UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

October 31, 2007

EA-07-173

Southern Nuclear Operating Company, Inc.
Joseph M. Farley Nuclear Plant
ATTN: Mr. J. Randy Johnson
Vice President - Farley
7388 North State Highway 95
Columbia, AL 36319

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A YELLOW FINDING AND NOTICE OF VIOLATION (NRC INSPECTION REPORT NOS. 05000348/2007011 AND 05000364/2007011, JOSEPH M. FARLEY NUCLEAR PLANT)

Dear Mr. Johnson:

The purpose of this letter is to provide you the final results of our significance determination of the preliminary Yellow finding identified in NRC Inspection Report 05000348,364/2007009, issued on August 2, 2007. The inspection finding was assessed using the Significance Determination Process and was preliminarily characterized as Yellow, a finding with substantial importance to safety that could result in additional NRC inspections and potentially other NRC action. This preliminary Yellow finding involved the failure to promptly identify and correct a significant condition adverse to quality which resulted in the Unit 2 Residual Heat Removal (RHR) train A containment sump suction valve failing to stroke full open on April 29, 2006, and January 5, 2007.

At your request, a Regulatory Conference was held on September 12, 2007, with Southern Nuclear Operating Company, Inc. (SNC), to further discuss your views on this issue. A copy of SNC's presentation material and a listing of attendees at the conference are enclosed. During the meeting SNC described its assessment of the significance of the finding, its root cause evaluation of the valve failures, and detailed corrective actions to preclude recurrence.

At the Regulatory Conference, SNC provided its perspective on several aspects of the preliminary significance determination. Specifically, SNC maintained that:

> An adjustment in the risk assessment due to common cause of the motor operated valve (MOV) failure was not justified based on new information and analysis developed from the licensee's continuing root cause evaluation, the original equipment manufacturer's evaluation of the MOV torque switch, an off-site Motor Repair Facility motor inspection, and a third-party engineering consultant technical review of the common cause evaluation. Based on this, SNC concluded that the opposite RHR train suction MOV would not be affected by a common cause failure, thereby reducing the overall change in core damage frequency (CDF).

Additional risk reduction was warranted based on the availability of shutdown cooling, reducing the need to initiate recirculation and open the MOV for certain accident sequences; operator actions to start and operate the applicable Low Head Safety Injection Pump (LHSIP) with the suction valve providing dual position indication; and using more appropriate values for performance shaping factors in the Human Reliability Analysis (HRA) for multiple attempts to fully open the MOV.

Based on the above, SNC concluded that the April 2006 and January 2007 valve failures do not represent events of substantial safety significance, as was concluded by the NRC's preliminary assessment, and SNC requested that the NRC re-evaluate the safety significance of the finding. After the conference, SNC provided additional information to support its position on these aspects.

After considering the information developed during the inspection, the information you provided at the conference, and the additional information submitted after the conference, the NRC has concluded that the inspection finding is appropriately characterized as Yellow, a finding with substantial importance to safety that will result in additional NRC inspections and potentially other NRC action.

In response to SNC's perspectives, the NRC considered the following in assessing the final significance of the finding. With regard to SNC's position that the valve failures were independent, the NRC was not able to exclude common cause. During the conference, SNC stated that the Unit 2 RHR Train A containment sump suction valve was different from other similar valves in that it was susceptible to a "hammer blow" affect on opening, which contributed to the valve failure. Additionally, SNC stated that they identified pitting on the torque switch open contact guide. SNC further stated they had not determined the cause of the pitting but could not eliminate corrosion as a factor. Based on information provided during the conference, the NRC concluded SNC had demonstrated that the "hammer blow" affect appeared to be limited to the RHR Train A containment sump suction valve. However, based on the results of our inspection, and the identification of a high humidity environment inside the valve encapsulation resulting in rust and corrosion, the NRC could not eliminate the environment as a potential common cause for failure of other valves in similar environments. An independent failure is defined such that the failure cause must be well understood with no possibility that the circumstances existed in other components in the common cause group. The NRC was unable to conclude that the potential coupling mechanism (e.g., the environment within the encapsulation) was irrelevant to the valve test failures. In addition, the cause of the test failures was not well enough understood to eliminate any possibility that the other encapsulated valves could fail under similar circumstances. Consequently, common cause failure was retained in the NRC's final numerical risk quantification.

With regard to SNC's conclusion that for certain accident sequences (Small Break and Reactor Coolant Pump Seal Loss of Coolant Accidents), operators could establish shutdown cooling rather than recirculation as a means to cool the core, the NRC accepted this argument and included it in the final risk calculation. However, because the calculation was relatively insensitive to this factor, the NRC did not perform a detailed review of all of the sequences. As a result, the NRC's application of this adjustment was determined to be applicable only in the context of the analysis for this specific event.

In response to SNC's conclusion that operators would start a LHSIP with a suction MOV indicating dual position, the NRC evaluated this recovery action using the SPAR-H

methodology. Due to a combination of negative performance shaping factors, most particularly that the emergency procedure did not direct operators to start the pump under the postulated conditions, this action was not found to be a credible recovery methodology. Therefore, this input was not included in the final risk quantification. Also, based upon the HRA analysis, the NRC did not evaluate the information provided by SNC regarding the actual technical viability of running the RHR pump with the MOV in a 16 percent open position.

With regard to the use of different performance shaping factors for multiple attempts to the open the MOV, a value of 0.5 was used in the final quantification. SNC provided input on the performance shaping factors for establishing the failure probability of a discrete human error to stroke the valve. However, based upon information provided at the Regulatory Conference, a crew consultation would occur after each attempt. Therefore, each attempted opening was considered a dependent human action. Consequently, the final HRA considered dependency in assigning the failure probability to this recovery. Since the same crew, at the same location, with the same cues, would be used to diagnose the problem and identify a correct solution, a high dependency was assigned, consistent with the SPAR-H methodology. Only this dependency aspect was used in the final quantification. Therefore, the individual performance shaping factor values were immaterial in selecting the final failure probability for repetitive stroking of the affected valve.

Using these inputs and the best available technical information on Loss of Coolant Accident frequencies, NUREG/CR-6928, "Industry-Average Performance for Components and Initiating Events at U.S. Commercial Nuclear Power Plants," February 2007, to finalize the significance determination, the NRC concluded that the inspection finding is appropriately characterized as Yellow.

You have 30 calendar days from the date of this letter to appeal the staff's determination of significance for the identified Yellow finding. Such appeals will be considered to have merit only if they meet the criteria given in the NRC Inspection Manual Chapter 0609, Attachment 2.

The NRC has also determined that the failure to promptly identify and correct a significant condition adverse to quality, which resulted in the Unit 2 RHR train A containment sump suction MOV failing to stroke full open on April 29, 2006, and January 5, 2007, is a violation of 10 CFR 50, Appendix B, Criterion XVI, as cited in the attached Notice of Violation (Notice). The circumstances surrounding the violation are described in detail in the subject inspection report. In accordance with the NRC Enforcement Policy, the Notice is considered escalated enforcement action because it is associated with a Yellow finding. During the Regulatory Conference, SNC did not contest this violation.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response.

Because plant performance for this issue has been determined to be in the degraded cornerstone column, we will use the NRC Action Matrix to determine the most appropriate NRC response for this event. We will notify you, by separate correspondence, of that determination.

For administrative purposes, this letter is issued as a separate NRC Inspection Report, No. 05000348,364/2007011, and the above violation is identified as VIO 05000364/2007011-01, Yellow Finding - Failure to Promptly Identify and Correct a Significant Condition Adverse to Quality for RHR Pump 2A Containment Sump Suction Valve. Accordingly, Apparent Violation 05000364/2007009-01 is closed. In accordance with 10 CFR 2.390 of the NRC's "Rules of

Practice," a copy of this letter, its enclosures, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at www.nrc.gov/reading-rm/pdr.html www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Sincerely,

Victor M. McCree for

William D. Travers
Regional Administrator

Docket Nos.: 50-348, 50-364
License Nos.: NPF-2, NPF-8

Enclosures:
1. Licensee presentation material
2. List of Attendees
3. Notice of Violation

cc w/encls:
B. D. McKinney, Licensing
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LIST OF ATTENDEES

Nuclear Regulatory Commission
C. Casto, Director, Division of Reactor Projects (DRP)
C. Christensen, Deputy Director, DRP
E. Crowe, Senior Resident Inspector, Farley Nuclear Plant, Branch 2, DRP
C. Evans, Regional Counsel/Director, EICS, RII
K. Kennedy, Deputy Director, Division of Reactor Safety (DRS)
G. MacDonald, Senior Reactor Analyst, DRS
V. McCree, Deputy Regional Administrator, Operations
N. Merriweather, Senior Reactor Inspector, DRS
D. Merzke, Reactor Inspector, DRS
K. Miller, Reactor Inspector, DRS
C. Payne, Chief, Engineering Branch 2, DRS
W. Rogers, Senior Reactor Analyst
S. Shaeffer, Chief, Reactor Projects Branch 2, DRP
J. Shea, Director, DRS
S. Sparks, Senior Enforcement Specialist, EICS
M. Thomas, Senior Reactor Inspector, DRS
G. Wilson, Project Engineer, DRP

NRC (via teleconference)
M. Ashley, Office of Nuclear Reactor Regulation (NRR)
J. Circle, NRR
K. Cotton, NRR
J. McHale, NRR
P. O'Bryan, DRP
N. Patel, NRR
D. Betancourt Roldan, Office of Enforcement (OE)
S. Tingen, NRR
J. Wray, OE

Southern Nuclear Operating Company, Inc.
S. Blanton, Balch & Bingham, LLP
M. Caston, Vice President and General Counsel, Southern Nuclear Operating Company
J. Gasser, Executive Vice President, Southern Nuclear Operating Company
B. George, Nuclear Licensing Manager
R. Johnson, Site Vice President, Farley Project
H. Mahan, Farley Licensing Engineer
D. McCoy, Principal Engineer - PRA Services
D. McKinney, Farley Corporate Licensing Supervisor
C. Phillips, Public Affairs Manager, Southern Nuclear Operating Company
S. Soper, Mechanical/Civil Engineering Supervisor - Farley Plant Support
A. Thornhill, Managing Attorney & Compliance Manager
T. Youngblood, Assistant General Manager - Plant Support, Farley Project

Public Attendees
M. Newkirk, Atlanta Journal Constitution
D. Watkins

NOTICE OF VIOLATION

Southern Nuclear Operating Company, Inc.
Farley Nuclear Plant
Unit 2

Docket No.: 50-364
License No.: NPF-8
EA-07-173

During an NRC inspection completed on May 4, 2007, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> 10 CFR 50, Appendix B, Criterion XVI, requires that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and non-conformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.
>
> Contrary to the above, the licensee failed to promptly identify and correct a significant condition adverse to quality that resulted in Unit 2 encapsulated valve Q2E11MOV8811A (containment sump suction to Residual Heat Removal pump 2A) failing to stroke full open during testing on April 29, 2006, and again on January 5, 2007. The licensee did not assure that the causes of the condition, including rust/corrosion accumulation on valve components in the valve encapsulation dating back to 2001, were determined and corrective action taken to preclude repetition.

This violation is associated with a Yellow significance determination process finding.

Pursuant to the provisions of 10 CFR 2.201, Southern Nuclear Operating Company, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region II, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, 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; EA-07-173" and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been 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. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to 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.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 31st day of October 2007

Farley Nuclear Plant

Regulatory Conference

Unit 2 RHR MOV 8811A
Preliminary Yellow Finding

September 12, 2007

SOUTHERN COMPANY

Energy to Serve Your World

Agenda

◆ **Introduction and Purpose**	**Jeff Gasser** Chief Nuclear Officer
◆ **Performance Improvement**	**Randy Johnson** Site Vice President
◆ **Technical Review and Significance Determination**	**Todd Youngblood** Manager, Special Projects
◆ **Summary and Conclusion**	**Randy Johnson**

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Introduction and Purpose

Jeff Gasser

Chief Nuclear Officer

SOUTHERN COMPANY

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Introduction and Purpose

- Acknowledge process weaknesses and describe performance improvements at FNP.
- Provide additional information and analyses relative to the MOV 8811A valve function issue.
- Provide the bases for SNC's conclusion that "substantial safety significance" did not exist.

Randy Johnson
Site Vice President

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Performance Improvement

- FNP recognizes NRC concerns and the need for improvement in the areas of Problem Identification & Resolution and Equipment Reliability.
- FNP recognizes the Unit 2 RHR MOV 8811A valve function issue as one of several examples of these broader issues.
- FNP has developed and employed several Lessons Learned.

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Performance Improvement

- April 2007 -- Site Vice President commissioned an Independent Assessment.

- Independent Assessment performed by:
  - Lead: Corporate Plant Support Manager
  - Members:
    - » Corp. Equipment Reliability Manager with INPO experience
    - » Outside industry consultant
    - » Southern Company Services technical specialist
    - » Quality Assurance representative

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Independent Assessment – Corrective Actions

- An advisor has been identified to work with management team on assessing and mitigating organizational risks.
- Developing clearer organizational picture of how the Corrective Action Program (CAP) is core business.
- Training being developed for managers and supervisors on INPO Doc. 05-005, Performance Improvement Model.
- Reviewing Action Plans to ensure timely implementation and proper resource allocation.
- Emphasizing expectation to minimize customized design changes.

Independent Assessment – Corrective Actions (continued)

- **CAP Improvements**
  - Instituted daily Management Review Meeting.
  - Upgraded station procedures now require:
    - » Root Causes to explore why previous corrective actions failed to prevent recurrence.
    - » Broadness Reviews for all equipment failures evaluated by an Apparent Cause investigation.
    - » Increased depth and breadth of Apparent and Root Causes.
    - » Additional cause determination technique called the Basic Cause Determination (BCD) for lower level conditions.
  - CAP Continuing Training module developed.

Performance Improvement

SNC's perspective:

- Overall quality of Cause investigations has improved, and focus on the CAP will foster continued improvement.

- Equipment Reliability improvement is occurring, and will remain a focus of the station.

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Todd Youngblood
Special Projects Manager

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Technical Review and Significance Determination

- Background of Unit 2 RHR MOV 8811A Valve Function Issue
- SNC Perspectives on Safety Significance Determination
  - Common Cause
  - Recovery Credit

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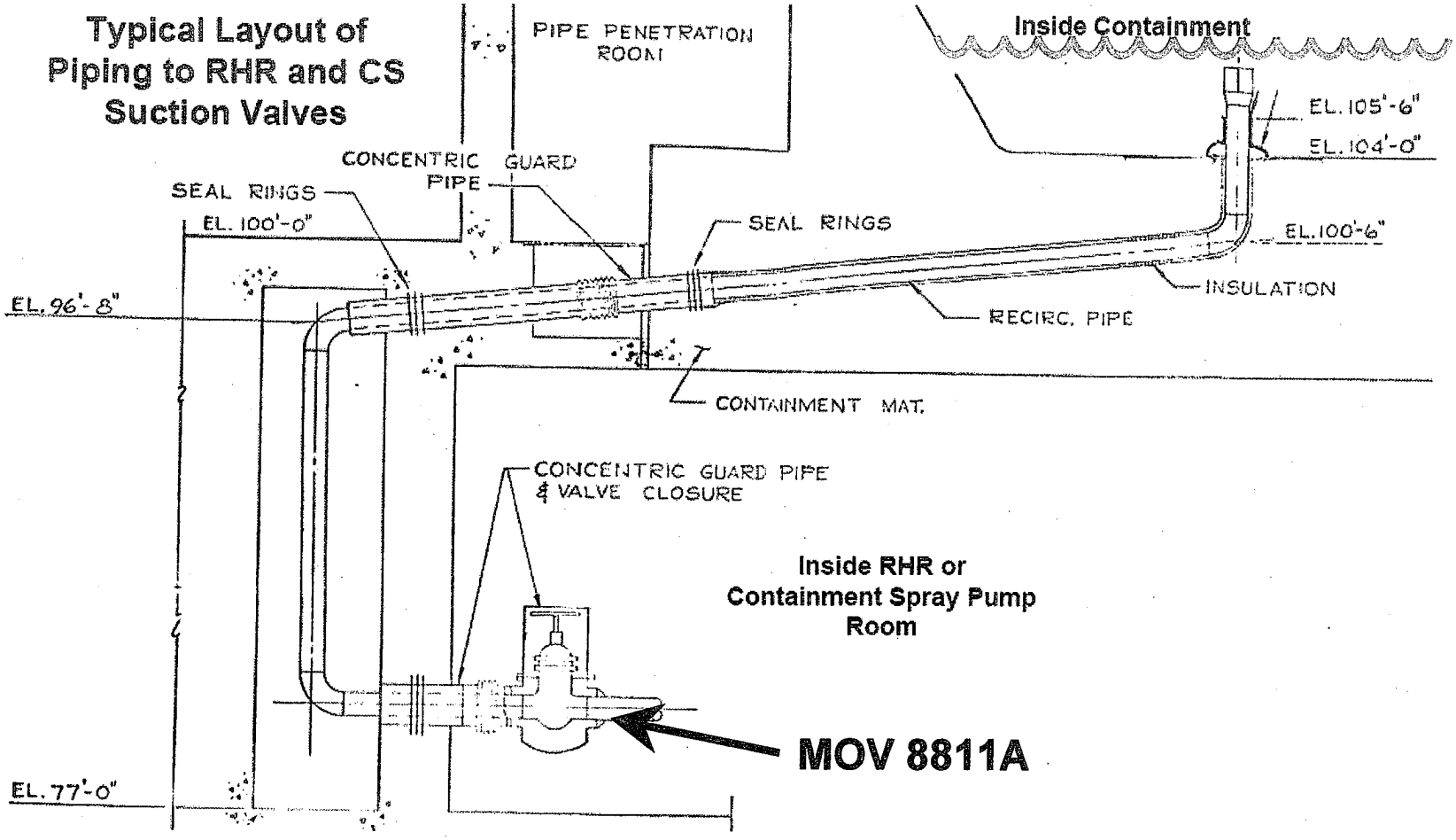
Typical Layout of Piping to RHR and CS Suction Valves



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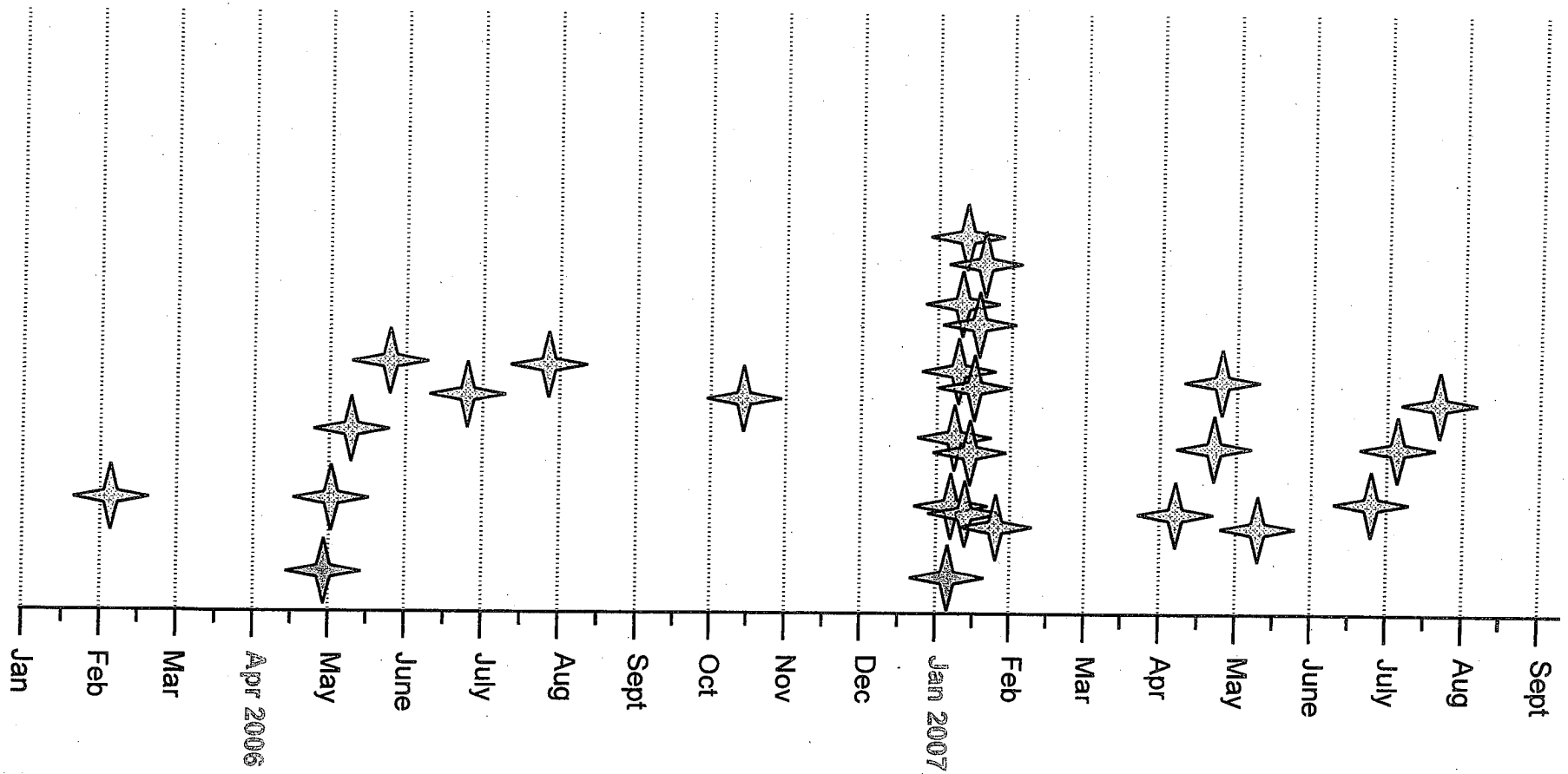
Unit 2 MOV 8811A Surveillance Testing

- April 29, 2006
  - Did not stroke fully open on first attempt.
  - Opened on the third attempt.
- January 5, 2007
  - Did not stroke fully open on first attempt.
  - Opened on the third attempt.

Technical Review – Timeline



U2 MOV 8811A Stroked Satisfactory

U2 MOV 8811A Failed to Stroke Full Open

Timeline not to scale

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April 29, 2006 – MOV 8811A Corrective Actions

- MOV diagnostic testing (MCC Testing)
  - Industry-accepted valve test methodology
  - Revealed no electrical or mechanical degradation of the valve / actuator
- Valve function checks
  - MOV 8811A stroked several times
  - Valve functioned per design
- Compensatory measures – increased surveillance frequency
  - Weekly for 1 month; monthly for 2 months; then returned to quarterly
  - All test results were satisfactory
- Apparent Cause determined to be oxidation on open torque switch contacts.
- Long-term planning initiated to open encapsulation and replace torque switch in next refueling outage.

January 5, 2007 – MOV 8811A Corrective Actions

- Opened encapsulation and electrically removed torque switch.
- Stroked valve several times and valve functioned per design.
- Inspected materiel condition of encapsulation and determined improvement warranted.
- Preliminarily determined most probable root cause to be corrosion induced failure of torque switch.
- Initiated planning to refurbish inside of Unit 2 encapsulations during upcoming April 2007 outage.

April 2007 Unit 2 Outage – Corrective Actions

- Physically removed MOV 8811A torque switch and sent it off-site for detailed evaluation.
- Implemented modification to adjust bypass setting of torque switch to approximately 95% on all four (4) encapsulated valves.
- Replaced both RHR MOV 8811A and 8811B motors and sent motors off-site for detailed evaluation.

April 2007 Unit 2 Outage – Corrective Actions (continued)

- Opened and inspected all four (4) encapsulation vessels.
- Improved materiel condition of the encapsulations.
- Initiated program to periodically assess moisture intrusion in encapsulations.
- Engaged outside engineering/original equipment manufacturer (OEM) support for continuing Root Cause evaluation.

Unit 1 Corrective Actions

- Increased stroke testing frequency to monthly.
- Opened and inspected material condition of all four (4) encapsulation vessels.
- Implemented modification to adjust torque switch bypass setting to approximately 95% on all four (4) encapsulated valves.
- Initiated planning to improve materiel condition of encapsulations in the next scheduled outage.
- Initiated program to periodically assess moisture intrusion in encapsulations.

Significance Determination

- Common Cause Adjustment
- Recovery Credit Adjustment
  - Available Recovery Paths
  - Performance Shaping Factors (PSF)

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Common Cause Adjustment

- Common Cause Adjustment **not** justified.
- **New information** and analyses developed from:
  - Continuing Root Cause evaluation
  - OEM evaluation of torque switch
  - Off-site Motor Repair Facility motor inspection
  - Third-party Engineering consultant technical review of common cause evaluation

Cause Evaluation

- Torque switch was stopping valve motion because Torque switch open-side contact bar hanging up.
- OEM determined high relative humidity in encapsulation not sole cause of valve function issue.
  - Valve Actuator is capable of functioning in high humidity conditions for an extended period (years).
  - OEM experience is valve actuators are currently in service in many locations where high humidity conditions are present.
- Motor facility inspection identified no corrosion in motors that would have prevented valve function.

Significance Determination

Cause Evaluation (continued)

- Identified failure mechanisms:
  - Hammerblow effect of opening valve
  - OEM-identified contact guide pitting

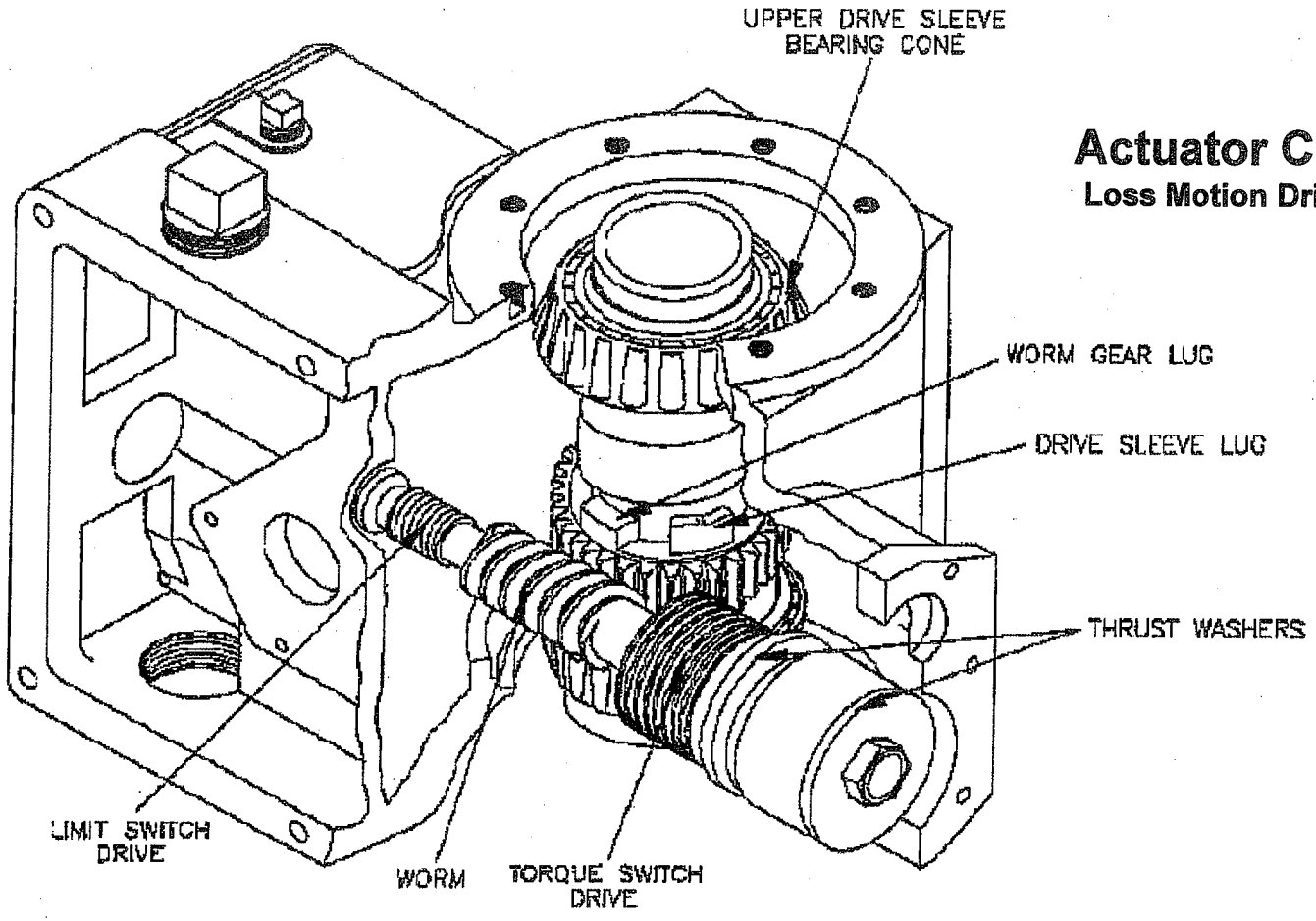
- **Bottom line:** Identified failure mechanisms, acting in concert, caused Unit 2 MOV 8811A valve function issue, and are not associated with other encapsulated valves.

Common Cause Adjustment

- Unit 2 MOV 8811A has a unique actuator configuration and operational response.

- Unit 2 MOV 8811B and all other encapsulated valves on both units have a different actuator configuration, and do not experience the hammerblow effect.

MOV Gear Box Cutaway – Loss Motion Drive



Actuator Cutaway

Loss Motion Drive Sleeve

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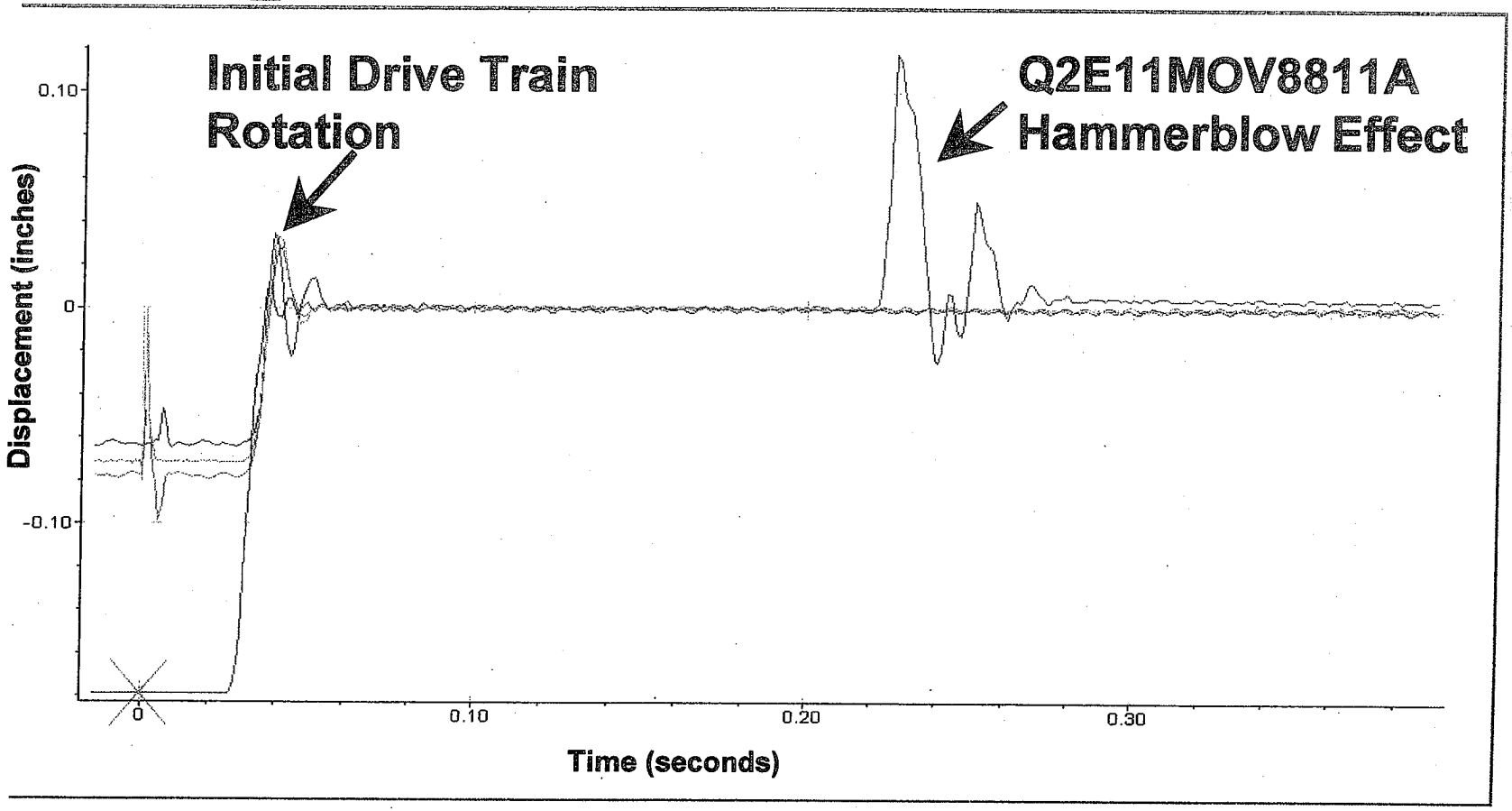
Torque Switch Displacement – Hammerblow



MOV 8811A as compared to MOVs 8811B, 8812A and 8812B open spring pack displacement.

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Common Cause - Conclusion

- Root cause is Hammerblow forces placed on the torque switch, in concert with pitted area on the contact guide.
- Unit 2 MOV 8811A has a unique actuator configuration and operational response, as compared to Unit 2 MOV 8811B and all other encapsulated valves on both units.
- No motor degradation other than ordinary wear identified.
- Therefore, the other RHR Train suction Valve (MOV 8811B) would not be affected by a Common Cause.

Human Reliability Assessment - Recovery Credit

- Multiple Recovery Paths Available.
- More Credit for Operator Action Warranted.
- More Appropriate Values for Performance Shaping Factors.

Recovery Credit – Paths

- Assessment of the probability for recovery needs to consider the multiple recovery paths available.

- Possible recovery paths Control Room Team may use to recover from a LOCA requiring use of RHR:

  - Transition to Normal RHR
  - Opening of MOV 8811A using Multiple Strokes
  - Starting of A-RHR Pump with MOV 8811A in Mid-Position

Transition to Normal RHR

- Current FNP PRA model does not include transition to Normal RHR as a success path for SBLOCA, and thus this recovery path was not considered in NRC's significance determination.
- FNP Emergency Response Procedures expect operators to utilize Normal RHR to mitigate an SBLOCA.
- Transitioning to Normal RHR precludes use of recirculation.
- This recovery path decreases the risk significance.

Opening of MOV 8811A using Multiple Strokes

- Operators have the ability to stroke the valves multiple times.
- Engineering Evaluation determined that the valve is capable of being partially stroked open and closed 6 times, back-to-back, and fully opened a 7th time.
- Therefore, the Control Room Team would be able to repeatedly stroke the MOV to ensure that it reached a full open position.
- The occurrences of April 2006 and January 2007 demonstrate that the FNP Control Room Team would attempt multiple strokes of the A-Train RHR MOV.

Starting A-RHR Pump with MOV 8811A in Mid-Position

- If LOCA event required the unit to go on recirculation flow, the Control Room Team would be led by procedure to use B-Train RHR.
- If the B-Train RHR was not available, the Control Room Team would take the necessary actions to ensure flow to the reactor core by starting the A-Train RHR pump.
- Operability Assessment has been revised to show that, even with the suction valve not fully open, the A-Train RHR pump would have provided adequate flow.

Recovery Credit – Performance Shaping Factors

- NRC assigned negative credit to several performance shaping factors (PSF) in its Human Reliability Assessment, including:
  - Complexity
  - Experience and Training
  - Procedures
- SNC is providing the below information on these three (3) factors to support more appropriate values for "Recovery Credit."

Performance Shaping Factors
Value Assignment

PSF	NRC Basis		SNC Position	
	Factor	Assumption	Factor	Assumption
Complexity	2	Moderately Complex	1	Nominal
Experience and Training	10	Low	1	Nominal
Procedures	5	Available but Poor	1	Nominal

PSF Definitions – Complexity

- **"Moderately Complex"**
  - "somewhat difficult to perform. There is some ambiguity in what needs to be diagnosed or executed. Several variables are involved, perhaps with some concurrent diagnoses or actions (i.e., evolution performed periodically with many steps);"

- **"Nominal"**
  - "not difficult to perform. There is little ambiguity. Single or few variables are involved."

Recovery Credit – Complexity

- "Not difficult to perform. There is little ambiguity. Single or few variables are involved."
  - Single variable = MOV 8811A valve position.
  - Diagnosis of an appropriate recovery action is simple.
  - SNC operators are experienced and highly trained to take the necessary actions to ensure RHR flow to the reactor core.
- **Therefore, SNC believes a "Nominal" value of "1" is more appropriate for this factor.**

PSF Definitions – Experience / Training

- **"Low"**
  - "less than 6 months experience and/or training. This level of experience/training does not provide the level of knowledge and deep understanding required to adequately perform the required tasks; does not provide adequate practice in those tasks; or does not expose individuals to various abnormal conditions."

- **"Nominal"**
  - "more than 6 months experience and/or training. This level of experience/training provides an adequate amount of formal schooling and instruction to ensure that individuals are proficient in day-to-day operations and have been exposed to abnormal conditions."

Recovery Credit – Experience/Training

- "more than 6 months experience and/or training . . . ."
  - Prior to entering Licensed Operator Training:
    - » RO candidates are required to have a minimum of **6 months** experience as a System Operator at FNP.
    - » SRO candidates are required to have **3 years** of nuclear power experience with at least 6 months at FNP.
  - Both RO and SRO candidates receive **18 months** of intensive training, including a minimum of 520 hours of on-the-job training and a minimum of 280 hours of simulator training in normal and abnormal operations.

Recovery Credit – Experience/Training (continued)

- In addition, the overall training and experience of the entire Control Room Team must be taken into account in assessing available experience for responding to plant conditions.
  - As of April 2006, members of the least experienced Control Room Team had an average of nine (9) years licensed experience.
- Control Room Team communication and team work is emphasized in Initial and Continuing Training, and evaluated during Simulator Training exercises.
- Therefore, SNC believes a "Nominal" value of "1" is more appropriate for this factor.

PSF Definitions – Procedures

- **"Available, but Poor"**
  - "a procedure is available but it is difficult to use because of factors such as formatting problems, ambiguity, or such a lack in consistency that it impedes performance."

- **"Nominal"**
  - "procedures are available and enhance performance."

- Better than Nominal credit is warranted "...if either diagnostic procedures (which assist in determining probable cause) or symptom-oriented procedures (which maintain critical safety functions) are used, there is less probability that human error will lead to a negative consequence."

Recovery Credit – Procedures

- **"procedures are available and enhance performance."**
  - FNP Operators have and are trained to follow detailed Emergency Response Procedures.
  - These procedures are based upon the Westinghouse Owners Group (WOG) Emergency Response Guidelines.
  - The WOG Guidelines are symptom-oriented and are recognized as the industry standard.
  - Key FNP Emergency Response Procedures include:
    - » FNP-2-ESP-1.3, Transfer to Cold Leg Recirculation
    - » FNP-2-ECP-1.1, Loss of Emergency Coolant Recirculation
- SNC believes that a "Nominal" rating of "1" or better is more appropriate for this factor.

Recovery Credit – Conclusion

- There are multiple recovery paths available to the Control Room Team.
- SNC has high confidence that the Control Room Team would diagnose plant conditions and take appropriate actions, based on procedures, experience and training.

Performance Shaping Factors
Value Assignment

PSF	NRC Basis		SNC Position	
	Factor	Assumption	Factor	Assumption
Complexity	2	Moderately Complex	1	Nominal
Experience and Training	10	Low	1	Nominal
Procedures	5	Available, but Poor	1	Nominal

Randy Johnson
Site Vice President

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Summary and Conclusion

- The new Common Cause and Recovery Credit information and analyses bear directly on the NRC's preliminary significance determination.

- Based on this new information and analyses, SNC believes the April 2006 and January 2007 occurrences do not have "substantial safety significance."

- SNC requests that the safety significance of this Preliminary Finding be re-evaluated, based on no Common Cause and revised Recovery Credit.

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