSING  
587 PSID OPENING

- ANALYTICAL PREDICTION OF MOV PERFORMANCE \*\*\*\* COMPLETED SAT \*\*\*\*
- VALVE HISTORY SHOWS NO CHRONIC CLOSING PROBLEMS
- DIFFERENTIAL PRESSURE TEST SCHEDULED FOR MIDCYCLE 8 OUTAGE



## MIDCYCLE 8 EFV-14 TESTING

10/10/91 SHUTDOWN

10/12/91 BASELINE STATIC TEST

10/13/91 TEST CONDITIONS DP 1445 PSID,  
245 GPM

OPENED SATISFACTORILY

FAILED TO CLOSE, 160 GPM

10/16/91 PROBLEM REPORT ISSUED

10/15 THROUGH 10/30

OPERATOR DISSASSEMBLED FOR ROOT  
CAUSE

OPERATOR REASSEMBLED USING  
PREVENTATIVE MAINTENANCE PROCEDURES

LIMITORQUE PROVIDES INSTRUCTIONS TO  
UPGRADE OPERATOR RATING BY 40%

OPERATOR UPGRADED PER LIMITORQUE

MIDCYLCE 8 EFV-14 TESTING (CON'T)

10/30/91 BASELINE STATIC TEST

11/16/91 TEST DP 1445 PSID, 245 GPM

OPENED SATISFACTORILY

FAILED TO GET CLOSED  
INDICATING LIGHT, 0 GPM

PLANT STARTUP/HEATUP IN PROGRESS

11/17/91 REVISED TEST PROCEDURE TO SET  
UP CONDITIONS ASSUMED IN  
CALCULATION (FLOW AND DP)

TEST DP 1320 PSID, 200 GPM

FAILED TO GET CLOSED  
INDICATING LIGHT, 0 GPM

## MIDCYCLE 8 OPERABILITY ASSESSMENT

- TEST COMPLETED AROUND 0500,  
NOVEMBER 17, 1991
- TEST RESULTS REVIEWED, TEST  
PERSONNEL INTERVIEWED BY MANAGER,  
SYSTEM ENGINEERING
- CALLED IN LICENSING PERSONNEL
- HARDWARE HISTORY REVIEWED

STATIC TEST SHOWED NO VALVE  
INTERNAL DAMAGE

OPERATOR IN GOOD CONDITION

RATING INCREASED 40% ABOVE WHERE  
IT WAS PREVIOUSLY PREDICTED TO  
PASS TEST

ALL LIMIT SWITCHES VERIFIED  
PROPER

## CONCLUSION

- HARDWARE CONSIDERED TO BE  
SATISFACTORY

MIDCYLCE 8 OPERABILITY ASSESSMENT  
(CON'T)

○ RESEARCHED TEST ASSUMPTIONS

NOTED DISCREPANCIES IN  
CALCULATION OF DP

ACTUAL TEST CONDITIONS DID  
NOT VALIDATE FLOW/DP  
ASSUMPTIONS IN CALCULATION

ASSUMED ACCIDENT WAS IN ERROR

WRONG PUMP CURVE APPARENTLY  
USED

NO DESCRIPTION OF FOGG LOGIC

MATH WAS WRONG

CONCLUSION

○ VALVE DESIGN BASIS DP HAD NOT YET  
BEEN CORRECTLY DETERMINED

THE REASONABLE DATA IN  
CALCULATION IMPLIED A  
SIGNIFICANTLY LOWER DP

LOWER THAN THE 1987 TEST  
PRESSURE

○ VALVE DETERMINED TO BE OPERABLE

## CORRECTIVE ACTIONS MANDATED

### SPECIFIC FOR EFV-14

- PUT EFV-14 BACK INTO FIRST STAGE OF GL 89-10 PROGRAM

DESIGN BASIS DP CALCULATION

DESIGN BASIS ASSESSMENT

ANALYTICAL PREDICTION OF MOV PERFORMANCE IN DP TEST

PLAN ON RETEST OF VALVE IN REFUEL 8 SCHEDULED TO BEGIN IN 5 MONTHS

- PARALLEL PATH: INITIATE MODIFICATION REQUEST TO PROVIDE ADDITIONAL DESIGN MARGIN

### BROAD CORRECTIVE ACTIONS

- REASSESS DP TESTS PERFORMED AND PRESSURES USED DURING 8M
- SYSTEM ENGINEERS BREAK UP B&W CALCULATION INTO INDIVIDUAL CALCULATIONS FOR ALL VALVES IN PROGRAM
- INITIATE MODIFICATION REQUESTS TO ALLOW SUFFICIENT MARGIN FOR MOV'S

## SCHEDULE FOR COMPLETION

- PRODUCE SCHEDULE FOR REMAINING DP TESTS BY DECEMBER 31, 1991

\*\*\* COMPLETED \*\*\*

- CALCULATIONS FOR 8R: MARCH 15, 1992

\*\*\* COMPLETED \*\*\*

- EFV-14 DP CALCULATION COMPLETE BY JANUARY 31, 1992

## CHRONOLOGY CORRECTIVE ACTIONS

2/5 EFW SYSTEM ENGINEER COMPLETES  
REV 0 OF CALCULATION 1219 PSID

2/24 CALCULATION VERIFIED BY MOV TEST  
ENGINEER

3/6 SUPERVISOR ISSUES CALCULATION

TEST PROCEDURE REVISION STARTED

3/19 LICENSING, OPERATIONS,  
ENGINEERING MEET TO REVISIT  
OPERABILITY AT 1219 PSID

ORIGINAL OPERABILITY ASSESSMENT STILL  
CONSIDERED VALID

TEST FOR EFV-14 PRIORITIZED AT BEGINNING  
OF REFUEL 8 OUTAGE

## REMAINING CHRONOLOGY (CON'T)

TEST PROCEDURE ENGINEER QUESTIONS  
IF FLOW ASSUMPTION USED IS WORST  
CASE

SIMULATOR TIME SCHEDULED

DETAILED REVIEWS BY EFIC SYSTEM  
ENGINEER, EFW SYSTEM ENGINEER, MOV  
DP TEST ENGINEER

- 4/14 SIMULATOR CONFIRMS FLOW  
ASSUMPTIONS ARE NOT NECESSARILY  
WORST CASE
- 4/23 CALCULATION REVISED TO REV 1,  
1501 PSID, PARALLEL MODIFICATION  
PATH REQUIRED
- 4/24 MANAGEMENT TEAM MET TO REVIEW  
MODIFICATION REQUEST FROM MOV  
GROUP
- DETERMINED MORE CONSERVATIVE FOR  
VALVES TO BE CLOSED FROM  
OPERABILITY PERSPECTIVE
- 4/28 CALCULATION VERIFIED, ISSUED,  
PROBLEM REPORT RE-EVALUATED, NRC  
REPORT MADE



## CALCULATION ASSUMPTIONS

ORIGINAL CALCULATION 1175 GPM

FPC REVISION 0 200 GPM RECIRC AND 800 GPM  
FLOW TO OTHER OTSG

FPC REVISION 1 200 GPM RECIRC ONLY

### COMPETING FACTORS

INTEGRAL WIND DOWN OF CONTROL VALVES

IF LOSS OF CONTROL VALVES  
DECREASING DP

RAMP RATES OF LEVEL SETPOINT VS LEVEL  
DECREASE IN GOOD AND FAULTED OTSG

OTSG'S BLOWDOWN TOGETHER UNTIL EITHER  
REACTOR/TURBINE TRIPS OR 600 PSI SETPOINT  
REACHED

PUMP DISCHARGE PRESSURE RAMP UP

CLOSURE TIME OF VALVES VS BLOWDOWN RATE OF  
OTSG

OTSG AT LOW LEVEL LIMITS WILL FEED AT A  
HIGH RATE, BUT THE BLOWDOWN IS QUICKER,  
VALVE CLOSURE TIME IS FIXED

INTERMEDIATE POWER LEVEL, REACTOR TAKES A  
LONG TIME TO TRIP, BOTH OTSG'S BLOWDOWN  
TOGETHER THEREFORE OTHER OTSG WILL BE FED  
AT HIGH RATE

## BALANCE OF MOV PROGRAM

- 37 OTHER VALVES WITH MARGINAL OR UNSAT ANALYTICAL PREDICITONS OF DP TEST PERFORMANCE

USING WORST CASE FACTORS

- PLAN OF ATTACK PRIOR TO END OF 8R
  1. REDUCE CONSERVATISMS IN ANALYTICAL APPROACH  
OR
  2. MODIFY THE EQUIPMENT OR ADMINISTRATIVELY CONTROL DP  
OR
  3. TEST VALVE TO FINE TUNE CALCULATION  
OR
  4. PROVIDE JUSTIFICATION FOR OPERATION

## STATUS OF REMAINING MOV'S

### ○ STATUS

15 PASS DESIGN CRITERIA WITH NO IMMEDIATE ACTION REQUIRED

5 PASS CRITERIA WITH INCREASED PM

1 PASS WITH CORRECTED DP CALCULATION

6 PASS WITH ADMINISTRATIVE CONTROL OVER DP

9 PASS WITH CORRECTED ACCIDENT/SAFETY FUNCTION DP

1 REQUIRES MODIFICATION (SPRING PACK AND MOTOR OR GEARS)

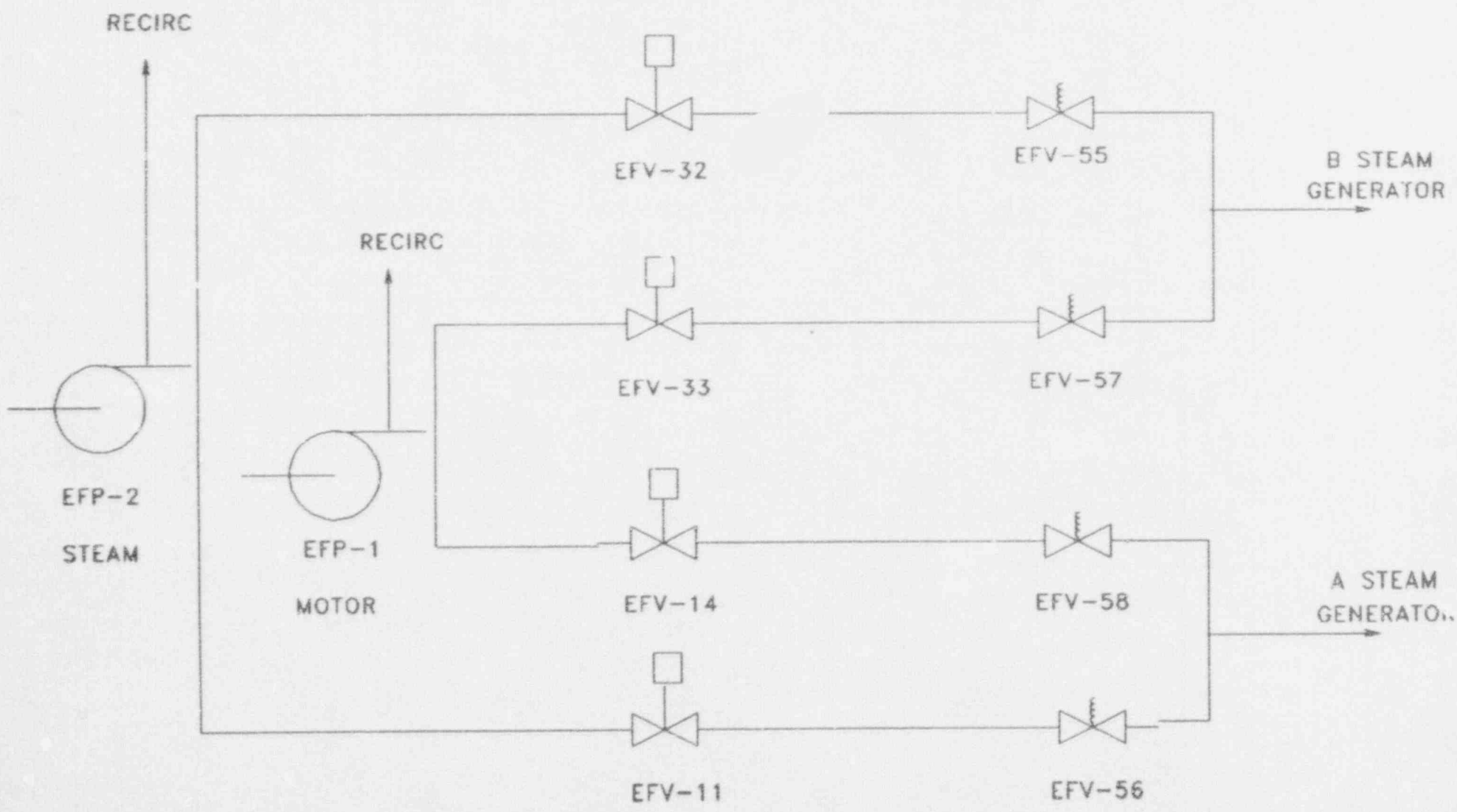
### ○ PRIOR TO CLOSURE OF GL 89-10 PROGRAM

CALCULATIONS WILL CONTAIN:

CONSERVATISMS BASED ON RECENT INDUSTRY EXPERIENCE

SUFFICIENT DESIGN MARGIN

# SIMPLIFIED EMERGENCY FEEDWATER SYSTEM



# RESPONSIBILITIES ASSOCIATED WITH TEST FAILURES

## RECOMMENDATIONS OF GENERIC LETTER 89-10

- NO EXPLICIT GUIDANCE OF HOW TO DEAL WITH TEST FAILURES
- NO REQUIREMENTS ON RESOLUTION TIMING
- NO REQUIREMENTS TO REPAIR/MODIFY AS OPPOSED TO IDENTIFYING INVALID TEST CONDITIONS

## CURRENT GENERAL STAFF POSITIONS IN GENERIC LETTER 91-18

- GL ADDRESSES A WIDE VARIETY OF ISSUES
- GL ESTABLISHES STAFF EXPECTATIONS ASSOCIATED WITH OPERABILITY QUESTIONS
  - OPERABILITY ASSESSMENT IS A PROCESS

## RESPONSIBILITIES ASSOCIATED WITH TEST FAILURES (CON'T)

- OPERABILITY ASSESSMENT MUST BE BASED ON:

BEST AVAILABLE INFORMATION; AND,

THE EXPECTATION THAT FURTHER INFORMATION WILL NOT CHANGE JUDGEMENT

### GENERAL OBLIGATIONS UNDER CRITERION XVI

- IDENTIFY THE PROBLEM
- PRIORITIZE (ASSESS SAFETY SIGNIFICANCE)
- CORRECT IN A TIMELY MANNER (TIMELY BASED ON SAFETY SIGNIFICANCE)
- TAKE ACTIONS TO PREVENT RECURRENCE

## REVIEW FPC'S ACTIONS

- FPC IMMEDIATELY RECOGNIZED PROBLEM
- FPC DOCUMENTED THE PROBLEM
- FPC TOOK PROMPT CORRECTIVE ACTIONS (MAINTENANCE AND OPERATOR UPGRADE)
- FPC RETESTED PRIOR TO DECLARING ASSOCIATED TRAIN OPERABLE
- FPC REVIEWED THE TEST FAILURE AND DETERMINED MOST PROBABLE CAUSE WAS INAPPROPRIATELY HIGH dP
- FPC ESTABLISHED A BROAD, PROMPT AND EFFECTIVE CORRECTIVE ACTION PLAN (CAP):
  - RE-ESTABLISH MAXIMUM dP FOR EFV-14
  - REVERIFY MAXIMUM dP FOR ALL MOV'S IN PROGRAM
  - DEVELOP PLANS TO REPLACE EFV-14 TO ESTABLISH MORE MARGIN IN PARALLEL
  - ADD RE-TEST TO 8R WORK SCOPE
- THE RESULTS OF THE CAP, AND PARTICULARLY THE RECALCULATED dP, VALIDATED THE RESTART JUDGEMENT

## REVIEW FPC'S ACTIONS (CON'T)

- FPC STAFF IDENTIFIED AN ADDITIONAL ANALYTICAL PROBLEM WHEN DEVELOPING THE RE-TEST PROCEDURE
  - THE CONCERN (LITTLE OR NO FLOW TO GOOD GENERATOR) WAS NOT CONSISTENT WITH OUR OPERATIONAL EXPERIENCE BUT WAS A VALID POSSIBILITY
  - DESIGN MORE CAREFULLY RE-REVIEWED BY APPROPRIATE ADDITIONAL STAFF
  - CONCERN VALIDATED ON CR-3 SIMULATOR
  - CONCERN BROUGHT TO MANAGEMENT'S ATTENTION, IDENTIFIED AS AN URGENT ISSUE, INTERIM CORRECTIVE ACTION TAKEN AND REPORTED TO NRC



## RESPONSE TO NRC STAFF CRITICISMS

### TIMING OF RE-ANALYSIS

- FPC DOCUMENTED PROBLEMS THAT WERE SUFFICIENT TO EXPLAIN THE TEST FAILURE
- FPC DID NOT CONSIDER EF ISOLATION TO BE A SIGNIFICANT SAFETY FUNCTION (e.g., NOT INCLUDED IN T.S.)
- FPC DID DEMAND A TIGHT SCHEDULE BUT WANTED TO GIVE SUFFICIENT TIME TO DO IT CORRECTLY
- RE-ANALYSIS CONFIRMED RESTART DECISION'S VALIDITY.

### CLARITY OF DOCUMENTED CONSIDERATION OF OPERABILITY

- THE CORRESPONDENCE FROM NUCLEAR LICENSING TO OPERATIONS BASED ON ENGINEERING'S REVIEW OF THE TEST CONDITIONS WAS OPERABILITY ASSESSMENT
- TIMING, PARTICIPANTS, LOG ENTRIES CONFIRM THAT FPC WAS CONSCIOUSLY EVALUATING OPERABILITY PRIOR TO ASCENDING INTO THE APPLICABLE MODE FOR EFW

## RESPONSE TO NRC STAFF CRITICISMS (CON'T)

### RESULTS OF RE-ANALYSIS

- THE RE-ANALYSIS OF THE dP CALCULATION CONFIRMED THE WORST CASE dP TO BE LESS THAN THAT WHICH HAD BEEN SUCCESSFULLY TESTED PRIOR TO THE ENHANCEMENTS MADE IN 8M
- THE SUBSEQUENT PROBLEM WAS JUST THAT, A NEW ISSUE. IT DEALT WITH THE ACTUAL DYNAMIC RESULT OF A HIGHLY COMPLEX SYSTEM. THE POSTULATED OPERATION IS INCONSISTENT WITH OUR EXPERIENCE ALTHOUGH IS POSSIBLE FOR A RELATIVELY LIMITED PERIOD OF TIME
- THE ACTUAL WORST-CASE dP MAY NEVER BE KNOWN WITH PRECISION. THUS, FPC HAS DECIDED TO USE A CONSERVATIVE VALUE (>1500#) AND MODIFY THE ASSOCIATED MOV'S TO BE ABLE TO HANDLE THAT POSSIBILITY.

## ENFORCEMENT POLICY CONSIDERATIONS

### REVISION APPLICABILITY

- THIS SITUATION OCCURRED BEFORE THE MOST RECENT REVISION TO THE ENFORCEMENT HISTORY WAS PUBLISHED
- THE PRIOR REVISION ADDRESSES SYSTEM OPERABILITY NOT COMPLEX OPERABILITY EVALUATIONS ASSOCIATED WITH DEGRADED SYSTEMS IN THE NEW POLICY

## ENFORCEMENT POLICY CONSIDERATIONS (CON'T)

- BOTH REVISIONS OF THE POLICY ADDRESS SYSTEMS DESIGNED TO MITIGATE A SERIOUS SAFETY EVENT.

- EF ISOLATION IN RESPONSE TO A HELB IS NOT A SERIOUS SAFETY EVENT. IT IS, AND ALWAYS HAS BEEN PART OF THE DESIGN BASIS BUT IS NOT ADDRESSED IN THE T.S.'S.

IT IS ASSUMED IN THE SAFETY ANALYSIS BUT THE LACK OF ISOLATION (AS COMPARED TO MFW OR MSL'S) IS MUCH LESS SIGNIFICANT.

OPERATOR ACTION IS SUFFICIENT TO AVOID UNACCEPTABLE CONSEQUENCES.

- THE LIKELIHOOD OF THE EVENT IS SMALL (HELB CONCURRENT WITH COMPLETE FAILURE OF CONTROL VALVE TO ISOLATE AND CLOSURE OF EFV-14 OCCURRING AFTER HIGH dP IS ACHIEVED)
- "FAILED" TEST DID SIGNIFICANTLY REDUCE FLOW (INDICATED FLOW OF 0) EVEN THOUGH CLOSED INDICATION WAS NOT RECEIVED. ACTUAL FLOW WAS PROBABLY <50 GPM

## ENFORCEMENT POLICY CONSIDERATIONS (CON'T)

SUMMARIZE PERFORMANCE IN LIGHT OF CRITERION XVI:

- FPC DID MEET 10 CFR 50, APPENDIX B OBLIGATIONS IN THAT:
  - WE IDENTIFIED THE PROBLEM
  - WE TOOK PROMPT APPROPRIATE CORRECTIVE ACTION
  - THE CORRECTIVE ACTIONS WERE THOROUGH
  - WHEN THE CIRCUMSTANCES CHANGED, WE RE-EVALUATED SIGNIFICANCE AND ENHANCED CORRECTIVE ACTIONS

## CONSIDERATION OF MITIGATION FACTORS

### IDENTIFICATION

- FPC CLEARLY IDENTIFIED THE PROBLEM, REPORTED IT, MADE THE MOV INSPECTION TEAM AWARE OF INTERIM STATUS, SUPPLEMENTED NORMAL REPORTING WITH DIRECT INPUT TO RESIDENT, REGIONAL AND HEADQUARTERS STAFF, DISCUSSED IT OPENLY AND FULLY DURING REACTIVE INSPECTION AND SUBSEQUENT MEETING IN THE REGIONAL OFFICE.

### CORRECTIVE ACTIONS

- WITHOUT REGARD TO NOTED CONCERNS, THE OVERALL CORRECTIVE ACTION PLAN WAS VERY BROAD, THOROUGH, EFFECTIVE AND APPROPRIATE. WE DID NOT DISCOUNT ONE ASPECT OF THE CALCULATION WITHOUT BROADLY RE-EVALUATING IT.
- WHEN THE SITUATION CHANGED, WE TOOK VERY AGGRESSIVE CORRECTIVE ACTIONS ASSOCIATED WITH OVERALL 63-10 PROGRAM, EXPEDITED UPGRADES AND ASSESSED ALL THE MOV'S IN THE PROGRAM.

## CONSIDERATION OF MITIGATION FACTORS (CON'T)

- WE DEVELOPED AND DOCUMENTED A VERY CONSERVATIVE PHILOSOPHY ON DEALING WITH ANALYTICAL DIFFICULTIES AS WELL AS TEST FAILURES.

### PAST PERFORMANCE

- FPC HAS HAD A GOOD RECORD ON IDENTIFYING, REPORTING AND CORRECTING SIMILAR PROBLEMS THROUGH OUR DBD AND OTHER EFFORTS.

OTHER FACTORS (PRIOR OPPORTUNITY, MULTIPLE OCCURRENCES AND DURATION) ARE NOT APPLICABLE

# EMERGENCY FEEDWATER BLOCK VALVE SAFETY SIGNIFICANCE

- EACH OF TWO EFW PUMPS SUPPLIES EACH OF TWO OTSG'S THROUGH TWO INDEPENDENT FLOWPATHS.
- EACH FLOW PATH CONTAINS A BLOCK AND CONTROL VALVE.
- EFIC CONTROLS THESE VALVES TO PROVIDE A WIDE VARIETY OF PROTECTION FEATURES.
- THE CONTROL VALVES PROVIDE RATE OF FILL, PUMP RUNOUT, AND OTHER VARIABLE FLOW FUNCTIONS.
- THE BLOCK VALVES PRINCIPAL SAFETY FUNCTION IS TO OPEN TO ALLOW EFW FLOW.
- NO DBE WITH CONCURRENT SINGLE ACTIVE FAILURE WILL RESULT IN THE INABILITY TO PROVIDE EFW WHEN CALLED UPON.
- THE BLOCK AND CONTROL VALVES CLOSE TO ISOLATE EACH FLOWPATH WHEN EFIC IDENTIFIES A FAULTED OTSG OR IMMINENT OTSG OVERFILL.



## EMERGENCY FEEDWATER BLOCK VALVE SAFETY SIGNIFICANCE (CON'T)

- THE ACTUAL SAFETY SIGNIFICANCE OF NOT ISOLATING EFW TO A FAULTED OTSG IS VERY MINOR AND CAN BE CORRECTED BY OPERATOR ACTION.
- THE ONLY SCENARIO THAT CAN CAUSE EFW BLOCK VALVES TO SEE A 1500#  $\Delta P$  IS THE COMPLETE FAILURE (IF IT PARTIALLY CLOSES IT WILL TAKE SOME OF THE  $\Delta P$ ) OF THE ASSOCIATED CONTROL VALVE CONCURRENT WITH THE HELB.
- THE TEST FAILURES DID ISOLATE SIGNIFICANT EFW FLOW EVEN IF COMPLETE ISOLATION WAS NOT ACHIEVED.

## CONCLUSIONS

- AS NOTED IN MY INTRODUCTION AND THE SUBSEQUENT PRESENTATIONS, WE DO NOT BELIEVE THAT WE VIOLATED REGULATORY REQUIREMENTS.
- FPC MANAGEMENT HAD TAKEN SEVERAL INDEPENDENT ACTIONS TO GIVE MOV PROBLEMS APPROPRIATE ATTENTION:

WE HAVE ESTABLISHED A MANAGEMENT TEAM AT THE DIRECTOR LEVEL TO MONITOR INDUSTRY AND CR-3 PROGRESS AND STATUS.

WE HAVE ARRANGED WITH ITI MOVATS TO HAVE SPECIAL TRAINING FOR SEVERAL KEY MEMBERS OF OUR MANAGEMENT TEAM.

WE HAVE REORGANIZED THE SUPPORT GIVEN TO MOV ISSUES TO GIVE BETTER FOCUS AND ADDITIONAL RESOURCES.

WE HAVE ESTABLISHED DEDICATED WORK CREWS TO IMPROVE VALVE RELIABILITY INCLUDING BRINGING IN DEDICATED SPECIALTY CONTRACTORS TO SUPPORT OUTAGE WORK SCOPE.

## CONCLUSIONS (CON'T)

WE ARE PARTICIPATING IN SEVERAL INDUSTRY GROUPS THROUGH EPRI, NUMARC, THE BWOG AND OTHERS TO STAY ABREAST OF THE KEY ISSUES. WE ARE ALSO PARTICIPATING IN SOME PILOT RESEARCH WORK WITH ITI MOVATS.

IN SUMMARY, FPC HAS AND WILL TAKE THE APPROPRIATE ACTIONS TO IMPROVE AND MAINTAIN VALVE RELIABILITY.