

91-11

JUN 12 1991

Docket No. 50-389
License No. NPF-16

Florida Power and Light Company
ATTN: Mr. J. H. Goldberg
President - Nuclear
P. O. Box 14000
Juno Beach, FL 33408-0420

Gentlemen:

SUBJECT: MEETING SUMMARY - ST. LUCIE
DOCKET NO. 50-389

This letter refers to the enforcement conference conducted at the NRC Region II office in Atlanta on May 30, 1991. The purpose of the meeting was to discuss the circumstances surrounding the apparent violations identified in NRC Inspection Report Nos. 50-335/91-11 and 50-389/91-11. During this meeting, the licensee made a presentation regarding their assessment of the apparent violations.

It is our opinion that this meeting provided a better understanding of the details surrounding the apparent violations and intended corrective actions. You will be advised by separate correspondence of the results of our deliberations on this matter.

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

Sincerely,

Original signed by
Luis A. Reyes, Director
Division of Reactor Projects

Enclosures:

- 1. List of Attendees
- 2. Presentation Summary

cc w/encls:

D. A. Sager, Vice President
St. Lucie Nuclear Plant
P. O. Box 128
Ft. Pierce, FL 34954-0128

G. J. Boissy, Plant Manager
St. Lucie Nuclear Plant
P. O. Box 128
Ft. Pierce, FL 34954-0128

cc w/encls cont'd: (See page 2)

9106270355 910612
PDR ADOCK 05000335
Q PDR

Handwritten signature/initials



Florida Power and Light Company

2

JUN 12 1991

cc w/encls cont'd:
Harold F. Reis, Esq.
Newman & Holtzinger
1615 L Street, NW
Washington, D. C. 20036

John T. Butler, Esq.
Steel, Hector and Davis
400 Southeast Financial Center
Miami, FL 33131-2398

Jacob Daniel Nash
Office of Radiation Control
Department of Health and
Rehabilitative Services
1317 Winewood Boulevard
Tallahassee, FL 32399-0700

Administrator
Department of Environmental Regulation
Power Plant Siting Section
State of Florida
2600 Blair Stone Road
Tallahassee, FL 32301

Jack Shreve
Public Counsel
Office of the Public Counsel
c/o The Florida Legislature
111 West Madison Ave., Room 812
Tallahassee, FL 32399-1400

State Planning and Development
Clearinghouse
Office of Planning and Budget
Executive Office of the Governor
The Capitol Building
Tallahassee, FL 32301

James V. Chisholm
County Administrator
St. Lucie County
2300 Virginia Avenue,
Fort Pierce, FL 34982

Charles B. Brinkman
Washington Nuclear Operations
ABB Combustion Engineering, Inc.
12300 Twinbrook Parkway, Suite 330
Rockville, MD 20852

State of Florida

bcc w/encls: (See page 3)

Florida Power and Light Company

3

JUN 12 1991

bcc w/encl⁵
Document Control Desk
R. Crlenjak, RII
J. Norris, NRR

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
7585 South Highway A1A
Jensen Beach, FL 33457

RII:DRP
CMW
COgle
06/11/91

RII:DRP
RS
BSchin
06/11/91

RII:DRP
[Signature]
RCrlenjak
06/11/91

RII:DRP
MS
MSinkule
06/12/91

RII:DRP
[Signature]
L. Reyes
06/12/91

[Signature]
6/13

ENCLOSURE 1

LIST OF ATTENDEES

U. S. Nuclear Regulatory Commission

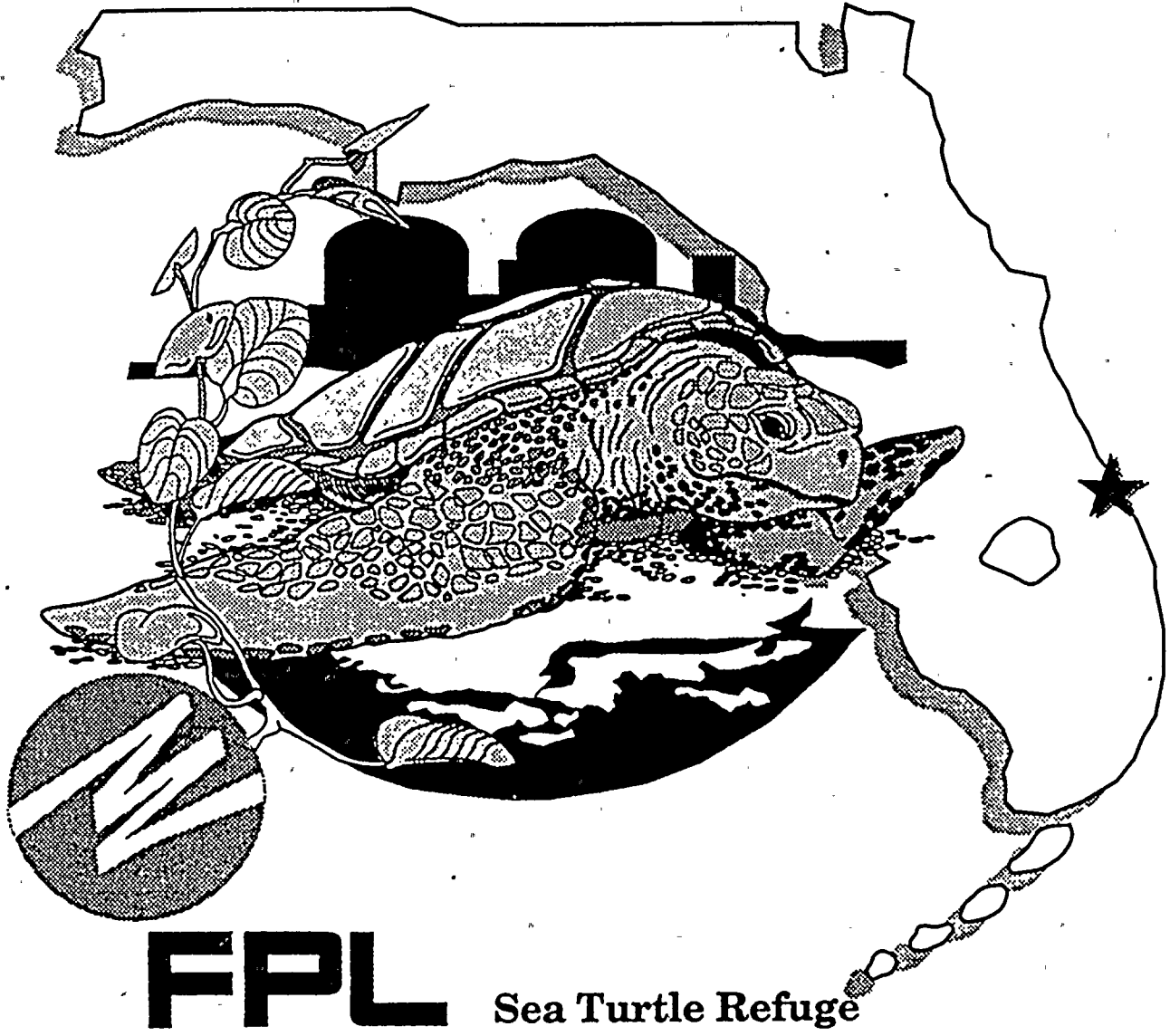
L. A. Reyes, Director, Division of Reactor Projects (DRP)
G. R. Jenkins, Director, Enforcement and Investigation Coordination Staff
M. V. Sinkule, Chief, Reactor Projects Branch 2, DRP
R. V. Crlenjak, Chief, Reactor Projects Section 2B, DRP
R. P. Schin, Project Engineer, Reactor Projects Section 2B, DRP
S. A. Elrod, Senior Resident Inspector, St. Lucie, DRP
H. N. Berkow, Director, Project Directorate II-2, NRR
J. A. Norris, Licensing Project Manager, NRR
C. R. Ogle, Project Engineer, Reactor Projects Section 2B, DRP
D. H. Dorman, Project Engineer, Project Directorate II-2, NRR

Florida Power and Light Company (FP&L)

J. H. Goldberg, President - Nuclear Division
W. H. Bohlke, Vice President, Nuclear Engineering and Licensing
D. A. Sager, Site Vice President, St. Lucie
C. L. Burton, Operations Superintendent
G. J. Boissy, Plant Manager
R. E. Dawson, Maintenance Superintendent
K. N. Harris, Senior Vice President, Nuclear Operations



St. Lucie Nuclear Plant



FPL

Sea Turtle Refuge

**NRC
ENFORCEMENT
CONFERENCE**

MAY 30, 1991



AGENDA

I. INTRODUCTION

NRC /
GOLDBERG

II. MISPOSITIONED COMPONENT COOLING WATER VALVE EVENT

A. EVENT DESCRIPTION

BURTON

B. ROOT CAUSES

BURTON

C. CORRECTIVE ACTIONS

SAGER

D. SAFETY SIGNIFICANCE

BOHLKE

E. SUMMARY

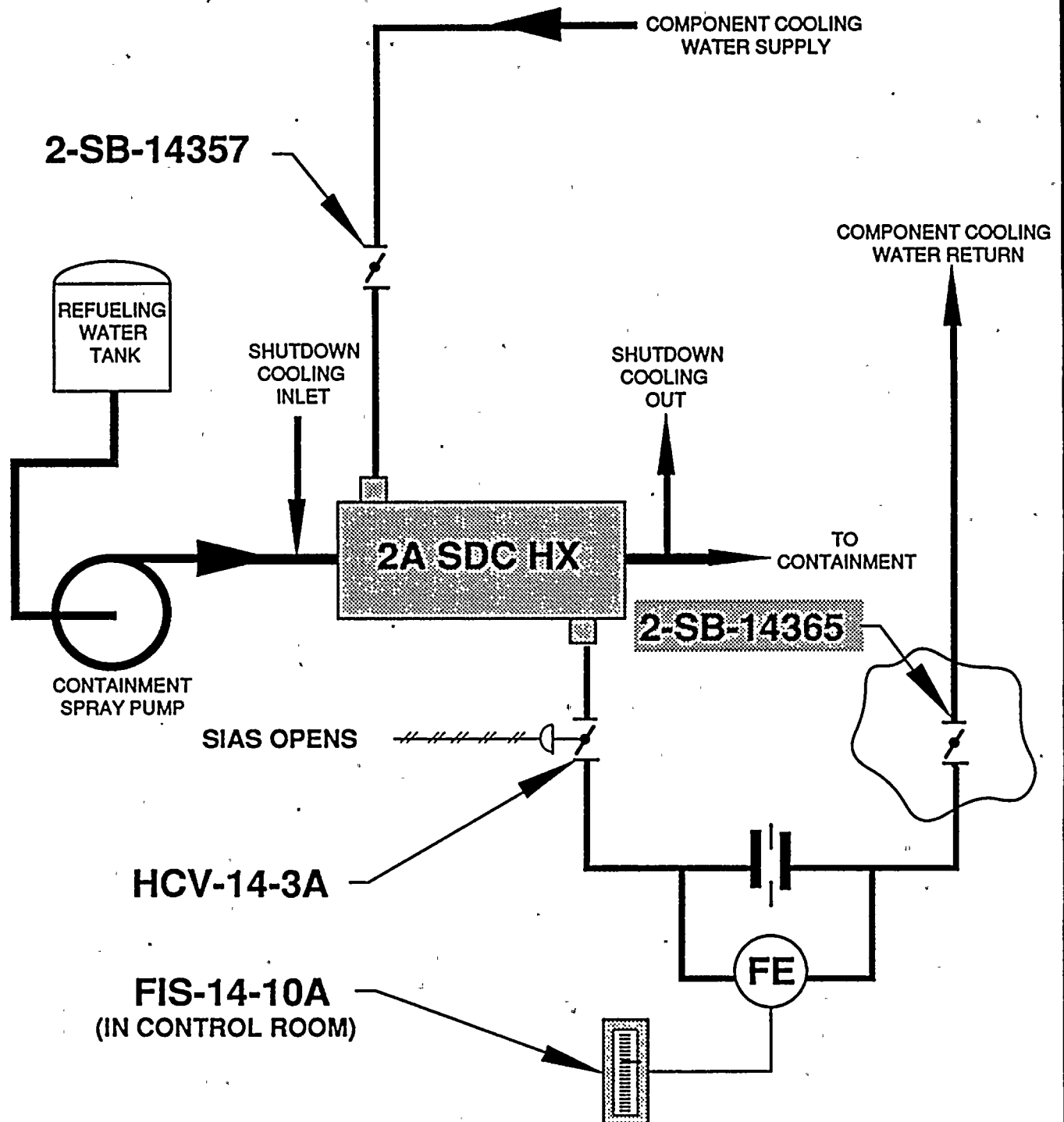
BOISSY

III. QUESTIONS AND ANSWERS

IV. CLOSING REMARKS

GOLDBERG /
NRC

LOCATION OF 2-SB-14365 IN THE COMPONENT COOLING WATER SYSTEM - UNIT #2



CURRENT POLICY AS OF 1987

STANDING NIGHT ORDER

NOTE

This Standing Night Order shall not expire until written notification is received.

Subject:
Locked Valves

Instructions:

1. Locked valves shall be locked in a manner which prevents significant rotation of the handwheel.
2. Locking 2 valves in close proximity to each other with a single locking device is unacceptable.
3. The unlocking and repositioning of a locked valve requires the knowledge and authority of the Shift ANPS/NWE and shall be documented via the Locked Valve Deviation log.
4. To check the position of a valve which is apparently locked open, unlock the valve, close the valve slightly, re-open the valve and lock it.
5. To check the position of a valve which is apparently locked closed, unlock the valve, attempt to close the valve and re-lock it.

Discussion:

Valves are locked at PSL based on regulatory requirements, drawing designations and Operations Supervision discretion. All valves which are locked, need to be included in the Locked Valve Procedure, AP 0010123, and be properly documented when manipulated.

Distribution: NPS, ANPS 1 & 2, Standing Night Order Book 1 & 2, Training Department, Night Orders

(Copies shall be retained in each Control Room's Standing Night Order Book)

W. S. Rector
R&O

EVENT CHRONOLOGY

10/21/90

2-SB-14365 WAS PLACED IN THE LOCKED OPEN POSITION.

10/23/90

2-SB-14365 WAS POSITIONED TO LOCKED THROTTLED TO BALANCE COMPONENT COOLING WATER FLOW AND WAS ENTERED IN THE DEVIATION LOG.

11/23/90

SHUTDOWN COOLING WAS SECURED; 2A SHUTDOWN COOLING HEAT EXCHANGER INDICATED COMPONENT COOLING WATER FLOW.

11/29/90

THE SHIFT ASSISTANT NUCLEAR PLANT SUPERVISOR REVIEWED THE VALVE DEVIATION LOG. AN OPERATOR WAS DISPATCHED TO 2-SB-14365, WITH INSTRUCTIONS TO RESTORE IT TO THE LOCKED OPEN POSITION. VALVE 2-SB-14365 WAS BELIEVED TO BE MISPOSITIONED TO THE LOCKED CLOSED POSITION.

11/29/90-4/26/91

24 OPPORTUNITIES BY 13 DIFFERENT OPERATORS FAILED TO DISCOVER THE MISPOSITIONED VALVE.

4/26/91

WHILE PERFORMING THE D.C. GROUND ISOLATION PROCEDURE, 2-SB-14365 WAS FOUND LOCKED CLOSED. OPERATIONS DEPARTMENT OPENED THE VALVE AND ESTABLISHED PROPER COMPONENT COOLING WATER FLOW TO THE 2A SHUTDOWN COOLING HEAT EXCHANGER. THE NRC WAS PROMPTLY NOTIFIED.

EVENT ROOT CAUSES

PROBLEM #1

2-SB-14365 WAS PLACED IN THE LOCKED CLOSED POSITION

ROOT CAUSE

COGNITIVE PERSONNEL ERROR BY A NON-LICENSED OPERATOR

PROBLEM #2

FAILURE TO DETECT 2-SB-14365 IN THE CLOSED POSITION ON NUMEROUS SUBSEQUENT CHECKS

ROOT CAUSES

1. MANAGEMENT LEVEL OF EXPECTATION WAS NOT EFFECTIVELY DISSEMINATED TO OPERATIONS PERSONNEL.
2. MANAGEMENT FOLLOW-UP OF EXISTING POLICY IMPLEMENTATION WAS INSUFFICIENT.
3. OPERATORS WERE USING VISUAL VERIFICATION DURING LOCKED VALVE CHECKS.



EVENT ROOT CAUSES (Continued)

CONTRIBUTING FACTORS:

- 1. FAULTY VALVE POSITION INDICATOR**
- 2. VALVE ACCESSIBILITY**

PROBLEM #3

**OUR CURRENT VALVE VERIFICATION POLICY
ALLOWED AN OPPORTUNITY FOR POSSIBLE
MISPOSITIONING OF THROTTLED VALVES**

ROOT CAUSE

**PRESENT METHOD OF VERIFYING POSITION OF
THROTTLED VALVES IS INADEQUATE**

IMMEDIATE CORRECTIVE ACTIONS

- **PERFORMED A HANDS-ON VERIFICATION OF 409 SAFETY RELATED VALVES FOR UNIT 1 AND 2**

- **RE-EMPHASIZED STANDING NIGHT ORDER REQUIREMENTS FOR LOCKED VALVE VERIFICATION VIA SHIFT MEETINGS**

- **PERFORMED INTERNAL INTERVIEWS WITH NON-LICENSED OPERATORS TO IDENTIFY ISSUES SURROUNDING THE VALVE POLICY**

COMPLETED CORRECTIVE ACTIONS

- **SITE VICE PRESIDENT MEMO ON RESPONSIBILITY AND ACCOUNTABILITY HAS BEEN ISSUED**
- **PLANT MANAGER POLICY ON PROCEDURAL ADHERENCE, INCLUDING DISCIPLINARY POLICY HAS BEEN COMMUNICATED TO ALL PLANT PERSONNEL**
- **PRESIDENT, NUCLEAR DIVISION BRIEFING OF OPERATING CREWS**
- **HUMAN PERFORMANCE ENHANCEMENT SYSTEM ANALYSIS COMPLETED**
- **NUCLEAR SAFETY SPEAKOUT REVIEW OF OTHER OPERATIONS' POLICIES**
- **UNANNOUNCED, RANDOM JOINT QUALITY CONTROL/OPERATIONS SURVEILLANCE OF DATA SHEET 36**



COMPLETED CORRECTIVE ACTIONS (Continued)

- **PROCEDURE CHANGE TO MAKE CLEAR EXPECTATIONS REGARDING VERIFICATION METHOD TO DATA SHEET 36**
- **SENIOR REACTOR OPERATOR/NON-LICENSED OPERATOR TANDEM WALKDOWNS OF DATA SHEET 36, TO IDENTIFY ACCESSIBILITY AND TIME REQUIREMENTS**
- **VALVE POSITION INDICATOR ENHANCEMENT COMPLETED ON ALL UNIT 1 AND UNIT 2 SAFETY RELATED VALVES**
- **QUALITY INSTRUCTION 11-PR/PSL-2 TEST CONTROL NOW ADDRESSES POST MAINTENANCE OF VALVE POSITION INDICATORS**
- **INPO NUCLEAR NETWORK ENTRY - "ENHANCEMENT TO BUTTERFLY VALVE POSITION INDICATION"**
- **DATA SHEET 36 CHANGED TO INCORPORATE FUNCTIONAL CHECK OF THROTTLED VALVE POSITION**

FUTURE CORRECTIVE ACTIONS

- VALVE POSITION INDICATOR ENHANCEMENT ON REMAINING UNIT 1 AND UNIT 2 PRATT VALVES WILL BE COMPLETED
- ACCESSIBILITY PROBLEMS IDENTIFIED DURING SENIOR REACTOR OPERATOR/NON-LICENSED OPERATOR WALKDOWNS WILL BE RESOLVED TO SATISFACTION OF OPERATIONS DEPARTMENT
- FOLLOW UP BRIEFING OF OPERATING CREWS WILL BE CONDUCTED PERIODICALLY CONCERNING THIS POLICY
- THROTTLE VALVE POSITION VERIFICATION WILL BE ADDRESSED FOR REMAINING VALVE LINEUP PROCEDURES TO REQUIRE FUNCTIONAL VERIFICATION WHENEVER POSSIBLE

ENGINEERING ASSESSMENT

OF THE

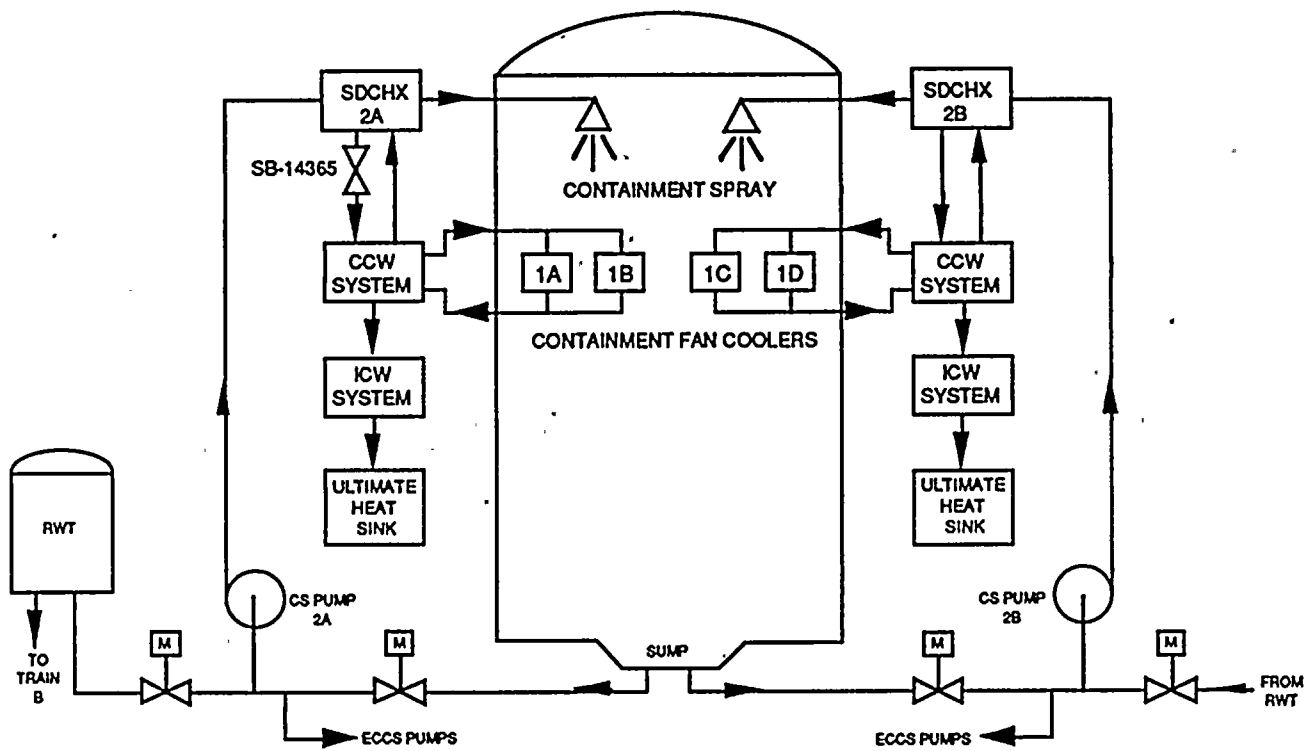
SAFETY SIGNIFICANCE

FOR

VALVE 2-SB-14365

MISALIGNMENT

CONTAINMENT HEAT REMOVAL SYSTEM ST. LUCIE UNIT 2



SDCHX - SHUTDOWN COOLING HEAT EXCHANGER
 CCW - COMPONENT COOLING WATER
 ECCS - EMERGENCY CORE COOLING SYSTEM

ICW - INTAKE COOLING WATER
 RWT - REFUELING WATER TANK
 CS - CONTAINMENT SPRAY

ENGINEERING ASSESSMENT

- **OBJECTIVE**

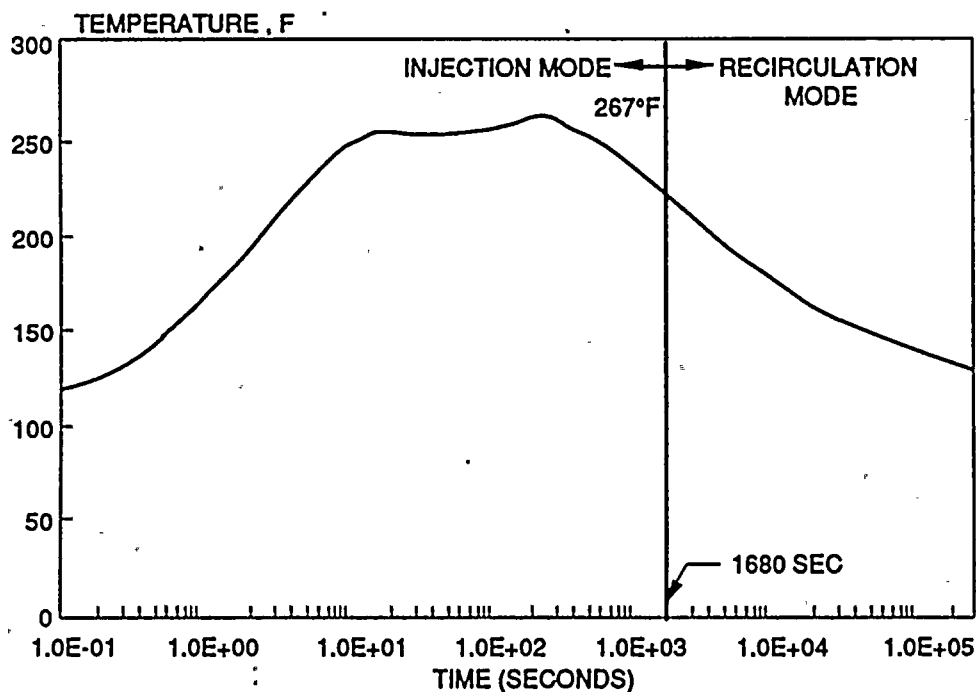
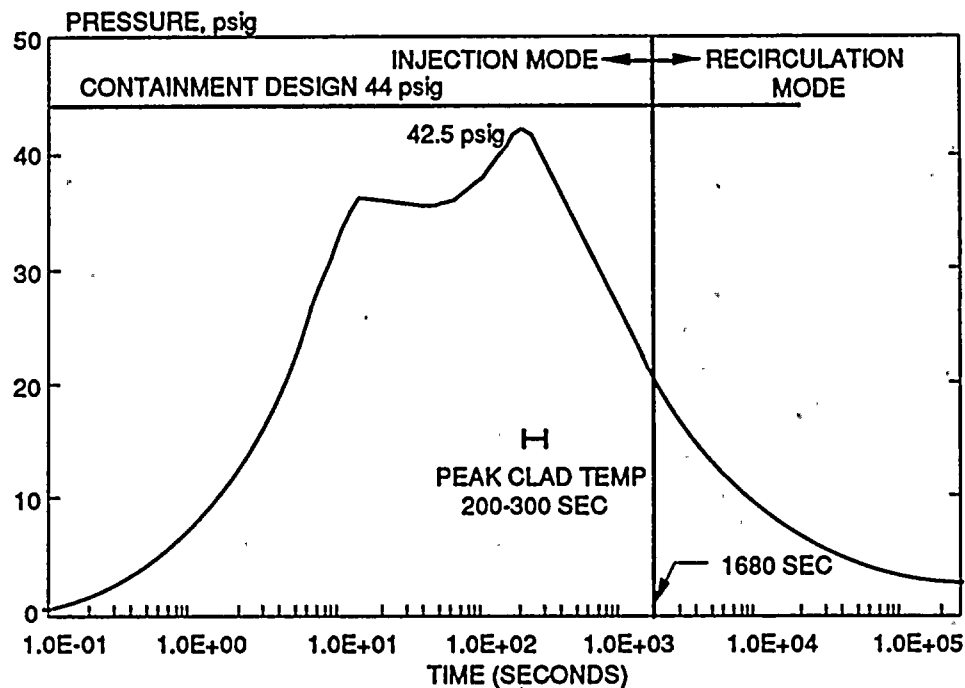
- **DETERMINE THE SAFETY SIGNIFICANCE ASSOCIATED WITH COMPONENT COOLING WATER ISOLATED TO THE 2A SHUTDOWN COOLING HEAT EXCHANGER**

- **CONCLUSIONS**

- **SAFETY FUNCTIONS OF CORE COOLING AND CONTAINMENT HEAT REMOVAL ARE ACHIEVED ASSURING THAT THE HEALTH AND SAFETY OF THE PUBLIC WOULD NOT HAVE BEEN AFFECTED**

DESIGN BASIS ST. LUCIE UNIT 2

- PEAK CONTAINMENT PRESSURE/TEMPERATURE AND PEAK FUEL CLADDING TEMPERATURE OCCUR DURING INJECTION MODE





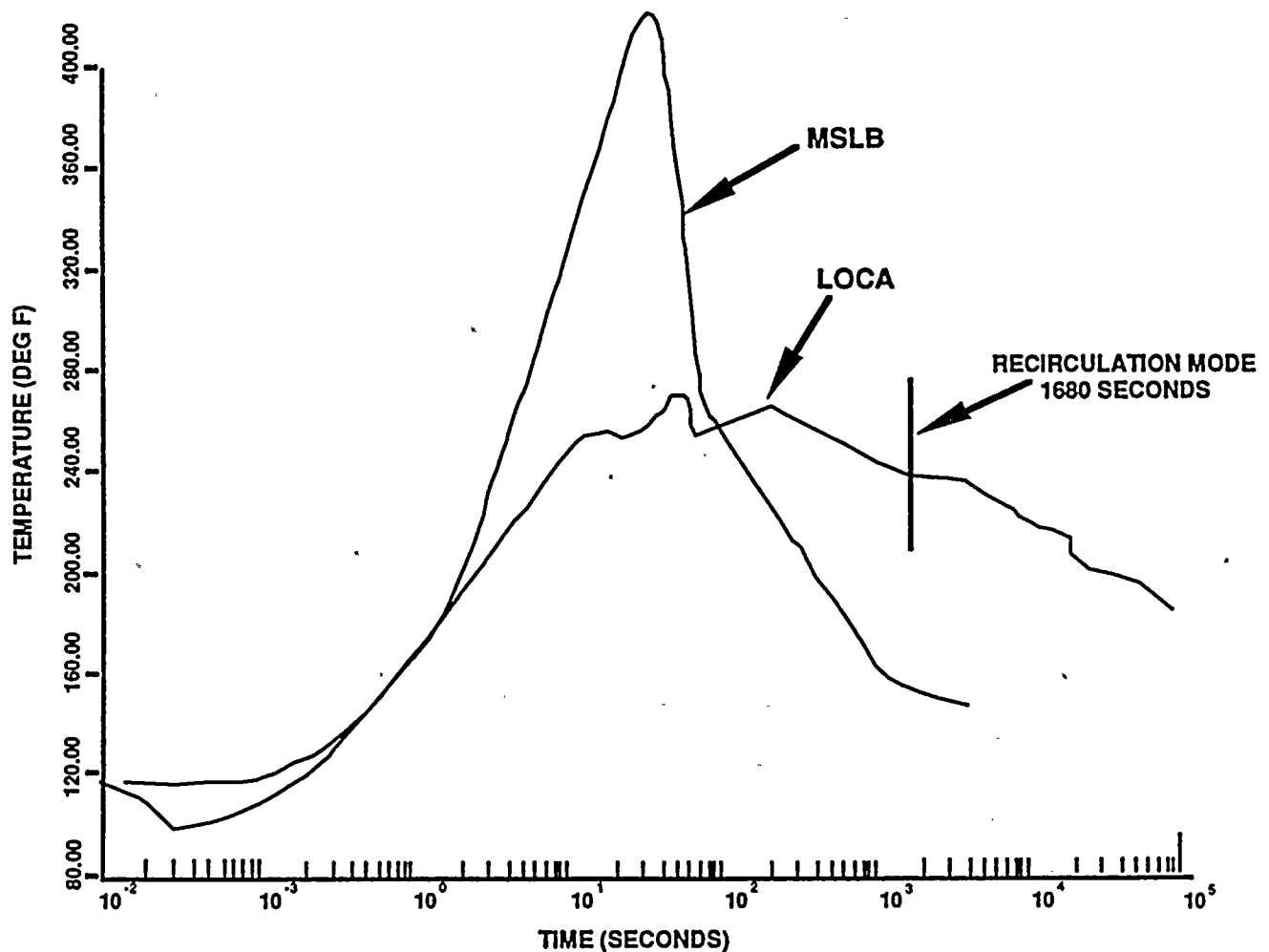
BOUNDING ACCIDENT SCENARIO

- **EFFECT OF COMPONENT COOLING WATER VALVE
2-SB-14365 CLOSED DURING INJECTION MODE**
 - **NO SHUTDOWN COOLING HEAT EXCHANGER
COOLING DURING INJECTION MODE**
 - **NO IMPACT**

- **LARGE BREAK LOSS OF COOLANT ACCIDENT IS
BOUNDING ACCIDENT SCENARIO FOR VALVE
2-SB-14365 CLOSED**
 - **ENERGY RELEASE TO CONTAINMENT
ISOLATED FOR MAIN STEAM LINE BREAK
DURING REFUELING WATER TANK INJECTION**
 - **ENERGY RELEASE RATES TO CONTAINMENT
LOWER FOR SMALL BREAK LOSS OF
COOLANT ACCIDENT AND OTHER ACCIDENTS**

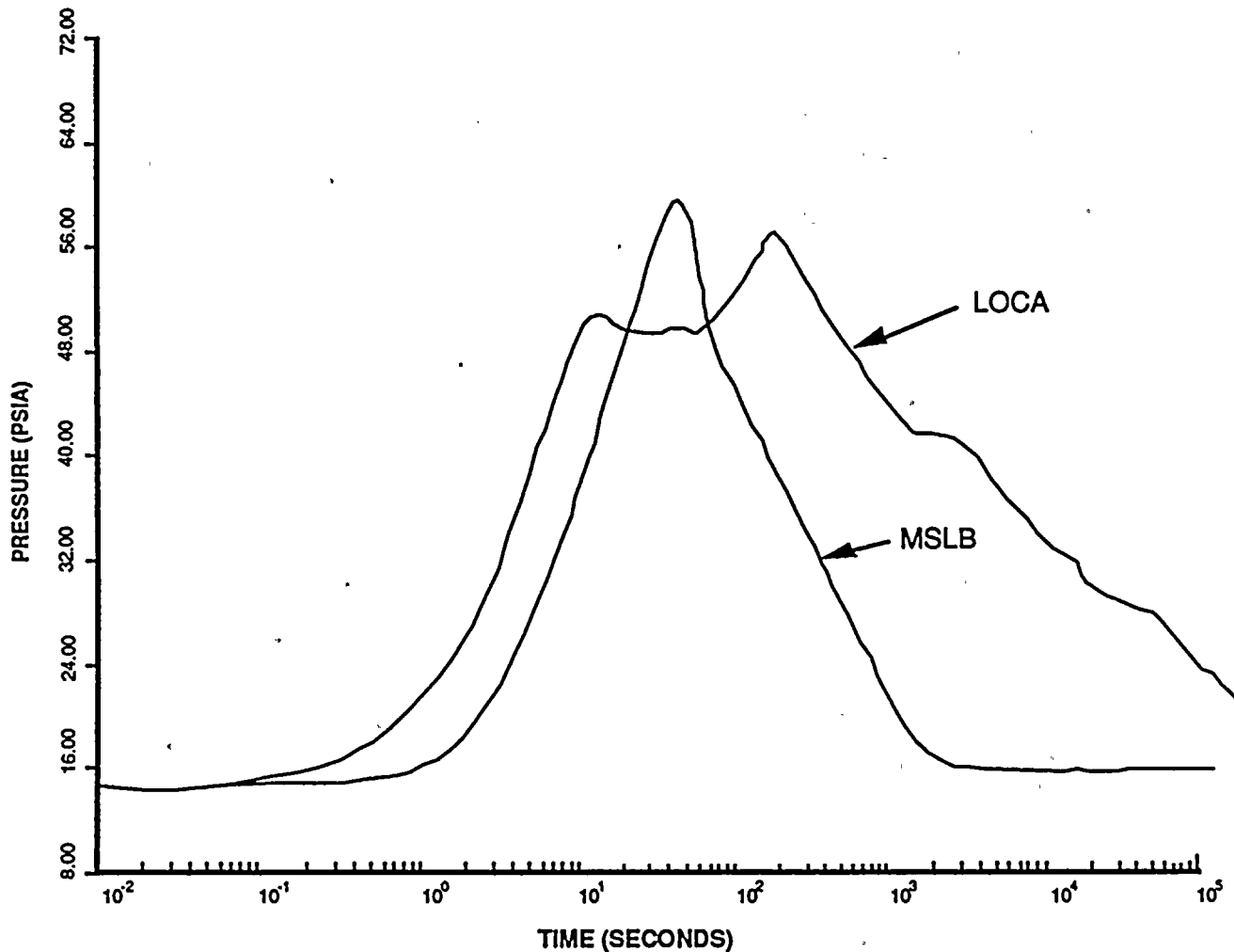
LOSS OF COOLANT ACCIDENT VERSUS MAIN STEAM LINE BREAK CONTAINMENT TEMPERATURE

- LOCA WILL BE BOUNDING IN THE LONG TERM
- NO IMPACT DURING REFUELING WATER TANK INJECTION MODE



LOSS OF COOLANT ACCIDENT VERSUS MAIN STEAM LINE BREAK CONTAINMENT PRESSURE

- LOCA WILL BE BOUNDING IN THE LONG TERM
- NO IMPACT DURING REFUELING WATER TANK INJECTION MODE



LARGE BREAK LOSS OF COOLANT ACCIDENTS EXAMINED

- **CASE I: DESIGN BASIS**
 - ONE SPRAY TRAIN
 - FOUR EMERGENCY FAN COOLERS

- **CASE II: 2-SB-14365 CLOSED - FAILURE OF
SPRAY PUMP B**
 - SPRAY TRAIN A AVAILABLE (NO SHUTDOWN
COOLING HEAT EXCHANGER 2A COOLING)
 - FOUR EMERGENCY FAN COOLERS AVAILABLE

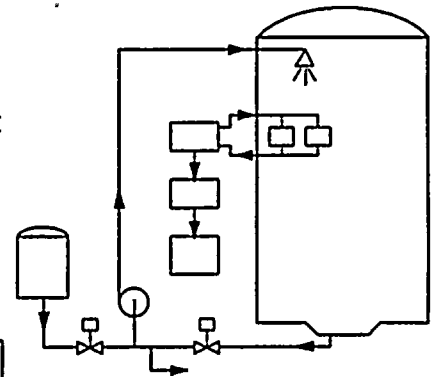
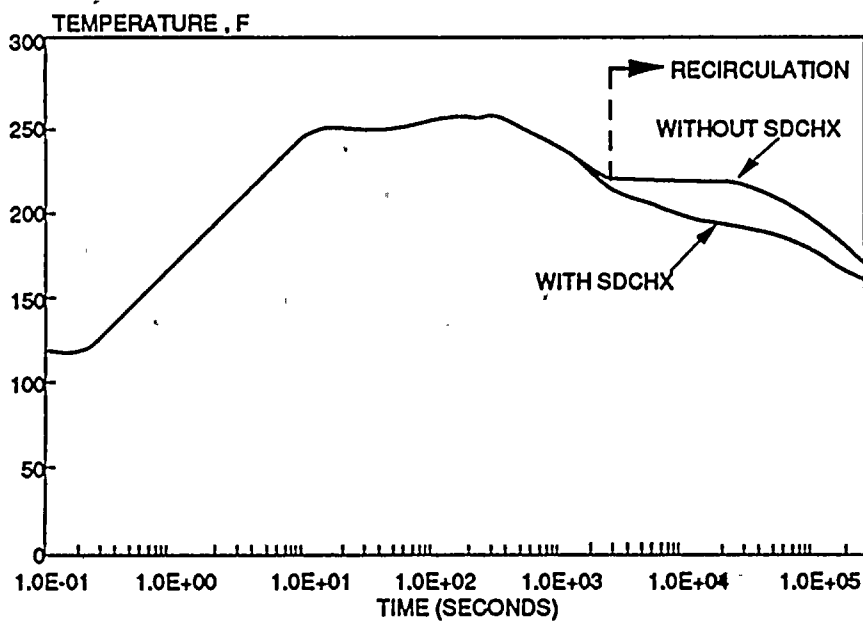
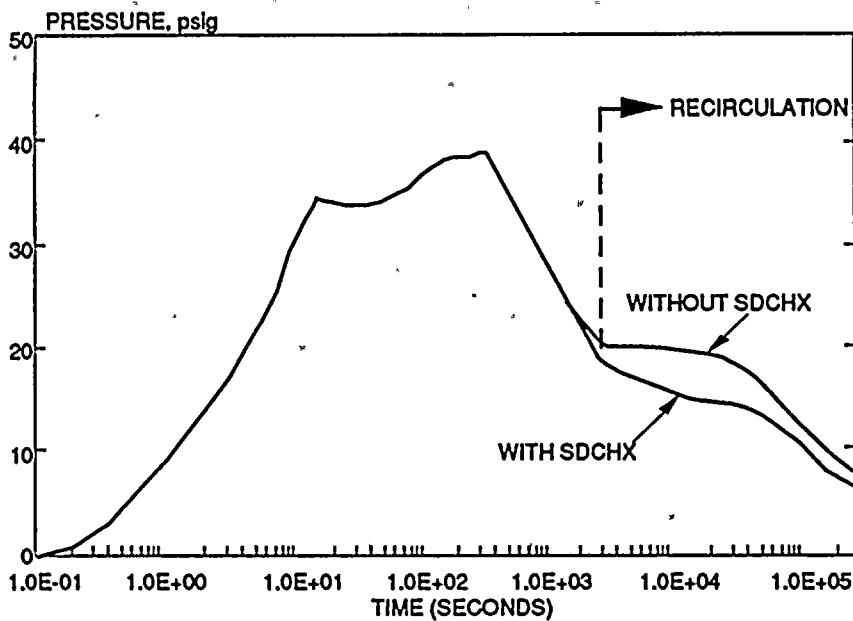
- **CASE III: 2-SB-14365 CLOSED - LOSS OF OFFSITE
POWER AND EMERGENCY DIESEL
GENERATOR B**
 - SPRAY TRAIN A AVAILABLE (NO SHUTDOWN
COOLING HEAT EXCHANGER 2A COOLING)
 - TWO EMERGENCY FAN COOLERS AVAILABLE



CONTAINMENT ANALYSIS RESULTS

● CASE III

- SB-14365 CLOSED - LOSS OF OFFSITE POWER
EMERGENCY DIESEL GENERATOR B



OTHER ENGINEERING FACTORS

- **NET POSITIVE SUCTION HEAD**

- **NET POSITIVE SUCTION HEAD AVAILABLE IN THE RECIRCULATION MODE IS GREATER THAN THE NET POSITIVE SUCTION HEAD REQUIRED BY THE SPRAY, HIGH PRESSURE INJECTION AND LOW PRESSURE INJECTION PUMPS**

- **CORE COOLING**

- **ANALYSES INDICATED CORE REMAINS COVERED WITH CORE TEMPERATURE DECREASING DURING THE RECIRCULATION MODE**

- **DOSE**

- **BOUNDED BY FINAL SAFETY ANALYSIS REPORT DESIGN BASIS CASE WHICH ASSUMES LEAKAGE FOR FIRST 24 HOURS AT PEAK ACCIDENT PRESSURE**

- **EQUIPMENT QUALIFICATION**

- **COMPONENTS INSIDE CONTAINMENT WERE EXAMINED AND ADEQUATE MARGIN EXIST SUCH THAT EQUIPMENT QUALIFICATION IS MAINTAINED FOR THE ANALYZED RECIRCULATION MODE TEMPERATURES**

CONCLUSIONS

- **THE LARGE BREAK LOSS OF COOLANT ACCIDENT WAS EXAMINED WITH 2-SB-14365 CLOSED**
 - **THE CORE REMAINS COOLED PREVENTING CORE DAMAGE IN ACCORDANCE WITH THE DESIGN BASIS LOSS OF COOLANT ACCIDENT**
 - **THE CALCULATED LARGE BREAK LOSS OF COOLANT ACCIDENT CONTAINMENT PRESSURE AND TEMPERATURE RESPONSES REMAIN BELOW DESIGN VALUES**
 - **THE ACCIDENT DOSE RELEASE FOR THE LARGE BREAK LOSS OF COOLANT ACCIDENT REMAIN BOUNDED BY THE FINAL SAFETY ANALYSIS REPORT DESIGN BASIS ANALYSIS**

THEREFORE;

SAFETY FUNCTIONS OF CORE COOLING AND CONTAINMENT HEAT REMOVAL ARE ACHIEVED, ASSURING THAT THE HEALTH AND SAFETY OF THE PUBLIC WOULD NOT HAVE BEEN AFFECTED

SUMMARY

- **THIS PARTICULAR EVENT DID NOT POSE A RISK TO PUBLIC HEALTH AND SAFETY**

- **THE ORIGINAL POLICY REQUIRING HANDS-ON VERIFICATION OF VALVE POSITION IS ADEQUATE**

- **A BREAKDOWN IN THE IMPLEMENTATION AND VERIFICATION OF THIS POLICY OCCURRED**

- **MANAGEMENT IS COMMITTED TO IMPLEMENT AND VERIFY THIS POLICY THROUGH:**
 - **FOLLOW UP CREW BRIEFINGS**

 - **QUALITY CONTROL/OPERATIONS UNANNOUNCED RANDOM SURVEILLANCES**

 - **DISCIPLINARY ACTION FOR NON-COMPLIANCE**