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ONS-2014-066

May 22, 2014 10 CFR 50.54(q)

Attn: Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852-2746

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Station, Units 1, 2, and 3
Docket Nos. 50-269, -270, and -287
Emergency Plan Implementing Procedures Manual
Volume C, Revision 2014-014

Please find attached for your use and review copies of the revision to the Oconee Nuclear Station Emergency Plan Implementing Procedures along with the associated revision instructions and 10 CFR 50.54(q) evaluation.

This revision is being submitted in accordance with 10 CFR 50.54(q) and does not reduce the effectiveness of the Emergency Plan or the Emergency Plan Implementing Procedures. If there are any questions or concerns pertaining to this revision please call Pat Street, Emergency Planning Manager, at 864-873-3124.

By copy of this letter, two copies of this revision are being provided to the NRC, Region II, Atlanta, Georgia.

Sincerely,

Scott L. Batson
Vice President
Oconee Nuclear Station

Attachments:
Revision Instructions
EPIP Volume C - Revision 2014-014
10 CFR 50.54(q) Evaluation(s)

AX45
NRR

U. S. Nuclear Regulatory Commission
May 22, 2014

xc: w/2 copies of attachments

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Mr. Eddy Crowe
NRC Senior Resident Inspector
Oconee Nuclear Station

ELL
EC2ZF

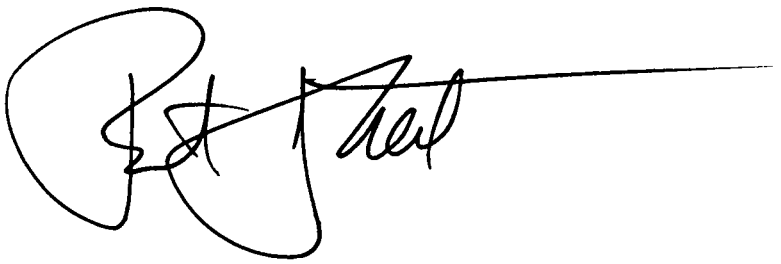
April 28, 2014

OCONEE NUCLEAR STATION

SUBJECT: Emergency Plan Implementing Procedures
Volume C Revision 2014-013

Please make the following changes to the Emergency Plan Implementing Procedures, Volume C:

REMOVE	INSERT
Cover Sheet Rev. 2014-013	Cover Sheet Rev. 2014-014
Table of Contents Pages 1, 2, & 3	Table of Contents Pages 1, 2, & 3
RP/0/A/1000/001 Rev 000	RP/0/A/1000/001 Rev 001



Pat Street
ONS Emergency Planning Manager

DUKE ENERGY®

OCONEE NUCLEAR STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURES
VOLUME C

APPROVED:

Terry L. Patterson
Director Nuclear Org Effectiveness

May 6, 2014
Date Approved

VOLUME C
REVISION 2014-014
May 2014

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Duke Energy
Oconee Nuclear Station
Emergency Classification

Procedure No.
RP/0/A/1000/001
Revision No.
001
Electronic Reference No.
OP009A63

Reference Use

PERFORMANCE

PDF Format

Compare with Control Copy every 14 calendar days while work is being performed.

Compared with Control Copy* _____ Date _____

Compared with Control Copy* _____ Date _____

Compared with Control Copy* _____ Date _____

Date(s) Performed	Work Order/Task Number (WO#)

COMPLETION

- ☐ Yes ☐ NA Checklists and/or blanks initialed, signed, dated, or filled in NA, as appropriate?
- ☐ Yes ☐ NA Required enclosures attached?
- ☐ Yes ☐ NA Charts, graphs, data sheets, etc. attached, dated, identified, and marked?
- ☐ Yes ☐ NA Calibrated Test Equipment, if used, checked out/in and referenced to this procedure?
- ☐ Yes ☐ NA Procedure requirements met?

Verified By* Date

Procedure Completion Approved* Date

**Printed Name and Signature*

Remarks (*attach additional pages, if necessary*)

IMPORTANT: Do **NOT** mark on barcodes.

Printed Date: *03/06/2014*

Enclosure No.: *FULL*

Revision No.: *001*

Procedure No.: *RP/0/A/1000/001*

Form 703-1. Procedure Process Record (PPR)

(R08-10)

Duke Energy

(1) ID No. RP/0/A/1000/001

PROCEDURE PROCESS RECORD

Revision No. 001

PREPARATION

(2) Station OCONEE NUCLEAR STATION

(3) Procedure Title Emergency Classification

(4) Prepared By* John Kaminski (Signature) _____ Date 03/04/2014

(5) Requires NSD 228 Applicability Determination?

☒ Yes (New procedure or revision with major changes) - Attach NSD 228 documentation.

☐ No (Revision with minor changes)

(6) Reviewed By* Donna A. Crow _____ (QR)(KI) Date 4/24/14

Cross-Disciplinary Review By* _____ (QR)(KI) NA DAC Date 4/24/14

Reactivity Mgmt Review By* _____ (QR) NA DAC Date 4/24/14

Mgmt Involvement Review By* _____ (Ops. Supt.) NA DAC Date 4/24/14

(7) Additional Reviews

Reviewed By* _____ Date _____

Reviewed By* _____ Date _____

(8) Approved By* Patrick M Storey _____ Date 4/24/14

PERFORMANCE *(Compare with control copy every 14 calendar days while work is being performed.)*

(9) Compared with Control Copy* _____ Date _____

Compared with Control Copy* _____ Date _____

Compared with Control Copy* _____ Date _____

(10) Date(s) Performed _____

Work Order Number (WO#) _____

COMPLETION

(11) Procedure Completion Verification:

☐ Unit 0 ☐ Unit 1 ☐ Unit 2 ☐ Unit 3 Procedure performed on what unit?

☐ Yes ☐ NA Check lists and/or blanks initialed, signed, dated, or filled in NA, as appropriate?

☐ Yes ☐ NA Required enclosures attached?

☐ Yes ☐ NA Charts, graphs, data sheets, etc. attached, dated, identified, and marked?

☐ Yes ☐ NA Calibrated Test Equipment, if used, checked out/in and referenced to this procedure?

☐ Yes ☐ NA Procedure requirements met?

Verified By* _____ Date _____

(12) Procedure Completion Approved _____ Date _____

(13) Remarks *(Attach additional pages, if necessary)*

* *Printed Name and Signature*

Emergency Classification

NOTE: This procedure is an implementing procedure to the Oconee Nuclear Site Emergency plan and must be forwarded to Emergency Planning within seven (7) working days of approval.

1. Symptoms

1.1 This procedure describes the immediate actions to be taken to recognize and classify an emergency condition.

1.2 This procedure identifies the four emergency classifications and their corresponding Emergency Action Levels (EALs).

1.3 This procedure provides reporting requirements for non-emergency abnormal events.

1.4 The following guidance is to be used by the Emergency Coordinator/EOF Director in assessing emergency conditions:

1.4.1 Definitions and Acronyms are italicized throughout procedure for easy recognition. The definitions are in Enclosure 4.10 (Definitions/Acronyms).

1.4.2 The Emergency Coordinator/EOF Director shall review all applicable initiating events to ensure proper classification.

1.4.3 The BASIS Document (Volume A, Section D of the Emergency Plan) is available for review if any questions arise over proper classification.

1.4.4 **IF** An event occurs on more than one unit concurrently,

THEN The event with the higher classification will be classified on the Emergency Notification Form.

A. Information relating to the problem(s) on the other unit(s) will be captured on the Emergency Notification Form as shown in RP/0/A/1000/015A, (Offsite Communications From The Control Room), RP/0/A/1000/015B, (Offsite Communications From The Technical Support Center) or SR/0/B/2000/004, (Notification to States and Counties from the Emergency Operations Facility).

1.4.5 **IF** An event occurs,

AND A lower or higher plant operating mode is reached before the classification can be made,

THEN The classification shall be based on the mode that existed at the time the event occurred.

1.4.6 The Fission Product Barrier Matrix is applicable only to those events that occur at Mode 4 (Hot Shutdown) or higher.

A. An event that is recognized at Mode 5 (Cold Shutdown) or lower shall not be classified using the Fission Product Barrier Matrix.

1. Reference should be made to the additional enclosures that provide Emergency Action Levels for specific events (e.g., Severe Weather, *Fire*, Security).

1.5 **IF** A transient event should occur,

THEN Review the following guidance:

1.5.1 **IF** An Emergency Action Level (EAL) identifies a specific duration

AND The Emergency Coordinator/EOF Director assessment concludes that the specified duration is exceeded or will be exceeded, (i.e.; condition cannot be reasonably corrected before the duration elapses),

THEN Classify the event.

1.5.2 **IF** A plant condition exceeding EAL criteria is corrected before the specified duration time is exceeded,

THEN The event is **NOT** classified by that EAL.

A. Review lower severity EALs for possible applicability in these cases.

NOTE: Reporting under 10CFR50.72 may be required for the following step. Such a condition could occur, for example, if a follow up evaluation of an abnormal condition uncovers evidence that the condition was more severe than earlier believed.

1.5.3 **IF** A plant condition exceeding EAL criteria is not recognized at the time of occurrence, but is identified well after the condition has occurred (e.g.; as a result of routine log or record review)

AND The condition no longer exists,

THEN An emergency shall **NOT** be declared.

- Refer to NSD 202 for reportability

1.5.4 **IF** An emergency classification was warranted, but the plant condition has been corrected prior to declaration and notification

THEN The Emergency Coordinator must consider the potential that the initiating condition (e.g.; Failure of Reactor Protection System) may have caused plant damage that warrants augmenting the on shift personnel through activation of the Emergency Response Organization.

A. **IF** An ***Unusual Event*** condition exists,

THEN Make the classification as required.

1. The event may be terminated in the same notification or as a separate termination notification.

B. **IF** An ***Alert, Site Area Emergency,*** or ***General Emergency*** condition exists,

THEN Make the classification as required,

AND Activate the Emergency Response Organization.

1.6 Emergency conditions shall be classified as soon as the Emergency Coordinator/EOF Director assessment determines that the Emergency Action Levels for the Initiating Condition have been exceeded.

2. Immediate Actions

2.1 Assessment, classification and declaration of any applicable emergency condition should be completed within 15 minutes after the availability of indications or information to cognizant facility staff that an EAL threshold has been exceeded.

2.2 Determine the operating mode that existed at the time the event occurred prior to any protection system or operator action initiated in response to the event.

2.3 **IF** The unit is at Mode 4 (Hot Shutdown) or higher

AND The condition/event affects fission product barriers,

THEN GO TO Enclosure 4.1, (Fission Product Barrier Matrix).

2.3.1 Review the criteria listed in Enclosure 4.1, (Fission Product Barrier Matrix) and make the determination if the event should be classified).

2.4 Review the listing of enclosures to determine if the event is applicable to one of the categories shown.

2.4.1 **IF** One or more categories are applicable to the event,

THEN Refer to the associated enclosures.

2.4.2 Review the EALs and determine if the event should be classified.

A. **IF** An EAL is applicable to the event,

THEN Classify the event as required.

2.5 **IF** The condition requires an emergency classification,

THEN Initiate the following:

- for Control Room - RP/0/B/1000/002, (Control Room Emergency Coordinator Procedure)
- for TSC - RP/0/A/1000/019, (Technical Support Center Emergency Coordinator Procedure)
- for EOF - SR/0/A/2000/003, (Activation of the Emergency Operations Facility)

2.6 Continue to review the emergency conditions to assure the current classification continues to be applicable.

3. Subsequent Actions

3.1 Continue to review the emergency conditions to assure the current classification continues to be applicable.

4. Enclosures

Enclosure 4.1
Fission Product Barrier Matrix

DETERMINE THE APPROPRIATE CLASSIFICATION USING THE TABLE BELOW: **ADD POINTS TO CLASSIFY.** **SEE NOTE BELOW**

RCS BARRIERS (BD 5-7)		FUEL CLAD BARRIERS (BD 8-9)		CONTAINMENT BARRIERS (BD 10-13)	
Potential Loss (4 Points)	**Loss (5 Points)**	**Potential Loss (4 Points)**	**Loss (5 Points)**	**Potential Loss (1 Point)**	**Loss (3 Points)**
RCS Leakrate ≥ 160 gpm	RCS Leak rate that results in a loss of subcooling.	Average of the 5 highest CETC ≥ 700° F	Average of the 5 highest CETC ≥ 1200° F	CETC ≥ 1200° F ≥ 15 minutes **OR** CETC ≥ 700° F ≥ 15 minutes with a *valid* RVLS reading 0"	Rapid unexplained containment pressure decrease after increase **OR** containment pressure or sump level not consistent with LOCA
SGTR ≥ 160 gpm		*Valid* RVLS reading of 0" **NOTE:** RVLS is **NOT** valid if one or more RCPs are running OR if LPI pump(s) are running AND taking suction from the LPI drop line.	Coolant activity ≥ 300 µCi/ml DEI	RB pressure ≥ 59 psig **OR** RB pressure ≥ 10 psig and no RBCU or RBS	Failure of secondary side of SG results in a direct opening to the environment with SG Tube Leak ≥ 10 gpm in the **SAME** SG
Entry into the PTS (Pressurized Thermal Shock) Operation **NOTE:** PTS is entered under either of the following: • A cooldown below 400°F @ > 100°F/hr. has occurred. • HPI has operated in the injection mode while **NO** RCPs were operating.	1RIA 57 or 58 reading ≥ 1.0 R/hr 2 RIA 57 reading ≥ 1.6 R/hr 2 RIA 58 reading ≥ 1.0 R/hr 3RIA 57 or 58 reading ≥ 1.0 R/hr		**Hours Since SD** / **RIA 57 R/hr** / **OR RIA 58 R/hr** 0 - <0.5 / ≥ 300 / ≥ 150 0.5 - < 2.0 / ≥ 80 / ≥ 40 2.0 - 8.0 / ≥ 32 / ≥ 16	**Hours Since SD** / **RIA 57 R/hr** / **OR RIA 58 R/hr** 0 - < 0.5 / ≥ 1800 / ≥ 860 0.5 - < 2.0 / ≥ 400 / ≥ 195 2.0 - 8.0 / ≥ 280 / ≥ 130	SG Tube Leak ≥ 10 gpm exists in one SG. **AND** the other SG has secondary side failure that results in a direct opening to the environment **AND** is being fed from the affected unit.
HPI Forced Cooling	RCS pressure spike ≥ 2750 psig			Hydrogen concentration ≥ 9%	Containment isolation is incomplete and a release path to the environment exists
Emergency Coordinator/EOF Director judgment	Emergency Coordinator/EOF Director judgment	Emergency Coordinator/EOF Director judgment	Emergency Coordinator/EOF Director judgment	Emergency Coordinator/EOF Director judgment	Emergency Coordinator/EOF Director judgment

UNUSUAL EVENT (1-3 Total Points)	ALERT (4-6 Total Points)	SITE AREA EMERGENCY (7-10 Total Points)	GENERAL EMERGENCY (11-13 Total Points)
OPERATING MODE: 1, 2, 3, 4	**OPERATING MODE:** 1, 2, 3, 4	**OPERATING MODE:** 1, 2, 3, 4	**OPERATING MODE:** 1, 2, 3, 4
4.1.U.1 Any potential loss of Containment	4.1.A.1 Any potential loss or loss of the RCS	4.1.S.1 Loss of any two barriers	4.1.G.1 Loss of any two barriers and potential loss of the third barrier
4.1.U.2 Any loss of containment	4.1.A.2 Any potential loss or loss of the Fuel Clad	4.1.S.2 Loss of one barrier and potential loss of either RCS or Fuel Clad Barriers	4.1.G.2 Loss of all three barriers
		4.1.S.3 Potential loss of both the RCS and Fuel Clad Barriers	

NOTE:
- An event with multiple events could occur which would result in the conclusion that exceeding the loss or potential loss threshold is **IMMINENT** (i.e., within 1-3 hours). In this IMMINENT LOSS situation, use judgment and classify as if the thresholds are exceeded.
- Referencing this matrix frequently will aid in determining a fission barrier failure or other upgrade criteria.

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. *RCS LEAKAGE* (BD 15) **OPERATING MODE:** 1, 2, 3, 4 A. Unidentified leakage ≥ 10 gpm B. Pressure boundary leakage ≥ 10 gpm C. Identified leakage ≥ 25 gpm • Includes SG tube leakage 2. *UNPLANNED* LOSS OF MOST OR ALL SAFETY SYSTEM ANNUNCIATION/ INDICATION IN CONTROL ROOM FOR > 15 MINUTES (BD 16) **OPERATING MODE:** 1, 2, 3, 4 A. *Unplanned* loss of > 50% of the following annunciators on one unit for > 15 minutes: **Units 1 & 3** 1 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, & 18 3 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, & 18 **Unit 2** 2 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, & 16 **AND** Loss of annunciators or indicators requires additional personnel (beyond normal shift complement) to safely operate the unit **(CONTINUED)**	1. *UNPLANNED* LOSS OF MOST OR ALL SAFETY SYSTEM ANNUNCIATION/ INDICATION IN CONTROL ROOM (BD 20) **OPERATING MODE:** 1, 2, 3, 4 A. *Unplanned* loss of > 50% of the following annunciators on one unit for > 15 minutes: **Units 1 & 3** 1 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, & 18 3 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, & 18 **Unit 2** 2 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, & 16 **AND** Loss of annunciators or indicators requires additional personnel (beyond normal shift complement) to safely operate the unit **AND** *Significant plant transient in progress* **OR** Loss of the OAC and **ALL** PAM indications **(END)**	1. **INABILITY TO MONITOR A SIGNIFICANT TRANSIENT IN PROGRESS (BD 22)** **OPERATING MODE:** 1, 2, 3, 4 A. *Unplanned* loss of > 50% of the following annunciators on one unit for > 15 minutes: **Units 1 & 3** 1 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, & 18 3 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, & 18 **Unit 2** 2 SA1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, & 16 **AND** A *significant transient* is in progress **AND** Loss of the OAC and **ALL** PAM indications **AND** *Inability to directly monitor* any one of the following functions: 1. Subcriticality 2. Core Cooling 3. Heat Sink 4. RCS Integrity 5. Containment Integrity 6. RCS Inventory **(END)**	

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
3. INABILITY TO REACH REQUIRED SHUTDOWN WITHIN LIMITS (BD 17) **OPERATING MODE:** 1, 2, 3, 4 A. Required operating mode not reached within TS LCO action statement time **4. *UNPLANNED* LOSS OF ALL ONSITE OR OFFSITE COMMUNICATIONS (BD 18)** **OPERATING MODE:** All A. Loss of all onsite communications capability (Plant phone system, PA system, Pager system, Onsite Radio system) affecting ability to perform Routine operations B. Loss of all onsite communications capability (Selective Signaling, NRC ETS lines, Offsite Radio System, AT&T line) affecting ability to communicate with offsite authorities. **5. FUEL CLAD DEGRADATION (BD 19)** **OPERATING MODE:** All: A. DEI - >5µCi/ml **(END)**			

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1 **ANY *UNPLANNED* RELEASE OF GASEOUS OR LIQUID RADIOACTIVITY TO THE ENVIRONMENT THAT EXCEEDS TWO TIMES THE SLC LIMITS FOR 60 MINUTES OR LONGER (BD 25)** **OPERATING MODE:** All A. *Valid* indication on radiation monitor RIA 33 of ≥ 4.06E+06 cpm for > 60 minutes (See Note 1) B. *Valid* indication on radiation monitor RIA-45 of ≥ 9.35E+05 cpm or RP sample reading of ≥ 6.62E-2uCi/ml Xe 133 eq for > 60 minutes (See Note 1) C. Liquid effluent being released exceeds two times SLC 16.11.1 for > 60 minutes as determined by Chemistry Procedure D. Gaseous effluent being released exceeds two times SLC 16.11.2 for > 60 minutes as determined by RP Procedure **NOTE 1**: If monitor reading is sustained for the time period indicated in the EAL **AND** the required assessments (procedure calculations) cannot be completed within this period, declaration must be made on the *valid* Radiation Monitor reading. **(CONTINUED)**	1. **ANY *UNPLANNED* RELEASE OF GASEOUS OR LIQUID RADIOACTIVITY TO THE ENVIRONMENT THAT EXCEEDS 200 TIMES RADIOLOGICAL TECHNICAL SPECIFICATIONS FOR 15 MINUTES OR LONGER (BD 30)** **OPERATING MODE:** All A. *Valid* indication of RIA-46 of ≥ 2.09 E+ 04 cpm or RP sample reading of ≥ 6.62 uCi/ml Xe 133 eq for > 15 minutes. (See Note 1) B RIA 33 **HIGH** Alarm **AND** Liquid effluent being released exceeds 200 times the level of SLC 16.11.1 for > 15 minutes as determined by Chemistry Procedure C. Gaseous effluent being released exceeds 200 times the level of SLC 16.11.2 for >15 minutes as determined by RP Procedure **(CONTINUED)**	1. **BOUNDARY DOSE RESULTING FROM ACTUAL/IMMINENT RELEASE OF GASEOUS ACTIVITY (BD 35)** **OPERATING MODE**: All A. *Valid* reading on RIA 46 of ≥ 2.09E+05 cpm or RIA 56 reading of ≥ 17.5 R/hr or RP sample reading of 6.62E+01 uCi/ml Xe 133 eq for > 15 minutes (See Note 2) B. *Valid* reading on RIA 57 or 58 as shown on Enclosure 4.8 (See Note 2) C. Dose calculations result in a dose projection at the *site boundary* of: ≥ 100 mRem TEDE or 500 mRem CDE adult thyroid D. Field survey results indicate *site boundary* dose rates exceeding ≥100 mRad/hr expected to continue for more than one hour **OR** Analyses of field survey samples indicate adult thyroid dose commitment of ≥ 500 mRem CDE (3.84 E^{-7} µCi/ml) for one hour of inhalation **NOTE 2:** If actual Dose Assessment cannot be completed within 15 minutes, then the *valid* radiation monitor reading should be used for emergency classification. **(CONTINUED)**	1. **BOUNDARY DOSE RESULTING FROM ACTUAL/ IMMINENT RELEASE OF GASEOUS ACTIVITY (BD 39)** **OPERATING MODE:** All A. *Valid* reading on RIA 46 of ≥ 2.09E+06 cpm or RIA 56 reading of ≥ 175 R/hr or RP sample reading of 6.62E+02uCi/ml Xe 133 eq for ≥ 15 minutes (See Note 3) B. *Valid* reading on RIA 57 or 58 as shown on Enclosure 4.8 (See Note 3) C. Dose calculations result in a dose projection at the *site boundary* of: ≥ 1000 mRem TEDE **OR** ≥ 5000 mRem CDE adult thyroid D. Field survey results indicate *site boundary* dose rates exceeding ≥1000 mRad/hr expected to continue for more than one hour **OR** Analyses of field survey samples indicate adult thyroid dose commitment of ≥ 5000 mRem CDE for one hour of inhalation **NOTE 3**: If actual Dose Assessment cannot be completed within 15 minutes, then the *valid* radiation monitor reading should be used for emergency classification. **(END)**

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
2 UNEXPECTED INCREASE IN PLANT RADIATION OR AIRBORNE CONCENTRATION (BD 27) **OPERATING MODE:** All A. LT 5 reading 14" and decreasing with makeup not keeping up with leakage **WITH** fuel in the core B. *Valid* indication of *uncontrolled* water decrease in the SFP or fuel transfer canal with all fuel assemblies remaining covered by water **AND** Unplanned *Valid* RIA 3, 6 or Portable Area Monitor readings increase. C. 1 R/hr radiation reading at one foot away from a damaged storage cask located at the ISFSI D. *Valid* area monitor readings exceeds limits stated in Enclosure 4.9. **NOTE:** This Initiating Condition is also located in Enclosure 4.4., (Loss of Shutdown Functions). High radiation levels will also be seen with this condition. **(END)**	**2. RELEASE OF RADIOACTIVE MATERIAL OR INCREASES IN RADIATION LEVELS THAT IMPEDES OPERATION OF SYSTEMS REQUIRED TO MAINTAIN SAFE OPERATION OR TO ESTABLISH OR MAINTAIN COLD SHUTDOWN (BD 32)** **OPERATING MODE:** All A. *Valid* radiation reading ≥ 15 mRad/hr in CR, CAS, or Radwaste CR B. *Unplanned*/unexpected *valid* area monitor readings exceed limits stated in Enclosure 4.9 **NOTE:** These readings may also be indicative of Fission Product Barrier concerns which makes a review of the Fission Product Barrier Matrix necessary. **3. MAJOR DAMAGE TO IRRADIATED FUEL OR LOSS OF WATER LEVEL THAT HAS OR WILL RESULT IN THE UNCOVERING OF IRRADIATED FUEL OUTSIDE THE REACTOR VESSEL (BD 33)** **OPERATING MODE:** All A. *Valid* RIA 3*, 6, 41, OR 49* **HIGH** Alarm * - Applies to Mode 6 and No Mode Only B. **HIGH** Alarm for portable area monitors on the main bridge or SFP bridge C. Report of visual observation of irradiated fuel uncovered D. Operators determine water level drop in either the SFP or fuel transfer canal will exceed makeup capacity such that irradiated fuel will be uncovered **NOTE:** This Initiating Condition is also located in Enclosure 4.4., (Loss of Shutdown Functions). High radiation levels will also be seen with this condition. **(END)**	**2. LOSS OF WATER LEVEL IN THE REACTOR VESSEL THAT HAS OR WILL UNCOVER FUEL IN THE REACTOR VESSEL (BD 38)** **OPERATING MODE:** 5, 6 A. Loss of all decay heat removal as indicated by the inability to maintain RCS temperature below 200° F **AND** LT 5 indicates 0 inches after initiation of RCS makeup B. Loss of all decay heat removal as indicated by the inability to maintain RCS temperature below 200° F **AND** Either train ultrasonic level indication less than 0 inches and decreasing after initiation of RCS makeup **NOTE:** This Initiating Condition is also located in Enclosure 4.4., (Loss of Shutdown Functions). High radiation levels will also be seen with this condition. **(END))**	

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
(CONTINUE TO NEXT PAGE)	**1. FAILURE OF RPS TO COMPLETE OR INITIATE A Rx SCRAM (BD 44)** **OPERATING MODE** 1, 2, 3 A. *Valid* reactor trip signal received or required **WITHOUT** automatic scram **AND** DSS has inserted Control Rods **OR** Manual trip from the Control Room is successful and reactor power is less than 5% and decreasing **2. INABILITY TO MAINTAIN PLANT IN MODE 5 (COLD SHUTDOWN) (BD 46)** **OPERATING MODE:** 5, 6 A. Loss of LPI and/or LPSW **AND** Inability to maintain RCS temperature below 200° F as indicated by either of the following: RCS temperature at the LPI Pump Suction **OR** Average of the 5 highest CETCs as indicated by ICCM display **OR** Visual observation **(CONTINUED)**	**1. FAILURE OF RPS TO COMPLETE OR INITIATE A Rx SCRAM (BD 50)** **OPERATING MODE:** 1, 2 A. *Valid* reactor trip signal received or required **WITHOUT** automatic scram **AND** DSS has **NOT** inserted Control Rods **AND** Manual trip from the Control Room was **NOT** successful in reducing reactor power to less than 5% and decreasing **2. COMPLETE LOSS OF FUNCTION NEEDED TO ACHIEVE OR MAINTAIN MODE 4 (HOT SHUTDOWN) (BD 51)** **OPERATING MODE:** 1, 2, 3, 4 A. Average of the 5 highest CETCs ≥1200° F shown on ICCM B. Unable to maintain reactor subcritical C. EOP directs feeding SG from SSF ASWP or station ASWP **(CONTINUED)**	**1. FAILURE OF RPS TO COMPLETE** **OPERATING MODE:** 1, 2 A. *Valid* Rx trip signal received or required **WITHOUT** automatic scram **AND** Manual trip from the Control Room was **NOT** successful in reducing reactor power to < 5% and decreasing **AND** Average of the 5 highest CETCs ≥1200° F on ICCM **(END)**

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. UNEXPECTED INCREASE IN PLANT RADIATION OR AIRBORNE CONCENTRATION (BD 42) **OPERATING MODE:** All A. LT 5 reading 14" and decreasing with makeup not keeping up with leakage **WITH** fuel in the core B. *Valid* indication of *uncontrolled* water decrease in the SFP or fuel transfer canal with all fuel assemblies remaining covered by water **AND** *Unplanned Valid* RIA 3, 6 or Portable Area Monitor readings increase. C. 1 R/hr radiation reading at one foot away from a damaged storage cask located at the ISFSI D. *Valid* area monitor readings exceeds limits stated in Enclosure 4.9. **NOTE:** This Initiating Condition is also located in Enclosure 4.3., (Abnormal Rad Levels/Radiological Effluent). High radiation levels will also be seen with this condition. **(END)**	**3. MAJOR DAMAGE TO IRRADIATED FUEL OR LOSS OF WATER LEVEL THAT HAS OR WILL RESULT IN THE UNCOVERING OF IRRADIATED FUEL OUTSIDE THE REACTOR VESSEL (BD 48)** **OPERATING MODE:** All A. *Valid* RIA 3*, 6, 41, OR 49* **HIGH** Alarm *Applies to Mode 6 and No Mode Only B. **HIGH** Alarm for portable area monitors on the main bridge or SFP bridge C Report of visual observation of irradiated fuel uncovered D. Operators determine water level drop in either the SFP or fuel transfer canal will exceed makeup capacity such that irradiated fuel will be uncovered **NOTE:** This Initiating Condition is also located in Enclosure 4.3, (Abnormal Rad Levels/Radiological Effluent). High radiation levels will also be seen with this condition. **(END)**	**3. LOSS OF WATER LEVEL IN THE REACTOR VESSEL THAT HAS OR WILL UNCOVER FUEL IN THE REACTOR VESSEL (BD 52)** **OPERATING MODE:** 5, 6 A. Loss of all decay heat removal as indicated by the inability to maintain RCS temperature below 200° F **AND** LT-5 indicates 0 inches after initiation of RCS Makeup B. Loss of all decay heat removal as indicated by the inability to maintain RCS temperature below 200° F **AND** Either train ultrasonic level indication less than 0 inches and decreasing after initiation of RCS makeup **NOTE:** This Initiating Condition is also located in Enclosure 4.3, (Abnormal Rad Levels/Radiological Effluent). High radiation levels will also be seen with this condition. **(END)**	

Enclosure 4.5
Loss of Power {4}

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. LOSS OF ALL OFFSITE POWER TO ESSENTIAL BUSSES FOR GREATER THAN 15 MINUTES (BD 55) **OPERATING MODE:** All A. Unit auxiliaries are being supplied from Keowee or CT5 **AND** Inability to energize either MFB from an offsite source (either switchyard) within 15 minutes. **2. *UNPLANNED* LOSS OF REQUIRED DC POWER FOR GREATER THAN 15 MINUTES (BD 56)** **OPERATING MODE:** 5, 6 A. *Unplanned* loss of vital DC power to required DC busses as indicated by bus voltage less than 110 VDC **AND** Failure to restore power to at least one required DC bus within 15 minutes from the time of loss **(END)**	**1. LOSS OF ALL OFFSITE AC POWER AND LOSS OF ALL ONSITE AC POWER TO ESSENTIAL BUSSES (BD 57)** **OPERATING MODE:** 5, 6 Defueled A. MFB 1 and 2 de-energized **AND** Failure to restore power to at least one MFB within 15 minutes from the time of loss of both offsite and onsite AC power **2. AC POWER CAPABILITY TO ESSENTIAL BUSSES REDUCED TO A SINGLE SOURCE FOR GREATER THAN 15 MINUTES (BD 58)** **OPERATING MODE:** 1, 2, 3, 4 A. AC power capability has been degraded to a single power source for > 15 minutes due to the loss of all but one of the following: Unit Normal Transformer (backcharged) Unit SU Transformer Another Unit SU Transformer (aligned) CT4 CT5 **(END)**	**1. LOSS OF ALL OFFSITE AC POWER AND LOSS OF ALL ONSITE AC POWER TO ESSENTIAL BUSSES (BD 59)** **OPERATING MODE:** 1, 2, 3, 4 A. MFB 1 and 2 de-energized **AND** Failure to restore power to at least one MFB within 15 minutes from the time of loss of both offsite and onsite AC power **2. LOSS OF ALL VITAL DC POWER (BD 60)** **OPERATING MODE:** 1, 2, 3, 4 A. *Unplanned* loss of *vital* DC power to required DC busses as indicated by bus voltage less than 110 VDC **AND** Failure to restore power to at least one required DC bus within 15 minutes from the time of loss **(END)**	**1. PROLONGED LOSS OF ALL OFFSITE POWER AND ONSITE AC POWER (BD 62)** **OPERATING MODE:** 1, 2, 3, 4 A. MFB 1 and 2 de-energized **AND** SSF fails to maintain Mode 3 (Hot Standby) {1} **AND** At least one of the following conditions exist: Restoration of power to at least one MFB within 4 hours is **NOT** likely **OR** Indications of continuing degradation of core cooling based on Fission Product Barrier monitoring **(END)**

Loss of Power - Emergency Action Levels (EALs) apply to the ability of electrical energy to perform its intended function, reach its intended equipment. ex. - If both MFBs, are energized but all 4160V switchgear is not available, the electrical energy can not reach the motors intended. The result to the plant is the same as if both MFBs were de-energized. {4}

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. ***FIRES/EXPLOSIONS*** **WITHIN THE PLANT (BD 65)** **OPERATING MODE:** All **NOTE:** Within the plant means: Turbine Building Auxiliary Building Reactor Building Keowee Hydro Transformer Yard B3T B4T Service Air Diesel Compressors Keowee Hydro & associated Transformers SSF A. Fire within the plant not extinguished within 15 minutes of Control Room notification or verification of a Control Room alarm B. Unanticipated *explosion* within the plant resulting in *visible damage* to permanent structures/equipment • includes steam line break and FDW line break **(Continued)**	1. ***FIRE/EXPLOSION*** **AFFECTING OPERABILITY OF PLANT SAFETY SYSTEMS REQUIRED TO ESTABLISH/MAINTAIN SAFE SHUTDOWN (BD 70)** **NOTE:** Only one train of a system needs to be affected or damaged in order to satisfy this condition. A. *Fire/explosions* **AND** Affected safety-related system parameter indications show degraded performance **OR** Plant personnel report *visible damage* to permanent structures or equipment required for safe shutdown **(Continued)**	**(CONTINUE TO NEXT PAGE)**	**(CONTINUE TO NEXT PAGE)**

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
2. CONFIRMED SECURITY CONDITION OR THREAT WHICH INDICATES A POTENTIAL DEGRADATION IN THE LEVEL OF SAFETY OF THE PLANT (BD 67) **OPERATING MODE:** All A. Security condition that does not involve a HOSTILE ACTION as reported by the Security Shift Supervision. B. A *credible* site-specific security threat notification C. A validated notification from NRC providing information of an aircraft threat **3. OTHER CONDITIONS EXIST WHICH IN THE JUDGEMENT OF THE EMERGENCY DIRECTOR WARRANT DECLARATION OF A NOUE. (BD 69)** **OPERATING MODE:** All A. Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring off-site response or monitoring are expected unless further degradation of safety systems occurs. **(END)**	**2 HOSTILE ACTION WITHIN THE OWNER CONTROLLED AREA OR AIRBORNE ATTACK THREAT. (BD 72)** A. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervision. B. A validated notification from NRC of an AIRLINER attack threat within 30 minutes of the site. **3. OTHER CONDITIONS EXIST WHICH IN THE JUDGEMENT OF THE EMERGENCY DIRECTOR WARRANT DECLARATION OF AN ALERT (BD 75)** **OPERATING MODE:** All A. Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels. **(END)**	**1. HOSTILE ACTION within the PROTECTED AREA (BD 76)** **OPERATING MODE:** All A. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervision. **2. OTHER CONDITIONS EXIST WHICH IN THE JUDGEMENT OF THE EMERGENCY DIRECTOR WARRANT DECLARATION OF A SITE AREA EMERGENCY. (BD 78)** **OPERATING MODE:** All A. Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary. **(END)**	**1. A HOSTILE ACTION RESULTING IN LOSS OF PHYSICAL CONTROL OF THE FACILITY (BD 79)** **OPERATING MODE:** All A. A HOSTILE ACTION has occurred such that plant personnel are unable to operate equipment required to maintain safety functions B. A HOSTILE ACTION has caused failure of Spent Fuel Cooling Systems and IMMINENT fuel damage is likely for a freshly off-loaded reactor core in pool. **2. OTHER CONDITIONS EXIST WHICH IN THE JUDGMENT OF THE EMERGENCY DIRECTOR WARRANT DECLARATION OF A GENERAL EMERGENCY. (BD 81)** **OPERATING MODE:** All A. Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels off-site for more than the immediate site area. **(END)**

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. NATURAL AND DESTRUCTIVE PHENOMENA AFFECTING THE *PROTECTED AREA* (BD 83) **OPERATING MODE:** All A. Tremor felt and *valid* alarm on the strong motion accelerograph B Tornado striking within *Protected Area* Boundary C. Vehicle crash into plant structures/systems within the *Protected Area* Boundary D. Turbine failure resulting in casing penetration or damage to turbine or generator seals **(CONTINUED)**	**1. NATURAL AND DESTRUCTIVE PHENOMENA AFFECTING THE PLANT *VITAL* AREA (BD 89)** **OPERATING MODE:** All A. Tremor felt and seismic trigger actuates (0.05g) **NOTE:** Only one train of a safety-related system needs to be affected or damaged in order to satisfy these conditions. B. Tornado, high winds, missiles resulting from turbine failure, vehicle crashes, or other catastrophic event. **AND** *Visible damage* to permanent structures or equipment required for safe shutdown of the unit. **OR** Affected safety system parameter indications show degraded performance. **(CONTINUED)**	**(CONTINUE TO NEXT PAGE)**	**(CONTINUE TO NEXT PAGE)**

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
2. NATURAL AND DESTRUCTIVE PHENOMENA AFFECTING KEOWEE HYDRO CONDITION B (BD 85) **OPERATING MODE:** All A. Reservoir elevation ≥ 805.0 feet with all spillway gates open and the lake elevation continues to rise B. Seepage readings increase or decrease greatly or seepage water is carrying a significant amount of soil particles C New area of seepage or wetness, with large amounts of seepage water observed on dam, dam toe, or the abutments D. Slide or other movement of the dam or abutments which could develop into a failure E. Developing failure involving the powerhouse or appurtenant structures and the operator believes the safety of the structure is questionable **3. NATURAL AND DESTRUCTIVE PHENOMENA AFFECTING JOCASSEE HYDRO CONDITION B (BD 86)** **OPERATING MODE:** All A. Condition B has been declared for the Jocassee Dam **(CONTINUED)**	**2. RELEASE OF TOXIC/FLAMMABLE GASES JEOPARDIZING SYSTEMS REQUIRED TO MAINTAIN SAFE OPERATION OR ESTABLISH/ MAINTAIN MODE 5 (COLD SHUTDOWN) (BD 91)** **OPERATING MODE:** All A. Report/detection of *toxic gases* in concentrations that will be life-threatening to plant personnel B. Report/detection of flammable gases in concentrations that will affect the safe operation of the plant: • Reactor Building • Auxiliary Building • Turbine Building • Control Room **3. TURBINE BUILDING FLOOD (BD 93)** **OPERATING MODE:** All A. Turbine Building flood requiring use of AP/1,2,3/A/1700/10, (Turbine Building Flood) **4. CONTROL ROOM EVACUATION HAS BEEN INITIATED (BD 94)** **OPERATING MODE:** All A. Evacuation of Control Room **AND ONE OF THE FOLLOWING:** **AND** Plant control **IS** established from the Aux shutdown Panel or the SSF **OR** Plant control **IS BEING** established from the Aux Shutdown Panel or SSF **(CONTINUED)**	**1. CONTROL ROOM EVACUATION AND PLANT CONTROL CANNOT BE ESTABLISHED (BD 96)** **OPERATING MODE:** All A. Control Room evacuation has been initiated **AND** Control of the plant cannot be established from the Aux Shutdown Panel or the SSF within 15 minutes **2. KEOWEE HYDRO DAM FAILURE (BD 97)** **OPERATING MODE:** All A. Imminent/actual dam failure exists involving any of the following: • Keowee Hydro Dam • Little River Dam • Dikes A, B, C, or D • Intake Canal Dike • Jocassee Dam - Condition A **(CONTINUED)**	**(CONTINUE TO NEXT PAGE)**

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
4 RELEASE OF TOXIC OR FLAMMABLE GASES DEEMED DETRIMENTAL TO SAFE OPERATION OF THE PLANT (BD 87) **OPERATING MODE:** All A. Report/detection of toxic or flammable gases that could enter within the site area boundary in amounts that can affect normal operation of the plant B. Report by local, county, state officials for potential evacuation of site personnel based on offsite event	**5. OTHER CONDITIONS WARRANT CLASSIFICATION OF AN *ALERT* (BD 95)** **OPERATING MODE:** All A. Emergency Coordinator judgment indicates that: Plant safety may be degraded **AND** Increased monitoring of plant functions is warranted **(END)**	**3. OTHER CONDITIONS WRRANT DECLARATION OF SITE AREA EMERGENCY (BD 98)** **OPERATING MODE**: All A. Emergency Coordinator/EOF Director judgment **(END)**	**1. OTHER CONDITIONS WARRANT DECLARATION OF GENERAL EMERGENCY (BD 99)** **OPERATING MODE:** All A. Emergency Coordinator/EOF Director judgment indicates: Actual/imminent substantial core degradation with potential for loss of containment **OR** Potential for *uncontrolled* radionuclide releases that would result in a dose projection at the site boundary greater than 1000 mRem TEDE or 5000 mRem CDE Adult Thyroid **(END)**
5. OTHER CONDITIONS EXIST WHICH WARRANT DECLARATION OF AN *UNUSUAL EVENT* (BD 88) **OPERATING MODE: All** A. Emergency Coordinator determines potential degradation of level of safety has occurred **(END)**			

Enclosure 4.8
Radiation Monitor Readings for Emergency Classification

All RIA values are considered GREATER THAN or EQUAL TO

HOURS SINCE REACTOR TRIPPED	RIA 57 R/hr		RIA 58 R/hr*	
	Site Area Emergency	General Emergency	Site Area Emergency	General Emergency
0.0 - < 0.5	5.9E+003	5.9E+004	2.6E+003	2.6E+004
0.5 - < 1.0	2.6E+003	2.6E+004	1.1E+003	1.1E+004
1.0 - < 1.5	1.9E+003	1.9E+004	8.6E+002	8.6E+003
1.5 - < 2.0	1.9E+003	1.9E+004	8.5E+002	8.5E+003
2.0 - < 2.5	1.4E+003	1.4E+004	6.3E+002	6.3E+003
2.5 - < 3.0	1.2E+003	1.2E+004	5.7E+002	5.7E+003
3.0 - < 3.5	1.1E+003	1.1E+004	5.2E+002	5.2E+003
3.5 - < 4.0	1.0E+003	1.0E+004	4.8E+002	4.8E+003
4.0 - < 8.0	1.0E+003	1.0E+004	4.4E+002	4.4E+003

*** RIA 58 is partially shielded**

NOTE: This Initiating Condition is not intended to apply to anticipated temporary increases due to planned events (e.g.; incore detector movement, radwaste container movement, depleted resin transfers, etc.).

MONITOR NUMBER	UNITS 1, 2, 3	
	UNUSUAL EVENT 1000x NORMAL LEVELS mRAD/HR	*ALERT* mRAD/HR
RIA 7, Hot Machine Shop Elevation 796	150	≥ 5000
RIA 8, Hot Chemistry Lab Elevation 796	4200	≥ 5000
RIA 10, Primary Sample Hood Elevation 796	830	≥ 5000
RIA 11, Change Room Elevation 796	210	≥ 5000
RIA 12, Chem Mix Tank Elevation 783	800	≥ 5000
RIA 13, Waste Disposal Sink Elevation 771	650	≥ 5000
RIA 15, HPI Room Elevation 758	**NOTE***	≥ 5000

NOTE: RIA 15 normal readings are approximately 9 mRad/hr on a daily basis. Applying 1000x normal readings would put this monitor greater than 5000 mRad/hr just for an *Unusual Event*. For this reason, an *Unusual Event* will **NOT** be declared for a reading less than 5000 mRad/hr.

1. List of Definitions and Acronyms

NOTE:	Definitions are italicized throughout procedure for easy recognition.

1.1 **ALERT** - Events are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

1.2 **BOMB** – Refers to an explosive device suspected of having sufficient force to damage plant systems or structures.

1.3 **COGNIZANT FACILITY STAFF** - any member of facility staff, who by virtue of training and experience, is qualified to assess the indications or reports for validity and to compare the same to the EALs in the licensee's emergency classification scheme. (Does not include staff whose positions require they report, rather than assess, abnormal conditions to the facility.)

1.4 **CONDITION A** - Failure is Imminent or Has Occurred - A failure at the dam has occurred or is about to occur and minutes to days may be allowed to respond dependent upon the proximity to the dam.

1.5 **CONDITION B** - Potentially Hazardous Situation is Developing - A situation where failure may develop, but preplanned actions taken during certain events (such as major floods, earthquakes, evidence of piping) may prevent or mitigate failure.

1.6 **CIVIL DISTURBANCE** - A group of persons violently protesting station operations or activities at the site.

1.7 **EXPLOSION** - A rapid, violent, unconfined combustion, or catastrophic failure of pressurized/energized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems, or components.

1.7 **EXTORTION** - An attempt to cause an action at the station by threat of force.

1.8 **FIRE** - Combustion characterized by heat and light. Sources of smoke, such as slipping drive belts or overheated electrical equipment, do NOT constitute *fires*. Observation of flames is preferred but is NOT required if large quantities of smoke and heat are observed.

1.9 **FRESHLY OFF-LOADED CORE** - The complete removal and relocation of all fuel assemblies from the reactor core and placed in the spent fuel pool. (Typical of a "No Mode" operation during a refuel outage that allows safety system maintenance to occur and results in maximum decay heat load in the spent fuel pool system).

1.10 **GENERAL EMERGENCY** - Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guidelines exposure levels offsite for more than the immediate area.

1.11 **HOSTAGE** - A person(s) held as leverage against the station to ensure demands will be met by the station.

1.12 **HOSTILE ACTION** - An act toward an NPP or its personnel that includes the use of violent force to destroy equipment, takes HOSTAGES, and/or intimidates the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the NPP. Non-terrorism-based EALs should be used to address such activities, (e.g., violent acts between individuals in the owner controlled area.)

1.13 **HOSTILE FORCE** - One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

1.14 **IMMINENT** - Mitigation actions have been ineffective, additional actions are not expected to be successful, and trended information indicates that the event or condition will occur. Where IMMINENT timeframes are specified, they shall apply.

1.15 **INTRUSION** – A person(s) present in a specified area without authorization. Discovery of a BOMB in a specified area is indication of INTRUSION into that area by a HOSTILE FORCE.

1.16 **INABILITY TO DIRECTLY MONITOR** - Operational Aid Computer data points are unavailable or gauges/panel indications are NOT readily available to the operator.

1.17 **LOSS OF POWER** – Emergency Action Levels (EALs) apply to the ability of electrical energy to perform its intended function, reach its intended equipment. Ex. – If both MFBs, are energized but all 4160v switchgear is not available, the electrical energy can not reach the motors intended. The result to the plant is the same as if both MFBs were de-energized.

1.18 **PROJECTILE** – An object directed toward a NPP that could cause concern for its continued operability, reliability, or personnel safety.

1.19 **PROTECTED AREA** – Typically the site specific area which normally encompasses all controlled areas within the security PROTECTED AREA fence.

1.20 **REACTOR COOLANT SYSTEM (RCS) LEAKAGE** – RCS Operational Leakage as defined in the Technical Specification Basis B 3.4.13:

RCS leakage includes leakage from connected systems up to and including the second normally closed valve for systems which do not penetrate containment and the outermost isolation valve for systems which penetrate containment.

A. Identified LEAKAGE

LEAKAGE to the containment from specifically known and located sources, but does not include pressure boundary LEAKAGE or controlled reactor coolant pump (RCP) seal leakoff (a normal function not considered LEAKAGE).

LEAKAGE, such as that from pump seals, gaskets, or valve packing (except RCP seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;

LEAKAGE through a steam generator (SG) to the Secondary System (primary to secondary LEAKAGE): Primary to secondary LEAKAGE must be included in the total calculated for identified LEAKAGE.

B. Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE.

C. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall or vessel wall.

1.21 **RUPTURED** (As relates to Steam Generator) - Existence of Primary to Secondary leakage of a magnitude sufficient to require or cause a reactor trip and safety injection.

1.22 **SABOTAGE** - Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment inoperable. Equipment found tampered with or damaged due to malicious mischief may not meet the definition of SABOTAGE until this determination is made by security supervision.

1.23 **SECURITY CONDITION** – Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION.

1.24 **SAFETY-RELATED SYSTEMS AREA** - Any area within the *Protected area* which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation.

1.25 **SELECTED LICENSEE COMMITMENT (SLC)** -Chapter 16 of the FSAR

1.26 **SIGNIFICANT PLANT TRANSIENT** - An *unplanned* event involving one or more of the following:

(1) Automatic turbine runback>25% thermal reactor power
(2) Electrical load rejection >25% full electrical load
(3) Reactor Trip
(4) Safety Injection System Activation

1.27 **SITE AREA EMERGENCY** - Events are in process or have occurred which involve actual or likely major failures of plant functions needed for the protection of the public. or HOSTILE ACTION that results in intentional damage or malicious act; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevents effective access to equipment needed for the protection of the public. Any releases are NOT expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the Site Boundary.

1.28 **SITE BOUNDARY** - That area, including the *Protected Area*, in which DPC has the authority to control all activities including exclusion or removal of personnel and property (1 mile radius from the center of Unit 2).\

1.29 **TOXIC GAS** - A gas that is dangerous to life or health by reason of inhalation or skin contact (e.g.; Chlorine).

1.30 **UNCONTROLLED** - Event is not the result of planned actions by the plant staff.

1.31 **UNPLANNED** - An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

1.32 **UNUSUAL EVENT** - Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

1.33 **VALID** - An indication or report or condition is considered to be VALID when it is conclusively verified by: (1) an instrument channel check; or, (2) indications on related or redundant instrumentation; or, (3) by direct observation by plant personnel such that doubt related to the instrument's operability, the condition's existence, or the report's accuracy is removed. Implicit with this definition is the need for timely assessment.

1.34 **VIOLENT** - Force has been used in an attempt to injure site personnel or damage plant property.

1.35 **VISIBLE DAMAGE** - Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage: deformation due to heat or impact, denting, penetration, rupture.

1.36 **VITAL AREA** - An area within the protected area where an individual is required to badge in to gain access to the area and that houses equipment important for nuclear safety. The failure or destruction of this equipment could directly or indirectly endanger the public health and safety by exposure to radiation.

Enclosure 4.11

Operating Modes Defined In Improved Technical Specifications

MODES

MODE	TITLE	REACTIVITY CONDITION (K_{eff})	% RATED THERMAL POWER (a)	AVERAGE REACTOR COOLANT TEMPERATURE (°F)
1	Power Operation	≥0.99	> 5	NA
2	Startup	≥0.99	≤5	NA
3	Hot Standby	<0.99	NA	≥250
4	Hot Shutdown (b)	< 0.99	NA	250 > T > 200
5	Cold Shutdown (b)	< 0.99	NA	≤ 200
6	Refueling (c)	NA	NA	NA

(a) Excluding decay heat.

(b) All reactor vessel head closure bolts fully tensioned.

(c) One or more reactor vessel head closure bolts less than fully tensioned

1. Instructions For Using Enclosure 4.1 – Fission Product Barrier Matrix

1.1 If the unit was at Hot S/D or above, (Modes 1, 2, 3, or 4) and one or more fission product barriers have been affected, refer to Enclosure 4.1, (Fission Product Barrier Matrix) and review the criteria listed to determine if the event should be classified.

1.1.1 For each Fission Product Barrier, review the associated EALs to determine if there is a Loss or Potential Loss of that barrier.

NOTE: An event with multiple events could occur which would result in the conclusion that exceeding the loss or potential loss thresholds is imminent (i.e. within 1-3 hours). In this situation, use judgement and classify as if the thresholds are exceeded.

1.2 Three possible outcomes exist for each barrier. No challenge, potential loss, or loss. Use the worst case for each barrier and the classification table at the bottom of the page to determine appropriate classification.

1.3 The numbers in parentheses out beside the label for each column can be used to assist in determining the classification. If no EAL is met for a given barrier, that barrier will have 0 points. The points for the columns are as follows:

Barrier	Failure	Points
RCS	Potential Loss	4
	Loss	5
Fuel Clad	Potential Loss	4
	Loss	5
Containment	Potential Loss	1
	Loss	3

1.3.1 To determine the classification, add the highest point value for each barrier to determine a total for all barriers. Compare this total point value with the numbers in parentheses beside each classification to see which one applies.

1.3.2 Finally as a verification of your decision, look below the Emergency Classification you selected. The loss and/or potential loss EALs selected for each barrier should be described by one of the bullet statements.

EXAMPLE: Failure to properly isolate a 'B' MS Line Rupture outside containment, results in extremely severe overcooling.

PTS entry conditions were satisfied.

Stresses on the 'B' S/G resulted in failure of multiple S/G tubes.

RCS leakage through the S/G exceeds available makeup capacity as indicated by loss of subcooling margin.

Barrier	EAL	Failure	Points
RCS	SGTR > Makeup capacity of one HPI pump in normal makeup mode with letdown isolated	Potential Loss	4
	Entry into PTS operating range	Potential Loss	4
	RCS leak rate > available makeup capacity as indicated by a loss of subcooling	Loss	5
Fuel Clad	No EALs met and no justification for classification on judgment	No Challenge	0
Containment	Failure of secondary side of SG results in a direct opening to the environment	Loss	3

RCS _5_ + Fuel _0_ + Containment _3_ = Total _8_

A. Even though two Potential Loss EALs and one Loss EAL are met for the RCS barrier, credit is only taken for the worst case (highest point value) EAL, so the points from this barrier equal 5.

B. No EAL is satisfied for the Fuel Clad Barrier so the points for this barrier equal 0.

C. One Loss EAL is met for the Containment Barrier so the points for this barrier equal 3.

D. When the total points are calculated the result is 8, therefore the classification would be a *Site Area Emergency.*

E. Look in the box below "*Site Area Emergency*". You have identified a loss of two barriers. This agrees with one of the bullet statements. The classification is correct.

1 References:

1. PIP O-05-02980
2. PIP O-05-4697
3. PIP O-06-0404
4. PIP O-06-03347
5. PIP O-09-00234
6. PIP O-10-1055
7. PIP O-10-01750
8. PIP O-11-02811
9. PIP O-12-1590
10. PIP O-10-7809
11. PIP O-12-9201
12. PIP O-12-9198
13. PIP O-12-11227

APPENDIX C. APPLICABILITY DETERMINATION (Rev. 10)

PART I – ACTIVITY DESCRIPTION

DUKE ENERGY CAROLINAS, LLC SITE			UNIT(S)		
☒ Oconee	☐ McGuire	☐ Catawba	☒ Unit 1	☒ Unit 2	☒ Unit 3

ACTIVITY TITLE/DOCUMENT/REVISION: **Emergency Classification**

RP/0/A/1000/001, REV 001

PART II – PROCESS REVIEW

For each activity, address all of the questions below. If the answer is "YES" for any portion of the activity, apply the identified process(es) to that portion of the activity. Note: It is not unusual to have more than one process apply to a given activity.

Will implementation of the above activity require a change to the:

1.	Technical Specifications (TS) or Operating License?	☒ NO	☐ YES	If YES, process as a license amendment per NSD 227.
2.	Quality Assurance Topical?	☒ NO	☐ YES	If YES, seek assistance from Independent Nuclear Oversight.
3.	Security Plans? (See Appendix H)	☒ NO	☐ YES	If YES, process per the Nuclear Security Manual.
4.	Emergency Plan?	☐ NO	☒ YES	If YES, process per the Emergency Planning Functional Area Manual.
5.	Inservice Testing Program Plan?	☒ NO	☐ YES	If YES, process per site IST Program for ASME code compliance and related facility changes.
6.	Inservice Inspection Program Plan?	☒ NO	☐ YES	If YES, process per Materials, Metallurgy and Piping Inservice Inspection FAM for ASME code compliance and related facility or procedure changes.
7.	Fire Protection Program Plan?	☒ NO	☐ YES	If YES, evaluate activity in accordance with NSD 320.
	7a -Utilize Appendix E to address Fire Protection Program Plan Impact.		☐	Check to confirm use of Appendix E Screening Questions.
8.	Regulatory Commitments?	☒ NO	☐ YES	If YES, process per NSD 214.
9.	Code of Federal Regulations?	☒ NO	☐ YES	If YES, contact the Regulatory Affairs group.
10.	Programs and manuals listed in the Administrative Section of the TS?	☒ NO	☐ YES	If YES, contact the Regulatory Affairs group.

PART IIIa - 10 CFR 72.48 APPLICABILITY

For each activity, address the question below. If the answer to question 11 is "YES," and questions 14 and 17 are answered "NO", then process the activity per NSD 211 - 10 CFR 72.48 does apply.

11.	Does the activity involve SSCs, procedures or conduct tests or experiments that support/impact the loading or transport of the canister/cask to the ISFSI, the ISFSI facility, spent fuel cask design?	☒ NO	☐ YES

PART IIIb – 10 CFR 50.59 APPLICABILITY

For each activity, address all of the questions below. If the answer to question 18 is "YES," then 10 CFR 50.59 does not apply. If the answer to questions 18 is "NO," then process the activity per NSD 209 – 10 CFR 50.59 applies.

12.	Does the activity involve a procedure, governed by NSD 703 that has been excluded from the 10 CFR 50.59 process per NSD 703 and the exclusion status remains valid?	☒ NO	☐ YES
13.	Does the activity involve an administrative procedure governed by NSD 100 or AD-DC-ALL-0201 that does not contain information regarding the operation and control of Structures, Systems and Components?	☒ NO	☐ YES
14.	Does the activity involve a type of Engineering Change that NSD 301 excludes from the 10 CFR 50.59 and/or 10 CFR 72.48 Processes? Consult NSD 301 for assistance.	☒ NO	☐ YES
15.	Does the activity involve (a) maintenance activities that restore SSCs to their as-designed condition (including activities that implement approved design changes) or (b) temporary alterations supporting maintenance that will be in effect during at-power operations for 90 days or less?	☒ NO	☐ YES
16.	Does the activity involve a UFSAR modification that NSD 220 excludes from the 10 CFR 50.59 Process? Consult NSD 220 for assistance.	☒ NO	☐ YES
17.	Does the activity involve NRC and/or Duke Energy Carolinas, LLC approved changes to the licensing basis?	☒ NO	☐ YES
18.	Are **ALL** aspects of the activity bounded by one or more "YES" answers to questions 1 through 17, above?	☐ NO	☒ YES

PART IV - UFSAR REVIEW

19.	Does the activity require a modification, deletion, or addition to the UFSAR to satisfy the UFSAR content requirements of 10 CFR 50.34 (b), 10 CFR 50.71 (e), or Regulatory Guide (RG) 1.70? Consult NSD 220 for Assistance. IF YES, process per NSD 220.	☒ NO	☐ YES

PART V – SIGNOFF

(Print Name) Donald A. Cecil (Sign) [signature] DATE 4/24/14

Applicability Determination Preparer

Form 703-2. Procedure Change Process Record
(R08-10)

Duke Energy

PROCEDURE CHANGE PROCESS RECORD

(1) ID No. RP/0/A/1000/001

Revision No. 001 Change No.
Permanent/Restricted to
_____

(2) Station: OCONEE NUCLEAR STATION

(3) Procedure Title: Emergency Classification

(4) Section(s) of Procedure Affected: __

(5) Requires NSD 228 Applicability Determination?

☒ Yes (Procedure change with major changes) - Attach NSD 228 documentation.

☐ No (Procedure change with minor changes)

(6) Description of Change: *(Attach additional pages, if necessary.)*

1. Added Note to remind the Emergency Coordinator to refer to the fission product barrier matrix frequently.

(7) Reason for Change:
Enhancements noted during drill

(8) Prepared By* John Kaminski (Signature) _____ Date 03/04/2014

(9) Reviewed By* _____ (QR)(KI) Date 4/24/14

Cross-Disciplinary Review By* _____ (QR)(KI) NA SAC Date 4/24/14

Reactivity Mgmt. Review By* _____ (QR) NA SAC Date 4/24/14

Mgmt. Involvement Review By* _____ (Ops. Supt.) NA SAC Date 4/24/14

(10) Additional Reviews

Reviewed By* _____ Date _____

Reviewed By* _____ Date _____

(11) Approved By* PATRICK M STURGIS _____ Date 4/24/14

* *Printed Name and Signature*

§50.54(q) Screening Evaluation Form

Activity Description and References: Emergency Classification, RP/0/A/1000/001 rev 001 — BLOCK 1

See attached sheet for all changes pertaining to this procedure.

Activity Scope: — BLOCK 2

☒ The activity is a *change* to the *emergency plan*

☐ The activity is not a *change* to the *emergency plan*

Change Type: — BLOCK 3

☐ The change is editorial or typographical

☒ The change is not editorial or typographical

Change Type: — BLOCK 4

☐ The change does conform to an activity that has prior approval

☒ The change does not conform to an activity that has prior approval

Planning Standard Impact Determination: — BLOCK 5

☐ §50.47(b)(1) – Assignment of Responsibility (Organization Control)
☐ §50.47(b)(2) – Onsite Emergency Organization
☐ §50.47(b)(3) – Emergency Response Support and Resources
☒ **§50.47(b)(4) – Emergency Classification System***
☐ **§50.47(b)(5) – Notification Methods and Procedures***
☐ §50.47(b)(6) – Emergency Communications
☐ §50.47(b)(7) – Public Education and Information
☐ §50.47(b)(8) – Emergency Facility and Equipment
☐ **§50.47(b)(9) – Accident Assessment***
☐ **§50.47(b)(10) – Protective Response***
☐ §50.47(b)(11) – Radiological Exposure Control
☐ §50.47(b)(12) – Medical and Public Health Support
☐ §50.47(b)(13) – Recovery Planning and Post-accident Operations
☐ §50.47(b)(14) – Drills and Exercises
☐ §50.47(b)(15) – Emergency Responder Training
☐ §50.47(b)(16) – Emergency Plan Maintenance

***Risk Significant Planning Standards**

☐ The proposed activity does not impact a Planning Standard

Commitment Impact Determination: — BLOCK 6

☐ The activity does involve a site specific EP commitment
Record the commitment or commitment reference: _____

☒ The activity does not involve a site specific EP commitment

Results: — BLOCK 7

☐ The activity can be implemented without performing a §50.54(q) effectiveness evaluation
☒ The activity cannot be implemented without performing a §50.54(q) effectiveness evaluation

Preparer Name: John Kaminski	Preparer Signature: [signature]	Date: 3/4/14
Reviewer Name: Don Crowl	Reviewer Signature: [signature]	Date: 4/24/14

§50.54(q) Effectiveness Evaluation Form

Activity Description and References: Emergency Classification RP/0/A/1000/001 rev 001 — BLOCK 1

Activity Type: — BLOCK 2

☐ The activity is a *change* to the *emergency plan*
☒ The activity affects implementation of the *emergency plan*, but is not a *change* to the *emergency plan*

Impact and Licensing Basis Determination: — BLOCK 3

Licensing Basis:
10CFR50.47b (4) 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.
NUREG 0654II.D.1. An emergency classification and emergency action level scheme as set forth in Appendix 1 must be established by the licensee. The specific instruments, parameters or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class

Compliance Evaluation and Conclusion: — BLOCK 4

1. Evaluation:
   The addition of a note to remind the Emergency Coordinators to frequently review/revisit the fission product barrier matrix is an enhancement and does not impact any classification, impact the timing and or timeliness of any classification. The proposed change serves to provide another reminder to the emergency coordinator of the need to be mindful of the fission product barriers. No changes were made to any EAL, any setpoint and or any other part of the Emergency Classification scheme. The EAL Scheme continues to comply with regulations and requirements and remains consistent/compliant with NUMARC/NESP 007.

   Conclusion:

   The proposed activity ☒ does / ☐ does not continue to comply with the requirements.

Reduction in Effectiveness (RIE) Evaluation and Conclusion: — BLOCK 5

1. Evaluation:
   The addition of a note to remind the Emergency Coordinators to frequently review/revisit the fission product barrier matrix is an enhancement and does not impact any classification, impact the timing and or timeliness of any classification. The proposed change serves to provide another reminder to the emergency coordinator of the need to be mindful of the fission product barriers. As such the addition of the note may enhance correct and timely classification determinations by providing the reminder to verify fission product barrier integrity. Therefore there has been no reduction in the function or timing or timeliness of the E Plan as result of the proposed change.

   Conclusion:

   The proposed activity ☐ does / ☒ does not constitute a RIE.

Effectiveness Evaluation Results **BLOCK 6**

☒ The activity does continue to comply with the requirements of §50.47(b) and §50 Appendix E **and** the activity does not constitute a reduction in effectiveness. Therefore, the activity can be implemented without prior approval.

☐ The activity does not continue to comply with the requirements of §50.47(b) and §50 Appendix E **or** the activity does constitute a reduction in effectiveness. Therefore, the activity cannot be implemented without prior approval.

Preparer Name: John Kaminski	Preparer Signature	Date: 3/24/14
Reviewer Name: Don Crowl	Reviewer Signature	Date: 4/24/14
Approver Name: Pat Street	Approver Signature	Date: 4/29/14

Attachment to 50.54q

Emergency Classification RP/0/A/1000/001 rev 001

Change #	Step number/ page number	Current Wording	Proposed Wording	Reason for Change
1	Enclosure 4.1 Note	NA	(New) Referencing this matrix frequently will aid in determining a fission product barrier failure or other upgrade criteria.	Enhancement to assist the Emergency Coordinator in the identification of emergency classifications.
2	Enclosure 4.3.2.B.a	NA	(New) NOTE: These readings may also be indicative of Fission Product Barrier concerns which makes a review of the Fission Product Barrier Matrix necessary	Enhancement to assist the Emergency Coordinator in the identification of emergency classifications.