DUKE POWER COMPANY

CRISIS MANAGEMENT

IMPLEMENTING PROCEDURES

March 6, 1990

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Volume 2

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CRISIS MANAGEMENT IMPLEMENTING PROCEDURE

CMIP-10

Classification of Emergency for Catawba Nuclear Station

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R C Harris — Approved By

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CMIP-10
CLASSIFICATION OF EMERGENCY FOR
CATAWBA NUCLEAR STATION

1.0 SYMPTOMS

1.1 Notification of Unusual Event

1.1.1 Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant.

1.1.2 No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety occurs.

1.2 Alert

1.2.1 Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant.

1.2.2 Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.

1.3 Site Area Emergency

1.3.1 Events are in process or have occurred which involve actual or likely major failures of plant functions needed for protection of the public.

1.3.2 Any releases are not expected to exceed EPA Protective Action Guideline exposure levels except near the site boundary.

1.4 General Emergency

1.4.1 Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

1.4.2 Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

2.0 IMMEDIATE ACTIONS

2.1 Compare actual plant conditions to the Emergency Action Level(s) listed in Enclosure 4.1 then declare the appropriate Emergency Class as indicated.

If a change in the emergency class is made, perform steps 2.2, 2.3, and 2.4 below.

2.2 Instruct the State/County Communicator to notify the state(s) and counties per CMIP-13 of any change in the emergency class. If the emergency class is SITE AREA EMERGENCY or GENERAL EMERGENCY, determine protective action recommendations per CMIP-1 and transmit these recommendations.

NOTE: Notifications to the state(s) and counties must be made within 15 minutes whenever there is a change in the emergency classification.

2.3 Announce the change in the emergency class to all CMC personnel and to the Emergency Coordinator at the TSC.

3.0 SUBSEQUENT ACTIONS

3.1 To escalate, de-escalate or close out the Emergency, compare plant conditions to the Emergency Action Levels of Enclosure 4.1. Any decision to de-escalate from a General Emergency condition must be discussed with the senior NRC and State representatives.

Notify state(s), counties, and NRC by verbal summary of any reduction or termination in the emergency class followed by a written summary within eight (8) hours.

4.0 ENCLOSURES

4.1 Emergency Event List for Emergency Classes

EVENT # 4.1.1 PRIMARY COOLANT LEAK

NOTIFICATION OF UNUSUAL EVENT

1. **NC System leakage greater than Tech Spec limits in Modes 1-4.**

   o Greater than 1 gpm unidentified NC System leakage in Modes 1-4

   AND

   Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2.

   o Greater than 10 gpm identified NC System leakage in Modes 1-4

   AND

   Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2.

   o Greater than 500 gpd primary to secondary leakage in any S/G in Modes 1-4

   AND

   Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2.

(Continued)

ALERT

1. **NC System leakage greater than 50 gpm in Modes 1-4.**

   o NC System leakage greater than 50 gpm in Modes 1-4

   AND

   NC System subcooling greater than 0°F

   AND

   Leak cannot be isolated within 15 minutes.

2. **S/G tube leak with loss of offsite power.**

   o S/G tube leak greater than 10 gpm

   AND

   NC System subcooling greater than 0°F

   AND

   Both A and B main bus lines de-energized.

(Continued)

SITE AREA EMERGENCY

1. **NC System leakage greater than available ECCS capacity.**

   o S/I actuated or required

   AND

   Existing NV, NI and ND flow cannot maintain NC System subcooling greater than 0°F.

(Continued)

GENERAL EMERGENCY

1. **Any LOCA with failure of ECCS.**

   o LOCA with failure of both trains of ECCS injection

   AND

   NC System subcooling cannot be maintained greater than 0°F.

   o LOCA with failure of both trains of ECCS recirculation capability

   AND

   NC System subcooling cannot be maintained greater than 0°F.

   o LOCA

   AND

   Plant conditions require entry into EP/1(2)/A/5000/2B1, Inadequate Core Cooling.

(Continued)

EVENT # 4.1.1 PRIMARY COOLANT LEAK (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
o Greater than 1 gpm total primary to secondary leakage in all S/Gs in Modes 1-4 AND Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2. o Any NC System pressure boundary leakage in Modes 1-4 AND Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2. o Greater than 40 gpm controlled NC system leakage at 2235 psig in Modes 1-4 AND Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2.	3. S/G tube leak with an unisolable steam line break outside Containment. o Known S/G tube leak greater than 10 gpm AND Unisolable steam line break outside Containment AND NC System subcooling greater than 0°F. o Unisolable steam line break outside Containment AND Field monitoring teams detect activity at the Protected Area fense at greater than or equal to 2 mr/hr whole body. END	2. S/G tube leak greater than 50 gpm with a steam line break. o S/G tube leak greater than 50 gpm AND Steam line break inside Containment on the ruptured S/G AND Valid indication on EMF-53A or 53B reading greater than or equal to 290 R/hr. o S/G tube leak greater than 50 gpm AND Unisolable steam line break outside Containment on the ruptured S/G. END	2. LOCA with initially successful ECCS followed by failure of ECCS heat sink and failure of Containment heat removal. o LOCA AND Loss of recirculation heat sink AND Loss of Containment spray heat sink. END

(Continued)

EVENT # 4.1.1 PRIMARY COOLANT LEAK (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
o Greater than 1 gpm leakage from any NC pressure isolation valve at 2235 psig in Modes 1-4 AND Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.6.2.			
2. Unisolable NC System leakage greater than 50 gpm in Modes 5 and 6.			
3. Failure of an unisolable PZR PORV or a PZR safety valve to close following a reduction of NC System pressure.			
END			

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVELS

EVENT # 4.1.2 FUEL DAMAGE

NOTIFICATION OF UNUSUAL EVENT

1. NC System activity greater than Tech Spec limits in Modes 1-5.

   o Greater than 1.0 microCurie per gram dose equivalent I-131 for more than 48 continuous hours per Chemistry analysis in Modes 1-5

   AND

   Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.8.

   o Dose equivalent I-131 in excess of Tech Spec Figure 3.4-1 per Chemistry analysis in Modes 1-5

   AND

   Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.8.

(Continued)

ALERT

1. Severe loss of fuel cladding.

   o Valid indication on any Reactor Building EMF reading greater than or equal to 1000 times background value.

   o Valid indication on EMF-48 reading greater than or equal to 1000 times background value.

   o Chemistry analysis indicates that primary coolant dose equivalent I-131 concentration is greater than or equal to 300 microCuries per ml.

   o Chemistry analysis indicates greater than or equal to 5% total fuel clad failures.

   o Chemistry analysis indicates an increase of greater than 1% fuel failures within 30 minutes.

END

SITE AREA EMERGENCY

1. Degraded core with possible loss of coolable geometry.

   o Plant conditions require entry into EP/1(2)/A/5000/2B2, Degraded Core Cooling.

   o Containment hydrogen concentration greater than or equal to 1.0%

   AND

   Hydrogen concentration increasing at a rate of greater than or equal to 0.1% per hour.

   o Valid indication on EMF-53A or 53B reading greater than or equal to 290 R/hr.

END

GENERAL EMERGENCY

1. Loss of 2 of 3 fission product barriers with potential for loss of the 3rd barrier. The 3 barriers are the fuel cladding, NC System and Containment.

   NOTE: To classify at this level, you must satisfy at least one condition from 2 of the 3 categories listed (A, B, C) and have the potential for satisfying at least one condition from the remaining category.

   A. Loss of fuel cladding barrier.

      o Chemistry analysis indicates greater than or equal to 20% total fuel clad failure.

      o Valid indication on EMF-53A or 53B reading greater than or equal to 1100 R/hr.

(Continued)

EVENT # 4.1.2 FUEL DAMAGE (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
o Specific activity greater than 100/E microCuries per gram per Chemistry analysis in Modes 1-5 AND Load reduction or plant cooldown initiated in accordance with Tech Spec 3.4.8. END			o Plant conditions require entry into EP/1(2)/A/5000/2B1, Inadequate Core Cooling. B. Loss of NC System barrier. o NC System leakage greater than 50 gpm. C. Loss of Containment barrier. o Incomplete Containment integrity. o Known Containment leakage in excess of Tech Specs. o Containment pressure greater than or equal to 60 psig. o Containment hydrogen concentration greater than or equal to 9%. END

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVELS

EVENT # 4.1.3 STEAM SYSTEM FAILURE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. Steam line break which results in rapid depressurization of the secondary side. o Steam line depressurization resulting in Safety Injection or Main Steam Isolation. END	1. Unisolable steam line break outside Containment with a S/G tube leak. o Unisolable steam line break outside Containment AND Known S/G tube leak greater than 10 gpm AND NC System subcooling greater than 0°F. o Unisolable steam line break outside Containment AND Field monitoring teams detect activity at the Protected Area fence at greater than or equal to 2 mr/hr whole body. (Continued)	1. Steam line break with a S/G tube leak greater than 50 gpm. o Steam line break inside Containment on the ruptured S/G AND S/G tube leak greater than 50 gpm AND Valid indication on EMF-53A or 53B reading greater than or equal to 290 R/hr. o Unisolable steam line break outside Containment on the ruptured S/G AND S/G tube leak greater than 50 gpm. END	N/A

EVENT # 4.1.3 STEAM SYSTEM FAILURE (Continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	2. Steam line break with failure of ECCS or Main Steam Isolation. o Steam line depressurization resulting in Safety Injection signal **AND** Failure of both trains of ECCS injection. o Steam line depressurization resulting in Main Steam Isolation signal **AND** The failure of two or more MSIVs to close results in the depressurization of two or more S/Gs. **END**		

CATAWBA NUCLEAR STATION
EMERGENCY ACT LEVELS

EVENT # 4.1.4 HIGH RADIATION/RADIOLOGICAL EFFLUENTS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. Gaseous or liquid radiological effluents exceed Tech Spec limits. o Gaseous radiological effluents exceed Tech Spec limits as determined by Radiation Protection calculations. o Valid indication on EMF-58 reading greater than or equal to 50 times the TRIP 2 setpoint. o Valid TRIP 2 alarm on EMF-49L or EMF-57 AND Failure of the release path to automatically isolate. o Liquid radiological effluents exceed Tech Spec limits as determined by Radiation Protection calculations. END	1. High radiation levels or high airborne contamination. o Valid indication on any area EMF reading greater than or equal to 1000 times background value. o Valid indication on EMF-41 reading greater than or equal to 1000 times background value. 2. Gaseous or liquid radiological effluents exceed 10 times Tech Spec limits. o Valid indication on any of the following effluent monitors reading greater than or equal to 10 times the TRIP 2 setpoint: o EMF-35L o EMF-36L o EMF-37. (Continued)	1. Accidental releases of gases. o Valid indication on EMF-36L reading greater than or equal 3.8 E4 cpm. (See NOTE) o Valid indication on EMF-37 has increased by greater than or equal to 2.4 E3 cpm over any 1 minute period. Refer to computer points P0129, P0130, P0131, P1822. (See NOTE) o Dose assessment team calculations project a dose rate at the Site Boundary of greater than or equal to 50 mr/hr whole body or 250 mr/hr thyroid. o Field monitoring team measurements determine the dose rate at the Site Boundary is greater than or equal to 50 mr/hr whole body or 250 mr/hr thyroid. END	1. Accidental releases of gases. o Valid indication on EMF-36L reading greater than or equal to 7.6 E5 cpm. o Valid indication on EMF-36H reading greater than or equal to 3.5 E2 cpm. o Valid indication on EMF-37 has increased by greater than or equal to 4.8 E4 cpm over any 1 minute period. Refer to computer points P0129, P0130, P0131, P1822. o Dose assessment team calculations or field monitoring team measurements result in a 2 hour integrated dose projection at the Site Boundary of greater than or equal to 1 rem whole body or 5 rem thyroid. END

NOTE: This EMF setpoint is calculated based on Stability Class "G" meteorology, and a Unit Vent flowrate of 1.9 E5 cfm. Calculations by the dose assessment team use actual meteorology and Unit Vent flowrate. Therefore, this EMF setpoint should not be used if dose assessment team calculations are available.

EVENT § 4.1.4 HIGH RADIATION/RADIOLOGICAL EFFLUENTS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	o Valid indication on EMF-58 reading greater than or equal to 500 times the TRIP 2 setpoint. o Valid indication on EMF-49L or EMF-57 reading greater than or equal to 10 times the TRIP 2 setpoint **AND** Failure of the release path to automatically isolate. o Radiological effluents exceed 10 times Tech Spec limits as determined by Radiation Protection calculations. **END**		

EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
N/A	1. Complete loss of any function needed to maintain core cooling in Modes 5 and 6. o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** NC System subcooling cannot be maintained greater than 0°F. **(Continued)**	1. Complete loss of any function needed for Hot Shutdown conditions in Modes 1-4. o Failure of heat sink results in the inability to maintain Hot Shutdown (Mode 4) **AND** NC System subcooling cannot be maintained greater than 0°F. o Inability to feed S/Gs from any source in Modes 1-3 **AND** NC System subcooling cannot be maintained greater than 0°F. **(Continued)**	1. Transient initiated by loss of CF and CM Systems followed by failure of heat removal capability for an extended period in Modes 1-4. o Loss of CM/CF feedwater flow capability in Modes 1-4. **AND** CA flow cannot be established within 30 minutes **AND** NC System feed and bleed flow cannot be established or maintained. **(Continued)**

EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	2. Transient with failure of the Reactor Protection System to automatically initiate and complete a Rx trip which brings the Reactor subcritical (ATWS). END	2. Transient requiring operation of shutdown systems with failure to trip (power generation continues). o Transient with failure of the Reactor Protection System to automatically initiate and complete a Rx trip which brings the Reactor subcritical (ATWS) AND Control rods cannot be manually tripped or inserted from the Control Room. (Continued)	2. Transient requiring a Rx trip with failure to trip and failure of core cooling. o Transient with failure of the Reactor Protection System to automatically initiate and complete a Rx trip which brings the Reactor subcritical (ATWS) AND Actions taken per EP/1(2)/A/5000/2A1, Nuclear Power Generation/ATWS, fail to bring the Reactor subcritical AND Plant conditions require entry into EP/1(2)/A/5000/2B2, Degraded Core Cooling. (Continued)

EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
		3. **Inability to maintain Cold Shutdown with loss of Reactor Vessel Coolant Inventory in Modes 5 and 6.** o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** NC System level less than 11% and continues to decrease after initiation of NC System make-up. o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** Lower Range RVLIS level decreasing after initiation of NC System make-up. **(Continued)**	3. **Loss of heat sink with subsequent core uncovery in Modes 5 and 6.** o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** Lower Range RVLIS level indicates core is uncovered. o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** Core Exit T/Cs indicate superheat at the core exit. **(Continued)**

EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
		o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** Reliable NC System level indication unavailable **AND** Core exit T/Cs or AP/1(2)/A/5500/19, Loss of ND, Enclosure 3, indicate boiling in core **AND** Available NC System make-up flow is less than applicable value given in AP/1(2)/A/5500/19, Loss of ND, Enclosure 4. **END**	o Failure of heat sink causes loss of Cold Shutdown conditions in Modes 5 and 6 **AND** NC System level below bottom range of available level indicators **AND** Available NC System make-up flow is less than applicable value given in AP/1(2)/A/5500/19, Loss of ND, Enclosure 4 **AND** Emergency Coordinator judgement that core uncovery is imminent. **END**

CATAWBA NUCLEAR STATION
EMERGENCY AC & LEVELS

EVENT # 4.1.6 LOSS OF POWER

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. Loss of offsite power in Modes 1-6. o Both A and B main bus lines de-energized in Modes 1-6. 2. Loss of onsite AC power in Modes 1-4. o Both D/Gs are incapable (for greater than 2 hours) of powering the 4160V Essential Buses in Modes 1-4. 3. Loss of onsite AC power in Modes 5 and 6. o Both D/Gs are incapable (for greater than 8 hours) of powering the 4160V Essential Buses in Modes 5 and 6. END	1. Loss of offsite power and loss of all onsite AC power for greater than 1 minute but less than or equal to 15 minutes in Modes 1-4. o Both 4160V Essential Buses are de-energized for greater than 1 minute but less than or equal to 15 minutes in Modes 1-4. 2. Loss of offsite power and loss of all onsite AC power for greater than 15 minutes in Modes 5 and 6. o Both 4160V Essential Buses are de-energized for greater than 15 minutes in Modes 5 and 6. (Continued)	1. Loss of offsite power and loss of all onsite AC power for greater than 15 minutes in Modes 1-4. o Both 4160V Essential Buses are de-energized for greater than 15 minutes in Modes 1-4. (Continued)	1. Loss of offsite power and loss of all onsite AC power with total loss of S/G feed capability in Modes 1-4. o Both 4160V Essential Buses are de-energized in Modes 1-4 AND Loss of CA/CF feedwater flow capacity AND CA Flow cannot be established within 30 minutes. END

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	3. Loss of all vital DC power for greater than 1 minute but less than or equal to 15 minutes in Modes 1-4. o Vital DC Buses EDA, EDD, EDE and EDF de-energized for greater than 1 minute but less than or equal to 15 minutes in Modes 1-4.	2. Loss of all vital DC power for greater than 15 minutes in Modes 1-4. o Vital DC Buses EDA, EDD, EDE and EDF de-energized for greater than 15 minutes in Modes 1-4. END	
	4. Loss of all vital DC power for greater than 15 minutes in Modes 5 and 6. o Vital DC Buses EDA, EDD, EDE and EDF de-energized for greater than 15 minutes in Modes 5 and 6. END		

EVENT # 4.1.7 FIRES AND SECURITY ACTIONS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. Fire within the Plant (see NOTE) that takes more than 10 minutes to extinguish. 2. Security threat. o Discovery of a bomb within the Site Boundary. o Civil disturbance (hostile). o Intrusion/attempted intrusion (Protected Area). o Hostage situation/ extortion. o Security threat as determined by Shift Supervisor/Emergency Coordinator and Security. **END**	1. Fires potentially affecting safety systems needed for current operating mode. o Observation of a fire that could adversely affect safety systems needed for current operating mode. o Fire requiring evacuation of the Control Room **AND** Control of shutdown systems has been established or is in the process of being established from the Auxiliary Shutdown Panels. (Continued)	1. Fire compromising the functions of shutdown systems. o Observation of a fire that defeats both trains (or the single operable train) of safety systems needed for current operating mode. o Fire requiring evacuation of the Control Room **AND** Control of shutdown systems cannot be established from the Auxiliary Shutdown Panels **AND** Control of shutdown systems has been established or in the the process of being established from the Standby Shutdown Facility. (Continued)	1. Any major fire which could cause massive damage to the Unit. o Fire requiring evacuation of the Control Room **AND** Control of shutdown systems cannot be established from any plant location. (Continued)

NOTE: Plant is defined as Auxiliary Building, Turbine Building, Service Building, Reactor Building, Diesel Generator Rooms, Doghouses, Spent Fuel Building, Standby Shutdown Facility, RN Pumphouse and Monitor Tank Building.

EVENT # 4.1.7 FIRES AND SECURITY ACTIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	2. Ongoing security compromise. o Adversaries commandeer an area of the Plant but do not control any vital areas. (See NOTES 1 and 2) o Discovery of a breached barrier caused by intrusion or sabotage in a vital area. (See NOTE 2) o Discovery of a bomb within the Protected Area. o Ongoing security compromise as determined by Emergency Coordinator and Security. END	2. Imminent loss of physical control of the Plant. (See NOTE 1) o Physical attack on the Plant (see NOTE 1) which leads to the imminent occupancy of the Control Room and Auxiliary Shutdown Panels. o Discovery of a bomb within a vital area. (See NOTE 2) END	2. Loss of physical control of the Plant. (See NOTE 1) o Physical attack on the Plant (see NOTE 1) has resulted in occupation of the Control Room and Auxiliary Shutdown Panels. END

NOTE: 1) Plant is defined as Auxiliary Building, Turbine Building, Service Building, Reactor Building, Diesel Generator Rooms, Doghouses, Spent Fuel Building, Standby Shutdown Facility, RN Pumphouse and Monitor Tank Building.

2) For classification purposes, consider the RN Pumphouse as a vital area.

EVENT § 4.1.8 SPENT FUEL DAMAGE

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
N/A	1. Damage to spent fuel with release of radioactivity. **CONTAINMENT** o Valid TRIP 2 alarm on 1EMF-17 (2EMF-2) (Reactor Bldg Refuel Bridge) **AND** Valid indication on any of the following effluent monitors reading greater than or equal to 10 times the TRIP 2 setpoint: o EMF-35L o EMF-36L o EMF-37. (Continued)	1. Major damage to spent fuel with release of radioactivity. **CONTAINMENT** o Valid TRIP 2 alarm on 1EMF-17 (2EMF-2) (Reactor Bldg Refuel Bridge) **AND** Valid indication on EMF-36L reading greater than or equal to 3.8 E4 cpm. (See NOTE) o Valid TRIP 2 alarm on 1EMF-17 (2EMF-2) (Reactor Bldg Refuel Bridge) **AND** Dose assessment team calculations project a dose rate at the Site Boundary of greater than or equal to 50 mr/hr whole body or 250 mr/hr thyroid. (Continued)	N/A

NOTE: This EMF setpoint is calculated based on Stability Class "G" meteorology and a Unit Vent flowrate of 1.9 E5 cfm. Calculations by the dose assessment team use actual meteorology and Unit Vent flowrate. Therefore, this EMF setpoint should not be used if dose assessment team calculations are available.

EVENT # 4.1.8 SPENT FUEL DAMAGE (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
	SPENT FUEL POOL	**SPENT FUEL POOL**	
	o Valid TRIP 2 alarm on 1EMF-15 (2EMF-4) (Spent Fuel Bldg Refuel Bridge) **AND** Valid indication on any of the following effluent monitors reading greater than or equal to 10 times the TRIP 2 setpoint: o EMF-35L o EMF-36L o EMF-37. **END**	o Valid TRIP 2 alarm on 1EMF-15 (2EMF-4) (Spent Fuel Bldg Refuel Bridge) **AND** Valid indication on EMF-36L reading greater than or equal to 3.8 E4 cpm. (See NOTE) o Valid TRIP 2 alarm on 1EMF-15 (2EMF-4) (Spent Fuel Bldg Refuel Bridge) **AND** Dose assessment team calculations project a dose rate at the Site Boundary of greater than or equal to 50 mr/hr whole body or 250 mr/hr thyroid. **END**	

NOTE: This EMF setpoint is calculated based on Stability Class "G" meteorology and a Unit Vent flowrate of 1.9 E5 cfm. Calculations by the dose assessment team use actual meteorology and Unit Vent flowrate. Therefore, this EMF setpoint should not be used if dose assessment team calculations are available.

CATAWBA NUCLEAR STATION
EMERGENCY ACTION LEVELS

EVENT # 4.1.9 NATURAL DISASTERS AND OTHER HAZARDS

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. Earthquake felt in plant and detected by seismic monitoring instruments. o Valid "Peak Shock Annunciator" alarm. o Valid alarm on "Strong Motion Accelerograph." 2. Low water level. o Lake level less than or equal to 557.5 ft AND SNSWP is available. (Continued)	1. Earthquake greater than OPE level. o Valid "OBE EXCEEDED" annunciator alarm (1AD-4, B-8). (Continued)	1. Earthquake greater than SSE level. o Earthquake intensity greater than 0.15g Horizontal or 0.10g Vertical (SSE level). 2. Low water level. o Lake level less than or equal to 557.5 ft AND SNSWP is not available. (Continued)	1. Any major internal or external event (e.g. aircraft impact, earthquakes substantially beyond design basis) which could cause massive damage to the Unit. END

EVENT # 4.1.9 NATURAL DISASTERS AND OTHER HAZARDS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
3. Any tornado/severe weather within the Site Boundary. o Tornado/severe weather onsite AND Physical damage observed to equipment/structures within the Site Boundary needed for plant operation.	2. Damage from tornado, severe weather, missile explosion, aircraft crash or train derailment causing a loss of any function needed for Cold Shutdown conditions in Modes 5 and 6. o Damage to plant equipment causing the inability to maintain Cold Shutdown conditions in Modes 5 and 6 AND NC System subcooling cannot be maintained greater than 0°F.	3. Damage from tornado, severe weather, missile, explosion, aircraft crash, or train derailment causing a loss of any function needed for Hot Shutdown conditions in Modes 1-4. o Damage to plant equipment results in the inability to establish or maintain Hot Shutdown conditions in Modes 1-4 AND NC System subcooling cannot be maintained greater than 0°F.	
4. Aircraft crash. o Aircraft crash within the Site Boundary.			

(Continued)

(Continued)

(Continued)

EVENT # 4.1.9 NATURAL DISASTERS AND OTHER HAZARDS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
5. **Train derailment onsite.** o Train derailment resulting in physical damage to equipment/ structures within the Site Boundary needed for plant operation. 6. **Explosion within the Site Boundary.** o Explosion within the Site Boundary resulting in physical damage to equipment/structures needed for plant operation or injuries to personnel. 7. **Release of toxic or flammable gases.** o Release of toxic or flammable gas resulting in personnel injury or evacuation within the Protected Area. **END**	3. **Release of toxic or flammable gas in Modes 5 and 6.** o Entry of an uncontrolled toxic or flammable gas into any plant area which prevents the operation of systems needed to maintain Cold Shutdown conditions in Modes 5 and 6 **AND** NC System subcooling cannot be maintained greater than 0°F. **END**	4. **Release of toxic or flammable gas in Modes 1-4.** o Entry of uncontrolled toxic or flammable gas into any plant area which prevents the operation of systems needed to establish or maintain Hot Shutdown conditions in Modes 1-4 **AND** NC system subcooling cannot be maintained greater than 0°F. **END**	

CATAWBA NUCLEAR STATION
EMERGENCY CLASSIFICATION LEVELS

EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS

NOTIFICATION OF UNUSUAL EVENT

1. ECCS initiated.

   o Valid S/I signal verified by redundant indications

   AND

   ECCS injection into the vessel has occurred.

2. Abnormal NC System parameters.

   o Tech Spec figure 2.1-1 limits exceeded in Modes 1 and 2.

   o NC System pressure has exceeded 2735 psig in Modes 1-5.

(Continued)

ALERT

1. Evacuation of Control Room.

   o Evacuation of the Control Room required

   AND

   Control of shutdown systems has been established or is in the process of being established from the Auxiliary Shutdown Panels.

2. Most or all annunciator capability lost in Modes 1-4.

   o Loss of 50% or more of the Control Room annunciators in Modes 1-4 for greater than 15 minutes.

3. Other Unit conditions exist that in the judgement of the Emergency Coordinator warrant entry into the Alert classification.

END

SITE AREA EMERGENCY

1. Evacuation of Control Room.

   o Evacuation of the Control Room required

   AND

   Control of shutdown systems cannot be established from the Auxiliary Shutdown Panels

   AND

   Control of shutdown systems has been established or is in the process of being established from the Standby Shutdown Facility.

2. Other Unit conditions exist that in the judgement of the Emergency Coordinator warrant declaration of Site Area Emergency.

END

GENERAL EMERGENCY

1. Evacuation of Control Room.

   o Evacuation of the Control Room required

   AND

   Control of shutdown systems cannot be established from any plant location.

2. Other Unit conditions exist that in the judgement of the Emergency Coordinator create the possibility of a release of large amounts of radioactivity in a short period of time.

END

EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
3. Loss of Containment integrity requiring shutdown by Tech Specs in Modes 1-4. o Any automatic Containment isolation valve which is open, inoperable and unisolable in Modes 1-4 **AND** Load reduction or plant cooldown initiated in accordance with Tech Specs 3.6.1.1 and 3.6.3. o Both airlock doors of a single airlock are inoperable in Modes 1-4 **AND** Load reduction or plant cooldown initiated in accordance with Tech Specs 3.6.1.1 and 3.6.1.3. o Any Containment penetration fails leak test per Tech Spec in Modes 1-4 **AND** Load reduction or plant cooldown initiated in accordance with Tech Specs 3.6.1.1 and 3.6.1.2. (Continued)			

EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
4. Loss of ESF or Fire Protection System function. o Both trains of an ESF function or ESF actuation system found inoperable (if caused by fire, see Event #4.1.7, under Alert classification) **AND** Load reduction or plant cooldown initiated in accordance with Tech Specs. o Loss of all main Fire Protection System pumps. (Continued)			

EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
5. Significant loss of assessment or communication capability. o Loss of all onsite meteorological instrumentation AND Inability to contact the National Weather Service for backup source of meteorological data. o Loss of all radio and telephone communication capability with all offsite agencies. o Loss of 50% or more of the Control Room annunciators in Modes 5 and 6 for greater than 15 minutes.			

(Continued)

EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS (continued)

NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
6. Transportation of a contaminated, injured individual from the site to an offsite medical facility. o Injured contaminated individual is transported offsite with a contamination level of greater than 5000 dpm/100 cm^2. (See NOTE) o Internal contamination requiring medical assessment/treatment. o External exposure requiring medical assessment/treatment.			
7. Other Unit conditions exist that in the judgement of the Shift Supervisor/Emergency Coordinator warrant increased awareness of local authorities.			

END

NOTE: 5000 dpm/100 cm^2 corresponds to 150 cpm (above background) beta-gamma as measured with a thin window pancake GM detector at one half inch from the body surface.