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

September 18, 2006

EA-06-132

Southern Nuclear Operating Company, Inc.
ATTN: Mr. D. E. Grissette, Vice President
P. O. Box 1295
Birmingham, AL 35201-1295

SUBJECT: FINAL SIGNIFICANCE DETERMINATION FOR A WHITE FINDING AND NOTICE OF VIOLATION (VOGTLE ELECTRIC GENERATING PLANT - NRC INSPECTION REPORT NOS. 05000424/2006011 AND 05000425/2006011)

Dear Mr. Grissette:

The purpose of this letter is to provide you with the Nuclear Regulatory Commission's (NRC) final significance determination for a finding involving the failure of Vogtle Electric Generating Plant's full-scale exercise critique to identify a weakness associated with a risk-significant planning standard (RSPS) which was determined to be a drill/exercise performance (DEP) - performance indicator (PI) opportunity failure. The finding was also determined to be an apparent violation associated with emergency preparedness planning standards 10 CFR 50.47(b)(14) and 10 CFR 50.47(b)(4) as well as the requirements of 10 CFR Part 50, Appendix E, Section IV.F.2.g. The finding was documented in NRC Integrated Inspection Report Nos. 5000424/2006009 and 5000425/2006009 issued on June 20, 2006, and was assessed under the significance determination process as a preliminary White issue (i.e., an issue of low to moderate safety significance which may require additional NRC inspection).

The cover letter to the inspection report informed Southern Nuclear Operating Company, Inc., (SNC) of the NRC's preliminary conclusion and provided SNC an opportunity to request a regulatory conference on this matter. SNC chose to attend a regulatory conference which was held in the NRC's Region II Office on July 26, 2006. The enclosures to this letter provide the list of attendees and the information presented by SNC at the regulatory conference. SNC also submitted supplemental information on July 27 and July 31, 2006, in support of its presentation at the conference.

During the conference, SNC stated its disagreement with the NRC's conclusion that the issue resulted in a preliminary White finding. In summary, SNC contended that the Emergency Director (ED) made a correct decision to classify and declare a Site Area Emergency (SAE) during the exercise and that this decision was based on the applicable symptom-based procedures and emergency plans. Independent of the ED's evaluation, SNC noted that the operating crew and SNC's drill controllers also confirmed the ED's conclusion that the symptoms were such that the reactor coolant system barrier was potentially failed. During the conference and in its supplemental information of July 31, 2006, SNC took issue with the NRC's statements and inferences that the ED's emergency declaration was made without verifying and

validating that the subject criteria had been met. SNC stated that to do so would have necessitated the ED to diagnose the event through verification and validation methods using indications other than those prescribed by the procedure which would be contrary to NRC guidance. SNC provided substantial additional information at the conference and in its supplemental responses to support its contention that the ED made a correct decision to classify and declare an SAE during the exercise.

After carefully considering the information developed during the inspection, the information provided by SNC at the conference, and SNC's supplemental information, the NRC has concluded that the final inspection finding is appropriately characterized as White in the Emergency Preparedness cornerstone. The NRC's response to the major points made by SNC and the bases for our conclusions are provided in an enclosure to this letter. In summary, the NRC concluded that SNC's SAE event classification during the exercise was an inaccurate classification. SNC's critique failed to identify that the SAE declaration was made using emergency action levels (indications) that were not exceeded at the time of the declaration. Based on this and in accordance with NRC Inspection Manual Chapter 0609, Appendix B, Emergency Preparedness Significance Determination Process, the NRC has concluded that the significance of the finding is appropriately characterized as White.

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

The NRC also has determined that SNC's failure to identify the above weakness during its exercise critique is a violation of 10 CFR 50.47(b)(14), 10 CFR 50.47(b)(4), and 10 CFR Part 50, Appendix E, Section IV.F.2.g. The violation is cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding the violation are described in detail in the subject inspection report. In accordance with the NRC Enforcement Policy, the Notice of Violation is considered escalated enforcement action because it is associated with a White finding.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

For administrative purposes, this letter is issued as a separate NRC Inspection Report, No. 05000424, 425/2006011, and the above violation is identified as VIO 05000424, 425/2006011-01, White Finding Involving Failure to Identify a Weakness During an Emergency Exercise Critique Associated with an RSPS. Accordingly, Apparent Violation AV 05000424, 425/2006009-01 is closed.

Because plant performance for this issue has been determined to be in the regulatory response band, 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.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the

NRC Public Document Room or from the NRC's document system (ADAMS) which is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, any response should not include any personal privacy, proprietary, classified, or safeguards information so that it can be made available to the public without redaction. The NRC also includes significant enforcement actions on its Web site at www.nrc.gov; select **What We Do, Enforcement,** then **Significant Enforcement Actions**.

Should you have any questions regarding this letter, please contact Mr. Brian Bonser, Chief, Security and Emergency Preparedness Branch, Division of Reactor Safety, at (404) 562-4653.

Sincerely,

Victor M. McCree for

William D. Travers
Regional Administrator

Docket Nos. 50-424, 50-425
License Nos. NPF-68, NPF-81

Enclosures:
1. Notice of Violation
2. List of Attendees
3. SNC Presentation Material
4. Basis for NRC's Final Significance Determination

cc w/encls: (See page 4)

cc w/encls:
J. T. Gasser
Executive Vice President
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

T. E. Tynan
General Manager, Plant Vogtle
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

N. J. Stringfellow
Manager-Licensing
Southern Nuclear Operating Company, Inc.
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Office of the County Commissioner
Burke County Commission
Waynesboro, GA 30830

Director, Department of Natural Resources
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Manager, Radioactive Materials Program
Department of Natural Resources
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Arthur H. Domby, Esq.
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Municipal Electric Authority
of Georgia
Electronic Mail Distribution

Reece McAlister
Executive Secretary
Georgia Public Service Commission
244 Washington Street, SW
Atlanta, GA 30334

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Should you have any questions regarding this letter, please contact Mr. Brian Bonser, Chief, Security and Emergency Preparedness Branch, Division of Reactor Safety, at (404) 562-4653.

Sincerely,

/RA: Victor M. McMcree for/

William D. Travers
Regional Administrator

Docket Nos. 50-424, 50-425
License Nos. NPF-68, NPF-81

Enclosures:
1. Notice of Violation
2. List of Attendees
3. SNC Presentation Material
4. Basis for NRC's Final Significance Determination

cc w/encls: (See page 4)

(*) - See previous pages for concurrences

X☐ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X☐ NON-SENSITIVE

ADAMS: X ☐ Yes ACCESSION NUMBER:_

OFFICE	RII:EICS	RII:DRS	NSIR	OE	RII:ORA	RII:ORA
SIGNATURE	*	*	*	*		
NAME	EVANS	MCCREE	KAHLER	SOLORIO	LPLISCO	WTRAVERS
DATE	08/28/2006	08/25/2006	09/05/06	09/07/06	09/ /2006	09/ 2/006
E-MAIL COPY?	YES NO	YES NO	YES NO			

OFFICIAL RECORD COPY DOCUMENT NAME: J:\EA-06-132 Vogtle HQs CLEAN.wpd

Distribution w/encls:
L. Reyes, EDO
J. Dyer, NRR
W. Borchardt, NRR
L. Chandler, OGC
J. Moore, OGC
E. Julian, SECY
D. Decker, OCA
Enforcement Coordinators
RI, RIII, RIV
E. Hayden, OPA
G. Caputo, OI
H. Bell, OIG
C. Carpenter, NRR
R. Pascarelli, NRR
C. Carpenter, OE
L. Trocine, OE
L. Plisco, RII
V. McCree, RII
H. Christensen, RII
C. Casto, RII
J. Shea, RII
S. Shaeffer, RII
B. Bonser, RII
G. McCoy, RII
S. Sparks, RII
C. Evans, RII
R. Hannah, RII
K. Clark, RII
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X☐ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X☐ NON-SENSITIVE

ADAMS: X ☐ Yes ACCESSION NUMBER:_

OFFICE	RII:EICS	RII:DRS	OE	NSIR	RII:ORA	RII:ORA
SIGNATURE	Cye w/changes					
NAME	EVANS	MCCREE VM			LPlisco	WTRAVERS
DATE	6/28/06				8/ /06	8/ /06
E-MAIL COPY?	YES NO	YES NO	YES NO			

OFFICIAL RECORD COPY DOCUMENT NAME: M:\ENFORCE\06Cases\132Vogtle\Vogtle final.wpd

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Via email from L. Trocine

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ADAMS: X ☐ Yes ACCESSION NUMBER:_

OFFICE	RII:EICS	RII:DRS	NSIR	OE		
SIGNATURE						
NAME	EVANS	MCCREE	KAHLER	SOLORIO		
DATE			09/05/06	09/07/06		
E-MAIL COPY?	YES NO	YES NO	YES NO			

OFFICIAL RECORD COPY DOCUMENT NAME: M:\ENFORCE\06Cases\132Vogtle\EA-06-132 Vogtle HQs CLEAN.wpd

cc w/encls:
J. T. Gasser
Executive Vice President
Southern Nuclear Operating Company, Inc.
Electronic Mail Distribution

T. E. Tynan
General Manager, Plant Vogtle
Southern Nuclear Operating Company, Inc.
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N. J. Stringfellow
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Manager, Radioactive Materials Program
Department of Natural Resources
Electronic Mail Distribution

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Oglethorpe Power Corporation
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Resident Manager
Oglethorpe Power Corporation
Alvin W. Vogtle Nuclear Plant
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Arthur H. Domby, Esq.
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Senior Engineer - Power Supply
Municipal Electric Authority
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G. McCoy, RII
S. Sparks, RII
C. Evans, RII
R. Hannah, RII
K. Clark, RII
PUBLIC
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NOTICE OF VIOLATION

Southern Nuclear Operating Company, Inc.
Vogtle Electric Generating Plant
Units 1 and 2

Docket Nos. 50-424 and 50-425
License Nos. NPF-68 and NPF-81
EA-06-132

During an NRC inspection completed on June 20, 2006, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

> 10 CFR 50.47(b)(4) requires, in part, that a standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee; and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.
>
> 10 CFR 50.47(b)(14) requires, in part, that periodic exercises be conducted to evaluate major portions of emergency response capabilities and deficiencies identified as a result of exercises be corrected.
>
> 10 CFR Part 50, Appendix E, Section IV.F.2.g, requires that all training, including exercises, shall provide for formal critiques in order to identify weak or deficient areas that need correction. Any weaknesses or deficiencies that are identified shall be corrected.
>
> Contrary to the above, the licensee's formal critique of an emergency preparedness exercise conducted on March 22, 2006, failed to identify weak or deficient areas. Specifically, the exercise critique failed to identify that the Emergency Director's Site Area Emergency event classification was an incorrect classification.
>
> This violation is associated with a White significance determination process finding for Units 1 and 2 in the Emergency Preparedness cornerstone.

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 of Violation (Notice) within 30 days of the date of the letter transmitting this Notice. This reply should be clearly marked as a "Reply to a Notice of Violation; EA-06-132" 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, U.S. 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 2 working days.

Dated this 18th day of September 2006

LIST OF ATTENDEES

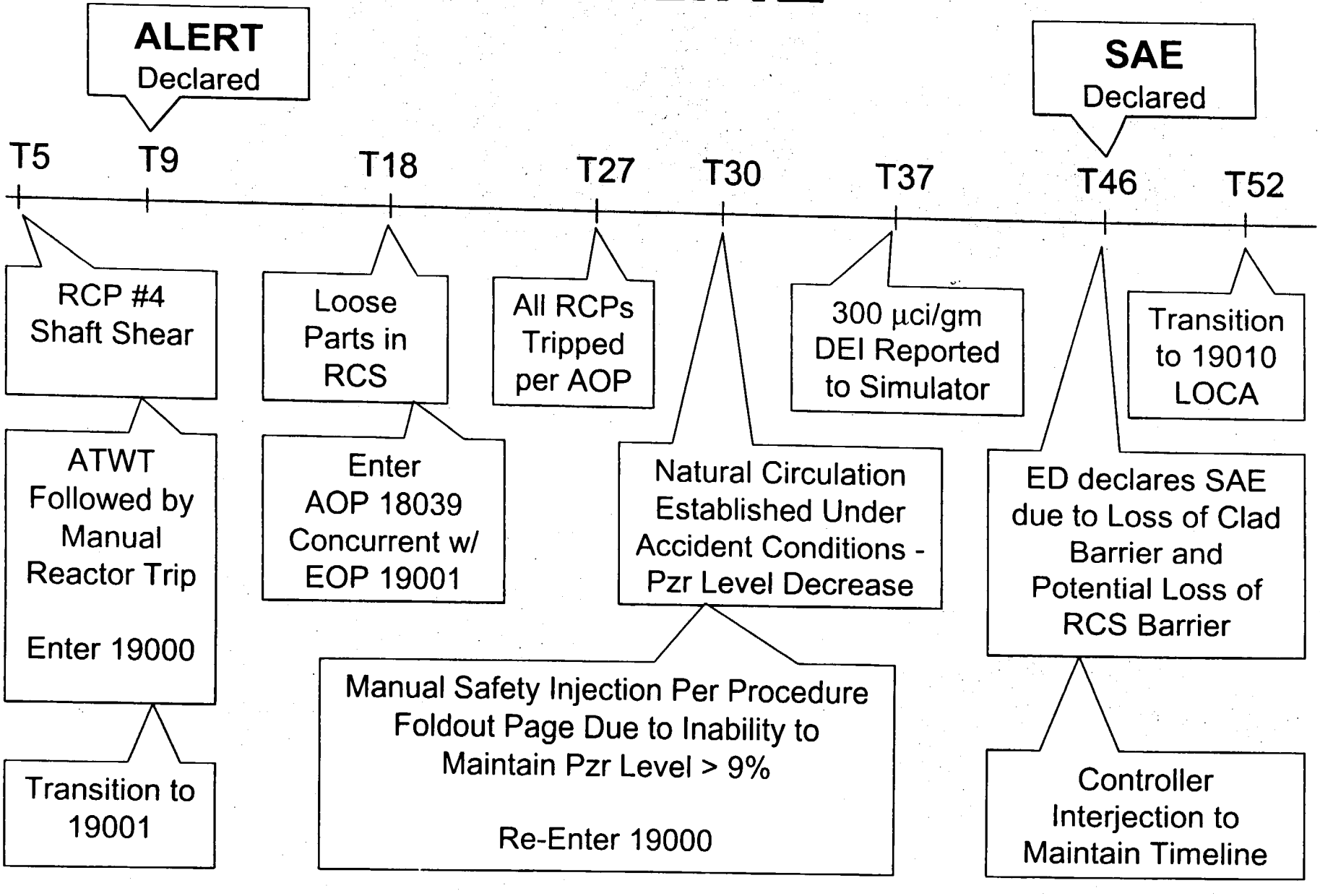
Nuclear Regulatory Commission:

L. Plisco, Deputy Regional Administrator
H. Christensen, Deputy Director, Division of Reactor Safety (DRS)
B. Bonser, Chief, Plant Support Branch 2, DRS
S. Shaeffer, Chief, Reactor Projects Branch 2, Division of Reactor Projects
L. Miller, Senior Emergency Preparedness Inspector, DRS
J. Kreh, Emergency Preparedness Inspector, DRS
R. Kahler, Office of Nuclear Security and Incident Response (NSIR)
E. Robinson, NSIR
C. Evans, Enforcement Officer and Regional Attorney
S. Sparks, Senior Enforcement Specialist, Region II
L. Trocine, Office of Enforcement

Southern Nuclear Operating Company, Inc.

D. Grissette, Vice President - Vogtle Project
T. Tynan, General Manager - Plant Vogtle
N. Stringfellow, Manager - Licensing
B. George, Manager - Nuclear Licensing
A. Thornhill, Managing Attorney and Compliance Manager
D. Burford, Manager - Fleet Security and Emergency Preparedness
R. Brown, Training and Emergency Preparedness Manager - Plant Vogtle
W. Lee, Corporate Emergency Preparedness Manager
L. Mayo, Site Emergency Preparedness Coordinator
P. Rushton, Nuclear Support General Manager
R. Masse, Resident Manager - Oglethorpe Power Company

TIMELINE


ALERT
Declared
SAE
Declared
T5
T9
T18
T27
T30
T37
T46
T52
RCP #4
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ATWT
Followed by
Manual
Reactor Trip
Enter 19000
Transition to
19001
Loose
Parts in
RCS
Enter
AOP 18039
Concurrent w/
EOP 19001
All RCPs
Tripped
per AOP
Natural Circulation
Established Under
Accident Conditions -
Pzr Level Decrease
Manual Safety Injection Per Procedure
Foldout Page Due to Inability to
Maintain Pzr Level > 9%
Re-Enter 19000
300 µci/gm
DEI Reported
to Simulator
ED declares SAE
due to Loss of Clad
Barrier and
Potential Loss of
RCS Barrier
Controller
Interjection to
Maintain Timeline
Transition
to 19010
LOCA

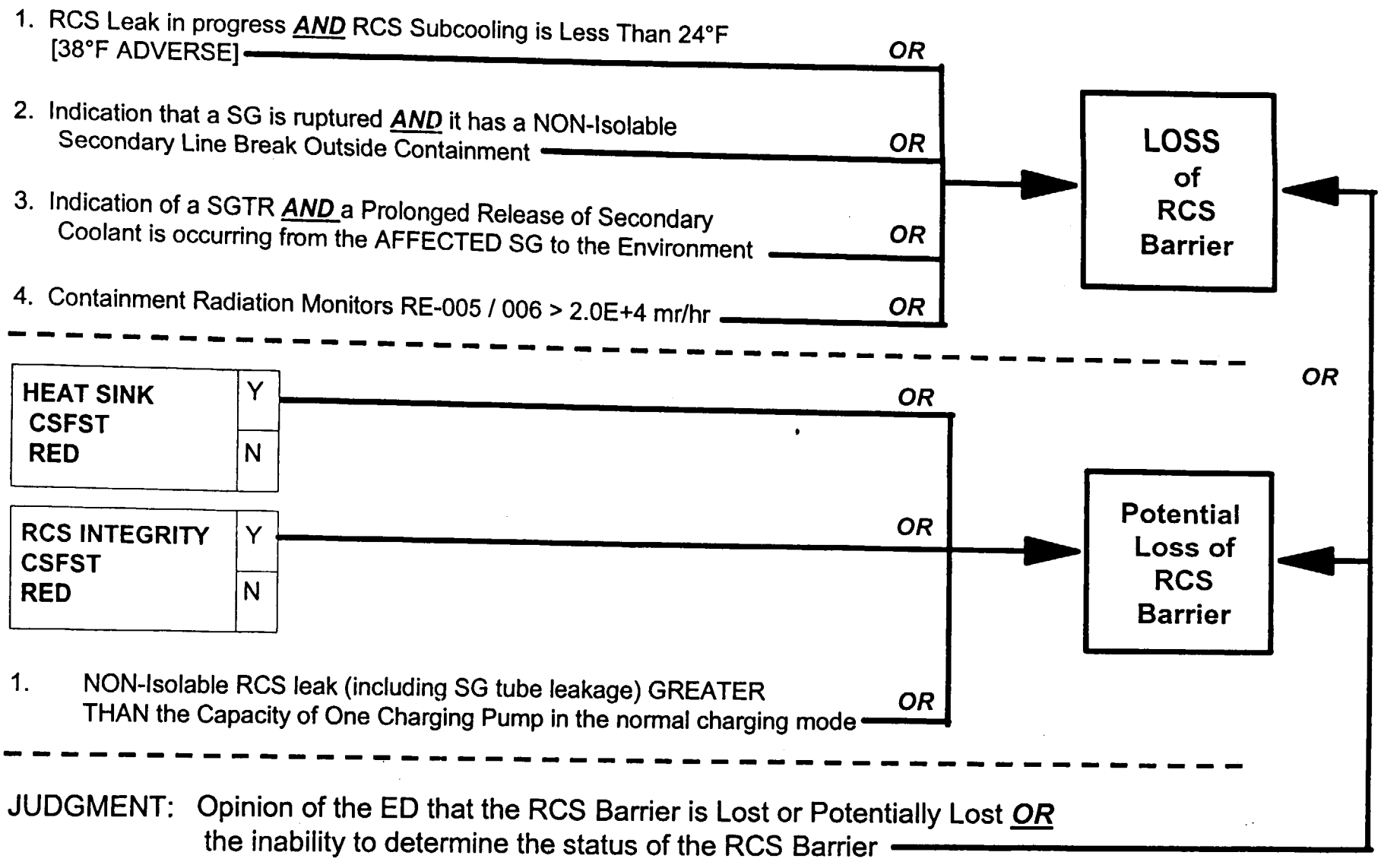


FIGURE 2 - REACTOR COOLANT SYSTEM (RCS) INTEGRITY

Continuous Use

DATA SHEET 1
CLASSIFICATION DETERMINATION

NOTE

CSFST parameters should be allowed to stabilize and accurately represent plant conditions prior to classifying an event.

1. Considering events which are in progress, past events, and their impact on current plant conditions, evaluate the status of the fission product barriers.

NOTE

A situation could occur in which the loss or potential loss of one or more barriers has not yet happened, but appears to be IMMINENT (i.e.., likely to occur within 2 hours). In this situation, classify the event AS IF the loss or potential loss of the barrier has already occurred.

a.	Fuel Cladding Integrity (See Figure 1)	☐ LOSS	☐ POTENTIAL LOSS	☐ INTACT
b.	Reactor Coolant System Integrity (See Figure 2)	☐ LOSS	☐ POTENTIAL LOSS	☐ INTACT
c.	Containment Integrity (See Figure 3)	☐ LOSS	☐ POTENTIAL LOSS	☐ INTACT

2. Use Figure 4, evaluate and determine the highest emergency classification level based on events which are in progress, considering past events, and their impact on current plant conditions.

Check ☑ One:

- ☐ Notification Of Unusual Event
- ☐ Alert
- ☐ Site Area Emergency
- ☐ General Emergency

Comments: _____

_____

3. Maintain a log of the incident. (This may be delegated).

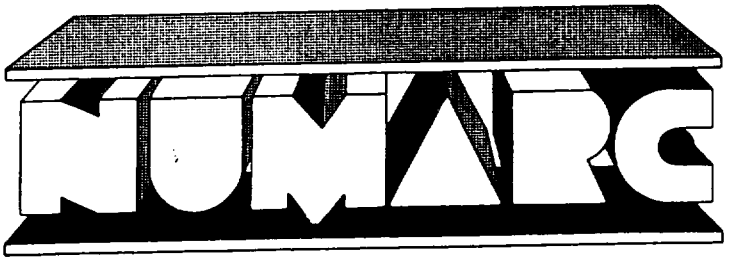
4. Assume the position of Emergency Director. (if not previously completed)

Signature: _____
Emergency Director

Date: ____/____/____

Time: _____

NUMARC/NESP-007
Revision 2



Methodology for Development of Emergency Action Levels

January 1992

Nuclear Management and
Resources Council, Inc.
1776 Eye Street, N.W.
Washington, DC 20006-3706

The (site-specific) value for the "Potential Loss" EAL corresponds to the top of the active fuel. For sites using CSFSTs, the "Potential Loss" EAL is defined by the Core Cooling - ORANGE path. The (site-specific) value in this EAL should be consistent with the CSFST value.

5. **Containment Radiation Monitoring**

The (site-specific) reading is a value which indicates the release of reactor coolant, with elevated activity indicative of fuel damage, into the containment. The reading should be calculated assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with a concentration of 300 μCi/gm dose equivalent I-131 into the containment atmosphere. Reactor coolant concentrations of this magnitude are several times larger than the maximum concentrations (including iodine spiking) allowed within technical specifications and are therefore indicative of fuel damage (approximately 2 - 5% clad failure depending on core inventory and RCS volume). This value is higher than that specified for RCS barrier Loss EAL #4. Thus, this EAL indicates a loss of both the fuel clad barrier and a loss of RCS barrier.

There is no "Potential Loss" EAL associated with this item.

6. **Other (Site-Specific) Indications**

This EAL is to cover other (site-specific) indications that may indicate loss or potential loss of the Fuel Clad barrier, including indications from containment air monitors or any other (site-specific) instrumentation.

7. **Emergency Director Judgement**

This EAL addresses any other factors that are to be used by the Emergency Director in determining whether the Fuel Clad barrier is lost or potentially lost. In addition, the inability to monitor the barrier should also be incorporated in this EAL as a factor in Emergency Director judgement that the barrier may be considered lost or potentially lost. (See also IC SG1, "Prolonged Loss or All Offsite Power and Prolonged Loss of All Onsite AC Power", for additional information.)

RCS BARRIER EXAMPLE EALs: (1 or 2 or 3 or 4 or 5 or 6)

The RCS Barrier includes the RCS primary side and its connections up to and including the pressurizer safety and relief valves, and other connections up to and including the primary isolation valves.

1. **Critical Safety Function Status**

This EAL is for PWRs using Critical Safety Function Status Tree (CSFST) monitoring and functional recovery procedures. For more information, please refer to Section 3.9 of this report. RED path indicates an extreme challenge to the safety function derived from appropriate instrument readings, and these CSFs indicate a potential loss of RCS barrier.

There is no "Loss" EAL associated with this item.

2. RCS Leak Rate

The "Loss" EAL addresses conditions where leakage from the RCS is greater than available inventory control capacity such that a loss of subcooling has occurred. The loss of subcooling is the fundamental indication that the inventory control systems are inadequate in maintaining RCS pressure and inventory against the mass loss through the leak.

The "Potential Loss" EAL is based on the inability to maintain normal liquid inventory within the Reactor Coolant System (RCS) by normal operation of the Chemical and Volume Control System which is considered as one centrifugal charging pump discharging to the charging header. In conjunction with the SG Tube Rupture "Potential Loss" EAL this assures that any event that results in significant RCS inventory shrinkage or loss (e.g., events leading to reactor scram and ECCS actuation) will result in no lower than an "Alert" emergency classification.

3. SG Tube Rupture

This EAL is intended to address the full spectrum of Steam Generator (SG) tube rupture events in conjunction with Containment Barrier "Loss" EAL 4 and Fuel Clad Barrier EALs. The "Loss" EAL addresses ruptured SG(s) with an unisolable Secondary Line Break corresponding to the loss of 2 of 3 fission product barriers (RCS Barrier and Containment Barrier - this EAL will always result in Containment Barrier "Loss" EAL 4). This allows the direct release of radioactive fission and activation products to the environment. Resultant offsite dose rates are a function of many variables. Examples include: Coolant Activity, Actual Leak Rate, SG Carry Over, Iodine Partitioning, and Meteorology. Therefore, dose assessment in accordance with IC AG1, "Site Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity that Exceeds 1000 mR Whole Body or 5000 mR Child Thyroid for the Actual or Projected Duration of the Release Using Actual Meteorology", is required when there is indication that the fuel matrix/clad is potentially lost.

(Site-specific) indication should be consistent with the diagnostic activities of the Emergency Operating Procedures (EOPs), if available. This should include indication of reduction in primary coolant inventory, increased secondary radiation levels, and an uncontrolled or complete depressurization of the ruptured SG. Secondary radiation increases should be observed via radiation monitoring of Condenser Air Ejector Discharge, SG Blowdown, Main Steam, and/or SG Sampling System. Determination of the "uncontrolled" depressurization of the ruptured SG should be based on indication that the pressure decrease in the ruptured steam generator is not a function of operator action. This should prevent declaration based on a depressurization that results from an EOP induced cooldown of the RCS that does not involve the prolonged release of contaminated secondary coolant from the affected SG to the environment. This EAL should encompass steam breaks, feed breaks, and stuck open safety or relief valves.

The "Potential Loss" EAL is based on the inability to maintain normal liquid inventory within the Reactor Coolant System (RCS) by normal operation of the Chemical and Volume Control System which is considered as one centrifugal charging pump discharging to the charging header. In conjunction with the RCS Leak Rate "Potential Loss" EAL this assures that

any event that results in significant RCS inventory shrinkage or loss (e.g., events leading to reactor scram and ECCS actuation) will result in no lower than an "Alert" emergency classification.

4. Containment Radiation Monitoring

The (site-specific) reading is a value which indicates the release of reactor coolant to the containment. The reading should be calculated assuming the instantaneous release and dispersal of the reactor coolant noble gas and iodine inventory associated with normal operating concentrations (i.e., within T/S) into the containment atmosphere. This reading will be less than that specified for Fuel Clad Barrier EAL #5. Thus, this EAL would be indicative of a RCS leak only. If the radiation monitor reading increased to that specified by Fuel Clad Barrier EAL #3, fuel damage would also be indicated.

However, if the site specific physical location of the containment radiation monitor is such that radiation from a cloud of released RCS gases could not be distinguished from radiation from nearby piping and components containing elevated reactor coolant activity, this EAL should be omitted and other site specific indications of RCS leakage substituted.

There is no "Potential Loss" EAL associated with this item.

5. Other (Site-Specific) Indications

This EAL is to cover other (site-specific) indications that may indicate loss or potential loss of the RCS barrier, including indications from containment air monitors or any other (site-specific) instrumentation.

6. Emergency Director Judgement

This EAL addresses any other factors that are to be used by the Emergency Director in determining whether the RCS barrier is lost or potentially lost. In addition, the inability to monitor the barrier should also be incorporated in this EAL as a factor in Emergency Director judgement that the barrier may be considered lost or potentially lost. (See also IC SG1, "Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power", for additional information.)

CONTAINMENT BARRIER EXAMPLE EALs: (1 or 2 or 3 or 4 or 5 or 6 or 7 or 8)

The Containment Barrier includes the containment building, its connections up to and including the outermost containment isolation valves. This barrier also includes the main steam, feedwater, and blowdown line extensions outside the containment building up to and including the outermost secondary side isolation valve.

1. Critical Safety Function Status

This EAL is for PWRs using Critical Safety Function Status Tree (CSFST) monitoring and functional recovery procedures. For more information, please refer to Section 3.9 of this report. RED path indicates an extreme challenge to the safety function derived from appropriate instrument readings and/or sampling results, and thus represents a potential loss of containment. Conditions leading to a containment RED path result from RCS

NUMARC

Methodology for Development of Emergency Action Levels
NUMARC/NESP-007 Revision 2

Questions and Answers

June 1993

Nuclear Management and
Resources Council
1776 Eye Street, N.W.
Suite 300
Washington, DC 20006-3706

5.	Since the radiation monitor used in the Fission Product Barrier Matrix are not direct indicators of the barriers, why include them when the declaration is based primarily on the other plant indicators, e.g., CSF status, temperatures, subcooling, etc.?
	As the text of the question states, the CHARM is not the primary indicator of the barrier failure. The CHARM EALs were included as indicators of fuel damage or RCS leakage in the interest of providing multiple indicators of a barrier failure. An elevated reading on the CHARM is indicative of an RCS leak at a minimum, and could be an indicator of fuel damage as well. These indicators would provide useful means of confirmation to one or more of the more direct indicators. Even if the numeric threshold on these indicators are not exceeded, their inclusion in the matrix helps insure that these potentially significant indicators are considered in Emergency Director judgment decisions.
6.	There is some confusion regarding the source term fractions discussed in some of the workshop slides. Are they applied against Gap Activity, or against Core Inventory?
	The source term fractions in question should be applied to Gap Activity.
7.	When reference is made to ODCM source terms, where are these actually documented? It doesn't appear that noble gases are being addressed in the early stages of the release.
	Generally, the ODCM will contain data tables providing the default source term. If not, the ODCM might contain a reference from which these data were obtained. Often these data were derived from tables in the facility's UFSAR or environmental report. For plants with FSARs that conform to the Standard Review Plan, Chapter 11 contains these tables. *Noble gases are expected to be addressed in the early stages of the release. The default ODCM or dose assessment source terms used for determining radiation monitor EALs would contain a mixture of noble gases, iodines, and some particulates. The Technical Specification valued used as a basis for monitor alarm setpoints is usually the instantaneous dose rate (500 mR/yr) from noble gases. The monitor response would include the contributions from all of the applicable nuclides. In this regard, it is important to note that a noble gas monitor can easily detect the emissions from iodine. If there are noble gas, particulate, and iodine monitoring channels available, the separate EALs could be developed for each.*

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
32. Check if RCS is intact inside Containment:	☐ 32. Go to 19010-C, E-1 LOSS OF REACTOR OR SECONDARY COOLANT.
☐ • Containment radiation - NORMAL	
☐ • Containment pressure - NORMAL	
☐ • Containment Emergency Recirculation Sump levels - NORMAL	
33. Check if ECCS flow should be reduced:	
☐ a. RCS Subcooling - GREATER THAN 24° F	☐ a. Go to Step 34.
b. Secondary Heat Sink:	☐ b. Go to Step 34.
☐ Total AFW flow to SGs - GREATER THAN 570 GPM	
-OR-	
☐ NR level in at least one SG - GREATER THAN 10%	
☐ c. RCS pressure - STABLE OR RISING	☐ c. Go to Step 34.
☐ d. PRZR level - GREATER THAN 9%	☐ d. Try to stabilize RCS pressure with Normal PRZR Spray. Return to Step 33a.
☐ e. Go to 19011-C, ES-1.1 SI TERMINATION.	
☐ 34. Initiate critical safety function status trees per 19200-C, F-0 CRITICAL SAFETY FUNCTION STATUS TREES.	
☐ 35. Initiate 91001-C, EMERGENCY CLASSIFICATION AND IMPLEMENTING INSTRUCTIONS.	

EOP STEP	ERG STEP	DEVIATION/JUSTIFICATION
31	23	Reworded main step to improve operator understanding and remove double not logic. See Generic SDD GEN0020. SG made plural to indicate that all four SGs should be checked. Added main steamline monitors as an additional RG 1.97 category 1A source for checking tube rupture. Added plant specific procedure for transition as an operator aid. Added plant specific instructions for sample valve operation for SG tube rupture diagnosis. More rad monitors were added for leakage/rupture evaluation and directions to check for uncontrolled level rise.
32	24	No significant deviation.
33	25	Deleted "based on core exit thermocouples". See Generic SDD GEN0018. Used equivalent component identification based on plant labels per the Writer's Guide.
34	26	No significant deviation.
35	N/A	Added step to initiate Emergency Plan procedures.
36	27	Reworded RNO a) to remove embedded logic per the NRC. Changed ERG setpoint of 50% to agree with plant specific generator levels. See Generic SDD GEN0002. Moved RNO substep b to AER substeps c and d to ensure Operator monitors for SG tube leakage.
N/A	28	Step not incorporated due to two previous steps checking for SG tube leakage.
37	29	Reworded step to give plant specific means to check for RCS leakage outside containment. Deleted outside containment - redundant since checked Aux. Bldg. This change still meets the intent of the ERG.
38	30	Normal PRT parameters and Attachment E were included as operator aid. Added RNO "IF THEN" because if there is still a loss of RCS inventory, this gives the operator guidance that he needs to transition to E-1.

STEP: Check If RCS Is Intact

PURPOSE: To identify any failure in the RCS pressure boundary into the containment

BASIS:

Abnormal containment radiation, pressure, or recirculation sump level is indicative of a high energy line break in containment. Since the SGs have been determined to be non-faulted in an earlier step, then the break must be in the reactor coolant system. For smaller size breaks containment pressure and recirculation sump level may not increase for a period of time; however, containment radiation would be apparent. Guideline E-1, LOSS OF REACTOR OR SECONDARY COOLANT, is used for breaks in the RCS.

ACTIONS:

- o Determine if containment radiation, pressure, and recirculation sump level are normal
- o Transfer to E-1, LOSS OF REACTOR OR SECONDARY COOLANT, step 1

INSTRUMENTATION:

- o Containment radiation indication
- o Containment pressure indication
- o Containment recirculation sump level indication

CONTROL/EQUIPMENT:

N/A

KNOWLEDGE:

"Normal" means the value of a process parameter experienced during routine plant operations.

PLANT-SPECIFIC INFORMATION:

N/A

FOLDOUT PAGE

1. SI ACTUATION CRITERIA

Actuate SI and go to Procedure 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION, if EITHER condition listed below occurs:

- RCS subcooling - LESS THAN 24°F.
- PRZR level - CANNOT BE MAINTAINED GREATER THAN 9%.

3. AFW SUPPLY SWITCHOVER CRITERION

Switch to alternate CST by initiating 13610, AUXILIARY FEEDWATER SYSTEM when CST level lowers to less than 15%.

NEI 99-02 Revision 3

Regulatory Assessment Performance Indicator Guideline

April 2005

Calculation

The site average values for this indicator are calculated as follows:

$$\left[\frac{\text{\# of timely \& accurate classifications, notifications, \& PARs from DE \& AEs * during the previous 8 quarters}}{\text{The total opportunities to perform classifications, notifications \& PARs during the previous 8 quarters}}\right] \times 100$$

*DE & AEs = Drills, Exercises, and Actual Events

Definition of Terms

Opportunities should include multiple events during a single drill or exercise (if supported by the scenario) or actual event, as follows:

- each expected classification or upgrade in classification
- each initial notification of an emergency class declaration
- each initial notification of PARs or change to PARs
- each PAR developed

Timely means:

- classifications are made consistent with the goal of 15 minutes once available plant parameters reach an Emergency Action Level (EAL)
- PARs are made consistent with the goal of 15 minutes once data is available.
- offsite notifications are initiated within 15 minutes of event classification and/or PAR development (see clarifying notes)

Accurate means:

- Classification and PAR appropriate to the event as specified by the approved plan and implementing procedures (see clarifying notes)
- Initial notification form completed appropriate to the event to include (see clarifying notes):
  - Class of emergency
  - EAL number
  - Description of emergency
  - Wind direction and speed
  - Whether offsite protective measures are necessary
  - Potentially affected population and areas
  - Whether a release is taking place
  - Date and time of declaration of emergency
  - Whether the event is a drill or actual event
  - Plant and/or unit as applicable

Clarifying Notes

While actual event opportunities are included in the performance indicator data, the NRC will also inspect licensee response to all actual events.

marks "actual" on the notification form. However, all notification forms must be marked consistently, either "drill" or "actual" in accordance with the requirements of the licensee's emergency preparedness program expectation. Not marking either drill or actual event (regardless of expectations) shall be a failed opportunity.

Some licensees have specific arrangements with their State authorities that provide for different notification requirements than those prescribed by the performance indicator, e.g., within one hour, not 15 minutes. In these instances the licensee should determine success against the specific state requirements.

For sites with multiple agencies to notify, the notification is considered to be initiated when contact is made with the first agency to transmit the initial notification information.

Simulation of notification to offsite agencies is allowed. It is not expected that State/local agencies be available to support all drills conducted by licensees. The drill should reasonably simulate the contact and the participants should demonstrate their ability to use the equipment.

Classification is expected to be made promptly following indication that the conditions have reached an emergency threshold in accordance with the licensee's EAL scheme. With respect to classification of emergencies, the 15 minute goal is a reasonable period of time for assessing and classifying an emergency once indications are available to control room operators that an EAL has been exceeded. Allowing a delay in classifying an emergency up to 15 minutes will have minimal impact upon the overall emergency response to protect the public health and safety. The 15-minute goal should not be interpreted as providing a grace period in which a licensee may attempt to restore plant conditions and avoid classifying the emergency.

If an event has occurred that resulted in an emergency classification where no EAL was exceeded, the incorrect classification should be considered a missed opportunity. The subsequent notification should be considered an opportunity and evaluated on its own merits.

During drill performance, the ERO may not always classify an event exactly the way that the scenario specifies. This could be due to conservative decision making, Emergency Director judgment call, or a simulator driven scenario that has the potential for multiple 'forks'. Situations can arise in which assessment of classification opportunities is subjective due to deviation from the expected scenario path. In such cases, evaluators should document the rationale supporting their decision for eventual NRC inspection. Evaluators must determine if the classification was appropriate to the event as presented to the participants and in accordance with the approved emergency plan and implementing procedures.

If the expected classification level is missed because an EAL is not recognized within 15 minutes of availability, but a subsequent EAL for the same classification level is subsequently recognized, the subsequent classification is not an opportunity for DEP statistics. The reason that the classification is not an opportunity is that the appropriate classification level was not attained in a timely manner.

Failure to appropriately classify an event counts as only one failure: This is because notification of the classification, development of any PARs and PAR notification are subsequent actions to classification. Similarly, if the same error occurs in follow-up notifications, it should only be considered a missed opportunity on the initial notification form.

Posting Date 04/01/2000 ***ID*** 125
Topic
Question For the purpose of establishing success criteria for the EP DEP PI, how many 15-minute periods could there be for the example situation of a plant initially reaching a General Emergency?
Response The licensee should classify an emergency once the data is available. The licensee should take a prudent approach and not delay classification due to uncertainty. Once the data is available the licensee should classify the event (NUE, Alert, Site Area, or General Emergency) and PAR within 15 minutes. Expectations are that you assess and classify the situation within 15 minutes. If you were done in 5 you should not wait the remaining 10 minutes. The call to the offsite emergency response organizations should be initiated during the next 15-minute time frame. Any changes to classification or PARs should reflect the same 15 minute sequence. Hence there are two 15 minute time frame goals:(1) to determine the classification and PAR, and(2) to initiate notifications to the offsite emergency response agency.

Posting Date 11/11/1999 ***ID*** 41
Topic
Question How should performance be evaluated when drill participants properly declare an emergency classification that the scenario did not anticipate?
Response The opportunity may be counted as a success, However, a corrective action should be written against the scenario (or the scenario development process). Another aspect of the same issue is that if a classification is missed that was not anticipated by the scenario, it too should be counted, but as a missed opportunity.

Posting Date 11/11/1999 37
Topic
Question During drill performance, the ERO may not always classify an event exactly the way that the scenario
specifies. This could be due to conservative decision making, Emergency Director judgment call, or a simulator driven scenario that has the potential for multiple 'forks'. How does the program deal with these correct classification determinations that may not follow the path the evaluators were expecting?
Response The NRC realizes that such situations can arise and that the acceptability of the classification may be
subjective. In such cases, evaluators should document the rationale supporting their decision for eventual NRC inspection. However, as specified in NEI 99-02, in evaluating the acceptability of the classification, the evaluators have to determine if the classification was appropriate to the event as specified by the approved emergency plan and implementing procedures.

2.1 Definitions

Note: Defined terms (listed in alphabetical order) are capitalized throughout the text of this appendix.

(a) CRITIQUE: For the purposes of this SDP, all formal or documented assessments of a drill or exercise containing PI opportunities.

(b) CRITIQUE PROBLEM: Indicates that a CRITIQUE did not identify a drill or exercise WEAKNESS. A finding in this area means that licensee evaluators failed to identify a WEAKNESS in a drill or exercise.

(c) DEGRADATION OF THE RSPS FUNCTION: PROGRAM ELEMENTS are not adequate or are noncompliant, but the function of the RSPS, although degraded, is still met. It may be that (1) certain Plan commitments are not met, (2) the Plan is less than adequate, (3) implementing procedures are not effective, or (4) the program design is not fully adequate; however, if the PROGRAM ELEMENT is implemented as designed, it would meet the intended function of the RSPS. DEGRADATION OF THE RSPS FUNCTION has been incorporated into the EP SDP to allow an intermediate level of significance (i.e., a white finding rather than yellow) to be determined, where appropriate. Sections 4.4, 4.5, 4.9, and 4.10 of this Appendix present examples of DEGRADATION OF THE RSPS FUNCTION for each RSPS.

(d) FAILURE TO COMPLY: A program is noncompliant with a REGULATORY REQUIREMENT.

(e) FAILURE TO IMPLEMENT: FAILURE TO COMPLY with REGULATORY REQUIREMENTS during an actual event in which the failure precluded effective *implementation* of PROGRAM ELEMENTS. Most likely, the failure is a result of a performance problem. In this case, the PROGRAM ELEMENT is adequate as designed and, if implemented as designed, the program would meet the PS FUNCTION. However, a FAILURE TO IMPLEMENT is not always a result of a performance problem and may, in fact, reveal that a PROGRAM ELEMENT is not adequate. In this case, inspection is appropriate to determine whether there is a LOSS OF PS FUNCTION. Resulting issues would be assessed for significance IAW the criteria for a LOSS OF PS FUNCTION.

(f) FULL-SCALE DRILL OR EXERCISE: Multiple Emergency Response Facilities (ERFs) participating or simulated with a team of evaluators. A FULL-SCALE DRILL OR EXERCISE is not limited to the evaluated biennial exercise.

(g) INSPECTION CYCLE: The period of time between, and including, sequential biennial evaluated exercises.

(h) LOSS OF PLANNING STANDARD FUNCTION: PROGRAM ELEMENTS are not adequate, not compliant with the PSs of 10 CFR 50.47(b), or otherwise not functional to such an extent that the function of the PS is not available for emergency response. It may be that the Plan commitments are not met or are

inadequate, implementing procedures are inadequate, program design is inadequate, training is inadequate, etc. The result is that if the suspect PROGRAM ELEMENT was implemented as designed, or personnel are not capable of implementing the PROGRAM ELEMENT, the PS FUNCTION would not be met.

(i) PLANNING STANDARD FUNCTION: Defined for each PS, the function does not restate the regulations, but rather identifies the significant function of the PS. All regulations must be complied with, but a LOSS OF PS FUNCTION may have greater significance than a failure to meet other REGULATORY REQUIREMENTS.

(j) PROGRAM ELEMENT: Items that comprise the implementation aspects of a planning standard function. These items correspond to the criteria (e.g., contained in NUREG-0654/FEMA-REP-1 or the licensee's Emergency Plan) that provides specific acceptable methods for complying with the PLANNING STANDARDS of 10 CFR 50.47(b). Note that the failure of a single PROGRAM ELEMENT does not always constitute a LOSS OF PLANNING STANDARD FUNCTION.

(k) REGULATORY REQUIREMENT: As used in this appendix, any EP-related requirement, including the PLANNING STANDARDS of 10 CFR 50.47(b), Appendix E to 10 CFR Part 50, the Emergency Plan, Commission Orders, and other commitments.

(l) TIME OF DISCOVERY: The time the licensee "knew or should have known" of a problem. This could include some delay after raw data is collected (e.g., an analysis is necessary to realize that the problem exists). If an activity (e.g., a surveillance) should have identified the problem but did not, or the results of the activity were available but not acted upon, the licensee "should have known" about the problem. It should be assumed that the problem occurred at the time of its discovery (i.e., when the licensee "knew") unless there is firm evidence, based on a review of relevant information such as equipment history and the cause of the problem, to indicate that the problem existed before it was discovered (i.e., the licensee "should have known").

(m) WEAKNESS: As applied to emergency preparedness, a WEAKNESS is a level of performance demonstrated during a drill or exercise that could have precluded effective implementation of the Emergency Plan in the event of an actual emergency. WEAKNESSES are not confined to performance problems that result in a LOSS OF PS FUNCTION. For example, an inaccurate or untimely classification, notification, or Protective Action Recommendation (PAR) development is a WEAKNESS associated with an RSPS (i.e., a Drill and Exercise Performance (DEP) PI opportunity failure). However, a WEAKNESS also exists if a performance problem occurs associated with an accurate and/or timely classification, notification or PAR development that was anticipated by the scenario (i.e., a DEP PI successful opportunity). For instance, a correct classification may have been made based on misinformation, lack of information or invalid indicators. The NRC staff expects licensees to identify and critique this performance problem as a WEAKNESS associated with an RSPS. Thus, if the licensee's CRITIQUE fails to identify a performance problem associated with the process of classification, notification, or PAR development, even though it may have been determined to be a successful DEP PI opportunity per the scenario, the performance problem is a

Vogtle Electric Generating Plant

NRC Emergency Preparedness Inspection Report,
June 20, 2006

Don E. Grissette
Vice President

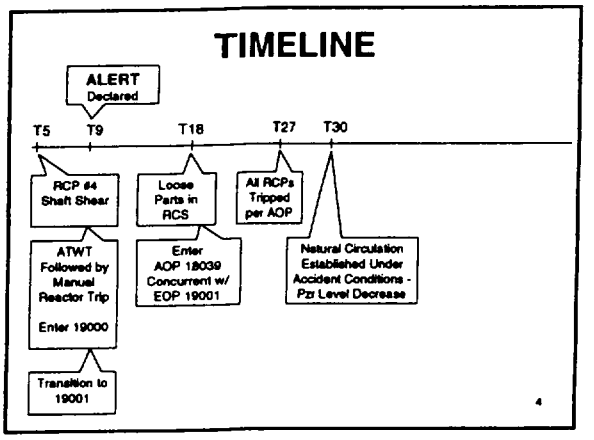
Agenda

Tom Tynan	Control Room Response and classification of the event
Bob Brown	Critique process and clarification of items within the inspection report
Jack Stringfellow	Regulatory Considerations
Don Grissette	Closing Summary

2

Control Room Response and Classification of the Event

Tom Tynan
Plant General Manager


TIMELINE
ALERT Declared
T5
T9
T18
T27
T30
RCP #4 Shaft Shear
Loose Parts in RCS
All RCPs Tripped per AOP
ATWT Followed by Manual Reactor Trip
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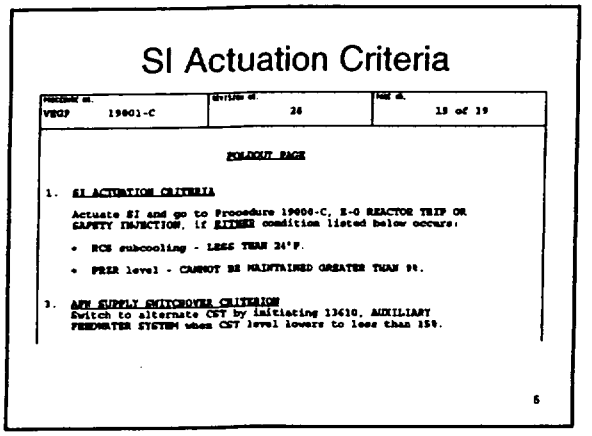
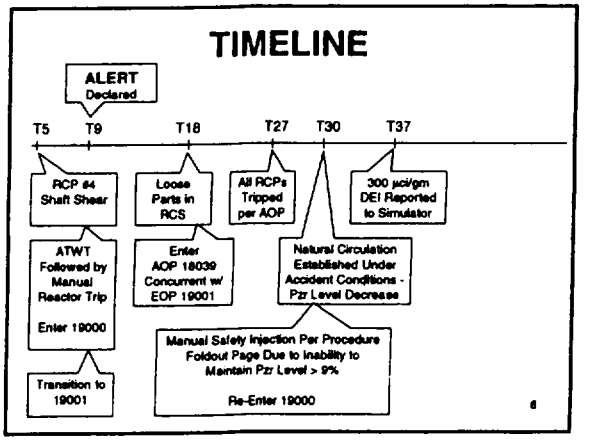
Enter AOP 18039 Concurrent w/ EOP 19001
Natural Circulation Established Under Accident Conditions - Pzr Level Decrease
Transition to 19001
4


SI Actuation Criteria
VEGP 19001-C
26
18 of 19
FOLDOUT PAGE
1. SI ACTUATION CRITERIA
Actuate SI and go to Procedure 19000-C, E-0 REACTOR TRIP OR SAFETY INJECTION, if EITHER condition listed below occurs:
• RCS subcooling - LESS THAN 24°F.
• PZR level - CANNOT BE MAINTAINED GREATER THAN 9%.
3. AFW SUPPLY SWITCHOVER CRITERION
Switch to alternate CST by initiating 13610, AUXILIARY FEEDWATER SYSTEM when CST level lowers to less than 15%.
5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ALERT Declared
T5
T9
T18
T27
T30
T37
RCP #4 Shaft Shear
Loose Parts in RCS
All RCPs Tripped per AOP
300 µci/gm DEI Reported to Simulator
ATWT Followed by Manual Reactor Trip
Enter 19000
Enter AOP 18039 Concurrent w/ EOP 19001
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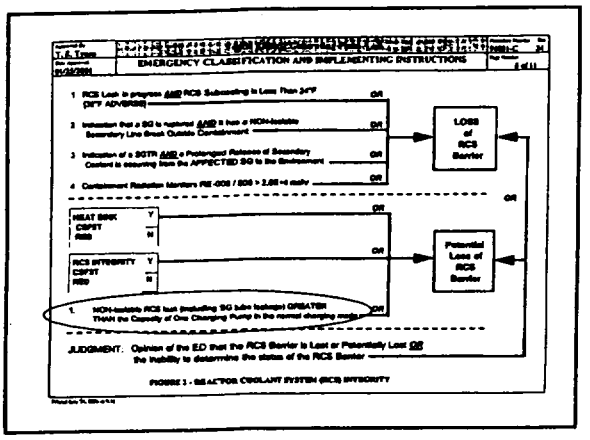
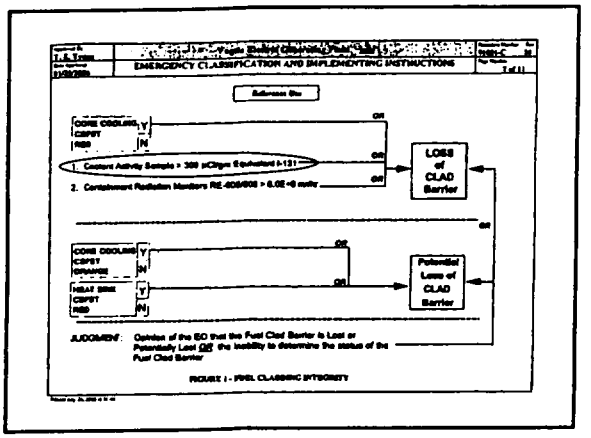
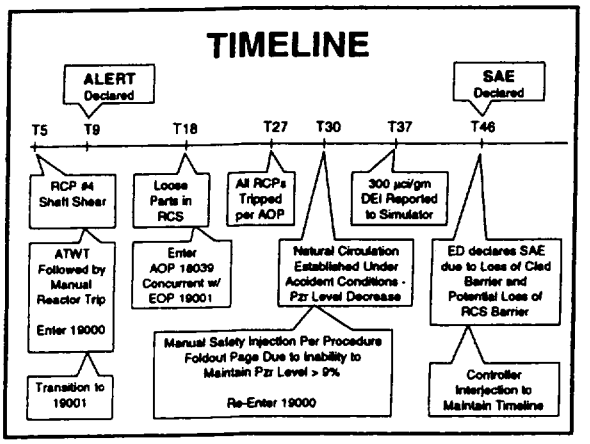
Manual Safety Injection Per Procedure Foldout Page Due to Inability to Maintain Pzr Level > 9%
Re-Enter 19000
Transition to 19001
6


EMERGENCY CLASSIFICATION AND IMPLEMENTING INSTRUCTIONS
LOSS of RCS Barrier
Potential Loss of RCS Barrier
JUDGMENT:


EMERGENCY CLASSIFICATION AND IMPLEMENTING INSTRUCTIONS
LOSS of CLAD Barrier
Potential Loss of CLAD Barrier
JUDGMENT:


TIMELINE
ALERT Declared
SAE Declared
T5
T9
T18
T27
T30
T37
T46
RCP #4 Shaft Shear
ATWT Followed by Manual Reactor Trip
Enter 19000
Transition to 19001
Loose Parts in RCS
Enter AOP 18039 Concurrent w/ EOP 19001
All RCPs Tripped per AOP
Natural Circulation Established Under Accident Conditions - Pzr Level Decrease
Manual Safety Injection Per Procedure Foldout Page Due to Inability to Maintain Pzr Level > 9%
Re-Enter 19000
300 µci/gm DEI Reported to Simulator
ED declares SAE due to Loss of Clad Barrier and Potential Loss of RCS Barrier
Controller Interjection to Maintain Timeline

Potential Loss of the RCS Barrier

- The ED noted the following symptoms:
  - **The inability to maintain Pzr level with normal operation of CVCS**
  - **Valid high radiation in containment**
  - No indication of isolable leakage inside containment
  - Expected actuation indications for SI
  - No secondary faults

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Regulatory basis of RCS leakage EAL

- NUMARC/NESP-007 Rev 2
  - "The "Potential Loss" EAL is based on the **inability to maintain normal liquid inventory** within the Reactor Coolant System (RCS) by normal Operation of the Chemical and Volume Control System which is considered as one centrifugal charging pump discharging to the charging header. In conjunction with the SG tube rupture "Potential Loss" EAL this assures that **any event that results in significant RCS inventory shrinkage or loss** (e.g. events leading to reactor scram and ECCS actuation) will result in no lower than an "Alert" emergency classification."

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NUMARC/NESP-007 Rev 2 (Q&A #5)

- Q. "Since the radiation monitor used in the Fission Product Barrier Matrix are not direct indicators of the barriers, why include them when the declaration is based primarily on other plant indications, e.g., CSF status, temperatures, subcooling, etc.?"
- A. "As the text of the question states, the CHARM is not the primary indicator of the barrier failure. The CHARM EALs were included as indicators of fuel damage or RCS leakage in the interest of providing multiple indicators of a barrier failure. **An elevated reading on the CHARM is indicative of an RCS leak at a minimum**, and could be an indicator of fuel damage as well. **These indicators provide useful means of confirmation to one or more of the direct indicators. Even if the numeric threshold on these indicators are not exceeded**, their inclusion in the matrix helps insure that these potentially significant indicators are considered in Emergency Director judgment decisions."

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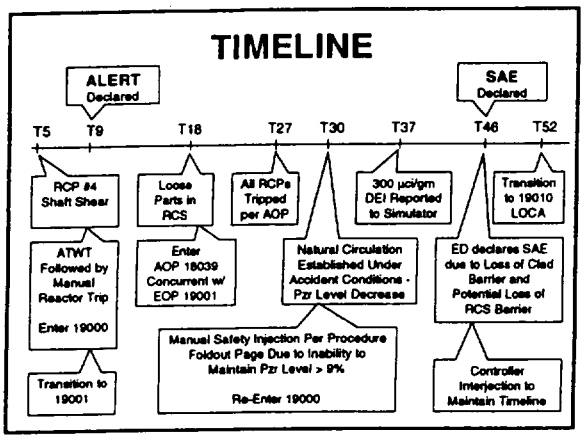

EOP Evaluation of The RCS

- T52 - 6 minutes after the classification, the EOP diagnoses the RCS as Not Intact
- EOP Basis - Abnormal containment radiation is indicative of RCS not intact in containment.
- The EOP & EOP Basis diagnoses the RCS Not Intact. They reach the same conclusion as the ED's classification per EPIPs & EAL Basis did earlier.

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Summary

- Classification was based on valid indications present which met the EAL
- Classification was correct per the emergency plan implementing procedures and the EAL basis
- 6 minutes after the EDs classification the EOP's, the EOP basis and the crew also reach the same conclusion that the RCS is Not Intact in Containment

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Exercise Control

Bob Brown
Training & EP Manager

Exercise Control Issues

- Deviation from the Nominal Scenario
- Controller Interjection to Maintain the Time Line
- Critique Activities
- Clarifications of inspection report

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Deviation from the Nominal Scenario

- Crew progression rate through procedures resulted in manual pressurizer level control step not being reached upon Natural Circulation (NC) onset under these accident conditions
- The validation crew was further in the procedure at NC onset and was in manual pressurizer level control and did not meet criteria for SI
- Due to timing, the scenario deviated from the nominal scenario. This presented valid indications of a SAE to the ED

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Controller Interjection to Maintain the Time Line

- Controllers recognized the conditions for an SAE upgrade classification when crew was required to actuate SI
- TSC & Simulator controllers discussed via phone prior to interjection
- Though the correct classification was made, the controllers interjected to keep drill on pre-established time-line

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Inspection Report Clarification Critique Activities

NRC Inspection Report	Clarifying information
"The post exercise critique was conducted on March 24, 2006 to evaluate the licensee's self assessment of it ERO performance...."	-Post exercise critique was conducted on March 22, 2006 per the exercise schedule. -Critiqued the deviation with SNC EP controllers -Independent assessment confirmed accurate classification -CR written for controller interjection prior to NRC debrief

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Inspection Report Clarification ED Actions

NRC Inspection Report	Clarifying information
"The licensee stated that the SM used EOP 19000-C, E-0 Reactor trip or Safety Injection , step 32, to transition to EOP 19010-C, E-1 Loss of Reactor or Secondary Coolant, and declare the SAE."	-Crew had not reached this step at time of classification -Crew and EOPs reached same conclusion independent of the ED -Step 32 did not compel the ED to make the classification.

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Inspection Report Clarification ED Actions

NRC Inspection Report	Clarifying Information
"There was no direction in EOP 19000-C, step 32, to go to EOP 91001-C, Emergency Classification and Implementing Instructions, and declare a SAE."	-EPIPs implemented beginning with the ATWT -91001-C requires ED to periodically review conditions and upgrade as necessary -EOP steps not intended to direct specific classifications

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Inspection Report Clarification ED Actions

NRC Inspection Report	Clarifying Information
"The licensee stated that the SM and the crew had not taken actions to verify that a non-isolable RCS leak had occurred"	-Not all EOP steps for leak identification required -ED evaluated for isolable leak inside containment -No symptoms were present in the Control Room that a leak was isolable and none were identified by ED or the crew

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Inspection Report Clarification EAL Timing

NRC Inspection Report	Clarifying Information
"The licensee stated that approximately half of the 15 minutes had passed from the time that the first condition, reactor coolant system (RCS) activity greater than 300 uCi/gram I-131 equivalent (Loss of the Fuel Clad Barrier), was met and that most of the remaining time had elapsed in determining whether the second condition (potential loss of the RCS barrier) was met for SAE"	-Evaluation of *potential loss of the RCS barrier* began with the required SI -7 minutes into evaluation additional information received concerning clad barrier -Additional 9 minutes of evaluation of barriers resulted in declaration of SAE based on *Potential loss of RCS barrier and a loss of the clad barrier.*

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Inspection Report Clarification EAL Timing

NRC Inspection Report	Clarifying Information
"The 15-minute classification time does not start until all indications are available (i.e. both conditions for the SAE are met)."	Agree that 15 minute time starts when second condition is met. -NEI 99-02 Rev.3 and FAQs: Classifications are made with goal of 15 minutes once available plant parameters reach EAL -Classification expected to be prompt once conditions reach EAL threshold. -Licensee should NOT delay due to uncertainty -If you are done in 5 you should not wait the remaining 10 minutes

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Summary

- Drill deviation was caused by a timing difference between validation run and actual crew performance
- Upon required SI, controllers recognized the conditions for an SAE upgrade classification & discussed prior to interjection
- Drill deviation was self identified, extensively critiqued, independently checked as correct, documented, briefed, and corrective actions were taken

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Summary

- Conditions, symptoms, and indications met the EAL and the EAL Basis for the potential loss of the RCS barrier and the classification of SAE was correct.
- There was no weakness nor error made in the classification of SAE
- There was no failure to critique a weakness -- no weakness existed

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Regulatory Considerations

Jack Stringfellow
Licensing Supervisor

NRC Preliminary Finding

- NRC Inspection Report dated June 20, 2006 states:
  - Vogtle full-scale exercise critique failed to identify a weakness.
  - This failure was determined to be a performance deficiency and an apparent violation of emergency preparedness planning standards.
  - Emergency Preparedness Significance Determination Process (SDP) determines the finding to be of low-to-moderate safety significance (White).

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Asserted Basis for NRC Finding

- The NRC determination that this issue rises to the level of a White finding hinges on two criteria:
  - The declaration of a Site Area Emergency during the Vogtle full-scale exercise was a DEP PI opportunity failure that constituted a weakness associated with a risk-significant planning standard (RSPS), and
  - The PS function was lost in that the critique failed to identify the DEP PI opportunity failure.

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SNC Response

- The declaration of a Site Area Emergency during the Vogtle full-scale exercise was not a failure.
- The failure determination is inconsistent with recent industry experience.
- The failure determination is inconsistent with NRC endorsed industry guidance and NRC IMC guidance.

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Industry Experience

- LaSalle Event of February 20, 2006:
  - LaSalle Unit 1 experienced an automatic reactor trip.
  - Operators were unable to verify that all control rods had inserted and a Site Area Emergency was declared.
    - Control rod position indicated 3 rods stuck in an intermediate position.
    - Reactor power, pressure, and water level indicated a shutdown reactor.
  - The EAL read, "Failure of BOTH automatic AND manual Scrams to establish shutdown criteria."
  - The EAL did not define the term "shutdown criteria" or provide any additional guidance.

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Industry Experience

- LaSalle Event of February 20, 2006:
  - The NRC concluded that the lack of any amplifying or clarifying guidance left senior control room operators with no options regarding their actions in emergency plan space, even though subsequent review determined that the reactor was indeed shut down.
  - No findings of significance were identified.
    - NRC Special Inspection Report 50-373/2006009, dated March 23, 2006

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Industry Experience

- Millstone Event of April 17, 2005:
  - An inadvertent safety injection (SI) actuation and reactor trip occurred at Millstone Unit 3.
  - Crew diagnosed a stuck open main steam safety valve (MSSV) on a steam generator.
  - Shift Manager declared an ALERT in accordance with the EAL "Unisolable Steam Line Break Outside of Containment."
  - This condition did not exist.

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Industry Experience

- Millstone Event of April 17, 2005:
  - NRC concluded:
    - Operating crew diagnosis and communication was a performance deficiency, but did NOT result in actual safety consequence.
    - The finding was NOT suitable for an NRC SDP evaluation, and was determined to be of very low safety significance (Green).
  - The NRC did not identify the misdiagnosis as a failure.
    - NRC Inspection Report 50-423/2005012, dated July 5, 2005

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Industry Experience

- Licensees have been cited for not making a classification in a timely manner:
  - November 10, 2003, Seabrook takes 38 minutes to declare an NOUE for a generator gas leak.
  - March 4, 2002, Point Beach takes 31 minutes to declare an NOUE for a propane gas leak.
  - April 24, 2003, Perry takes 20 minutes to declare an Alert in response to a spent fuel pool release.

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Industry Experience

- NRR EP Position Paper – EPPOS 2
  - EALs minimize the necessity for subjective evaluation of emergency conditions by utilizing objective, unambiguous EALs
  - EALs provide clearly defined thresholds that can be readily identified by Operators
  - When EAL thresholds are reached or exceeded, Operators are expected to immediately classify and declare the emergency

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Industry Experience

- From the time that we had indication that the EAL had been exceeded, the classification was made with **6 minutes** remaining before we would have exceeded the 15-minute goal.
- Taking additional time to wait and assess more indications is not consistent with the guidance of NEI 99-02 & FAQ's and could have resulted in an untimely classification and a potential violation.

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NRC Endorsed Guidance

- A failure determination is inconsistent with NRC endorsed guidance:
  - NEI 99-02, Rev. 3, page 82, recognizes that drill execution may deviate from the preplanned scenario:
    - Conservative decision making;
    - Emergency Director judgment call; or
    - A scenario with potential for "forks".
  - Classification opportunities can be subjective due to deviation from the expected scenario path.
  - Evaluators must determine if the classification was appropriate:
    - As presented to the participants, and
    - IAW the emergency plan and implementing procedures.

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NRC Endorsed Guidance

- The Vogtle full-scale exercise SAE classification deviated from the scenario.
- In accordance with NEI 99-02, the rationale for the Vogtle exercise SAE classification was determined to be:
  - Appropriate as presented to the participants, and
  - IAW the EP and EPIPs.

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NRC IMC Guidance

- Even if the NRC were to conclude that the SAE Classification was a failure, it did not constitute a weakness.
  - NRC IMC 0609, Appendix B defines a weakness, in part, as a level of performance during a drill or exercise that could have precluded effective implementation of the Emergency Plan during an actual event or emergency.

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NRC IMC Guidance

- The SAE event classification and subsequent controller interjection was subjected to a detailed critique.
  - Found to be based on conservative decision making.
  - Consistent with EAL entry criteria.
  - Would not have precluded effective implementation of the Emergency Plan.
  - The scenario deviation was self identified, critiqued and a CR written.

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Conclusions

- The declaration of a SAE during the Vogtle full-scale exercise does not rise to the level of a finding because:
  - It was not a DEP PI opportunity failure.
  - Even if the declaration had subsequently been determined to be inaccurate, it would not have constituted a weakness that could have resulted in ineffective implementation of the Emergency Plan.

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Overall Summary

Don Grissette
VP Vogtle Project

SNC Conclusions

- ED followed procedures
- ED used symptoms presented to evaluate condition of plant
- The plant was controlled plant based on these symptoms
- Classified the event as SAE based on the symptoms in accordance with the emergency plan and implementing procedures
- Emergency Plan was effectively implemented
- The safety and health of the public was protected

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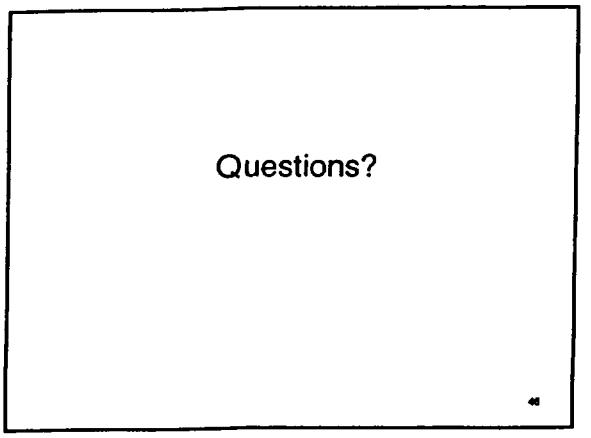
Questions?

NRC'S BASIS FOR FINAL SIGNIFICANCE DETERMINATION

The NRC's inspection report of June 20, 2006, documented the preliminary significance determination for a finding involving the failure of Vogtle Electric Generating Plant's full-scale exercise critique to identify a weakness associated with a risk-significant planning standard (RSPS), which was determined to be a drill/exercise performance (DEP) - performance indicator (PI) opportunity failure. The finding was also determined to be an apparent violation associated with emergency preparedness planning standards 10 CFR 50.47(b)(14) and 10 CFR 50.47(b)(4) as well as the requirements of 10 CFR Part 50, Appendix E, Section IV.F.2.g. The finding was assessed under the significance determination process (SDP) as a preliminary White issue (i.e., an issue of low to moderate safety significance which may require additional NRC inspection).

On July 26, 2006, a regulatory conference was held with Southern Nuclear Operating Company, Inc., (SNC) to discuss the matter. Southern Nuclear Operating Company, Inc., also submitted supplemental information on July 27 and July 31, 2006, in support of its presentation at the conference. The SNC's presentation and supplemental information provided conclusions and/or comments that interrelated several areas. The following provides the NRC response to the major conclusions and comments provided by SNC:

(1) SNC Comment:

Southern Nuclear Company's Emergency Director (ED) correctly classified and declared a Site Area Emergency (SAE) based on applicable symptom-based procedures and emergency plans. Southern Nuclear Company, Inc., noted that the simulator controllers also recognized that the criteria for an SAE upgrade classification had been met.

NRC Response:

Methodology for Development of Emergency Action Level, Revision 2, NUMARC/NESP-007, states that there are four conditions in the Fission Product Barrier scheme that will result in a SAE:

(1) Loss of two barriers
(2) Loss of one barrier and a potential loss of a second barrier
(3) Potential loss of both Fuel clad barrier and RCS barrier
(4) Modes 1-4: the reactor is tripped and subcriticality CSFST (Critical Safety Function Status Tree) is RED.

Emergency Classification and Implementing Instructions, 91001-C, is used to make the Emergency Action Level (EAL) determination. Figure 2 of the Emergency Classification and Implementing Instructions, identifies four conditions that can result in a determination of a potential loss of the RCS Barrier:

(1) Heat Sink CSFST RED
(2) RCS Integrity CSFST RED
(3) Non-isolable RCS leak (including steam generator tube leakage) greater than the capacity of one charging pump in the normal charging mode
(4) JUDGEMENT: Opinion of the ED that the RCS Barrier is lost or potentially lost or the inability to determine the status of the RCS Barrier.

The licensee stated that the ED used the Loss of the Fuel Clad Barrier and the Potential Loss of RCS Barrier to make the SAE declaration. The loss of the Fuel Clad Barrier was confirmed by an RCS sample that showed activity >300 µci/gm which, in accordance with procedure 91001-C, Emergency Classification and Implementing Instructions, is indicative of fuel clad failure.

Both the Shift Manager and the ED stated that the need to initiate a manual safety injection, due to the inability to maintain pressurizer level greater than 9 percent, and the presence of high containment radiation indicated that the RCS Barrier was potentially lost. The licensee also noted during the regulatory conference and in its supplemental information that the ED observed no indication of isolable leakage inside containment, expected actuation indications for safety injection, and no secondary faults. Based on the observed symptoms, the ED concluded that there was a "Non-isolable RCS leak (including steam generator tube leakage) greater than the capacity of one charging pump in the normal charging mode" and that this condition represented the Potential Loss of RCS Barrier. Vogtle Condition Report (CR) 2006201779 also stated similar words in the description of the condition identified in the CR.

The NRC disagrees that the need to initiate a manual safety injection and the presence of high containment radiation indicated a non-isolable RCS leak (including SG tube leakage) greater than the capacity of one charging pump in the normal charging mode, and thus the Potential Loss of RCS Barrier. Methodology for Development of Emergency Action Level, Revision 2, NUMARC/NESP-007, the basis for the EAL scheme at Vogtle and "Emergency Classification and Implementing Instructions", 91001-C, do not include the need to manually safety inject and/or the presence of high containment radiation as indicators of the Potential Loss of the RCS Barrier. In addition, the crew and the ED did not recognize that the rapid decrease in pressurizer level was due to the establishment of natural circulation when the three remaining reactor coolant pumps (RCPs) were secured. The restoration of pressurizer water level within 2 minutes of the initiation of SI indicated that a leak, if one had occurred, was isolated by either automatic or manual containment isolations. Pressurizer level was recovered above 9 percent within 5 minutes after the SI was manually initiated and was above 30 percent before the SAE was declared.

In summary, the NRC disagrees with the assessment that the EAL conditions were met for the declaration of an SAE based on the loss of the Fuel Clad Barrier and the Potential Loss of RCS Barrier. The crew and ED should have used all available control room instrumentation and indications, such as pressurizer level and pressure, containment pressure, containment humidity, area temperatures, containment sump levels, steam generator levels and secondary radiation monitors, and monitored trends in the indications to determine if automatic or manual isolations had isolated the cause of the pressurizer level decrease. The crew and ED should have used the "EOP and AOP Rules of Usage", 10020-C approach to identify the existence of a non-isolable leak and respond in a methodical manner, assessing the event and utilizing the diagnostics in such a manner to ensure that "undue haste" did not result in misdiagnosis, misoperation, or undesired plant conditions.

Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," states that to make an event classification, the EAL (indications) must be currently exceeded for that classification. If the EALs for the classification are not met, then the classification or change in classification cannot be made. If an event has occurred that resulted in an emergency classification where no EAL was exceeded, the incorrect classification should be considered a missed opportunity. During the exercise, the EALs were not exceeded at the time of the SAE declaration. As such, the SAE classification was incorrect, and therefore, a PI opportunity failure and a deficiency existed that was not identified in SNC's critique.

(2) SNC Comment:

Southern Nuclear Company, Inc., thoroughly critiqued the SAE and the drill deviation from the nominal scenario, and condition reports were initiated and corrective actions taken to prevent recurrence.

NRC Response:

Southern Nuclear Company's critique failed to identify that the classification or change in classification to an SAE was made based on an EAL that was not exceeded at the time of the classification. Nuclear Energy Institute 99-02, Revision 3, "Regulatory Assessment Performance Indicator Guideline," states that if an event has occurred that resulted in an emergency classification where no EAL was exceeded, the incorrect classification should be considered a missed opportunity.

The licensee's CRs prepared after the exercise do not address the incorrect classification of the SAE or the missed PI opportunity. Condition Report 2006201779 states, "The manual safety injection required by procedure for inadequate pressurizer level, combined with high containment radiation met the procedure requirement to declare the RCS not intact." As stated above the NRC disagrees with this assertion.

(3) SNC Comment:

Southern Nuclear Company, Inc., also questioned the NRC's statement (in its cover letter of June 20, 2006) that the emergency declaration was made without verifying and validating that the subject criteria had been met. In SNC's view, this statement along with verbal statements made by the NRC after the exercise implied that the ED should have diagnosed the event through verification and validation methods using indications other than those prescribed by the procedure which is contrary to NRC guidance contained in Emergency Preparedness Position No. 2 (EPPOS2) on timeliness of classification of emergency conditions. In addition, SNC was of the view that the ED used the symptoms and indications presented and prescribed by the procedure to classify the event.

NRC Response:

The NRC expects the ED to make classifications or changes in classification based on EALs (indications) and as prescribed by procedures. In this case, the Potential Loss of RCS Barrier EAL was not exceeded, yet an incorrect SAE declaration was made.

The NRC disagrees that the ED used the symptoms and indications presented and prescribed by the procedure to classify the event. Although a failure of the Fuel Clad Barrier was confirmed based on an RCS activity sample >300 µci/gm, the symptoms and indications did not support the ED's conclusion of a non-isolable RCS leak greater than the normal charging capacity of one charging pump. The determination of a non-isolable RCS leak is a deliberate process and the Steps in EOP "E-1 Loss of Reactor or Secondary Coolant", may help to identify the source of the leak and whether or not it can be isolated. The process of determining a non-isolable leak involves monitoring indications and trends in plant parameters such as pressurizer level and pressure, containment pressure, containment humidity, area temperatures, containment sump levels, steam generator levels and secondary radiation monitors. Identification of a non-isolable RCS leak is conducted in a methodical manner, assessing the event progress, and utilizing the diagnostics in a manner as specified in "EOP and AOP Rules of Usage", 10020-C. As previously noted, the "Rules of Usage" state that, "Operators shall respond to abnormal and emergency conditions in a methodical manner, assessing the event and utilizing the diagnostics with **DISCERNABLE PAUSE** to ensure that "undue haste" does not result in misdiagnosis, misoperation, or undesired plant conditions."

(4) SNC Comment:

Southern Nuclear Company, Inc., noted that the proposed violation implied that the ED should utilize indications not specified by the procedures and that, once the classification criteria were met, the ED should stop and validate the indications rather than immediately classifying the event. Southern Nuclear Company, Inc., indicated that if the ED had done so, the ED would have been in violation of his training, the procedures, the expectations of the station and the industry, and potentially SNC's operating license.

NRC Response:

As noted above, the NRC expects the ED to use plant indications as prescribed by procedures to make classifications or changes in classification based on EALs.

"Regulatory Assessment Performance Indicator Guideline," NEI 99-02, Revision 3, provides guidance in this area. A classification is expected to be made promptly following indication that the conditions have reached an emergency threshold in accordance with the licensee's EAL scheme. In this case, the Potential Less of Barrier EAL was not exceeded at the time the classification was made.

With respect to classification of emergencies, after the emergency threshold conditions are met the 15-minute goal is a reasonable period of time for assessing and classifying an emergency. Allowing a delay in classifying an emergency for up to 15 minutes will have minimal impact upon the overall emergency response to protect the public health and safety. The 15-minute goal should not be interpreted as providing a grace period during which a licensee may attempt to restore plant conditions and avoid classifying the emergency. The goal of event classification is to be both timely and accurate.

(5) SNC Comment:

Southern Nuclear Company, Inc., also provided information for the purposes of correcting NRC confusion (in SNC's view) related to the sequence of events during the exercise based on SNC's review of the statements contained in the June 20, 2006, inspection report.

NRC Response:

The NRC appreciates the information provided by SNC to further our understanding of the sequence of events during the exercise. To this end, the NRC notes that the exercise critique process begins at the end of the exercise scenario with the site's facility critiques. The NRC observed the facility critiques that were held immediately after the exercise on March 22, 2006, for the Technical Support Center, the control room (simulator), and the Emergency Operations Facility. The NRC did not participate in the controller roll-up meeting that was also conducted on March 22, 2006. The NRC considers the critique process complete when all draft conclusions related to RSPS performance deficiencies have been presented to licensee senior management. The post-critique date stated in the NRC inspection report reflects the date of the presentation of RSPS performance deficiencies to SNC senior management.