TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP - 1

EMERGENCY PLAN CLASSIFICATION MATRIX

Revision 39

QUALITY RELATED

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RESPONSIBLE ORGANIZATION: Emergency Preparedness

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EFFECTIVE DATE: 01/23/2007

Level of Use: Reference

Revision History

Rev	Date	Revised Pages	Reason for Revision
36	02/10/2005	9, 10	Revision Change: Revised RVLIS equivalent to core damage from 40% to 42% (DCN20591A PER75249). Removed duplicate word "exists" in EAL 1.3.3L
37	01/18/2006	8, 10, 12, 13, 20, 24, 27, 28, 29, 32, 38, 42, 44, 47	Revision Change: EAL 1.3.4 to incorporate human factoring wording. EAL 2.1 wording clarification, added annunciator CRT. Changed plant computer to ICS. Revised EALs 4.6, 4.7 of the Event Classification Matrix to incorporate the guidance found in NRC Bulletin 2005-02 (BL2005-02) for security-based EALs. Table 4-3, Security Events was added. Also, revised EALs in portion 4.7 of the Event Classification Matrix to capture the new emergency classification definitions. The definitions were revised to add new definitions HOSTILE ACTION, and HOSTILE FORCE to support implementation of BL2005-02. EAL 7.3 to remove 0-RM-90-3 & 0-RM-90-4 from Table 7-2, DCN #: D-21642-A Annual Review. Changed SAS to CAS in EAL 7.3 due to a typo in REP, R56 SQN changed EAL 7.3 to match in R30.
38	11/22/2006	10, 46	Annual review, changed the "or" to "and" in EAL 1.3.2L "Containment pressure not increasing or sump level not increasing on LI-63-178 **and [was or]** 179 with a LOCA in progress." EAL1.3.2P: changed 2.81 to 2.8 due to set point changes in DCNE21988; PER 97896:changed PSID to psig to be consistent with CMT status tree; changed CMT spray wording. Values in Table 7-1 changed due to the change out for RM-90-212, Turbine Building Sump [DCN 21837].
39	01/23/2007	46	Plan effectiveness determination reviews indicate the following revisions do not reduce the level of effectiveness of the procedure or REP. Revised effluent radiation monitor EAL values for RM-90-212.

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1.0 PURPOSE

This procedure provides criteria to the Shift Manager (SM) or Site Emergency Director (SED) to be used in classifying and declaring an emergency based on plant conditions. The responsibility for declaring an emergency, based on the criteria in this procedure, belongs to the SM or SED, the designated Unit Supervisor when acting as the SM, or the TSC SED. This responsibility **cannot** be delegated.

2.0 REFERENCES

2.1 Developmental Documents

A. 10 CFR 50, Domestic Licensing of Production and Utilization Facilities.

B. Reg Guide 1.101, Emergency Planning and Preparedness For Nuclear Power Reactors endorsing NEI 99-01 Methodology For Development Of Emergency Action Levels - Revision 4, January 2003.

C. Sequoyah Technical Specifications (Tech Specs), Abnormal Operating Procedures (AOPs), Emergency Operating Procedures (EOPs), Functional Restoration Guidelines (FRGs), Technical Instructions (TI), Surveillance Instructions (SI), and the Updated Final Safety Analysis Report (UFSAR) are also referenced in Appendix B of the Radiological Emergency Plan.

D. Letter to Bruce A. Boger, Director of Inspection Program Management, USNRC, December 8, 2001 from Lynnette Hendricks, NEI, Recommended Actions in Response to a Site Specific Credible Threat at a Nuclear Power Plant (1A-01-1).

3.0 INSTRUCTIONS

3.1 REP Activation

The Nuclear Power (NP) Radiological Emergency Plan (REP) will be activated when any one of the conditions listed in this matrix is detected and declared. The REP is not activated based on a reporting of past conditions. This procedure will be used in conjunction with the REP Appendix B.

If the event is determined to be one of the four emergency classifications then implement EPIP-2, -3, -4, or -5 as applicable.

3.0 INSTRUCTIONS (Continued)

3.2 EAL Interpretation

The criteria in SQN EPIP-1 are given for reference: knowledge of actual plant conditions or the extent of the emergency may require that additional steps be taken. In all cases, this logic procedure should be combined with the sound judgment of the SM or SED to arrive at an appropriate classification for a particular set of circumstances. These criteria apply to both Unit 1 and Unit 2. The SED must be aware of the affects of simultaneous events on both units.

3.3 Validation of Information

If there is a reason to doubt if a given initiating condition has actually occurred, the SM or SED shall follow indications provided. Unless a suspected spurious or otherwise false alarm can be substantiated within an acceptable timeframe (based on potential severity of the event), the SM or SED is to proceed with actions as required by this procedure until such time as the alarm is verified to be false.

3.4 Classification Determination

3.4.1 To determine the classification of the emergency, review the Initiating Conditions of the respective status tree criteria that will be monitored and used to determine the event classification for the modes listed on the classification matrix.

3.4.2 If a Critical Safety Function (CSF) is listed as an Initiating Condition the respective status tree criteria will be monitored and used to determine the event classification for the modes listed on the classification matrix.

3.4.3 Declare the highest emergency class based on **events that are in progress** at the time that the classification is made.

3.4.4 **If, during an ongoing event,** investigation shows that a higher classification was previously met, then report that, as information only, to the Operation Duty Specialist (ODS) and the NRC. Do not declare or upgrade to a higher emergency class if the conditions do not exist unless it is a noted exception (i.e., EAL 2.3).

3.4.5 **If, following termination of an emergency declaration,** investigation shows that a higher classification was met, then report that, as information only, to the ODS and the NRC. Do not declare or upgrade to a higher emergency class if the conditions do not exist.

3.4.6 **If conditions have returned to a non-emergency state** before any emergency can be classified, then the highest emergency class that was appropriate shall be reported, as information only, to the ODS and NRC and shall not be declared unless it is a noted exception (i.e., EAL 2.3).

3.0 INSTRUCTIONS (Continued)

3.4.7 The NRC shall be notified within one hour of all classifications. Once made and reported, a declaration cannot be canceled or rescinded even if it is later determined to be invalid. If there is reason to doubt that a given condition has occurred, the SM or SED shall follow indications and proceed with classification, as required by this procedure, until otherwise proven false.

3.4.8 The State shall be notified by the ODS within 15 minutes of any declaration and notified, for information only, within one hour of any classification that was met but not declared as allowed above. If the State is notified of a declaration that is **invalidated before the NRC is notified**, terminate the classification, if not already done, and report the declaration to the NRC.

3.4.9 The **ACCEPTABLE** timeframe for initiating notification to the ODS of an emergency declaration is considered to be five (5) minutes. This is the time period between declaration of the emergency and contacting the ODS.

4.0 RECORDS RETENTION

4.1 Records of Classified Emergencies

The materials generated in support of key actions during an actual emergency classified as NOUE or higher are considered Lifetime retention Non-QA records. Materials shall be forwarded to the EP Manager who shall submit any records deemed necessary to demonstrate performance to the Corporate EP Manager for storage.

4.2 Drill and Exercise Records

The materials deemed necessary to demonstrate performance of key actions during drills are considered Non-QA records. These records shall be forwarded to the EP Manager who shall retain records deemed necessary to demonstrate six-year plan performance for six years. The EP Manager shall retain other records in this category for three years.

1 FISSION PRODUCT BARRIER MATRIX (Modes 1-4)

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

2 SYSTEM DEGRADATION

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

3 LOSS OF POWER

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

4 HAZARDS and SED JUDGMENT

4.1 Fire — Table 4-1
4.2 Explosion — Table 4-2
4.3 Flammable Gas — Figure 4-A
4.4 Toxic Gas or Smoke — Figure 4-B
4.5 Control Room Evacuation
4.6 Security
4.7 SED Judgment

5 DESTRUCTIVE PHENOMENON

5.1 Earthquake
5.2 Tornado
5.3 Aircraft/Projectile
5.4 River Level High
5.5 River Level Low
5.6 Watercraft Crash
Table 5-1
Figure 5-A

6 SHUTDOWN SYSTEM DEGRADATION

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

7 RADIOLOGICAL EFFLUENTS

7.1 Gaseous Effluent — Table 7-1
7.2 Liquid Effluent — Table 7-2
7.3 Radiation Levels — Figure 7-A
7.4 Fuel Handling
7.5 Spent Fuel Storage

Definitions and Abbreviations:

BOMB: An explosive device. (See EXPLOSION)

CIVIL DISTURBANCE: A group of twenty (20) or more persons within the EAB violently protesting onsite operations or activities at the site.

CONFINEMENT BOUNDARY: Spent Fuel Storage Cask CONFINEMENT BOUNDARY consists of MPC shell, bottom baseplate, MPC lid (including the vent and drain port cover plates), MPC closure ring, and associated welds.

CRITICAL-SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs; Subcriticality, Core Cooling, Heat Sink, Pressurized Thermal Shock, Integrity (Containment) and Inventory (**RCS**).

EVENT: Assessment of an EVENT commences when recognition is made that one or more of the initiating conditions associated with the event exist. Implicit in this definition is the need for timely assessment within 15 minutes.

EXCLUSION AREA BOUNDARY (EAB): That area surrounding the reactor, in which the reactor licenses has the authority to determine all activities including exclusion or removal of personnel and property from the area. For purposes of Emergency Action Levels, based on radiological field measurements and dose assessments, and for design calculations, the Site Boundary shall be defined as the EAB.

EXPLOSION: Rapid, violent, unconfined combustion, or a catastrophic failure of pressurized or electrical equipment that imparts energy of sufficient force to potentially damage permanent structures or equipment.

EXTORTION: An attempt to cause an action at the site by threat or force.

FAULTED: (Steam Generator) Existence of secondary side leakage (e.g., steam or feed line break) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical components do not constitute a fire. Observation of flame is preferred but is NOT required if large quantities of smoke and/or heat are observed.

FLAMMABLE GAS: Combustible gases at concentrations > than the LOWER EXPLOSIVE LIMIT (LEL).

HOSTAGE: A person(s) held as leverage against the site to ensure that demands will be met by the site.

HOSTILE ACTION: An act toward a nuclear plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land or water; using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. **HOSTILE ACTION** should NOT be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant.

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

IMMINENT: Within two hours.

INEFFECTIVE: When the specified restoration action(s) does not result in a reduction in the level of severity of the RED or ORANGE PATH condition within 15 minutes from identification of the CSF Status Tree RED or ORANGE PATH.

INITIATING CONDITIONS: Plant Parameters, radiation monitor readings or personnel observations that identify an Event for purposes of Emergency Plan Classification.

INTRUSION/INTRUDER: Suspected hostile individual present in the protected area without authorization.

ISFSI: Independent Spent Fuel Storage Installation.

ODCM: Offsite Dose Calculation Manual is a supporting document to the Tech Specs. that contain Rad Effluent Controls, Environs Monitoring controls, and methodology for calculating routine gaseous and liquid effluent offsite doses and monitor alarm/trip setpoints.

ORANGE PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under severe challenge; prompt operator action is required.

PROJECTILE: An object ejected, thrown or launched towards a plant structure resulting in damage sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein. The source of the projectile may be onsite or offsite.

PROTECTED AREA: The area encompassed by the security fence and to which access is controlled.

RCS: 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 and secondary isolation valves.

RED PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under extreme challenge; prompt operator action is required.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude greater than the capacity one charging pump.

SABOTAGE: Deliberate damage, misalignment, or misoperation of plant equipment with the intent to render the equipment inoperable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) An automatic turbine runback >15% thermal reactor power; (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation; (5) Thermal Power Oscillations ≥10%.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on TVA. The STRIKE ACTION must threaten to interrupt normal plant operations.

TOXIC GAS: A gas that is dangerous to life or limb by reason of inhalation or skin contact (e.g., chlorine, CO_2 , etc.)

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

UNPLANNED RELEASE: A release of radioactivity is UNPLANNED if the release has not been authorized by a Discharge Permit (DP). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the DP, (e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank).

VALID: An indication, report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indication on related or redundant indicators, or (3) by direct observation by plant personnel. Implicit in this definition is the need for timely assessment within 15 minutes.

VISIBLE DAMAGE: Damage to equipment that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes deformation due to heat or impact, denting, penetration, rupture, cracking, or paint blistering. Surface blemishes (e.g., paint chipping, scratches, etc.) should NOT be included as visible damage.

VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

1.1 Fuel Clad Barrier

1. Critical Safety Function Status

LOSS	Potential LOSS
Core Cooling Red (FR-C.1)	Core Cooling Orange (FR-C.2) **OR** Heat Sink RED (FR-H.1) and RHR Shutdown Cooling not in service

- OR -

2. Primary Coolant Activity Level

LOSS	Potential LOSS
RCS sample activity is greater than 300 uCi/gm dose equivalent I131	Not Applicable

- OR -

3. Incore Thermocouple Hi Quad Average

LOSS	Potential LOSS
Greater than 1200 °F on XI-94-101 or 102 (EXOSENSOR)	Greater than or equal to 700 °F on XI-94-101 or 102 (EXOSENSOR)

- OR -

4. Reactor Vessel Water Level

LOSS	Potential LOSS
Not Applicable	**VALID** RVLIS level <42% on LI-68-368 or LI-68-371 with no RCP running

- OR -

5. Containment Radiation Monitor

LOSS	Potential LOSS
VALID reading of greater than: 2.8E+01 Rem/hr on RM-90-271 or -272 **OR** 2.9E+01 Rem/hr on RM-90-273 or -274	Not Applicable

- OR -

6. SED Judgment

Any condition that, in the judgment of the SM or SED, indicates loss of potential loss of the Fuel Clad Barrier comparable to the conditions listed above.

1.2 RCS Barrier

1. Critical Safety Function Status

LOSS	Potential LOSS
Not Applicable	Pressurized Thermal Shock Red (FR-P.1) **OR** Heat Sink RED (FR-H.1) and RHR Shutdown Cooling not in service

- OR -

2. RCS Leakage / LOCA

LOSS	Potential LOSS
RCS leak results in subcooling <40 °F as indicated on XI-94-101 or 102 (EXOSENSOR)	Non Isolatable **RCS** leak exceeding the capacity of one charging pump in the normal charging alignment **OR** **RCS** leakage results in entry into E-1

- OR -

3. Steam Generator Tube Rupture

LOSS	Potential LOSS
SGTR that results in a Safety Injection actuation **OR** Entry into E-3	Not Applicable

- OR -

4.

LOSS	Potential LOSS
VALID RVLIS level <42% on LI-68-368 or LI-68-371 with no RCP running	Not Applicable

- OR -

5. SED Judgment

Any condition that, in the judgment of the SM or SED, indicates loss of potential loss of the **RCS** Barrier comparable to the conditions listed above.

1.3 Containment Barrier

1. Critical Safety Function Status

LOSS	Potential LOSS
Not Applicable	Containment Red (FR-Z.1) **OR** Actions of FR-C.1 (Red Path) are **INEFFECTIVE** (i.e.: core TCs trending up)

- OR -

2. Containment Pressure / Hydrogen

LOSS	Potential LOSS
Rapid unexplained pressure decrease following initial increase on PDI-30-44 or 45 **OR** Containment pressure or sump level not increasing on LI-63-178 and 179 with a LOCA in progress	Containment Hydrogen increases to >4% by volume on H2I-43-200 or 210 **OR** Pressure >2.8 PSIG (Phase B) with < one full train of containment spray

- OR -

3. Containment Isolation Status

LOSS	Potential LOSS
Containment isolation, when required is incomplete and a release path to the environment exists.	Not Applicable

- OR -

4. Containment Bypass

LOSS	Potential LOSS
RUPTURED S/G that is also faulted outside containment (E2 and E3) **OR** >4 hour secondary side release outside containment from a S/G with a S/G tube leak >T/S limits (AOP R.01 App A)	Unexpected **VALID** increase in area or ventilation RAD monitors adjacent to containment (with LOCA in progress).

- OR -

5. Significant Radiation in Containment

LOSS	Potential LOSS
Not Applicable	**VALID** reading of greater than: 3.6E+02 Rem/hr on RM-90-271 and 272 **OR** 2.8E+02 Rem/hr on RM-90-273 and 274

- OR -

6. SED Judgment

Any condition that, in the judgment of the SM or SED, indicates loss of potential loss of the Containment Barrier comparable to the conditions listed above.

INSTRUCTIONS

Note: A condition is considered to be **MET** if, in the judgment of the SED, the condition will be **MET IMMINENTLY** (i.e.: with two hours). The classification shall be made as soon as this determination is made.

1. In the matrix to the left, REVIEW the initiating conditions in all three barrier columns and circle the conditions that are MET.
2. In each of the three barrier columns, IDENTIFY if any Loss or Potential Loss **INITIATING CONDITIONS** have been MET.
3. COMPARE the number of barrier Losses and Potential losses to the criteria below and make the appropriate declaration.

Note: **MONITOR** the respective status tree criteria if a CSF is listed as an **INITIATING CONDITION**.

Emergency Class Criteria

General Emergency

LOSS of any two barriers and **Potential LOSS** of third barrier

Site Area Emergency

LOSS or **Potential LOSS** of any two barriers

Alert

Any **LOSS** or **Potential LOSS** of Fuel Clad barrier

OR

Any **LOSS** or **Potential LOSS** of RCS barrier

Unusual Event

LOSS or **Potential LOSS** of Containment barrier

1

FISSION PRODUCT BARRIER MATRIX **(Modes 1-4)**

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

2

SYSTEM DEGRADATION

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

3

LOSS OF POWER

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

4

HAZARDS and SED JUDGMENT

4.1 Fire — Table 4-1
4.2 Explosion — Table 4-2
4.3 Flammable Gas — Figure 4-A
4.4 Toxic Gas or Smoke — Figure 4-B
4.5 Control Room Evacuation
4.6 Security
4.7 SED Judgment

5

DESTRUCTIVE PHENOMENON

5.1 Earthquake
5.2 Tornado
5.3 Aircraft/Projectile — Table 5-1
5.4 River Level High — Figure 5-A
5.5 River Level Low
5.6 Watercraft Crash

6

SHUTDOWN SYSTEM DEGRADATION

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

7

RADIOLOGICAL EFFLUENTS

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FAULTED: (Steam Generator) Existence of secondary side leakage (e.g., steam or feed line break) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical components do not constitute a fire. Observation of flame is preferred but is NOT required if large quantities of smoke and/or heat are observed.

FLAMMABLE GAS: Combustible gases at concentrations > than the LOWER EXPLOSIVE LIMIT (LEL).

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SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) An automatic turbine runback >15% thermal reactor power; (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation; (5) Thermal Power Oscillations ≥10%.

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TOXIC GAS: A gas that is dangerous to life or limb by reason of inhalation or skin contact (e.g., chlorine, CO_2 , etc.)

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

UNPLANNED RELEASE: A release of radioactivity is UNPLANNED if the release has not been authorized by a Discharge Permit (DP). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the DP, (e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank).

VALID: An indication, report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indication on related or redundant indicators, or (3) by direct observation by plant personnel. Implicit in this definition is the need for timely assessment within 15 minutes.

VISIBLE DAMAGE: Damage to equipment that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes deformation due to heat or impact, denting, penetration, rupture, cracking, or paint blistering. Surface blemishes (e.g., paint chipping, scratches, etc.) should NOT be included as visible damage.

VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

2.1 Loss of Instrumentation			2.2 Loss of Communications	
Mode	Initiating / Condition		Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and "Radiological Effluents" (Section7) and Continue in This Column.	GENERAL		*Not Applicable.*
1, 2, 3, 4	**On either unit an inability to monitor a SIGNIFICANT TRANSIENT in progress (1 and 2 and 3 and 4):** 1. Loss of > 75% of MCR annunciator windows **AND** the annunciator printer **AND** the annunciator CRT in the horseshoe **OR** > 75% of safety system indications. 2. Loss of ICS. 3. Inability to directly monitor any of the following CSFs: Subcriticality PTS Core Cooling Containment Heat Sink Inventory 4. SIGNIFICANT TRANSIENT in progress.	SITE AREA		*Not Applicable.*
1, 2, 3, 4	**On either unit an UNPLANNED loss of >75% of the MCR annunciators and annunciator printer or > 75% of safety system indications for > 15 minutes with a SIGNIFICANT TRANSIENT in progress or ICS unavailable.** ***(1 and 2 and 3):*** 1. **UNPLANNED** loss of >75% of both channels of MCR annunciator windows **AND** the annunciator printer **AND** the annunciator CRT in the horseshoe for > 15 minutes **OR** > 75% of safety system indicators for > 15 minutes. 2. SM/SED judgment that increased surveillance is required (> shift complement) to safely operate the unit. 3. (a or b) a. **SIGNIFICANT TRANSIENT** in progress. **OR** b. Loss of ICS.	ALERT		*Not Applicable.*
1, 2, 3, 4	**On either unit an UNPLANNED loss of > 75% of the MCR annunciators or > 75% of safety system indications for > 15 minutes and ICS available.** ***(1 and 2 and 3):*** 1. **UNPLANNED** loss of >75% of both channels of MCR annunciator windows **AND** the annunciator printer **AND** the annunciator CRT in the horseshoe for > 15 minutes **OR** > 75% of safety system indicators for > 15 minutes. 2. SM/SED judgment that increased surveillance is required (> shift complement) to safely operate the unit. 3. The ICS is capable of displaying requested data.	NOUE	ALL	**Significant Loss of Communications (1 or 2)** **1. UNPLANNED loss of all in-plant communication capabilities listed below (a and b and c):** a. **UNPLANNED** loss of EPABX phones. b. **UNPLANNED** loss of all sound powered phones. c. **UNPLANNED** loss of all in-plant radio frequencies. **OR** **2. UNPLANNED loss of all offsite communication capabilities listed below: *(a and b and c and d and e and f)*** a. **UNPLANNED** loss of all EPABX phones b. **UNPLANNED** loss of all offsite radio frequencies c. **UNPLANNED** loss of all OPX (Microwave) system d. **UNPLANNED** loss of all 1-FB-Bell lines e. **UNPLANNED** loss of all NRC ENS and HPN lines f. **UNPLANNED** loss of all satellite phones

2.3 Failure of Rx Protection Sys

Mode	Initiating / Condition
1	**Reactor power > 5% and not decreasing after VALID trip signals and loss of core cooling capability.** ***(1 and 2):*** 1. FR-S.1 entered and immediate operator actions did not result in a reactor power of ≤ 5% and decreasing. 2. (a or b) a. CSF status tree indicates Core Cooling Red (FR-C.1). **OR** b. CSF status tree indicates Heat Sink Red (FR-H.1)
1	**Reactor power > 5% and not decreasing after VALID auto and manual trip signals.** *NOTE: Although a mode change may occur before classification this event will still be classified and declared as SAE.*
1, 2	**Reactor power > 5% and not decreasing after VALID auto trip signal but a manual trip from the Control Room is successful.** ***(1 or 2)*** 1. Reactor power > 5% and not decreasing following auto trip signal. 2. Manual trip in the Main Control Room successfully reduces reactor power ≤ 5%. NOTE: Although a mode change will occur, this event will still be classified and declared as an ALERT.
	Refer to "Fission Product Barrier Matrix" (Section 1).

GENERAL

SITE AREA

ALERT

NOUE

2.4 Fuel Clad Degredation

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
1, 2, 3	**Reactor coolant system specific activity exceeds LCO (Refer to SQN Tech. Spec. 3.4.8):** 1. Radiochemistry analysis indicates (a or b): a. Dose equivalent Iodine (I-131) >0.35 μCi/gm for > 48 hours or in excess of T/S Figure 3.4-1 with Tave ≥ 500 °F. **OR** b. Specific activity > 100/Ē μCi/gm with Tave ≥ 500 °F.

2.5 RCS Unidentified Leakage			2.6 RCS Identified Leakage	
Mode	Initiating / Condition		Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	GENERAL		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	SITE AREA		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	ALERT		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
1, 2, 3, 4	**RCS unidentified or pressure boundary leakage > 10 GPM.** 1. Unidentified or pressure boundary leakage (as defined by Tech. Spec.) > 10 GPM as indicated by *(a or b):* a. SI-OPS-068-137.0 results. **OR** b. With **RCS** temperature and PZR level stable, the VCT level on LI-62-129 or LI-62-130 is dropping at a rate > 10 GPM. *Refer to "Shutdown Systems Degradation" (Section 6.3).*	NOUE	1, 2, 3, 4	**RCS Identified leakage > 25 GPM.** 1. Identified **RCS** leakage (as defined by Tech. Spec.) > 25 GPM as indicated by *(a or b):* a. SI-OPS-068-137.0 results. **OR** b. Level rise in excess of 25 GPM into PRT, RCDT or CVCS holdup tank (Refer to TI-28). *Refer to "Shutdown Systems Degradation" (Section 6.3).*

2.7 Uncontrolled Cooldown

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
1, 2, 3	**UNPLANNED rapid depressurization of the main steam system resulting in a rapid RCS cooldown and safety injection initiation. *(1 and 2):*** 1. Rapid depressurization of any or all steam generators or the main steam system to < 600 psig on PI-1-2A, 2B or 9A ,9B or 20A, 20B or 27A, 27B. 2. Safety injection has initiated or is required.

GENERAL

SITE AREA

ALERT

NOUE

2.8 Turbine Failure

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
1, 2, 3	**Turbine failure has generated projectiles that cause visible damage to any area containing safety related equipment.** 1. Turbine generated **PROJECTILES** have resulted in **VISIBLE DAMAGE** to any of the following areas: Control Building, Auxiliary Building, Unit #1 Containment, Unit #2 Containment, ERCW Pumping Station, Addl Equipment Bldgs., Diesel Generator Bldg., RWST, Intake Pumping Station, Common Sta. Serv. Xfmr's, Condensate Storage Tanks
1, 2, 3	**Turbine failure results in casing penetration or main generator seal damage.** 1. Turbine failure which results in penetration of the turbine casing or damage to main generator seals. *Refer to "Hazards and SED Judgment" (Section 4.3)*

2.9 Safety Limit

Mode	Initiating / Condition	
	Not Applicable.	GENERAL
	Not Applicable.	SITE AREA
	Not Applicable.	ALERT
1, 2, 3, 4	**Safety Limits have been exceeded.** ***(1 or 2):*** 1. The combination of thermal power, **RCS** temperature and **RCS** pressure > safety limit indicated by SQN Tech. Spec. Figure 2.1-1 "Reactor Core Safety Limit". **OR** 2. **RCS**/Pressurizer pressure exceeds safety limit (> 2735 psig).	NOUE

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1

FISSION PRODUCT BARRIER MATRIX **(Modes 1-4)**

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

2

SYSTEM DEGRADATION

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

3

LOSS OF POWER

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

4

HAZARDS and SED JUDGMENT

4.1 Fire	Table 4-1
4.2 Explosion	Table 4-2
4.3 Flammable Gas	Figure 4-A
4.4 Toxic Gas or Smoke	Figure 4-B
4.5 Control Room Evacuation	
4.6 Security	
4.7 SED Judgment	

5

DESTRUCTIVE PHENOMENON

5.1 Earthquake
5.2 Tornado
5.3 Aircraft/Projectile
5.4 River Level High
5.5 River Level Low
5.6 Watercraft Crash
Table 5-1
Figure 5-A

6

SHUTDOWN SYSTEM DEGRADATION

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

7

RADIOLOGICAL EFFLUENTS

7.1 Gaseous Effluent	Table 7-1
7.2 Liquid Effluent	Table 7-2
7.3 Radiation Levels	Figure 7-A
7.4 Fuel Handling	
7.5 Spent Fuel Storage	

Definitions and Abbreviations:

BOMB: An explosive device. (See EXPLOSION)

CIVIL DISTURBANCE: A group of twenty (20) or more persons within the EAB violently protesting onsite operations or activities at the site.

CONFINEMENT BOUNDARY: Spent Fuel Storage Cask CONFINEMENT BOUNDARY consists of MPC shell, bottom baseplate, MPC lid (including the vent and drain port cover plates), MPC closure ring, and associated welds.

CRITICAL-SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs; Subcriticality, Core Cooling, Heat Sink, Pressurized Thermal Shock, Integrity (Containment) and Inventory (**RCS**).

EVENT: Assessment of an EVENT commences when recognition is made that one or more of the initiating conditions associated with the event exist. Implicit in this definition is the need for timely assessment within 15 minutes.

EXCLUSION AREA BOUNDARY (EAB): That area surrounding the reactor, in which the reactor licenses has the authority to determine all activities including exclusion or removal of personnel and property from the area. For purposes of Emergency Action Levels, based on radiological field measurements and dose assessments, and for design calculations, the Site Boundary shall be defined as the EAB.

EXPLOSION: Rapid, violent, unconfined combustion, or a catastrophic failure of pressurized or electrical equipment that imparts energy of sufficient force to potentially damage permanent structures or equipment.

EXTORTION: An attempt to cause an action at the site by threat or force.

FAULTED: (Steam Generator) Existence of secondary side leakage (e.g., steam or feed line break) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical components do not constitute a fire. Observation of flame is preferred but is NOT required if large quantities of smoke and/or heat are observed.

FLAMMABLE GAS: Combustible gases at concentrations > than the LOWER EXPLOSIVE LIMIT (LEL).

HOSTAGE: A person(s) held as leverage against the site to ensure that demands will be met by the site.

HOSTILE ACTION: An act toward a nuclear plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land or water; using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. **HOSTILE ACTION** should NOT be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant.

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

IMMINENT: Within two hours.

INEFFECTIVE: When the specified restoration action(s) does not result in a reduction in the level of severity of the RED or ORANGE PATH condition within 15 minutes from identification of the CSF Status Tree RED or ORANGE PATH.

INITIATING CONDITIONS: Plant Parameters, radiation monitor readings or personnel observations that identify an Event for purposes of Emergency Plan Classification.

INTRUSION/INTRUDER: Suspected hostile individual present in the protected area without authorization.

ISFSI: Independent Spent Fuel Storage Installation

ODCM: Offsite Dose Calculation Manual is a supporting document to the Tech Specs. that contain Rad Effluent Controls, Environs Monitoring controls, and methodology for calculating routine gaseous and liquid effluent offsite doses and monitor alarm/trip setpoints.

ORANGE PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under severe challenge; prompt operator action is required.

PROJECTILE: An object ejected, thrown or launched towards a plant structure resulting in damage sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein. The source of the projectile may be onsite or offsite.

PROTECTED AREA: The area encompassed by the security fence and to which access is controlled.

RCS: 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 and secondary isolation valves.

RED PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under extreme challenge; prompt operator action is required.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude greater than the capacity one charging pump.

SABOTAGE: Deliberate damage, misalignment, or misoperation of plant equipment with the intent to render the equipment inoperable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) An automatic turbine runback >15% thermal reactor power; (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation; (5) Thermal Power Oscillations ≥10%.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on TVA. The STRIKE ACTION must threaten to interrupt normal plant operations.

TOXIC GAS: A gas that is dangerous to life or limb by reason of inhalation or skin contact (e.g., chlorine, CO_2 , etc.)

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

UNPLANNED RELEASE: A release of radioactivity is UNPLANNED if the release has not been authorized by a Discharge Permit (DP). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the DP, (e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank).

VALID: An indication, report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indication on related or redundant indicators, or (3) by direct observation by plant personnel. Implicit in this definition is the need for timely assessment within 15 minutes.

VISIBLE DAMAGE: Damage to equipment that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes deformation due to heat or impact, denting, penetration, rupture, cracking, or paint blistering. Surface blemishes (e.g., paint chipping, scratches, etc.) should NOT be included as visible damage.

VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

3.1 Loss of AC (Power Ops)			3.2 Loss of AC (Shutdown)	
Mode	Initiating / Condition		Mode	Initiating / Condition
1, 2, 3, 4	**Prolonged loss of all offsite and all onsite AC power to either unit. *(1 and 2):*** 1. Both unit related 6.9 KV shutdown boards de-energized for > 15 minutes. 2. (a or b) a. Core Cooling Status Tree Red or Orange Path. **OR** b. Restoration of either a 6.9 KV shutdown board or a 6.9 KV unit board is not likely within 4 hours of the loss.	GENERAL		*Not Applicable.*
1, 2, 3, 4	**Loss of all offsite and all onsite AC power to either unit for > 15 Minutes.** 1. Both unit related 6.9 KV shutdown boards de-energized for > 15 minutes.	SITE AREA		*Not Applicable.*
1, 2, 3, 4	**Loss of offsite power to either unit with degraded onsite AC power for > 15 minutes. *([1a and 1b] or 2):*** 1a. All four (4) 6.9KV unit boards de-energized for > 15 minutes. 1b. One (1) unit related 6.9 KV shutdown board de-energized for > 15 minutes. **OR** 2. Any AC power condition lasting > 15 minutes where a single additional failure will result in a unit blackout.	ALERT	5, 6, DEFUELED	**UNPLANNED loss of all offsite and all onsite AC power to either unit for > 15 minutes.** 1. Both unit related 6.9KV shutdown boards de-energized for > 15 minutes. *Also Refer to "Loss of Shutdown Systems" (6.1) and continue in this column.*
1, 2, 3, 4	**Loss of offsite power to either unit for > 15 minutes. *(1 and 2):*** 1. All four (4) 6.9KV unit boards de-energized for > 15 minutes. 2. Both unit related 6.9KV shutdown boards are energized.	NOUE	5, 6, DEFUELED	**UNPLANNED loss of all offsite power to either unit for > 15 minutes. *(1 and 2):*** 1. All four (4) 6.9KV unit boards de-energized for > 15 minutes. 2. One (1) unit related 6.9KV shutdown board de-energized for > 15 minutes.

3.3 Loss of DC Power

Mode	Initiating / Condition	
	Refer to "Fission Product Barrier Matrix" (Section 1) and "Loss of Communication" (2.2) and Continue in This Column.	GENERAL
1, 2, 3, 4	**Loss of all vital DC power for > 15 minutes.** 1. Voltage < 105 V DC on 125V DC vital battery board buses I and II and III and IV for > 15 minutes. *Also Refer to "Fission Product Barrier Matrix" (Section 1), "Loss of Communication" (2.2) and, "Loss of Instrumentation" (2.1) and Continue in This Column.*	SITE AREA
	Refer to "Fission Product Barrier Matrix" (Section 1), "Loss of Communication" (2.2), and "Loss of Instrumentation" (2.1).	ALERT
5, 6	**UNPLANNED loss of a required train of DC power for > 15 minutes: (1 or 2).** 1. Voltage < 105 V DC on 125V dc vital battery board buses I and III for > 15 minutes. **OR** 2. Voltage < 105 V DC on 125V dc vital battery board busses II and IV for > 15 minutes.	NOUE

FISSION PRODUCT BARRIER MATRIX **(Modes 1-4)**

1

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

SYSTEM DEGRADATION

2

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

LOSS OF POWER

3

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

HAZARDS and SED JUDGMENT

4

4.1 Fire	Table 4-1
4.2 Explosion	Table 4-2
4.3 Flammable Gas	Figure 4-A
4.4 Toxic Gas or Smoke	Figure 4-B
4.5 Control Room Evacuation	
4.6 Security	
4.7 SED Judgment	

DESTRUCTIVE PHENOMENON

5

5.1 Earthquake
5.2 Tornado
5.3 Aircraft/Projectile
5.4 River Level High
5.5 River Level Low
5.6 Watercraft Crash
Table 5-1
Figure 5-A

SHUTDOWN SYSTEM DEGRADATION

6

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

RADIOLOGICAL EFFLUENTS

7

7.1 Gaseous Effluent
7.2 Liquid Effluent
7.3 Radiation Levels
7.4 Fuel Handling
7.5 Spent Fuel Storage
Table 7-1
Table 7-2
Figure 7-A

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VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

4.1 Fire			4.2 Explosion	
Mode	Initiating / Condition		Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	GENERAL		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
	Refer to "Control Room Evacuation," (4.5) and Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	SITE AREA		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
ALL	**FIRE in any of the areas listed in Table 4-1 that is affecting safety related equipment required to establish or maintain safe shutdown.** ***(1 and 2):*** 1. **FIRE** in any of the areas listed in Table 4-1. 2. (a or b) a. **VISIBLE DAMAGE** to permanent structure or safety related equipment in the specified area is observed due to the **FIRE**. **OR** b. Control room indication of degraded safety system or component response due to the **FIRE**.	ALERT	ALL	**EXPLOSION in any of the areas listed in Table 4-1 that is affecting safety related equipment required to establish or maintain safe shutdown.** ***(1 and 2)*****:** 1. **EXPLOSION** in any of the areas listed in Table 4-1. 2. (a or b) a. **VISIBLE DAMAGE** to permanent structures or to safety related equipment in the specified area is due to the **EXPLOSION**. **OR** b. Control room indication of degraded safety system or component response due to the **EXPLOSION**. *Refer to "Security" (Section 4.6).*
ALL	**FIRE within the PROTECTED AREA (Figure 4-A) threatening any of the areas listed in Table 4-1 that is not extinguished within 15 minutes from the time of control room notification or verification of control room alarm.**	NOUE	ALL	**UNPLANNED EXPLOSION within the PROTECTED AREA (Figure 4-A) resulting in VISIBLE DAMAGE to any permanent structure or equipment.** *Refer to "Security" (Section 4.6).*

4.3 Flammable Gas			4.4 Toxic Gas or Smoke	
Mode	Initiating / Condition		Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	GENERAL		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.	SITE AREA		*Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.*
ALL	**UNPLANNED release of FLAMMABLE GAS within a facility structure containing safety related equipment or associated with safe operation of the plant.** 1. Plant personnel report the average of three (3) readings taken in an ~10 ft. Triangular Area is > 25% Lower Explosive Limit, as indicated on the monitoring instrument within any building listed in Table 4-2. *Refer to the MSDS for the LEL.*	ALERT	ALL	**Release of TOXIC GAS or smoke within a facility structure which prohibits safe operation of systems required to establish or maintain Cold S/D.** ***(1 and 2 and 3):*** 1. Plant personnel report **TOXIC GAS** or smoke within any building listed in Table 4-2. 2. (a or b) a. Plant personnel report severe adverse health reactions due to **TOXIC GAS** or smoke (i.e., burning eyes, nose, throat, dizziness). **OR** b. Sampling indication > Permissible Exposure Limit (PEL). 3. Plant personnel unable to perform actions to establish and maintain Cold Shutdown while utilizing appropriate personnel protection equipment. *Refer to the MSDS for the PEL.*
ALL	**A. UNPLANNED release of FLAMMABLE GAS within the EXCLUSION AREA BOUNDARY that may affect normal operations.** 1. Plant personnel report the average of three readings taken in an ~10 ft. Triangular Area is > 25% of the Lower Explosive Limit, as indicated on the monitoring instrument within the **EXCLUSION AREA BOUNDARY** (Figure 4-B). **OR** **B. Confirmed report by Local, County, or State officials that a large offsite FLAMMABLE GAS release has occurred within one (1) mile of the site (Figure 4-B) with potential to enter the EXCLUSION AREA BOUNDARY (Figure 4-B) in concentrations > 25% of Lower Explosive Limit.** *Refer to the MSDS for the LEL.*	NOUE	ALL	**A. Safe operations impeded due to access restrictions caused by TOXIC GAS or smoke concentrations within a facility structure listed in Table 4-2.** **OR** **B. Confirmed report by Local, County, or State officials that an offsite TOXIC GAS release has occurred within one (1) mile of the site (Figure 4-B) with potential to enter the EXCLUSION AREA BOUNDARY (Figure 4-B) in concentrations > the Permissible Exposure Limit (PEL) causing a site evacuation.** *Refer to the MSDS for the PEL.*

4.5 Control Room Evacuation

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
ALL	**Evacuation of the control room has been initiated and control of all necessary equipment has not been established within 15 minutes of staffing the auxiliary control room.** ***(1 and 2):*** 1. AOP-C.04 "Shutdown from Aux Control Room" entered. 2. Control has not been established within 15 minutes of staffing the auxiliary control room and completing transfer of switches on panels L11A and L11B to the AUX position.
ALL	**Evacuation of the Control Room is Required.** 1. AOP-C.04 "Shutdown from Aux Control Room" has been entered.
	Not Applicable.

GENERAL

SITE AREA

ALERT

NOUE

4.6 Security

Mode	Initiating / Condition
ALL	**Security Event Resulting in Loss of Physical Control of the Plant:** ***(1 or 2):*** 1. A **HOSTILE FORCE** has taken control of plant equipment such that plant personnel are unable to operate equipment required to maintain **CRITICAL SAFETY FUNCTIONS.** 2. Loss of physical control of the Spent Fuel Pool Cooling systems due to **HOSTILE ACTION** such that imminent fuel damage is likely.
ALL	**Notification that HOSTILE ACTION is occurring or has occurred within the Plant PROTECTED AREA (PA):** *(1 or 2 or 3 or 4)* 1. Air attack (large frame aircraft impacting the PA.) 2. Land based attack (**HOSTILE FORCE** penetrating the PA.) 3. Waterborne attack (**HOSTILE FORCE** on water penetrating the PA.) 4. **BOMB** explosion breaching the PA or within the PA. *Refer to Figure 4-A For a Drawing of* ***PROTECTED AREA.***
ALL	**Notification that HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area (OCA is that area between the EXCLUSION AREA BOUNDARY and the PROTECTED AREA):** *(1 or 2)* 1. A validated notification from NRC of a large frame aircraft threat less than 30 minutes away. 2. Any of the following: • Air attack (large frame aircraft impacting the OCA.) • Land based attack (**HOSTILE FORCE** progressing across OCA or directing projectiles at the site.) • Waterborne attack (**HOSTILE FORCE** on water attempting forced entry or directing projectiles at the site.) • **BOMB**(s) discovered or exploding within the OCA. *Refer to Figure 4-A For a Drawing of* ***PROTECTED AREA*** *and Figure 4-B for a Drawing of* ***EXCLUSION AREA BOUNDARY***
ALL	**Confirmed security event which indicates a potential degradation in the level of safety of the plant:** *(1 or 2)* 1. Security Shift Supervisor reports one or more of the events listed in Table 4-3. 2. A validated notification from NRC providing information of any aircraft threat.

4.7 SED Judgment

Mode	Initiating / Condition	
ALL	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 Plume Protective Action Guidelines Exposure Levels outside the **EXCLUSION AREA BOUNDARY**, refer to Figure 4-B.	GENERAL
ALL	Events are in process or have occurred which involve Actual or Likely Major Failures of Plant Functions needed for the Protection of the Public or **HOSTILE ACTION** that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevents effective access to equipment needed for the Protection of the Public. Any releases are not expected to result in Exposure Levels which Exceed EPA Plume Protective Action Guidelines Exposure Levels beyond the **EXCLUSION AREA BOUNDARY**, Refer to Figure 4-B.	SITE AREA
ALL	Events are in process or have occurred which involve 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 Plume Protective Action Guidelines Exposure Levels.	ALERT
ALL	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.	NOUE

TABLE 4-1
PLANT AREAS ASSOCIATED WITH
FIRE AND EXPLOSION EALS

Unit #1 Containment
Unit #2 Containment
Auxiliary Building
Diesel Generator Building
Intake Pumping Station
ERCW Pumping Station
Control Building
Additional Equipment Buildings
CSST's
RWST
Condensate Storage Tanks

TABLE 4-2
PLANT AREAS ASSOCIATED WITH
TOXIC OR FLAMMABLE GAS OR SMOKE EALs

Unit #1 Containment
Unit #2 Containment
Auxiliary Building
Turbine Building
Diesel Generator Building
Intake Pumping Station
ERCW Pumping Station
Control Building
Additional Equipment Buildings
CDWE Building

TABLE 4-3 SECURITY EVENTS

a. **SABOTAGE/INTRUSION** has occurred or is occurring within the **PROTECTED AREA**

b. **HOSTAGE/EXTORTION** situation that threatens to interrupt plant operations

c. **CIVIL DISTURBANCE** ongoing between the **EXCLUSION AREA BOUNDARY** and **PROTECTED AREA**

d. Hostile **STRIKE ACTION** within the **PROTECTED AREA** which threatens to interrupt normal plant operations (judgment based on behavior of strikers and/or intelligence received)

e. Security force **STRIKE ACTION** or unavailability of security force that threatens to interrupt plant operations.

f. A credible site-specific security threat notification.

Figure 4-A
Protected Area

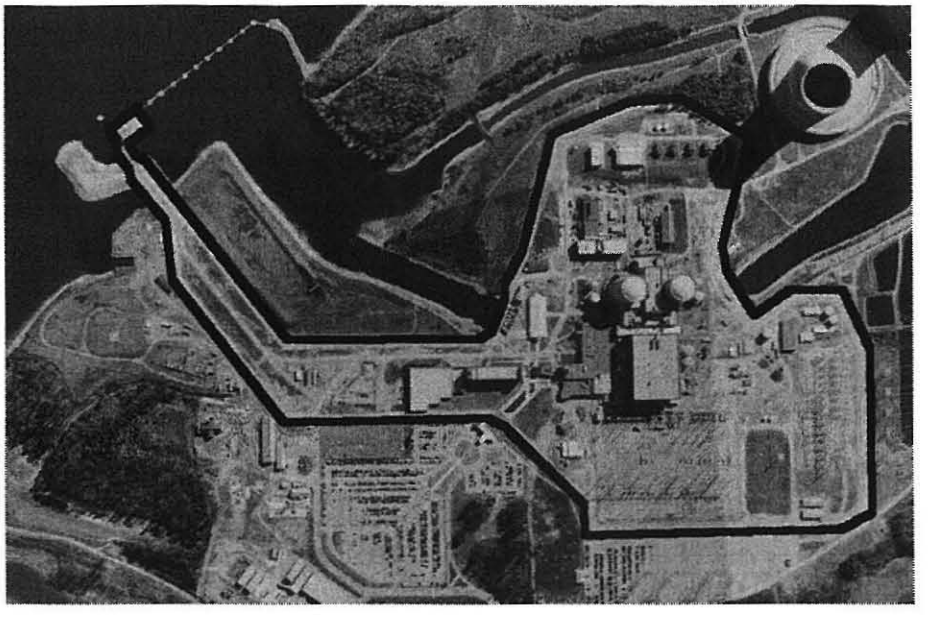
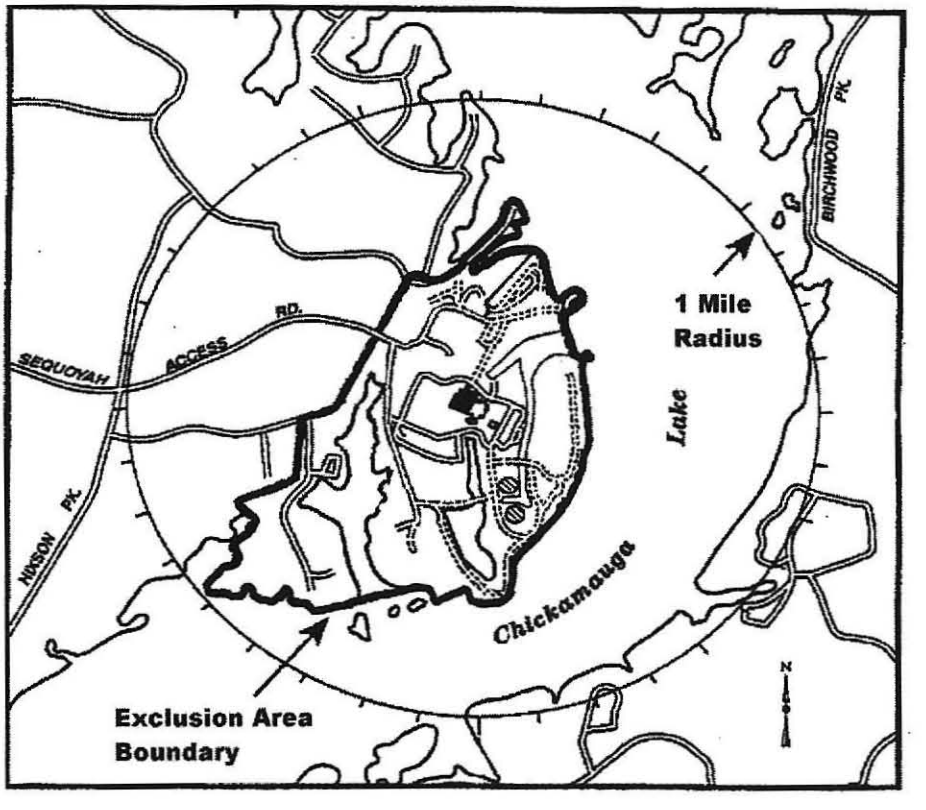


Figure 4-B
Exclusion Area Boundary



1 FISSION PRODUCT BARRIER MATRIX **(Modes 1-4)**

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

2 SYSTEM DEGRADATION

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

3 LOSS OF POWER

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

4 HAZARDS and SED JUDGMENT

4.1 Fire	Table 4-1
4.2 Explosion	Table 4-2
4.3 Flammable Gas	Figure 4-A
4.4 Toxic Gas or Smoke	Figure 4-B
4.5 Control Room Evacuation	
4.6 Security	
4.7 SED Judgment	

5 DESTRUCTIVE PHENOMENON

5.1 Earthquake	5.5 River Level Low
5.2 Tornado	5.6 Watercraft Crash
5.3 Aircraft/Projectile	Table 5-1
5.4 River Level High	Figure 5-A

6 SHUTDOWN SYSTEM DEGRADATION

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

7 RADIOLOGICAL EFFLUENTS

7.1 Gaseous Effluent	Table 7-1
7.2 Liquid Effluent	Table 7-2
7.3 Radiation Levels	Figure 7-A
7.4 Fuel Handling	
7.5 Spent Fuel Storage	

Definitions and Abbreviations:

BOMB: An explosive device. (See EXPLOSION)

CIVIL DISTURBANCE: A group of twenty (20) or more persons within the EAB violently protesting onsite operations or activities at the site.

CONFINEMENT BOUNDARY: Spent Fuel Storage Cask CONFINEMENT BOUNDARY consists of MPC shell, bottom baseplate, MPC lid (including the vent and drain port cover plates), MPC closure ring, and associated welds.

CRITICAL-SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs; Subcriticality, Core Cooling, Heat Sink, Pressurized Thermal Shock, Integrity (Containment) and Inventory (**RCS**).

EVENT: Assessment of an EVENT commences when recognition is made that one or more of the initiating conditions associated with the event exist. Implicit in this definition is the need for timely assessment within 15 minutes.

EXCLUSION AREA BOUNDARY (EAB): That area surrounding the reactor, in which the reactor licenses has the authority to determine all activities including exclusion or removal of personnel and property from the area. For purposes of Emergency Action Levels, based on radiological field measurements and dose assessments, and for design calculations, the Site Boundary shall be defined as the EAB.

EXPLOSION: Rapid, violent, unconfined combustion, or a catastrophic failure of pressurized or electrical equipment that imparts energy of sufficient force to potentially damage permanent structures or equipment.

EXTORTION: An attempt to cause an action at the site by threat or force.

FAULTED: (Steam Generator) Existence of secondary side leakage (e.g., steam or feed line break) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical components do not constitute a fire. Observation of flame is preferred but is NOT required if large quantities of smoke and/or heat are observed.

FLAMMABLE GAS: Combustible gases at concentrations > than the LOWER EXPLOSIVE LIMIT (LEL).

HOSTAGE: A person(s) held as leverage against the site to ensure that demands will be met by the site.

HOSTILE ACTION: An act toward a nuclear plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land or water; using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. **HOSTILE ACTION** should NOT be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant.

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

IMMINENT: Within two hours.

INEFFECTIVE: When the specified restoration action(s) does not result in a reduction in the level of severity of the RED or ORANGE PATH condition within 15 minutes from identification of the CSF Status Tree RED or ORANGE PATH.

INITIATING CONDITIONS: Plant Parameters, radiation monitor readings or personnel observations that identify an Event for purposes of Emergency Plan Classification.

INTRUSION/INTRUDER: Suspected hostile individual present in the protected area without authorization.

ISFSI: Independent Spent Fuel Storage Installation

ODCM: Offsite Dose Calculation Manual is a supporting document to the Tech Specs. that contain Rad Effluent Controls, Environs Monitoring controls, and methodology for calculating routine gaseous and liquid effluent offsite doses and monitor alarm/trip setpoints.

ORANGE PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under severe challenge; prompt operator action is required.

PROJECTILE: An object ejected, thrown or launched towards a plant structure resulting in damage sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein. The source of the projectile may be onsite or offsite.

PROTECTED AREA: The area encompassed by the security fence and to which access is controlled.

RCS: 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 and secondary isolation valves.

RED PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under extreme challenge; prompt operator action is required.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude greater than the capacity one charging pump.

SABOTAGE: Deliberate damage, misalignment, or misoperation of plant equipment with the intent to render the equipment inoperable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) An automatic turbine runback >15% thermal reactor power; (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation; (5) Thermal Power Oscillations ≥10%.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on TVA. The STRIKE ACTION must threaten to interrupt normal plant operations.

TOXIC GAS: A gas that is dangerous to life or limb by reason of inhalation or skin contact (e.g., chlorine, CO_2 , etc.)

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

UNPLANNED RELEASE: A release of radioactivity is UNPLANNED if the release has not been authorized by a Discharge Permit (DP). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the DP, (e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank).

VALID: An indication, report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indication on related or redundant indicators, or (3) by direct observation by plant personnel. Implicit in this definition is the need for timely assessment within 15 minutes.

VISIBLE DAMAGE: Damage to equipment that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes deformation due to heat or impact, denting, penetration, rupture, cracking, or paint blistering. Surface blemishes (e.g., paint chipping, scratches, etc.) should NOT be included as visible damage.

VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

5.1 Earthquake

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
ALL	**Earthquake detected by site seismic instrumentation. *(1 and 2):*** 1. Panel XA-55-15B alarm window 30 (E-2) plus window 22 (D-1) activated. 2. *(a or b)* a. Ground motion sensed by plant personnel. **OR** b. National Earthquake Information Center at 1-(303) 273-8500 can confirm the event.
ALL	**Earthquake detected by site seismic instruments. *(1 and 2):*** 1. Panel XA-55-15B alarm window 22 (D-1) activated. 2. *(a or b)* a. Ground motion sensed by plant personnel. **OR** b. National Earthquake Information Center at 1-(303) 273-8500 can confirm the event.

GENERAL SITE AREA ALERT NOUE

5.2 Tornado

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
ALL	**Tornado or high winds strikes any structure listed in Table 5-1 and results in VISIBLE DAMAGE. *(1 and 2):*** 1. Tornado or high winds (sustained >80 m.p.h. > one minute on the plant computer) strikes any structure listed in Table 5-1. 2. *(a or b)* a. Confirmed report of any **VISIBLE DAMAGE**. **OR** b. Control room indications of degraded safety system or component response due to event. *Note: National Weather Service Morristown 1-(423)-586-8400, can provide additional info.*
ALL	**Tornado within the EXCLUSION AREA BOUNDARY.** 1. Plant personnel report a tornado has been sighted within the **EXCLUSION AREA BOUNDARY** (Figure 5-A)

5.3 Aircraft/Projectile Impact

Mode	Initiating / Condition
	Refer to the "Fission Product Barrier Matrix" (Section 1).
	Refer to the "Fission Product Barrier Matrix" (Section 1).
ALL	**Aircraft or PROJECTILE impacts (strikes) any plant structure listed in Table 5-1 resulting in VISIBLE DAMAGE.** ***(1 and 2):*** 1. Plant personnel report aircraft or **PROJECTILE** has impacted any structure listed in Table 5-1. 2. *(a or b)* a. Confirmed report of **VISIBLE DAMAGE**. **OR** b. Control Room indications of degraded safety system or component response due to the event within any structure listed in Table 5-1.
ALL	**Aircraft crash or projectile impact (strikes) within the EXCLUSION AREA BOUNDARY.** 1. Plant personnel report aircraft crash or **PROJECTILE** impact within the **EXCLUSION AREA BOUNDARY** (Figure 5-A).

GENERAL

SITE AREA

ALERT

NOUE

5.4 River Level High

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
ALL	**River reservoir level is at Stage II Flood Warning as reported by River Operations.**
ALL	**River reservoir level is at Stage I Flood Warning as reported by River Operations.**

5.5 River Level Low

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
ALL	**River reservoir level is < 670 Feet as reported by River Operations.**
ALL	**River reservoir level is < 673 Feet as reported by River Operations.**

GENERAL

SITE AREA

ALERT

NOUE

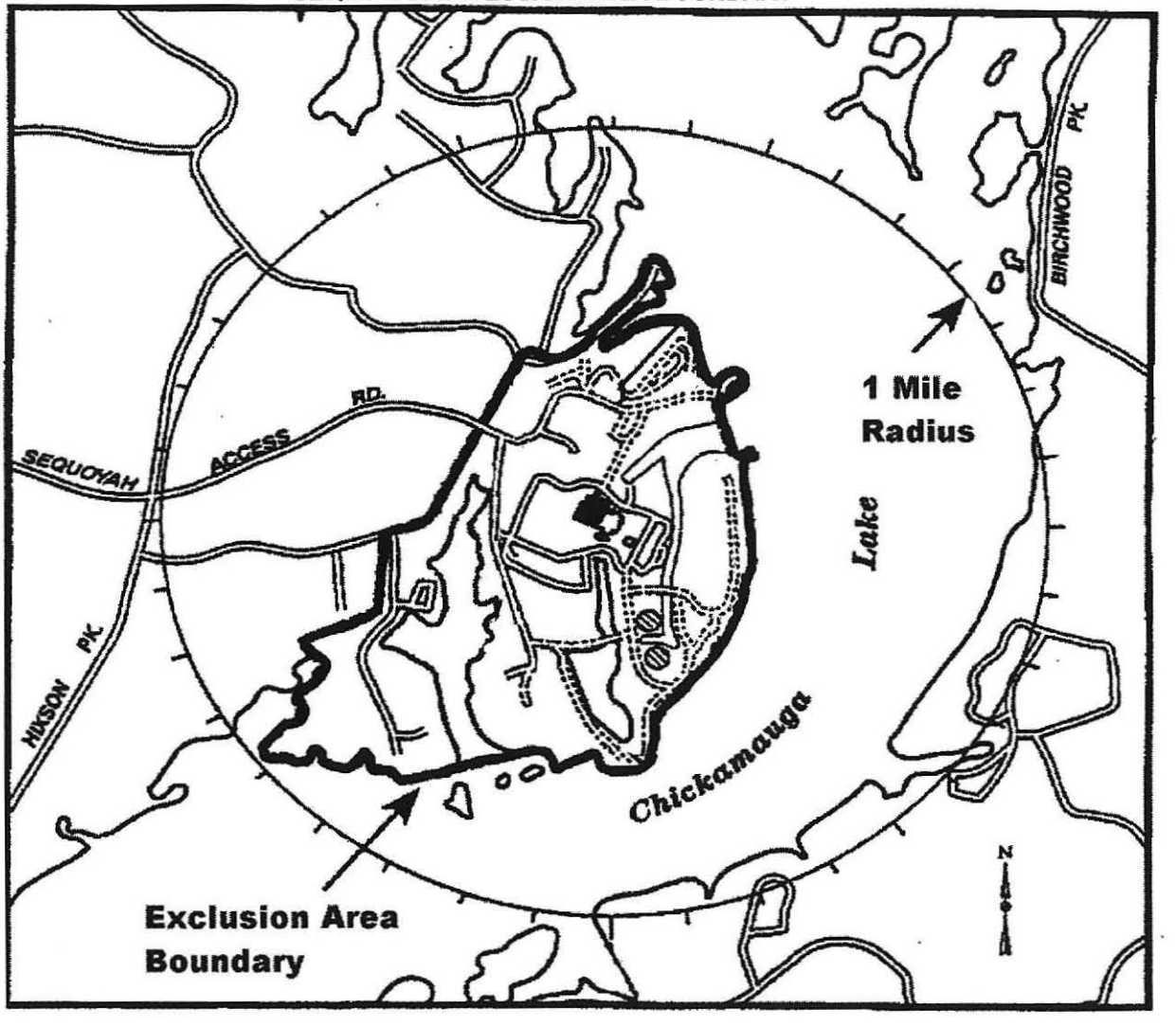
5.6 WaterCraft Crash

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
	Refer to "Fission Product Barrier Matrix" (Section 1) and Continue in This Column.
ALL	**Watercraft strikes the ERCW pumping station resulting in a reduction of Essential Raw Cooling Water (ERCW).** ***(1 and 2):*** 1. Plant personnel report a watercraft has struck the ERCW pumping station. 2. *(a or b)* a. ERCW supply header pressure Train A 1(2)-PI-67-493A is < 15 psig. **OR** b. ERCW supply header pressure Train B 1(2)-PI-67-488A is < 15 psig.

TABLE 5-1
Plant Structure Associated With
Tornado/High Wind and Aircraft EALs

Unit #1 Containment	Auxiliary Building
Turbine Building	RWST
Unit #2 Containment	Diesel Generator Bldg.
CDWE Building	Condensate Storage Tanks
Control Building	ERCW Pumping Station
Additional Equipment Bldgs	Intake Pumping Station
Common Station Service Transformer's	

Figure 5-A
SEQUOYAH EXCLUSION AREA BOUNDARY



1 FISSION PRODUCT BARRIER MATRIX **(Modes 1-4)**

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

2 SYSTEM DEGRADATION

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

3 LOSS OF POWER

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

4 HAZARDS and SED JUDGMENT

4.1 Fire	Table 4-1
4.2 Explosion	Table 4-2
4.3 Flammable Gas	Figure 4-A
4.4 Toxic Gas or Smoke	Figure 4-B
4.5 Control Room Evacuation	
4.6 Security	
4.7 SED Judgment	

5 DESTRUCTIVE PHENOMENON

5.1 Earthquake	5.5 River Level Low
5.2 Tornado	5.6 Watercraft Crash
5.3 Aircraft/Projectile	Table 5-1
5.4 River Level High	Figure 5-A

6 SHUTDOWN SYSTEM DEGRADATION

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

7 RADIOLOGICAL EFFLUENTS

7.1 Gaseous Effluent	Table 7-1
7.2 Liquid Effluent	Table 7-2
7.3 Radiation Levels	Figure 7-A
7.4 Fuel Handling	
7.5 Spent Fuel Storage	

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EXTORTION: An attempt to cause an action at the site by threat or force.

FAULTED: (Steam Generator) Existence of secondary side leakage (e.g., steam or feed line break) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical components do not constitute a fire. Observation of flame is preferred but is NOT required if large quantities of smoke and/or heat are observed.

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

IMMINENT: Within two hours.

INEFFECTIVE: When the specified restoration action(s) does not result in a reduction in the level of severity of the RED or ORANGE PATH condition within 15 minutes from identification of the CSF Status Tree RED or ORANGE PATH.

INITIATING CONDITIONS: Plant Parameters, radiation monitor readings or personnel observations that identify an Event for purposes of Emergency Plan Classification.

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PROJECTILE: An object ejected, thrown or launched towards a plant structure resulting in damage sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein. The source of the projectile may be onsite or offsite.

PROTECTED AREA: The area encompassed by the security fence and to which access is controlled.

RCS: 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 and secondary isolation valves.

RED PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under extreme challenge; prompt operator action is required.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude greater than the capacity one charging pump.

SABOTAGE: Deliberate damage, misalignment, or misoperation of plant equipment with the intent to render the equipment inoperable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) An automatic turbine runback >15% thermal reactor power; (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation; (5) Thermal Power Oscillations ≥10%.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on TVA. The STRIKE ACTION must threaten to interrupt normal plant operations.

TOXIC GAS: A gas that is dangerous to life or limb by reason of inhalation or skin contact (e.g., chlorine, CO_2 , etc.)

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

UNPLANNED RELEASE: A release of radioactivity is UNPLANNED if the release has not been authorized by a Discharge Permit (DP). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the DP, (e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank).

VALID: An indication, report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indication on related or redundant indicators, or (3) by direct observation by plant personnel. Implicit in this definition is the need for timely assessment within 15 minutes.

VISIBLE DAMAGE: Damage to equipment that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes deformation due to heat or impact, denting, penetration, rupture, cracking, or paint blistering. Surface blemishes (e.g., paint chipping, scratches, etc.) should NOT be included as visible damage.

VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

6.1 Loss of Shutdown Systems			6.2 Loss of S/D Capability	
Mode	Initiating / Condition		Mode	Initiating / Condition
	Refer to "Gaseous Effluents" (Section 7.1) and Continue in This Column.	GENERAL		*Not Applicable.*
5, 6	**Loss of water level in the reactor vessel that has or will uncover active fuel in the reactor vessel. (1 and 2 and 3):** 1. Loss of RHR capability. 2. **VALID** indication that reactor vessel water level < el. 695'. 3. Incore TCs (if available) indicate **RCS** temperature > 200 °F. *Note: If containment is open refer to "Gaseous Effluents" (Section 7.1) and continue in this column.*	SITE AREA	1, 2, 3, 4	**Complete loss of function needed to achieve or maintain hot shutdown. (1 and [2a or 2b]):** 1. Hot shutdown required. 2a. CSF status tree indicated Core Cooling Red (FR-C.1). **OR** 2b. CSF status tree indicates Heat Sink Red (FR-H.1) (RHR shutdown cooling not in service). *Note: Refer to "Reactor Protection System Failure" (Section 2.3) and Continue in This Column.*
5, 6	**Inability to maintain unit in cold shutdown when required (1 and 2):** 1. Cold shutdown required by Technical Specs. 2. Incore TCs (if available) indicate core exit temperature > 200 °F. *Note: If containment is open refer to "Gaseous Effluents" (Section 7.1) and continue in this column.*	ALERT	1, 2, 3, 4	**Complete loss of function needed to achieve cold shutdown when cold shutdown required by Tech. Specs. (1 and 2 and 3):** 1. Cold shutdown required by Tech. Specs. 2. Loss of RHR shutdown cooling capability. 3. Loss of secondary heat sink and main condenser *Note: Also refer to "Failure of Rx Protection" (Section 2.3) and Continue in This Column.*
	Not Applicable.	NOUE	1, 2, 3, 4	**Inability to reach required shutdown within Tech. Spec. limits.** 1. The unit has not been placed in the required mode within the time prescribed by the LCO action statement.

6.3 loss of RCS Inventory

Mode	Initiating / Condition	
	Refer to "Gaseous Effluents" (Section 7.1) and Continue in This Column.	GENERAL
	Refer to "Gaseous Effluents" (Section 7.1) and Continue in This Column.	SITE AREA
	Refer to "Gaseous Effluents" (Section 7.1) and Continue in This Column.	ALERT
5, 6	**Loss of REACTOR COOLANT SYSTEM inventory with inadequate makeup.** ***(1 and 2 and 3):*** 1. **Reactor coolant system** is pressurized above atmospheric pressure. 2. Unplanned decrease in **RCS** or pressurizer level requiring initiation of makeup to the **RCS**. 3. With reactor coolant system temperature stable, the pressurizer level continues to decrease following initiation of **RCS** makeup.	NOUE

1 FISSION PRODUCT BARRIER MATRIX **(Modes 1-4)**

1.1 Fuel Clad Barrier
1.2 RCS Barrier
1.3 Containment Barrier

2 SYSTEM DEGRADATION

2.1 Loss of Instrumentation
2.2 Loss of Communication
2.3 Failure of Reactor Protection
2.4 Fuel Clad Degradation
2.5 RCS Unidentified Leakage
2.6 RCS Identified Leakage
2.7 Uncontrolled Cool Down
2.8 Turbine Failure
2.9 Safety Limit

3 LOSS OF POWER

3.1 Loss of AC (Power Ops)
3.2 Loss of AC (Shutdown)
3.3 Loss of DC

4 HAZARDS and SED JUDGMENT

4.1 Fire	Table 4-1
4.2 Explosion	Table 4-2
4.3 Flammable Gas	Figure 4-A
4.4 Toxic Gas or Smoke	Figure 4-B
4.5 Control Room Evacuation	
4.6 Security	
4.7 SED Judgment	

5 DESTRUCTIVE PHENOMENON

5.1 Earthquake	5.5 River Level Low
5.2 Tornado	5.6 Watercraft Crash
5.3 Aircraft/Projectile	Table 5-1
5.4 River Level High	Figure 5-A

6 SHUTDOWN SYSTEM DEGRADATION

6.1 Loss of Shutdown Systems
6.2 Loss of Shutdown Capability
6.3 Loss of RCS Inventory

7 RADIOLOGICAL EFFLUENTS

7.1 Gaseous Effluent	Table 7-1
7.2 Liquid Effluent	Table 7-2
7.3 Radiation Levels	Figure 7-A
7.4 Fuel Handling	
7.5 Spent Fuel Storage	

Definitions and Abbreviations:

BOMB: An explosive device. (See EXPLOSION)

CIVIL DISTURBANCE: A group of twenty (20) or more persons within the EAB violently protesting onsite operations or activities at the site.

CONFINEMENT BOUNDARY: Spent Fuel Storage Cask CONFINEMENT BOUNDARY consists of MPC shell, bottom baseplate, MPC lid (including the vent and drain port cover plates), MPC closure ring, and associated welds.

CRITICAL-SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs; Subcriticality, Core Cooling, Heat Sink, Pressurized Thermal Shock, Integrity (Containment) and Inventory (**RCS**).

EVENT: Assessment of an EVENT commences when recognition is made that one or more of the initiating conditions associated with the event exist. Implicit in this definition is the need for timely assessment within 15 minutes.

EXCLUSION AREA BOUNDARY (EAB): That area surrounding the reactor, in which the reactor licenses has the authority to determine all activities including exclusion or removal of personnel and property from the area. For purposes of Emergency Action Levels, based on radiological field measurements and dose assessments, and for design calculations, the Site Boundary shall be defined as the EAB.

EXPLOSION: Rapid, violent, unconfined combustion, or a catastrophic failure of pressurized or electrical equipment that imparts energy of sufficient force to potentially damage permanent structures or equipment.

EXTORTION: An attempt to cause an action at the site by threat or force.

FAULTED: (Steam Generator) Existence of secondary side leakage (e.g., steam or feed line break) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical components do not constitute a fire. Observation of flame is preferred but is NOT required if large quantities of smoke and/or heat are observed.

FLAMMABLE GAS: Combustible gases at concentrations > than the LOWER EXPLOSIVE LIMIT (LEL).

HOSTAGE: A person(s) held as leverage against the site to ensure that demands will be met by the site.

HOSTILE ACTION: An act toward a nuclear plant or its personnel that includes the use of violent force to destroy equipment, take hostages, and/or intimidate the licensee to achieve an end. This includes attack by air, land or water; using guns, explosives, projectiles, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. **HOSTILE ACTION** should NOT be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant.

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

IMMINENT: Within two hours.

INEFFECTIVE: When the specified restoration action(s) does not result in a reduction in the level of severity of the RED or ORANGE PATH condition within 15 minutes from identification of the CSF Status Tree RED or ORANGE PATH.

INITIATING CONDITIONS: Plant Parameters, radiation monitor readings or personnel observations that identify an Event for purposes of Emergency Plan Classification.

INTRUSION/INTRUDER: Suspected hostile individual present in the protected area without authorization.

ISFSI: Independent Spent Fuel Storage Installation

ODCM: Offsite Dose Calculation Manual is a supporting document to the Tech Specs. that contain Rad Effluent Controls, Environs Monitoring controls, and methodology for calculating routine gaseous and liquid effluent offsite doses and monitor alarm/trip setpoints.

ORANGE PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under severe challenge; prompt operator action is required.

PROJECTILE: An object ejected, thrown or launched towards a plant structure resulting in damage sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein. The source of the projectile may be onsite or offsite.

PROTECTED AREA: The area encompassed by the security fence and to which access is controlled.

RCS: 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 and secondary isolation valves.

RED PATH: Monitoring of one or more CSFs by FR-0 which indicates that the CSF(s) is under extreme challenge; prompt operator action is required.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude greater than the capacity one charging pump.

SABOTAGE: Deliberate damage, misalignment, or misoperation of plant equipment with the intent to render the equipment inoperable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) An automatic turbine runback >15% thermal reactor power; (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation; (5) Thermal Power Oscillations ≥10%.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on TVA. The STRIKE ACTION must threaten to interrupt normal plant operations.

TOXIC GAS: A gas that is dangerous to life or limb by reason of inhalation or skin contact (e.g., chlorine, CO_2, etc.)

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

UNPLANNED RELEASE: A release of radioactivity is UNPLANNED if the release has not been authorized by a Discharge Permit (DP). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the DP, (e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank).

VALID: An indication, report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indication on related or redundant indicators, or (3) by direct observation by plant personnel. Implicit in this definition is the need for timely assessment within 15 minutes.

VISIBLE DAMAGE: Damage to equipment that is readily observable without measurements, testing, or analysis. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes deformation due to heat or impact, denting, penetration, rupture, cracking, or paint blistering. Surface blemishes (e.g., paint chipping, scratches, etc.) should NOT be included as visible damage.

VITAL AREA: Any area within the PROTECTED AREA which contains equipment, systems, devices, or material which the failure, destruction, or release of, could directly or indirectly endanger the public health and safety by exposure to radiation.

7.1 Gaseous Effluents			7.2 Liquid Effluents	
Mode	Initiating / Condition		Mode	Initiating / Condition
ALL	**EAB dose, resulting from an actual or imminent release of gaseous radioactivity > 1 Rem TEDE or > 5 Rem thyroid CDE for the actual or projected duration of release.** ***(1 or 2 or 3):*** 1. A **VALID** rad monitor reading exceeds the values under General Emergency in Table 7-1 for >15 min, unless assessment within that 15 min confirms that the criterion is not exceeded. **OR** 2. Field surveys indicate >1Rem/hr gamma or an I-131 concentration of 3.9E-06 $\mu Ci/cm^3$ at the **EAB** (Fig. 7-A) **OR** 3. Dose assessment results indicate **EAB** dose >1 Rem TEDE or >5 Rem thyroid CDE for the actual or projected duration of the release (Fig. 7-A).	GENERAL		*Not Applicable.*
ALL	**EAB dose resulting from an actual or imminent release of gaseous radioactivity >100 mrem TEDE or >500 mrem thyroid CDE for actual or projected duration of release.** ***(1 or 2 or 3):*** 1. A **VALID** rad monitor reading > Table 7-1 values under Site Area for > 15 min, unless assessment within that 15 min confirms that the criterion is not exceeded. **OR** 2. Field surveys indicate >100 mrem/hr gamma or an I-131 conc of 3.9E-07 $\mu Ci/cm^3$ at the **EAB** (Fig. 7-A). **OR** 3. Dose assessment results indicate **EAB** dose >100 mrem TEDE or >500 mrem thyroid CDE for actual or projected duration of the release (Fig. 7-A).	SITE AREA		*Not Applicable.*
ALL	**Any UNPLANNED release of gaseous radioactivity that exceeds 200 times the ODCM Section 1.2.2.1 Limit for >15 minutes.** ***(1 or 2 or 3 or 4)*** 1. A **VALID** rad monitor reading > Table 7-1 values under Alert for >15 minutes, unless assessment within that 15 minutes confirms that the criterion is not exceeded. **OR** 2. Field surveys indicate >10 mrem/hr gamma at the **EAB** for >15 minutes (Fig 7-A). **OR** 3. Dose assessment results indicate **EAB** dose >10 mrem TEDE for the duration of the release (Fig. 7-A). **OR** 4. Sample results exceed 200 times the **ODCM** limit value for an unmonitored release of gaseous radioactivity >15 minutes in duration.	ALERT	ALL	**Any UNPLANNED release of liquid radioactivity that exceeds 200 times the ODCM Section 1.2.1.1 Limit for >15 minutes.** ***(1 or 2)*** 1. A **VALID** rad monitor reading > Table 7-1 values under Alert for >15 minutes, unless assessment within this time period confirms that the criterion is not exceeded. **OR** 2. Sample results indicate an ECL >200 times the **ODCM** limit value for an unmonitored release of liquid radioactivity >15 minutes in duration
ALL	**Any UNPLANNED release of gaseous radioactivity that exceeds 2 times the ODCM Section 1.2.2.1 Limit for >60 minutes.** ***(1 or 2 or 3 or 4)*** 1. A **VALID** rad monitor reading > Table 7-1 values under UE for >60 minutes, unless assessment within that 60 minutes confirms that the criterion is not exceeded. **OR** 2. Field surveys indicate >0.1 mrem/hr gamma at the **EAB** for >60 minutes (Fig 7-A) **OR** 3. Dose assessment results indicate **EAB** dose >0.1 mrem TEDE for the duration of the release (Fig. 7-A). **OR** 4. Sample results exceed 2 times the **ODCM** limit value for an unmonitored release of gaseous radioactivity >60 minutes in duration	NOUE	ALL	**Any UNPLANNED release of liquid radioactivity to the environment that exceeds 2 times the ODCM Section 1.2.1.1 Limit for >60 minutes.** ***(1 or 2)*** 1. A **VALID** rad monitor reading > Table 7-1 values under UE for >60 minutes, unless assessment within this time period confirms that the criterion is not exceeded. **OR** 2. Sample results indicate an ECL >2 times the **ODCM** limit value for an unmonitored release of liquid radioactivity >60 minutes in duration.

7.3 Radiation Levels

Mode	Initiating / Condition
	Refer to "Fission Product Barrier Matrix" (Section 1) or "Gaseous Effluents" (Section 7.1) and Continue in This Section.
	Refer to "Fission Product Barrier Matrix" (Section 1) or "Gaseous Effluents" (Section 7.1) and Continue in This Section.
ALL	**UNPLANNED increases in radiation levels within the facility that impedes safe operations or establishment or maintenance of cold shutdown.** ***(1 or 2):*** 1. **VALID** area radiation monitor readings or survey results exceed 15 mrem/hr in the control room or CAS. **OR** 2. *(a and b):* a. **VALID** area radiation monitor readings exceed values listed in Table 7-2. b. Access restrictions impede operation of systems necessary for safe operation or the ability to establish cold shutdown *(See Note Below).*
ALL	**UNPLANNED increase in radiation levels within the facility.** 1. A **VALID** area radiation monitor reading increases by 1000 mrem/hr over the highest reading in the past 24 hours excluding the current peak value. *Note: In either the UE or ALERT EAL, the SED must determine the cause of increase in radiation levels and review other initiating conditions for applicability (e.g., a dose rate of 15 mrem/hr in the control room could be caused by a release associated with a DBA).*

GENERAL SITE AREA ALERT NOUE

7.4 Fuel Handling

Mode	Initiating / Condition
	Refer to "Gaseous Effluents" (Section 7.1) and Continue in This Section.
	Refer to "Gaseous Effluents" (Section 7.1) and Continue in This Section.
ALL	**Major damage to irradiated fuel or loss of water level that has or will uncover irradiated fuel outside the reactor vessel.** ***(1 and 2):*** 1. **VALID** alarm on RM-90-101 or RM-90-102 or RM-90-103 or RM-90-130/131 or RM-90-112. 2 *(a or b):* a. Plant personnel report damage to irradiated fuel sufficient to rupture fuel rods. **OR** b. Plant personnel report water level drop has or will exceed makeup capacity such that irradiated fuel will be uncovered in the spent fuel pool or transfer canal.
ALL	**UNPLANNED loss of water level in spent fuel pool or reactor cavity or transfer canal with fuel remaining covered.** ***(1 and 2 and 3):*** 1. Plant personnel report water level drop in spent fuel pool or reactor cavity, or transfer canal. 2. **VALID** alarm on RM-90-101 or RM-90-102 or RM-90-103. 3. Fuel remains covered with water.

7.5 Spent Fuel Storage

Mode	Initiating / Condition	
	Not Applicable.	GENERAL
	Not Applicable.	SITE AREA
	Not Applicable.	ALERT
ALL	**Damage to a loaded cask CONFINEMENT BOUNDARY from: (1 or 2 or 3)** 1. Natural phenomena (e.g., seismic event, tornado, flood, lightning, snow/ice accumulation, etc.). **OR** 2. Accident (e.g: dropped cask, tipped over cask, explosion, missile damage, fire damage, burial under debris, etc). **OR** 3. Judgment of the Site Emergency Director that the **CONFINEMENT BOUNDARY** damage is a degradation in the level of safety of the ISFSI	NOUE

TABLE 7-1

EFFLUENT RADIATION MONITOR EALS

NOTE: The monitor values below, if met or exceeded, indicate the need to perform the required assessment. If the assessment can not be completed within 15 minutes (60 minutes for UE), the appropriate emergency classification shall be made based on the **VALID** reading.

GASEOUS MONITORS	Units[2]	UE	Alert	SAE	General
Site Total Release Limit	µCi/s	4.90E+05	4.90E+07	1.31E+08	1.31E+09
1-RI-90-400 (EFF LEVEL) - *U-1 Shield Bldg*	µCi/s	4.90E+05	4.90E+07	1.31E+08	1.31E+09
2-RI-90-400 (EFF LEVEL) - *U-2 Shield Bldg*	µCi/s	4.90E+05	4.90E+07	1.31E+08	1.31E+09
0-RM-90-101B - *Auxiliary Bldg*	cpm	1.03E+05	Offscale[1]	Offscale[1]	Offscale[1]
0-RM-90-132B - *Service Bldg*	cpm	2.62E+06	Offscale[1]	Offscale[1]	Offscale[1]
1-RI-90-421 thru 424 - *U-1 MSL Monitors*[2]	µCi/cc	1.71 E-01	1.71E+01	4.58E+01	4.58E+02
2-RI-90-421 thru 424 - *U-2 MSL Monitors*[2]	µCi/cc	1.71 E-01	1.71E+01	4.58E+01	4.58E+02
1-RM-90-255 or 256 - *U-1 CVE*	mR/h	4.10E+02	4.10E+04	1.09E+05	1.09E+06
2-RM-90-255 or 256 - *U-2 CVE*	mR/h	4.10E+02	4.10E+04	1.09E+05	1.09E+06
RELEASE DURATION	***minutes***	***>60***	***>15***	***>15***	***>15***
LIQUID MONITORS	**Units**	**UE**	**Alert**	**Site Area**	**General**
Site Total Release Limit	µCi/ml	6.50E-03	6.50E-01	N/A	N/A
RM-90-122 - RadWaste	cpm	1.45E+06	Offscale[1]	N/A	N/A
RM-90-120,121 - S/G Bldn	cpm	1.07E+06	Offscale[1]	N/A	N/A
RM-90-225 - Cond Demin	cpm	1.90E+06	Offscale[1]	N/A	N/A
RM-90-212 - TB Sump	cpm	3.28E+03	3.28E+05	N/A	N/A
RELEASE DURATION	**minutes**	**>60**	**>15**	**>15**	**>15**

ASSESSMENT METHODS:
- ◆ Airborne Dose Assessment per SQN EPIP-13 "Dose Assessment"
- ◆ ODCM Liquid Release Rate assessment per SQN 0-TI-CEM-030.030.0
- ◆ Integrated Airborne Release Rate assessment per SQN 0-TI-CEM-030.030.0

(1) The calculated value is outside of the upper range for this detector. The maximum monitor output which can be read is 1.0E+07 cpm. Releases in excess of monitor capacity should be evaluated for proper classification by use of Dose Assessment.

(2) These unit values are based on flow rates through one PORV of 890,000 lb/hr at 1078.7 psia with 0.25% carry over (0.9975 quality). Before using these values, ensure a release to the environment is ongoing, (e.g., PORV).

NOTE 1: These EALs are based on the assumption that an emergency release is restricted to one pathway from the plant. In all cases, the total site EAL is the limiting value. Therefore, in the case where there are multiple release paths from the plant, it is the total release EAL (obtained from ICS and/or SQN 0-TI-CEM-030-030, "Manual Calculation of Plant Gas, Iodine, and Particulate Release Rates for Offsite Dose Calculation Manual (ODCM) Compliance") that will determine whether an emergency classification is warranted.

NOTE 2: In the case when there is no CECC dose assessment available, the length and relative magnitude of the release is the key in determining the classification. For example, in the case of the NOUE EAL of 2 times the Tech Spec limit, the classification is based more on the fact that a release above the limit has continued unabated for more than 60 minutes, than on the projected offsite dose.

NOTE 3: See REP Appendix B for basis information.

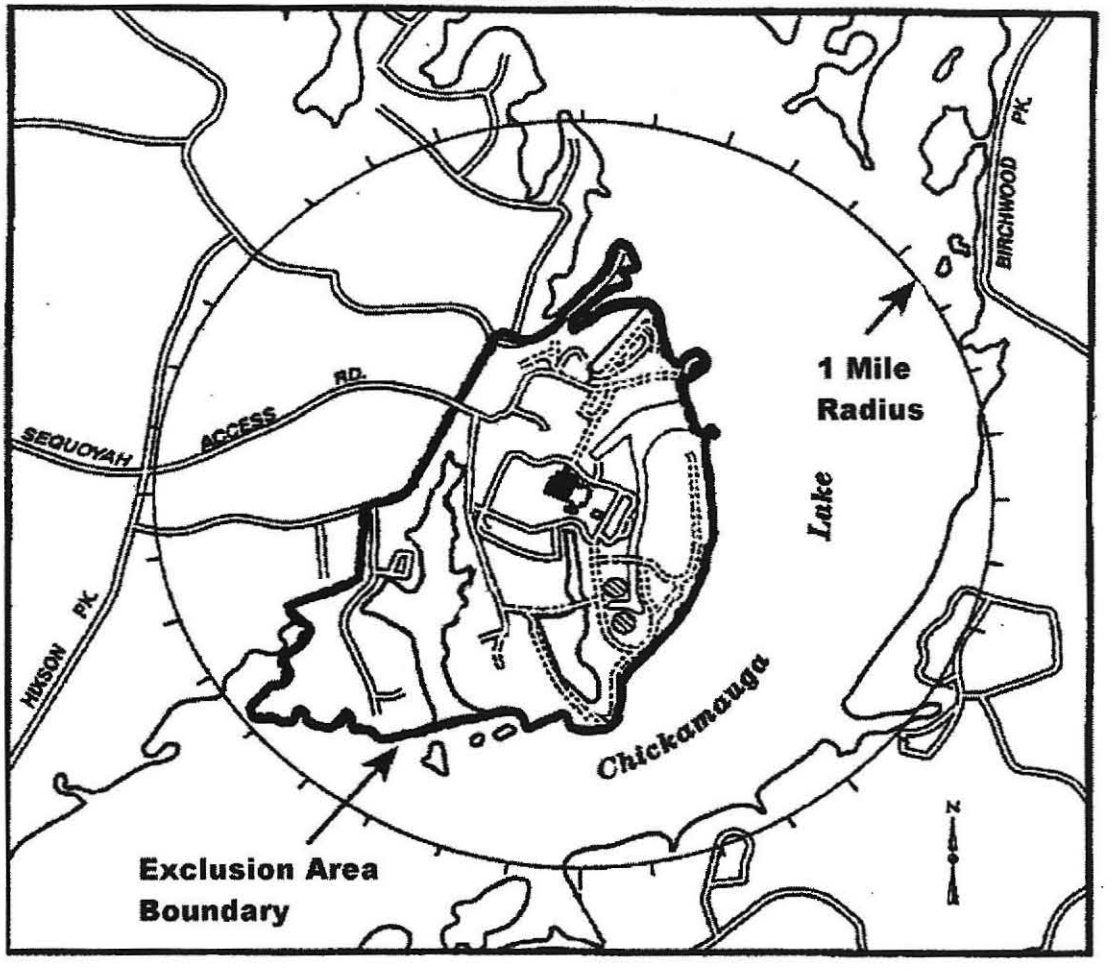
Table 7-2
ALERT - RADIATION LEVELS

For purposes of comparing the meter/monitor reading values to this table, it can be assumed that mR is equivalent to mrem.

Monitor No.	Location - Area and Elevation		Meter Reading
1,2-RM-90-1	Spent Fuel Pit ARM	El. 734.0	1.5E+03 mR/hr
0-RM-90-5	SFP Pumps ARM	El. 714.0	1.5E+03 mR/hr
1,2-RM-90-6	CCS HXS ARM	El. 714.0	1.5E+03 mR/hr
1,2-RM-90-7	Sample Rm ARM	El. 690.0	1.5E+03 mR/hr
1,2-RM-90-8	AFW Pumps ARM	El. 690.0	1.5E+03 mR/hr
0-RM-90-9	Waste Cnds Tks ARM	El. 669.0	1.5E+03 mR/hr
1,2-RM-90-10	CVCS Bd ARM	El. 669.0	1.5E+03 mR/hr
0-RM-90-11	CS and RHR Pumps Radmon	El. 653.0	1.5E+03 mR/hr
0-RM-90-102	Spent Fuel Pit Radmon	El. 734.0	1.5E+03 mR/hr
0-RM-90-103	Spent Fuel Pit Radmon	El. 734.0	1.5E+03 mR/hr
0-RM-90-230	CNDS Demineralizer ARM	El. 685.0	1.5E+03 mR/hr
0-RM-90-231	Cnds Demineralizer ARM	El. 706.0	1.5E+03 mR/hr

Note: All of the above monitors have a range of 0.1 to 1E+4 mrem/hr.

Figure 7-A
EXCLUSION AREA BOUNDARY



TENNESSEE VALLEY AUTHORITY

SEQUOYAH NUCLEAR PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EPIP-4

SITE AREA EMERGENCY

REVISION 30

QUALITY-RELATED

PREPARED BY: BILL PEGGRAM

RESPONSIBLE ORGANIZATION: EMERGENCY PREPAREDNESS

APPROVED BY: KEVIN WILKES

EFFECTIVE DATE: 1/23/2007

LEVEL OF USE: REFERENCE USE

Revision History

Rev	Date	Pages Effected	Reason for Revision
21	03/30/2001		Revised references to EPIP-14 for Dose Assessment to the new EPIP-13 for Dose Assessment. Added EPIP-13 to references. Reformatted substantially for clarity. Updated Notification and Follow-Up forms to Pentagen standard content.
22	07/30/2002		Substantial format modification for standardization with BFN/WBN was implemented in this revision. Reformatted and repaginated as necessary. Reordered actions to be consistent with EPIPs 2, 3, 5. Changed reference of PHYSI-32 to SSI-1. Added Section 5.0, Illustrations and Appendices Section to the body of the procedure. Added caution concerning conducting assembly and accountability if it will present a danger to employees. Clarified use of 5- and 9- telephone prefixes. Added what information is to be provided by the Shift Manager to Chemistry when requesting Dose Assessment: 1.Type of Event, 2. Release Path, 3. Expected Duration. Clarified how to check ERO pager response. EPIP-4 was revised to implement actions to support the NRC Security Order including adding "Two Person Line-of-Sight" rule when deemed necessary by Security. Clarified what MET Data elevation is to be included on the initial notification form and the followup form for Site Area Emergency.
23	08/26/2002		Added Step 2 to section 3.1 to speed implementation if EPS has already been activated. Condensed steps in 3.1 and 3.2 on assembly and accountability. Implement ability to Stage TSC/OSC personnel near-site when it is unsafe to immediately enter the site due to security conditions. Corrected title of CECC EPIP-9 in Sections 3.1 and 3.2. This is a intent revision.
24	04/22/2003		General Revision to restructure EPIP for better flow. Moved ODS notification earlier in procedure. Intent Change.
25	06/25/2003	9	Non intent change. Phone number correction.
26	10/23/2003	4, 8, 12	Intent change. Added step to record time of declaration upon entry into the procedure. Split step that had two actions in one step. Specified Security implement EPIP-11
27	4/22/2004	3, 6, 13	Intent Change: Corrected TOC, Clarified that MSS/WWM in the OSC is verifying ERO response and that SM is to ENSURE that this is in progress. Added SED's Initials to Sec. 3.2. Added guidance to utilize EPIP-6 Apdx B to initially brief NRC using ENS line.
28	9/23/2004	6, 7, 9, 13	Intent Change: Removed satellite phone numbers, added validation step to Sec. 3.2, added announcement to Staff the TSC and OSC to App.A,
29	04/26/2006	4, 14, 15	Revision Change: replaced SSI-1 with SSI-7.1. Changed App.B, Step 9 from being the time and date info was provided to the ODS to faxing App. B to the ODS. Made App. C consistent with App. B by putting "THIS IS A DRILL" before "THIS IS A REAL EVENT".
30	1/23/2007	8, 12, 13	Plan effectiveness determinations reviews indicate the following revisions do not reduce the level of effectiveness of the procedure of REP: Annual review. Changed to current org titles, clarified making Site Area Emergency announcement on old plant PA and the x4800 bridge. Revised responsibility of dose assessment from Chemistry to RP.

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1.0 PURPOSE

1.1 To provide a method for timely notifications of appropriate individuals or organizations when the Shift Manager (SM)/Site Emergency Director (SED) has determined by EPIP-1 that events have occurred that are classified as a **SITE AREA EMERGENCY (SAE).**

1.2 To provide the SED/SM a method for periodic reanalysis of current conditions to determine whether the **SITE AREA EMERGENCY** should be terminated or continued.

2.0 REFERENCES

2.1 Interface Documents

[1] SPP-3.5 "Regulatory Reporting Requirements"
[2] EPIP-5, "General Emergency"
[3] EPIP-6, "Activation and Operation of the Technical Support Center"
[4] EPIP-7, "Activation and Operation of the Operations Support Center (OSC)"
[5] EPIP-8, "Personnel Accountability and Evacuation"
[6] EPIP-10, "Emergency Medical Response"
[7] EPIP-13, "Dose Assessment"
[8] EPIP-14, "Radiation Protection Response"
[9] EPIP-16, "Termination and Recovery"
[10] CECC EPIP-9, "Emergency Environmental Radiological Monitoring Procedures"
[11] SSI-7.1, "Post Requirements and Responsibilities, Central and Secondary Alarm Stations"

3.0 INSTRUCTIONS

NOTE: **IF** there are personnel injuries, **THEN IMPLEMENT** EPIP-10, "Emergency Medical Response."

NOTE: **IF** there are immediate hazards to plant personnel, **THEN** consider immediately implementing EPIP-8 "Personnel Accountability and Evacuation" in parallel with this procedure

3.1 SITE AREA EMERGENCY DECLARATION BY THE MAIN CONTROL ROOM

Upon classifying events as a SITE AREA EMERGENCY the SM/SED shall:

[1] **IF** TSC is OPERATIONAL, (SED transferred to TSC), **THEN GO TO** Section 3.2 (Page 7). ☐

[2] **RECORD time of Declaration.**

_____
Time

3.1 SITE AREA EMERGENCY DECLARATION BY THE MAIN CONTROL ROOM (Continued)

[3] **ACTIVATE** Emergency Paging System (EPS) as follows:

[a] **IF** EPS has already been activated, **THEN GO TO Step 4.** ☐

[b] **IF** ongoing onsite Security events may present risk to the emergency responders, **THEN CONSULT** with Security to determine if site access is dangerous to the life and health of emergency responders. ☐

[c] **IF** ongoing events makes site access dangerous to the life and health of emergency responders, **THEN SELECT** STAGING AREA button on the terminal **INSTEAD** of the EMERGENCY button. ☐

[d] **ACTIVATE** EPS using touch screen terminal. **IF** EPS fails to activate, **THEN** continue with step 4. ☐

[4] **COMPLETE** Appendix B, TVA Initial Notification for Site Area Emergency. ☐

NOTE: ODS should be notified within **5 minutes** after declaration of the event.

[5] **NOTIFY** ODS.

Initial _____ Time _____

ODS: Ringdown Line or
5-751-1700 or 5-751-2495 or 9-785-1700

[a] **IF** EPS failed to activate from SQN when attempted **THEN DIRECT** ODS to activate SQN EPS. ☐

[b] **IF** ODS is also unable to activate EPS, **THEN** continue with step [5] [b]. ☐

[c] **READ** completed Appendix B to ODS. ☐

[d] **FAX** completed Appendix B to ODS. ☐

5-751-8620 (Fax)

[e] **MONITOR** for confirmation call from ODS that State/Local notifications complete: **RECORD** time State notified.

Notification Time _____

3.1 SITE AREA EMERGENCY DECLARATION BY THE MAIN CONTROL ROOM (Continued)

[6] **IF** ODS **CANNOT** be contacted within **10 minutes** of the declaration, **THEN**

[a] **CONTACT** Tennessee Emergency Management Agency (TEMA) **AND READ** Completed Appendix B.

Initial _____ Time _____

9-1-800-262-3300 or 9-1-615-741-0001

[b] **FAX** completed Appendix B to TEMA. ☐

9-1-615-242-9635 (Fax)

[7] **ENSURE** MSS/WWM in the OSC (x6428) is monitoring Emergency Response Organization (ERO) responses using printed report available in the OSC.

[a] **IF** any ERO positions are not responding, **THEN DIRECT** MSS to **CALL** personnel to staff TSC/OSC positions. (Use REP Duty Roster and Call List.) ☐

[8] **PERFORM** Appendix A, Notifications and Announcements. (Delegate as needed.) ☐

[9] **GO TO** Section 3.3.

3.2 SITE AREA EMERGENCY DECLARATION BY THE TSC

Upon classifying events as a **SITE AREA EMERGENCY** the SED shall:

NOTE:	CECC Director should be notified within **5 minutes** after declaration of the event.

[1] **RECORD** Time of Declaration _____

[2] **RECORD** EAL(s) _____

[3] **VALIDATE** time and EAL numbers with the Ops Mgr, Site VP or EP Mgr. ☐

[4] **CALL** CECC Director and inform of escalation, time of declaration, EAL(s) declared, and description of events.

_____ _____
SED's Initials Time

Ringdown Line or 5-751-1614 or 5-751-1680

[5] **IF** CECC Director **CANNOT** be contacted within **10 minutes** of the declaration, **THEN**

[a] **COMPLETE** Appendix B (Initial Notification for SAE) ☐

[b] **NOTIFY** TEMA **AND READ** completed Appendix B.

_____ _____
SED's Initials Time

9-1-800-262-3300 or 9-1-615-741-0001

[c] **FAX** completed Appendix B to TEMA. ☐

9-1-615-242-9635 (Fax)

[6] **IF** not previously implemented, **THEN PERFORM** notifications using Appendix A. ☐

3.3 MONITOR CONDITIONS

[1] **MONITOR** radiation monitors.

[2] **WHEN** indication exists of an unplanned radiological release, **THEN ENSURE** Dose Assessment is performed. ☐

[a] **IF** the CECC has not assumed Dose Assessment responsibility, **THEN NOTIFY** Radiation Protection to perform a dose assessment using EPIP-13, "Dose Assessment"

AND

PROVIDE the following information:
1. Type Of Event (SGTR/L, LOCA, WGDT, Cntmt Bypass)
2. Release Path (SG/PORV, Aux, Shld, Turb, Serv, Cond)
3. Expected Duration (If unknown assume 4 hour duration) ☐

7865 (RP Lab) or 6417 (RP Lab) or
Use REP Call List to contact a qualified individual in RP, who is onsite, to perform the dose assessment.

CAUTION: Assembly should NOT be initiated **IF** Assembly will present a danger to employees - For example:
A severe weather condition exists or is imminent (such as a Tornado)
An onsite Security risk condition exists (Consult with Nuclear Security)

[3] **IF** personnel accountability has not been previously initiated, **THEN ACTIVATE** assembly and accountability using EPIP-8, Appendix C (may be delegated). ☐

[4] **MONITOR** plant conditions:

[a] **EVALUATE** conditions using EPIP-1:

[1] **IF** conditions satisfy criteria of **GENERAL EMERGENCY(s)** **THEN** initiate EPIP-5. ☐

3.3 MONITOR CONDITIONS (Continued)

[2] **IF** additional conditions satisfy criteria of other **SITE AREA EMERGENCY(s) THEN** Complete Appendix C. ☐

[3] **IF** conditions warrant a need for follow-up information, **THEN** Complete Appendix C. ☐

[b] **IF** Appendix C completed, **THEN**

[1] **REPORT** to CECC for State notification: _____ Initial _____ Time

CECC Director: Ringdown Line or 5-751-1614 or 5-751-1680
OR
ODS: Ringdown Line or 5-751-1700 or 5-751-2495 or 9-785-1700

[2] **FAX** completed Appendix C to CECC. ☐

CECC: 5-751-1682 (Fax) OR ODS: 5-751-8620 (Fax)

[3] **IF** neither the CECC or ODS can be reached, **THEN**

[a] **NOTIFY** TEMA **AND READ** Appendix C. _____ Initial _____ Time

9-1-800-262-3300 or 9-1-615-741-0001

[b] **FAX** completed Appendix C to TEMA. ☐

9-1-615-242-9635 (Fax)

3.4 TERMINATION OF THE EVENT

[1] **WHEN** situation no longer exists, **THEN**

[a] **TERMINATE** emergency per EPIP-16, "Termination and Recovery". ☐

[b] **COMPLETE** Appendix C including Time and Date Event Terminated.

[c] FAX completed Appendix C to CECC Director. ☐

CECC: 5-751-1682 (Fax) OR
ODS: 5-751-8620 (Fax) (Backup)

[2] **COLLECT** all forms and appendices and **FORWARD** all documentation to Emergency Preparedness. ☐

4.0 RECORD RETENTION

4.1 Records of Classified Emergencies

The materials generated in support of key actions during an actual emergency classified as NOUE or higher are considered Lifetime retention Non-QA records. Materials shall be forwarded to the EP Manager who shall submit any records deemed necessary to demonstrate performance to the Corporate EP Manager for storage.

4.2 Drill and Exercise Records

The materials deemed necessary to demonstrate performance of key actions during drills are considered Non-QA records. These records shall be forwarded to the EP Manager who shall retain records deemed necessary to demonstrate six-year plan performance for six years. The EP Manager shall retain other records in this category for three years.

5.0 ILLUSTRATIONS AND APPENDICES

5.1 Appendix A - Notifications and Announcements

Appendix A, Notifications and Announcements, provides guidance for security threats, and for prompt notification of the NRC Resident and plant personnel.

5.2 Appendix B - TVA Initial Notification for Site Area Emergency

Appendix B, TVA Initial Notification for Site Area Emergency, is used to initially notify the Operations Duty Specialist who notifies the Tennessee Emergency Management Agency.

5.3 Appendix C - Site Area Emergency Follow-up Information

Appendix C, Site Area Emergency Follow-up Information, is used to provide additional information concerning other Site Area Emergencies or other information concerning additional conditions to the ODS for State notification and event termination.

APPENDIX A
NOTIFICATIONS AND ANNOUNCEMENTS
(Page 1 of 2)

[1] **IF** there is a security threat, **THEN**

[a] **NOTIFY** Security Shift Supervisor to implement SSI-1, "Security Instructions For Members Of The Security Force" and EPIP-11 "Security and Access Control".

Initial _____ Time _____

6144 or 6568

[b] **DETERMINE** if Security recommends implementing the "Two Person Line of Sight" Rule. ☐

[c] **IF** Nuclear Security recommends establishing the "Two Person Line of Sight" Rule, **THEN INFORM** the SM/SED. ("Two Person Line of Sight" requires use of EPIP-8).

Initial _____ Time _____

[2] **NOTIFY** Radiation Protection:

[a] **STATE:** "A **SITE AREA EMERGENCY** HAS BEEN DECLARED, BASED UPON (*Describe the conditions*), AFFECTING UNIT(s) ____."

Initial _____ Time _____

7865 (RP Lab) or 6417 (RP Lab)

[b] **DIRECT** Radiation Protection to implement EPIP-14, "Radiological Control Response". ☐

[c] **DIRECT** Radiation Protection to implement CECC EPIP-9, "Emergency Environmental Radiological Monitoring Procedures" which includes activation of the radiological monitoring van. ☐

[3] **NOTIFY** personnel in the Chemistry Lab:

[a] **STATE:** "A **SITE AREA EMERGENCY** HAS BEEN DECLARED, BASED UPON (*Describe the conditions*), AFFECTING UNIT(s) ____."

Initial _____ Time _____

7285 (Lab) or 6348 (Lab) or 20126 (Pager)

[b] **DIRECT** Chemistry to implement EPIP-14, "Radiological Control Response". ☐

APPENDIX A
NOTIFICATIONS AND ANNOUNCEMENTS
(Page 2 of 2)

[4] **ANNOUNCE** to plant personnel on the old plant PA and the x4800 bridge:

[a] "ATTENTION PLANT PERSONNEL. ATTENTION PLANT PERSONNEL. A **SITE AREA EMERGENCY** HAS BEEN DECLARED BASED ON (*Describe the condition*), AFFECTING UNIT(s) _____. *(if not already staffed, add)* STAFF THE TSC AND OSC." ☐

[b] **REPEAT** Announcement. ☐

[5] **NOTIFY** Plant Management in accordance with SPP-3.5 **AND PROVIDE** SAE Information.

Initial _____ Time _____

[6] **NOTIFY** the "On Call" NRC Resident **AND PROVIDE** SAE Information.

Initial _____ Time _____

NOTE: NRC ENS notification should be made as soon as practicable, but within 1 hour of "**SITE AREA EMERGENCY**" declaration. Whenever NRC requests, a qualified person must provide a continuous update to NRC Operations Center. Use EPIP-6, Appendix B as a briefing guide.

[7] **NOTIFY** NRC of plan activation using ENS phone.

Initial _____ Time _____

9-1-(301) 816-5100 (Main)
9-1-(301) 951-0550 (Backup)
9-1-(301) 816-5151 (Fax)

[8] **NOTIFY** the SM/SED that notifications are complete.

Initial _____ Time _____

APPENDIX B
TVA INITIAL NOTIFICATION FOR SITE AREA EMERGENCY

TVA INITIAL NOTIFICATION FOR SITE AREA EMERGENCY

1. ☐ This is a Drill ☐ This is an Actual Event - Repeat - This is an Actual Event

2. This is SED _____, **Sequoyah** has declared a **SITE AREA EMERGENCY** affecting: ☐ Unit 1 ☐ Unit 2 ☐ Both Unit 1 and Unit 2

3. **EAL Designator(s):** _____

4. **Brief Description of the Event:** _____

_____

_____

_____

_____

5. **Radiological Conditions:** (Check one box under each Airborne AND Liquid column.)

Airborne Releases Offsite	**Liquid** Releases Offsite
☐ Minor releases within federally approved limits[1]	☐ Minor releases within federally approved limits[1]
☐ Releases above federally approved limits[1]	☐ Releases above federally approved limits[1]
☐ Release information not known	☐ Release information not known
([1]Tech Specs)	([1]Tech Specs)

6. **Event Declared:** Time: _____ Date: _____

7. **Provide Protective Action Recommendation:** ☐ None

8. Please repeat back the information you have received to ensure accuracy. ☐

9. **When completed, FAX this information to the ODS.** ☐

APPENDIX C
SITE AREA EMERGENCY FOLLOW-UP INFORMATION

1. ☐ THIS IS A DRILL ☐ THIS IS A REAL EVENT

2. There has been a **SITE AREA EMERGENCY** declared at Sequoyah affecting:
   ☐ Unit 1 ☐ Unit 2 ☐ Both Unit 1 and Unit 2

3. **Reactor Status:**
   Unit 1: ☐ Shut Down ☐ At Power ☐ Refueling ☐ N/A
   Unit 2: ☐ Shut Down ☐ At Power ☐ Refueling ☐ N/A

4. **Additional EAL Designators** _____

5. **Significant Changes in Plant Conditions:** _____
   _____
   _____
   _____

6. **Significant Changes in Radiological Conditions:** _____
   _____
   _____
   _____

7. **Offsite Protective Action Recommendation:** ☐ None

8. **Onsite Protective Actions:** Assembly and Accountability ☐ No ☐ Initiated ☐ Completed
   Site Evacuation ☐ No ☐ Initiated ☐ Completed

9. **The Meteorological Conditions are:** Wind Speed: _____m.p.h.
   (Use 46 meter data on the Met Tower) Wind Direction is from: _____degrees

10. **Event Terminated:** Date/Time _____

11. **Please repeat** back the information you have received to ensure accuracy. ☐

12. **FAX to ODS** at 5-751-8620 or **CECC Director** at 5-751-1682 after completing the notification. ☐

Completed by: _____ Date/Time _____/_____