

DUKE POWER COMPANY
CRISIS MANAGEMENT
IMPLEMENTING PROCEDURES

December 11, 1991

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December 11, 1991

CRISIS MANAGEMENT IMPLEMENTING PROCEDURE

CMIP-11

Classification of Emergency for
McGuire Nuclear Station

Rev. 13

December 11, 1991

Approved By

Date _____

CMIP-11
CLASSIFICATION OF EMERGENCY FOR
McGUIRE 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 Protection 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 de-escalate the Emergency, compare plant conditions to the Initiating Conditions of Enclosure 4.1. To terminate the emergency, refer to the Termination Criteria in Enclosure 4.3.

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

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4.2 Engineered Safety Features

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McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.1 PRIMARY COOLANT LEAK

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

1. Any NC system leakage greater than Tech Spec limits in Modes 1-4.

* Greater than 1 gpm unidentified NC system leakage in modes 1-4.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.6.2.

* Greater than 10 gpm identified NC system leakage in modes 1-4.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.6.2.

* Greater than 500 gpd tube leakage in any S/G in modes 1-4.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.6.2.

1. Any NC system leakage greater than 50 gpm in Modes 1-4.

* NC system leakage greater than 50 gpm in modes 1-4.

AND

NC subcooling greater than 0 Deg. F.

AND

Leak cannot be isolated within 15 minutes.

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

* S/G tube leak greater than 10 gpm

AND

NC subcooling greater than 0 Deg. F.

AND

Both Unit related main bus lines de-energized.

1. Any NC system leakage resulting in loss of subcooling in Modes 1-4.

* SI actuated or required in Modes 1-4

AND

Existing NV, WI and MD flow cannot maintain NC subcooling greater than 0 Deg. F.

2. S/G tube leak with an unisolable secondary (main steam or feedwater) break outside containment.

* Primary to secondary leakage greater than 50 gpm

AND

Unisolable secondary (main steam or feedwater) line break on the ruptured S/G outside containment

1. Any LOCA with failure of ECCS

* LOCA with failure of both trains of ECCS injection

AND

NC subcooling cannot be maintained greater than 0 Deg. F.

* LOCA with failure of both trains of ECCS recirculation when recirculation required.

AND

NC subcooling cannot be maintained greater than 0 Deg. F.

* LOCA

AND

Plant conditions require entry into EP/1 or 2/A/5000/12.1 (Response to Inadequate Core Cooling)

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.1 PRIMARY COOLANT LEAK

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- Greater than 1 gpm total tube leakage in all S/G's in modes 1-4.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.6.2.

- Any NC system pressure boundary leakage in modes 1-4.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.6.2.

- 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 pursuant to Tech Spec 3.4.6.2.

- S/G tube leak with an unisolable secondary line break outside containment.

- S/G tube leak greater than 10 gpm but less than 50 gpm

AND

NC subcooling greater than 0 Deg. F

AND

Unisolable secondary (main steam or feedwater) line break outside containment on the ruptured S/G.

- Unisolable secondary (main steam or feedwater) line break outside containment

AND

Field monitoring teams detect activity at the protected area fence at greater than or equal to 2 mRem/hr whole body.

END

- Steam generator tube leak with secondary line break inside containment and indication of fuel damage.

- Primary to secondary leakage greater than 50 gpm

AND

Unisolable secondary (main steam or feedwater) break inside containment on the ruptured S/G

AND

Fuel clad failure greater than 5% per Chemistry analysis (or valid reading on EMP-51a or 51b of 117 R/hr).

END

- LOCA with initially successful ECCS followed by failure of ECCS heat sink and failure of containment heat removal.

LOCA

AND

Loss of recirculation heat sink

AND

Loss of containment spray heat sink

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.1 PRIMARY COOLANT LEAK

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ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- * Greater than 40 gpm
controlled NC system leakage
at 2235 psig in modes 1-4.

AND

Load reduction or plant
cooldown initiated pursuant
to Tech Spec 3.4.6.2.

2. Any unisolable NC system
leakage greater than 50 gpm
in Modes 5 and 6.
3. Failure of an unisolable
PER PORV or safety valve to
close following a reduction
of NC pressure.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.2 FUEL DAMAGE

CMIP-11
ENCLOSURE 4.1
PAGE 4 OF 29

NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

1. RC system activity greater than Tech Spec limits in Modes 1-5.

* Greater than 1.0 microcurie per gram dose equivalent I-131 for greater than 48 hrs. continuous per chemistry analysis in modes 1-5.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.8.

* 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 pursuant to Tech Spec 3.4.8.

* Specific activity greater than 100/E microcuries per gram per Chemistry analysis.

AND

Load reduction or plant cooldown initiated pursuant to Tech Spec 3.4.8

END

1. Severe loss of fuel cladding in Modes 1-5.

* Valid increase of 1000 times background setpoints of any containment radiation monitor in modes 1-5.

* Valid increase of 1000 times background setpoint of reactor coolant system process monitor (EMP-48) in modes 1-5.

* Chemistry analysis indicates greater than or equal to 5% total fuel clad failure or increase of 1% fuel failures within 30 minutes in modes 1-5.

END

1. Degraded core with possible loss of coolable geometry.

* Average of five highest core exit T/C's indicates greater than or equal to 700 Deg. F.

* Lower Range RVLIS less than 43% level during a LOCA event.

* RVLIS D/P setpoint at value which requires entry into Degraded Core Cooling section of Emergency Procedures.

* Containment hydrogen concentration greater than or equal to 1% and increasing greater than or equal to 0.1% per hour.

* Containment EMP's (51a or 51b) valid reading of 179 R/hr.

END

1. Loss of 2 of 3 fission product barriers with potential for loss of 3rd barrier.

NOTE: To classify at this level, at least one condition from two of the three categories (A,E,C) must be satisfied and at least one condition from the third category must be satisfied or have the potential to be satisfied.

A. Loss of clad barrier

* Total fuel clad failure greater than 5% per Chemistry analysis.

* Containment EMP 51a or 51b valid reading of 117 R/hr (equates to 5% fuel gap activity released to containment)

* Plant conditions require entry into EP/1 or 2/A/5000/12.1 (Response to Inadequate Core Cooling).

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.2 FUEL DAMAGE

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

B. Loss of Reactor Coolant
System barrier

- * Reactor Coolant System leak
(including S/G tube leak)
greater than 50 gpm.

C. Loss of Containment Barrier

- * Incomplete containment
integrity

- * Known containment leakage in
excess of Tech Spec.

- * Containment pressure greater
than or equal to 60 psig

- * Containment atmosphere H₂
concentration greater than
or equal to 9%

- * Unisolable secondary (main
steam or feedwater) break
outside containment on the
ruptured S/G with S/G tube
leak greater than 50 gpm

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.3 STEAM SYSTEM FAILURE

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. Secondary (main steam or feedwater) line break which results in rapid depressurization of the secondary side.	1. Unisolable secondary (main steam or feedwater) line break outside containment with a S/G tube leak.	1. Unisolable secondary (main steam or feedwater) break outside containment with a S/G tube leak.	N/A
* Secondary (main steam or feedwater) line break causing depressurization which results in safety injection or main steam isolation	* Unisolable secondary (main steam or feedwater) line break outside containment.	* Unisolable secondary (main steam or feedwater) break outside containment.	
<u>END</u>	<u>AND</u>	<u>AND</u>	
	NC subcooling greater than 0 Deg. F.	Primary to secondary leakage greater than 50 gpm on the faulted S/G.	
	<u>AND</u>		
	S/G tube leak greater than 10 gpm, but less than 50 gpm on the faulted S/G	2. Secondary (main steam or feedwater) break <u>inside containment</u> with S/G tube leak and indication of fuel damage	
	* Unisolable secondary (main steam or feedwater) line break outside containment.	* Unisolable secondary (main steam or feedwater) break <u>inside containment</u>	
	<u>AND</u>	<u>AND</u>	
	Field monitoring teams detect activity at the protected area fence at greater than or equal to 2 mRem/hr whole body.	Primary to secondary leakage greater than 50 gpm on the faulted S/G	
		<u>AND</u>	

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.3 STEAM SYSTEM FAILURE

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ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

2. Secondary (main steam
or feedwater) line
break with failure of
ECCS or Main Steam
Isolation.

Fuel clad failure
greater than 5% per
chemistry analysis (or
valid reading on EMP-
51a or 51b of 117
R/hr.

* Secondary (main steam
or feedwater) line
break depressurization
which results in
safety injection
signal.

END

AND

Failure of both trains
of ECCS injection.

* Secondary (main steam
or feedwater) line
break depressurization
which results in Main
Steam Isolation
signal.

AND

Failure of two or more
Main Steam Isolation
Valves to close.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.4 HIGH RADIATION/RADIOLOGICAL EFFLUENTS

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

1. Liquid or gaseous radiological effluents exceed Tech Spec Limits as determined by RP or Chemistry Procedures.

END

1. High radiation levels or high airborne contamination

- * Any valid area EMP reading greater than or equal to 1000 times background value

AND

Excessive area radiation levels due to either unknown or uncontrolled causes

- * Valid indication on EMP-41 reading greater than or equal to 1000 times background value

AND

Excessive airborne levels due to either unknown or uncontrolled causes

2. Gaseous or liquid radiological effluents exceed 10 times Tech Spec limits.

1. Accidental releases of gases

- * Valid indication on EMP-36(L) reading greater than or equal to $7.25E6$ cpm (equates to 50 mRem/hr WB at site boundary).

- * Valid indication on EMP-36(H) reading greater than or equal to $6.1E2$ cpm (equates to 50 mRem/hr WB at site boundary).

- * Valid indication on EMP-37 reading greater than or equal to 2.8E5 cpm.

- * Dose calculations based on containment conditions project dose rates at the site boundary greater than or equal to 50 mRem/hr WB or 250 mRem/hr thyroid

1. Accidental releases of gases

- * Valid indication on EMP-36(H) reading greater than or equal to $6.1E3$ cpm (equates to 1 REM to the WB at site boundary integrated over 2 hours).

- * Valid indication on EMP-37 reading greater than or equal to $2.8E6$ cpm (equates to 5 Rem to the thyroid at site boundary integrated over 2 hours).

- * Dose calculations based on containment conditions project dose rates at the site boundary greater than or equal to 1 R/hr WB or 5 R/hr thyroid integrated over a 2 hour period.

- * Field monitoring team measurements have determined dose rates at the site boundary greater than or equal to 1 R/hr WB or 5 R/hr thyroid integrated over a 2 hour period.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.4 HIGH RADIATION/RADIOLOGICAL EFFLUENTS

CHP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- Valid indication on EMF-35 reading greater than or equal to 10 times Trip II setpoint

- Valid indication on EMF-36(L) reading greater than or equal to 10 times Trip II setpoint

- Valid indication on EMF-37 reading greater than or equal to 10 times Trip II setpoint

- Valid indication on EMF-50 reading greater than or equal to 10 times Trip II setpoint

- Valid indication on EMF-31 reading greater than or equal to 10 times Trip II setpoint

- Valid indication on EMF-49 reading greater than or equal to 10 times Trip II setpoint

- Valid indication on EMF-44 reading greater than or equal to 10 times Trip II setpoint

- If monitoring team elements have determined dose rates at the site boundary greater than or equal to 50 mRem/hr WB or 250 mRem/hr thyroid.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.4 HIGH RADIATION/RADIOLOGICAL EFFLUENTS

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ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

-
- * Gaseous or liquid radiological effluents exceed 10 time Tech Spec limits as determined by RP or chemistry procedures

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS

CHP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

1. Loss of Decay Heat Removal
in modes 5 and 6

* Loss of decay heat removal
for greater than 10 minutes
in modes 5 and 6

END

1. Complete loss of any
function needed to
maintain core cooling
in modes 5 and 6.

NOTE: If loss of RHR
due to loss of vital
AC or DC power, see
Event #4.1.6, Loss of
Power, Site Area
Emergency, Initiating
Condition #3.

* Failure of heat sink
in modes 5 and 6
results in
uncontrolled heatup

AND

Core exit T/C's
indicate greater than
or equal to 200 Deg. F

2. Transient with
failure of the
Reactor Protection
System to
automatically
initiate and complete
a Rx trip which
brings the Reactor
Subcritical (ATWS
Event);

1. Complete loss of any
function needed for
hot shutdown
conditions

* Failure of heat sink
in mode 4 results in
uncontrolled heatup

AND

Core exit T/C's
indicate greater than
or equal to 350 Deg.
F.

* Inability to feed
S/G's from any source
in Mode 1-3

AND

Feed and bleed cooling
of the reactor core is
necessary to remove
core decay heat.

1. Transient initiated by loss
of CF and CM systems
followed by failure of heat
removal capability for an
extended period.

* Loss of CM/CF feedwater flow
capability.

AND

CA flow cannot be
established within 30
minutes.

AND

NC system feed and bleed
cannot be established or
maintained.

2. Transient requiring a Rx
trip with failure to trip
with indication of
significant fuel damage or
failure of core cooling.

* Transient with failure of
the reactor protection
system to automatically
initiate and complete a Rx
trip which brings the
reactor subcritical (ATWS
event).

AND

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

3. Degradation of
Secondary Heat Sink

* Loss of feed
capability to S/G's
from main feed pumps.

AND

All S/G's levels less
than 5% (25%) NR level

AND

Total CA flow to S/G's
less than 450 gpm

4. Complete loss of any
function needed to
achieve mode 5 when
shutdown is required
by Tech Spec in modes
1-4

* Complete loss of any
of the following
functions when
function is required
to continue shutdown

(a) Ability to borate;
(b) Ability to feed
steam generators;
(c) Ability to
establish decay heat
removal

END

2. Transient requiring
operation of shutdown
systems with failure
to trip.

* Transient with failure
of the reactor
protection system to
automatically initiate
and complete a Rx trip
which brings the
reactor subcritical
(ATWS event).

AND

Control rods cannot be
manually tripped or
inserted from the
Control Room

Actions taken per EP/1 or
2/A/5000/11.1 (Response to
Nuclear Power Generation/
ATWS) fail to bring the
reactor subcritical.

AND

Chemistry analysis indicates
greater than or equal to 5%
total fuel clad failure (or
valid reading on RMF-51a or
51b of 117 R/hr.

* Transient with failure of
reactor protection systems
to automatically initiate
and complete a Rx trip which
brings the reactor
subcritical

AND

Actions taken per EP/1 or
2/A/5000/11.1 (Response to
Nuclear Power
Generation/ATWS) fail to
bring the reactor
subcritical.

AND

Plant conditions require
entry into EP/1 or
2/A/5000/12.1 (Response to
Inadequate Core Cooling).

MCQUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS

EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS

CMIP-11

ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- | | |
|--|---|
| <p>3. Inability to maintain cold shutdown with loss of reactor vessel coolant inventory in Modes 5 and 6.</p> <p>* Failure of heat sink causes loss of cold shutdown conditions in modes 5 and 6.</p> <p style="text-align: center;"><u>AND</u></p> <p>Lower Range RVLIS level decreasing after initiation of NC System Makeup.</p> <p>* Failure of heat sink causes loss of cold shutdown conditions in modes 5 and 6.</p> <p style="text-align: center;"><u>AND</u></p> <p>NC system narrow range level less than 14 inches and decreasing after initiation of NC System Makeup.</p> | <p>3. Loss of heat sink with subsequent core uncover in Modes 5 and 6.</p> <p>* Failure of heat sink causes loss of cold shutdown conditions in modes 5 and 6.</p> <p style="text-align: center;"><u>AND</u></p> <p>Lower Range RVLIS level indicates core remains substantially uncovered (less than 43% level).</p> <p>* Failure of heat sink causes loss of cold shutdown conditions in modes 5 and 6.</p> <p style="text-align: center;"><u>AND</u></p> <p>Core Exit T/C's indicate superheat at the core exit.</p> <p style="text-align: center;"><u>AND</u></p> <p>Available makeup rate (as indicated by Flow Rate Instrumentation or rate of FWST Level decrease) less than applicable data book curve.</p> |
|--|---|

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.5 LOSS OF SHUTDOWN FUNCTIONS

CMIP-1
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- * Failure of heat sink causes loss of Cold Shutdown conditions in modes 5 and 6.

AND

Either Train ultrasonic level indication less than 14 inches and decreasing after initiation of NC system makeup.

- * Failure of heat sink causes loss of cold shutdown conditions in modes 5 and 6.

AND

Reliable NC System level indication unavailable due to NC system pressurization.

AND

Core exit T/C's or AP/1 or 2/A/5500/19 (Loss of Residual Heat Removal) data indicate boiling in the core.

AND

- * Failure of heat sink causes loss of cold shutdown conditions in modes 5 and 6.

AND

Available makeup rate (as indicated by Flow Rate Instrumentation or rate of FWST Level decrease) less than applicable data book curve.

AND

NC System level below bottom range of available level indication.

AND

Emergency Coordinator judgement that core uncover is imminent.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.5 LOSS OF SUBTOWNE FUNCTIONS

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

Available makeup rate
(as indicated by flow
rate instrumentation
or rate of FWST level
decrease) less than
applicable data book
curve.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.6 LOSS OF POWER

CMIP-11
ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

1. Loss of offsite power in Modes 1-6.
- * Both unit related main bus lines de-energized in modes 1-6.

2. Loss of onsite AC power capability in Modes 1-4.
- * Both D/G's are incapable (for greater than 2 hours) of powering the 4160 V essential buses in modes 1-4.

3. Loss of onsite AC power capability in Modes 5 and 6.

- * Both D/G's are incapable (for greater than 8 hours) of powering the 4160 V essential buses in modes 5 and 6.

1. Loss of offsite power and loss of all onsite AC power for greater than 1 minute in Modes 1-4.

- * Both 4160 V 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 all vital DC power for up to 15 minutes in Modes 1-4.

- * Both unit related EVDA and EVDD buses de-energized for up to 15 minutes in modes 1-4

3. Loss of offsite power and loss of all onsite AC power for greater than 15 minutes in Modes 5 and 6.

- * Both 4160 V essential buses are de-energized for greater than 15 minutes in modes 5 and 6.

1. Loss of offsite power and loss of all onsite AC power for greater than 15 minutes in Modes 1-4.

- * Both 4160 V essential buses are de-energized for greater than 15 minutes in Modes 1-4.

2. Loss of all vital DC power for greater than 15 minutes in Modes 1-4.

- * Both unit related EVDA and EVDD buses de-energized for greater than 15 minutes in Modes 1-4.

3. Loss of all onsite AC or DC power for greater than 15 minutes with uncontrolled reactor core heatup in Modes 5 and 6.

- * Both 4160 V essential buses are de-energized for greater than 15 minutes in modes 5 and 6

1. Loss of offsite power and loss of all onsite AC power with total loss of S/C's feed capability in Modes 1-4.

- * Both 4160 V essential buses are de-energized in modes 1-4.

AND

Loss of CM/CF feedwater flow capability.

AND

CA flow cannot be established within 30 minutes.

END

AND

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.6 LOSS OF POWER

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

4. Loss of all onsite AC or DC power greater than 1 minute but less than 15 minutes in modes 5 and 6.

* Both 4160 V essential buses are de-energized for greater than 1 minute but less than 15 minutes in modes 5 and 6

* Both unit related EVDA and EVDD buses de-energized for greater than 1 minute but less than 15 minutes in modes 5 and 6

END

4. Loss of all vital DC power for greater than 15 minutes in Modes 5 and 6.

* Both unit related EVDA and EVDD buses de-energized for greater than 15 minutes in modes 5 and 6.

END

Valid core exit temperature of greater than 200 Deg. F

* Both unit related EVDA and EVDD buses de-energized for greater than 15 minutes in modes 5 and 6

AND

Valid core exit temperature of greater than 200 Deg. F.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.7 FIRES AND SECURITY ACTIONS

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

1. Fire (as determined by the Shift Supervisor or designee) within the plant (see NOTE) lasting longer than 10 minutes.

2. Security threat.

* Discovery of bomb within the site boundary but outside the protected area.

* Civil disturbance (hostile)

* Intrusion/Attempted Intrusion (Protected Area)

* Hostage situation/extortion

* Security threat as determined by Emergency Coordinator and Security

END

1. Fires potentially affecting safety systems.

* Fire resulting in potential deterioration (visible or assumed) to any ESF component (see Encl. 4.2) or ESF component subsystem required by Tech Specs for the current operating mode.

2. Ongoing Security compromise.

* Adversaries commandeer an area of the plant but do not control any plant vital areas.

* Discovery of breached barrier caused by intrusion or sabotage in Vital Area

* Discovery of bomb in the protected area

1. Fire compromising the function of safety systems.

* Fire resulting in redundant trains of ESF components (see Encl. 4.2) or ESF components subsystems required by Tech Specs for the current operating mode becoming incapable of performing their design function (inoperable)

* Fire requiring Control Room evacuation

AND

Control of shutdown systems has been established or is in the process of being established from the SSF.

2. Imminent loss of physical control of a plant vital area.

1. Any major fire which could cause massive common damage to plant systems.

* Fire requiring Control Room evacuation

AND

Control of Shutdown systems cannot be established from any plant location

AND

NC subcooling cannot be maintained greater than 0 Deg. F.

2. Security threat resulting in loss of physical control of the plant.

* Physical attack on the plant (see Note) has resulted in occupancy of the control room or other vital areas.

END

NOTE: Plant is defined as:
Aux. Bldg, TB, SB, RB, D/G Rm,
Doghouses, SSF, Interim
Radwaste Facility.

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.7 FIRES AND SECURITY ACTIONS

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

* Ongoing security
compromise as
determined by
Emergency Coordinator
and Security

END

* Physical attack
resulting in imminent
occupancy of the
Control Room or other
vital areas.

* Discovery of bomb in a
plant Vital Area.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.6 SPENT FUEL DAMAGE

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ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

N/A

1. Damage to Spent Fuel
with release of
radioactivity.

1. Major damage to spent
fuel with release of
radioactivity.

N/A

CONTINGENT

CONTINGENT

* Valid Trip II Alarm on
1EMF-39

* Valid Trip II Alarm on
1EMF-16 (for Unit 1)
or 2EMF-3 (for Unit 2)

AND

AND

Report of fuel damage
due to loads dropped
into core or during
core alterations or
movement of spent fuel
in Containment

Valid 1(2)EMF-~9 off
scale high

AND

* Valid Trip II alarm on
2EMF-39

Report of fuel damage
due to loads dropped
into core or during
core alterations or
movement of spent fuel
in Containment

AND

AND

Report of fuel damage
due to loads dropped
into core or during
core alterations or
movement of spent fuel
in containment.

Dose rate inside
Containment coupled
with known Containment
leak rate results in
calculated dose rate
at the Site Boundary
of greater than or
equal to 50 mrem/hr WB
or 250 mrem/hr
thyroid.

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.8 SPENT FUEL DAMAGE

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

FUEL HANDLING BUILDING

- * Valid Trip II Alarm on
1EMP-17 (or
equivalent)

AND

Valid Trip II Alarm on
1EMP-42

AND

Report of fuel damage
during movement of
spent fuel or loads
dropped into spent
fuel pool resulting in
possible fuel damage.

- * Valid Trip II Alarm on
2EMP-4 (or equivalent)

AND

Valid Trip II Alarm on
2EMP-42

AND

Report of fuel damage
during movement of
spent fuel or loads
dropped into spent
fuel pool resulting in
possible fuel damage.

END

FUEL HANDLING BUILDING

- * Valid Trip II Alarm on
1EMP-17 (or
equivalent)

AND

Valid Trip II Alarm on
1EMP-42

AND

Valid indication on
1EMP-36 reading
greater than or equal
to 3.25E6 cpm.

AND

Report of fuel damage
during movement of
spent fuel or loads
dropped into spent
fuel pool resulting in
possible fuel damage.

- * Valid Trip II Alarm on
2EMP-4

AND

Valid Trip II Alarm on
2EMP-42

AND

INQUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.8 SPENT FUEL DAMAGE

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ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

Valid indication on
2ENF-36 reading
greater than or equal
to 3.25E6 cpm

AND

Report of fuel damage
during movement of
spent fuel or loads
dropped into spent
fuel pool resulting in
possible fuel damage.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.9 NATURAL DISASTERS AND OTHER HAZARDS

CNIP-11
ENCLOSURE 4.1
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NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
<p>1. Earthquakes felt in plant and detected by seismic monitoring instruments</p> <p>* Valid Alarm on "strong motion accelerograph"</p> <p>* Valid Alarm on "Peak shock annunciator"</p>	<p>1. Earthquake: greater than ORE</p> <p>* Greater than 0.08 g Horizontal</p> <p>* Greater than 0.053 g Vertical</p>	<p>1. Earthquake greater than SSE in modes 1-4.</p> <p>* Greater than 0.15 g Horizontal</p> <p>* Greater than 0.10 g Vertical</p>	<p>1. Any major natural or accidental event(s) (ie: aircraft impact, earthquakes substantially beyond design level) which could cause massive common damage to plant systems.</p> <p>* Emergency Coordinator judgement.</p>
<p>2. Low water level</p> <p>* Lake Norman level less than or equal to 745 ft.</p>	<p>2. Damage from tornado, sustained winds, aircraft crash, missile, or explosion.</p>	<p>2. Damage from tornado, sustained winds, aircraft crash, missile, or explosion.</p>	<p><u>END</u></p>
<p>3. Any tornado/severe weather within the site boundary.</p> <p>* Any tornado observed touching down within the site boundary</p> <p>* Sustained (greater than 15 minutes) winds greater than or equal to 60 mph</p>	<p>* Any tornado striking plant structures within the protected area fence</p> <p>* Approaching hurricane with sustained (greater than 15 minutes) winds greater than 75 but less than 95 mph as reported by the National Weather Service</p>	<p>* Any tornado striking any plant vital area structure resulting in loss of any ESF function required for the current operating mode.</p> <p>* Approaching hurricane with sustained (greater than 15 minutes) winds greater than 95 mph as reported by the National Weather Service.</p>	
<p>4. Aircraft crash</p> <p>* Aircraft crash within the site boundary.</p>	<p>* Aircraft crash within the protected area fence affecting safe operation of the unit.</p>		

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.9 NATURAL DISASTERS AND OTHER HAZARDS

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

5. Train derailment on site
- * Train derailment resulting in physical damage to equipment/structure within site boundary.
6. Explosion within site boundary.
- * Explosion within the site boundary resulting in structural damage to buildings and/or injuries to personnel.
7. Release of toxic or flammable gases.
- * Release of toxic gas resulting in personnel injury or any evacuation within the Protected Area.
- * Release of flammable gas resulting in any evacuation within the Protected Area.

END

- * Explosion damage within the protected area fence affecting safe operation of the unit.
3. Release of toxic or flammable gas.
- * Uncontrolled entry of toxic or flammable gas within protected area fence affecting safe operation of the unit.

END

- * Aircraft crash causing damage or fire to the Containment Building, Control Room, Auxiliary Building, Fuel Building, or SNSWP Intake Structure in modes 1-4.
- * Damage from missile or explosion in modes 1-4 causes inability to maintain or establish functions required for hot shutdown.
3. Release of toxic or flammable gas (Modes 1-4).
- * Uncontrolled entry of toxic or flammable gases into the Control Room, Cable Spreading Rooms, Containment Building, Switchgear Rooms, Auxiliary Shutdown panels area (CA pump rooms), or Emergency Diesel Generator Rooms affecting safe operation of the unit in modes 1-4.

END

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS

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NOTIFICATION OF UNUSUAL EVENT	ALERT	SITE AREA EMERGENCY	GENERAL EMERGENCY
1. ECCS initiated.	1. Evacuation of Control Room.	1. Evacuation of Control Room.	1. Evacuation of Control Room.
* Valid S/I signal verified by redundant indication	* Evacuation of Control Room	* Evacuation of Control Room in modes 1-3	* Evacuation of Control Room
<u>AND</u>	<u>AND</u>	<u>AND</u>	<u>AND</u>
Discharge into the vessel.	Control established (or in process of being established) from the Auxiliary Shutdown Panel less than or equal to 15 minutes.	Inability to feed S/G's from any source	Control cannot be established from any plant location
2. Abnormal coolant temperature and/or pressure or abnormal fuel temperature.	2. Significant loss of annunciator capability in Modes 1-4.	* Evacuation of Control Room in Modes 1-3.	<u>AND</u>
* Figure 2.1-1 Tech Spec exceeded in modes 1 and 2	* Loss of 50% or more of the control room annunciators for greater than 15 minutes in Modes 1-4.	<u>AND</u>	NC Subcooling cannot be maintained greater than 0 Deg. F.
* Core sub-cooling margin less than acceptable ("Subcooling Margin Alert" annunciator).	3. Other unit conditions exist that in the judgement of the Shift Supervisor /Emergency Coordinator warrant declaration of the Alert classification.	Inability to establish control from Auxiliary Shutdown panel	2. Other unit conditions exist, from whatever source, that in the judgement of the Shift Supervisor/Emergency Coordinator make release of large amounts of radioactivity in a short time period possible.
* Tech Spec (LCO 2.1.2) Reactor Coolant system pressure exceeded in modes 3, 4, and 5.		* Evacuation of Control Room	<u>END</u>
3. Loss of containment integrity requiring shutdown by Tech Spec.		<u>AND</u>	
* Any automatic containment isolation valve open and inoperable and unisolable.	<u>END</u>	Inability to establish control from Auxiliary Shutdown panel	
		<u>AND</u>	
		Control established (or in process of being established) from SSP.	

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS

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ENCLOSURE 4.1
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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

AND

Load reduction or plant
cooldown initiated pursuant
to Tech Spec 3.6.1.3.

2. Other unit conditions
exist that in the
judgement of the
Shift Supervisor
/Emergency
Coordinator warrant
declaration of Site
Area Emergency.

END

AND

Load reduction or plant
cooldown initiated pursuant
to Tech Spec 3.6.1.3.

4. Loss of ESF or Fire
Protection System function.

- * Both trains of any ESF
function found inoperable
(if caused by fire see event
4.1.7 - Fires and Security
Actions, Site Area Emergency
Classification).

AND

Load reduction or plant
cooldown initiated in
accordance with Tech Specs.

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- * Less than minimum channels of ESF function operable.

AND

Load reduction or plant cooldown initiated in accordance with Tech Specs.

- * Loss of all main fire protection system water pumps.

5. Transportation of a contaminated injured individual from the site to an offsite medical facility.

- * Decontamination efforts fail to reduce external contamination below 150 cpm beta-gamma or injured may require immediate medical attention and decontamination efforts are waived.

AND

Radiation Protection personnel determine that radiological controls are required for offsite medical treatment.

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

- * Internal contamination requiring medical assessment/treatment
- * External exposure requiring medical assessment/treatment
- 6. Significant Loss of assessment capability or communication capability.
- * Loss of MNS communications capability with all offsite agencies
- * Loss of 50% or more of the control room annunciators in Modes 5, 6 for greater than 15 minutes
- * Loss of all onsite meteorological instrumentation

AND

Inability to contact the National Weather Service for backup source of data.

McGUIRE NUCLEAR STATION
EMERGENCY ACTION LEVELS
EVENT # 4.1.10 OTHER ABNORMAL PLANT CONDITIONS

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NOTIFICATION OF
UNUSUAL EVENT

ALERT

SITE AREA EMERGENCY

GENERAL
EMERGENCY

7. Other conditions exist that in the judgement of Shift Supervisor/Emergency Coordinator warrant increased awareness of local authorities.

END

ENGINEERED SAFETY FEATURES

- 1) Containment Spray
- 2) Containment Air Return and Hydrogen Skimmer
- 3) Ice Condenser
- 4) Hydrogen Control (Hydrogen Recombiners Only)
- 5) Annulus Ventilation
- 6) Auxiliary Feedwater
- 7) Nuclear Service Water
- 8) Component Cooling
- 9) Steam Line/Feedwater Line Isolation
- 10) Containment Pressure Control
- 11) ESF Interlocks
- 12) Turbine Trip
- 13) Reactor Protection System
- 14) Emergency Diesel Generators
- 15) Emergency Switchgear
- 16) Loss of Power Actuation Circuit
- 17) Emergency Core Cooling System - Safety Injection, Residual Heat Removal, Cold Leg Accumulators, Upper Head Injection, Chemical and Volume Control System, Automatic Switchover
- 18) Containment Isolation - Phase "A" and Phase "B"

TERMINATION CRITERIA

- _____ 1. Existing conditions no longer meet the emergency classification criteria and it appears unlikely that conditions will deteriorate further.
- _____ 2. No surveillance relative to off-site protective actions is needed, except for the control of foodstuffs and water, and off-site contamination, or environmental assessment activities.
- _____ 3. Radiation levels in affected in-plant areas are stable or decreasing to below acceptable levels.
- _____ 4. Releases of radioactive material to the environment greater than Technical Specifications are under control or have ceased.
- _____ 5. The potential for an uncontrolled release of radioactive material is at an acceptably low level.
- _____ 6. Containment pressure is within Technical Specification requirements.
- _____ 7. Adequate long-term core cooling is available.
- _____ 8. Adequate shutdown margin of the core has been verified.
- _____ 9. A fire, flood, earthquake or similar emergency condition is controlled or has ceased.
- _____ 10. Offsite power is available per Technical Specifications.
- _____ 11. Any contaminated/injured personnel have been transported offsite and are receiving appropriate medical care.
- _____ 12. All emergency action level notifications have been completed.
- _____ 13. Access to radiologically controlled areas of the plant necessary for operation during recovery are being monitored by the Radiation Protection Section.
- _____ 14. Offsite conditions will not limit access of personnel and support resources.
- _____ 15. Discussions have been held with the News Director to determine the impact of termination on public information management.
- _____ 16. Discussions have been held with Senior NRC and State representatives to determine the impact of termination on their activities.