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ONS-2015-071

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June 25, 2015

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 Revision 2015-004

Please find attached for your use and review copies of the revisions to the Oconee Nuclear Station Emergency Plan 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. If there are any questions or concerns pertaining to this revision please call Pat Street, Emergency Preparedness 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
Emergency Plan Revision 2015-004
10 CFR 50.54(q) Evaluation(s)

AX45
NRR

ONS-2015-071

U. S. Nuclear Regulatory Commission
June 25, 2015

xc: w/2 copies of attachments

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Mr. Eddy Crowe
NRC Senior Resident Inspector
Oconee Nuclear Station

ELL - EC2ZF

June 2, 2015

OCONEE NUCLEAR STATION

SUBJECT: Emergency Plan Revision 2015-004

Please make the following changes to the Emergency Plan:

REMOVE

Cover Sheet Rev. 2015-003

EPA Record of Changes Rev 014
EPA Section D Rev 008
EPA Section F Rev 007
EPA Section H Rev 006
EPA Section K Rev 001
EPA Section P Rev 008
EPA Appendix 3 Rev 002

INSERT

Cover Sheet Rev 2015-004

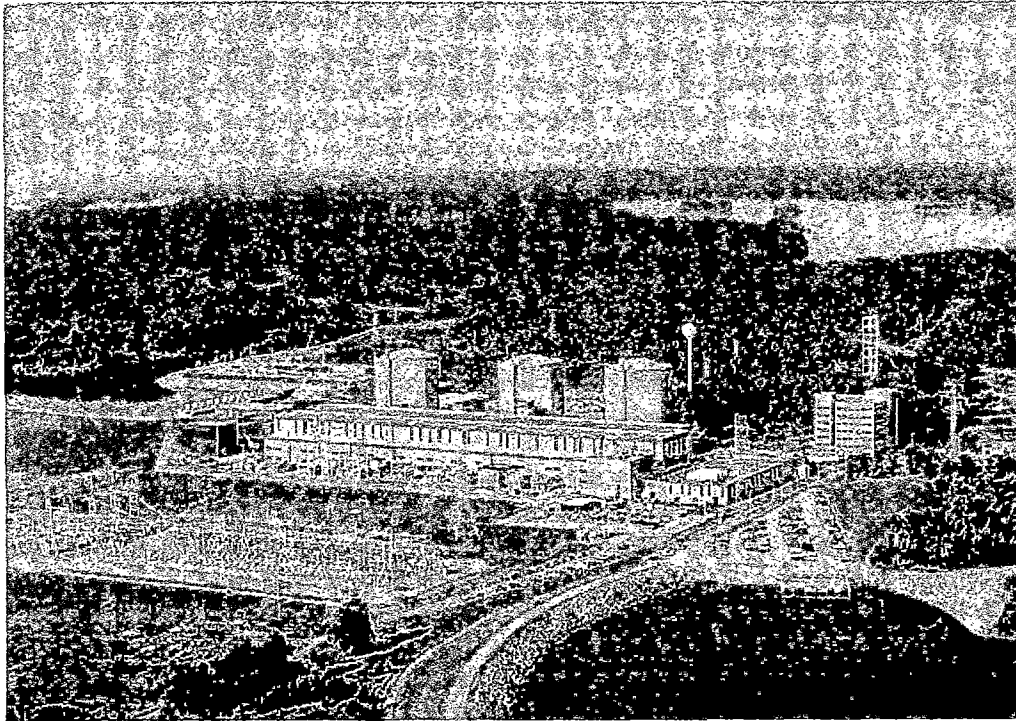
EPA Record of Changes Rev 015
EPA Section D Rev 009
EPA Section F Rev 008
EPA Section H Rev 007
EPA Section K Rev 002
EPA Section P Rev 009
EPA Appendix 3 Rev 003

A handwritten signature in black ink, appearing to read 'Pat Street', with a long horizontal line extending from the end of the name.

Pat Street
ONS Emergency Preparedness Manager



OCONEE NUCLEAR STATION EMERGENCY PLAN



APPROVED:

A handwritten signature in cursive script, reading "Scott L. Batson", written over a horizontal line.

Scott L. Batson

A handwritten date "06-22-2015" written in cursive script, positioned above a horizontal line.

Date Approved

**REVISION 2015-004
May, 2015**

RECORD OF CHANGES

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
Revision 1	April 1, 1981	Meteorological Update
Revision 2	December 31, 1981	Rewrite Emergency Plan in Nureg 0654 Format
Revision 3	March, 1982	Update Emergency Plan
Revision 4	April, 1982	Revisions & Changes to update Emergency Plan
Revision 5	September 1, 1982	Revision to coincide with Crisis Management Plan
Revision 6	November 1, 1982	Revision update
Revision 7	December 14, 1982	Review and update
83-1	June 10, 1983	Changes required by action items due to annual exercise and review and general update
83-2	November 17, 1983	Changes required by review and general update
84-1	March 26, 1984	Revisions as determined by QA audit and minor editing
84-2	November 15, 1984	Revisions as determined by annual review
85-1	June 7, 1985	Revisions/changes/editing
85-2	-----	Revisions/changes/editing-annual review
86-1	March 8, 1986	New Oconee Brochure
86-2	November 13, 1986	Revisions/changes/editing-annual review
86-3	December 9, 1986	Correct changes identified as deficiencies by the NRC in Rev. 85-2.
87-1	February 4, 1987	Revision update, minor editing changes, included failed fuel accident assessment information.
87-2	-----	Revision update, minor editing changes Review Section D. Agreement letters updated.
87-4	December 10, 1987	Incorporate alternate TSC and OSC into Emergency Plan
88-1	June 7, 1988	Revised EALS in Section D.
88-2	October 14, 1988	Annual review. Minor editorial revisions.
89-1	February 28, 1989	Major revision to Section D. Added Appendix 7. Minor editorial changes.
89-2	August 14, 1989	Change to Section D. Minor editorial revisions.
89-3	January 5, 1990	Annual Review

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
90-1	March 1, 1990	Changes to Section D as required by NRC commitment.
90-2	June 1, 1990	Changes reflect upgrade of radiation monitor system and minor editing.
90-3	July 2, 1990	Change to Section D, Emergency Classification.
90-4	October 31, 1990	Annual Review
91-1	January 21, 1991	Section D revision. (RIA upgrade)
91-2	February 20, 1991	Section D revision. (TS to SLC)
91-3	March 22, 1991	Section D revision. (RIA upgrade); Section D revision. (SLB revision)
91-5	September 19, 1991	Section D revision. (RIA upgrade)
91-6	December 16, 1991	Annual review.
92-1	March 1, 1992	Section D (RIA upgrade). Minor editorial changes.
92-2	June 30, 1992	Major Revision
92-3	October 29, 1992	Annual review
92-4	12/31/92	Section B, D, H, J, Appendix 4, 5 & 6 changes.
93-1	03/01/93	Sections D, G, H, N, P, and Appendix 6
93-2	05/07/93	Sections A, B, D, Appendix 5 and 6
93-3	07/23/93	Sections A, B, G, H, I, J, L, M, N, & Appendix 6
93-4	08/11/93	Sections B, D, and Appendix 5
93-05	01/01/94	Annual Review, Incorporation of EPA-400 guidelines.
94-01	03/15/94	Additions of Appendix 8 and 9. - (Minor revisions)
94-02	05/09/94	Changes to Appendix 5, Pages 1 and 2; Changes to Appendix 6, Pages 2 and 4; State of South Carolina Agreement Letter
94-03	05/25/94	Changes to Appendix 5, Page 2; Changes to Appendix 6, Pages 4 and 5; INPO Agreement Letter
94-04	06/06/94	Changes to Appendix 5, Page 2; Change Teledyne Isotopes Badge Service agreement letter to Northeast Utilities Service Company
94-05	08/08/94	Changes to Section D
94-06	12/29/94	Annual review. Editorial changes, minor revisions.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
95-01	02/23/95	Changes to Sections B, G, Appendix 5.
95-02	10/23/95	Annual review and changes
95-03	11/01/95	Section D. Change, Incorporated new EAL'S.
95-04	12/31/95	Calendar 1996, HAZMAT Changes, RP/14 deleted
96-01	02/13/96	Changes to Sections B, D, and N.
96-02	06/25/96	Changes to Section D
96-03	07/96	Changes to Section D
96-04	12/96	Annual review, editorial changes, minor changes with major change to Appendix 10.
97-01	07-97	Section B, I, Appendix 5 & 7, with editorial/minor changes to Section H & P
97-02	12-97	Annual review and editorial/minor changes
98-01	02-98	Section D, page 35. Correction of title on Enclosure 4.3
98-02	03-98	Section N, page 1 & 2, Added part a (General) to Section N.2 to ensure drills conducted between NRC evaluated exercises are performed in accordance with 10CFR50, Appendix E, Section IV.F.2.b
98-03	04-98	List of Figures page number corrections, Added Emergency Operation Facility to Figure H-15, Figure H-20 reformatted. Added Agreement Letter with Keowee-Key Volunteer Fire Department, Appendix 5, #24. Appendix 10 - Hazardous Materials Response Plan, corrections on Table of Contents with minor revisions. Headings on Appendix 10, Figure 2 with minor revisions.
98-04	12-98	Annual review and editorial/minor changes.
99-01	03-99	The ONS Technical Specifications have been converted to a set of Technical Specifications based on NUREG 1430. "Standard Technical Specifications Babcock and Wilcox Plants."

Replaced the description phrases (titles) in Section D for Operating Modes with the Mode number from Improved Technical Specifications. In Section I the portion describing leak rate volume percent per day was changed to percent of the containment air weight per day. The reference to Tech Spec 4.4.1.1 was changed to reference Improved Technical Specification 5.5.2.

NOTE: The implementation date of Improved Tech Specs was moved from March 4, 1999 to March 27, 1999, therefore the revision date for revision 99-01 will depict February when the actual administrative changes were completed.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
99-02	12-99	Annual review and editorial/minor changes
2000-01	04-2000	Addition of List of Effective Pages
2000-02	05/2000	Editorial /minor changes
2000-03	12/2000	Annual review and editorial/minor changes
2001-01	02/07/2001	Additions and corrections as result of 50.54(t) audit. Additional information added to Basis Document and additional EAL's resulting from EP drill critiques.
2001-02	08/2001	Changes in areas of responsibility. Added note concerning RVLS to Fission Product Barrier Matrix; 2001 calendar; information added to EP Functional Area Manual; added/updated information on annual average meteorology; Appendix 5; Appendix 6; editorial/minor changes.
2001-03	12/2001	Added information in Basis Document concerning a reactor building containment break. Replaced the 2001 calendar with the 2002 calendar. Editorial/minor changes.
2002-01	01/02	<p>The present Oconee Nuclear Station Emergency Operating Procedure is written in a different format and with some different terms than the earlier version. The term PTS (Pressurized Thermal Shock) has replaced TSOR (Thermal Shock Operating Range). This is only a change in terminology.</p> <p>The additional EAL is to ensure a site specific credible threat results in a declaration of a notification of Unusual Event (NOUE). This change is also intended to achieve an appropriate level and consistent response Nationwide.</p>
2002-02	06/02	Section B - minor changes; Section D - Added information requested by Emergency Coordinators to Enclosure 4.1; Section G - Rewrite of entire section; Section H - Updated information on Figure H-4 relating to Met Data; Appendix 5 - Updated Letters of Agreement; and miscellaneous spelling/grammar errors.
2002-03	09/02	Section A - Compliance with the NRC Security Interim Compensatory Measure (ICM) issued 02/25/02; Section P - Audit frequencies per revised 10 CFR 50.54 (t) as stated in Federal Register Vol 64, 03/29/99. Appendix 1 - Added definition of monthly and Semi-Annual; Appendix 5, Agreement Letters, updated #17, Appendix 6 - Changed name on 78A. Miscellaneous corrections.
2003-01	02/03	Section D - RIA setpoints change, Section G - 2003 Calendar, Appendix 3 - Siren upgrade, new map (i-5) ; Appendix 5 - Agreement Letters, Appendix 6 - Issued To change, Section B, E, F editorial/minor changes
2003-02	08/03	Section D - incorporates additional guidance for the Emergency Coordinator/EOF Director related to classification of a high energy line break, such as a Main Steam Line Break. In addition, Section D has been retyped using a consistent font style - no changes in content resulted from the retype.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
2004-01	02/04	Incorporates a retype of the majority of the sections as an editorial change to adopt a consistent format: Section G - Added information concerning One Mile Exclusion Area Signs; Section H - Strip Chart Recorders were removed under an NSM; Section J - Incorporated guidance on the use of KI as a protective action recommendation; Section K - changed KI dose to 5 REM CDE from 25 REM; Appendix 4 - Incorporate results of Evacuation Time Estimate; Appendix 5 - Revised Agreement Letters
2004-02	12/21/04	Editorial changes to correct typos, drawings, and title/organizational names. This revision also incorporates clarifying information from the latest Evacuation Time Estimate (ETE); clarification of offsite agency responsibilities for protective actions for impediments and special populations; revised EAL #2 for Enclosure 4.3, Unusual Event IC #2; clarification of ERO activation after normal working hours; and revisions to the site's SPCC Plan included in Appendix 8. In addition to these changes, applicable references have replaced generic references in Figure P-1. This revision also incorporates the 2005 Calendar distributed to the 10 mile EPZ population.
2005-01	02/01/05	Section D, Enclosure 4.7, Page 66 - Duke Power Hydro-Electric Group has revised the Lake Keowee water level from 807 to 815.5 feet for initiating a Condition B. This elevation is used in Enclosure 4.7 for classifying the event as an Unusual Event. The Hydro -Electric Group notifies the Control Room when Condition B has been declared. No protective actions by the plant are changed.
2005-02	05/17/05	Section I & Letters of Agreement - Incorporates an editorial revision that describes the makeup of Field Monitoring Teams and updated Agreement Letters. I.7&8 replaced "...personnel from Radiation Protection and Chemistry." with "...a RP Technician and a Driver." Editorial Change - Chemistry personnel no longer perform the function of FMT Driver. FMT Drivers are now provided by other groups.
2005-03	08/24/05	Revision 2005-03 incorporates an addendum for the Fire Department/Volunteer Fire Department Agreement Letters. This addendum was added as a result of NRC guidance provided to utilities. The addendum to these letters provides guidance on the use of the Incident Command System at ONS and identifies the ONS Fire Brigade Leader as the on-scene commander and site-interface for responding offsite fire departments.
2005-04	09/15/05	Revision 2005-04 is a change to Page 66, Enclosure 4.7, Emergency Action Levels #1 - Reservoir elevation greater than or equal to 807.0 feet with all spillway gates open and the lake elevation continues to rise. This change undoes Revision 2005-01 which changed Keowee Lake level from 807 feet elevation to 815.5 feet elevation. This revision was determined to be a non conservative change in that it delayed the Unusual Event emergency classification. Appendix 5, Agreement Letter #21 has been updated.
2005-05	01/09/06	Revision 2005-05 incorporates editorial changes that clarify organizational charts/responsibilities, revise procedure references, replaces public information calendar, and replaces obsolete survey instruments. Agreement Letters #16 and #19 were updated.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
2006-03	06/8/06	Section D - Change #1 Revised initiating condition #2 for the Alert classification for Enclosure 4.6 (Fire/Explosions and Security Events). This change is based on a correction to the NEI White Paper, Enhancements to Emergency Preparedness Programs For Hostile Actions which was endorsed in a letter from the NRC on December 8, 2005. Change #2 - Renumbered Emergency Action Levels throughout Section D to match the numbering scheme found in RP/0/B/1000/001 (Emergency Classification) procedure - Renumbering makes it easier for procedure users to locate the correct emergency action level in the Basis Document. Appendix 5 - Agreement Letters #8, 14,15 & 23 were updated.
2006-04	11/06	Reference changes to the deletion of the Clemson EOF and incorporates reference to the Charlotte EOF. In addition, miscellaneous editorial changes are included in this revision.
2007-01	03/07	Appendix 5 Agreement Letters that have been updated/revised.
2007-02	12/07	Editorial changes including a revised 50 mile radius map (Figure B), a revision to the Emergency Classification Basis Section D , the 2008 Emergency Planning Calendar, a revised layout drawing for the JIC, a revised listing of portable survey instruments, the latest renewal of existing agreement letters and a revised Ground Water Monitoring Plan
2008-01	09/08	The original order of the EALs created a human performance trap. The first fission barrier column that the procedure user reviews is the RCS Barrier column which is on the left side of the page. The second fission barrier column that is reviewed is the Fuel Clad Barrier which is in the center of the page. This order gives the procedure user the mindset that the EALs are listed in the same order: RCS EAL followed by the Fuel Clad EAL. Changing the order of the EALs is not a deviation from the approved EAL scheme but is a difference. This change does not constitute a decrease in the effectiveness of the EPLAN since the EALs are exactly the same.
2008-02	10/08	As of this change 2008-02, the Emergency Plan is now available on NEDL/SCRIBE and has been completely re-issued. All changes in the future to the Emergency Plan will be completed thru NEDL/SCRIBE. The following Agreement Letters were also updated: 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 19 and 21.
2009-01	02/09	Revised existing information relating to organization names that have changed, removed specific names and replaced with a title to mitigate the need for future revisions due to personnel changes, and changed staging location names based on changes made to area designation names; however staging will still occur in same area. Changes made only reflect actual organization names, functional position names, and current location names being used to make the E-Plan more accurately reflect current information. No changes are being made to the process or conduct of the how the E-Plan is to be implemented.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
2010-10	02/10	Revised existing information relating to changes made to the callback system, who performs the dose assessments, the basis information for the Containment Barrier EAL based on NEI 99-01 Rev 5 FAQ lessons learned. Made name change for Oconee Medical Center, corrected information relating to testing frequency for major elements referenced in the E-Plan, the new neutron instrument used by radiation protection, and street name change for figure H-3A. Changes made are the result of the Annual Review process and no changes are being made to the process or conduct of how the E-Plan is to be implemented. The following Agreement Letters were also updated: Number - 6, 8, 13, 14, 15, 16, 18, 20, 22, & 23.
2011-01	05/11	Figure B-10 - Redistribution of support for Field Monitoring Teams from Chemistry to Business Management and Work Control. Section D - Basis corrected to delete reference to USFAR Table 15-114 which has been deleted, revised ICs 4.3.A.3 and 4.4.A.3, EAL A to align with RP/0/B/1000/001, revised ICs and EALs to add levels of operating modes that represent the operating levels of hot shutdown, cold shutdown and hot standby were listed, added "AC" back to IC 4.5.A.1 where it had been inadvertently deleted, add SSF to IC 4.6.U.1, correct IC 4.5.G.1, EAL 1 to reflect SSF maintaining Mode 3 (hot standby) rather than hot shutdown, add new ICs for Jocassee Dam condition A and B declarations, correct misprint in IC 4.7.A.2, EAL B, correct formatting errors, and add Security EALs. Section F - deleted onsite areas requiring phone notifications for site assembly due to new wireless system being installed in those areas. Section G - replace 2010 calendar with 2011 calendar. Figure H-1 - revised room layout to reflect current arrangement. Section N - Revised the testing cycle for the EPLAN from a 5 year cycle to a 6 year cycle. Appendix 5 - update letters of agreement.
2011-02	10/11	This evaluation supports a request to revise the Oconee (ONS), McGuire (MNS), and Catawba (CNS) Emergency Plans to allow for an alternate approach for compliance with 10 CFR 50.47(b)(2) relative to meeting the minimum staffing requirement during emergencies for site Radiation Protection (RP) personnel and the Emergency Operations Facility (EOF) position staffing to that in Table B-1 in NUREG-0654, endorsed by Regulatory Guide 1.101.
2012-01	06/12	Section F - A change to the process for answering the 4911 emergency phone calls. The new process will have both Operations and Security(SAS) answering the phone. Appendix 7 -Will clarify the ERDS related system description verbiage from the modem based data transfer system to the new VPN System.
2012-02	06/12	The NRC published Federal Register notice [RIN 3150-AI10], "Enhancements to Emergency Preparedness Regulations" on November 23, 2011. The amendments contained in the rule are summarized as twelve (XII) topics with varying implementation due dates. Emergency Plan changes to the following sections (C, D, H, I, J, P, and Appendix 1) are made in accordance with the rule and the appropriate guidance documents pertaining to Topic V – Emergency Action Level for Hostile Action, Topic VI – Emergency Declaration Timeliness, Topic VIII – Emergency Operation Facility (Performance Based), Topic IX – Emergency Response Organization Augmentation at Alternate Facility, and Topic XI – Protective Actions for On-site Personnel.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
2012-03	06/13	Added Agreement Letter 25 - G&G Metal Fabrication to provide Hale pump technical support and Agreement Letter 26 Operating Agreement between Duke Energy's Lincoln Combustion Turbine Facility & MNS, CNS and ONS Nuclear Supply Chain concerning an Emergency Supply of Diesel Fuel.
2012-04	12/12	Section B - This change is to incorporate the new staffing analysis for the new EP rule and editorial changes.
2012-05	12/12	Revised Section D, Enclosure 4.3 to add threshold values for unit vent sampling as a compensatory measure. Unit vent sampling is performed on the 6th floor auxiliary building at sampling equipment where manual grab samples are retrieved per HP/0/B/1000/060-D. Additionally, the use of RIA 56 was added as a compensatory measure for Site Area Emergency and General Emergency Classifications. This change allows for classification of gaseous radiological releases in the event of a loss of either RIA-45 or 46. This change only clarifies the values to be used in the event normal monitoring is not available. The plan is also being revised based on annual review requirements, changes are mainly editorial or formatting. Additional changes are being made to reflect current name changes, update Agreement letters, Spill Prevention and Control, and Groundwater monitoring programs.
2013-01	10/13	<ul style="list-style-type: none"> • Section D - Added clarification in the basis for Loss of Shutdown function. • Section I - Revised to reference procedures versus RPSM 11.7 which has been deleted. • Section J - Revised to incorporate latest revision to ETE. Deleted climate data tables which were duplicative to information contained within the ETE (Appendix 4). • Section P - Updated appropriate references. • Appendix 4 - Added latest ETE as reference.
2014-01	03/14	<ul style="list-style-type: none"> • Section B - Removed reference to having home addresses listed in the emergency telephone directory as these were never listed in the telephone directory and clarified EOF Services Group actions. Updated titles of ERO positions in the TSC and OSC consistent with duty roster. • Section D - Added clarification for which RIA-45 is to be used. Respectively, it is expected that 1RIA-45, 2RIA-45 and 3RIA-45 would be used in connection with Enclosure 4.3, Abnormal Rad Level/Radiological Effluent. 4RIA-45 is not specifically related to a unit and therefore it is not applicable to Enclosure 4.3. • Section G - Removed Calendar and replaced with Note that the calendar is retained on file with EP Staff. • Section H - Eliminated drawings of Alternate TSC and Alternate OSC as these are for implementation and not needed in Emergency Plan. Removed implementation details from Primary TSC and Primary OSC drawings. Corrected Figure H-20 and shifted table alignment. • Section J - Provided editorial corrections to procedure numerical references where applicable. • Section M - Provided clarification of EOF Services listed on Figure M-2. • Section P - Provided editorial corrections to procedure numerical references where applicable, and changed a reference from the EP Functional Area Manual to a fleet administrative procedure reference (EP FAM to AD-EP-ALL-0001). Eliminated reference to HR Emergency Plan. • Appendix 5 - Removed all copies of the Letters of Agreement and indicated they are included by reference. The actual Letters of Agreement are retained on file by the EP Staff.

RECORD OF CHANGES (Continued)

<u>REVISION NUMBER</u>	<u>EFFECTIVE DATE</u>	<u>REASON FOR REVISIONS</u>
2014-02	10/14	<ul style="list-style-type: none"> • Section A - Revised for change from pagers to notify the ERO to using cell phones. Shift Manager delegates actual activation of notification device to Security if available or qualified operator if security is unable. • Section B - Revised responsibility for Radwaste function from Chemistry Group to Operations Group. • Section D - Revised responsibility for Radwaste function from Chemistry Group to Operations Group, including reference to chemistry procedures to operation procedures. • Section F - Revised for change from pagers to notify the ERO to using cell phones. Shift Manager delegates actual activation of notification device to Security if available or qualified operator if security is unable. • Section G - Procedure number changes • Section H - Removed specific locations of kits as these were insufficiently detailed and did not contain all kit locations. • Section I - Procedure number changes. • Section J - Procedure number changes. • Section M - Procedure number changes, title changes. • Section N - Changes to show new rules including 8 year cycle, consistency with fleet documents practices, and format. • Section P - Revised responsibility for independent audit from NSRB to NOS Manager, deleted duplicated paragraph and updated the listing of the implementing procedures. • Appendix 6 - Updated distribution list to reflect new format of E Plan and associated implementing procedures.
2014-003	12/14	Changes made associated with the modification from Raddose V to URI, and updates to WEBEOC.
2015-001	01/15	Changes made to Section F, EOF Communications and Figure F-1.
2015-002	03/15	Changes made as a result of superseding SH/0/B/2005/002, EP Fam 3.19 and Appendix 5.
2015-003	04/15	Changes made to Section D consisting of Protected Service Water replacing the Station Auxiliary Service Pump as a result of system modification. Replaced Selective Signaling with DEMNET
2015-004	5/18	<p>E-Plan changes made to Sections App 3, D, F, H, K, & P and the Table of Contents consisting of AD-EP ALL-0203 & AD-EP ALL-0204 procedure reference changes and changes from Selective Signaling to DEMNET. Also includes title changes from Operations Shift Manager to Shift Manager.</p> <ul style="list-style-type: none"> • Appendix 3: Revised Selective Signaling to DEMNET • Section D: Revised Selective Signaling to DEMNET and removed OSM • Section F: Revised Selective Signaling to DEMNET, removed OSM, and SH/0/B/2005/002 to AD-EP ALL-0203 • Section H: Removed specific equipment reference to reduce E-plan revisions • Section K: Implementation for AD-EP-ALL-0204 for administration of KI, and title changes from Operations Shift Manager to Shift Manager • Section P: Reference updates SH/0/B/2005/003 to AD-EP ALL-0204

D. EMERGENCY CLASSIFICATION SYSTEM

RegGuide 1.101, Rev. 3, August, 1992, approved the guidance provided by NUMARC/NESP-007, Revision 2, as an Alternative Methodology for the Development of Emergency Action Levels. Oconee Nuclear Site used the NUMARC guidance for the development of initiating conditions and emergency action levels. The emergency action levels provided in this section have been modified to implement the guidance provided in NRC Bulletin 2005-02, NEI guidance as endorsed in Regulatory Issue Summary 2006-12 and to support the implementation of NEI 03-12.

The emergency classification system utilizes four categories for classification of emergency events.

D.1.a. 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.

The purpose of an Unusual Event classification is to provide notification of the emergency to the station staff, State and Local Government representatives, and the NRC.

Specific initiating conditions and their corresponding emergency action levels are provided in the Basis Document beginning on page D-4.

D.1.b 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.

The purpose of the Alert classification is to assure that emergency personnel are readily available to:

1. Activate the onsite response centers
2. Respond if the situation becomes more serious or to perform confirmatory radiation monitoring if required
3. Provide offsite authorities current status information

Specific initiating conditions and their corresponding emergency action levels are provided in the Basis Document beginning on page D-4.

D.1.c. SITE AREA EMERGENCY

Events are in process 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.

The purpose of the Site Area Emergency classification is to:

1. Activate the offsite response centers
2. Assure that monitoring teams are mobilized
3. Assure that personnel required for taking protective actions of near site areas are at duty stations should the situation become more serious
4. Provide current information to the public and be available for consultation with offsite authorities

Specific initiating conditions and their corresponding emergency action levels are provided in the Basis Document beginning on page D-4.

D.1.d. 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 Guideline exposure levels offsite for more than the immediate site area.

The purpose of the General Emergency classification is to:

1. Initiate predetermined protective actions for the public
2. Provide continuous assessment of information from onsite and offsite measurements
3. Initiate additional measures as indicated by event releases or potential releases
4. Provide current information to the public and be available for consultation with offsite authorities

Specific initiating conditions and their corresponding emergency action levels are provided in the Basis Document beginning on page D-4.

D.2 Initiating Conditions

Initiating conditions and their corresponding emergency actions levels are contained in the BASIS document beginning on page D-4. Classification procedure (RP/0/A/1000/001) provides the guidance necessary to classify events and promptly declare the appropriate emergency condition within 15 minutes after the availability of indications to cognizant facility staff that an emergency action level threshold has been exceeded. Specific response procedures are in place for the Control Room, Technical Support Center and the Emergency Operations Facility which delineate the required response during the appropriate classification.

D.3 LOCAL AND STATE EMERGENCY ACTION LEVELS

Pickens County FNF Plans
Oconee County FNF Plans
State of South Carolina FNF Plans (Site Specific)

D.4 LOCAL AND STATE EMERGENCY PROCEDURES

Pickens County FNF Plans
Oconee County FNF Plans
State of South Carolina FNF Plans (Site Specific)

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 10-12)																									
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"	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 <u>SAME</u> SG																								
Entry into the PTS (Pressurized Thermal Shock) Operation NOTE: PTS is entered under either of the following: <ul style="list-style-type: none">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	<div>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.</div>	<table><tr><td>Hours Since SD</td><td>RIA 57 OR R/hr</td><td>RIA 58 R/hr</td></tr><tr><td>0 - <0.5</td><td>≥ 300</td><td>≥ 150</td></tr><tr><td>0.5 - <2.0</td><td>≥ 80</td><td>≥ 40</td></tr><tr><td>2.0 - 8.0</td><td>≥ 32</td><td>≥ 16</td></tr></table>	Hours Since SD	RIA 57 OR R/hr	RIA 58 R/hr	0 - <0.5	≥ 300	≥ 150	0.5 - <2.0	≥ 80	≥ 40	2.0 - 8.0	≥ 32	≥ 16	<table><tr><td>Hours Since SD</td><td>RIA 57 OR R/hr</td><td>RIA 58 R/hr</td></tr><tr><td>0 - <0.5</td><td>≥ 1800</td><td>≥ 860</td></tr><tr><td>0.5 - <2.0</td><td>≥ 400</td><td>≥ 195</td></tr><tr><td>2.0 - 8.0</td><td>≥ 280</td><td>≥ 130</td></tr></table>	Hours Since SD	RIA 57 OR R/hr	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.
Hours Since SD	RIA 57 OR R/hr	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 OR R/hr	RIA 58 R/hr																											
0 - <0.5	≥ 1800	≥ 860																											
0.5 - <2.0	≥ 400	≥ 195																											
2.0 - 8.0	≥ 280	≥ 130																											
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)																									
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.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.S.3 Potential loss of both the RCS and Fuel Clad Barriers																									
				4.1.G.1 Loss of any two barriers and potential loss of the third barrier																									
				4.1.G.2 Loss of all three 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.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

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

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. RCS Leak Rate

Small leaks may result in the inability to maintain normal liquid inventory within the Reactor Coolant System (RCS) by normal operation of the High Pressure Injection System. The capacity of one HPI pump at normal system pressure is approximately 160 gpm. Leakage in excess of this value would call for compensatory action to maintain normal liquid inventory. As such, this is an indication of a degraded RCS barrier and is considered to be a potential loss of the barrier.

The loss of subcooling is the fundamental indication that the inventory loss from the primary system exceeds the capacity of the inventory control systems. If the loss of subcooling is indicated, the RCS barrier is considered lost.

2. SG Tube Rupture

Small Steam Generator tube leaks may result in the inability to maintain normal liquid inventory within the Reactor Coolant System (RCS) by normal operation of the High Pressure Injection System. The capacity of one HPI pump at normal system pressure is approximately 160 gpm. Leakage in excess of this value would call for compensatory action to maintain normal liquid inventory. As such, this is an indication of a degraded RCS barrier and is considered to be a potential loss of the barrier.

A tube rupture (> than 160 gpm) with an unisolable secondary line rupture is generally indicated by a reduction in primary coolant inventory, increased secondary radiation levels, and an uncontrolled or complete depressurization of the ruptured SG. This set of conditions represents a potential loss of the RCS and loss of containment fission product barrier and will result in the declaration of a Site Area Emergency. Escalation to a General Emergency would be indicated by at least a potential loss of the fuel clad barrier.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

2. SG Tube Rupture

Secondary radiation increases should be observed via radiation monitoring of Condenser Air Ejector Discharge, 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.

A steam generator tube leak less than 160 gpm would be classified under Enclosure 4.2, Systems Malfunctions, RCS leakage as an Unusual Event. If a release also occurs such as steam through a steam relief valve failed open, feedwater line break, steam line break on the affected steam generator then a loss of the Containment Barrier has also occurred. Upgrade to a higher classification would be by Enclosure 4.3, Abnormal Rad Levels/Radiological Effluent or further degradation of RCS or Fuel Clad Barriers.

3. Entry Into PTS

Entry into Pressurized Thermal Shock Operation could cause damage to the reactor vessel severe enough to cause a loss of coolant accident. Therefore, this situation represents a potential loss of the RCS. This EAL is satisfied if Rule 8 (Pressurized Thermal Shock) is implemented.

4. Reactor Coolant System Integrity

HPI Forced cooling represents the failure of the steam generators to remove heat from the core. To use this mode of cooling indicates that all feedwater (both main and emergency) are not available for use and the pressure in the reactor coolant system is greater than or equal to 2300 psig. The power-operated relief valve must be opened to initiate the cooling through the high pressure injection system. In effect, a self-imposed loss of coolant is established. The condition is classified as a potential loss of the reactor coolant system.

A reactor coolant system pressure spike of greater than or equal to design pressure of 2750 psig represents a loss of the RCS barrier.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

5. Containment Radiation Monitoring

A containment radiation monitor reading of > 1 R/hr on radiation monitors 1RIA-57 or 58 (Unit 1), 2RIA-58 (Unit 2), and 3RIA-57 or 58 (Unit 3) indicates the release of reactor coolant to the containment. A containment radiation monitor reading of >1.6 R/hr on radiation monitor 2RIA-57 (Unit 2) also indicates the release of reactor coolant to the containment. The difference in these values is due to the relative strength of the detector check source which affects the background readings for the detector (the source for 2RIA-57 is stronger than that for the remaining detectors). This reading is less than that specified for Fuel Clad Barrier EAL#3. 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.

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

6. Emergency Coordinator/EOF Director Judgment

This EAL is intended to address unanticipated conditions not addressed explicitly but warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator/EOF Director to fall under either the loss or potential loss of the RCS Barrier.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

FUEL CLAD BARRIER EALs: (1 or 2 or 3 or 4)

The Fuel Clad Barrier is the zircalloy tubes that contain the fuel pellets.

1. Core Exit Thermocouple Readings

The "Potential Loss" EAL reading corresponds to loss of subcooling. The value of 700 °F is indicative of superheated steam and is a value referenced in the Emergency Operating procedure. The loss of subcooling may lead to clad damage and, therefore, this is a potential loss of the fuel clad barrier.

The "Loss" EAL reading (1200 °F) indicates significant superheating of the coolant and core uncover. Clad damage under these conditions is likely; therefore, this is indication of loss of the Fuel Clad Barrier.

2. Primary Coolant Activity Level

The value of 300 µCi/ml DEI coolant activity is well above that expected for iodine spikes and corresponds to about 4% fuel clad damage. This amount of clad damage indicates significant clad damage and thus the Fuel Clad Barrier is considered lost. Basis for determination is Engineering Calculation OSC-5283.

There is no equivalent "Potential Loss" EAL for this item.

3. Reactor Vessel Water Level

A valid reading of 0" on the RVLS (Reactor Vessel Level System) is an indicator that the fuel **could be** uncovered and would signify a potential loss of the fuel clad barrier. RVLS is invalid if LPI pumps are running and taking suction from the LPI drop line.

4. Containment Radiation Monitoring

Containment monitor readings on RIA 57/58 in the below listed table is higher than can be attributed to normal reactor coolant activity alone. These levels indicate that approximately 4% of the fuel cladding has failed which is consistent with the release of 300 uC/ml DEI to the containment atmosphere. Release of this amount of activity into containment corresponds to a loss of both the fuel clad and RCS barriers. Basis for the calculation which determined the activity levels can be found in engineering calculation OSC-5283.

Hours Since SD	RIA 57	RIA 58
0 - < 0.5	≥ 300	≥ 150
0.5 - < 2.0	≥ 80	≥ 40
2.0 - 8.0	≥ 32	≥ 16

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

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

5. Emergency Coordinator/EOF Director Judgment

This EAL is intended to address unanticipated conditions not addressed explicitly but warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator/EOF Director to fall under either the loss or potential loss of the Fuel Clad Barrier.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

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

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. Containment Pressure

- ◆ Containment pressure above 59 psig (the design pressure) indicates that the containment or its heat removal systems are not functioning as intended. This degradation of containment pressure control represents a potential loss of containment integrity.
- ◆ Containment pressure of 10 psig with no reactor building cooling units or reactor building spray available represents degradation in the control of the containment conditions. Therefore, this situation represents a potential loss of containment integrity.
- ◆ A containment hydrogen concentration greater than 9 percent volume is sufficient to expect that any ignition would result in complete combustion of the hydrogen in containment and a significant pressure rise. At hydrogen concentrations near 9 percent volume no challenge to containment integrity would be expected. At levels somewhat higher the possibility of a deflagration to detonation transition raises the uncertainty as to the actual response of the containment. Therefore, it is prudent that this level of hydrogen in the containment be considered a potential loss of containment integrity.
- ◆ Rapid unexplained loss of pressure (i.e., not attributable to containment spray or condensation effects) following an initial pressure increase indicates a loss of containment integrity.

Containment pressure and sump levels should increase as a result of the mass and energy release into containment from a LOCA. Thus, sump level or pressure not increasing indicates an interfacing systems LOCA which is a containment bypass and a loss of containment integrity.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

2. Containment Isolation Valve Status After Containment Isolation

Failure to isolate those containment pathways which would allow containment atmosphere to be released to the environment is a loss of the containment barrier.

The use of the modifier "direct" in defining the release path discriminates against release paths through interfacing liquid systems. The existence of an in-line charcoal filter does not make a release path indirect since the filter is not effective at removing fission product noble gases. Typical filters have an efficiency of 95-99% removal of iodine. Given the magnitude of the core inventory of iodine, significant releases could still occur. In addition, since the fission product release would be driven by boiling in the reactor vessel, the high humidity in the release stream can be expected to render the filters ineffective in a short period.

There is no Potential Loss threshold associated with this item.

The decision of whether this EAL is satisfied should be based on present and readily available information. This includes physical data seen and heard. It is not the intent of this EAL to use relatively long term calculations to make the determination. If there is a pathway which would allow containment atmosphere to be released to the environment, this EAL is satisfied.

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

3. SG Secondary Side Release With Primary To Secondary Leakage

Secondary side releases directly to the atmosphere include atmospheric dump valves and stuck open main steam safety valves. If the main condenser is available, there may be releases via air ejector, gland seal exhausters, and other similar controlled, and often monitored, pathways. These pathways do not meet the intent of a direct opening to the environment. These minor releases are assessed using Abnormal Rad Levels/Radiological Effluent Initiating Conditions. A failure of the secondary side which results in a direct opening to the environment, in combination with Primary to Secondary leakage ≥ 10 gpm in the same steam generator, constitutes a bypass of the containment, and therefore, a loss of the containment barrier.

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

Likewise, a failure of the secondary side which results in a direct opening to the environment, in combination with Primary to Secondary leakage ≥ 10 gpm in the other steam generator, constitutes a bypass of the containment, **IF** the SG with the secondary side failure is being fed feedwater from the affected unit. Therefore, this condition also constitutes a loss of the containment barrier.

In combination with the SG Tube Rupture EAL under the RCS barrier section, the appropriate classification can be determined.

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

4. Significant Radioactive Inventory in Containment

Containment radiation readings shown in the table below are values which indicate significant fuel damage well in excess of the EALs associated with both loss of Fuel Clad and loss of RCS Barriers. NUREG-1228, "Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents," indicates that such conditions do not exist when the amount of clad damage is less than 20%. This amount of activity in containment, if released, could have such severe consequences that it is prudent to treat this as a potential loss of containment.

By treating the radioactive inventory in containment as a potential loss, a General Emergency will be declared when the conditions of the fuel clad and RCS barriers are included in the evaluation. This will allow the appropriate protective actions to be recommended.

Hours Since SD	RIA 57	RIA 58
0 - < 0.5	≥ 1800	≥ 860
0.5 - < 2.0	≥ 400	≥ 195
2.0 - 8.0	≥ 280	≥ 130

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

ENCLOSURE 4.1

BASIS INFORMATION FOR FISSION PRODUCT BARRIER REFERENCE TABLE

5. Core Exit Thermocouple

Core Exit Thermocouple temperatures ≥ 1200 °F or ≥ 700 °F with a valid RVLS reading for greater than 15 minutes, in this potential loss EAL represent imminent core damage that, if not terminated, could lead to vessel failure and an increased potential for containment failure. The potential for containment challenge as a result of events at reactor vessel failure makes it prudent to consider an unmitigated core damage condition as a potential loss of the containment barrier.

Severe accident analyses (e.g., NUREG-1150) have concluded that function restoration procedures can arrest core degradation within the reactor vessel in a significant fraction of the core damage scenarios, and that the likelihood of containment failure is very small in these events. Given this, it is appropriate to provide a reasonable period to allow function restoration procedures to arrest the core melt sequence. Whether or not the procedures will be effective should be apparent within 15 minutes. The Emergency Coordinator should make the declaration as soon as it is determined that the procedures have been, or will be ineffective.

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

6. Emergency Coordinator/EOF Director Judgment

This EAL is intended to address unanticipated conditions not addressed explicitly but warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator/EOF Director to fall under either the loss or potential loss of the Containment Barrier.

Reference

NUMARC/NESP-007, Rev 2, 01/92, Table 5-F-3

ENCLOSURE 4.2

SYSTEM MALFUNCTION

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
RCS Leakage	Unplanned Loss of Most or All Safety System	Inability to Monitor a Significant Transient in Progress	
Unplanned Loss of Most or All Safety System	Annunciation or Indication in Control Room With Either (1) a Significant Transient in Progress, or (2) Compensatory Non-Alarming Indicators are Unavailable		
Annunciation or Indication in the Control Room for Greater than 15 minutes			
Inability to Reach Required Shutdown Within Technical Specification Limits			
Unplanned Loss of All Onsite or Offsite Communications			
Fuel Clad Degradation			

ENCLOSURE 4.2

SYSTEM MALFUNCTION

UNUSUAL EVENT

1. RCS Leakage

OPERATING MODE APPLICABILITY: 1,2,3,4

EMERGENCY ACTION LEVELS:

- A. Unidentified leakage ≥ 10 gpm
- B. Pressure boundary leakage ≥ 10 gpm
- C. Identified leakage ≥ 25 gpm
 - Includes SG tube leakage

BASIS:

Reactor Coolant system (RCS) Leakage is defined in RCS Operational Leakage in the Technical Specifications Basis B 3.4.13.

This IC is included as an Unusual Event because it may be a precursor of more serious conditions and, as result, is considered to be a potential degradation of the level of safety of the plant. The 10 gpm value for the unidentified and pressure boundary leakage was selected as it is observable with normal control room indications. Lesser values must generally be determined through time-consuming surveillance tests (e.g., mass balances). The EAL for identified leakage is set at a higher value due to the lesser significance of identified leakage in comparison to unidentified or pressure boundary leakage. In either case, escalation of this IC to the Alert level is via Fission Product Barrier Degradation ICs or IC, Enclosure 4.4, Loss of Shutdown Function, "Inability to Maintain Plant in Cold Shutdown".

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SU5

ENCLOSURE 4.2

SYSTEM MALFUNCTION

UNUSUAL EVENT

- 2. Unplanned Loss of Most or All Safety System Annunciation or Indication in the Control Room for Greater Than 15 Minutes.**

OPERATING MODE APPLICABILITY: 1,2,3,4

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. Unplanned loss of > 50% of the following annunciators for greater than 15 minutes**

Units 1&3 1SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16 and 18
 3SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16 and 18

Unit 2 2SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15 and 16

AND

In the opinion of the Operations Shift Manager, the loss of the annunciators or indicators requires additional personnel (beyond normal shift compliment) to safely operate the unit.

BASIS:

This IC and its associated EAL are intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment.

"Unplanned" loss of annunciators or indicator excludes scheduled maintenance and testing activities. Fifteen minutes was selected as a threshold to exclude transient or momentary power losses. Equipment monitored by referenced annunciator panel is shown on page 20.

This Unusual Event will be escalated to an Alert if a transient is in progress during the loss of annunciation or indication.

Due to the limited number of safety systems in operation during cold shutdown, refueling, and defueled modes, no IC is indicated during these modes of operation.

Reference NUMARC/NESP-007, Rev. 2, 01/92, SU3

ENCLOSURE 4.2

SYSTEM MALFUNCTION

UNUSUAL EVENT

3. Inability to Reach Required Shutdown Within Technical Specification Limits

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVELS:

- A. Plant is not brought to required operating mode within Technical Specifications LCO Action Statement Time.

BASIS:

Technical Specification Actions Statements require the plant to be brought to a required shutdown mode when the Technical Specification required configuration cannot be restored. Depending on the circumstances, this may or may not be an emergency or precursor to a more severe condition. In any case, the initiation of plant shutdown required by the site Technical Specifications requires a one hour report under 10 CFR 50.72 (b) Non-emergency events. The plant is within its safety envelope when being shut down within the allowable action statement time in the Technical Specifications. An immediate Notification of an Unusual Event is required when the plant is not brought to the required operating mode within the allowable action statement time in the Technical Specifications. **Declaration of an Unusual Event is based on the time at which the LCO-specified action statement time period elapses under the site Technical Specifications and is not related to how long a condition may have existed.** Other required Technical Specification shutdowns that involve precursors to more serious events are addressed by other System Malfunction, Hazards, or Fission Product Barrier Degradation ICs.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SU2

ENCLOSURE 4.2

SYSTEM MALFUNCTION

UNUSUAL EVENT

4. Unplanned Loss of All Onsite or Offsite Communications

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVELS:

- A. Loss of all onsite communications capability (internal phone system, PA system, ERO notification system, onsite radio system) affecting the ability to perform routine operations.
- B. Loss of all offsite communications capability (DEMNET, ETS lines, offsite radio system, commercial phone system) affecting the ability to communicate with offsite authorities.

BASIS:

The purpose of this IC and its associated EALs is to recognize a loss of communications capability that either defeats the plant operations staff ability to perform routine tasks necessary for plant operations or the ability to communicate problems with offsite authorities. The loss of offsite communications ability is expected to be significantly more comprehensive than the condition addressed by 10 CFR 50.72.

This EAL is intended to be used only when extraordinary means are being utilized to make communications possible (relaying of information from radio transmissions, individuals being sent to offsite locations, etc.).

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SU6

ENCLOSURE 4.2

SYSTEM MALFUNCTION

UNUSUAL EVENT

5. Fuel Clad Degradation.

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVEL:

A. DEI > 5 uCi/ml

BASIS:

Chemistry analysis which indicates the presence of > 5 uCi/ml dose equivalent iodine in the reactor coolant system clearly denotes a potential degradation in the level of safety of the plant and a potential precursor of more serious problems. The basis for the 5 uCi/ml is based upon the Oconee FSAR, Chapter 15, Table 15-14 of RCS Coolant Activity for 1% failed fuel. Escalation of this IC to the Alert level is via the Fission Product Barrier Degradation Monitoring ICs, Enclosure 4.1 of this document.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SU4

ENCLOSURE 4.2

SYSTEM MALFUNCTION

ALERT

1. **Unplanned Loss of Most or All Safety System Annunciation or Indication in Control Room With Either (1) a Significant Transient in Progress, or (2) Compensatory Non-Alarming Indicators are Unavailable.**

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. Unplanned loss of > 50% of the following annunciators for greater than 15 minutes.

<u>Units 1&3</u>	1SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, and 18 3SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, and 18
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<u>Unit 2</u>	2SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15 and 16
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AND

In the opinion of the Operations Shift Manager, the loss of the annunciators or indicators requires additional personnel (beyond normal shift compliment) to safely operate the unit.

AND

Either of the following:

A significant plant transient is in progress.

OR

Loss of the OAC and PAM indications.

ENCLOSURE 4.2

SYSTEM MALFUNCTION

BASIS:

- SA 1-9 : ES, RPS, CRD breakers, basic information concerning primary system, fire alarms, seismic trigger, condenser cooling, HPSW and LPSW system status.
- SA 14-16: Electrical load (Keowee emergency start, load shed, emergency power switching logic)
- SA-18 : CRD shunt trip relay, ICS, PZR relief valve flow, hydrogen concentration in RB, chlorine gas leakage.

This IC and its associated EAL are intended to recognize the difficulty associated with monitoring changing plant conditions without the use of a major portion of the annunciation or indication equipment during a transient.

Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

"Significant Transient" includes response to automatic or manually initiated functions such as scrams, runbacks involving greater than 25% thermal power change, ECCS injections, or thermal power oscillations of 10% or greater.

Significant indication is available from the OAC (operational aid computer) and from post accident monitoring (PAM). Loss of this data in conjunction with the loss of other indications would further impair the ability to monitor plant parameters.

Due to the limited number of safety systems in operation during cold shutdown, refueling and defueled modes, no IC is indicated during these modes of operation.

This Alert will be escalated to a Site Area Emergency if the operating crew cannot monitor the transient in progress.

Reference

NUMARC/NESP-007, Rev. 2, 01/92/ SA4

ENCLOSURE 4.2

SYSTEM MALFUNCTION

SITE AREA EMERGENCY

1. Inability to Monitor a Significant Transient in Progress

OPERATING MODE APPLICABILITY: **1, 2, 3, 4**

EMERGENCY ACTION LEVEL:

The following conditions exist:

A Unplanned loss of > 50% of the following annunciators for greater than 15 minutes.

<u>Units 1&3</u>	1SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, and 18
	3SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16, and 18

<u>Unit 2</u>	2SA 1, 2, 3, 4, 5, 6, 7, 8, 9, 14, 15, and 16
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AND

A significant plant transient is in progress.

AND

Loss of the OAC and the PAM indications.

AND

Inability to directly monitor any one of the following functions:

- ◆ Subcriticality
- ◆ Inadequate core cooling
- ◆ Heat sink
- ◆ Containment Integrity
- ◆ RCS integrity
- ◆ RCS Inventory

BASIS:

This IC and its associated EAL are intended to recognize the inability of the control room staff to monitor the plant response to a transient. The inability to directly monitor indicates that computer data points or SPDS indicators are not available to monitor the critical safety functions.

ENCLOSURE 4.2

SYSTEM MALFUNCTION

SITE AREA EMERGENCY

"Significant Transient" includes response to automatic or manually initiated functions such as scrams, runbacks involving greater than 25% thermal power change, ECCS injections, or thermal power oscillations of 10% or greater.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SS6

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds Two Times the SLC Limits for 60 Minutes or Longer	Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds 200 Times the SLC limits for 15 Minutes or Longer	Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mRem TEDE or 500 mRem CDE thyroid for the Actual or Projected Duration of the Release	Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity that Exceeds 1000 mRem TEDE or 5000 mRem CDE thyroid for the Actual or Projected Duration of the Release
Unexpected Increase in Plant Radiation Levels or Airborne Concentration	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		
	Release of Radioactive Material or Increases in Radiation Levels Within the Facility That Impedes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown		

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

1. **Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds Two Times the SLC Limits for 60 Minutes or Longer**

OPERATING MODE APPLICABILITY: ALL
EMERGENCY ACTION LEVELS:

- A. A valid indication on radiation monitor RIA 33 of $\geq 4.06\text{E}+06$ cpm for > 60 minutes. (See Note)
- B. Valid indication on radiation monitor RIA-45 of $\geq 9.35\text{E}+05$ cpm or RP sample reading of $\geq 6.62\text{E}-2\mu\text{Ci/ml}$ Xe 133 eq for > 60 minutes. (See Note)
- C. Confirmed sample analysis of liquid effluent being released exceeds two times SLC 16.11.1 for > 60 minutes as determined by Chemistry procedures.
- D. Confirmed sample analysis of gaseous effluent being released exceeds two times SLC 16.11.2 for > 60 minutes as determined by Radiation Protection procedures.

Note: 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.

BASIS:

The term "Unplanned", as used in this context, includes any release for which a liquid waste release (LWR) or gaseous waste release (GWR) package was not prepared, or a release that exceeds the conditions (e.g., minimum dilution flow, maximum discharge flow, alarm setpoints, etc.) on the applicable package.

Valid means that a radiation monitor reading has been confirmed to be correct.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

Chapter 16, Selected Licensee Commitments, of the Oconee Nuclear Station FSAR provides guidance to ensure that the release of liquid or gaseous effluent does not exceed the limits established in 10 CFR 20, Appendix B, Table II and Appendix I, 10 CFR 50. Unplanned releases in excess of two times the selected licensee commitments that continue for 60 minutes or longer represent an uncontrolled situation and hence, a potential degradation in the level of safety. It is not intended that the release be averaged over 60 minutes. The event should be declared as soon as it is determined that the release duration has or will likely exceed 60 minutes.

1. Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds Two Times the SLC Limits for 60 Minutes or Longer

Monitor indications are based on the methodology of the site Offsite Dose Calculation Manual (ODCM). Annual average meteorology (semi-elevated $1.672\text{E-}06 \text{ sec/m}^3$) has been used. Radiation Protection will use HP/0/B/1009/015 to quantify a gaseous release. Operations will use OP/0/A/1104/068 and/or OP/0/A/1104/072 to quantify a liquid release.

BASIS:

References to RIA-45 are intended to be related to unit specific RIA-45 only. 4RIA-45 provides a concentration value, not in cpm, that is used by unit 1, 2, 3 RIA-45. Additionally, a radionuclide concentration value of $6.62\text{E-}2 \text{ uCi/ml}$ cannot be obtained in the Radwaste Facility (RWF) ventilation system discharge without the input of post-accident concentrations of gaseous radionuclides. There are no post-accident inputs to the RWF other than planned batch transfers of liquids and resins that would be transferred in a controlled manner. All gaseous radionuclides would be entrained in the liquids and resins since there are no gas storage tanks in the RWF to accept a transfer of gaseous waste. Unit 1,2,3 RIA-45 could detect a concentration of $6.62\text{E-}2 \text{ uCi/ml}$ post-accident since a LOCA in the Auxiliary Building could provide the source activity.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

The Radwaste Facility is only used for waste water and resin processing. The type of waste processed, even if it contained entrained gasses from the reactor coolant system, cannot contain sufficient activity during normal operation to result in SLC limits being exceeded. Liquid waste is not transferred to the Radwaste Facility during an event. The Radwaste Facility 4RIA-45 alarm set point is set at 5% of the station release limit. This set point is based on providing a set point that will not cause spurious alarms and will maintain total effluent releases below 100% of the station release limit. It is recognized that the Radwaste Facility is a less significant gaseous release pathway since the 4RIA-45 set point is set at one sixth of the 1, 2, or 3 RIA-45 set points. This EAL is only applicable to 1, 2, or 3 RIA-45 since the accident related source term that enters an intact Auxiliary Building will be released out of the unit vents.

Reference

NUMARC/NESP/-007, Rev. 2, 01/92, AU1

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

2. Unexpected Increase in Plant Radiation or Airborne Concentration.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- 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 irradiated spent fuel dry storage module.
- D. Valid area or process monitor exceeds limits stated in Enclosure 4.9 of RP/0/A/1000/001.

BASIS:

Valid means that a radiation monitor reading has been confirmed to be correct.

EAL 1 indicates that the water level in the reactor refueling cavity is uncontrolled. **If the area/process monitors reach the HIGH alarm setpoint, classification should be upgraded to an Alert.**

All of the above events tend to have long lead times relative to potential for radiological release outside the site boundary, thus impact to public health and safety is very low.

In light of reactor cavity seal failure incidents, explicit coverage of these types of events via EALs 1 and 2 is appropriate given their potential for increased doses to plant staff. Classification as an Unusual Event is warranted as a precursor to a more serious event.

EAL 3 applies to licensed dry storage of older irradiated spent fuel to address degradation of this spent fuel.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

UNUSUAL EVENT

EAL 4 addresses unplanned increases in in-plant radiation levels that represent a degradation in the control of radioactive material, and represent a potential degradation in the level of safety of the plant. The RIA readings for an Unusual Event are 1000 times the normal value. Enclosure 4.9 of RP/0/A/1000/001 will provide the actual readings for the monitors.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AU2

NEI 99-01, Rev. 4, 08/00, AU2

ENCLOSURE 4.9 (RP/0/A/1000/001)

UNEXPECTED/UNPLANNED INCREASE IN AREA MONITOR READINGS

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	UNIT 1, 2, 3	
	UNUSUAL EVENT 1000 x 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 the 1000 x 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 any reading less than 5000 mRad/hr

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

ALERT

1. **Any Unplanned Release of Gaseous or Liquid Radioactivity to the Environment that Exceeds 200 Times Radiological Technical Specifications for 15 Minutes or Longer.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Valid indication of RIA-46 of $\geq 2.09\text{E}+04$ cpm or RP sample reading of ≥ 6.62 uCi/ml Xe 133 eq for > 15 minutes (See Note)
- 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.

Note: If monitor reading is sustained for the time period indicated in the EAL AND required assessments (procedure calculations) cannot be completed within this period, declaration must be made on the valid Radiation monitor reading.

BASIS:

The term "Unplanned", as used in this context, includes any release for which a liquid waste release (LWR) or gaseous waste release (GWR) package was not prepared, or a release that exceeds the conditions (e.g., minimum dilution flow, maximum discharge flow, alarm setpoints, etc.) on the applicable package.

Valid means that a radiation monitor reading has been confirmed to be correct.

This event escalates from the Unusual Event by escalating the magnitude of the release by a factor of 100.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

ALERT

It is not intended that the release be averaged over 15 minutes. The event should be declared as soon as it is determined that the release duration has or will likely exceed 15 minutes.

Monitor indications are based on the methodology of the site Offsite Dose Calculation Manual (ODCM). Annual average meteorology (semi-elevated release $1.672 \text{ E-06 sec/m}^3$) has been used.

Chapter 16, Selected Licensee Commitments, of the Oconee Nuclear Station FSAR outlines the release limits for gaseous effluent is released by the Control Room. Liquid effluent is discharged by Operations from the Radwaste Facility. Effluent monitors have setpoints established to alarm should activity be detected that would exceed limits established by 10 CFR 20, Table B, Appendix II. Radiation Protection and/or Chemistry would calculate the release rate and quantify the amount being released.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AA1

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

ALERT

2. **Release of Radioactive Material or Increases in Radiation Levels Within the Facility That Impedes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown**

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVELS:

- A. Valid radiation reading ≥ 15 mRad/hr in the Control Room, CAS, or Radwaste Control Room.
- B. Unplanned/unexpected valid area radiation monitor readings exceed limits stated in Enclosure 4.9 of RP/0/A/1000/001.

BASIS:

Valid means that a radiation reading has been confirmed by the operators to be correct.

This IC addresses unplanned/unexpected increased radiation levels that impede necessary access to operating stations, or other areas containing equipment that must be operated manually, in order to maintain safe operation or perform a safe shutdown. It is this impaired ability to operate the plant that results in the actual or potential substantial degradation of the level of safety of the plant.

The Control Room, Central Alarm Station (CAS) and the Radwaste Control Room are areas that will need to be continuously occupied. No radiation monitors are in the CAS or the Radwaste Control Room.

Oconee has chosen to use a generic emergency action level of greater than or equal to 5000 mRad/hr for the Alert classification for areas in the plant that would need to be utilized for safe operation or safe shutdown of the unit. Enclosure 4.9 of RP/0/A/1000/001 provides the monitor number and the location of the area monitor.

This IC 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.)

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AA3

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

ALERT

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.**

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVELS:

- A. Valid RIA 3*, 6, 41, or 49* **HIGH** alarm readings
 *Applies to Mode 6 and No Mode Only
- B. Valid **HIGH** alarm reading on portable area monitors on the main bridge or spent fuel pool 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.

BASIS:

This IC applies to spent fuel requiring water coverage and is not intended to address spent fuel which is licensed for dry storage.

The HIGH alarm for RIA 3 (containment area monitor) and RIA 49 (RB gaseous process monitor) corresponds to the setpoints established to assure that 10 CFR 20 limits are not exceeded.

The HIGH alarm setpoint for RIA 6 (SFP bridge area monitor) is designed to make operators aware of increased readings above 10 CFR 20 limits. The HIGH alarm setpoint for RIA 41 (Spent Fuel Pool gaseous atmosphere) is set to alarm if 4 times the limits of 10 CFR 20 are exceeded based upon Xe-133. RIA 49 monitors the reactor building gas. Portable monitors are established during refueling outages and are located on the main bridge, and the spent fuel pool bridge.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

ALERT

There is time available to take corrective actions, and there is little potential for substantial fuel damage. Thus, an Alert Classification for this event is appropriate. Escalation, if appropriate, would occur via Abnormal Rad Level/Radiological Effluent or Emergency Coordinator Judgment.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AA2

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

SITE AREA EMERGENCY

1. **Boundary Dose Resulting from an Actual or Imminent Release of Radioactivity Exceeds 100 mRem TEDE or 500 mRem CDE Adult Thyroid for the Actual or Projected Duration of the Release.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Valid reading on RIA-46 of $\geq 2.09\text{E}+05$ cpm or RIA 56 reading of ≥ 17.5 R/hr or RP sample reading of $6.62\text{E}+01$ uCi/ml Xe 133 eq for > 15 minutes. (See Note)
- B. Valid reading on RIA 57 or 58 as shown on Enclosure 4.8 of RP/0/A/1000/001. (See Note)
- 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** analysis of field survey samples indicate adult thyroid dose commitment (CDE) of 500 mRem for one hour of inhalation.

Note: If actual Dose Assessment cannot be completed within 15 minutes, then the valid monitor reading should be used for emergency classification.

BASIS:

Valid means that a radiation monitor reading has been confirmed to be correct. The calculation for RIA 46 (vent monitor) setpoint is based on whole body dose (100 mRem) using ODCM guidance: average annual meteorology (semi-elevated release $1.672\text{E}-6$ sec/m³), vent flow rate of 65,000 cfm, and release duration of 15 minutes. No credit is taken for vent filtration.

The calculation for RIA 57/58 (in containment monitors) setpoints are based on the following: LOCA conditions which provide the more conservative reading, Committed Dose Equivalent (CDE) thyroid (500 mRem), average annual meteorology ($7.308\text{E}-6$ sec/m³), design basis leakage of $5.6\text{E}6$ ml/hr, release duration of one hour, and time since unit trip. No credit is taken for filtration.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

SITE AREA EMERGENCY

Dose assessment team members use actual meteorology, release duration, and unit vent flow rate or actual leakage rate from containment. Therefore, the predetermined monitor readings would not be used if dose assessment team calculations are available from the TSC or EOF in a timely manner (within approximately 15 minutes).

The 100 mRem Total Effective Dose Equivalent (TEDE) and the 500 mRem Committed Dose Equivalent (CDE) thyroid in this initiating condition is based on 10 CFR 20 annual average population exposure. The dose projection typically uses a 4-hour default for time of release. The Dose Assessment program will provide dose projection default times for specific release pathways. If the real time release time is known it will be used in the calculation. One order of magnitude is the gradient factor between the Site Area Emergency and General Emergency classes. These values are 10% of the EPA PAG values given in EPA-400-R-92-001.

The field monitoring survey results are based on actual hand-held instrument readings at the site boundary. It is assumed that the release will continue for more than one hour. Adult thyroid is considered to be the limiting factor.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AS1

ENCLOSURE 4.8 (RP/0/A/1000/001)
RADIATION MONITOR READINGS FOR EMERGENCY CLASSIFICATION

NOTE: IF ACTUAL DOSE ASSESSMENT CANNOT BE COMPLETED WITHIN 15 MINUTES, THEN THE VALID MONITOR READING SHOULD BE USED FOR EMERGENCY CLASSIFICATION.

ALL RIA VALUES ARE CONSIDERED TO BE 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 - < 0.5	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

*Note: RIA 58 is partially shielded.

Assumptions used for calculation of high range in-containment monitors RIA 57 and 58:

1. Average annual meteorology (7.308 E-6 sec/m³)
2. Design basis leakage (5.6 E6 ml/hr)
3. One hour release duration
4. General Emergency PAGs are 1 rem TEDE and 5 rem CDE; SAE determination is based on 10% of the General Emergency PAGs.
5. Calculations for monitor readings are based on CDE (adult thyroid - 500 mRem) because thyroid dose is limiting.
6. No credit is taken for filtration.
7. LOCA conditions are limiting and provide the more conservative reading.

Assumptions used for calculation of vent monitor RIA 46:

1. Average annual meteorology (1.672 E-6 sec/m³), semi-elevated
2. Vent flow rate 65,000 cfm (average daily flow rate)
3. No credit is taken for vent filtration
4. Fifteen minute release duration.
5. General Emergency PAGs are 1 rem TEDE and 5 rem CDE; SAE determination is based on 10% of the General Emergency PAGs.
6. Calculations for monitor readings are based on whole body dose (100 mRem).
7. Calculation is based on ODCM methodology and NUMARC guidance

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

SITE AREA EMERGENCY

2. **Loss of Water Level in the Reactor Vessel That Has or Will Uncover Fuel in the Reactor Vessel.**

OPERATING MODE APPLICABILITY: 5, 6

EMERGENCY ACTION LEVEL:

Loss of Reactor Vessel Water Level as indicated by:

- A. Failure of heat sink causes loss of Mode 5 (Cold Shutdown) conditions **AND** LT-5 indicates 0 inches after initiation of RCS makeup.
- B. Failure of heat sink causes loss of Mode 5 (Cold Shutdown) conditions **AND** either train ultrasonic level indication less than 0 inches and decreasing after initiation of RCS makeup.

BASIS:

Under the conditions specified by this IC, severe core damage can occur due to prolonged boiling following loss of decay heat removal. Declaration of a Site Area Emergency is warranted under the conditions specified by the IC. Escalation to a General Emergency is via Enclosure 4.3, Abnormal Rad Levels/Radiological Effluent.

Note: Both the LT-5 and the ultrasonic level instrumentation are located in the center line of the hot leg.

Reference

NUMARC/NESP-007, Rev.2, 01/92, SS5

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

GENERAL EMERGENCY

1. **Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity that Exceeds 1000 mRem TEDE or 5000 mRem (CDE) Adult Thyroid for the Actual or Projected Duration of the Release Using Actual Meteorology.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Valid reading on RIA 46 of $\geq 2.09\text{E}+06$ cpm or RIA 56 reading of ≥ 175 R/hr or RP sample reading of $6.62\text{E}+02$ uCi/ml Xe 133 eq for ≥ 15 minutes (See Note)
- B. Valid reading on RIA 57 or 58 as shown on Enclosure 4.8 of RP/0/A/1000/001. (See Note)
- 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 commitment (CDE) of 5000 mRem for one hour of inhalation.

Note: If actual Dose Assessment cannot be completed within 15 minutes, then the valid monitor reading should be used for emergency classification.

BASIS:

Valid means that a radiation monitor reading has been confirmed to be correct.

The calculation for RIA 46 (vent monitor) setpoint is based on the following: whole body dose (100 mRem) using ODCM guidance, average annual meteorology (semi-elevated release $1.672\text{E}-6$ sec/m³), vent flow rate of 65,000 CFM, and release duration of 15 minutes. No credit is taken for vent filtration.

The calculation for RIA 57/58 (incontainment monitors) setpoints are based on the following: LOCA conditions which provide the more conservative reading, Committed Dose Equivalent (CDE-adult thyroid 500 mRem), average annual meteorology ($7.308\text{E}-6$, sec/m³), design basis leakage of $5.6\text{E}6$ ml/hr, release duration of one hour, and time since unit trip. No credit is taken for filtration.

ENCLOSURE 4.3

ABNORMAL RAD LEVELS/RADIOLOGICAL EFFLUENT

GENERAL EMERGENCY

Calculations by the dose assessment team use **actual** meteorology, duration, and unit vent flow rate or actual leakage rate from containment. Therefore, the predetermined monitor readings would not be used if dose assessment calculations are available from the TSC or EOF in a timely manner (within approximately 15 minutes).

The 1000 mRem Total Effective Dose Equivalent (TEDE) and the 5000 mRem Committed Dose Equivalent (CDE) adult thyroid in this initiating condition is based on 10 CFR 20 annual average population exposure. These values are EPA PAG guidelines as expressed in EPA-400-R-92-001. The Dose Assessment program will provide dose projection default time for specific release pathways. This default value will be utilized until a corrected release time is determined.

Field monitoring results will utilize a one hour period of time for calculating survey results.

Enclosure 4.8 of RP/0/A/1000/001 is shown on page 34 of this document.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AG1

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTION

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Unexpected increase in plant radiation levels or airborne concentrations	Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was Successful	Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was NOT Successful	Failure of the Reactor Protection System to Complete an Automatic Scram and Manual Scram was NOT Successful and There is Indication of an Extreme Challenge to the Ability to Cool the Core
	Inability to Maintain Plant in Cold Shutdown	Complete Loss of Function Needed to Achieve or Maintain Hot Shutdown	
	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	Loss of Water Level in the Reactor Vessel That Has or Will Uncover Fuel in the Reactor Vessel	

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

UNUSUAL EVENT

1. **Unexpected Increase in Plant Radiation or Airborne Concentration.**

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVELS:

- 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 irradiated spent fuel dry storage module.
- D. Valid area or process monitor exceeds limits stated in Enclosure 4.9 of RP/0/A/1000/001.

BASIS:

Valid means that a radiation monitor reading has been confirmed to be correct.

EAL 1 indicates that the water level in the reactor refueling cavity is uncontrolled. **If the area/process monitors reach the HIGH alarm setpoint, classification should be upgraded to an Alert.**

All of the above events tend to have long lead times relative to potential for radiological release outside the site boundary, thus impact to public health and safety is very low.

In light of reactor cavity seal failure incidents, explicit coverage of these types of events via EALs 1 and 2 is appropriate given their potential for increased doses to plant staff. Classification as an Unusual Event is warranted as a precursor to a more serious event.

EAL 3 applies to licensed dry storage of older irradiated spent fuel to address degradation of this spent fuel.

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

UNUSUAL EVENT

EAL 4 addresses unplanned increases in in-plant radiation levels that represent a degradation in the control of radioactive material, and represent a potential degradation in the level of safety of the plant. The RIA readings for an Unusual Event are 1000 times the normal value. Enclosure 4.9 of RP/0/A/1000/001 will provide the actual readings for the monitors.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AU2

NEI 99-01, Rev. 4, 08/00, AU2

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

ALERT

1. **Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was Successful.**

OPERATING MODE APPLICABILITY: 1, 2, 3

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. VALID reactor trip signal received or required without automatic scram

AND ONE OF THE FOLLOWING:

DSS has inserted Control Rods

OR

Manual reactor trip from the control room is successful and reactor power is less than 5% and decreasing.

BASIS:

This condition indicates failure of the automatic protection system to scram the reactor. This condition is more than a potential degradation of a safety system in that a front line automatic protection system did not function in response to a plant transient and thus the plant safety has been compromised, and design limits of the fuel may have been exceeded. An Alert is indicated because conditions exist that lead to potential loss of fuel clad or RCS. Reactor protection system setpoint being exceeded (rather than limiting safety system setpoint being exceeded) is specified here because failure of the automatic protection system is the issue. If the reactor protective system fails, the Diverse Scram Signal system (which was installed at Oconee since 10/7/91 as a result of Generic Letter 83-28) will drop control rod groups 5,6,7 into the core.

A manual scram is any set of actions by the reactor operator(s) at the reactor control console which causes control rods to be RAPIDLY inserted into the core and brings the reactor subcritical.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SA2

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

ALERT

Operator action to drive rods does **NOT** constitute a reactor trip, (i.e. does not meet the rapid insertion criterion).

Failure of Diverse Scram Signal and the manual scram would escalate the event to a Site Area Emergency.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SA2

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

ALERT

2. Inability to Maintain Plant in Mode 5 (Cold Shutdown).

OPERATING MODE APPLICABILITY: 5, 6

EMERGENCY ACTION LEVELS:

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

BASIS:

LPI is the low pressure injection system

LPSW is low pressure service water.

This IC is based on concerns raised by Generic Letter 88-17, "Loss of Decay Heat Removal." number of phenomena such as pressurization, vortexing, RCS level differences when operating at a mid-loop condition, decay heat removal system design, and level instrumentation problems can lead to conditions where decay heat removal is lost and core uncover can occur. NRC analyses show sequences that can cause core uncover in 15 to 20 minutes and severe core damage within an hour after decay heat removal is lost.

Loss of the LPI system and/or the LPSW system causes an uncontrolled temperature rise in the reactor coolant system. Uncontrolled is understood to be "not as the result of operator action." Rising temperature of the reactor coolant system can be determined at the LPI pump suction, average of the 5 highest CETCs as indicated by ICCM display or through operator visual observation (steam or boiling) in the reactor building.

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

ALERT

With a loss of LPI pumps there will be no RCS flow at the LPI pump suction and RCS temperature at that point will not represent RCS temperature in the reactor vessel. Also, with the reactor head in place, visual observation may not be possible.

Escalation to the Site Area Emergency is by, "Loss of Water Level in the Reactor Vessel That Has or Will Uncover Fuel in the Reactor Vessel," or by Abnormal Rad Levels/Radiological Effluent ICs.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SA3

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

ALERT

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.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Valid RIA 3*, 6, 41 or 49* **HIGH** alarm readings
Applies to Mode 6 and No Mode Only.
- B. Valid **HIGH** alarm reading on portable area monitors on the main bridge or spent fuel pool 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.

BASIS:

This IC applies to spent fuel requiring water coverage and is not intended to address spent fuel which is licensed for dry storage.

The HIGH alarm for RIA 3 (containment area monitor) and RIA 49 (RB gaseous process monitor) corresponds to the setpoints established to assure that 10 CFR 20 limits are not exceeded.

The HIGH alarm setpoint for RIA 6 (SFP bridge area monitor) is designed to make operators aware of increased readings above 10 CFR 20 limits. The HIGH alarm setpoint for RIA 41 (Spent Fuel Pool gaseous atmosphere) is set to alarm if 4 times the limits of 10 CFR 20 are exceeded based upon Xe-133. RIA 49 monitors the reactor building gas. Portable monitors are established during refueling outages and are located on the main bridge, and the spent fuel pool bridge.

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

ALERT

There is time available to take corrective actions, and there is little potential for substantial fuel damage. Thus, an Alert Classification for this event is appropriate. Escalation, if appropriate, would occur via Abnormal Rad Level/Radiological Effluent, Loss of Shutdown Functions or Emergency Coordinator Judgment.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, AA2

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

SITE AREA EMERGENCY

1. **Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Scram Once a Reactor Protection System Setpoint Has Been Exceeded and Manual Scram Was NOT Successful.**

OPERATING MODE APPLICABILITY: 1, 2

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. VALID reactor trip signal received or required without automatic scram

AND

DSS has NOT inserted Control Rods

AND

Manual reactor trip from the control room was not successful in reducing reactor power to less than 5% and decreasing.

BASIS:

Automatic and manual scram are not considered successful if action away from the reactor control console is required to scram the reactor.

This EAL is met if a reactor trip is required and the manual reactor trip function fails. A failure of the manual reactor trip pushbutton to initiate a reactor trip is indication of a failure of the Reactor Protection System.

Under these conditions, the reactor is producing more heat than the maximum decay heat load for which the safety systems are designed. A Site Area Emergency is indicated because conditions exist that lead to imminent loss or potential loss of both fuel clad and RCS. Although this IC may be viewed as redundant to the Fission Product Barrier Degradation IC, its inclusion is necessary to better assure timely recognition and emergency response. Escalation of this event to a General Emergency would be via Fission Product Barrier Degradation or Emergency Coordinator Judgment ICs.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SS2

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

SITE AREA EMERGENCY

2. **Complete Loss of Function Needed to Achieve or Maintain Mode 4 (Hot Shutdown).**

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVELS:

Any of the following conditions exist:

- A. Average of the 5 highest CETCs ≥ 1200 °F on ICCM.
- B. Unable to maintain reactor subcritical
- C. Inability to feed SGs prior to RCS pressure reaching 2300 psig
and
HPI Forced Cooling degraded by any of the following:
 - Unacceptable HPI flow/pressure in either header per EOP Rule 4
 - Only 1 HPI Pump available
 - Either PORV (*RC-66) and/or PORV Block (*RC-4) closed

BASIS:

This EAL addresses complete loss of functions, core cooling and heat sink, required for hot shutdown with the reactor at pressure and temperature. Under these conditions, there is an actual major failure of a system intended for protection of the public. Thus, declaration of a Site Area Emergency is warranted.

Core exit thermocouple readings are considered to be the average of the five (5) highest thermocouple readings shown on the Inadequate Core Cooling Monitor.

HPI Forced cooling represents the failure of the steam generators to remove heat from the core. To use this mode of cooling indicates that all feedwater (both main and emergency) are not available for use and the pressure of the reactor coolant system is greater than or equal to 2300 psig. The power-operated relieve valve must be opened to initiate the cooling through the high pressure injection system. In effect, a self-imposed loss of coolant is established. Declaration of a Site Area Emergency is warranted with the total loss of main and emergency feedwater with SSF and PSW unavailable coincident with degraded High Pressure Injection.

Escalation to General Emergency would be via Abnormal Rad Levels/Radiological Effluent, Emergency Coordinator Judgment, or Fission Product Barrier Degradation ICs.

The installation of the PSW Pump enables the Station to NOT require a blow-down of the SG's in order to commence feeding to achieve shutdown cooling, as the PSW pump is a high discharge head pump. The installation and the use of the PSW pump provides a better margin of safety for the plant.

The SSF can provide the following: (1) makeup to the Reactor Coolant pump seals, (2) low pressure service water to the steam generators (additional method for heat sink), (3) capability to keep the unit in hot shutdown for 72 hours following an Appendix R fire.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SS4

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

SITE AREA EMERGENCY

3. **Loss of Water Level in the Reactor Vessel That Has or Will Uncover Fuel in the Reactor Vessel.**

OPERATING MODE APPLICABILITY: 5, 6

EMERGENCY ACTION LEVEL:

Loss of Reactor Vessel Water Level as indicated by:

- A. Failure of heat sink causes loss of Mode 5 (Cold Shutdown) conditions.

AND

LT-5 indicates 0 inches after initiation of RCS makeup.

- B. Failure of heat sink causes loss of Mode 5 (Cold Shutdown) conditions.

AND

Either train ultrasonic level indication less than 0 inches and decreasing after initiation of RCS makeup.

BASIS:

Under the conditions specified by this IC, severe core damage can occur due to prolonged boiling following loss of decay heat removal. Declaration of a Site Area Emergency is warranted under the conditions specified by the IC. Escalation to a General Emergency is via Enclosure 4.3, Abnormal Rad Levels/Radiological Effluent.

Note: Both the LT-5 and the ultrasonic level instrumentation are located in the center line of the hot leg.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SS5

ENCLOSURE 4.4

LOSS OF SHUTDOWN FUNCTIONS

GENERAL EMERGENCY

1. **Failure of the Reactor Protection System to Complete an Automatic Scram and Manual Scram was NOT Successful and There is Indication of an Extreme Challenge to the Ability to Cool the Core.**

OPERATING MODE APPLICABILITY: 1, 2

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. VALID reactor trip signal received or required **WITHOUT** automatic scram

AND

Manual reactor trip from the control room was not successful in reducing reactor power to less than 5% and decreasing.

AND

Average of five highest CETCs ≥ 1200 °F on the ICCM.

BASIS:

Automatic and manual scram are not considered successful if action away from the reactor control console is required to scram the reactor. Under the conditions of the IC and its associated EALs, the efforts to bring the reactor subcritical have been unsuccessful and, as a result, the reactor is producing more heat than the maximum decay heat load for which the safety systems were designed. The extreme challenge to the ability to cool the core is intended to mean that the core exit temperatures are at or approaching 1200 °F. (Note: CETCs reading ≥ 1200 °F is also a good indicator that the reactor vessel water level is below the top of the active fuel. Oconee does not have an indication for the reactor vessel water level below the top of the active fuel.)

The General Emergency declaration is intended to be anticipatory of the fission product barrier matrix declaration to permit maximum offsite intervention time.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SG2

ENCLOSURE 4.5

LOSS OF POWER

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes	Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses During Cold Shutdown Or Refueling Mode	Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses	Prolonged Loss of All (Offsite and Onsite) AC Power
Unplanned Loss of Required DC Power During Cold Shutdown or Refueling Mode for Greater than 15 Minutes	AC power to essential busses reduced to a single power source for greater than 15 minutes such that an additional single failure could result in station blackout	Loss of All Vital DC Power	

ENCLOSURE 4.5

LOSS OF POWER

UNUSUAL EVENT

1. **Loss of All Offsite Power to Essential Busses for Greater Than 15 Minutes.**

OPERATING MODE APPLICABILITY ALL

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. Unit auxiliaries being supplied from Keowee or CT5.

AND

Inability to energize either MFB from an offsite source (either switchyard) within 15 minutes.

BASIS:

Prolonged loss of AC power reduces required redundancy and potentially degrades the level of safety of the plant by rendering the plant more vulnerable to a complete Loss of AC Power (Station Blackout). Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

Keowee Hydro station provides the emergency power to the Oconee Nuclear Site. CT5 is powered from the Lee Steam Station and provides back-up power to the site.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SU1

ENCLOSURE 4.5

LOSS OF POWER

UNUSUAL EVENT

- 2. Unplanned Loss of Required DC Power During Mode 5 (Cold Shutdown) or Mode 6 (Refueling Mode) for Greater than 15 Minutes.**

OPERATING MODE APPLICABILITY: 5, 6

EMERGENCY ACTION LEVEL:

The following conditions exist:

- 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.

BASIS:

The purpose of this IC and its associated EALs is to recognize a loss of DC power compromising the ability to monitor and control the removal of decay heat during Cold Shutdown or Refueling operations. This EAL is intended to be anticipatory in as much as the operating crew may not have necessary indication and control of equipment needed to respond to the loss.

"Unplanned" is included in this IC and EAL to preclude the declaration of an emergency as a result of planned maintenance activities.

If this loss results in the inability to maintain cold shutdown, the escalation to an Alert will be per Enclosure 4.4, Loss of Shutdown Functions "Inability to Maintain Plant in Cold Shutdown."

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SU7

ENCLOSURE 4.5

LOSS OF POWER

ALERT

- 1. Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses During Mode 5 (Cold Shutdown) Or Mode 6 (Refueling Mode).**

OPERATING MODE APPLICABILITY: 5, 6, Defueled

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. MFB 1 and 2 de-energized.**

AND

Failure to restore power to at least one main feeder bus within 15 minutes from the time of loss of both offsite and onsite AC power.

BASIS:

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal, Spent Fuel Heat Removal and the Ultimate Heat Sink. When in cold shutdown, refueling, or defueled mode the event can be classified as an Alert, because of the significantly reduced decay heat, lower temperature and pressure, increasing the time to restore one of the emergency busses, relative to that specified for the Site Area Emergency EAL. Escalating to Site Area Emergency, if appropriate, is by Enclosure 4.3, Abnormal Rad Levels/Radiological Effluent, or Enclosure 4.7, Natural Disasters, Hazards, and Other Conditions Affecting Plant Safety, Emergency Coordinator Judgment ICs. Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

References

NUMARC/NESP-007, Rev. 2, 01/92, SA1

ENCLOSURE 4.5

LOSS OF POWER

ALERT

2. **AC power capability to essential busses reduced to a single power source for greater than 15 minutes such that an additional single failure could result in station blackout.**

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVEL:

The following condition exists:

- A. AC power capability has been degraded to a single power source for > 15 min. due to the loss of all but one of the following:

- Unit Normal Transformer (backcharged)
- Unit Startup transformer
- Another Unit Startup Transformer (aligned)
- CT4
- CT5

BASIS:

This IC and the associated EAL is intended to provide an escalation from IC, "Loss of All Offsite Power To Essential Busses for Greater Than 15 Minutes." The condition indicated by this IC is the degradation of the offsite and onsite power systems such that an additional single failure could result in a station blackout. In this particular situation, a station blackout applies to the unit in question even though the other units may not be affected. This condition could occur due to a loss of offsite power with a concurrent failure of either CT4 or CT5 to supply power to the main feeder busses.

The subsequent loss of this single power source would escalate the event to a Site Area Emergency in accordance with IC, "Loss of All Offsite and Loss of All Onsite AC Power to Essential Busses."

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SA5

ENCLOSURE 4.5

LOSS OF POWER

SITE AREA EMERGENCY

1. Loss of All Offsite Power and Loss of All Onsite AC Power to Essential Busses

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVEL:

Loss of all offsite and onsite AC power as indicated by:

- A. MFB 1 and 2 de-energized

AND

Failure to restore power to at least one main feeder bus within 15 minutes from the time of loss of both offsite and onsite AC power.

BASIS:

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all AC power will cause core uncovering and loss of containment integrity, thus this event can escalate to a General Emergency.

Escalation to General Emergency is via Enclosure 4.1 Fission Product Barrier Degradation or IC, "Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power."

Loss of offsite power (6900V) eliminates the use of power from Duke Power grid and also eliminates distribution of power from the unit generator. Loss of onsite AC (4160V) which includes both Keowee Hydro units, eliminates the use of HPI pumps, LPI pumps, reactor building spray pumps, low pressure service water pumps, CCW pumps, condensate booster pumps, hotwell pumps, heater drain pumps and motor driven emergency feedwater pumps. Turbine driven emergency feedwater pumps are assumed to be available. It is assumed for this scenario that the Standby Shutdown Facility would be available for RCS and secondary inventory control utilizing the RC makeup pump and the auxiliary service water pump.

References

NUMARC/NESP-007, Rev. 2, 01/92, SS1

ENCLOSURE 4.5

LOSS OF POWER

SITE AREA EMERGENCY

2. Loss of All Vital DC Power.

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVEL:

The following conditions exist:

- 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.

BASIS:

Loss of all DC power compromises ability to monitor and control plant safety functions. Prolonged loss of all DC power will cause core uncovering and loss of containment integrity when there is significant decay heat and sensible heat in the reactor system. Escalation to a General Emergency would occur by Enclosure 4.3, Abnormal Rad Levels/Radiological Effluent, Enclosure 4.1, Fission Product Barrier Degradation, Enclosure 4.7, Natural Disasters, Hazards and Other Conditions Affecting Plant Safety or Emergency Coordinator Judgment ICs. Fifteen minutes was selected as a threshold to exclude transient or momentary power losses.

ENCLOSURE 4.5

LOSS OF POWER

SITE AREA EMERGENCY

The purpose of the onsite DC Power system is:

1. Provide a source of reliable, continuous power for instrumentation and controls needed for normal operation and safe shutdown of the unit through the vital DC power distribution system panelboards and essential DC power which feed Inverters for an uninterrupted source of AC power.
2. Supply DC motor operated valves and pumps required during normal operation and a total loss of AC.

Loss of DC power would place the plant in a situation of losing vital instrumentation, valves, and pumps needed to safely operate and shutdown the plant any time the unit is above cold shutdown conditions.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SS3

ENCLOSURE 4.5

LOSS OF POWER

GENERAL EMERGENCY

1. **Prolonged Loss of All Offsite Power and Prolonged Loss of All Onsite AC Power.**

OPERATING MODE APPLICABILITY: 1, 2, 3, 4

EMERGENCY ACTION LEVEL:

Prolonged loss of all offsite and onsite AC power as indicated by:

- A. MFB 1 and 2 de-energized

AND

Standby Shutdown Facility (SSF) fails to maintain Mode 3 (Hot Standby).

AND

AT LEAST ONE OF THE FOLLOWING:

Restoration of power to at least one MFB within 4 hours is NOT likely

OR

Indication of continuing degradation of core cooling based on Fission Product Barrier monitoring.

BASIS:

Loss of all AC power compromises all plant safety systems requiring electric power including RHR, ECCS, Containment Heat Removal and the Ultimate Heat Sink. Prolonged loss of all those functions necessary to maintain hot shutdown will lead to loss of fuel clad, RCS, and containment.

The Standby Shutdown Facility (SSF) is capable of providing the necessary functions to maintain Mode 3 (Hot Standby) condition for up to 72 hours. No fission product barrier degradation would be expected if the SSF is functioning as intended.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SG1

ENCLOSURE 4.5

LOSS OF POWER

GENERAL EMERGENCY

Analysis in support of the station blackout coping study indicates that the plant can cope with a station blackout for 4 hours without core damage.

The likelihood of restoring at least one emergency bus should be based on a realistic appraisal of the situation since a delay in an upgrade decision based on only a chance of mitigating the event could result in a loss of valuable time in preparing and implementing public protective actions.

In addition, under these conditions, fission product barrier monitoring capability may be degraded. Although it may be difficult to predict when power can be restored, it is necessary to give the Emergency Coordinator a reasonable idea of how quickly (s)he may need to declare a General Emergency based on two major considerations:

1. Are there any present indications that core cooling is already degraded to the point that Loss or Potential Loss of Fission Product Barriers is IMMINENT?
2. If there are no present indications of such core cooling degradation, how likely is it that power can be restored in time to assure that a loss of two barriers with a potential loss of the third barrier can be prevented?

Thus, indication of continuing core cooling degradation must be based on Fission Product Barrier monitoring with particular emphasis on Emergency Coordinator judgment as it relates to IMMINENT Loss or Potential Loss of fission product barriers and degraded ability to monitor fission product barriers.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, SG1

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Fire/Explosion Within the Plant	Fire or Explosion Affecting the operability of plant safety systems required to establish or maintain safe shutdown	HOSTILE ACTION within the Protected Area	
Confirmed Security condition or threat which indicates a potential degradation in the level of safety of the plant	HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat	Other conditions exist which in the judgment of the Emergency Director warrant declaration of a SITE AREA EMERGENCY	HOSTILE ACTION resulting in Loss of Physical Control of the Facility
Other conditions exist which in the judgment of the Emergency Director warrant declaration of a NOUE	Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT		Other conditions exist which in the judgment of the Emergency Director warrant declaration of a GENERAL EMERGENCY

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

UNUSUAL EVENT

1. Explosion or Fire Within the Plant

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVEL: Note: Within the plant means Turbine Building, Auxiliary Building, Reactor Building, Keowee Hydro, Transformer Yard, B3T, B4T, Service Air Diesel Compressors, Keowee Hydro and associated transformers and 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

BASIS:

The purpose of this IC is to address the magnitude and extent of fires/explosions that may be potentially significant precursors to damage to safety systems. This excludes such items as fires within administration buildings, waste-basket fires, and other small fires of no safety consequence. **This IC applies to buildings and areas contiguous to plant vital areas containing safety equipment or other significant buildings or areas.** Verification of the alarm in this context means those actions taken in the control room to determine that the control room alarm is not spurious. **The intent of the 15-minute duration of extinguishing efforts is to size the fire and to discriminate against small fires that are readily extinguished.**

Only those explosions of sufficient force to damage permanent structures or equipment within the plant and **Keowee Hydro** should be considered. As used here, an explosion is a rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts significant energy to near-by structures and materials. A high energy line break (e.g., Main Steam Line or Main Feedwater Line, Heater Drain Line, etc.) would satisfy this EAL **IF** no additional damage is done to ECCS (safety related systems) equipment/components. No attempt is made in this EAL to assess the actual magnitude of the damage. The occurrence of the explosion with reports of evidence of damage (e.g., deformation, scorching) is sufficient for declaration. The Emergency Coordinator also needs to consider any security aspects of the explosion, if applicable.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

UNUSUAL EVENT

Escalation to a higher emergency class is by, "Fire/Explosion Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown".

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HU2

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

UNUSUAL EVENT

2. **CONFIRMED SECURITY CONDITION or THREAT which indicates a potential degradation in the level of Safety of the plant.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. A SECURITY CONDITION that does **NOT** involve a HOSTILE ACTION as reported by the security shift supervisor.
- B. A credible site-specific security threat notification.
- C. A validated notification from NRC providing information of an aircraft threat.

BASIS:

NOTE: Timely and accurate communication between Security Shift Supervisor and the control room is crucial in the implementation of effective Security EALs.

Security events which do not represent a potential degradation in the level of safety of the plant are reported under 10 CFR 73.71 or in some cases under 10 CFR 50.72. Security events assessed as HOSTILE ACTIONS are classifiable under 4.6.A.2, 4.6.S.1, and 4.6.G.1

A higher initial classification could be made based upon the nature and timing of the threat and potential consequences. The licensee shall consider upgrading the emergency response status and emergency classification in accordance with the Safeguards Contingency Plan and Emergency Plans.

EAL A

Reference is made to site specific security shift supervision because these individuals are the designated personnel on-site qualified and trained to confirm that a security event is occurring or has occurred. Training on security event classification confirmation is closely controlled due to the strict secrecy controls placed on the plant Safeguards Contingency Plan.

This threshold is based on site specific security plans. Site specific Safeguards Contingency Plans are based on guidance provided by NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

UNUSUAL EVENT

EAL B

This threshold is included to ensure that appropriate notifications for the security threat are made in a timely manner. This includes information of a credible threat. Only the plant to which the specific threat is made need declare the Notification of an Unusual Event.

The determination of "credible" is made through use of information found in the site specific Safeguards Contingency Plan.

EAL C

The intent of this EAL is to ensure that notifications for the aircraft threat are made in a timely manner and that OROs and plant personnel are at a state of heightened awareness regarding the credible threat. It is not the intent of this EAL to replace existing non-hostile related EALs involving aircraft.

This EAL is met when a plant receives information regarding an aircraft threat from NRC. Validation is performed by calling the NRC or by other approved methods of authentication. Only the plant to which the specific threat is made need declare the Unusual Event.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an airliner (airliner is meant to be a large aircraft with the potential for causing significant damage to the plant). The status and size of the plane may be provided by NORAD through the NRC.

Escalation to Alert emergency classification level would be via 4.6.A.2 would be appropriate if the threat involves an airliner within 30 minutes of the plant.

Reference

NEI 99-01, Rev. 5, 02/2008, HU4

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006 Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

UNUSUAL EVENT

3. Other conditions exist which in the judgment of the Emergency Director warrant declaration of a NOUE.

OPERATING MODE APPLICABILITY: 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.

BASIS

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the NOUE emergency classification level.

Reference

NEI 99-01, Rev. 5, 02/2008, HU5

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006.

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

ALERT

- 1. Fire or Explosion Affecting the Operability of Plant Safety Systems Required to Establish or Maintain Safe Shutdown.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL: Note: Only one train of a system needs to be affected or damaged in order to satisfy this condition.

The following conditions exist:

- A. Fire or explosion **AND ONE OF THE FOLLOWING:**

Affected safety-related system parameter indications show degraded performance

OR

Plant personnel report visible damage to permanent structures or equipment required for safe shutdown of the unit.

BASIS:

With regard to explosions, only those explosions of sufficient force to damage permanent structures or equipment required for safe operation of the plant should be considered. As used here, an explosion is a rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment, that potentially imparts significant energy to near-by structures and materials. A fire is 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.

The key to classifying fires/explosions as an Alert is the damage as a result of the incident. The fact that safety-related equipment required for safe shutdown of the unit has been affected or damaged as a result of the fire/explosion is the driving force for declaring the Alert. **It is important to note that this EAL addresses a fire/explosion and not just the degradation of a safety system. The reference to damage of the systems is used to identify the magnitude of the fire/explosion and to discriminate against minor fires/explosions.**

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

ALERT

Escalation to a higher emergency class, if appropriate, will be based on System Malfunction, Fission Product Barrier Degradation, Abnormal Rad Levels/Radiological Effluent, or Emergency Coordinator Judgment ICs.

Reference

NUMARC/NESP-007, Rev. 2, 01/92

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

ALERT

- 2. HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL: (A or B)

- A. A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor.
- B. A validated notification from NRC of an airliner attack threat within 30 minutes of the site.

BASIS:

Note: Timely and accurate communication between Security Shift Supervision and the Control Room is crucial for the implementation of effective Security EALs.

These EALs address the contingency for a very rapid progression of events, such as that experienced on September 11, 2001. They are not premised solely on the potential for a radiological release. Rather the issue includes the need for rapid assistance due to the possibility for significant and indeterminate damage from additional air, land or water attack elements.

The fact that the site is under serious attack or is an identified attack target with minimal time available for further preparation or additional assistance to arrive requires a heightened state of readiness and implementation of protective measures that can be effective (such as on-site evacuation, dispersal or sheltering).

EAL A

This EAL addresses the potential for a very rapid progression of events due to a HOSTILE ACTION. It is not intended to address incidents that are accidental events or acts of civil disobedience, such as small aircraft impact, hunters, or physical disputes between employees within the OCA.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

ALERT

Note that this EAL is applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA. This includes ISFSI's that may be outside the PROTECTED AREA but still within the OWNER CONTROLLED AREA.

EAL B

This EAL addresses the immediacy of an expected threat arrival or impact on the site within a relatively short time.

The intent of this EAL is to ensure that notifications for the airliner attack threat are made in a timely manner and that OROs and plant personnel are at a state of heightened awareness regarding the credible threat. Airliner is meant to be a large aircraft with the potential for causing significant damage to the plant.

This EAL is met when a plant receives information regarding an airliner attack threat from NRC and the airliner is within 30 minutes of the plant. Only the plant to which the specific threat is made need declare the Alert.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an airliner (airliner is meant to be a large aircraft with the potential for causing significant damage to the plant). The status and size of the plane may be provided by NORAD through the NRC.

Reference

NEI 99-01, Rev. 5, 02/2008, HA4

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

ALERT

3. **Other conditions exist which in the judgment of the Emergency Director warrant declaration of an ALERT.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

- 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.

BASIS:

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the Alert emergency classification level.

Reference

NEI 99-01, Rev. 5, 02/2008, HA6

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

SITE AREA EMERGENCY

1. HOSTILE ACTION within the PROTECTED AREA.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the (Security Shift Supervision).

BASIS

This condition represents an escalated threat to plant safety above that contained in the Alert in that a HOSTILE FORCE has progressed from the OWNER CONTROLLED AREA to the PROTECTED AREA.

This EAL addresses the contingency for a very rapid progression of events, such as that experienced on September 11, 2001. It is not premised solely on the potential for a radiological release. Rather the issue includes the need for rapid assistance due to the possibility for significant and indeterminate damage from additional air, land or water attack elements.

The fact that the site is under serious attack with minimal time available for further preparation or additional assistance to arrive requires ORO readiness and preparation for the implementation of protective measures.

This EAL addresses the potential for a very rapid progression of events due to a HOSTILE ACTION. It is not intended to address incidents that are accidental events or acts of civil disobedience, such as small aircraft impact, hunters, or physical disputes between employees within the PROTECTED AREA. Those events are adequately addressed by other EALs.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

SITE AREA EMERGENCY

Reference

NEI 99-01, Rev. 5, 02/2008, HS4

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

SITE AREA EMERGENCY

2. **Other conditions exist which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency**

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVELS:

- 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.

BASIS:

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for Site Area Emergency.

Reference:

NEI 99-01, Rev. 5, 02/2008, HS3

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

GENERAL EMERGENCY

- 1. HOSTILE ACTION resulting in loss of physical control of the facility.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS: (A or B)

- 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.

BASIS:

EAL A

This EAL encompasses conditions under which a HOSTILE ACTION has resulted in a loss of physical control of VITAL AREAS (containing vital equipment or controls of vital equipment) required to maintain safety functions and control of that equipment cannot be transferred to and operated from another location.

Typically, these safety functions are reactivity control (ability to shut down the reactor and keep it shutdown) RCS inventory (ability to cool the core), and secondary heat removal (ability to maintain a heat sink).

Loss of physical control of the control room or remote shutdown capability alone may not prevent the ability to maintain safety functions per se. Design of the remote shutdown capability and the location of the transfer switches should be taken into account. Primary emphasis should be placed on those components and instruments that supply protection for and information about safety functions.

If control of the plant equipment necessary to maintain safety functions can be transferred to another location, then the threshold is not met.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

GENERAL EMERGENCY

EAL B

This EAL addresses failure of spent fuel cooling systems as a result of HOSTILE ACTION if IMMINENT fuel damage is likely such as when a freshly off-loaded reactor core is in the spent fuel pool.

Reference:

NEI 99-01, Rev. 5, 02/2008, HG1

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.6

FIRE/EXPLOSIONS AND SECURITY EVENTS

GENERAL EMERGENCY

2. **Other conditions exist which in the judgment of the Emergency Director warrant declaration of a General Emergency.**

Operating Mode Applicability: All

EMERGENCY ACTION LEVEL:

- 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.

BASIS:

This EAL addresses unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Director to fall under the emergency classification level description for General Emergency.

Reference

NEI 99-01, Rev. 5, 02/2008, HG2

Frequently asked questions (FAQs) generated by users and developers during conversion from previous classifications schemes to NEI 99-01, Revision 4

Security EALs with the Hostile Action changes endorsed by the NRC in RIS 2006-12 on July 19, 2006

Enhanced guidance related to Security EALs to ensure consistency with NEI 03-12.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
Natural and Destructive Phenomena Affecting the Protected Area	Natural and Destructive Phenomena Affecting the Plant Vital Area	Control Room Evacuation Has Been Initiated and Plant Control Cannot Be Established	Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of General Emergency
Natural and Destructive Phenomena Affecting Keowee Hydro Condition B			
Natural and destructive phenomena affecting Jocassee Hydro Condition B			
Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant	Release of Toxic or Flammable Gases Jeopardizes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Cold Shutdown	Keowee Hydro Dam Failure	
	Turbine Building Flood	Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of Site Area Emergency	
Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of an Unusual Event	Control Room Evacuation Has Been Initiated		
Natural and Destructive Phenomena Affecting Keowee Hydro	Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of an Alert		

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT

1. Natural and Destructive Phenomena Affecting the Protected Area.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Tremor felt and valid alarm on the "strong motion accelerograph".
- B. Tornado striking within protected area boundary.
- C. Vehicle crash into plant structures or systems within protected area boundary.
- D. Turbine failure resulting in casing penetration or damage to turbine or generator seals.

BASIS:

The protected area boundary is typically that part within the security isolation zone and is defined in the site security plan.

EAL 1. Damage may be caused to some portions of the site, but should not affect ability of safety functions to operate. Strong motion accelerograph will begin to record at .01g. As defined in the EPRI-sponsored "Guidelines for Nuclear Plant Response to an Earthquake", dated October 1989, a "felt earthquake" is:

An earthquake of sufficient intensity such that: (a) the vibratory ground motion is felt at the nuclear plant site and recognized as an earthquake based on a consensus of control room operators on duty at the time, and (b) valid alarm on seismic instrumentation occurs.

EAL 2. A tornado striking (touching down) within the protected boundary may have potentially damaged plant structures containing functions or systems required for safe shutdown of the plant. If such damage is confirmed visually or by other in-plant indications, the event may be escalated to Alert.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT

EAL 3 Addresses such items as a car, truck, plane, or helicopter crash, or train crash that may potentially damage plant structures containing functions and systems required for safe shutdown of the plant. If the crash is confirmed to affect a plant area containing equipment required for safe shutdown of the unit, the event may be escalated to Alert.

EAL 4 Addresses main turbine rotating component failures of sufficient magnitude to cause observable damage to the turbine casing or to the seals of the turbine generator. Of major concern is the potential for leakage of combustible fluids (lubricating oils) and gases (hydrogen cooling) to the plant environs. Actual fires and flammable gas build up are appropriately classified via other EALs. This EAL is consistent with the definition of an Unusual Event while maintaining the anticipatory nature desired and recognizing the risk to non-safety related equipment. Escalation of the emergency classification is based on potential damage done by the missiles generated by the failure.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HU1

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT

2. Natural and Destructive Phenomena Affecting Keowee Hydro Condition B.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Reservoir elevation greater than or equal to 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 particulates.
- C. New area of seepage or wetness, with large amounts of seepage water observed on dam, dam toe, or the abutments.
- D. A slide or other movements 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.
- F. Emergency Coordinator judgment

BASIS:

Keowee Hydro is the emergency AC power source for the Oconee Nuclear Station and is covered by the site emergency plan. The conditions cited above are considered to be situations where dam failure may develop. The potentially hazardous situation may allow days or weeks for mitigative actions to prevent failure.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT

3. Natural and Destructive Phenomena Affecting Jocassee Hydro Condition B.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

A. Condition B has been declared for Jocassee

BASIS:

Jocassee Hydro is located upstream of the Oconee Nuclear Station. The mitigation strategies for a Condition B for the Jocassee Dam includes shutdown of all operating Oconee Nuclear units and relocation and installation of other equipment in anticipation of the Condition B escalating to a Condition A.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT

- 4. Release of Toxic or Flammable Gases Deemed Detrimental to Safe Operation of the Plant.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. 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 or State Officials for potential evacuation of site personnel based on offsite event.**

BASIS:

This IC is based on releases in concentrations within the site boundary that will affect the health of plant personnel or the safe operation of the plant with the plant being within the evacuation area of an offsite event (i.e., tanker truck accident releasing toxic gases, etc.) The evacuation area is as determined from the DOT Evacuation Tables for Selected Hazardous Materials in the DOT Emergency Response Guide for Hazardous Materials.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HU3

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

UNUSUAL EVENT

- 5. Other Conditions Exist Which in the Judgment of the Emergency Coordinator Warrant Declaration of an Unusual Event.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

Other conditions exist which in the judgment of the Emergency Coordinator indicate a potential degradation of the level of safety of the plant.

BASIS:

This EAL is intended to address unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator to fall under the Unusual Event emergency class.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HU5

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

1. **Natural and Destructive Phenomena Affecting the Plant Vital Area.**

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVELS:

- A. Tremor felt and seismic trigger actuates (.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 events **AND** one of the following:

Plant personnel report visible damage to permanent structures or equipment required for safe shutdown of the unit

OR

Affected safety related system parameter indications show degraded performance

BASIS:

EAL 1 Based on the FSAR design basis. Seismic events of this magnitude can cause damage to safety functions.

EAL 2 is intended to address the threat to safety related structures or equipment from uncontrollable and possibly catastrophic events. Damage to safety-related equipment and or structures housing safety-related equipment caused by natural phenomena after striking the site is the key point of this EAL. Only one train of a safety-related system needs to be affected or damaged in order to satisfy this condition. This EAL is, therefore, consistent with the definition of an ALERT in that if events have damaged areas containing safety-related equipment the potential exists for substantial degradation of the level of safety of the plant.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

Structures/equipment which provide safety functions are designed to withstand sustained wind force of 95mph. These structures are designed to withstand external wind forces resulting from a tornado having a velocity of 300mph. Because high winds may disable the meteorological instrumentation well before the design basis speed is reached, the meteorological tower should not be used for assessment of tornado winds for emergency classification. For tornados, damage would be the prima facie evidence of winds exceeding design basis.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HA1

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

- 2. Release of Toxic or Flammable Gases Jeopardizes Operation of Systems Required to Maintain Safe Operations or to Establish or Maintain Mode 5 (Cold Shutdown).**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVELS:

- A. Report or detection of toxic gases in concentrations that will be life threatening to plant personnel.
- B. Report or detection of flammable gases in concentrations that will affect the safe operation of the plant.

Reactor Building
Auxiliary Building
Turbine Building
Control Room

BASIS:

EAL 1 is based on toxic gases that have entered a plant structure that are life-threatening to plant personnel. This EAL applies to structures required to maintain safe operations or to establish or maintain cold shutdown. It is appropriate that increased monitoring be done to ascertain whether consequential damage has occurred. Escalation to a higher emergency class, if appropriate, will be based on System Malfunction, Fission Product Barrier Degradation, Abnormal Rad Levels/Radioactive Effluent, or Emergency Coordinator Judgment ICs.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

EAL 2 is based on the detection of flammable gases in areas containing equipment required for safe shutdown of the unit. It is appropriate that increased monitoring be done to ascertain whether consequential damage has occurred. Escalation to a higher emergency class, if appropriate, will be based on System Malfunction, Fission Product Barrier Degradation, Abnormal Rad Levels/Radioactive Effluent, or Emergency Coordinator Judgment ICs.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HA3

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

3. TURBINE BUILDING FLOOD

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

- A. Turbine building flood requiring use of AP/1,2,3/A/1700/010, Turbine Building Flood.

BASIS:

This initiating condition is discussed in the Oconee Probabilistic Risk Assessment report. A flood caused by the rupture of the Jocassee Dam could flood the turbine building basement which could disable the main feedwater pumps and the turbine and motor driven emergency feedwater pumps. Also, rupture of some portions of the condenser intake piping could result in a flood in the turbine building basement. Water tight doors have been provided to prevent the water from seeping into the auxiliary building. This scenario assumes that the Standby Shutdown Facility (SSF) would be available to provide water to the steam generators. Escalation of the event to a higher category would be based on the ability to maintain core cooling or shutdown functions.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

4. Control Room Evacuation Has Been Initiated.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

A. Evacuation of control room **AND** one of the following:

Plant control is established from the Aux SD panel or the SSF

OR

Plant control is being established from the Aux SD panel or the SSF

BASIS:

The auxiliary shutdown panel will allow operators to use turbine bypass valves to maintain RCS temperature, one HPI pump for RCS inventory control, pressurizer heaters to maintain RCS pressure and control of the feedwater startup valves but not control over the feedwater pumps.

The standby shutdown facility can maintain hot shutdown by using auxiliary service water to the steam generators for primary heat removal and also to provide makeup to the reactor coolant system. The SSF is only used under extreme conditions since it may involve pumping lake water into the steam generators for heat removed purposes.

With the control room evacuated, additional support, monitoring and direction through the Technical Support Center and/or other Emergency Operations Facility is necessary. Inability to establish plant control from outside the control room, as evidenced by the inability to maintain RCS or SG inventories, will escalate this event to a Site Area Emergency.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HA5

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

ALERT

5. Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of an Alert.

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

- A. Other conditions exist which in the Judgment of the Emergency Coordinator indicate that plant safety systems may be degraded **AND** that increased monitoring of plant functions is warranted.

BASIS:

This EAL is intended to address unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator to fall under the Alert emergency class.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HA6

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

SITE AREA EMERGENCY

- 1. Control Room Evacuation Has Been Initiated and Plant Control Cannot Be Established.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

The following conditions exist:

- A. Control room evacuation has been initiated

AND

Control of the plant cannot be established from the Aux SD panel or the SSF within 15 minutes.

BASIS:

The timely transfer of control to alternate control areas has not been accomplished. This failure to transfer control would be evidenced by deteriorating reactor coolant system or steam generator parameters. For most conditions RCP seal LOCAs or steam generator dryout would be indications of failure to accomplish the transfer in the necessary time.

Escalation of this event, if appropriate, would be by Fission Product Barrier Degradation, Abnormal Rad Levels/Radiological Effluent, or Emergency Coordinator Judgment ICs

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HS2

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS **AFFECTING PLANT SAFETY**

SITE AREA EMERGENCY

2. Keowee Hydro Dam Failure

OPERATING MODE APPLICABILITY: **ALL**

EMERGENCY ACTION LEVEL:

- A. Imminent/actual dam failure exists involving any of the following:
 Keowee Hydro Dam
 Little River Dam
 Dikes A,B,C,D
 Intake Canal Dike
 Jocassee Dam - Condition A

BASIS:

The Keowee Hydro Dam project includes the Keowee Hydro Dam, Little River Dam and Dikes A, B, C, D, and the Intake Canal Dike. Dam failure of any portion of the Keowee Hydro Dam would result in loss of the emergency AC power supply AND the potential to lose the ultimate heat sink source. Some flooding of the site may result. Evaluation of the plant status following failure of the dam would determine the need to escalate to a General Emergency. Failure of the Jocassee Dam has the potential to result in the failure of the Keowee Hydro Project Dams/Dikes.

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

SITE AREA EMERGENCY

3. **Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of Site Area Emergency.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

- A. Other conditions exist which in the Judgment of the Emergency Coordinator indicate actual or likely major failures of plant functions needed for protection of the public.

BASIS:

This EAL is intended to address unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator/EOF Director to fall under the emergency class description for Site Area Emergency.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HS3

ENCLOSURE 4.7

NATURAL DISASTERS, HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

GENERAL EMERGENCY

1. **Other Conditions Existing Which in the Judgment of the Emergency Coordinator Warrant Declaration of General Emergency.**

OPERATING MODE APPLICABILITY: ALL

EMERGENCY ACTION LEVEL:

- A. Other conditions exist which in the Judgment of the Emergency Coordinator/EOF DIRECTOR indicate:

(1) Actual or imminent substantial core degradation with potential for loss of containment

OR

(2) Potential for uncontrolled radionuclide release that would result in a dose projection at the site boundary greater than 1000 mRem TEDE or 5000 mRem CDE Adult Thyroid.

BASIS:

This EAL is intended to address unanticipated conditions not addressed explicitly elsewhere but that warrant declaration of an emergency because conditions exist which are believed by the Emergency Coordinator/EOF Director to fall under the General Emergency class.

Releases (if made) can reasonably be expected to exceed EPA PAG levels outside the site boundary.

Reference

NUMARC/NESP-007, Rev. 2, 01/92, HG2

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

Assumptions used for calculation of high range in-containment monitors RIA 57 and 58:

1. Average annual meteorology ($7.308 \text{ E}^{-6} \text{ sec/m}^3$)
2. Design basis leakage ($5.6 \text{ E}^6 \text{ ml/hr}$)
3. One hour release duration
4. *General Emergency* PAGs are 1 rem TEDE and 5 rem CDE; *Site Area Emergency* determination is based on 10% of the *General Emergency* PAGs
5. Calculations for monitor readings are based on CDE because thyroid dose is limiting
6. No credit is taken for filtration
7. LOCA conditions are limiting and provide the more conservative reading

F. EMERGENCY COMMUNICATIONS

Provisions exist for prompt communications among principal response organizations, emergency personnel, and to the public.

F.1 Emergency Response Organization

The Emergency Response Organization has been developed in such a manner to list primary and alternate personnel. Primary and backup means of communication have been established between the Site, local government agencies, and State response organizations (Figure F-1).

F.1.a Calls to activate State/County agency's emergency function are the responsibility of the Shift Manager/Emergency Coordinator. These calls are made by:

1. Duke Emergency Management Network (DEMNET).
2. The site telephone system to a 24-hour emergency number.

Some agencies have numbers for designated work schedules. Numbers can be found in the Emergency Telephone Directory.

A back-up radio system provides alternate communications with Oconee and Pickens Counties emergency response organizations. (Figure F-2)

F.1.b On a monthly basis, a communication check is made to state and local government warning points within the Emergency Planning Zone. Communications during an emergency situation would be by DEMNET, site telephone system/commercial phone service, or by radio (where appropriate).

F.1.c The EOF organization has the responsibility to ask for federal response. However, communication with the Nuclear Regulatory Commission from the emergency response facilities, would be by use of the Emergency Telecommunication System (ETS) located in the Control Room areas, Technical Support Center, or the Emergency Operations Facility.

F. EMERGENCY COMMUNICATIONS

F.1.d The Emergency Response Organization has the following communications systems available for use during emergencies:

- 1) Oconee Nuclear Station Telephone System
(Generator backed and battery backed)

Fiber-Optic to Charlotte GO (65 lines)

Telephone line to Easley (6 circuits)

Anderson (4 lines)

Six-Mile (4 lines)

Site Telephone System - Inward and outward direct dial available from the Control Room, TSC, and OSC

- 2) Commercial phone service does not go through the site telephone system
- 3) Duke Emergency Management Network (DEMNET)

DEMNET is the primary means of communication with the offsite agencies. DEMNET uses digital voice manager technology and IP connectivity through either the internet or a dedicated satellite connection, resulting in redundant paths to ensure operability. DEMNET allows intercommunication among the EOF, TSC, control room, counties, and states.

Oconee County

Pickens County

State Warning Point

State Emergency Operations Center (Columbia)

Emergency Operations Facility (Charlotte)

Technical Support Center

Control Rooms 1&2,

Backup TSC/OSC (OOB)

Alternate Reporting Location (Issaqueena Trail)

- 4) Emergency Radio System (Offsite System-Battery Backed)

Control Room Units 1&2 (48.5 MHZ)

Technical Support Center

Field Monitoring Teams (800 MHZ)

Pickens County (48.5 MHZ)

Oconee County (48.5 MHZ)

State of South Carolina

F. EMERGENCY COMMUNICATIONS

5) Radio Systems (Onsite) (Emergency Back-up Power
by Keowee Hydro Units)

Control Room 1&2, 3
Fire Brigade
Chemistry
Safety
Radiation Protection
Maintenance
Medical Emergency Response Team
Hazardous Materials Response Team

6) Security Radio System (Emergency Back-up Power by Standby
Shutdown Facility)

CAS/SAS
All Security Guards
Oconee County LEC
Control Room 1&2, 3

7) Public Address (PA) System

Oconee Nuclear Station (Protected Area)
Oconee Office Building
Oconee Administration Building
Oconee Complex
Oconee Maint. Training Facility (Unique Page Number)
Oconee Garage (Unique Page Number)
Oconee Training Facility (Unique Page Number)
Keowee Hydro Station (Unique Page Number)
World of Energy

8) Site Assembly Warning System

Paging by Control Room
Warble Tone over PA
Siren Assembly Horn (Outside Warning)

F. EMERGENCY COMMUNICATIONS

9) EOF Communication System (Energy Center has back-up generator power)

The emergency communications systems at the Charlotte EOF are designed to ensure the reliable, timely flow of information between all parties having an emergency response role. The DEMNET is the primary means of communicating changes in event classification and protective action recommendations to the state and counties. The Decision Line provides the state and counties with a dedicated line to discuss and coordinate protective action recommendations. Existing commercial telephone service will serve as the designated backup means for communications in the event of a DEMNET/ Decision Line failure.

Duke Telephone System (battery backed)
DEMNET (for state/county notifications)
Decision Line (for discussions/coordination of PARs)
Commercial telephones from the Charlotte switch network
Radio System to communicate with the Field Monitoring Teams
NRC Emergency Telecommunications System phones
Satellite Telephone

F.1.e Recall of Emergency Response Organization

Should an emergency occur that will require activation of the Emergency Response Organization, the Shift Manager will require the following actions to occur:

Normal Working Hours (Figure A-2A)

1. Have announced over the Public Address system that the Emergency Response Organization (Technical Support Center and Operational Support Center) are to be staffed.
2. Security will activate the ERO. If security is unable to activate the ERO, the SM (or designee) will activate the ERO.
3. Notify Duty Operations Engineer who verifies Plant Manager and Superintendent of Operations have been notified.
4. Initiate a Site Assembly.
5. Individual groups will contact corporate personnel for support.

EMERGENCY COMMUNICATIONS

Weekends, Holidays, Backshift (Figure A-2B)

1. Security will activate the ERO. If security is unable to activate the ERO, the SM (or designee) will activate the ERO.
2. Duty Operations Engineer who verifies Plant Manager and Superintendent of Operations have been notified.
3. Announce over the PA system that the Emergency Response Organization (Technical Support Center and Operational Support Center) is to be activated.
4. Initiate a Site Assembly.
5. Individual groups will contact corporate personnel for support.

F.1.f Redundant two way communication exists for communication with the Nuclear Regulatory Commission. The ETS system, the regular site or EOF telephone system exists for the communication link with NRC. (Figure F-1)

F.2 Medical Support Communication Link

Operations and/or Security will utilize the public address system and radio pager system to activate the Medical Emergency Response Team to respond to a medical emergency to assess the situation and render first aid. If an ambulance is needed, Operations and/or Security will call for an ambulance to be dispatched from the Oconee Medical Center by one of several ways:

1. Regular ONS switchboard line
2. Outside line (Commercial Phone Service)
3. DEMNET to Oconee County who then would contact Oconee Memorial Hospital. (Operations only)
4. Radio in the Control Room and/or CAS/SAS to Oconee County, who then would contact the Oconee Memorial Hospital.

EMERGENCY COMMUNICATIONS

However, should an emergency at the Oconee Nuclear Station cause the Emergency Response Organization to be activated, personnel will staff the Operational Support Center who can respond to a medical emergency. Calls will be made from the Operational Support Center for additional medical assistance (i.e. ambulance transport and hospital contact).

F.3 Periodic Testing of the Emergency Communications System

Testing of the Emergency Communications System will be tested on a monthly and a quarterly basis in accordance with site procedures. Phones and radios will be checked to determine their availability.

FIGURE F-1

DUKE ENERGY COMPANY OCONEE NUCLEAR STATION

EMERGENCY COMMUNICATIONS SYSTEM

Organization	Commercial Phone Service Private Line	ONS Site Phone System	DEMNET	DPC Offsite Radio System	DPC Onsite Radio System	DPC Merwav. System	State LGR Radio System	Decision Line	ETS System	EOF Phone System
Control Room	x	x	x	x	x	x			x	x
Technical Support Center	x	x	x	x	x	x			x	x
Operational Support Center		x			x	x				x
Emergency Operations Facility	x		x	x		x		x	x	x
Pickens LEC	x	x	x	x				x		x
Pickens EOC	x	x	x	x			x	x		x
Oconee LEC	x	x	x	x				x		x
Oconee EOC	x	x	x				x	x		x
State EOC	x	x	x				x	x		x
State FEOC	x	x	x	x			x	x		x
NRC Headquarters	x	x							x	x
NRC Region II	x	x							x	x

FIGURE F-2

DUKE ENERGY COMPANY OCONEE NUCLEAR STATION

EMERGENCY RADIO NETWORK

The offsite emergency radio network at the Oconee Nuclear Station (ONS) is specifically limited to use in an emergency event. The network consists of two radio frequencies which provide the following services:

- A. 48.5 MHZ
 - “ Backup communications between ONS, Pickens County Emergency Preparedness Agency and Oconee County Emergency Preparedness Agency.
 - “ Operating instructions are shown in the Emergency Telephone Directory and AD-EP-ALL-0203 (Protocol for the Field Monitoring Coordinator During Emergency Conditions)
- B. 800 MHZ
 - “ Provide communications between Field Monitoring Team Coordinator and field teams.
 - “ Base station radios are located in the TSC and backup TSC
 - “ Operating instructions are located in AD-EP-ALL-0203 (Protocol for the Field Monitoring Coordinator During Emergency Conditions)

Emergency Facilities And Equipment

H.1.a Technical Support Center (TSC)

A Technical Support Center has been designated for the Oconee Nuclear Station in the area known as the Operations Center, together with the nearby offices adjacent to the Control Rooms 1&2 on the fifth floor of the Auxiliary Building. This area has the same ventilation and shielding as the Control Room enabling plant management and supporting technical and engineering personnel to evaluate plant status and support operations in conjunction with the Operational Support Center.

The Technical Support Center has the capability to display and transmit plant status to those individuals who are knowledgeable of and responsible for engineering and management support of the reactor operations in the event of an accident, and those persons who are responsible for the management of the accident. Upon activation, this facility will provide the main communication link between the Plant, Operational Support Center, the Nuclear Regulatory Commission Regional Headquarters, and the Emergency Operations Facility. The Technical Support Center is staffed by plant management and technical personnel.

The Technical Support Center has access to the following capabilities and characteristics: (Figure H-1).

1. Redundant two-way communication with the Control Room, the Emergency Operations Facility and the Nuclear Regulatory Commission Operations Center.
2. Monitoring for direct radiation and airborne radioactive contaminants, with local readout of radiation level and alarms if preset levels are exceeded. Laboratory analysis is required if it becomes necessary to detect radioiodines at concentrations as low as $1.0 \text{ E-7 microcurie/cc}$.
3. Display, printout or trending of comprehensive data necessary to monitor reactor systems status and to evaluate plant system abnormalities; in-plant radiological parameters and meteorological parameters are also available. This capability is provided via each unit's Operator Aid Computer.

Offsite radiological conditions are provided via radio from the field monitoring teams.

H. EMERGENCY FACILITIES AND EQUIPMENT

4. Ready access to as-built plant drawings such as general arrangement, flow diagrams, electrical one-lines, instrument details, etc.
5. Habitability during postulated radiological accidents to the same degree as the Control Room.

H.1.b Operational Support Center (OSC)(Figure H-2)

An Operational Support Center has been established in the Operations Center located in the Unit 3 Control Room. Personnel assigned to this support center will include the following:

- Work Control
- Chemistry
- Radiation Protection
- Safety
- Maintenance
- Operations
- Engineering
- Nuclear Supply Chain
- Security

The Operational Support Center has shielding and ventilation to the same degree as the Control Room. Breathing equipment and protective clothing are available in the Operational Support Center should any craftsman/technician be required to perform a task or function in an area that would require protective clothing and breathing apparatus.

H.1.c Backup Emergency Response Facility (ERF) (Figure H-14 and H-2A)

A Backup Technical Support Center has been established at the Oconee Office Building, Room 316. Radio and telephone communications are available to offsite agencies and the NRC to the same extent as the designated TSC.

A Backup Operational Support Center has been established in the Oconee Office Building, Room 316 A. Communication links are provided for information flow both to the Control Room and Technical Support Center.

H. EMERGENCY FACILITIES AND EQUIPMENT

The Issaqueena Trail Facility (JIC) serves as an alternate response facility that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff and having the following characteristics required collectively of the alternate facilities for use when onsite emergency facilities cannot be safely accessed during hostile action:

- The capability for communication with the emergency operations facility, control room, and plant security.
- The capability to perform offsite notifications.
- The capability for engineering assessment activities, including damage control team planning and preparation.

H.2 Emergency Operations Facility (EOF) (Figures H3-A thru H3-E)

The Emergency Operations Facility is located at the Charlotte General Office in North Carolina. The facility is located approximately 120 miles from the Oconee Nuclear Station.

The EOF has the following capabilities:

- a. The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves.
- b. The capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves.
- c. The capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site.

H. EMERGENCY FACILITIES AND EQUIPMENT

Two utility circuits feed Energy Center Phase 1 where the EOF is located. Primary power to the Power Building is provided by commercial power. All electrical outlets, as well as lighting fixtures and the wiring closet that supports both the voice and data communications in the Energy Center EOF are on generator backed up power. A loss of commercial power should not impact any of the voice or data communications equipment located in the EOF. All common Duke Energy telecom infrastructures that support EOF functions, including, but not limited to, fiber optic transmission equipment, telephone switching equipment and data network routers, is configured to operate from at least one and usually multiple backup power sources in the event of a loss of commercial power. These backup sources include generator, DC battery and UPS systems. EOF HVAC loads are not backed up.

H.3 County, State Emergency Operations Center

See Oconee County FNF Plan.
See Pickens County, FNF Plan.
See State of South Carolina FNF Plan, Site Specific.

H.4 Activation and Staffing of the Emergency Response Organization

Activation and staffing of the Emergency Response Organization will be in accordance with the emergency action levels and the procedures developed for determining emergency response.

Division/Section Directives describe the Emergency Response Organization. Figures A-2A, A-2B depicts the procedure for recall of the Emergency Organization.

H.5 Monitoring Systems

On Site - If an emergency situation occurs at the plant, plant personnel continually monitor plant parameters with regard to limits and surveillance requirements specified in the appropriate Technical Specifications, Operating Procedures and Emergency Procedures. These parameters will affect the emergency classification and therefore affect decisions implementing specific emergency measures. In addition to monitoring plant parameters, radiological surveys may be used to verify, augment and/or delineate the assessment of the emergency. (Figure H-20).

H. EMERGENCY FACILITIES AND EQUIPMENT

H.5.a Natural Phenomena Monitors

Natural phenomena instrumentation to monitor wind speed and direction, temperature and vertical temperature gradient (Figure H-4); and seismic activity (Figure H-18).

H.5.b Radiological Monitors (H-5)

Area Radiation Monitoring System

The area radiation monitoring system detectors are located throughout the plant in locations where significant radiation levels may exist, which may change with time and with the operation being performed. They are designed primarily for the protection of personnel performing such operations as routine coolant sampling, refueling, reactor building entry, radioactive waste disposal operations and for certain other operating and maintenance work. The system has sufficient range and flexibility to permit readout during routine operations and during any transient or emergency conditions that may exist. The equipment is self checking for proper operation and alarms both in the local area and in the respective control room. Where necessary or desirable, readout is also provided locally.

Process Radiation Monitoring System

Radiation monitoring of process systems provides early warning of equipment, component, or system malfunctions or potential radiological hazards. The Process Radiation Monitoring System includes alarms, indications, and recording of data in the control rooms. In some cases automatic action is taken upon an alarm condition; in others the alarm serves as a warning to the operator so that manual corrective action can be taken.

Radioactive liquid and gaseous waste effluent are monitored and coordinated by Operations and controlled to assure that radioactivity released does not exceed 10 CFR 20 limits for the plant as a whole.

H. EMERGENCY FACILITIES AND EQUIPMENT

Personnel Monitoring System

Personnel monitoring equipment consisting of film badges and/or their equivalent (thermo-luminescent dosimeters, TLD's), are assigned by the Radiation Protection Section and worn by all personnel at Oconee whose job involves significant levels of radiation exposure as defined in 10 CFR 20. In addition, pocket chambers, electronic dosimeters, self-reading dosimeters, pocket high radiation alarms, wrist badges, and/or finger tabs are readily available for use by those persons who ordinarily work in the Controlled Area or whose job requires frequent access to this area.

Portable Monitors - sufficient numbers are available for use in assessing radiological conditions. (Figure H-6).

Sampling Equipment - sufficient numbers are available for use in assessing radiological conditions. (Figure H-7).

H.5.c Process Monitors - Non-radiological Monitoring

Non-radiological monitoring capabilities include reactor coolant system pressure, temperatures, flows, and water level for detection of inadequate core cooling. Containment pressure, temperature, liquid levels, flow rates, and status of equipment components are monitored to assess containment integrity.

H.5.d Fire and Combustion products detectors - (Figure H-8).

H.6 Offsite Monitoring and Analysis for Emergency Response

H.6.a Natural-Phenomena Monitors

Facilities and equipment include two onsite meteorological towers. Also, an agreement has been established with the Greenville-Spartanburg National Weather service to provide meteorological information should our system become inoperable.

H.6.b Radiological monitors for emergency environmental monitoring are provided in emergency kits. The established environmental monitoring network and sampling equipment in the surrounding area are also available to provide emergency assessment data.

The existing radiological monitoring program will provide base line information as well as in-place monitoring for early assessment data. (Figure A) (H-9 and H-10).

H. EMERGENCY FACILITIES AND EQUIPMENT

Normal environmental monitoring equipment includes radioiodine and particulate continuous air samplers and thermo-luminescent dosimeters, located and collected according to pre-established criteria. Environmental monitoring will be expanded as necessary during an emergency situation in accordance with offsite monitoring procedures.

- H.6.c Laboratory Facilities - Include mobile emergency monitoring capabilities available through the S.C. Department of Health and Environmental Control, Bureau of Solid and Hazardous Waste Management and the DOE Radiological Assistance Team. In addition, Oconee Nuclear Station (ONS) has emergency vehicles for mobile assessment purposes. Fixed facilities are available for gross counting and spectral analysis in the ONS counting laboratory (Figure H-11) and at the Duke Energy Environmental Laboratory near the McGuire Nuclear Station, Charlotte, North Carolina.

Should the plant lose the capability to use the count room onsite, samples can be counted at the backup count room or in one of the mobile assessment field monitoring vans. Portable equipment would be relocated to this area. (Figure H-3)

- H.7 Offsite radiological monitoring equipment is located in the storage area outside the protected area. Emergency kits are available for off-site monitoring teams who would be monitoring for radiation offsite. (Figure H-12).

- H.8 Meteorological Instrumentation

A primary and one auxiliary meteorological tower provides the basic parameters on display in the Control Room. (Figure H-4 shows the meteorological equipment.)

Meteorological measurement equipment meets the criteria of the milestones addressed in Appendix 2 of NUREG 0654 and Proposed Revision 1 to Regulatory Guide 1.23.

An operable dose calculation methodology is in use in the Control Room, Technical Support Center and the Emergency Operations Facility.

The dose assessment methodology for the Oconee Nuclear Station consists of calculations for three separate source terms. The first source term is based on the activity that has been or is actually being released through the unit vent; the second source term is based on a potential release using the reactor building dose rate and design basis assumptions for containment leakage; the third source term is based on the activity that has been or is actually being released through the steam relief valves.

H. EMERGENCY FACILITIES AND EQUIPMENT

The release rate is calculated for each source term using relative atmospheric dispersion factors calculated by the meteorological model and either actual sample data or radiation monitor readings. These release rates are then added together and used to calculate the dose rate or a projected dose over the duration of the release or over 4 hours if release duration is unknown at 1, 2, 5 and 10 miles downwind from the plant.

These dose assessment methods provide the capability to calculate the dose from actual or potential releases following an accident. A fifty-year committed dose equivalent (CDE) to the thyroid and a total effective dose equivalent (TEDE) from exposure to a semi-infinite cloud and a four-day ground shine as applicable are determined. The dose conversion factors are derived from EPA-400. Near real time radiation monitor readings, sample data, and meteorological data are combined to provide timely, realistic dose calculations. This model will provide the capability to assess and monitor actual or potential offsite consequences of a radiological emergency condition.

Direct telephone access to the person responsible for making offsite dose calculations is available to the Nuclear Regulatory Commission through the use of the NRC Health Physics Network line. The physical location of this person is in the Emergency Operations Facility.

H.9 Operational Support Center - Emergency Supplies

The Operational Support Center will have the same shielding, and ventilation as the Control Room. Protective clothing and breathing equipment are available to the personnel assembled in these areas. (See Figures H-13, H-14, H-17)

H.10 Inspection and Inventory of Emergency Equipment and Supplies

All emergency equipment designated by the Oconee Nuclear Station Emergency Plan shall be inventoried and inspected on a quarterly basis or in agreement with established procedures. Supplies will be inventoried/replaced after each drill and/or exercise or actual emergency where supplies might have been used.

Calibration of any/all emergency equipment shall be at the intervals recommended by the supplier of the equipment.

H. EMERGENCY FACILITIES AND EQUIPMENT

H.11 Identification of Emergency Kits

Emergency kits are located in various locations. See figures below and procedure for specific locations.

Protective Equipment Kits - Figures H-13, H-14, H-17

Communications Equipment - Figures H-12, H-16

Radiological Monitoring Equipment - Figures H-12, H-16, H-17

Emergency Supplies - Figures H-16, Figure H-17

Emergency Medical Supplies - L-1, L-2, L-3

Decontamination Supplies - K-3

Spill Cleanup Equipment/Supplies - H-19

H.12 Field Monitoring Data Collection

The Emergency Operations Facility has been designated as the central point for the receipt and analysis of all field monitoring data and coordination of sample media. The Radiological Assessment Manager at the Emergency Operations Facility will be responsible for the coordination efforts.

FIGURE H-1

OCONEE NUCLEAR STATION TYPICAL TECHNICAL SUPPORT CENTER (TSC) PRIMARY LOCATION UNIT 1&2 OPS CENTER

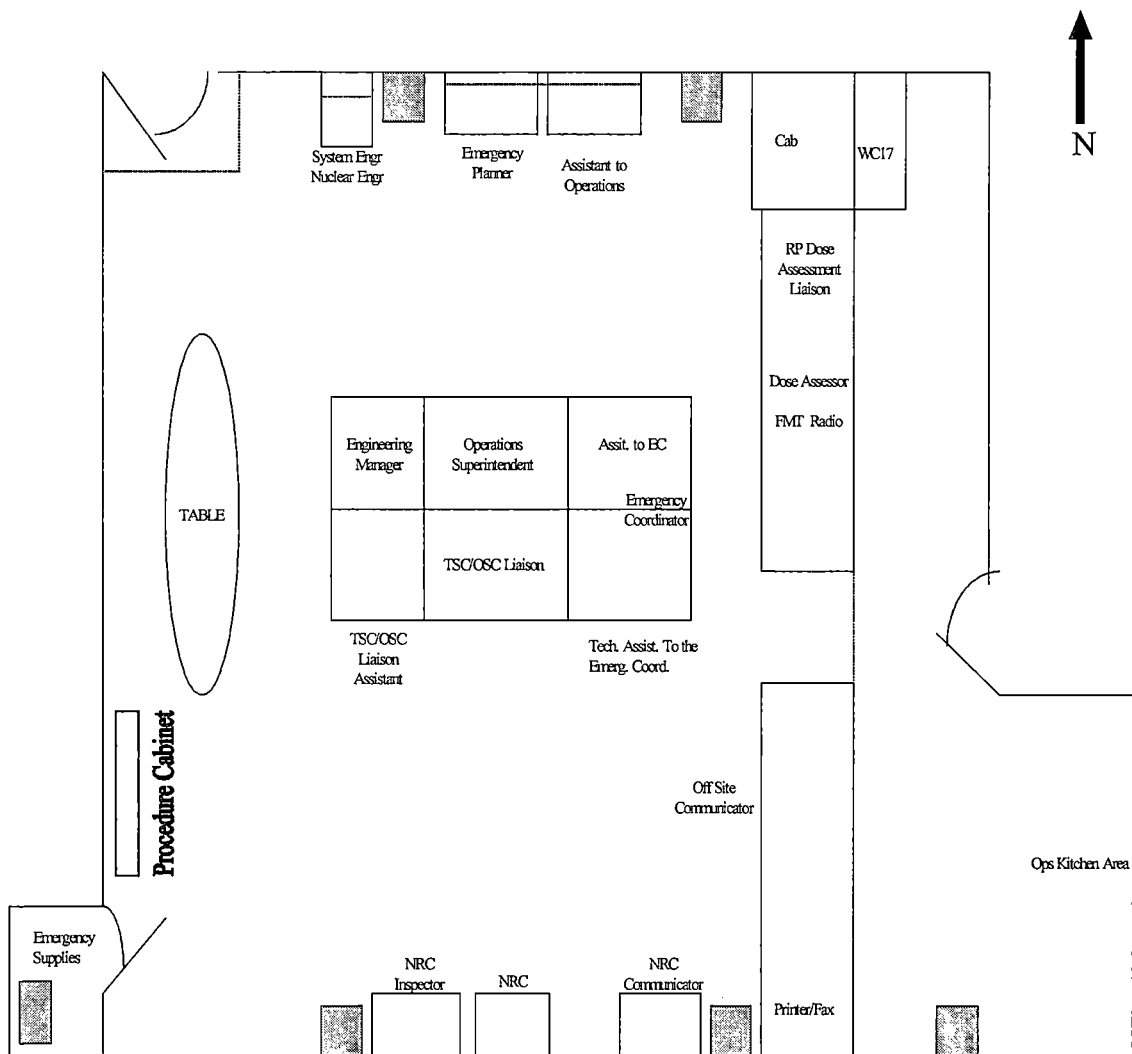
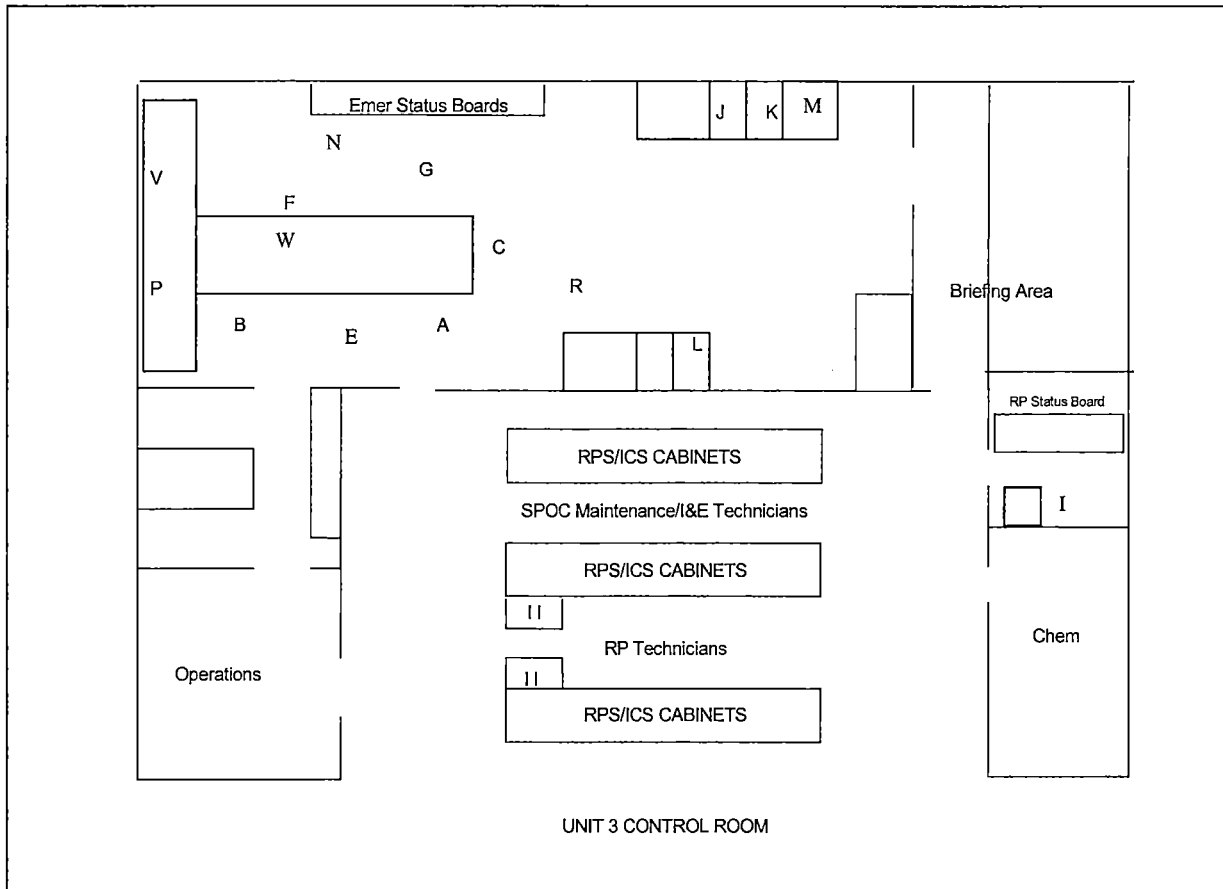


FIGURE H-1A

NO LONGER USED

FIGURE H-2

OCONEE NUCLEAR STATION
TYPICAL OPERATIONAL SUPPORT CENTER (OSC)
PRIMARY LOCATION
UNIT 3 OPERATIONS CENTER



- A. OSC Manager
- B. Ops Liaison
- C. RP Manager
- D. Unassigned
- E. Technical Assistant I
- F. Chemistry Manager
- G. Maintenance Manager
- H. RP
- I. SPOC
- J. Electrical Engineering
- K. Maintenance Supervisor (SPOC)
- L. Chemistry Supervisor
- M. SPOC
- N. Technical Assistant II
- O. RP Admin. Supervisor
- P. Nuclear Supply Chain Liaison
- Q. RP Shift
- R. Assistant to RP Mgr.
- V. Security Liaison

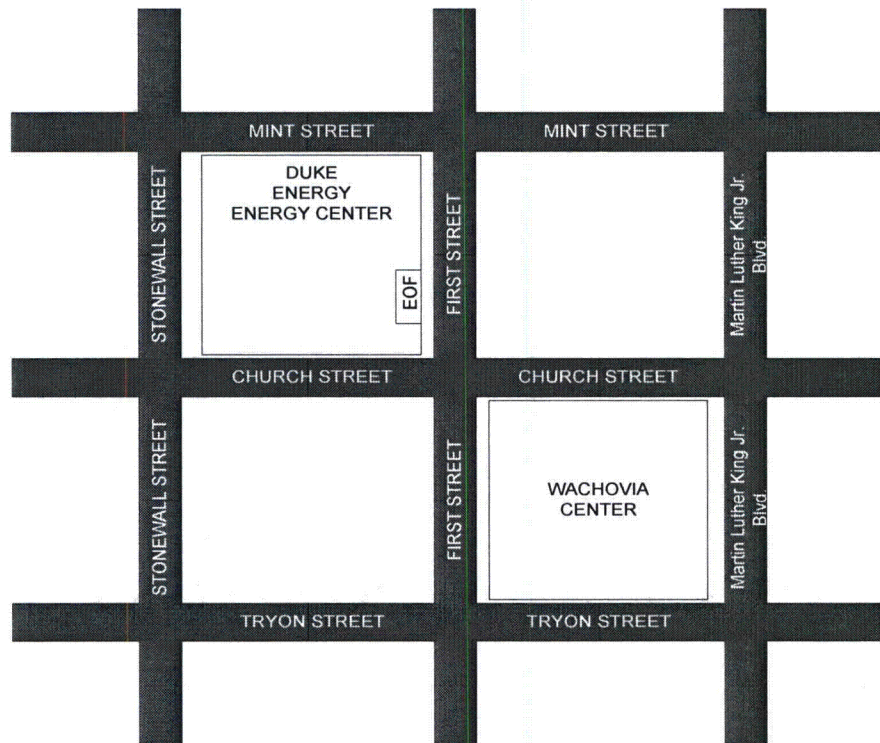
FIGURE H-2A

NO LONGER USED

FIGURE H-3A

DUKE ENERGY OCONEE NUCLEAR STATION

CHARLOTTE EOF GENERAL OFFICE BUILDING LAYOUT – CHARLOTTE, NC



The EOF is on the 1st Floor of the Energy Center.

FIGURE H-3B
DUKE ENERGY
OCONEE NUCLEAR STATION
CHARLOTTE EMERGENCY OPERATIONS FACILITY LAYOUT

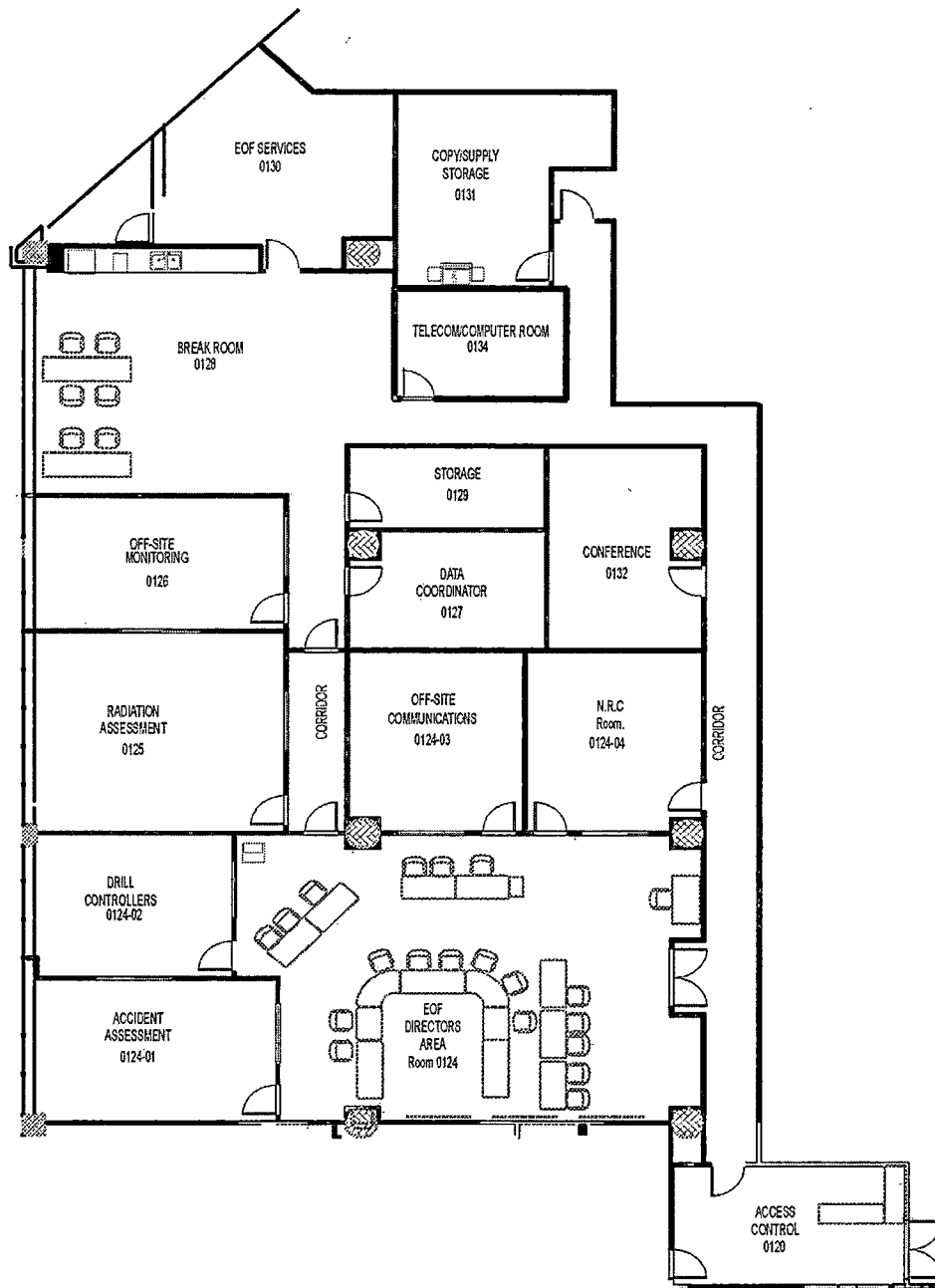


FIGURE H-3C

DUKE ENERGY OCONEE NUCLEAR STATION

TYPICAL OCONEE JIC SET UP (Alternate Emergency Response Facility)

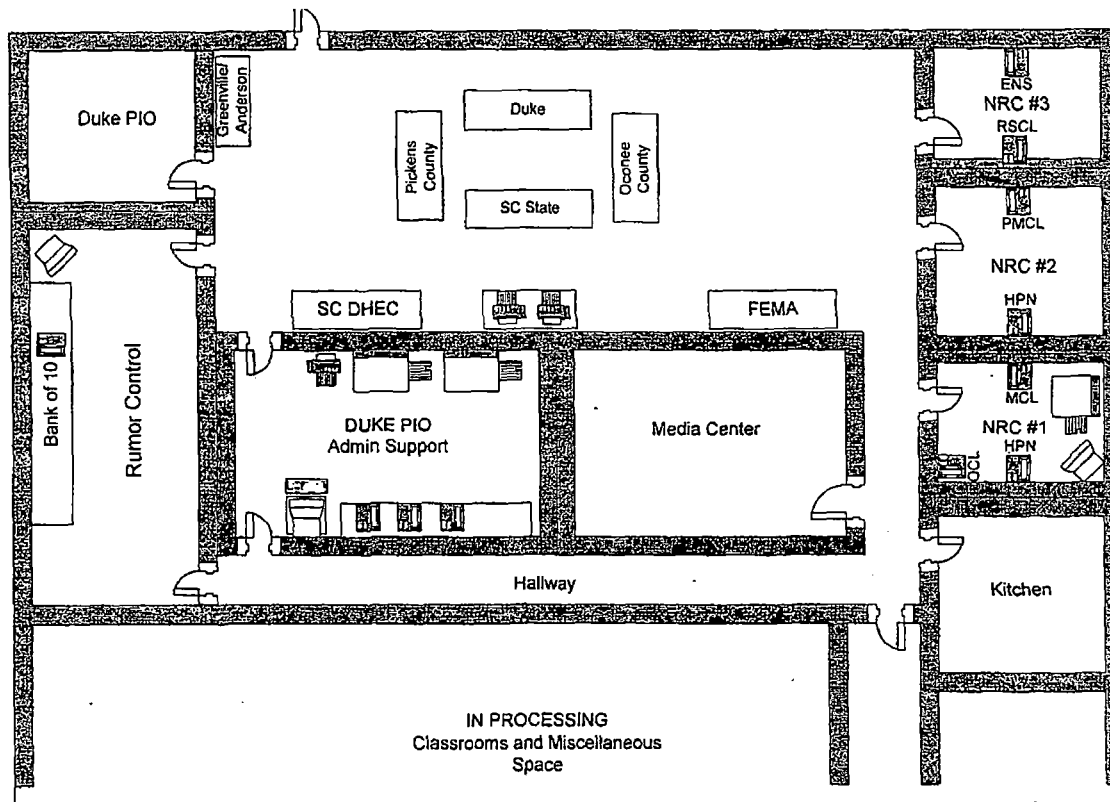


FIGURE H-3D
DUKE ENERGY
OCONEE NUCLEAR STATION
OCONEE MEDIA CENTER

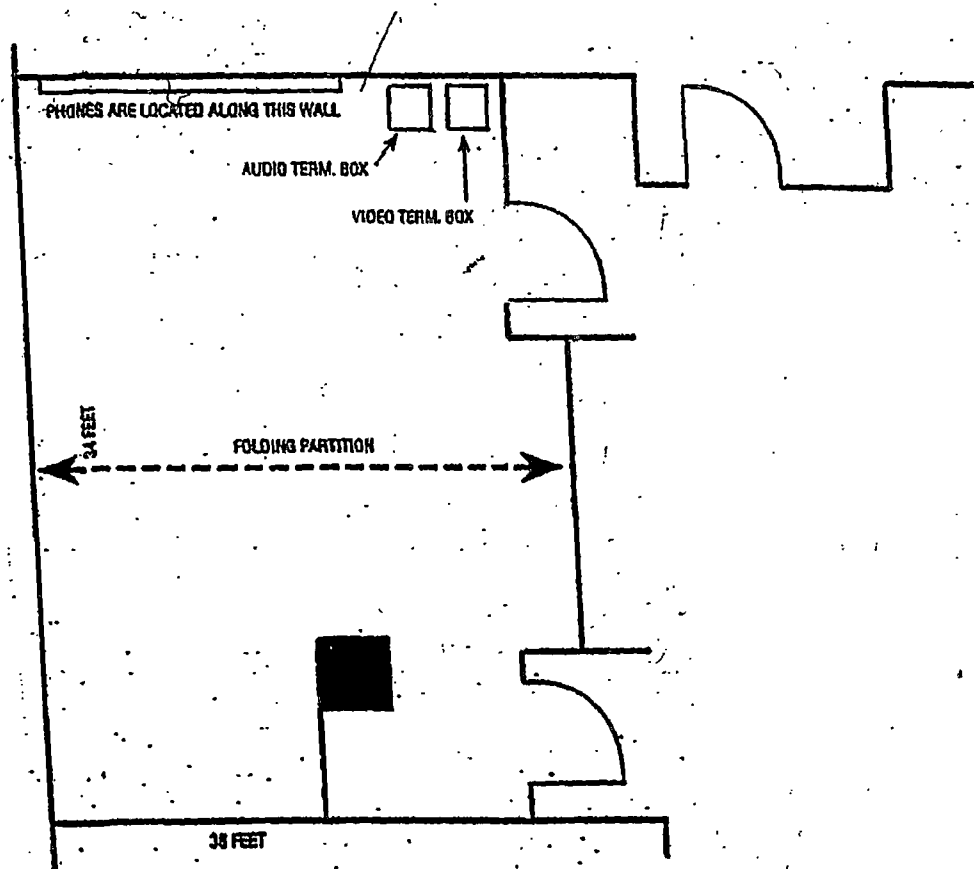


FIGURE H-3E

DUKE ENERGY OCONEE NUCLEAR STATION OCONEE JIC GENERAL LAYOUT

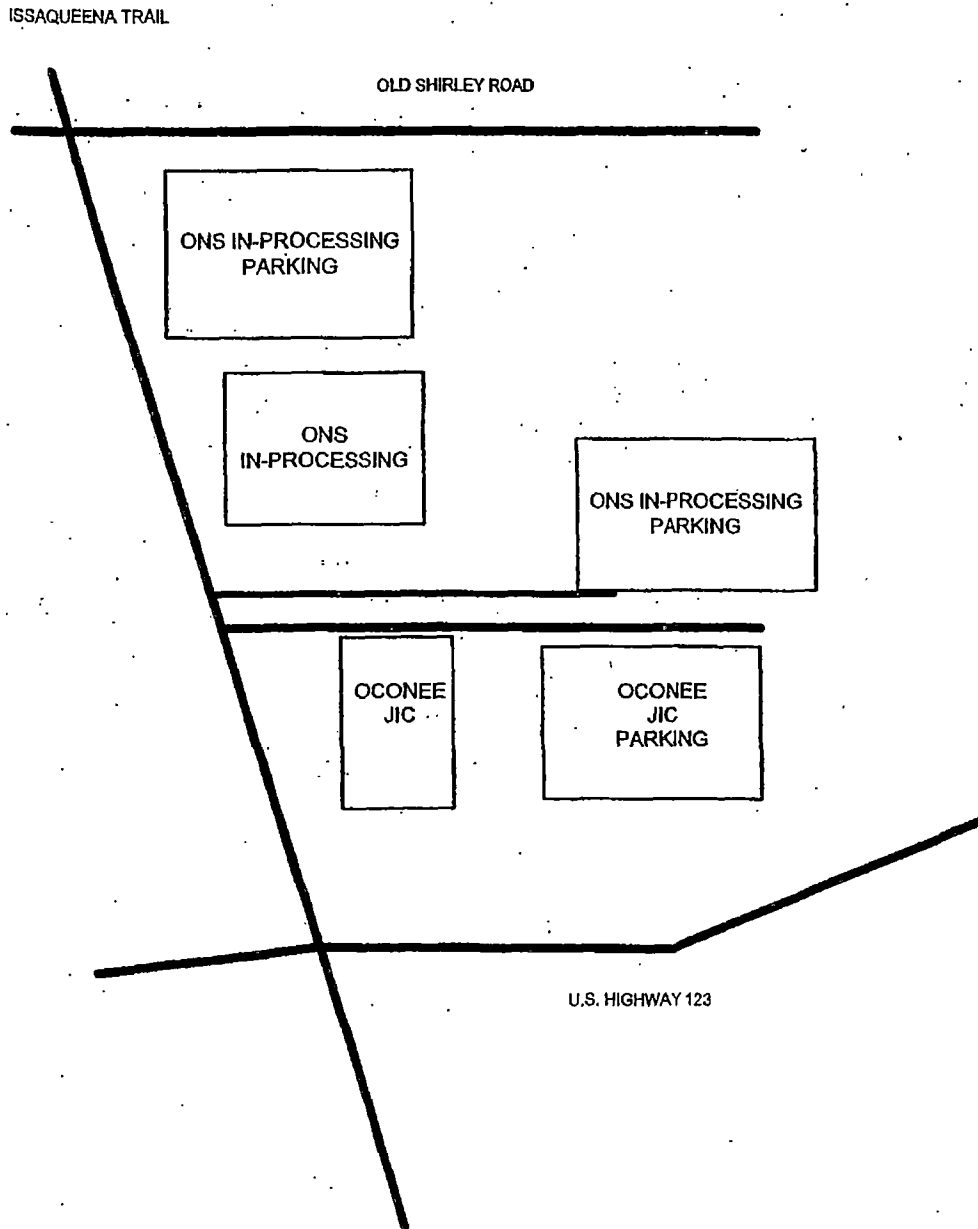


FIGURE H-3F

DUKE ENERGY OCONEE NUCLEAR STATION

OCONEE BACKUP COUNT ROOM LOCATION ONS ADMIN BUILDING

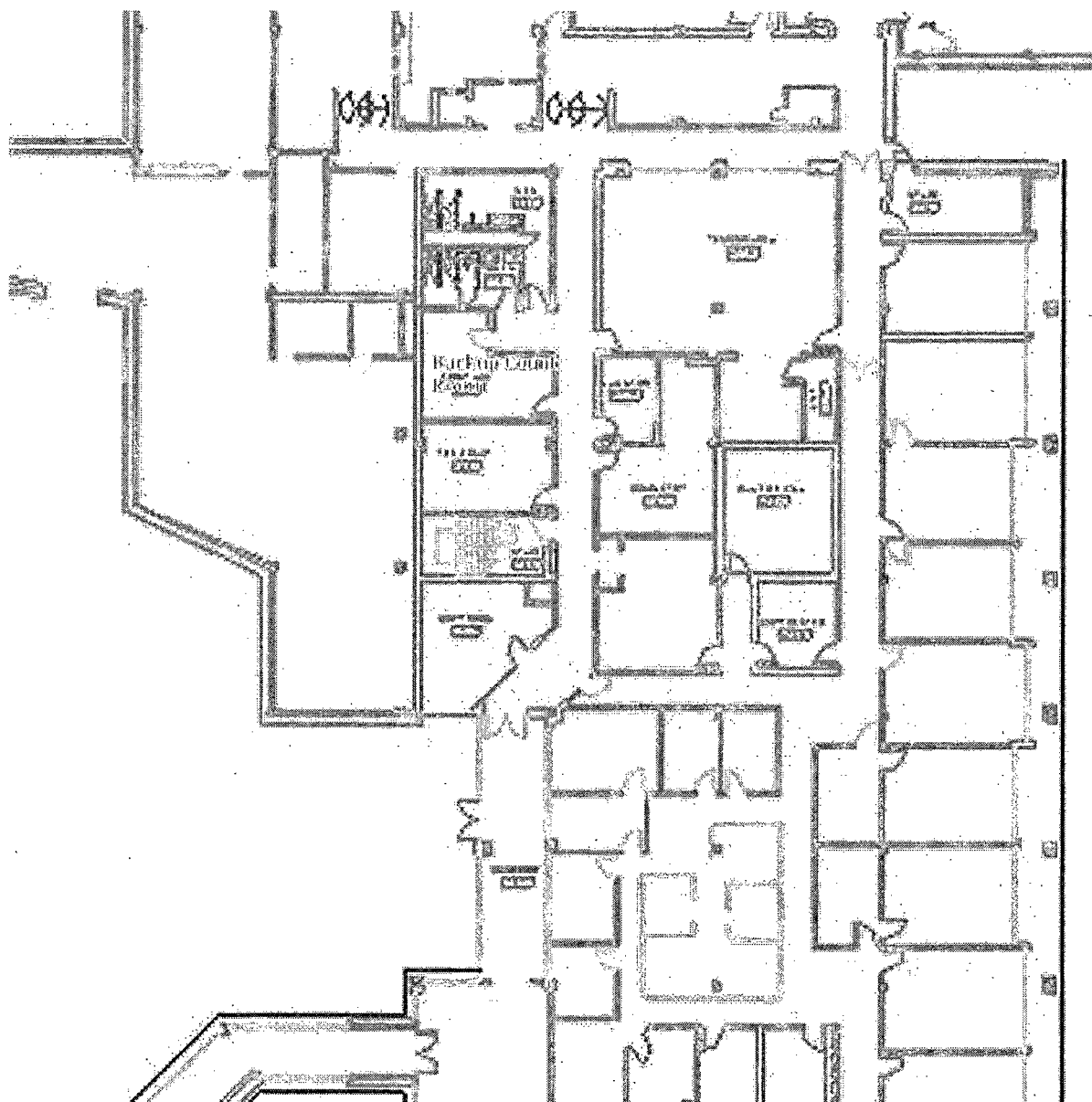


FIGURE H-4

DUKE ENERGY OCONEE NUCLEAR STATION

METEOROLOGY EQUIPMENT

Wind Speed Monitoring Systems

Wind Direction Monitoring Systems

Platinum (RTD) T Delta or T/ Δ T Monitoring System

Precipitation Monitoring System

NOTE: The Meteorological Monitoring System monitors and records continuous data for upper and lower levels of wind speed and direction, ambient air temperature and temperature differential at Site #1 (Northwest Met Tower). Wind speed, wind direction and precipitation is recorded at Site #2 (Keowee River Tower). All data points are included on each of the Units OAC computers where the data is averaged over a 15 minute period of time, except for precipitation.

IP/0/B/1601/003 (Meteorological Equipment Checks) gives range, accuracy and location.

FIGURE H-5

DUKE ENERGY OCONEE NUCLEAR STATION

RADIATION INDICATING ALARMS (RIA)

RIA#	UNIT#	TYPE	RANGE	FUNCTION	LOCATION	CLASS
1	1,3	GM	.1 -1E4mRad/hr	Control Room	Control Room	Area
PAM*	1,2,3	GM	.1 -1E4mRad/hr	Main Bridge	Reactor Building	Area
PAM*	1,2,3	GM	.1 -1E4mRad/hr	Aux. Bridge	Reactor Building	Area
3	1,2,3	GM, IC	.1 -1E7mRad/hr	Refuel Canal	Transfer Canal	Area
4	1,2,3	GM, IC	.1 -1E7mRad/hr	RB Entrance	Personnel Hatch	Area
5	1,2,3	GM	.1 -1E4mRad/hr	Incore Tank	Outside Incore Tk Hatch	Area
PAM*	1,3	GM	.1 -1E4mRad/hr	Spent Fuel	SF Bridge	Area
6	1,3	GM, IC	.1 -1E7mRad/hr	Spent Fuel Area/Pool	SF Pool Area	Area
7	1	GM	.1 -1E4mRad/hr	Hot Machine Shop	East Wall	Area
8	1	GM	.1 -1E4mRad/hr	Hot Lab/ Chemistry	Hot Chem. Lab	Area
10	1,3	GM	.1 -1E4mRad/hr	Sample Hood/Primary	Primary Sample hood	Area
11	1,3	GM	.1 -1E4mRad/hr	Corridor 796(3rd Level)	Unit 1/2 Change Room, Unit 3 Change Room	Area
12	1,3	GM	.1 -1E4mRad/hr	Chem Addition	Unit 1/2/3 Mix Tank	Area
13	1,3	GM	.1 -1E4mRad/hr	Waste Disposal Sink	Waste disposal Tk	Area
15	1,3	GM, IC	.1 -1E7mRad/hr	HPI	HPI Rooms	Area
16	1,3	GM, IC	.01 -1E7mRad/hr	"A" Main Steam Line	"A" Main Steam Lines	Area
17	1,3	GM, IC	.01 -1E7mRad/hr	"B" Main Steam Line	"B" Main Steam Lines	Area
31	1	NaI	10 -1E7cpm	LPI cooler LPSW Discharge	Turbine Building Basement	Effl

Figure H-5
DUKE ENERGY
OCONEE NUCLEAR STATION

RADIATION INDICATING ALARMS (RIA)

RIA#	UNIT#	TYPE	RANGE	FUNCTION	LOCATION	CLASS
32	1	P.Beta	10 - 1E7cpm	Aux. Bldg. Gas	AB-1 SF Resin Tank	Area
32	3	P.Beta	10 - 1E7cpm	Aux. Bldg. Gas	AB-2 Elevator Lobby	Area
33		NaI	10 - 1E7cpm	Normal LWD	Radwaste Facility	Effl
35	1,2,3	NaI	10 - 1E7cpm	LPSW Disch. Aux Building	Turbine Building Basement	Effl
37	1,3	P.Beta	10 - 1E7cpm	Normal GWD	Purge Equipment or Pen Room near elevator	Effl
38	1,3	GM	10 - 1E7cpm	High GWD	Purge Equipment or Pen Room near elevator	Effl
39	1,3	P.Beta	10 - 1E7cpm	CR-Gas	6th Fl. behind Em. Air Booster Pumps	Area
40	1,2,3	P.Beta	10 - 1E7cpm	Air ejector off gas	Purge Equip. room	Effl
41	1,3	P.Beta	10 - 1E7cpm	SF Bldg. Gas	Purge Equip. room	Area
42	1,3	NaI	10 - 1E7cpm	RCW return	Behind backwash pumps	Sys
43	1,2,3	P.Beta	10 - 1E7cpm	Unit vent particulates	Purge Equip. room	Effl
44	1,2,3	NaI	10 - 1E7cpm	Unit vent iodine	Purge Equip. room	Effl
45	1,2,3	P.Beta	10 - 1E7cpm	Unit vent gas normal	Purge Equip. room	Effl
46	1,2,3	CdTe	10 - 1E7cpm	Unit vent gas high	Purge Equip. room	Effl
47	1,2,3	P.Beta	10 - 1E7cpm	RB particulate	Purge Equip. room	Effl
48	1,2,3	NaI	10 - 1E7cpm	RB iodine	Purge Equip. room	Effl
49	1,2,3	P.Beta	10 - 1E7cpm	RB gas normal	Purge Equip. room	Effl
49A	1,2,3	CdTe	10 - 1E7cpm	RB gas high	Purge Equip. room	Effl
50	1,2,3	NaI	10 - 1E7cpm	Component Cooling	AB-1	Sys

Figure H-5
DUKE ENERGY
OCONEE NUCLEAR STATION

RADIATION INDICATING ALARMS (RIA)

RIA#	UNIT#	TYPE	RANGE	FUNCTION	LOCATION	CLASS
53	IB	P.Beta	10 - 1E7cpm	Interim Bldg. Gas	Interim Bldg.	Effl
54	1,3	NaI	10-1E7cpm	TB Sump	TB Basement	Effl
56	1,2,3	IC	1-1E8Rad/hr	Vent Stack Effluent	Vent Stack (Midway)	Effl
57	1,2,3	IC	1 -1E8Rad/hr	Containment High range monitor	Reactor Bldg. Penetration	Area
58	1,2,3	IC	1 -1E8Rad/hr	Containment High range monitor	Reactor Bldg. Penetration	Area

GM = Geiger Mueller

IC = Ion Chamber

PAM = Portable Area Monitor

* Portable area monitors do not have assigned RIA numbers and are local readout only.

IB = Interim Building

FIGURE H-6

DUKE ENERGY OCONEE NUCLEAR STATION

PORTABLE SURVEY INSTRUMENTS

INSTRUMENT TYPE	RESPONSE TIME	DETECTOR TYPE	RANGES	RADIATION DETECTED	TUBE SATURATION	ADDITIONAL INFORMATION
Ludlum 3	4-22 seconds	Halogen quenched GM	X0.1 = 0-0.2 mR/hr X1.0 = 0-2.0 mR/hr X10 = 0-20 mR/hr X100 = 0-200 mR/hr	Beta & Gamma	Indicates offscale	Typically 1200 cpm per mR/hr. Speaker indication. Contains battery check position.
Eberline RM14	2.2 - 22 seconds variable	Halogen quenched GM	X1=0-500 cpm X10=0-5000 cpm X100=0-50000 cpm	Beta & Gamma	Indicates offscale	Has alarm setting. Speaker indication. 50 hr operation on fully charged battery.
MGPI Telepole	2-30 seconds variable	Two GM tubes 1 low range 1 high range	0.05 mR/hr - 1000 R/hr	Gamma	Indicates over range	Automatic switching between GM tubes. 11' extension probe. Battery self check.
Eberline RO20	5 seconds	Ion-chamber Air filled. Vented to atmosphere	0-50Rad/hr.	Beta & Gamma	Indicates offscale	Has battery check information
Eberline RO7	Variable	Air filled ion chamber	Med range: 0.1-199.9 Rad/hr Hi range: 0-.01 - 19,900 Rad/hr	Beta & Gamma	Indicates over range	Digital ion chamber with cables to extend detection up to 60' away or under water.

FIGURE H-6

DUKE ENERGY OCONEE NUCLEAR STATION

PORTABLE SURVEY INSTRUMENTS

Instrument Type	Response Time	Detector Type	Ranges	Radiation Detected	Tube Saturation	Additional Information
Ludlum-12	4-22 seconds	Cadmium loaded polyethylene sphere with He tube in center. Tube operates in proportional region	0 - 100,000 mRad/hr	Neutron	Rejects Gamma up to 10 Rad/hr.	Detector can be attached or moved from meter.
AMP-100	Variable	Energy Compensated GM tube	0 - 1000 R/hr	Gamma	Over range alarm	Can be used with variable length of cable.
AMP-200	Variable	Energy Compensated GM tube	1 - 10,000 R/hr	Gamma	Over range alarm	Can be used with variable length of cable.
ESP 2	Variable	Sodium Iodide Scintillator	Variable	Gamma	Over range alarm	Single channel analyzer w/pulse height analysis Nal detectors

FIGURE H-7

DUKE ENERGY OCONEE NUCLEAR STATION

AIR SAMPLERS

INSTRUMENT NAME	EXPECTED FLOW RATE	AIR PUMP TYPE	MAXIMUM LENGTH OF OPERATION
HD29A	2 CFM	Centrifugal Carbon Vane Pump air-cooled motor	Continuous, constant flow
H-809V	2 CFM	Two-stage turbine blower air-cooled motor	15 minutes
RAP-1	2 CFM	Oil Free, Carbon Vane	Continuous, constant flow

FIGURE H-8

DUKE ENERGY OCONEE NUCLEAR STATION

FIRE AND COMBUSTION PRODUCTS AND DETECTORS

FIRE DETECTION SYSTEM - Inaccessible Detectors

The purpose of this fire detection system is to detect visible and/or invisible smoke or other products of combustion in any space covered by detectors.

The principal parts of this system; Fire indicating unit, zone indicating units and detectors, with up to 8 zone indicating units-for each fire Indicating unit. Up to 4 detectors circuits (zones) on each zone indicating unit. Each detector circuit (zone) has up to 12 detectors.

When products of combustion are detected a flashing lamp on the detector base is turned on. The zone lamp for the zone covering that detector will come on. The Red "Alarm" lamp on the fire indicating unit will come on. The statalarm in the control room will come on.

In the event of a failure in the system which makes the system inoperative, an amber "Trouble" lamp will come on, a buzzer will sound and the statalarm will come on.

FIRE DETECTION SYSTEM - Accessible Detectors

The purpose of this fire detection system is to detect visible and/or invisible smoke or other products of combustion in any space covered by detectors.

The principal parts of this system include; Fire indicating unit, Zone indication units and detectors, with up to 8 zone indicating units for each fire indicating unit. Up to 4 detector circuits (zones) are on each zone indicating unit. Each detector circuit (zone) has up to 99 detectors.

When products of combustion are detected a red "LED" on the Honeywell detector will come on. The zone lamp for that detector will come on. The Red "Alarm" lamp on the fire indicating unit will come on. The statalarm in the control room will come on.

In the event of a failure in the system which makes the system inoperative, an amber "Trouble" lamp on the Honeywell will come on, a buzzer will sound and the statalarm will come on.

FIGURE H-9

DUKE ENERGY OCONEE NUCLEAR STATION

NORMAL ENVIRONMENTAL MONITORING PROGRAM

ONSITE/OFFSITE TLD LOCATIONS

See: Oconee Offsite Dose Calculation Manual

FIGURE H-10

DUKE ENERGY OCONEE NUCLEAR STATION

NORMAL ENVIRONMENTAL MONITORING PROGRAM

AIR SAMPLE LOCATIONS

OFFSITE LOCATIONS

See: Oconee Offsite Dose Calculation Manual

FIGURE H-11

DUKE ENERGY OCONEE NUCLEAR STATION

COUNT ROOM EQUIPMENT (ONSITE)

INSTRUMENT TYPE	DESCRIPTION
Gamma Spectroscopy System	Computer based gamma spectroscopy system with solid state germanium detectors for analysis of various sample media.
WBC6000 Body Burden Analyzer and Nuclear Data people mover	Computer based gamma spectroscopy system with three sodium detectors mounted in a shielded chair which can analyze the thyroid, lungs, and lower torso simultaneously, along with a stand-up total body analyzer using large sodium iodine detectors.
APC Automatic Smear Counter	An automatic smear counter using a GM detector which performs beta only analyses on up to 50 smears.
Liquid Scintillator	Multiple sample liquid scintillation analysis systems that detect and quantify H-3 and gross beta using a computer to correct for quench and activity.
Alpha Scintillator	An automatic smear counter using a zinc sulfide scintillator detector to detect alpha only. Analyzes up to 50 smears/air samples at a time.

FIGURE H-12

DUKE ENERGY
OCONEE NUCLEAR STATION

CONTENTS OF EMERGENCY KITS FOR FIELD MONITORING TEAMS

(Location World of Energy)

SEE HP/0/B/1009/001

FIGURE H-13

DUKE ENERGY
OCONEE NUCLEAR STATION

EMERGENCY KIT INVENTORY SHEET

Control Room Locations

See HP/0/B/1009/001

FIGURE H-14

DUKE ENERGY
OCONEE NUCLEAR STATION

EMERGENCY KIT INVENTORY SHEET

Respiratory Equipment

See HP/0/B/1009/001

FIGURE H-15

DUKE ENERGY
OCONEE NUCLEAR STATION

EMERGENCY SUPPLIES INVENTORY LIST

Technical Support Center

Operational Support Center

Emergency Operation Facility

See PT/0/A/2000/008 and ST/0/A/4600/086

FIGURE H-16

DUKE ENERGY
OCONEE NUCLEAR STATION

EMERGENCY CABINET INVENTORY SHEET

INPLANT SURVEILLANCE EQUIPMENT

(WORLD OF ENERGY)

SEE HP/0/B/1009/001

FIGURE H-17

DUKE ENERGY
OCONEE NUCLEAR STATION

INVENTORY LIST FOR OPERATIONAL SUPPORT CENTER

EMERGENCY CABINET

See HP/0/B/1009/001

FIGURE H-18

DUKE ENERGY OCONEE NUCLEAR STATION

SEISMIC INSTRUMENTATION PROGRAM

SEISMIC EQUIPMENT	UNIT 1 CABLE ROOM	UNIT 1 TENDON ACCESS GALLERY	UNIT 1 REACTOR BUILDING
Seismic Trigger (1) (Setpoint .05g and actuates a statalarm and computer alarm in Control Room 1 & 3. Also actuates Unit 1 & 2 Events Recorder.		x	
<u>STRONG-MOTION ACCELEROGRAPH SYSTEM.</u> <u>Starter (1)</u> Setpoint .01g for 1 sec will actuate accelerometers and recorders on Control Panel. Also actuates a computer alarm in Control Room 1.		x	
<u>Accelerometers (2)</u> Actuates recorders on Control Panel at .01g for 1 sec		x	x
<u>Recorders (2)</u> Records for 10 additional sec following completion of seismic events up to 30 minutes	x		
<u>Control Panel (1)</u> Event alarm-alarm light turns yellow to indicate system is recording approximately 10 sec. Event Indicator-normally black but after an event is recorded, it is white	x		
<u>PEAK ACCELERATION RECORDER (6)</u> Records the peak acceleration experienced. Capability to measure up to 2g. Uses no power supply.		x	x

FIGURE H-19

DUKE ENERGY OCONEE NUCLEAR STATION

SPILL CONTROL EQUIPMENT/SUPPLIES

SEE THE FOLLOWING PROCEDURES/DOCUMENTS:

Emergency Planning:

PT/0/B/0250/030
PT/0/B/0250/045
ONS Prefire Plan

Chemistry:

CP/0/B/2001/008

Safety Assurance:

Spill Prevention Control Countermeasures Plan (SPCC)

FIGURE H-20
DUKE ENERGY
OCONEE NUCLEAR STATION

SURVEYS

Emergency	Control Room Instrumentation	In Station Radiological	Site and Site Boundary	Environs
Unusual	X	X	*	*
Alert	X	X	X	*
Site Area	X	X	X	X
General	X	X	X	X

* Conducted in the event effluent technical specifications are exceeded.

K. Radiological Exposure Control

To assure that means for controlling radiological exposures in an emergency are established for emergency workers and the affected population.

K.1 Onsite exposure guidelines have been established for the following categories:

MAXIMUM EXPOSURE LIMITS IN REM					
CATEGORIES	TOTAL EFFECTIVE DOSE EQUIVALENT*	LENS OF THE EYE	SKIN	EXTREMITIES	COMMITTED DOSE EQUIVALENT (ORGAN)**
All	5 rem	15 rem	50 rem	50 rem	50 rem
Protecting Valuable Property	10 rem	30 rem	100 rem	100 rem	100 rem
Lifesaving or Protection of Large Population	25 rem	75 rem	250 rem	250 rem	250 rem
<u>VOLUNTEER BASIS:</u> Lifesaving or Protection of Large Population	>25 rem	>75 rem	>250 rem	>250 rem	>250 rem

*Note TEDE to non-pregnant adults from exposure during an emergency situation. Special precautions should be taken to limit dose to eye lens, and other organs, tissues, or extremities. With regard to maximum limit, EPA concluded that it was not possible to prejudge the acceptable risk for saving a life. Doses may be authorized to the limits established in this chart.

**Note: Administration of stable iodine will be recommended for emergency workers if a dose of 5 rem CDE is projected to the thyroid from radioiodine. This action will require approval of the Radiation Protection Manager in the OSC for site Duke Energy and contractor personnel and offsite Duke Energy and contractor personnel until the EOF is operational. Once the EOF is operational, the Radiological Assessment Manager in the EOF approves the administration of stable iodine for offsite Duke Energy and contract personnel.

The following guidance is provided for use by the Emergency Coordinator or Radiation Protection Manager in determining appropriate actions concerning the rescue and recovery of personnel and the protection of health and property during periods of emergency.

Saving of Human Life

Evaluate inherent risks by considering:

- limits of error in calculating the dose rate in subject area.
- effects (biological) upon rescue workers

Assess the ability to reduce risk through use of protective equipment, remote manipulation equipment, portable shielding, or similar means.

Weigh the risk to rescue personnel against the probability of success of the rescue attempt.

Ensure that all personnel planned for use in the rescue attempt understand their actions are voluntary and they are aware of the known or estimated extent of risk.

Recovery of Deceased Victim

Recovery operation should be well planned as time is not a factor as above.

Radiation exposure should be controlled to remain within existing occupational exposure guidelines.

-In special circumstances where removal of a body or bodies cannot take place without entry of emergency workers, the Emergency Coordinator may determine it necessary to exceed occupational exposure standards.

K.2 Doses in Excess of 10 CFR Part 20

The Operations Shift Manager in the Control Room, the Emergency Coordinator in the TSC, or the Radiation Protection Manager in the OSC is responsible for authorizing emergency workers to receive doses in excess of 10 CFR 20 limits. Onsite radiation protection programs shall be implemented during emergencies which shall be consistent with ALARA conditions. The site will be responsible for providing medical treatment and rescue efforts for lifesaving missions. Procedures are in place for expeditious decision making with reasonable consideration of the relative risks involved in a lifesaving mission involving radiation exposure.

Protection of Health and Property

Where the risk of the radiation hazard bears significantly on the health of people or may result in loss of property, so that immediate remedial action is required, the following criteria apply:

Planned exposures are not to exceed 5 Rad Total Effective Dose Equivalent. Under special circumstances, the Emergency Coordinator in the TSC or the Radiation Protection Manager in the OSC can extend limits to (personnel who volunteer) as shown in the table on page K-1.

K.3.a 24-hour Capability to Determine Doses by Emergency Personnel

Provisions have been made for maintaining records of emergency personnel during a radiological emergency. The Operational Support Center will provide a means for keeping track of dose to personnel involved in a nuclear accident. Distribution of dosimeters (self-reading and electronic) and TLD badges will be provided for all personnel.

Should any offsite agency respond to an emergency at the site during a nuclear emergency, dosimeters will be provided for their use to determine dose.

K.3.b Dose Records

The Surveillance and Control Coordinator in the Operational Support Center shall have the responsibility of keeping records of the doses received by personnel involved in any nuclear emergency. (Figure K-5 thru Figure K-6). Personnel dose will be kept using the Electronic Dose Capture (EDC) system. Should this system not be readily accessible or is not available, dose will be kept using the Daily Exposure Time Record Card (Figure K-4). Normal operating procedures shall be followed for the use of dosimeters and the TLD badges. Distribution of additional dosimeters and badges shall be through the Operational Support Center.

K. 4 PAGS for Emergency Workers

Oconee County FNF Plans.

Pickens County FNF Plans.

State of South Carolina FNF Emergency Plans, Site Specific.

K.5.a Action Levels for Determining the Need for Decontamination

Guidelines as established in the Radiation Protection Policy Manual for Contamination Control and decontamination will be used to determine action levels for decontamination. Preplanning efforts have been established by the Surveillance and Control Coordinator.

K.5.b Radiological Decontamination

Emergency Personnel wounds - Medical decontamination kits (Figure K-1 thru K-3) are available in several locations. Wounds (if contaminated) will be decontaminated if the welfare of the patient is not at stake. Decontamination efforts will take place at the site prior to medical care if the situation warrants it. However, if the injury is considered serious, decontamination efforts will not take place and the patient will be transported to the hospital immediately for proper medical care. A radiation protection technician will accompany the patient to the hospital. See Radiation Protection Policy Manual, Section VI-04, Investigation of Unusual Radiological Occurrences.

Supplies - The Radiation Protection Manager will determine whether it may be more economical to dispose of a class of items, rather than to decontaminate them.

Instruments and equipment - For specific information refer to Radiation Protection Policy Manual, Section III-9, Contamination Control.

Waste Disposal - Low-level solid wastes (contaminated trash) will be collected in labeled containers, and will normally be compacted. Intermediate and high level solid waste (spent resins, spent filters, evaporator bottoms, etc.) will be placed in containers and shielded as appropriate. All radioactive solid wastes will be shipped to an NRC-licensed or agreement state disposal facility offsite.

In accordance with Selected Licensee Commitments Manual Section 16.11, station discharge limits have been established for the disposal of airborne radioactive wastes. These limits are calculated based on 10 CFR 50 Appendix I requirements, the composition and concentration of the waste, the flow rate in the unit vents, a factor for site meteorological dilution, and 10 CFR 20 Appendix B allowable concentration for Unrestricted Areas.

After the required sampling and laboratory analyses are completed, contaminated liquid waste is pumped from the Liquid Waste Tank(s), essentially on a batch basis, and discharged, with the necessary dilution, to the environment. The liquid waste effluent discharge line is monitored by a process instrument, and the release will be stopped if preset concentration limits are reached.

K.6 Contamination Control Measures

- K.6.a Area Access Control - The plant site will be evacuated should station management determine the potential exists for non-essential personnel to be exposed to an unplanned dose in excess of 10CFR20 limits. Once the site has been evacuated, access to the plant will be limited by the Highway Patrol on the public highway and then Site Security will limit access to the plant except through an established access entrance. Contamination Control Areas and Restricted Areas will be established by Site Radiation Protection personnel.

Drinking Water and Food Supplies - Drinking water and food supplies can be brought in by private vendor if necessary. No eating or drinking is permitted in radiation areas or zones unless permitted by the Radiation Protection Manager.

- K.6.b Recovery efforts will be determined by the Onsite Recovery Organization on a case by case basis. Decontamination measures to return areas and items to normal use will be the responsibility of the site during the recovery effort. However, the use of good radiation protection decontamination practices as evidenced by the Radiation Protection Policy Manual will be the general criteria used.

K.7 Decontamination of Personnel at Relocation Assembly Area

Should non-essential plant personnel be evacuated from the station to an offsite area, provisions for extra clothing and decontaminants suitable for any type of contamination have been made (Figure K-2).

Offsite assembly areas have been determined so that site personnel may be relocated to a safe site quickly and can be decontaminated (if necessary), monitored, and released (Figure J-2). Records will be made of the contamination levels of any/all personnel released from the site to an offsite assembly area (Figure K-5) and again when they are released from the offsite area (Figure K-5).

Offsite Evacuation Areas (Agreements appended to Appendix 5)

Pickens County Daniel High School, Central, S.C., east of the station, approximately 10 miles.

Oconee County Keowee Elementary School, Seneca, S.C., west of the station, approximately 7 miles.

FIGURE K-1

DUKE ENERGY COMPANY
OCONEE NUCLEAR SITE

MEDICAL DECONTAMINATION KIT

See HP/0/B/1009/001

FIGURE K-2

DUKE ENERGY COMPANY
OCONEE NUCLEAR SITE

LIST OF SUPPLIES FOR DECONTAMINATION OFFSITE*

See HP/0/B/1009/001

FIGURE K-3

DUKE ENERGY COMPANY
OCONEE NUCLEAR SITE

EMERGENCY DECONTAMINATION SUPPLIES (ONSITE)*
INVENTORY LIST

See HP/0/B/1009/001

FIGURE K-4

DUKE ENERGY COMPANY OCONEE NUCLEAR SITE

DAILY EXPOSURE TIME RECORD CARD

Form 288347 (R5-97)

DUKE ENERGY
DAILY EXPOSURE TIME RECORD

Previously Form 18555

SIGNATURE	RP BADGE #:		WORK GROUP		TEDE AT SHIFT START: _____mrem		REMAINING MAE: _____mrem		DATE		
	PERMIT #		TIME RECORD		DOSE RECORD						
	RWP	SRWP	TIME ENTER RCA/RCZ	TIME EXIT RCA / RCZ	DOSIMETER READING ENTER	DOSIMETER READING EXIT	DOSE RECEIVED THIS ENTRY				

CONTACT RADIATION PROTECTION IF YOU EXPERIENCE DOSIMETER PROBLEMS. (SEE REVERSE SIDE.)

Form 288347 (R5-97)

DUKE ENERGY

Previously Form 18555

THIS CARD IS TO BE USED BY INDIVIDUALS TO RECORD THE DOSIMETER DOSE HE/SHE RECEIVED FOR ENTRY OR WORK DONE UNDER EACH RWP.

COMPLETION OF THIS DOSE CARD ALSO MEANS THAT THE INDIVIDUAL HAS READ AND UNDERSTOOD EACH RWP AND HAS COMPLIED WITH ITS REQUIREMENTS.

FIGURE K-5

DUKE ENERGY COMPANY
OCONEE NUCLEAR SITE

Individual Contamination Exposure Levels

LICENSEE: DUKE ENERGY COMPANY

IDENTIFICATION INFORMATION

Name: _____ Date: _____

Social Security Number: _____ Time: _____

Employer: _____ RP Badge #: _____

CONTAMINATION EXPOSURE LEVELS

Instrument Used: _____ Instrument Reading: _____
(RM-14 with thin window detector or equivalent)

Date: _____ Employee Signature: _____

Remarks: _____ Address: _____

To the individual named above _____, this report is furnished to you so that you have a prompt record of your radioactive contamination level.

Radiation Protection Manager

Date: _____

Copies to;

Individual _____

Individual File _____

DUKE ENERGY COMPANY
OCONEE NUCLEAR SITE

[illegible]This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

FIGURE K-6

DUKE ENERGY COMPANY
OCONEE NUCLEAR SITE

RADIATION WORK PERMIT

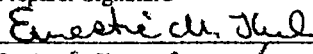
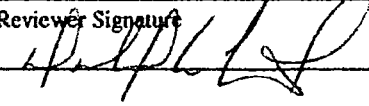
_____ NUCLEAR STATION RP Version	
Radiation Work Permit #	Revision #
Job Title:	
ED (MG) Set Points Dose Alarm: Dose Rate Alarm:	
<u>Dress Category, Task Description, Special Dosimetry and Respiratory Requirements</u>	
<u>Comments/Special Instructions</u>	
Activation Date & Time: Approval Date & Time: Approved By:	Termination Date & Time: Terminated By:

§50.54(q) Screening Evaluation Form

Activity Description and References: <u>Oconee</u> E-Plan Section K changes resulting from superseding SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, with AD-EP-ALL-0204, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release		BLOCK 1	
See attached Emergency Plan markups for Section K.1.			
Activity Scope: <input checked="" type="checkbox"/> The activity <u>is</u> a change to the emergency plan <input type="checkbox"/> The activity <u>is not</u> a change to the emergency plan		BLOCK 2	
Change Type: <input type="checkbox"/> The change <u>is</u> editorial or typographical <input checked="" type="checkbox"/> The change <u>is not</u> editorial or typographical	BLOCK 3	Change Type: <input type="checkbox"/> The change <u>does</u> conform to an activity that has prior approval <input checked="" type="checkbox"/> The change <u>does not</u> conform to an activity that has prior approval	BLOCK 4
Planning Standard Impact Determination: <input checked="" type="checkbox"/> §50.47(b)(1) – Assignment of Responsibility (Organization Control) <input type="checkbox"/> §50.47(b)(2) – Onsite Emergency Organization <input type="checkbox"/> §50.47(b)(3) – Emergency Response Support and Resources <input type="checkbox"/> §50.47(b)(4) – Emergency Classification System* <input type="checkbox"/> §50.47(b)(5) – Notification Methods and Procedures* <input type="checkbox"/> §50.47(b)(6) – Emergency Communications <input type="checkbox"/> §50.47(b)(7) – Public Education and Information <input type="checkbox"/> §50.47(b)(8) – Emergency Facility and Equipment <input type="checkbox"/> §50.47(b)(9) – Accident Assessment* <input checked="" type="checkbox"/> §50.47(b)(10) – Protective Response* - Protective Actions for Emergency Workers, Authorization and use of KI <input checked="" type="checkbox"/> §50.47(b)(11) – Radiological Exposure Control - Resources for controlling radiological exposures for emergency workers <input type="checkbox"/> §50.47(b)(12) – Medical and Public Health Support <input type="checkbox"/> §50.47(b)(13) – Recovery Planning and Post-accident Operations <input type="checkbox"/> §50.47(b)(14) – Drills and Exercises <input type="checkbox"/> §50.47(b)(15) – Emergency Responder Training <input type="checkbox"/> §50.47(b)(16) – Emergency Plan Maintenance *Risk Significant Planning Standards <input type="checkbox"/> The proposed activity does NOT impact a Planning Standard		BLOCK 5	
Commitment Impact Determination: <input type="checkbox"/> The activity <u>does</u> involve a site specific EP commitment Record the commitment or commitment reference: _____ <input type="checkbox"/> The activity <u>does not</u> involve a site specific EP commitment		BLOCK 6	
Not required per Step 3.10.4.1.6.3 if a Planning Standard is impacted.			

Emergency Planning Functional Area Manual
Attachment 3.10.7.2

3.10 10CFR 50.54(q) Evaluations

Screening Evaluation Results:		BLOCK 7
<input type="checkbox"/> The activity <u>can</u> be implemented without performing a §50.54(q) effectiveness evaluation		
<input checked="" type="checkbox"/> The activity <u>cannot</u> be implemented without performing a §50.54(q) effectiveness evaluation		
Preparer Name: Ernestine M. Kuhr	Preparer Signature 	Date: April 8, 2015
Reviewer Name: Dorcas A. Cawley	Reviewer Signature 	Date: 4-21-15

§50.54(q) Effectiveness Evaluation Form

Activity Description and References: <u>Oconee E-Plan Section K changes resulting from superseding SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, with AD-EP-ALL-0204, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release</u>	BLOCK 1
See attached Emergency Plan markup for Section K.1.	
Implementation of AD-EP-ALL-0204 requires changing the approval authority for administration of KI from the Radiation Protection Manager in the OSC or the Emergency Coordinator to Radiation Protection Manager (RPM) for site Duke Energy and contractor personnel and off-site Duke energy and contractor personnel until the Emergency Operations Facility (EOF) is operational and the Radiological Assessment Manager (RAM) for off-site Duke Energy and contractor personnel and EOF personnel once the EOF is activated. If the determination is made to distribute KI tablets, then the Emergency Coordinator (EC) and Emergency Operating Facility (EOF) Director are notified.	
Activity Type: <input checked="" type="checkbox"/> The activity <u>is</u> a change to the emergency plan <input type="checkbox"/> The activity affects implementation of the emergency plan, but <u>is not</u> a change to the emergency plan	BLOCK 2
Impact and Licensing Basis Determination:	BLOCK 3
<p>1. <i>[list of functions, elements and/or commitments impacted by the activity (organized by planning standard as applicable)]</i></p> <p>EP Function - Responsibility for emergency response is assigned. Continuous staffing and shift relief. [10CFR50.47(b)(1)]</p> <p>EP Function - A range of protective actions is available for plan emergency workers during emergencies, including those for hostile action events. Authorization and use of KI. [10CFR 50.47(b)(10)]</p> <p>EP Function - The resources for controlling radiological exposures for emergency workers are established. Authorization and use of Emergency Exposure Limits. [10CFR 50.47(b)(11)]</p> <p><u>Licensing Basis:</u></p> <p>Oconee Emergency Plan Revision 2015-02</p> <p>A. ASSIGNMENT OF RESPONSIBILITY (Organizational Control)</p> <p><u>Overall Response Organization</u></p> <p>1.a The Oconee Nuclear Station Emergency Plan is a coordinated effort involving: site personnel, site emergency plans, plant facilities and equipment, the emergency resources of Duke Energy Company corporate organization, emergency services of various local, state, and federal agencies having appropriate jurisdiction or concern for public health and safety.</p> <p>...</p> <p><u>Concept of Operations for Emergency Response - Oconee Nuclear Station</u></p> <p>1.b During the first critical hours (until outside agencies responsible for public health and safety can properly respond), the Operations Shift Manager on duty at the Oconee Nuclear Station assumes responsibility for initiating protective action required for any location within the Site Boundary or Emergency Planning Zones that may be affected as a result of an emergency. The Operations Shift Manager will determine the emergency action level. Notification of Unusual Events dictate that offsite agencies be notified and that site management and corporate management are made aware of the event. If no further deterioration transpires, the event is closed out and agencies so notified. However, if the event is escalated and determined that a higher action level exists, the Emergency Response Organization is activated.</p>	

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Pickens County, Oconee County, the State of South Carolina Warning Point, and the Nuclear Regulatory Commission are notified of any emergency status. The Corporate Office is notified of all emergency classifications and would provide support to the site as requested.

The Pickens County and Oconee County Emergency Management Agencies coordinate designated agency response through their Emergency Operation Centers. Until the State of South Carolina Emergency Organization is in a position to respond to the radiological emergency, the local county emergency preparedness offices will be responsible for the public and will make the necessary response required to provide for the health, safety and welfare of the public. Until the State of South Carolina is in place at their emergency operations center, direct contact will be made through the designated warning point in Columbia, South Carolina.

After the station manager assumes the role as Emergency Coordinator in the Technical Support Center, the Operations Shift Manager is then able to devote his full attention to the Control Room. The Technical Support Center will provide contact to offsite agencies until relieved by the Emergency Operations Facility. Technical support and accident mitigation strategy will be provided to the control room by the Technical Support Center.

Once the EOF Director assumes control of the Emergency Operations Facility, the Technical Support Center will be relieved of the responsibility of contact with offsite agencies. The EOF Director is responsible for providing technical information to the local and state governmental agencies that will be utilized to determine actions required to protect the health and safety of the public.

During a security event involving an intrusion/attempted intrusion into the site by a hostile force after normal working hours, activation of the Technical Support Center will be delayed for personnel safety. In this situation the Emergency Operations Facility may be activated and relieve the Operations Shift Manager of his Emergency Coordinator responsibilities. This transfer of Emergency Coordinator responsibilities directly to the Emergency Operations Facility will allow the Operations Shift Manager to devote his full attention to the control room.

The Emergency Operations Facility will augment the plant emergency organization staff with additional Duke Energy management, (both administrative and technical personnel). The Charlotte EOF will be staffed with qualified personnel from the Duke Energy Nuclear General Office and Catawba and McGuire Nuclear Stations. The lines of authority, responsibilities and functions for the EOF Organization are established in the Oconee Nuclear Station Emergency Plan. Functions are:

- Management of offsite Duke Energy emergency response
- Coordination of radiological and environmental assessment
- Protective Action Recommendations (PARS) for the public
- Coordination of emergency response activities with federal, state, and local agencies.

Sections J.5 & J.6 - Site Evacuation Procedures-Personnel Accountability

...
After all non-essential personnel have been evacuated from the site, logsheets will be kept by Radiation Protection personnel in the Operational Support Center of all persons onsite together with their Radiation Protection records to include the following:

- a. Individual respiratory protection
- b. Protective clothing
- c. Use of Radioprotective drugs

...

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Section K, Radiological Exposure Control

To assure that means for controlling radiological exposures in an emergency are established for emergency workers and the affected population.

K.1 Onsite exposure guidelines have been established for the following categories:

CATEGORIES	MAXIMUM EXPOSURE LIMITS IN REM				
	TOTAL EFFECTIVE DOSE EQUIVALENT*	LENS OF THE EYE	SKIN	EXTREMITIES	COMMITTED DOSE EQUIVALENT (ORGAN)**
All	5 rem	15 rem	50 rem	50 rem	50 rem
Protecting Valuable Property	10 rem	30 rem	100 rem	100 rem	100 rem
Lifesaving or Protection of Large Population	25 rem	75 rem	250 rem	250 rem	250 rem
VOLUNTEER BASIS: Lifesaving or Protection of Large Population	>25 rem	>75 rem	>250 rem	>250 rem	>250 rem

*Note TEDE to non-pregnant adults from exposure during an emergency situation. Special precautions should be taken to limit dose to eye lens, and other organs, tissues, or extremities. With regard to maximum limit, EPA concluded that it was not possible to prejudge the acceptable risk for saving a life. Doses may be authorized to the limits established in this chart.

**Note: Administration of stable iodine will be recommended for emergency workers if a dose of 5 rem CDE is projected to the thyroid from radioiodine. This action will require approval of the Radiation Protection Manager in the OSC or the Emergency Coordinator.

Section P, Figure P1

Figure P1 lists SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, as a procedure that implements Sections J5/J6 and K1a - g of the Emergency Plan.

Compliance Evaluation and Conclusion:

BLOCK 4

1. PSI Evaluation:

§50.47(b)(1) – Primary responsibilities for emergency response by the nuclear facility licensee and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

This is further explained in NUREG-0654, Criteria A.1.a, A.1.b, and A.1.e

A.1.a Each plan shall identify the State, local, Federal, and private sector organizations (including utilities) that are intended to be part of the overall response organization for the Emergency Planning Zones.

A.1.b Each organization and suborganization having an operational role shall specify its concept of operations, and its relationship to the total effort.

A.1.e Each organization shall provide for 24-hour per day emergency response, including 24-hour per

3.10 10CFR 50.54(q) Evaluations

day manning of communications links.

Discussion

This revision changes the approval authority for administration of KI from the Radiation Protection Manager in the OSC or the Emergency Coordinator to Radiation Protection Manager (RPM) for site Duke Energy and contractor personnel and off-site Duke energy and contractor personnel until the Emergency Operations Facility (EOF) is operational and the Radiological Assessment Manager (RAM) for off-site Duke Energy and contractor personnel and EOF personnel once the EOF is activated. If the determination is made to distribute KI tablets, then the Emergency Coordinator (EC) and Emergency Operating Facility (EOF) Director are notified, but their approval is not required.

Although the approval authority has been changed, the responsibilities for emergency response by the nuclear facility licensee are still assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

Therefore, the Oconee Emergency Plan continues to comply with PS 1.

2. PS 10 Evaluation

§50.47(b)(10) – A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

This is further explained in NUREG-0654, Criterion J.6:

J.6 Each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for:

- a. Individual respiratory protection;
- b. Use of protective clothing; and
- c. Use of radioprotective drugs (e.g., individual thyroid protection).

Discussion

The Oconee Emergency Plan, as revised, continues to provide information for distribution of Active Potassium Iodide (KI) tablets to Duke Energy and contractor personnel onsite in the event of a release of radioiodine resulting from emergency conditions. The scope has been expanded to include all Duke Energy and contractor personnel in the event of Hostile Action Scenario during radioiodine release.

Therefore, Oconee Emergency Plan, as revised, continues to comply with PS 10.

3. PS 11 Evaluation

§50.47(b)(11) – Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines

3.10 10CFR 50.54(q) Evaluations

consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

This is further explained in NUREG-0654, Criterion K.1

K.1 Each licensee shall establish onsite exposure guidelines consistent with EA Emergency Worker and lifesaving Activity Protective Actions Guides (EPA 520/1-75/001)...

Discussion

EPA 520/1-75/001 has been superseded by EPA 400-R-92-001, Manual of Protective Action Guides And Protective Actions For Nuclear Incidents (October 1991). EPA-400-R-92-001 specified a threshold of 25 rem committed dose equivalent to the thyroid from radioiodine as the threshold for administration of stable iodine. U.S. Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER), *Guidance Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies* (December 1991) provided additional guidance on the threshold for administration of stable iodine. Based on a review of the latter, Duke Energy adopted a threshold for administration of stable iodine of 5 rem CDE projected to the thyroid from radioiodine.

The Oconee Emergency Plan, as revised, continues to use a threshold for administration of stable iodine of 5 rem CDE projected to the thyroid from radioiodine for distribution of Active Potassium Iodide (KI) tablets in the event of a release of radioiodine resulting from emergency conditions. The scope has been expanded to include all Duke Energy and contractor personnel in the event of Hostile Action Scenario during radioiodine release.

Therefore, Oconee Emergency Plan, as revised, continues to comply with PS 11.

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 Emergency Plan revision changes the approval authority for administration of KI from the Radiation Protection Manager in the OSC or the Emergency Coordinator to Radiation Protection Manager (RPM) for site Duke Energy and contractor personnel and off-site Duke energy and contractor personnel until the Emergency Operations Facility (EOF) is operational and the Radiological Assessment Manager (RAM) for off-site Duke Energy and contractor personnel and EOF personnel once the EOF is activated. If the determination is made to distribute KI tablets, then the Emergency Coordinator (EC) and Emergency Operating Facility (EOF) Director are notified, but their approval is not required. Although the approval authority has been changed, the responsibilities for emergency response by the nuclear facility licensee are still assigned, the emergency responsibilities have been specifically established, and the emergency response organization continues to have staff to respond and to augment its initial response on a continuous basis. This change aligns the approval authority with that in the currently approved procedure, SH/O/B/2005/003, Distribution of Potassium Iodide Tablets in the event of a Radioiodine Release.

The Oconee Emergency Plan, as revised, continues to use a threshold for administration of stable iodine of 5 rem CDE projected to the thyroid from radioiodine for distribution of Active Potassium Iodide (KI) tablets in the event of a release of radioiodine resulting from emergency conditions. Log sheets will continue to be kept by Radiation Protection personnel of all persons onsite to the use of radioprotective drugs. The scope has been expanded to include all Duke Energy and contractor personnel in the event of Hostile Action Scenario during radioiodine release. This is considered an enhancement.

3.10 10CFR 50.54(q) Evaluations

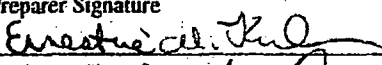

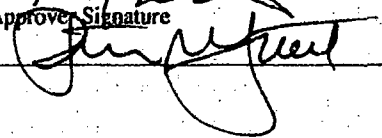
Conclusion: The proposed activity <input type="checkbox"/> does / <input checked="" type="checkbox"/> does not constitute a RIE.		
Effectiveness Evaluation Results		BLOCK 6
<input checked="" type="checkbox"/> The activity <u>does</u> continue to comply with the requirements of §50.47(b) and §50 Appendix E and the activity <u>does not</u> constitute a reduction in effectiveness. Therefore, the activity <u>can</u> be implemented without prior approval.		
<input type="checkbox"/> The activity <u>does not</u> continue to comply with the requirements of §50.47(b) and §50 Appendix E or the activity <u>does</u> constitute a reduction in effectiveness. Therefore, the activity <u>cannot</u> be implemented without prior approval.		
Preparer Name: Ernestine M. Kuhr	Preparer Signature 	Date: April 12, 2015
Reviewer Name: Dennis A. Crowl	Reviewer Signature 	Date: 4-21-15
Approver Name: Patricia M. Sargent	Approver Signature 	Date: 4/22/15

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

P. Responsibility for the Planning Effort: Development, Periodic Review and Distribution of the Emergency Plans

To assure that responsibilities for plan development, review and distribution of emergency plans are established and that planners are properly trained:

P.1 Training for Emergency Preparedness Personnel

Training for emergency preparedness personnel shall be provided in the form of workshop/seminar sessions on an annual basis. Courses developed by the Duke Training Center are also available in technically related subjects that will enhance the working knowledge of these people.

P.2 & P.3 Overall Authority

The Site Vice-President has the overall authority and responsibility for all hazards emergency response planning. The planning effort is delegated to the Manager, Emergency Preparedness.

The Manager of Emergency Preparedness at the Oconee Nuclear Site shall have the responsibility for the development, review and coordination of the site emergency plans with other response organizations and shall be responsible for conducting the biennial exercise, drills and training sessions to test the Oconee Nuclear Site Emergency Plan. This person is employed in the Safety Assurance Group.

P.4 & P.5 Review and Update of Emergency Plan

The ONS Emergency Plan shall be reviewed and updated annually. An in-depth review of the Emergency Plan will be made to determine if any/all changes have been made as a result of drills, exercises, commitments, audits, new regulatory requirements, and any other identified mechanism used to determine the appropriateness of the Emergency Plan. The Manager of Emergency Preparedness or designee is responsible for conducting the review and updating/revising the Emergency Plan and/or Implementing Procedures, as required. Once the review has been completed and changes made as determined, the Emergency Plan shall be certified as current.

Approved revisions of the Emergency Plan and Implementing Procedures shall be distributed according to Appendix 6, (Distribution of Emergency Plan and Implementing Procedures). Appendix 6 carries an itemized list of all organizations and individuals receiving copies of the Emergency Plan and

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Implementing Procedures. Revised pages of the Emergency Plan shall be dated and marked to show where changes have been made.

P.6 Supporting: Plans

Figure P-2 lists plans in support of the ONS Emergency Plan.

P.7 Implementing Procedures

Written procedures will be established, implemented and maintained covering the activities associated with emergency plan implementation. Each procedure and changes thereto, shall be approved by the responsible manager prior to implementation.

Implementing procedures are indexed and cross referenced to the section applicable in NUREG 0654. (Figure P-1)

P.8 Table of Contents

The Oconee Nuclear Site Emergency Plan and Implementing Procedures contain a table of contents and an index tab system.

P.9 Independent Audit

The NOS Audit Manager will arrange for an independent review of Oconee Nuclear Station's Emergency Preparedness Program as necessary, based on an assessment against performance indicators, and as soon as reasonably practicable after a change occurs in personnel, procedures, equipment, or facilities that potentially could adversely affect emergency preparedness, but no longer than 12 months after the change. In any case, all elements of the emergency preparedness program will be reviewed at least once every 24 months. Guidance for performing the assessment against the performance indicators is provided in the Emergency Preparedness Administrative Procedure AD-EP-ALL-0001. The independent review will be conducted by the Independent Nuclear Oversight Division, which will include the following plans, procedures, training programs, drills/exercises, equipment, and State/local government interfaces:

1. Oconee Nuclear Station Emergency Plan
2. Oconee Nuclear Station Emergency Plan Implementing Procedures

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

3. State/Local Support Agency Training Program
4. Site Emergency Response Training Program
5. Public & Media Training/Awareness
6. Equipment: Communications, Monitoring, Meteorological, Public Alerting
7. State/Local Plan Interface

The review findings will be submitted to the appropriate corporate and nuclear site management. The part of the review involving the evaluation of the adequacy of interface with State and local governments will be reported to the appropriate State and local governments. Corporate or nuclear site management, as appropriate, will evaluate the findings affecting their area of responsibility and ensure effective corrective actions are taken. The results of the review, along with recommendations for improvements, will be documented, and retained for a period of five (5) years.

P.10 Phone Number Update

The Emergency Telephone Directory is updated quarterly.

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Emergency Plan Section(s) Implemented		Procedure	Cross Reference Procedure Title
Assignment of Responsibility			
A1a		ONS E Plan	ONS Emergency Plan, Appendix 5 Agreement Letters
A1b		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
		RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
		RP/0/A/1000/025	Operational Support Center Manager Procedure
		AD-EP-DEC-0107	Standard Procedure for EOF Services
		SR/0/A/2000/003	Activation of the Emergency Operations Facility
A1c		ONS E Plan	ONS Emergency Plan, Fig A1
A1d		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
		SR/0/A/2000/003	Activation of the Emergency Operations Facility
A1e		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
A2a		NA	State/County Responsibility
A2b		NA	State/County Responsibility
A3		ONS E Plan	ONS Emergency Plan, Appendix 5
A4		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
		RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
		RP/0/A/1000/025	Operational Support Center Manager Procedure
		SR/0/A/2000/003	Activation of the Emergency Operations Facility
On-Site Emergency Organization			
B1		ONS E Plan	ONS Emergency Plan
		NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
		RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
		RP/0/A/1000/022	Procedure For Major Site Damage Assessment And Repair
		RP/0/A/1000/029	Fire Brigade Response
		AD-EP-DEC-0107	Standard Procedure for EOF Services
B2		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
		RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
		SR/0/A/2000/003	Activation of the Emergency Operations Facility
B3		RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
		RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
		SR/0/A/2000/003	Activation of the Emergency Operations Facility

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Cross Reference		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
B3	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
B4	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
B5	OMP 2-16	Shift Turnover
	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/025	Operational Support Center Manager Procedure
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
B6	ONS E Plan	ONS Emergency Plan
	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	AD-EP-DEC-0107	Standard Procedure for EOF Services
B7a-d	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	AD-EP-DEC-0107	Standard Procedure for EOF Services
	RP/0/B/1000/027	Re-Entry Recovery Procedure
	RP/0/A/1000/031	Joint Information Center Emergency Response Plan
B8	ONS E Plan	ONS Emergency Plan, Appendix 5
B9	ONS E Plan	ONS Emergency Plan, Appendix 5
Emergency Response Support and Resources		
C1a, b, c	ONS E Plan	ONS Emergency Plan, Appendix 5
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	RP/0/A/1000/031	Joint Information Center Emergency Response Plan
	RP/0/A/1000/037	Incident Command Post (ICP) Operations and Radiation Protection Liaison Guidelines
C2a	NA	State/County Responsibility
C2b	EP FAM 3.11	State/County EOC Liaison Reference Manual
	RP/0/A/1000/037	Incident Command Post (ICP) Operations and Radiation Protection Liaison Guidelines
C3	HP/0/B/1009/026	Environmental Monitoring For Emergency Conditions
C4	ONS E Plan	ONS Emergency Plan, Appendix 5
	SR/0/A/2000/003	Activation of the Emergency Operations Facility

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

<u>Cross Reference</u>		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
Emergency Classification System		
D1a, b, c	ONS E Plan	ONS Emergency Plan
	RP/0/A/1000/001	Emergency Classification
D2	RP/0/A/1000/001	Emergency Classification
D3	NA	State/County Responsibility
D4	NA	State/County Responsibility
Notification Methods and Procedures		
E1	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
	RP/0/A/1000/015A	Offsite Communications From The Control Room
	RP/0/A/1000/015B	Offsite Communications From The Technical Support Center
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/024	Protective Action Recommendations
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
E2	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
E3	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
	RP/0/A/1000/015A	Offsite Communications From The Control Room
	RP/0/A/1000/015B	Offsite Communications From The Technical Support Center
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/024	Protective Action Recommendations
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	SR/0/A/2000/004	Notification to States and Counties Facility for Catawba, McGuire, and Oconee
E4a-n	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
	RP/0/A/1000/015A	Offsite Communications From The Control Room
	RP/0/A/1000/015B	Offsite Communications From The Technical Support Center
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/024	Protective Action Recommendations
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
E5	NA	State/County Responsibility
E6	EP FAM 3.3	Alert and Notification System (Siren Program)
E7	RP/0/A/1000/024	Protective Action Recommendations
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
E8	RP/0/A/1000/017	Spill Response
Emergency Communications		
F1a	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

<u>Cross Reference</u>		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
F1a	RP/0/A/1000/015A	Offsite Communications From The Control Room
	RP/0/A/1000/015B	Offsite Communications From The Technical Support Center
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
F1b	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
F1c	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
	RP/0/A/1000/015A	Offsite Communications From The Control Room
	RP/0/A/1000/015B	Offsite Communications From The Technical Support Center
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/B/1000/003A	ERDS Operation
	PT/0/B/2000/009	Emergency Response Data System Quarterly Test
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
F1d	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
	ST/0/A44600/086	Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/ Supply Inventory-
	ST/0/A/4600/094	Standard Procedure For Periodic Test Of The EOF Selective Signaling, ENS and ETS
F1e	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
F1f	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
	RP/0/B/1000/003 A	ERDS Operation
	PT/0/B/2000/009	Emergency Response Data System Quarterly Test
F2	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
	RP/0/A/1000/016	MERT Activation Procedure For Medical, Confined Space, and High Angle Rescue Emergencies
	RP/0/A/1000/025	Operational Support Center Manager Procedure
F3	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
	PT/0/B/2000/009	Emergency Response Data System Quarterly Test
Public Education and Information		
G1a,b,c	EP FAM 3.6	Alert and Notification System – Oconee Specific Supplement
	NPM Chapter 15	Corporate Communications Departmental Interface Agreement

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

<u>Cross Reference</u>		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
G2	EP FAM 3.6	Alert and Notification System – Oconee Specific Supplement
	NPM Chapter 15	Corporate Communications Departmental Interface Agreement
G3a, b	RP/0/A/1000/028	Nuclear Communications Emergency Response Plan
	RP/0/A/1000/031	Joint Information Center Emergency Response Plan
	SR/0/B/2000/001	Standard Procedure For Corporate Communications Response To The Emergency Operations Facility
G4a, b, c	RP/0/A/1000/028	Nuclear Communications Emergency Response Plan
	RP/0/A/1000/031	Joint Information Center Emergency Response Plan
	SR/0/B/2000/001	Standard Procedure For Corporate Communications Response To The Emergency Operations Facility
G5	NPM Chapter 15	Corporate Communications Departmental Interface Agreement
Emergency Facilities and Equipment		
H1a, b, c	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/025	Operational Support Center Manager Procedure
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
	PT/0/A/2000/008	Procedure to Verify the Availability of Supplies and Equipment in the Emergency Response Facilities
	PT/0/A/2000/010	Review of Emergency Plan and Implementing Procedures
H2	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	ST/0/A44600/086	Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory
	ST/0/A/4600/094	Standard Procedure For Periodic Test Of The EOF Selective Signaling, ENS and ETS
H3	NA	State/County Responsibility
H4	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Cross Reference

Emergency Plan Section(s) Implemented	Procedure	Procedure Title
H4	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/025	Operational Support Center Manager Procedure
	RP/0/A/1000/031	Joint Information Center Emergency Response Plan
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	SR/0/B/2000/001	Standard Procedure For Corporate Communications Response To The Emergency Operations Facility
	AD-EP-DEC-0107	Standard Procedure for EOF Services
H5	RP/0/A/1000/001	Emergency Classification
H5a, b, c, d	ONS E Plan	ONS Emergency Plan
	IP/0/B/1601/003	Meteorological Equipment Checks
H6a, b, c	ONS E Plan	ONS Emergency Plan
	IP/0/B/1601/003	Meteorological Equipment Checks
	ONS ODCM	ONS Offsite Dose Calculation Manual
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	HP/0/B/1009/023	Radiation Protection Emergency Response
	PT/0/A/2000/008	Procedure to Verify the Availability of Supplies and Equipment in the Emergency Response Facilities
	ST/0/A/4600/086	Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory
	PT/0/B/0250/030	Quarterly Fire Brigade Equipment Inspection
	PT/0/B/0250/032	Quarterly Inspection Of Emergency Medical Equipment
	PT/0/B/0250/045	Quarterly Inspection Of Hazardous Materials Response Team Equipment
	CP/0/B/2001/008	Chemistry Safety Equipment And Spill Control Response
	RP/0/A/1000/017	Spill Response
H7	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	HP/0/B/1009/023	Radiation Protection Emergency Response
H8	ONS E Plan	ONS Emergency Plan
	IP/0/B/1601/003	Meteorological Equipment Checks
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
	RP/0/A/1000/024	Protective Action Recommendations
H9	ONS E Plan	ONS Emergency Plan
	IP/0/B/1601/003	Meteorological Equipment Checks
	ONS ODCM	ONS Offsite Dose Calculation Manual
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Cross Reference		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
H9	PT/0/A/2000/008	Procedure to Verify the Availability of Supplies and Equipment in the Emergency Response Facilities
	ST/0/A/4600/086	Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory
	PT/0/B/0250/030	Quarterly Fire Brigade Equipment Inspection
	PT/0/B/0250/032	Quarterly Inspection Of Emergency Medical Equipment
	PT/0/B/0250/045	Quarterly Inspection Of Hazardous Materials Response Team Equipment
	CP/0/B/2001/008	Chemistry Safety Equipment And Spill Control Response
	RP/0/A/1000/025	Operational Support Center Manager Procedure
H10	ONS E Plan	ONS Emergency Plan
	IP/0/B/1601/003	Meteorological Equipment Checks
	ONS ODCM	ONS Offsite Dose Calculation Manual
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	PT/0/A/2000/008	Procedure to Verify the Availability of Supplies and Equipment in the Emergency Response Facilities
	ST/0/A/4600/086	Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory
	PT/0/B/0250/030	Quarterly Fire Brigade Equipment Inspection
	PT/0/B/0250/032	Quarterly Inspection Of Emergency Medical Equipment
	PT/0/B/0250/045	Quarterly Inspection Of Hazardous Materials Response Team Equipment
	CP/0/B/2001/008	Chemistry Safety Equipment And Spill Control Response
H11	ONS E Plan	ONS Emergency Plan, Section H.11
H12	HP/0/B/1009/023	Radiation Protection Emergency Response
	AD-EP-ALL-0203	Protocol for the Field Monitoring Coordinator During Emergency Conditions
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
Accident Assessment		
I1	ONS E Plan	ONS Emergency Plan, Section D
	RP/0/A/1000/001	Emergency Classification
I2	ONS E Plan	ONS Emergency Plan
	RP/0/B/1000/018	Core Damage Assessment
	CSM 5.1	Emergency Response Guidelines

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Emergency Plan Section(s) Implemented	Procedure	Cross Reference
		Procedure Title
I2	CSM 5.2	Procedure Use Guidelines During Emergency Response
	CP/1/A/2002/002	Rheodyne Sample Via Post Accident Liquid Sampling System (PALSS)
	CP/2/A/2002/002	Rheodyne Sample Via Post Accident Liquid Sampling System (PALSS)
	CP/3/A/2002/002	Rheodyne Sample Via Post Accident Liquid Sampling System (PALSS)
	HP/0/B/1009/009	Procedure For Determining The Inplant Radioiodine Concentration During Accident Conditions
	HP/0/B/1009/015	Procedure For Sampling And Quantifying High Level Gaseous, Radioiodine And Particulate Radioactivity
	HP/0/B/1009/026	Environmental Monitoring For Emergency Conditions
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
	AD-EP-ALL-0203	Protocol for the Field Monitoring Coordinator During Emergency Conditions
I3a, b	RP/0/A/1000/001	Emergency Classification
	RP/0/A/1000/024	Protective Action Recommendations
	HP/0/B/1009/022	On-Shift Off-Site Dose Projections
	ONS ODCM	ONS Offsite Dose Calculation Manual
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
I4	HP/0/B/1009/018	Off-Site Dose Projections
	HP/0/B/1009/022	On-Shift Off-Site Dose Projections
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
I5	RP/0/A/1000/002	Control Room Emergency Coordinator Procedure
	RP/0/A/1000/003 A	ERDS Operation
	RP/0/A/1000/015 A	Offsite Communications From The Control Room
	RP/0/A/1000/015 B	Offsite Communications From The Technical Support Center
	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	SR/0/A/2000/004	Notification to States and Counties from the Emergency Operations Facility for Catawba, McGuire, and Oconee
16	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
17	SR/0/A/2000/003	Activation of the Emergency Operations Facility

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

<u>Cross Reference</u>		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
I7	AD-EP-ALL-0203	Protocol for the Field Monitoring Coordinator During Emergency Conditions
	HP/0/B/1009/026	Environmental Monitoring For Emergency Conditions
I8	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	AD-EP-ALL-0203	Protocol for the Field Monitoring Coordinator During Emergency Conditions
	HP/0/B/1009/026	Environmental Monitoring For Emergency Conditions
I9	HP/0/B/1009/026	Environmental Monitoring For Emergency Conditions
	AD-EP-ALL-0203	Protocol for the Field Monitoring Coordinator During Emergency Conditions
I10	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
	HP/0/B/1009/020	Estimating Food Chain Doses Under Post-Accident Conditions
	HP/0/B/1009/026	Environmental Monitoring For Emergency Conditions
I11	NA	State/County Responsibility
Protective Response		
J1	AP/0/A/1700/045	Site Security Threats
	RP/0/A/1000/009	Procedure For Site Assembly
	RP/0/A/1000/010	Procedure For Emergency Evacuation/Relocation Of Site Personnel
J2	NSD 114	Site Assembly/Site Evacuation
	HP/0/B/1009/016	Procedure For Emergency Decontamination Of Personnel And Vehicles On-Site And From Off-Site Remote Assembly Areas
	RP/0/A/1000/010	Procedure For Emergency Evacuation/Relocation Of Site Personnel
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
J3	NSD 114	Site Assembly/Site Evacuation
	AP/0/A/1700/045	Site Security Threats
	HP/0/B/1009/018	Off-Site Dose Projections
	RP/0/A/1000/009	Procedure For Site Assembly
	RP/0/A/1000/010	Procedure For Emergency Evacuation/Relocation Of Site Personnel
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
J4	HP/0/B/1009/016	Procedure For Emergency Decontamination Of Personnel And Vehicles On-Site And From Off-Site Remote Assembly Areas
	AD-EP-ALL-0202	Emergency Response Offsite Dose Assessment
	RP/0/A/1000/009	Procedure For Site Assembly

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Emergency Plan Section(s) Implemented	Procedure	Cross Reference
		Procedure Title
J4	RP/0/A/1000/010	Procedure For Emergency Evacuation/Relocation Of Site Personnel
J5/J6	NSD 114	Site Assembly/Site Evacuation
	AP/0/A/1700/045	Site Security Threats
	HP/0/B/1009/009	Procedure For Determining The Inplant Airborne Radioiodine Concentration During Accident Conditions
	RP/0/A/1000/009	Procedure For Site Assembly
	AD-EP-ALL-0204	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release
	RPM	Radiation Protection Manual
J7	RP/0/A/1000/024	Protective Action Recommendations
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
J8	ONS-ETE-12142012	ONS Evacuation Time Estimates (ETE) Dated 12/14/2012
J9	NA	State/County Responsibility
	AP/0/A/1700/045	Site Security Threats
	RP/0/A/1000/009	Procedure For Site Assembly
	RP/0/A/1000/010	Procedure For Emergency Evacuation/Relocation Of Site Personnel
J10a, b, c	ONS E Plan	ONS Emergency Plan
	RPM	Radiation Protection Manual
J10d - I	NA	State/County Responsibility
J10m	RP/0/A/1000/024	Protective Action Recommendations
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
J11	NA	State/County Responsibility
J12	NA	State/County Responsibility
Radiological Exposure Control		
K1a - g	RP/0/B/1000/011	Planned Emergency Exposure
	AD-EP-ALL-0204	Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release
K2	RP/0/B/1000/011	Planned Emergency Exposure
K3a	RPM	Radiation Protection Manual
K3a	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	HP/0/B/1009/023	Radiation Protection Emergency Response
K3b	RPM	Radiation Protection Manual
	HP/0/B/1009/023	Radiation Protection Emergency Response
K4	NA	State/County Responsibility
K5a, b,	RPM	Radiation Protection Manual

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Cross Reference		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
K5a, b,	HP/0/B/1009/016	Procedure For Emergency Decontamination Of Personnel And Vehicles On-Site And From Off-Site Remote Assembly Areas
	HP/0/B/1009/024	Radiation Protection Response To A Medical Emergency
K6a, b, c	RPM	Radiation Protection Manual
	HP/0/B/1009/016	Procedure For Emergency Decontamination Of Personnel And Vehicles On-Site And From Off-Site Remote Assembly Areas
K7	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	HP/0/B/1009/016	Procedure For Emergency Decontamination Of Personnel And Vehicles On-Site And From Off-Site Remote Assembly Areas
Medical and Public Health Support		
L1	ONS E Plan	ONS Emergency Plan, Appendix 5
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
L2	RP/0/A/1000/016	MERT Activation Procedure For Medical, Confined Space, and High Angle Rescue Emergencies
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	HP/0/B/1009/024	Radiation Protection Response To A Medical Emergency
	PT/0/B/0250/032	Quarterly Inspection Of Emergency Medical Equipment
L3	NA	State/County Responsibility
L4	ONS E Plan	ONS Emergency Plan, Appendix 5
	RP/0/A/1000/016	MERT Activation Procedure For Medical, Confined Space, and High Angle Rescue Emergencies
	HP/0/B/1009/001	Emergency Equipment Inventory and Instrument Check
	HP/0/B/1009/024	Radiation Protection Response To A Medical Emergency
Recovery and Reentry Planning and Post Accident Operations		
M1	RP/0/A/1000/024	Protective Action Recommendations
M1	RP/0/B/1000/027	Re-Entry Recovery Procedure
	RP/0/A/1000/028	Nuclear Communications Emergency Response Plan
M2	ONS E Plan	ONS Emergency Plan, Section M
	RP/0/B/1000/027	Re-Entry Recovery Procedure
	RP/0/A/1000/028	Nuclear Communications Emergency Response Plan

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Cross Reference		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
M3	RP/0/A/1000/019	Technical Support Center Emergency Coordinator Procedure
	RP/0/A/1000/025	Operational Support Center Manager Procedure
	RP/0/B/1000/027	Re-Entry Recovery Procedure
	SR/0/A/2000/003	Activation of the Emergency Operations Facility
	RP/0/A/1000/031	Joint Information Center Emergency Response Plan
	NEWP 5.1	Oconee Nuclear Environmental Work Practice, Section 5.1, Spill Response .
M4	RP/0/B/1000/027	Re-Entry Recovery Procedure
Exercises and Drills		
N1a, b	EP FAM 3.19	Drills and Exercises
N2, c, d, e, f, g, h, i	EP FAM 3.19	Drills and Exercises
N2a	PT/0/A/2000/002	Periodic Test of Emergency Response Communications Equipment
	ST/0/A/4600/086	Standard Procedure For Periodic Verification of EOF Communication Equipment Operation and Equipment/Supply Inventory
	ST/0/A/4600/094	Standard Procedure For Periodic Test Of The EOF Selective Signaling, ENS and ETS
N2b	PT/0/B/2000/050	Fire Drill - Performance and Evaluation-
N3	EP FAM 3.19	Drills and Exercises
N4a, b	EP FAM 3.19	Drills and Exercises
N5	EP FAM 3.1	Administration of Emergency Plan and Emergency Plan Implementing Procedures
	EP FAM 3.19	Drills and Exercises
Radiological Emergency Response Training		
O1	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
	ERTG-001	Emergency Response Organization and Emergency Services Training Program
	ETQS 7111.0	Emergency Response Training
O2	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
O2	ERTG-001	Emergency Response Organization and Emergency Services Training Program
	ETQS 7111.0	Emergency Response Training
O3	NSD 119	Medical Emergency Response Team (MERT) Program Organization, Training, and Responsibilities
	ERTG-001	Emergency Response Organization and Emergency Services Training Program

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

<u>Cross Reference</u>		
Emergency Plan Section(s) Implemented	Procedure	Procedure Title
O4.1, .2	NSD 117	Emergency Response Organization Staffing, Training, and Responsibilities
	ERTG-001	Emergency Response Organization and Emergency Services Training Program
	ETQS 7111.0	Emergency Response Training
O4.3	ETQS 3104.0	Radiation Protection Training and Qualifications
	ETQS 7104.0	Radiation Protection Staff Professional Development Program
O4.4	ETQS 7111.0	Emergency Response Training
O4.5, .7	NSD 119	Medical Emergency Response Team (MERT) Program Organization, Training, and Responsibilities
O4.6	ETQS 7111.0	Emergency Response Training
O4.8	ETQS 7111.0	Emergency Response Training
O4.9	ETQS 7111.0	Emergency Response Training
O4.10	OCI507-N	Appendix R Training
	OC6792-N	Maint SPOC Team Emergency Response Training
	TTC 471-N	Annual ERO Refresher /Update
O4.11	ERTG-001	Emergency Response Organization and Emergency Services Training Program
O5	ERTG-001	Emergency Response Organization and Emergency Services Training Program
Responsibility for the Planning Effort:		
Development, Periodic Review and Distribution of Emergency Plans		
P1	EP FAM 3.20	Emergency Planner Training & Qualification Plan
P2 & P3	ONS E Plan	ONS Emergency Plan
P4 & P5	PT/0/A/2000/010	Review of Emergency Plan and Implementing Procedures
	EP FAM 3.1	Administration of Emergency Plan and Emergency Plan Implementing Procedures
P6	ONS E Plan	ONS Emergency Plan
P7	ONS E Plan	ONS Emergency Plan
P8	ONS E Plan	ONS Emergency Plan
P9	AD-EP-ALL-0001	Emergency Preparedness Key Performance Indicators
P10	PT/0/A/2000/004	Qrtly Emergency Phone Book Update

FIGURE P1

EMERGENCY PLAN IMPLEMENTING PROCEDURES

Cross Reference

Appendices		
Appendix 1		Definitions
Appendix 2		Meteorology and Offsite Dose Assessment Program
Appendix 3		Alert and Notification System Description
Appendix 4		Evacuation Time Estimates
Appendix 5		Letters of Agreement
Appendix 6		Distribution List
Appendix 7		Emergency Data Transmittal System
Appendix 8		Spill Prevention Control and Countermeasure Plan ONS Pollution Prevention Plan Rev 11Site Drawing
Appendix 9		ONS Chemical Treatment Ponds 1,2 and 3 Groundwater Monitoring Sampling and Analysis Plan
Appendix 10		Hazardous Materials Response Plan

FIGURE P1
EMERGENCY PLAN IMPLEMENTING PROCEDURES

FIGURE P-2
DUKE ENERGY
OCONEE NUCLEAR SITE
SUPPORTING PLANS

State of South Carolina

Oconee County

Pickens County

DOE-IRAP Plan

INPO-Fixed Facility Agreement

NRC Region II

APPENDIX 3

DUKE ENERGY OCONEE NUCLEAR SITE

ALERT AND NOTIFICATION SYSTEM DESCRIPTION

GENERAL DESCRIPTION

The Alert and Notification System for Oconee Nuclear Site will include an acoustic alerting signal and notification of the public by commercial broadcast (EAS). The system is designed to meet the acceptance criteria of Section B of Appendix 3, NUREG-0654, FEMA-REP-1, Rev. 1.

The emergency plans of the State of South Carolina and the counties of Oconee and Pickens include the individuals, by title, who will be responsible for decision making in regards to the alert and notification system. The county locations from which the sirens would be activated and, potentially, the request for an EAS message would come are manned 24 hours per day. Each organization's plan describes provisions for use of public communications media or other emergency instructions to members of the public. The plan of the State of South Carolina includes a description of the information that would be communicated to the public under given circumstances.

A. Concept of Operations (Figure 2)

A system of 65 fixed sirens is installed in the 10 mile area around the Oconee Nuclear Site. A computerized feedback system is also available at the county level to poll each siren for activation response. Should a siren fail to activate, a backup means of alerting and notification is described in the State and County Plans. This backup method includes emergency service vehicles traversing the area and giving both an alerting signal and notification message.

Each county will control the activation of the sirens within its boundaries.

B. Criteria for Acceptance

The alert and notification system for the Oconee Nuclear Site provides an alerting signal and an informational or instructional message to the population (via the EAS) on an area wide basis throughout the 10 mile EPZ within 15 minutes from the time off-site agencies have determined the need for such alerting exists. The emergency plan of the state of South Carolina includes evidence of EAS preparation for emergency situations and the means for activating the system.

C. Physical Implementation

1. The activation of this alert and notification system requires procedures and relationships between both Duke Energy Company and the off-site agencies that support Duke and Oconee Nuclear Site. When an incident is determined to have reached the level requiring public protective actions, Duke contacts the cognizant off-site agency via the "DEMNET" or other phone system and provides its recommendations. This system is available for use 24 hours per day and links the control room, TSC, EOF, SC (EOC), the county warning points, and the county EOC's.
2. The alert and notification system has multipurpose use built into it. The sirens are capable of producing a three minute steady signal for the nuclear plant emergency or a three minute wailing signal for natural disasters or nuclear attack. Procedures exist at the counties to allow activation of either signal.

The expected performance of the sirens used in this system is described in Figure 1. These sirens complement existing alerting systems. The ambient background sound level in the Oconee area is taken to be 50 db for areas of "less than 2000 persons/per square mile". On this basis, the siren coverage is designed to provide a signal 10 db above the average daytime ambient background (i.e., 60 db). Furthermore, the sirens have been located to assure that the maximum sound levels received by any member of the public should be lower than 123 db.

Duke Energy installed this system without a field survey of ambient conditions. The basis for selection of the 60 db(c) and 70 db(c) criteria is documented as follows:

Location of heavy industry - There is no "heavy industry" in the Oconee 10 mile EPZ.

Attenuation factors with distance - 10 db loss per distance doubled (See Figure 1)

MODEL	TOP FREQUENCY	SOUND PRESSURE LEVEL AT 100'
Federal Signal 2001 AC	705 Hz	127dB(C)±1dB

*See Figure 1 for 10 dB loss column

Map showing siren location, - See i-5

Mounting height of sirens - 50 feet (approximate)

Special weather condition considerations (such as expected heavy snow) - None

The siren system will produce a 3 minute steady signal and is capable of repetition.

The siren system will be tested and maintained in accordance with the following schedule:

<u>Test or Maintenance</u>	<u>Period</u>
Silent Test	Every two weeks
Full Cycle Test	Quarterly
Repair	Before returning to service
Full-cycle*	Annually
Preventive Maintenance	At least annually

*Note: Full-cycle tests may substitute for growl tests.

APPENDIX 3

FIGURE 1

DUKE ENERGY
OCONEE NUCLEAR SITE

SIREN RANGE IN FEET

For Sirens Figured At 12 And 10 dB Loss Per Distance Doubled

MINIMUM LEVEL COVERAGE IN dB	127dB(C) SIREN FEDERAL SIGNAL 2001AC	
	<u>12</u>	<u>10</u>
85	1000	1600
80	1350	2250
75	1800	3200
73	2000	3700
70	2400	4500
68	2700	5200
63	3200	6400
60	4250	9050

NOTE: All range figures are rounded off to nearest 50 feet

Duke Energy
PROCEDURE PROCESS RECORD

(1) ID No. ONS E-PlanRevision No. 2015-004**PREPARATION**

- (2) Station OCONEE NUCLEAR STATION
- (3) Procedure Title Oconee Nuclear Station Emergency Plan
- (4) Prepared By* Natalie Harness *Natalie Harness* Date 04/28/2015
- (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* Don Conrad *Don Conrad* (QR)(KI) Date 5-27-15
 Cross-Disciplinary Review By* _____ (QR)(KI) NA NA Date 5-27-15
 Reactivity Mgmt Review By* _____ (QR) NA NA Date 5-27-15
 Mgmt Involvement Review By* _____ (Ops. Supt.) NA NA Date 5-27-15
- (7) Additional Reviews
 Reviewed By* _____ Date _____
 Reviewed By* _____ Date _____
- (8) Approved By* PATRICK M STINEG *Patrick M Stineg* Date 5/29/15

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)

Changes as a result of a change from selective signaling to DEMNET, OSM to SM and procedure reference updates; SH/0/B/2005/002 to AD-EP-ALL-0203 & SH/0/B/2005/003 to AD-EP-ALL-0204.

* Printed Name and Signature

Revision/Change Package Fill-In Form


Rev. 04/23/2012

The purpose of this fill-in form is to provide a location to type in information you want to appear on the various forms needed for Major/Minor Procedure Revisions, and Major/Minor Procedure Changes. After you type in information on this form, it will be electronically transferred to the appropriate locations in the attached forms when you perform Step 3 below.

Step 1- press [F12] (Save As) then save this form using standard file name convention in appropriate LAN storage location.

Step 2- type in basic information in the blanks below:

Note: place cursor in center of brackets before typing.

1. ID No.: ONS E-Plan
2. Revision No.: 2015-004
3. Change No.: **Note:** if this package is for a change, replace hyphen with a letter.
4. Procedure Title: Oconee Nuclear Station Emergency Plan
5. For changes only, enter procedure sections affected: Record of Changes, E-Plan Sections: App 3, D, F, H, K, & P, and the E-Plan Table of Contents
6. Prepared By: Natalie Harness 
7. Preparation Date: 04/28/2015
8. PCR Numbers Included in Revision:

Step 3- go to Print Preview to update this information in all the attached documents.

Step 4- page down to affected pages and enter any additional information needed.

Step 5- when all information is entered, print package and review for correctness.

Procedure Title: Oconee Nuclear Station Emergency Plan _

SUMMARY OF CHANGES: (DESCRIPTION AND REASON)

General Changes

Changes as a result of a change from selective signaling to DEMNET, OSM to SM and procedure reference updates; SH/0/B/2005/002 to AD-EP-ALL-0203 & SH/0/B/2005/003 to AD-EP-ALL-0204.

Selective Signaling System has been replaced with DEMNET in support of a Duke Energy fleetwide initiative and is an overall enhancement for offsite notifications during an emergency. This change continues to comply with 10 CFR 50.47(b) planning standards and NRC requirements, as described in 10 CFR 50, Appendix E.

Applicable sections of the Catawba Nuclear Station (CNS), Oconee Nuclear Station (ONS), and McGuire Nuclear Station (MNS) Emergency Plans, emergency plan implementing procedures, and supporting procedures are being revised to reflect this change. These changes are being screened / evaluated in accordance with 10 CFR 50.54(q) under separate cover.

PCR Numbers Incorporated

Enclosure

APPENDIX C. APPLICABILITY DETERMINATION (Rev. 10)

Page 1 of 2

PART I – ACTIVITY DESCRIPTION**DUKE ENERGY CAROLINAS, LLC SITE****UNIT(S)**☒ Oconee ☐ McGuire ☐ Catawba☒ Unit 1 ☒ Unit 2 ☒ Unit 3**ONS Emergency Plan Rev 2015-004****ACTIVITY****TITLE/DOCUMENT/REVISION:****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? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, process as a license amendment per NSD 227. |
| 2. Quality Assurance Topical? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, seek assistance from Independent Nuclear Oversight. |
| 3. Security Plans?
(See Appendix H) | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, process per the Nuclear Security Manual. |
| 4. Emergency Plan? | <input type="checkbox"/> NO <input checked="" type="checkbox"/> YES | If YES, process per the Emergency Planning Functional Area Manual. |
| 5. Inservice Testing Program Plan? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, process per site IST Program for ASME code compliance and related facility changes. |
| 6. Inservice Inspection Program Plan? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> 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? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, evaluate activity in accordance with NSD 320. |
| 7a -Utilize Appendix E to address Fire Protection Program Plan Impact. | <input checked="" type="checkbox"/> | Check to confirm use of Appendix E Screening Questions. |
| 8. Regulatory Commitments? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, process per NSD 214. |
| 9. Code of Federal Regulations? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES | If YES, contact the Regulatory Affairs group. |
| 10. Programs and manuals listed in the Administrative Section of the TS? | <input checked="" type="checkbox"/> NO <input type="checkbox"/> 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. ☒ NO ☐ YES

IF YES, process per NSD 220.

PART V - SIGNOFF

(Print
Name)

Dn Crawl

(Sign)

[Signature]

DATE

5-27-15

Applicability Determination Preparer

APPENDIX E. FIRE PROTECTION PROGRAM SCREENING

The following screening questions are used to assist the Applicability Determination preparer to answer PART II – PROCESS REVIEW question number 7.

A “Yes” answer to any of the screening questions would indicate the Fire Protection Program Licensing Basis may be affected, and Question # 7 on the Applicability Determination Form (Appendix C) should be checked “Yes” and a review in accordance with NSD 320 is required.

PART A

New procedure or a major procedure change FPP Licensing Applicability impact screening:

NOTE: IF the procedure change is a result of a Plant Modification or Engineering Change that has previously been evaluated for impact to the FPP, then question #7 should be checked “No”.

- | | Yes | No | |
|-----|-----------------------|----------------------------------|---|
| A1. | <input type="radio"/> | <input checked="" type="radio"/> | Does the proposed activity change any plant responses, operator responses or emergency lighting associated with Post Fire Safe Shutdown (PFSS) response procedures? |
| A2. | <input type="radio"/> | <input checked="" type="radio"/> | Does the proposed activity add, remove or revise any fire protection features as described in the UFSAR or SLCs from any performance test procedures? |
| A3. | <input type="radio"/> | <input checked="" type="radio"/> | Does the proposed activity add, remove or revise any procedures related to fire protection features as described in the UFSAR or SLCs? |
| A4. | <input type="radio"/> | <input checked="" type="radio"/> | Does the proposed activity add, remove or revise any performance test Acceptance Criteria for any fire protection features as described in the UFSAR or SLCs? |

PART B

Plant Modification/Engineering Change FPP Licensing Basis impact screening:

Does the proposed activity impact?

- | | | | |
|------|-----------------------|-----------------------|---|
| B1. | <input type="radio"/> | <input type="radio"/> | Any fire rated assemblies/boundaries (walls, floors, ceilings, etc.), including fire doors, fire dampers, penetration seals, fire rated wraps, radiant energy heat shields, structural fireproofing, etc. as described in the UFSAR or SLCs? |
| B2. | <input type="radio"/> | <input type="radio"/> | Any water based fixed fire suppression systems (including water supply flow paths and main fire pumps) as described in UFSAR or SLCs? |
| B3. | <input type="radio"/> | <input type="radio"/> | Any gaseous fire suppression systems (CO2, Halon) as described in the UFSAR or SLCs? |
| B4. | <input type="radio"/> | <input type="radio"/> | Any manual fire fighting equipment such as hose stations and fire hydrants as described in the UFSAR or SLCs? |
| B5. | <input type="radio"/> | <input type="radio"/> | Any portable fire extinguishers located in safety-related and/or safe shutdown areas of the plant or power block? |
| B6. | <input type="radio"/> | <input type="radio"/> | Any fire detection systems as described in the UFSAR or SLCs? |
| B7. | <input type="radio"/> | <input type="radio"/> | Any water and/or combustible fluid containment devices such as curbs, dikes, drains, fire protection system spray shields, etc. located in safety-related and/or safe shutdown areas? |
| B8. | <input type="radio"/> | <input type="radio"/> | Any administrative control documents for the Fire Protection Program such as NSD 313 (Control of Combustible/Flammable Materials), NSD 314 (Hot Work Authorization), and NSD 316 (Fire Protection Impairment)? |
| B9. | <input type="radio"/> | <input type="radio"/> | Any fire brigade equipment, including communication equipment or fire brigade administrative controls as outlined in NSD 112 (Fire Brigade Organization, Training, and Responsibilities)? |
| B10. | <input type="radio"/> | <input type="radio"/> | The Reactor Coolant Pump Lube Oil Collection System ? |
| B11. | <input type="radio"/> | <input type="radio"/> | The Fire Safety/Hazards Analysis as documented in the plant level Design Basis Document for Fire Protection (CNS-1465.00-00.0006, MCS-1465.00-00-0008, OSS-0254.00-00-4008)? |
| B12. | <input type="radio"/> | <input type="radio"/> | Any PFSS/Nuclear Safety Capability Assessment/Non-Power Operations equipment, emergency lighting, communications, circuits, and/or cable routes as described in the site PFSS DBD and associated analysis (CNS-1435.00-00.0002, MCS-1465.00-00-0022, OSS-0254.00-00-4008)? |
| B13. | <input type="radio"/> | <input type="radio"/> | Combustible/Flammable Material or an Ignition Source? |
| B14. | <input type="radio"/> | <input type="radio"/> | Any Site Fire Brigade Response Strategies as described in the Emergency Plan and Fire Protection Planning guide? |
| B15. | <input type="radio"/> | <input type="radio"/> | Any plant radiation control boundaries? |
| B16. | <input type="radio"/> | <input type="radio"/> | Any HVAC flow changes include air intake/exhaust changes in radiation control areas? |

EAL Change Review Form

Change Description and References: Revision 2015-004 of ONS E-Plan Section D consist of the following changes: <ul style="list-style-type: none"> Removed "Selective Signaling" and replaced with DEMNET Changed title of Operations Shift Manager (OSM) to Shift Manager (SM) 				BLOCK 1
Change Type: <input checked="" type="checkbox"/> The change is considered a <i>difference</i> from the approved wording. <input type="checkbox"/> The change is considered a <i>deviation</i> from the approved wording.				BLOCK 2
Change Verification:				BLOCK 3
Item	Yes	No	N/A	Resolution/Comments
Initiating Condition				
IC identification number is correct	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Wording is consistent with the NRC approved IC	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
EAL / FPB				
EAL/FPB identification number is correct	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Wording is consistent with the NRC approved EAL / FPB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Threshold values or conditions remain specific to ensure generic criteria are not substituted reducing clarity and accuracy of the EAL.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Sequencing/nesting logic format is correct	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Source document inputs used for calculations and in thresholds are correct	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Site specific content wording/tables/values are correct and specific: <ul style="list-style-type: none"> Operations procedures are consistent with the change Instrument/display number and noun name are provided Alarm setpoints are equal to or below EAL/FPB values Radiation monitor values account for background Procedure references are correct 	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The EAL/FPB Matrix is legible and intuitively organized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Mode Applicability				
Operational mode alignment is consistent with the EAL licensing basis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Technical Bases				
Site specific bases is consistent with the EAL threshold	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Bases for calculations and threshold values are consistent with the technical bases approved by the NRC	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Source document inputs used for calculations and in thresholds are correct	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification
Site specific bases remains accurate and consistent with the EAL technical bases approved by the NRC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site specific bases has appropriate level of detail and is unambiguous	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The change does not cause a change to the logic of the EAL scheme (i.e. gaps in classification thresholds)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Conflicts with the EAL/FPB wording have not been introduced	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	


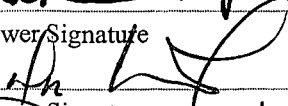
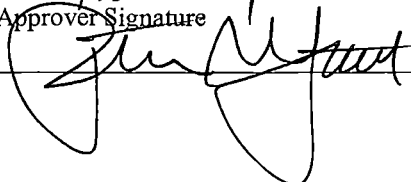
3.10 10CFR 50.54(q) Evaluations

Emergency Planning Functional Area Manual

Attachment 3.10.7.2

References				
Source document references are correct	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Source document references are current	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Definitions				
Wording is consistent with the license basis definitions approved by the NRC for the EALs and EAL technical bases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other Manual Content				
Wording is consistent with the license basis definitions approved by the NRC for the EALs and EAL technical bases	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Change Validation:				BLOCK 4	
Method					
<input type="checkbox"/> In-Plant Walkdown <input type="checkbox"/> Simulator <input checked="" type="checkbox"/> Other procedure changes incorporated. DEMNET installed and <input type="checkbox"/> Training <input type="checkbox"/> Tabletop <input type="checkbox"/> N/A					
Item	Yes	No	N/A	Resolution/Comments	
EAL / FPB					
Information and/or values are available in all facilities where classifications are required to be made	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Instrumentation and computer points are compatible: <ul style="list-style-type: none"> • Instrument/display designation matches • Instrument/display units are correct • Proper significant digits are indicated and within the accuracy capabilities of the instrument/display • The instrument/display range is on scale for the threshold value • Instrument/display provides separation for escalating values 	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See Change Justification	
Conditions are easily recognizable and able to support declaration within 15 minutes.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Information and/or values are easily obtained and able to support declaration within 15 minutes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
The change does not introduce a time delay to classification	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Change Justification:				BLOCK 5	
Selective Signaling System has been replaced with DEMNET in support of a Duke Energy fleet-wide initiative and is an overall enhancement for offsite notifications during an emergency. This change continues to comply with 10 CFR 50.47(b) planning standards and NRC requirements, as described in 10 CFR 50, Appendix E. The change from OSM to SM was made due to position title changes post-merger and are considered editorial in nature.					
EAL Change Review Results:				BLOCK 6	
<input checked="" type="checkbox"/> The EAL change <u>can</u> be implemented without prior NRC approval. <input type="checkbox"/> The EAL change <u>cannot</u> be implemented without prior NRC approval.					

Preparer Name: Mike Stephens	Preparer Signature 	Date: 5-26-15
Reviewer Name: Don Crawl	Reviewer Signature 	Date: 5-27-15
Approver Name: PATRICK M STREET	Approver Signature 	Date: 5/29/15

Revision 12

§50.54(q) Screening Evaluation Form

Activity Description and References: ONS Emergency Plan Rev 2015-004**BLOCK 1***Changes as a result of a change from selective signaling to DEMNET, OSM to SM and procedure reference updates; SH/0/B/2005/002 to AD-EP-ALL-0203 & SH/0/B/2005/003 to AD-EP-ALL-0204.*

Selective Signaling System has been replaced with DEMNET in support of a Duke Energy fleetwide initiative and is an overall enhancement for offsite notifications during an emergency. This change continues to comply with 10 CFR 50.47(b) planning standards and NRC requirements, as described in 10 CFR 50, Appendix E.

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****Change Type:****BLOCK 4**☐ The change is editorial or typographical☐ The change does conform to an activity that has prior approval☒ The change is not editorial or typographical☒ The change does not conform to an activity that has prior approval**Planning Standard Impact Determination:****BLOCK 5**

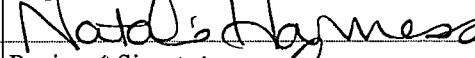
- ☐ §50.47(b)(1) – Assignment of Responsibility (Organization Control)
- ☐ §50.47(b)(2) – Onsite Emergency Organization
- ☐ §50.47(b)(3) – Emergency Response Support and Resources
- ☒ §50.47(b)(4) – **Emergency Classification System***
- ☒ §50.47(b)(5) – **Notification Methods and Procedures***
- ☒ §50.47(b)(6) – 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

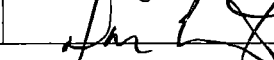
Record the commitment or commitment reference: _____

☒ 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 evaluationPreparer Name:
Natalie Harness

Preparer Signature

Date:
4/28/15Reviewer Name:
Don Crowl

Reviewer Signature



Date:

5-27-15

§50.54(q) Effectiveness Evaluation Form

Activity Description and References: ONS Emergency Plan Rev 2015-004**BLOCK 1**

Changes as a result of a change from selective signaling to DEMNET, OSM to SM and procedure reference updates; SH/0/B/2005/002 to AD-EP-ALL-0203 & SH/0/B/2005/003 to AD-EP-ALL-0204.

Selective Signaling System has been replaced with DEMNET in support of a Duke Energy fleetwide initiative and is an overall enhancement for offsite notifications during an emergency. This change continues to comply with 10 CFR 50.47(b) planning standards and NRC requirements, as described in 10 CFR 50, Appendix E.

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:

- **10CFR50.47(b)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.
- **10CFR50.47(b)5** - Procedures have been established for notification, by the licensee, of State and local response organizations and for notification of emergency personnel by all organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone have been established.
- **10CFR50.47(b)6** - Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.
- **10CFR50.47(b)8** - Adequate emergency facilities and equipment to support the emergency response are provided and maintained.
- **10CFR50.47(b)16** - Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.
 - **ONS E Plan Section D** - Reg Guide 1.101, Rev. 3, August, 1992, approved the guidance provided by NUMARC/NESP-007, Revision 2, as an Alternative Methodology for the Development of Emergency Action Levels. Oconee Nuclear Site used the NUMARC guidance for the development of initiating conditions and emergency action levels. The emergency action levels provided in this section have been modified to implement the guidance provided in NRC Bulletin 2005-02, NEI guidance as endorsed in Regulatory Issue Summary 2006-12 and to support the implementation of NEI 03-12.
 - **ONS E Plan Section F** - Provisions exist for prompt communications among principal response organizations, emergency personnel, and to the public.
 - **ONS E Plan Section H** - Emergency Facilities And Equipment.
 - **ONS E Plan Appendix 3** - The Alert and Notification System for Oconee Nuclear Site will include an acoustic alerting signal and notification of the public by commercial broadcast (EAS). The system is designed to meet the acceptance criteria of Section B of Appendix 3, NUREG-0654, FEMA-REP-1, Rev. 1.

Compliance Evaluation and Conclusion:**BLOCK 4**Evaluation:

The proposal changing selective signaling to DEMNET serve to ensure the ONS E Plan remains accurate and up to date with correct communications means/methods as required by 10CFR50.47(b) Primary and backup means of communication between the Site, local government agencies, and State response organizations have been established. Compliance is continued with the replacement of Selective Signaling with DEMNET. DEMNET is the new system that will be used to replace selective signaling which is being replaced as a result of support from the vendor being discontinued 12/31/2015. The 50.54q effectiveness review completed for the DEMNET System describes how the change in notification methods at ONS resulted in ~~a~~ no reduction in effectiveness of the emergency plan. Previous backup systems specified have not been replaced and continue as before. Calls to the state and local agencies will be made via DEMNET instead of selective signaling. Therefore continued compliance with 10CFR50.47(b) is assured.

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 evaluation uses the comparison matrix to identify each change numerically, the reason the change was made, and the resultant impact on effectiveness of the E Plan.

1. **ONS E Plan Section D**, Editorial Change: replacing a reference for Selective Signaling with DEMNET and a title change correction; Operations Shift Manager to Shift Manager. Therefore continued compliance is assured.
2. **ONS E Plan Section F**, Editorial Change: replacing a reference for Selective Signaling with DEMNET, title change correction; Operations Shift Manager to Shift Manager, and replacing SH/0/B/2005/002 with AD-EP-ALL-0203. Therefore continued compliance is assured.
3. **ONS E Plan Section H-11**, COUNT ROOM EQUIPMENT (ONSITE). The vendor equipment/instrument names are being removed based on recent instrumentation upgrades. Although the equipment remains the same functionality the vendor names are removed to reduce E-Plan revision burden. Therefore continued compliance with 10CFR50.47(b)8 and 10CFR50 Appendix E.IV.G is assured.
4. **ONS E Plan App 3**, Editorial Change: replacing a reference for Selective Signaling with DEMNET. Therefore continued compliance is assured.
5. **ONS E Plan Table of Contents**, Editorial Change: replacing SH/0/B/2005/003 with AD-EP-ALL-0204. Therefore continued compliance is assured.

There is no reduction in effectiveness as a result of these changes.

The functional criteria specified in Reg Guide 1.219 for the identified license bases includes:

10CFR50.47b.4, has One emergency planning function has been defined for this planning standard:

- (1) A standard scheme of emergency classification and action levels is in use.

10CFR50.47b.5, has Three emergency planning functions have been defined for this planning standard:

- (1) Procedures for notification of State and local governmental agencies are capable of alerting them of the declared emergency within 15 minutes after declaration of an emergency and providing follow-up notifications.

- (2) Administrative and physical means have been established for alerting and providing prompt instructions to the public within the plume exposure pathway.

- (3) The public ANS meets the design requirements of FEMA-REP-10, "Guide for Evaluation of Alert and Notification Systems for Nuclear Power Plants" (Ref. 12), or is compliant with the licensee's FEMA-approved ANS design report and supporting FEMA approval letter.

10CFR50.47b.6, has two emergency planning functions defined for this planning standard:

- (1) Systems are established for prompt communication among principal emergency response organizations.

- (2) Systems are established for prompt communication to emergency response personnel.

10CFR50.47b.8, has two emergency planning functions defined for this planning standard:

- (1) Adequate facilities are maintained to support emergency response.

- (2) Adequate equipment is maintained to support emergency response.

10CFR50.47b.16, has two emergency planning function defined for this planning standard:

- (1) Responsibility for emergency plan development and review is established.

- (2) Planners responsible for emergency plan development and maintenance are properly trained.

The proposed changes as detailed above do not alter or impact these functions. As can be seen in the detail above and use of the comparison matrix.

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:
Natalie Harness

Preparer Signature



Date:
4/28/15

Reviewer Name:
Don Crowl

Reviewer Signature



Date:
5-27-15

Approver Name:
Pat Street

Approver Signature

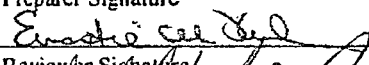
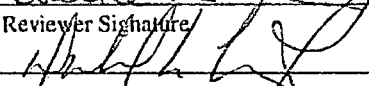


Date:
5/29/15

§50.54(q) Screening Evaluation Form

Activity Description and References: AD-EP-ALL-0204, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, Revision 0		BLOCK 1
This is a new fleet Emergency Plan Implementing Procedure that will supersede procedure SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release. See attached step by step comparison of SH/0/B/2005/003 and AD-EP-ALL-0204.		
Activity Scope:		BLOCK 2
<input type="checkbox"/> The activity <u>is</u> a change to the emergency plan <input checked="" type="checkbox"/> The activity <u>is not</u> a change to the emergency plan This is a new fleet Emergency Plan Implementing Procedure. The following emergency plan sections were reviewed. This new procedure does not require a change to the following emergency plan <u>content</u> : <ul style="list-style-type: none"> • Catawba Emergency Plan Revision 14-5, Section J.6 • McGuire Emergency Plan Revision 14-5, Section J.6 • Oconee Emergency Plan Revision 2015-02, Sections J.5 & J.6 This new procedure will require <u>editorial changes</u> to the DEC station emergency plans to change procedure references. These changes are being screened on separate forms: <ul style="list-style-type: none"> • Catawba Emergency Plan Revision 14-5, Section J.6, Figure P-2 • McGuire Emergency Plan Revision 14-5, Section J.6, Figure P-2 • Oconee Emergency Plan Revision 2015-02, Figure P1 This new procedure will require <u>content changes</u> to the Oconee station emergency plan. This change is being screened and evaluated separately: <ul style="list-style-type: none"> • Oconee Emergency Plan Revision 2015-02, Section K.1 		
Change Type: <input type="checkbox"/> The change is editorial or typographical <input type="checkbox"/> The change <u>is not</u> editorial or typographical Not Applicable per Step 3.10.4.1.3.3	BLOCK 3	Change Type: <input type="checkbox"/> The change <u>does</u> conform to an activity that has prior approval <input type="checkbox"/> The change <u>does not</u> conform to an activity that has prior approval Not Applicable per Step 3.10.4.1.3.3
Planning Standard Impact Determination:		BLOCK 5
<input checked="" type="checkbox"/> §50.47(b)(1) – Assignment of Responsibility (Organization Control) - Approval authority for administration of KI <input type="checkbox"/> §50.47(b)(2) – Onsite Emergency Organization <input type="checkbox"/> §50.47(b)(3) – Emergency Response Support and Resources <input type="checkbox"/> §50.47(b)(4) – Emergency Classification System* <input type="checkbox"/> §50.47(b)(5) – Notification Methods and Procedures* <input type="checkbox"/> §50.47(b)(6) – Emergency Communications <input type="checkbox"/> §50.47(b)(7) – Public Education and Information <input type="checkbox"/> §50.47(b)(8) – Emergency Facility and Equipment <input type="checkbox"/> §50.47(b)(9) – Accident Assessment* <input checked="" type="checkbox"/> §50.47(b)(10) – Protective Response* - Protective Actions for Emergency Workers, Authorization and use of KI <input checked="" type="checkbox"/> §50.47(b)(11) – Radiological Exposure Control - Resources for controlling radiological exposures for		

3.10 10CFR 50.54(q) Evaluations

emergency workers <input type="checkbox"/> §50.47(b)(12) – Medical and Public Health Support <input type="checkbox"/> §50.47(b)(13) – Recovery Planning and Post-accident Operations <input type="checkbox"/> §50.47(b)(14) – Drills and Exercises <input type="checkbox"/> §50.47(b)(15) – Emergency Responder Training <input type="checkbox"/> §50.47(b)(16) – Emergency Plan Maintenance *Risk Significant Planning Standards		
<input type="checkbox"/> The proposed activity does NOT impact a Planning Standard		
Commitment Impact Determination:		BLOCK 6
<input type="checkbox"/> The activity <u>does</u> involve a site specific EP commitment Record the commitment or commitment reference: _____		
<input type="checkbox"/> The activity <u>does not</u> involve a site specific EP commitment		
Not required per Step 3.10.4.1.6.3 if a Planning Standard is impacted.		
Screening Evaluation Results:		BLOCK 7
<input type="checkbox"/> The activity <u>can</u> be implemented without performing a §50.54(q) effectiveness evaluation <input checked="" type="checkbox"/> The activity <u>cannot</u> be implemented without performing a §50.54(q) effectiveness evaluation		
Preparer Name: Ernestine M. Kuhr	Preparer Signature 	Date: April 8, 2015
Reviewer Name: Donald A. Crawl	Reviewer Signature 	Date: 4-21-15

§50.54(q) Effectiveness Evaluation Form

Activity Description and References: AD-EP-ALL-0204, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, Revision 0	BLOCK 1
This is a new fleet Emergency Plan Implementing Procedure that will supersede procedure SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release. See attached step by step comparison of SH/0/B/2005/003 and AD-EP-ALL-0204.	
Activity Type:	BLOCK 2
<p> <input type="checkbox"/> The activity <u>is</u> a <i>change</i> to the <i>emergency plan</i> <input checked="" type="checkbox"/> The activity affects implementation of the <i>emergency plan</i>, but <u>is not</u> a <i>change</i> to the <i>emergency plan</i> </p> <p> This is a new fleet Emergency Plan Implementing Procedure. The following emergency plan sections were reviewed. This new procedure does not require a change to the following emergency plan <u>content</u>: </p> <ul style="list-style-type: none"> • Catawba Emergency Plan Revision 14-5, Section J.6 • McGuire Emergency Plan Revision 14-5, Section J.6 • Oconee Emergency Plan Revision 2015-02, Sections J.5 & J.6 <p> This new procedure will require <u>editorial changes</u> to the DEC station emergency plans to change procedure references. These changes are being screened on separate forms: </p> <ul style="list-style-type: none"> • Catawba Emergency Plan Revision 14-5, Section J.6, Figure P-2 • McGuire Emergency Plan Revision 14-5, Section J.6, Figure P-2 • Oconee Emergency Plan Revision 2015-02, Figure P1 <p> This new procedure will require <u>content changes</u> to the Oconee station emergency plan. This change is being screened and evaluated separately: </p> <ul style="list-style-type: none"> • Oconee Emergency Plan Revision 2015-02, Section K.1 	
Impact and Licensing Basis Determination:	BLOCK 3
<p>1. <i>[list of functions, elements and/or commitments impacted by the activity (organized by planning standard as applicable)]</i></p> <p> EP Function - A range of protective actions is available for plan emergency workers during emergencies, including those for hostile action events. Authorization and use of KI. [10CFR 50.47(b)(10)] </p> <p> EP Function - The resources for controlling radiological exposures for emergency workers are established. Authorization and use of Emergency Exposure Limits. [10CFR 50.47(b)(11)] </p> <p> <u>Licensing Basis:</u> </p> <p> Catawba Emergency Plan Revision 14-5 </p> <p> <u>Section J.6. Protective Measures - Breathing Apparatus, Protective Clothing, KI</u> </p> <p>...</p> <ul style="list-style-type: none"> • Individual Thyroid Protection - Protective measures will be utilized to minimize the ingestion and/or inhalation of radioactive iodine. However, if an unplanned incident involves the accidental or potential ingestion or inhalation of radioactive iodine, Potassium Iodide Tablets (KI) are available for distribution by SH/0/B/2005/003 (Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release). <p>...</p> <p> <u>Section P, Figure P-2</u> </p>	

3.10 10CFR 50.54(q) Evaluations

Figure P-2 lists SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, as a procedure that implements Section J.6.

McGuire Emergency Plan Revision 14-5

Section J.6 Protective Equipment - Breathing Apparatus, Protective Clothes, KI

...
Individual Thyroid Protection - All efforts should be made to utilize respiratory protective equipment to minimize ingestion and/or inhalation of radionuclides and to maintain internal exposure below the limits specified in 10CFR20, Appendix B. However, if an unplanned incident involves the accidental or potential ingestion or inhalation of radioactive iodine, Potassium Iodide Tablets (KI) are available to distribution by SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release.

Section P, Figure P-2

Figure P-2 lists SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, as a procedure that implements Section J.6.

Oconee Emergency Plan Revision 2015-02

Sections J.5 & J.6 - Site Evacuation Procedures-Personnel Accountability

...
After all non-essential personnel have been evacuated from the site, logsheets will be kept by Radiation Protection personnel in the Operational Support Center of all persons onsite together with their Radiation Protection records to include the following:

- a. Individual respiratory protection
- b. Protective clothing
- c. Use of Radioprotective drugs

Section K, Radiological Exposure Control

To assure that means for controlling radiological exposures in an emergency are established for emergency workers and the affected population.

K.1 Onsite exposure guidelines have been established for the following categories:

MAXIMUM EXPOSURE LIMITS IN REM					
CATEGORIES	TOTAL EFFECTIVE DOSE EQUIVALENT*	LENS OF THE EYE	SKIN	EXTREMITIES	COMMITTED DOSE EQUIVALENT (ORGAN)**
All	5 rem	15 rem	50 rem	50 rem	50 rem
Protecting Valuable Property	10 rem	30 rem	100 rem	100 rem	100 rem
Lifesaving or Protection of Large Population	25 rem	75 rem	250 rem	250 rem	250 rem
VOLUNTEER BASIS: Lifesaving or	>25 rem	>75 rem	>250 rem	>250 rem	>250 rem

3.10 10CFR 50.54(q) Evaluations

Protection of Large Population					
--------------------------------	--	--	--	--	--

*Note TEDE to non-pregnant adults from exposure during an emergency situation. Special precautions should be taken to limit dose to eye lens, and other organs, tissues, or extremities. With regard to maximum limit, EPA concluded that it was not possible to prejudge the acceptable risk for saving a life. Doses may be authorized to the limits established in this chart.

**Note: Administration of stable iodine will be recommended for emergency workers if a dose of 5 rem CDE is projected to the thyroid from radioiodine. This action will require approval of the Radiation Protection Manager in the OSC or the Emergency Coordinator.

Section P, Figure P1

Figure P1 lists SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, as a procedure that implements Sections J5/J6 and K1a - g of the Emergency Plan.

Compliance Evaluation and Conclusion:

BLOCK 4

1. PS 10 Evaluation

§50.47(b)(10) – A range of protective actions has been developed for the plume exposure pathway EPZ for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

This is further explained in NUREG-0654, Criterion J.6:

J.6 Each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for:

- a. Individual respiratory protection;
- b. Use of protective clothing; and
- c. Use of radioprotective drugs (e.g., individual thyroid protection).

Discussion

SH/0/B/2005/003, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, provided information necessary to distribute Active Potassium Iodide (KI) tablets to Emergency Response Organization (ERO) personnel in the event of a release of radioiodine resulting from emergency conditions. AD-EP-ALL-0204, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, will provide information for distribution of Active Potassium Iodide (KI) tablets to Duke Energy and contractor personnel in the event of a release of radioiodine resulting from emergency conditions. The scope of the procedure has been expanded to include all Duke Energy and contractor personnel in the event of Hostile Action Scenario during radioiodine release.

Therefore, AD-EP-ALL-0204 continues to comply with PS 10.

3. PS 11 Evaluation

§50.47(b)(11) – Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

3.10 10CFR 50.54(q) Evaluations

This is further explained in NUREG-0654, Criterion K.1

K.1 Each licensee shall establish onsite exposure guidelines consistent with EA Emergency Worker and lifesaving Activity Protective Actions Guides (EPA 520/1-75/001)...

Discussion

EPA 520/1-75/001 has been superseded by EPA 400-R-92-001, Manual of Protective Action Guides And Protective Actions For Nuclear Incidents (October 1991). EPA-400-R-92-001 specified a threshold of 25 rem Committed dose equivalent to the thyroid from radioiodine as the threshold for administration of stable iodine. U.S. Department of Health and Human Services, Food and Drug Administration, Center for Drug Evaluation and Research (CDER), *Guidance Potassium Iodide as a Thyroid Blocking Agent in Radiation Emergencies* (December 1991) provided additional guidance on the threshold for administration of stable iodine. Based on a review of the latter, Duke Energy adopted a threshold for administration of stable iodine of 5 rem CDE projected to the thyroid from radioiodine.

Therefore, AD-EP-ALL-0204 continues to comply with PS 11.

Conclusion:

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

Reduction in Effectiveness (RIE) Evaluation and Conclusion:

BLOCK 5

1. Evaluation:

Catawba, McGuire, and Oconee will continue to have a procedure for distribution of potassium iodide tablets in the event of a radioiodine release. AD-EP-ALL-0204 continues to use a threshold for administration of stable iodine of 5 rem CDE projected to the thyroid from radioiodine for distribution of Active Potassium Iodide (KI). Log sheets will continue to be kept by Radiation Protection personnel of all persons to document the use of radioprotective drugs. The scope has been expanded to include all Duke Energy and contractor personnel in the event of Hostile Action Scenario during radioiodine release. This is considered an enhancement.

The change in approval authority issuing KI at Oconee has been evaluated separately and determined not to be an RIE. The change in approval authority aligns the approval authority with that in the currently approved procedure, SH/O/B/2005/003, Distribution of Potassium Iodide Tablets in the event of a Radioiodine Release.

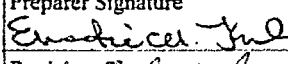
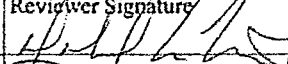

Conclusion:

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: Ernestine M. Kuhr	Preparer Signature 	Date: April 14, 2015
Reviewer Name: Dorcas H. Crew	Reviewer Signature 	Date: 4-21-15
Approver Name: Patricia M. Stora	Approver Signature 	Date: 4/22/15

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
1.	Purpose	1.0	Purpose	
1.1	This procedure provides information necessary to distribute Active Potassium Iodide (KI) tablets to Emergency Response Organization (ERO) personnel in the event of a release of radioiodine resulting from emergency conditions.	1.1	This procedure provides information for distribution of Active Potassium Iodide (KI) tablets to Duke Energy and contractor personnel in the event of a release of radioiodine resulting from emergency conditions.	Expanded to include all personnel in the event of Hostile Action Scenario during radioiodine release.
1.2	This procedure provides information for management and the administered personnel on effectiveness, dosage, and potential side effects.	Attachments 1, 2 & 3	This information is included in Attachments 1, 2 & 3.	See below
1.3	This procedure is an Emergency Plan Implementing Procedure (EPIP) for MNS, CNS, and ONS. This procedure must be forwarded to the Emergency Planning Group at each site within 7 working days of approval by the responsible group (PIP O-93-0701).	N/A	Deleted	Fleet Regulatory Affairs now distributes EP procedures to NRC once approved. New procedure process does not annotate individual site PIPs/CRs unless they are CAPRs.
		2.0	Scope	
		2.0.1	This procedure applies to the Duke Energy operating nuclear fleet.	New Administrative Procedure Format
		3.0	Definitions	
		3.1	Committed Dose Equivalent (CDE): The dose equivalent to a specific organ or tissue integrated over a 50 year period due to radionuclides in the body.	New Administrative Procedure Format
		3.2	Effective Dose Equivalent (EDE): The sum of the products of the dose equivalent to each organ and a weighing factor related to the risk of delayed health effects in the respective organ. Units are in Rem.	New Administrative Procedure Format
		3.3	Thyroid Blocking Agent: A non-prescription (i.e., over the counter) drug	New Administrative Procedure Format

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
			that is effective in reducing the accumulation of radioiodine, which has entered the body through inhalation or ingestion, by the thyroid gland.	
		3.4	Total Effective Dose Equivalent (TEDE): The sum of the Deep Dose Equivalent and the Committed Effective Dose Equivalent.	New Administrative Procedure Format
		4.0	Responsibilities	New Administrative Procedure Format
		4.1	[CNS, MNS, ONS] Radiation Protection Manager (RPM)	New Administrative Procedure Format
		4.1.1	Determines the need for and approves the administration of KI for: a. Site Duke Energy and contractor personnel. b. Off-site Duke energy and contractor personnel until the Emergency Operations Facility (EOF) is operational.	New Administrative Procedure Format
		4.2	[CNS, MNS, ONS] Radiological Assessment Manager (RAM)	New Administrative Procedure Format
		4.2.1	Determines the need for and approves the administration of KI for off-site Duke Energy and contractor personnel and EOF personnel.	New Administrative Procedure Format
		4.3	[BNP, HNP, RNP] Radiation Control Director (RCD)	New Administrative Procedure Format
		4.3.1	Determines the need for and approves the administration of KI for the following: a. Site Duke Energy and contractor personnel. b. Off-site Duke Energy and contractor personnel until the EOF is operational.	New Administrative Procedure Format
		4.4	[BNP, HNP, RNP] Radiological Control Manager (RCM)	New Administrative Procedure Format
		4.4.1	Determines the need for and approves	New Administrative

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
			the administration of KI for off-site Duke Energy and contractor personnel and EOF personnel.	Procedure Format
		4.5	Radiation Protection (RP)	New Administrative Procedure Format
		4.5.1	Maintains KI inventory as part of the emergency kit inventory.	New Administrative Procedure Format
		4.5.2	Distribute KI as directed by the RPM, RAM, RCD, or RCM.	New Administrative Procedure Format
		4.6	Security	New Administrative Procedure Format
		4.6.1	Obtains and distributes KI to security personnel on post under RP direction.	New Administrative Procedure Format
2.	References	7.0	References	
2.1	Radiation Protection Standard Procedure SH/0/B/2001/001, Internal Dose Assessment	7.2.1	AD-RP-ALL-4010, Internal Dose Assessment	No change. AD-RP-ALL-4010 superseded SH/0/B/2001/001
2.2	PIP O-93-701, Distribution of Emergency Plan Procedures	N/A	Deleted	New procedure process does not annotate individual site PIPs/CRs unless they are CAPRs.
		7.3.1	10CFR20, Standards for Protection Against Radiation	New Reference
2.3	EPA 400-R-92-001, Manual of Protective Action Guides And Protective Actions For Nuclear Incidents	7.3.2	EPA 400-R-92-001, Manual of Protective Action Guides And Protective Actions For Nuclear Incidents	No Change
		7.3.3	Federal Register, Consideration of Potassium Iodide in Emergency Plans, January 19, 2001	New Reference
		7.3.4	National Council on Radiation Protection, Report 161, parts I and II, Management of Persons Contaminated with Radionuclides, Scientific and Technical Bases (2008)	New Reference
		7.3.5	OE 17970, KI Sensitivity Impacts ERO	New Reference

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
		5.0	Instructions	
3.	Limits and Precautions	5.1	General Instructions	
Warning	KI shall NOT be taken by persons allergic to iodine.	5.1.1	Warnings are discouraged by the new procedure writers guide. This information is covered in step 5.1.1	Difference
3.1	KI shall NOT be taken for more than 10 days.	5.1.3	Do not take KI for more than ten days without doctor approval.	Difference
3.2	KI shall be stored in sealed containers, protected from light, and temperature variances per manufacturer's limitations.	5.1.2	Store KI in sealed containers, protected from light and temperature variances in accordance with the manufacturer's instructions.	Difference
3.2	Personnel with pre-existing thyroid conditions shall NOT be issued KI.	5.1.1	Do not issue Active Potassium Iodide (KI) to personnel with the following conditions: <ul style="list-style-type: none"> • Pre-existing thyroid conditions 	Difference
4.	Procedure			
First Note before Step 4.1	The effectiveness of potassium iodide as a thyroid blocking agent decreases as a function of time. The effectiveness of potassium iodide is as follows: <ul style="list-style-type: none"> • 90% effective if taken immediately prior to or concurrent with exposure to radioactive iodine. • 50% effective if taken within 3 to 4 hours following exposure. • Less effective if taken more than 24 hours following exposure but still significant enough to warrant administration. 	Attachment 3	The effectiveness of Potassium Iodide is as follows: <ul style="list-style-type: none"> a. 90% effective if taken immediately prior to or concurrent with exposure to radioactive iodine. b. 50% effective if taken within 3 to 4 hours following exposure. c. Less effective if taken more than 24 hours following exposure but still significant enough to warrant administration. 	No change
Second Note before Step 4.1	The RPM or RAM can designate other Radiation Protection personnel to perform this procedure.	4.5.2	Distribute KI as directed by the RPM, RAM, RCD, or RCM.	No change
4.1	Evaluate conditions for issue of KI in consultation with the Radiation Protection Manager (RPM) OR Radiological Assessment Manager (RAM).	5.2.1	Evaluate conditions for issue of KI in consultation with the following: <ul style="list-style-type: none"> • [CNS, MNS, ONS] Radiation Protection Manager (RPM) or 	No Change

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
			Radiological Assessment Manager (RAM) <ul style="list-style-type: none"> • [BNP, HNP, RNP] Radiological Control Director (RCD) or Radiological Control Manager (RCM) 	
4.1.1	<p><u>IF</u> any of the following conditions exist, establish KI distribution for designated emergency workers:</p> <ul style="list-style-type: none"> • Actual <u>OR</u> expected uptake of radioiodine is equal to or greater than 5 rem CDE-thyroid (200 DAC-hrs I-131 equivalent). • Actual <u>OR</u> potential loss of three fission product barriers • Actual <u>OR</u> potential fuel damage resulting from spent fuel movement in containment <u>OR</u> spent fuel pool. 	5.2.2	If actual or expected uptake of radioiodine is equal to or greater than 5 rem CDE thyroid (200 DAC-hrs I-131 equivalent), then establish KI distribution for designated Duke Energy and contractor personnel.	Bullet one - difference Justification for deletion of bullets two and three - Even though the side-effects of KI are generally minimal, it is still a drug and should only be taken if there is credible information that the EPA-400 PAGs will be exceeded.
4.1.2	<p><u>IF</u> determination is made to distribute KI tablets, notify the Emergency Coordinator <u>AND</u> EOF Director of decision.</p>	5.2.3	If determination is made to distribute KI tablets, then notify the following: <ul style="list-style-type: none"> • [CNS, MNS, ONS] Emergency Coordinator (EC) and Emergency Operating Facility (EOF) Director • [BNP, HNP, RNP] Site Emergency Coordinator (SEC) and Emergency Response Manager (ERM) 	Difference
4.1.3	Notify Count Room personnel to include I-131 equivalent <u>AND</u> DAC-hrs for subsequent air samples related to the radioiodine release.	5.2.4	The RPM or RCD ensures air samples related to the radioiodine release are analyzed to include I-131 equivalent and DAC-hrs..	Difference
Note before Step 4.1.4	Where applicable, Technical Specification testing for unfiltered in-leakage into the Control Room has the potential to result in a declared "degraded" condition. In this case, ingestion of KI by Control Room Operators is required should the need for distribution be determined.	See 5.2.5	Notes are discouraged by the new procedure writers guide. Action is in Step 5.2.5 below.	None. Not an action step

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
4.1.4	IF Control Room in-leakage is declared "degraded" include Control Room Operators in the distribution process.	5.2.5.a	If Control Room in-leakage is declared degraded, then include Control Room Operators in the distribution process.	No change
4.1.5	Distribute one (1) blister package containing fourteen (14) KI tablets to each designated emergency worker.	5.2.5.b	Distribute one package containing fourteen KI tablets to each designated Duke Energy and contractor personnel.	Difference; Expanded to include additional personnel on site
Note	Designated emergency workers shall be identified by site management.	5.2.5	Distribute KI to Duke Energy and contractor personnel, including workers returning from the field, as designated by site management	Difference
4.1.6	Instruct designated emergency worker to read and follow package instructions.	5.2.5.c	Instruct designated Duke Energy and contractor personnel to read and follow package instructions	Difference; Expanded to include additional personnel on site
4.1.7	Request designated emergency workers read AND sign Enclosure 5.1.	5.2.5.d	Request designated Duke Energy and contractor personnel read and sign Attachment 1, Potassium Iodide (KI) Distribution and Ingestion Information.	Difference; Expanded to include additional personnel on site
4.2	IF required evaluate designated emergency worker internal dose following a significant uptake to radioiodine based on the following methods: <ul style="list-style-type: none"> • Portal or contamination monitor alarm • Actual DAC-hr exposure equal to or greater than 4 DAC-hrs (10 mRem CDE-thyroid) • Passive monitoring indication • Body Burden Analysis (BBA) 	5.3.1	Perform whole body counts on personnel who are suspected of, or who have been exposed to radioiodine	Bullet three - difference. Justification for deleting other bullets: The first two bullets drive you into BBA, which is internal dose assessment. Passive monitoring is the portal or contamination monitor. So essentially the last two are duplicates of the first bullet.
4.3	IF required evaluate any potential uptakes per Reference 2.1.	5.3.2	Evaluate any potential uptakes per AD-RP-ALL-4010, Internal Dose Assessment	No change - AD-RP-ALL-4010 superseded Reference 2.1
Enclosures		Attachments		
5.1	Potassium Iodide Distribution Record	1	Potassium Iodide (KI) Distribution and Ingestion Information This attachment has had the following	Enhancement

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
			<p>added as enhancements:</p> <ul style="list-style-type: none"> • RP Badge # • KI Lot # • KI Expiration Date • Note 1: Enter Declined if KI is refused. • Additional bullets: <ul style="list-style-type: none"> ○ I understand the use of KI is voluntary ○ I have no known pre-existing thyroid conditions such as Grave's disease, thyroid nodules or Hashimoto's thyroiditis, Dermatitis herpetiformis, Hypocomplementemic vasculitis, Nodular thyroid disease with heart disease 	
		2	Security Potassium Iodide (KI) Distribution and Ingestion Information	This is a new attachment that establishes a process for Security officers in the field to receive KI in the event of a radioiodine release. it contains the same information as attachment 1
		3	<p>Potassium Iodide (KI) Effectiveness</p> <p>This enclosure contains the same information as the Note in SH/0/B/2005/003 at the beginning of step 4</p>	Difference
			NEW STEPS NOT YET ADDRESSED	
		5.1	Do not issue Active Potassium Iodide (KI) to personnel with the following conditions:	Enhancement. Addresses additional medical conditions that need to avoid KI.

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
			<ul style="list-style-type: none"> • Pre-existing thyroid conditions • Grave's disease • Thyroid nodules • Hashimoto's thyroiditis • Dermatitis herpetiformis • Hypocomplementemic vasculitis • Nodular thyroid disease with heart disease • Who have known allergies to iodide substances such as shellfish 	
		5.1.3	Store KI, this procedure, Attachment 1, Potassium Iodide (KI) Distribution and Ingestion Information, and Attachment 2, Security Potassium Iodide (KI) Distribution and Ingestion Information, per site emergency kit inventory procedures.	Enhancement
		5.1.4	Do not take KI for more than ten days without doctor approval.	Enhancement
		5.1.5	Recommend nursing mothers who receive KI tablets use nutrient substitutes (e.g., milk or a formula) for children for the duration of the ten-day tablet use period.	Enhancement
		5.1.6	Use Attachment 3, Potassium Iodide (KI) Effectiveness, to review the value of KI ingestion over time.	Enhancement
		5.2.6	<p>Distribute KI to Security personnel as follows:</p> <ul style="list-style-type: none"> a. Issue the following to the Security officer assigned to obtain KI for specified number of Security personnel on post <ul style="list-style-type: none"> (1) One pack containing fourteen KI tablets. (2) Attachment 2, Security Potassium Iodide (KI) Distribution 	<p>Enhancement.</p> <p>New section that establishes a process for Security officers in the field to receive KI in the event of a radioiodine. Resolves a weakness identified during an ERO HAB drill</p>

SH/0/B/2005/003 Step	Old Step Wording	AD-EP-ALL-0204 Step	New Step Wording	PS/Function Impact?
			<p>and Ingestion Information.</p> <p>b. Instruct Security officer assigned distribution of KI to:</p> <p>(1) Ensure Security personnel on post to read and follow package instructions.</p> <p>(2) Ensure Security personnel on post read and sign Attachment 2, Security Potassium Iodide (KI) Distribution and Ingestion Information.</p>	
		Records		
		6.0		New Administrative Procedure format
		6.1	Attachment 1, Potassium Iodide (KI) Distribution and Ingestion Information	New Administrative Procedure format
		6.2	2. Attachment 2, Security Potassium Iodide (KI) Distribution and Ingestion Information	New Administrative Procedure format

Duke Energy
PROCEDURE CHANGE PROCESS RECORD

(1) ID No. ONS E-Plan

Revision No. 2015-004 Change
No.
Permanent/Restricted to

(2) Station: OCONEE NUCLEAR STATION

(3) Procedure Title: Oconee Nuclear Station Emergency Plan

(4) Section(s) of Procedure Affected: Record of Changes, E-Plan Sections: App 3, D, F, H, K, & P, and
the E-Plan Table of Contents

(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.)*
See attached change matrix for a list of specific changes to each section.

(7) Reason for Change:

Changes as a result of a change from selective signaling to DEMNET, OSM to SM and procedure reference updates; SH/0/B/2005/002 to AD-EP-ALL-0203 & SH/0/B/2005/003 to AD-EP-ALL-0204.

Selective Signaling System has been replaced with DEMNET in support of a Duke Energy fleetwide initiative and is an overall enhancement for offsite notifications during an emergency. This change continues to comply with 10 CFR 50.47(b) planning standards and NRC requirements, as described in 10 CFR 50, Appendix E.

(8) Prepared By* Natalie Harness (Signature) Natalie Harness Date 04/28/2015

(9) Reviewed By* Don Crowl (QR)(KI) Date 5-27-15

Cross-Disciplinary Review By* _____ (QR)(KI) NA me Date 5-27-15

Reactivity Mgmt. Review By* _____ (QR) NA me Date 5-27-15

Mgmt. Involvement Review By* _____ (Ops. Supt.) NA me Date 5-27-15

(10) Additional Reviews

Reviewed By* _____ Date _____

Reviewed By* _____ Date _____

(11) Approved By* Parvinder M. Singh Date 5/29/15

* Printed Name and Signature

Rev. 2015-004 E-Plan Changes to Sections Appendix 3, D, F, H, K, P & Table of Contents (Record of Changes) Change Matrix

#	Section	Current wording	Proposed wording	Reason for change
1.	Section D Page D-16 Enclosure 4.2	In the opinion of the Operations Shift Manager, the loss of the annunciators or indicators requires additional personnel (beyond normal shift compliment) to safely operate the unit.	In the opinion of the Shift Manager, the loss of the annunciators or indicators requires additional personnel (beyond normal shift compliment) to safely operate the unit.	removed Operations (Shift Manager is termed SM not OSM)
2.	Section D Page D-18 4.B Enclosure 4.2	Loss of all offsite communications capability (Selective Signaling, ETS lines, offsite radio system, commercial phone system) affecting the ability to communicate with offsite authorities.	Loss of all offsite communications capability (DEMNET, ETS lines, offsite radio system, commercial phone system) affecting the ability to communicate with offsite authorities.	Removed "Selective signaling" and added DEMNET
3.	Section D Page D-20 Enclosure 4.2	In the opinion of the Operations Shift Manager, the loss of the annunciators or indicators requires additional personnel (beyond normal shift compliment) to safely operate the unit.	In the opinion of the Shift Manager, the loss of the annunciators or indicators requires additional personnel (beyond normal shift compliment) to safely operate the unit.	removed Operations (Shift Manager is termed SM not OSM)
4.	Section F F.1.a	Calls to activate State/County agency's emergency function are the responsibility of the Operations Shift Manager/Emergency Coordinator. These calls are made:	Calls to activate State/County agency's emergency function are the responsibility of the Shift Manager/Emergency Coordinator. These calls are made by:	Added "by" at the end of the sentence and removed Operations (Shift Manager is termed SM not OSM)
5.	Section F F.1.a.1	1. By selective signaling phone system (where applicable).	1. Duke Emergency Management Network (DEMNET).	Removed "By selective signaling phone system (where applicable)" and added DEMNET under bullet 1

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#	Section	Current wording	Proposed wording	Reason for change
6.	Section F F.1.b	On a monthly basis, a communication check is made to state and local government warning points within the Emergency Planning Zone. Communications during an emergency situation would be by selective signaling phone system, site telephone system/commercial phone service, or by radio (where appropriate).	On a monthly basis, a communication check is made to state and local government warning points within the Emergency Planning Zone. Communications during an emergency situation would be by DEMNET, site telephone system/commercial phone service, or by radio (where appropriate).	Removed selective signaling phone system and changed to DEMNET
7.	Section F F.1.c	The EOF organization has the responsibility to ask for federal response. However, communication with the Nuclear Regulatory Commission from the emergency response facilities, would be by use of the Emergency Telecommunication System (ETS) located in the Control Room areas, Technical Support Center, or the Emergency Operations Facility.	The EOF organization has the responsibility to ask for federal response. However, communication with the Nuclear Regulatory Commission from the emergency response facilities, would be by use of the Emergency Telecommunication System (ETS) located in the Control Room areas, Technical Support Center, or the Emergency Operations Facility.	corrected spelling of telecommunication

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#	Section	Current wording	Proposed wording	Reason for change
8.	Section F F.1.d.3	<p><u>Selective Signaling</u> (Generator backed at the microwave tower)</p> <p>The Selective Signaling System is the primary means of communication with the offsite agencies. The Selective Signaling is on the Duke fiber optic system tied to short leased lines from the local telephone company. This circuit allows intercommunication among the EOF, TSC, control room, counties, and states.</p>	<p>Duke Emergency Management Network (DEMNET)</p> <p>DEMNET is the primary means of communication with the offsite agencies. DEMNET uses digital voice manager technology and IP connectivity through either the internet or a dedicated satellite connection, resulting in redundant paths to ensure operability. DEMNET allows intercommunication among the EOF, TSC, control room, counties, and states.</p>	<p>Replaced "Selective Signaling (Generator backed at the microwave tower)" with Duke Emergency Management Network (DEMNET). Also replaced " The Selective Signaling is on the Duke fiber optic system tied to short leased lines from the local telephone company. This circuit" with "DEMNET uses digital voice manager technology and IP connectivity through either the internet or a dedicated satellite connection, resulting in redundant paths to ensure operability. "</p>

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#	Section	Current wording	Proposed wording	Reason for change
9.	Section F F.9	The emergency communications systems at the Charlotte EOF are designed to ensure the reliable, timely flow of information between all parties having an emergency response role. The Selective Signaling System is the primary means of communicating changes in event classification and protective action recommendations to the state and counties. The Decision Line provides the state and counties with a dedicated line to discuss and coordinate protective action recommendations. Existing commercial telephone service will serve as the designated backup means for communications in the event of a Selective Signaling System or Decision Line failure.	The emergency communications systems at the Charlotte EOF are designed to ensure the reliable, timely flow of information between all parties having an emergency response role. DEMNET is the primary means of communicating changes in event classification and protective action recommendations to the state and counties. The Decision Line provides the state and counties with a dedicated line to discuss and coordinate protective action recommendations. Existing commercial telephone service will serve as the designated backup means for communications in the event of a DEMNET/ Decision Line failure.	Replaced "Selective Signaling" with DEMNET.
10.	Section F F.9 listing	Selective Signaling System (for state/county notifications)	DEMNET (for state/county notifications)	Replaced "Selective Signaling" with DEMNET.
11.	Section F F.1.e	Should an emergency occur that will require activation of the Emergency Response Organization, the Shift Manger will require the following actions to occur:	Should an emergency occur that will require activation of the Emergency Response Organization, the Operations Shift Manger will require the following actions to occur:	Removed Operations (Shift Manager is termed SM not OSM)

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#	Section	Current wording	Proposed wording	Reason for change
12.	Section F F.2 bullet 3	3. Selective Signaling phone to Oconee County who then would contact the Oconee Medical Center. (Operations only)	3. DEMNET to Oconee County who then would contact the Oconee Medical Center. (Operations only)	Replaced "Selective Signaling" with DEMNET.
13.	Section F Figure F-1	Selective Signaling System	DEMNET	Replaced "Selective Signaling" with DEMNET in table heading.
14.	Section F Figure F-2 A. 48.5 MHZ	Operating instructions are shown in the Emergency Telephone Directory and SH/0/B/2005/002 (Protocol for the Field Monitoring Coordinator During Emergency Conditions)	Operating instructions are shown in the Emergency Telephone Directory and AD-EP-ALL-0203 (Protocol for the Field Monitoring Coordinator During Emergency Conditions)	changed SH/0/B/2005/002 to AD-EP-ALL-0203
15.	Section F Figure F-2 B. 800 MHZ	Operating instructions are shown in the Emergency Telephone Directory and SH/0/B/2005/002 (Protocol for the Field Monitoring Coordinator During Emergency Conditions)	Operating instructions are shown in the Emergency Telephone Directory and AD-EP-ALL-0203 (Protocol for the Field Monitoring Coordinator During Emergency Conditions)	changed SH/0/B/2005/002 to AD-EP-ALL-0203
16.	Section H Figure H-4	IP/0/B/1601/003 gives range, accuracy and location.	IP/0/B/1601/003 (Meteorological Equipment Checks) gives range, accuracy and location.	added the procedure title

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#	Section	Current wording	Proposed wording	Reason for change
17.	Section H Figure H-11	<p>Canberra 9900 Gamma Spectroscopy System</p> <p>Canberra 9900/ WBC6000 Body Burden Analyzer and Nuclear Data people mover</p> <p>Tennelec APC Automatic Smear Counter</p> <p>Packard Liquid Scintillator</p> <p>Tennelee Alpha Scintillator</p>	<p>Gamma Spectroscopy System</p> <p>Body Burden Analyzer and Nuclear Data people mover Stand-up Total Body Analyzer</p> <p>APC Automatic Smear Counter</p> <p>Liquid Scintillator</p> <p>Alpha Scintillator</p>	<p>removed specific instrument vendor names</p>
18.	Section H Figure H-11	<p>Tennelee Series V XLB Proportional Smear Counter</p> <p>An automatic smear counter using a gas flow proportional detector.</p> <p><u>This instrument performs alpha and beta analyses.</u></p>	delete	<p>due to upgrades to count room equipment</p> <p><i>Capab. l. f. function has not been changed or demonstrated</i></p>

See attached e-mail from RP

ble
5-27-13

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#	Section	Current wording	Proposed wording	Reason for change
19.	Section K **Note Page K-1	Administration of stable iodine will be recommended for emergency workers if a dose of 5 rem CDE is projected to the thyroid from radioiodine. This action will require approval of the Radiation Protection Manager in the OSC or the Emergency Coordinator.	Administration of stable iodine will be recommended for emergency workers if a dose of 5 rem CDE is projected to the thyroid from radioiodine. This action will require approval of the Radiation Protection Manager in the OSC for site Duke Energy and contractor personnel and offsite Duke Energy and contractor personnel until the EOF is operational. Once the EOF is operational, the Radiological Assessment Manager in the EOF approves the administration of stable iodine for offsite Duke Energy and contract personnel.	Added additional statement regarding the change per AD-EP-ALL-0204, "for site Duke Energy and contractor personnel and offsite Duke Energy and contractor personnel until the EOF is operational. Once the EOF is operational, the Radiological Assessment Manager in the EOF approves the administration of stable iodine for offsite Duke Energy and contract personnel."
20.	Section K Page K-2 K.2	The Operations Shift Manager in the Control Room, the Emergency Coordinator in the TSC, or the Radiation Protection Manager in the OSC is responsible for authorizing emergency workers to receive doses in excess of 10 CFR 20 limits....	The Shift Manager in the Control Room, the Emergency Coordinator in the TSC, or the Radiation Protection Manager in the OSC is responsible for authorizing emergency workers to receive doses in excess of 10 CFR 20 limits....	Removed Operations (Shift Manager is termed SM not OSM)
21.	Section P Figure P1 J5/J6	SH/0/B/2005/003 Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	AD-EP-ALL-0204 Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	changed procedure reference from SH/0/B/2005/003 to AD-EP-ALL-0204
22.	Section P Figure P1 K1a-g	SH/0/B/2005/003 Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	AD-EP-ALL-0204 Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release	changed procedure reference from SH/0/B/2005/003 to AD-EP-ALL-0204

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#	Section	Current wording	Proposed wording	Reason for change
23.	App 3 C.1	The activation of this alert and notification system requires procedures and relationships between both Duke Energy Company and the off-site agencies that support Duke and Oconee Nuclear Site. When an incident is determined to have reached the level requiring public protective actions, Duke contacts the cognizant off-site agency via the "Selective Signaling" or other phone system and provides its recommendations. This system is available for use 24 hours per day and links the control room, TSC, EOF, SC (EOC), the county warning points, and the county EOC's.	The activation of this alert and notification system requires procedures and relationships between both Duke Energy Company and the off-site agencies that support Duke and Oconee Nuclear Site. When an incident is determined to have reached the level requiring public protective actions, Duke contacts the cognizant off-site agency via the "DEMNET" or other phone system and provides its recommendations. This system is available for use 24 hours per day and links the control room, TSC, EOF, SC (EOC), the county warning points, and the county EOC's.	Replaced "Selective Signaling" with DEMNET in table heading.
24.	TOC Procedure ID	SH/0/B/2005/002	AD-EP-ALL-0203	changed procedure reference from SH/0/B/2005/002 to AD-EP-ALL-0203