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Table of Contents (Implementing Procedures - Continued)

INFORMATION ONLY

EMERGENCY TELEPHONE NUMBERS

This directory provides a listing of telephone numbers for various personnel and agencies that may have a part in dealing with an emergency situation or providing other assistance as needed at Oconee Nuclear Station.

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Rev. 6, 3/1/82

Superintendent of Technical Services

T. B. Owen, Office . . . . . .
Home . . . . . .

Superintendent of Maintenance

J. M. Davis, Office . . . . . .
Home . . . . . .

Superintendent of Operations

J. N. Pope, Office . . . . . .
Home . . . . . .

Superintendent of Administration

J. T. McIntosh, Office . . . . . .
Home . . . . . .

12. CRISIS MANAGEMENT CENTER ACTIVATION

The Duke Power Crisis Management Organization will be notified for all Alert, Site Area Emergency, or General Emergency class emergencies. The Crisis Management Organization is notified by contacting one of the persons listed below. If the first person can not be reached, go to the next person down the list until one person is contacted. The person contacted is responsible for implementing the Crisis Management Plan notification requirements.

Manager, Nuclear Production Division

H. B. Tucker, Office . . . . . .
Home . . . . . .

Vice-President, Steam Production

W. O. Parker, Jr., Office . . . . . .
Home . . . . . .

Manager, Technical Training Center

R. M. Koehler, Office . . . . . .
Home . . . . . .

Steam Production Operations

Duty Man . . . . . .

6. SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL, BUREAU OF RADIOLOGICAL HEALTH (Warning Point State of South Carolina)

Director, Heyward G. Shealy, Office . . . . . .
Answering Service After Hours . . . . . .

Home . . . . . .

7. COUNTY CIVIL DEFENSE AGENCIES

Oconee County Director, Walter B. Purcell . . . . . .

Pickens County Director, William D. Evett, Office . . . .
(After hours can be reached through the Sheriff's Office)

8. COUNTY SHERIFF'S DEPARTMENTS

Oconee County (24 hours) . . . . . .

Pickens County (24 hours) . . . . . .

9. MEDICAL ASSISTANCE

Oconee Memorial Hospital Ambulance Service . . . . . .

Oconee Memorial Hospital Switchboard/Emergency Room . . .

10. FIRE ASSISTANCE

Oconee County Rural Fire Protection Association . . . . .

Woods or Forest Fire (Oconee County, Oakway Tower) . . . .

Woods or Forest Fire (Pickens County, Woodall Mt. Tower) .

11. TECHNICAL SUPPORT CENTER ACTIVATION
(If the first person can not be reached, go to the next person down the list until one person is contacted)

Emergency Coordinator/Station Manager

J. E. Smith, Office . . . . . .
Home . . . . . .

Assistant Station Manager

G. E. Vaughn, Office . . . . . .
Home . . . . . .

DUKE POWER COMPANY
OCONEE NUCLEAR STATION
NUMBER CODE FOR IDENTIFYING PERSONNEL/ACTIVITIES TO BE NOTIFIED

NOTE: Telephone notifications of emergencies including emergency tests or drills to the NRC and other off-site agencies are not considered complete until direct voice contacts are made with the responsible representatives of the agencies being notified. If the call is made after hours and the agencies' answering service is on duty, request for the duty person to call back as soon as they can be reached. Otherwise, the leaving of a message is not considered a complete notification.

CODE

1. NUCLEAR REGULATORY COMMISSION by Red Phone within one hour.

2. UNIT COORDINATOR/OPERATIONS DUTY ENGINEER who will notify: A, B, C

   A. Superintendent of Operations and Station Manager

   B. Steam Production Duty man . . . . . .

   C. Corporate Communications (Unusual Event Only) . . . .

3. STATION MANAGER . . . . . .

   J. Ed Smith, Office . . . . . .

   Home . . . . . .

4. BABCOCK AND WILCOX RESIDENT ENGINEER

   Bill Street, Office . . . . . .

   Home . . . . . .

   (If Bill Street cannot be reached, call)

   L. H. Williams, Office . . . . . .

   Home . . . . . .

5. STATION HEALTH PHYSICIST/DUTY HEALTH PHYSICIST

   C. T. Yongue, Office . . . . . .

   Home . . . . . .

13. WATER DEPARTMENTS

Should releases of radioactive effluent into Lake Keowee or Lake Hartwell potentially effect municipal water intakes or exceed technical specifications. Contact the appropriate authorities as indicated below:

Lake Keowee

Seneca, H. J. Balding, Office . . . . . .
Home . . . . . .

Lake Hartwell

City of Clemson

Mayor of Clemson, Office . . . . . .
Home . . . . . .

(If the mayor cannot be reached, call one of the following)

Clemson Administrator's Office . . . . . .
Home . . . . . .

Clemson Filter Plant (0700-1700) . . . . . .

Clemson University

President's Office . . . . . .

Home . . . . . .

(If the President cannot be reached, call)
Clemson University Physical Plant (0800-1630) . . . .

Anderson Water Works (24 Hr. Number) . . . . . .

AGENCIES THAT MAY RESPOND TO AN EMERGENCY AT THE OCONEE NUCLEAR STATION

LAW ENFORCEMENT

S. C. Highway Patrol (Greenville, S.C.) . . . . . .

S. C. Enforcement Division (Columbia, S.C.) . . . . . .

Communications Check-Officer-of-the-Day . . . . . .

FBI (Columbia, S.C.) . . . . . .

BOMB DISPOSAL

Explosives Ordinance Disposal Control . . . . . .
(Fort Jackson, Columbia, S.C.)

RADIATION AND CONTAMINATION

REACTS, Department of Emergency (Oak Ridge, Tennessee) . .
(24 hr. number - after 1700 as for Beeper number) . .

DOE Emergency Radiological Monitoring Team (Aiken, S.C.) .

N. C. Division of Emergency Management . . . . . .
(North Carolina State Warning Point - 24 hours)

Georgia Department of Natural Resources
Environmental Radiation Program . . . . . .

Communication Check:

Bill Cline . . . . (0800-1700) . . . . . .
Jim Setser . . . . (0800-1700) . . . . . .

Georgia Civil Defense (0800-1700) - Operations Section . .
After Hours - Duty Officer . . . . . .

NUCLEAR REGULATORY COMMISSION

NRC Operations Center (via Bethesda Central Office) . . .	301-492-8111
NRC Operations Center (via Silver Spring Central Office) .	301-427-4056
Health Physics Network to NRC Operations Center	*22 (Touch-Tone 22 (Rotary Dia
NRC Operator (Via Bethesda Central Office)	301-492-7000
US NRC, Region II . . . . . (24 hr.). .	404-221-4503
US NRC, Oconee Resident Inspector	

BUS TRANSPORTATION

Oconee County School Superintendent (0800-1600) . . . . .

(If Superintendent cannot be reached call)
Bus Supervisor, Ralph Robinson (0645-1630) . . . . . .
Home . . . . .
Anderson Retail Office (24 hour number) . . . . . .

NATIONAL WEATHER SERVICE - METEROLOGICAL BACK-UP SOURCE

Greenville-Spartanburg Weather Service . . . . (24 hour) .

OCONEE NUCLEAR STATION

CRISIS COMMUNICATIONS DIRECTORY

The crisis directory is intended for use should the Oconee Emergency Plan require implementation. Both station and corporate level telephone numbers are provided. The station's emergency organization will operate from the Technical Support Center near the Units 1 and 2 Control Room. The corporate emergency organization will operate from the Crisis Management Center located in the Visitors Center and Oconee Training Center.

EMERGENCY FACILITY LOCATIONS

Technical Support Center - Control Rooms 1 and 2

Operational Support Center - Control Room 3

Crisis Management Center - Oconee Training Center

Alternate Location: Liberty Retail Office

Crisis News Center - Keowee-Toxaway Visitors Center

Alternate Location: Liberty Retail Office

OCONEE NUCLEAR STATION

TELEPHONE DIRECTORY
ACCESS CODES

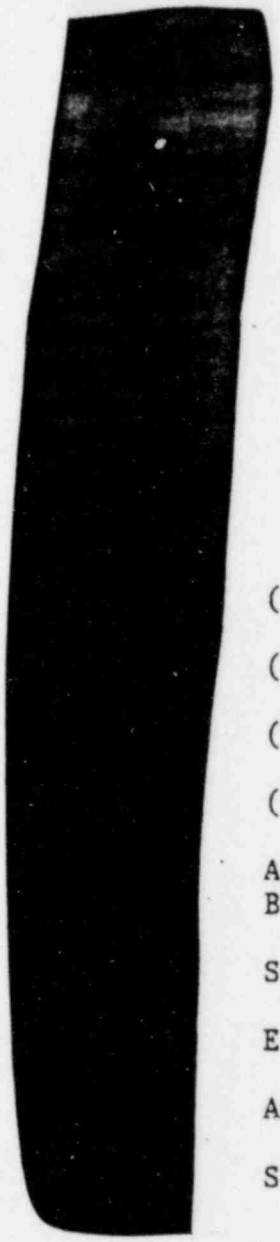
Seneca Lines

Easley Lines

Anderson Line

Six Mile Line

Dial Code
(Micro-Wave)



(Charlotte General Office)

(Catawba)

(McGuire)

(Cherokee)

Attendant (To access Bell Line)

Seneca

Easley

Anderson

Six Mile

OCONEE NUCLEAR STATION

CRISIS PHONE DIRECTORY

TECHNICAL SUPPORT CENTER

POSITION/NAME	Telephone Number: Outside Line	Telephone Number: Station Number
Emergency Coordinator J. E. Smith G. E. Vaughn, Alternate		
Supt. of Operations J. N. Pope		
Supt. of Technical Services T. B. Owens		
Supt. of Maintenance J. M. Davis		
Supt. of Administration J. T. McIntosh		
NRC Resident Engineer W. H. Orders		
B&W Resident Engineer B. W. Street L. H. Williams, Alternate		
Station Health Physicist C. T. Yongue		
HEALTH PHYSICS CENTER		
Environmental Surveillance Coordinator J. J. Sevic		
Data Evaluation/Report Preparation Supervisor (Off-Site Dose Projection) C. Harlan		
Surveillance and Control Coordinator M. D. Thorne		
Support Functions Coordinator J. A. Long		
Dosimetry Records		

CONTROL ROOM

Unit 1 . . . . . .

Unit 2 . . . . . .

Unit 3 . . . . . .

Shift Supervisor (Unit 1 & 2) . . . . . .
Unit 3 . . . . . .

TELECOPIER

Technical Support Center . . . . . .

OCONEE NUCLEAR STATION

CRISIS PHONE DIRECTORY

CRISIS MANAGEMENT CENTER

Position/Name	Private Line	ONS Switchboard
RECOVERY MANAGER		
H. B. Tucker		
Alternates:		
W. O. Parker		
R. M. Koehler		
SCHEDULING/PLANNING MANAGER		
R. W. Bostian		
Alternates:		
F. C. Hayworth		
J. C. Leathers		
HEALTH PHYSICS/RADWASTE MANAGER		
W. A. Haller		
Alternates:		
R. C. Futrell		
B. E. Davis		
R. T. Simril		
TECHNICAL SUPPORT		
K. S. Canady		
Alternates:		
H. T. Snead		
W. A. Coley		
DESIGN AND CONSTRUCTION SUPPORT MANAGER		
J. L. Elliot		
Alternates:		
D. L. Freeze		
S. K. Blackley		
C. J. Wylie		
S. B. Hager		

Position/Name	Telephone Number: Private Line	Telephone Number: ONS Switchboard
OFFSITE RADIOLOGICAL COORDINATOR		
L. Lewis (Offsite Dose Projection)	[redacted]	[redacted]
Alternates:		
W. P. Deal	[redacted]	[redacted]
M. S. Tuckman	[redacted]	[redacted]
ADMINISTRATION AND LOGISTICS MANAGER		
J. T. Moore	[redacted]	[redacted]
Alternates:		
R. F. Smith	[redacted]	[redacted]
E. D. Morton	[redacted]	[redacted]
R. H. Lynn	[redacted]	[redacted]
S. M. Kessler	[redacted]	[redacted]
R. N. Johnson	[redacted]	[redacted]
ADVISORY SUPPORT		
Nuclear Regulatory Commission		
J. P. O'Reilly	[redacted]	[redacted]
Alternate:		
F. J. Long	[redacted]	[redacted]
Babcock & Wilcox (NSSS Supplier)		
J. D. Phinney	[redacted]	[redacted]
Alternate:		
R. B. Kosiba	[redacted]	[redacted]
CORPORATE HEADQUARTERS (contact with Governor)		
A. C. Thies	[redacted]	[redacted]
Alternate:		
W. H. Owen	[redacted]	[redacted]
DATA COORDINATION (Telecopier)	[redacted]	[redacted]
GENERAL OFFICE SUPPORT CENTER		
Health Physics and Radwaste		
2390 Wachovia Center	[redacted]	[redacted]

GENERAL OFFICE SUPPORT CENTER (Continued)

Technical Support
1760 Wachovia Center

Design and Construction
Electric Center
Third Floor, Room 32

Recovery Manager
Wachovia Center
Room 1680

Scheduling and Planning
Wachovia Center
Room 1680

Administration and Logistics
Wachovia Center
Room 1514

Crisis News
Power Bldg.
5th Floor

Offsite Radiological Coordinator
Wachovia Center
Room 2384

Nuclear Regulatory Commission
Wachovia Center
Room 1728

(Speaker Phone)

OCONEE NUCLEAR STATION

CRISIS PHONE DIRECTORY

BACKUP CRISIS MANAGEMENT CENTER

LIBERTY RETAIL OFFICE, LIBERTY, S.C.

AREA CODE -
Telephone Number

RECOVERY MANAGER

SCHEDULING/PLANNING

PUBLIC INFORMATION OFFICERS
- State of South Carolina
- Oconee County
- Pickens County

DESIGN AND CONSTRUCTION

TECHNICAL SUPPORT

OFFSITE RADIOLOGICAL COORDINATOR

ADMINISTRATION AND LOGISTICS

HEALTH PHYSICS/RADWASTE

GOVERNMENT AGENCIES
- NRC
- State of South Carolina
- Oconee County
- Pickens

OCONEE NUCLEAR STATION

CRISIS PHONE DIRECTORY

CRISIS NEWS CENTER

KEOWEE-TOXAWAY VISITOR'S CENTER

Position/Name	Telephone Number: Private Line	Telephone Number: ONS Switchboard
CRISIS NEWS DIRECTOR Mary Cartwright	[redacted]	[redacted]
Alternate: Ira Kaplan		
COMMERCIAL NEWS MEDIA (Active Numbers) For drill purposes only		
COMMERCIAL NEWS MEDIA (Inactive Numbers) Activated only during an actual emergency		
NRC/STATE/COUNTY PUBLIC INFORMATION OFFICERS (PIO'S)		
NRC		
State of South Carolina		
Oconee County		
Pickens County		

NRC HEALTH PHYSICS NETWORK TELEPHONES

The NRC's Health Physics Network (HPN or Black Phone) connects all Nuclear Power Plants and Fuel Facilities to NRC Regional Offices and to NRC Headquarters Operations Center. The phone is intended to support Health Physics Operations in an emergency but can be used for daily voice traffic and facsimile transmittal.

There are four points at Oconee Nuclear Station which can access the HPN network. The station has jacks for the HPN phones in the Units 1&2 Control Room area, the Unit 3 Control Room area, and in the training center. Any of these 3 phones can be accessed by dialing [redacted]. A separate phone that can be accessed by the [redacted] is located in the NRC resident inspectors office.

The phone is used normally with the exception; NO DIAL TONE OR RINGING IS HEARD. In addition, ringing only lasts 30 seconds, so after 30 seconds if the party has not answered, you must hang up and redial.

A complete directory of HPN telephone numbers and services are with each phone. For convenience, the codes must often used are listed below:

	HPN Phone	Code
1.	NRC region 2 (Atlanta) office	[redacted]
2.	NRC headquarters	
3.	B&W Research Center	
4.	Oconee NRC Resident Inspector	
5.	Oconee Nuclear Station	
6.	All NRC region 2 Resident Inspectors	
7.	All region 2 Operating Nuclear Plants	

In addition, the calling party may "conference" any phones during conversation by simply dialing the appropriate code(s). Any number of stations may be added in this manner.

Any problems with this phone system should be reported to Southern Bell in Greenville at [redacted]

OCONEE NUCLEAR STATION EMERGENCY RADIO

The call letters [redacted] identify the Emergency Event Radio frequency. The following is a listing of radio locations, unit call letters, and identifiers. Use identifiers only in transmission (For example, message may start with "Control Room to Alpha" and response will be Alpha to Control Room).

ONS Base Station Remotes

	Location	Unit Call Letters	Identifier
1.	Unit 1&2 Control Room	[redacted]	Control Room
2.	Crisis Management Center (Training Center)		CMC
3.	Technical Support Center		TSC

Coded Squelch Radios

(NOTE: Above 3 Base Stations can activate squelch to the following radios by dialing encoding numbers.)

	Location	Encode	Unit Call Letters	Identifier
4.	Pickens Co. (LEC)	[redacted]		Pickens Co.
	Pickens Co. (Courthouse)			Pickens Co.
	Pickens Co. (C. D. Office)			Pickens Co.
5.	Oconee County (LEC)			Oconee Co.
6.	State FEOC - Clemson			State FEOC

ALL ABOVE RADIOS MAY BE ACTIVATED BY DIALING ENCODING NO. [redacted]

Field Monitoring Teams

	Location	Unit Call Letters	Identifier
8.	Field Monitor Coordinator	[redacted]	Leader
9.	Field Monitor Team		Alpha
10.	Field Monitor Team		Bravo
11.	Field Monitor Team		Charlie
12.	Field Monitor Team		Delta
13.	Field Monitor Team		Echo
14.	Field Monitor Team		Foxtrot

TO COMMUNICATE BETWEEN BASE STATION REMOTES (1, 2, 3), THE INTERCOM MUST BE USED! The following procedure must be used:

1. Push INTERCOM button and hold
2. Push MIKE button and hold
3. Send message (example, CMC to TSC)
4. Release both buttons to receive a response.

EMERGENCY OPERATION CENTER

Pickens County

Primary Number . . . . . [redacted]

EXECUTIVE GROUP

County Administrator . . . . . [redacted]

EOC Director . . . . . [redacted]

OPERATIONS GROUP*

Fire . . . . . [redacted]
Police . . . . . [redacted]
Public Roads . . . . . [redacted]
Emergency Welfare Services . . . . . [redacted]
Damage Assessment . . . . . [redacted]
Radiological Defense . . . . . [redacted]
Rescue Squads . . . . . [redacted]

PUBLIC INFORMATION OFFICER

CRISIS NEWS CENTER-ONS *
State of South Carolina
Oconee County
Pickens County
NRC

CRISIS NEWS CENTER LIBERTY RETAIL OFFICE *
State of South Carolina
Oconee County
Pickens County
NRC

*Call any one of the listed numbers to reach group desired.

EMERGENCY OPERATION CENTER

Oconee County

Primary Number (24-hour) . . . . . [redacted]

OPERATIONS*

Fire Protection . . . . . [redacted]

Police . . . . . [redacted]

Public Roads . . . . . [redacted]

Emergency Medical Services . . . . . [redacted]

Rescue Squads . . . . . [redacted]

ASSESSMENT*

Emergency Welfare Services . . . . . [redacted]

Radiological Defense . . . . . [redacted]

Damage Assessment . . . . . [redacted]

EXECUTIVE GROUP*

Supervisor/Chairman County Council . . . . . [redacted]

EOC Director . . . . . [redacted]

Financial Officer . . . . . [redacted]

FNF Representative . . . . . [redacted]

PUBLIC INFORMATION OFFICER

CRISIS NEWS CENTER-ONS *

State of South Carolina
Oconee County
Pickens County
NRC

CRISIS NEWS CENTER LIBERTY RETAIL OFFICE *

State of South Carolina
Oconee County
Pickens County
NRC

*Call any one of the listed numbers to reach group desired.

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/A/1000/01
Change(s) N/A to
N/A Incorporated

(2) STATION: Oconee Nuclear Station

(3) PROCEDURE TITLE: Initial Determination of Emergency Action Level

(4) PREPARED BY: Edna B. Inman DATE: 3/9/82

(5) REVIEWED BY: R R Roger DATE: 3/9/82

Cross-Disciplinary Review By: _____ N/R: B

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Larry B. Shum Date: 3/9/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: R. T. Bond Date: 3/9/82

Reviewed/Approved By: _____ Date: _____

FORM SPD-1001-2

DUKE POWER COMPANY
NUCLEAR SAFETY EVALUATION CHECK LIST

(1) STATION: Oconee UNIT: 1 ____ 2 ____ 3 ____
OTHER: all

(2) CHECK LIST APPLICABLE TO: AP/O/A/1000/01

(3) SAFETY EVALUATION - PART A

The item to which this evaluation is applicable represents:

Yes ____ No ✓ A change to the station or procedures as described in the FSAR; or a test or experiment not described in the FSAR?

If the answer to the above is "Yes", attach a detailed description of the item being evaluated and an identification of the affected section(s) of the FSAR.

(4) SAFETY EVALUATION - PART B

Yes ____ No ✓ Will this item require a change to the station Technical Specifications?

If the answer to the above is "Yes," identify the specification(s) affected and/or attach the applicable pages(s) with the change(s) indicated.

(5) SAFETY EVALUATION - PART C

As a result of the item to which this evaluation is applicable:

Yes ____ No ✓ Will the probability of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of an accident which is different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the probability of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the margin of safety as defined in the bases to any Technical Specification be reduced?

If the answer to any of the preceding is "Yes", an unreviewed safety question is involved. Justify the conclusion that an unreviewed safety question is or is not involved. Attach additional pages as necessary.

(6) PREPARED BY: Edward L. Jones DATE: 3/9/82

(7) REVIEWED BY: [signature] DATE: 3/9/82

This procedure does not affect the operation of safety related equipment.

(8) Page 1 of 1

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

INITIAL DETERMINATION OF EMERGENCY ACTION LEVEL

1.0 Symptoms: The symptoms of an Emergency Action Level will vary according to the event. The severity of an event will determine the level of emergency.

2.0 Immediate Action

2.1 Automatic - NA

2.2 Manual

____2.2.1 Certain types of events require specific procedures. Following is a list of those covered by AP/0/A/1000/08.

1) Vehicular Accident

2) Medical Emergency

3) Natural Disasters

4) Fire

5) Civil Disturbance

6) Radiological Spills

7) Bomb Threat

8) Other Emergency Situations

If the event in question is one of the above then refer to AP/0/A/1000/08. However the event could still be an Emergency Action Level Event and so the Administrative Requirements should also be met using the EAL Abnormal Procedure. In that case both AP's can be utilized.

____2.2.2 If the event is not one listed in 2.2.1, using Enclosure 4.1, identify The Emergency Action Level and Initiating Condition that best describes the event and proceed using the proper procedure.

3.0 Subsequent Action

N/A

4.0 Enclosures

4.1 Emergency Action Levels with Initiating Conditions and Symptoms.

Unusual Event	
Initiating Condition	**Symptoms and Indications**
1. Emergency Core Cooling initiated (co incident with positive finding that initiation is NOT spurious. ES actuates and discharges to vessels.	1. Redundant actuation verification - Rz Module Control Room - ES Channels 1-8.
2. Radiological effluent Technical Specification limits exceeded: A. Gaseous effluent instantaneous release rate Technical Specification limits exceeded for one (1) hour. B. Liquid effluent concentration. Technical Specification limits exceeded for 15 minutes.	2. A. Any of the following gaseous effluent monitors in valid alarm mode for more than 1 hour: RIA - 37, 38, 43, 44, 45, 46, 47, 48, 49 Interim Radwaste Building - RIA-52. B. Any of the following liquid effluent monitors in valid alarm mode for more than 1 hour: RIA - 33, 34, RIA-54
3. Fuel damage indication: A. High coolant activity sample (e.g. exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity) B. Failed fuel monitor (PWR) indicates increase greater than 0.1% equivalent fuel failures withing 30 minutes. (Failed fuel sampling)	3. A. Dose equivalent I-131 activity concentration greater than limit in Technical Specifications or B. Laboratory analysis which indicates an increase in failed fuel of 0.1% in 30 minutes

Unusual Event	
Initiating Condition	**Symptoms and Indications**
4. Abnormal coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits (> 2500 psig)	4. Narrow range, wide range RCS pressure indication; Narrow range, wide range RCS temperature indication; Incore thermocouple temperature indication; Subcooled margin monitors
5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (> 10 gpm total P/S leakage) A. Primary - requiring shutdown B. Primary to secondary Unit 1 > 0.30 gpm.	5. A. LLDT, PZR, RB sump, HAWT, LAWT level, RCS pressure and RB pressure. PT/1/2/3/A/600/10 - Reactor Coolant Leakage. B. RIA 40; RIA 16, 17; Chemistry Analysis C. RIA 40; RIA 16, 17; Chemistry Analysis
6. Failure of a safety or relief valve in a safety related system to close following reduction of applicable pressure. A. RCS System B. Main Steam	6. A. RCS pressure RV tailpipe temperatures QT temperature level and pressure PZR level B. Main steam pressure, visual inspection, RC temperature and pressure

Unusual Event	
Initiating Condition	**Symptoms and Indications**
7. Loss of offsite power or loss of on-site AC power capability. A. Loss of offsite power B. Loss of on-site AC power	7. A. Underfrequencies - undervoltage on 230 KV buses. B. Underfrequencies - undervoltage on MFB.
8. Loss of containment integrity requiring shutdown by technical specifications.	8. Any automatic containment isolation valve found to be inoperable, or any penetration fails its leak test as specified in the Technical Specifications.
9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy). A. Engineered Safety Feature B. Fire Protection System	9. A. Engineered Safety Features System found inoperable. B. Fire Suppression Water System found inoperable. (Note that technical specifications now include Keowee Hydro).
10. Fire lasting more than 10 minutes: A. Onsite B. Offsite (surrounding the station)	10. A. Observation B. Observation

Unusual Event	
Initiating Condition	Symptoms and Indications
11. Indications of radiation monitoring process and effluent parameters which require plant shutdown or significant loss of vital assessment or communication equipment.	11. Loss of Radiation Monitoring System; Loss of Meteorological Equipment; Significant Loss of Communication to offsite capability.
12. Security threat or attempted entry or attempted sabotage. A. Bomb/explosive or missiles B. Subversive activity attempted	12. A. Security force declares initiation of Security procedure B. Security force declares initiation of Security procedure
13. Natural phenomenon being experienced or projected beyond usual levels: A. Any earthquake (> .05 g design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave) C. Any tornado near site D. Any hurricane (> 74 mph)	13. A. Seismic Recording System start indication and alarm. B. Observation of event C. Observation of event D. Observation of event

Unusual Event	
Initiating Condition	**Symptons and Indications**
14. Other hazards being experienced or projected: A. Aircraft crash on-site or unusual aircraft activity over facility. B. Near or on-site explosion C. Near or on-site toxic or flammable gas release of a magnitude that threatens personnel. D. Turbine rotating component failure causing rapid plant shutdown.	14. A. Observation of event B. Observation of explosion or warning from offsite C. Observation of explosion or warning from offsite D. Decrease in Condenser Vacuum; Main Turbine Vibration; Turbine Generator Trip
15. Other plant conditions: A. Conditions that warrant increased awareness of part of state and/or local offsite authorities. B. Conditions that require shutdown under technical specifications.	15. A. Shift Supervisor's Discretion B. Shift Supervisor's Discretion; R.O.'s discretion
16. Transportation of contaminated injured individual from site to offsite.	16. Same as initiating condition
17. Rapid depressurization of PWR secondary site.	17. MS pressure; RC temperature and pressure FDW flow

ALERT	
INITIATING CONDITION	SYMPTOMS AND INDICATION
1. Severe loss of fuel cladding:	1. A. Very high collant activity sample (e.g., 300 uCi/cc equivalent of I-131) B. Decrease in reactor coolant flow. Control Room indication. C. Loose parts monitor indicates particles in reactor coolant system.
2. Rapid gross failure of one steam generator tube with loss of off-site power from all sources (OTSG Tube)	2. Reactor trip on low pressure; RIA 16 or 17 and 40 high alarm; loss of RC inventory via pressurizer level; Increasing SG level on affected SG; undervoltage alarms on main feeder buses; transfer of auxiliary power to stand-by buses; load shed of non-essential loads; TDEFWP start switchyard isolation; Keowee turbine generators emergency start

ALERT	
INITIATING CONDITION	SYMPTOMS AND INDICATION
3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate).	3. Low RC pressure alarm; low PZR level alarm; RIA 16 or 17 and 40 high alarms (Control Room indication); increasing SG level on affected SG (Control Room indication); decreasing reactor coolant inventory via pressurizer level & RC pressure (Control Room indication); eventual reactor trip on low RC pressure; excessive RC makeup flow.
4. Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate or MSIV malfunction.	4. Rapid decrese in MS pressure, Elec. load, PZR level, RC pressure and TC; reactor trip on low pressure or high power; increase reactor building pressure and temperature (inside break); actuation of ES channels 1-6; actuation of ES channels 1 and 2.
5. Primary coolant leak rate greater than 50 gpm.	5. RCS leakage rate shows leak rate; decreasing per level (prior to HP injection pump start); increasing pressure in reactor building, visual observation with TV camera; LDST level decreasing more than normal; RB sumps - HAWT & LAWT level.

ALERT	
INITIATING CONDITION	SYMPTOMS AND INDICATION
6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings).	6. Increase of RIA readings in affected areas (RIA's around vent header or gas decay room); plant area iodine or particulate airborne concentration greater than 1000 mpc.
7. Loss of off-site power and loss of all on-site AC power for up to 15 minutes (loss of Keowee not credible so not considered).	7. Load rejection reactor trip; switchyard isolation on 2/3 undervolt and underfrequency - Keowee emergency start; transfer of auxiliaries to standby buses in ~ 21 sec.; immediate indication is loss of voltage on main feeder buses; reactor coolant pumps trip; ES actuation on low RC pressure; ECCS starts on ES.
8. Loss of on-site DC power.	8. Control Room Indication: statalarm indication DC trouble and battery breakers open; low voltage on DC buses DA, DB; DC trouble on EPSL.
9. Coolant pump seizure leading to fuel failure.	9. Reactor coolant pump auto trip alarm; reactor trip on flux/flow/imbalance; chemistry analysis per sample request indicate fuel clad breakdown; prior to pump seizure, high vibration alarm.

ALERT	
INITIATING CONDITION	SYMPTOMS AND INDICATION
10. Complete loss of all functions for plant cold shutdown.	10. ECCS systems are not operational, loss of HPI, LPI, RBS, RBCU, redundant indication in Control Room; natural circulation can not be obtained.
11. Failure of the reactor protection system to initiate and complete a scram which brings the reactor subcritical.	11. Reactor remains critical after trip. Rods remain out.
12. Fuel damage accident with release of radioactivity to containment or fuel handling building. A. Containment B. Fuel handling building (SFP) C. Auxiliary Building	12. A. RIA's 2, 3, 4 alarm Building isolation (Control Room indication and local) B. RIA alarm 6 (Control Room indication and local) C. ~~RIA alarms 11, 15, 7, 10 (Control~~ Room indication).
13. Fire potentially affecting safety systems.	13. Visual observation - fire alarm in safety related areas.
14. Most or all alarms (annunciators) lost.	14. Visual observation by operator; loss of computer; RC pressure and temperature still available on chart recorders in Control Room, incore thermocouples can be read manually.

ALERT	
INITIATING CONDITION	SYMPTOMS AND INDICATION
15. Radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about ½ mR at the Site Boundary under average meterological conditions or whenever effluent monitors or radiological monitoring detect these levels).	15. High radiation alarms on RIA's 18, 15, 13, 45, 44, 43 for longer than 15 minutes.
16. Ongoing Security compromise.	16. Determined by Security Force - event resulting in adversaries commandeering an area of the plant but not control of shutdown capability.
17. Severe natural phenomona being experienced or projected A. Earthquake greater than Operational Basis Earthquake Levels (> .05g) B. Flood, low water, hurricane surge, seiche near design levels (lake tidal wave) C. Any tornado striking facility D. Hurricane winds near design basis level (> 95 mph).	17. Visual observation

ALERT	
INITIATING CONDITION	SYMPTOMS AND INDICATION
18. Other hazards being experienced or projected: A. Aircraft crash on facility B. Missile impacts from whatever source on facility C. Known explosion damage to facility affecting plant operation D. Entry into facility environs of toxic or flammable gases E. Turbine failure causing casing penetration.	18. Visual observation.
19. Other plant conditions exist that in the judgment of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations, or the Plant Manager warrant precautionary activation of Technical Support Center and near-site Crisis Management Center.	19. As determined by the Shift Supervisor

Site Area Emergency	
Initiating Conditions	**Symptons and Indications**
1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm).	1. Reactor trip on low pressure; LPI ES actuation; HPI ES actuation; Reactor building atmosphere indications of high pressure, humidity, etc.; Continued loss of RC inventory-no pressurizer level; High reactor building sump indication; High reactor coolant pump vibration - indicating voids in RCS; High reactor building pressure
2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels).	2. Subcooling monitor and high incore thermocouple readins; T_H & T_C diverging; SAT monitor indicates no subcooling; Chemistry results on sample request indicate failed fuel; Reactor building RIA's high alarm, RIA's 2, 3, 4, 5; Low reactor coolant flow
3. Rapid failure of more than 10 steam generator tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate).	3. Reactor trip on low pressure; Pressurizer low level alarm; Undervoltage alarms on main feeder buses; Transfer of auxiliaries to standby buses; Continued loss of RC inventory beyond HPI capacity, pressurizer level decreasing

Site Area Emergency	
Initiating Conditions	**Symptoms and Indications**
4. PWR steam line break with greater than A. 50 gpm primary to secondary leakage B. 50 gpm primary to secondary leakage and indication of fuel damage.	4. A. 1) Decreasing reactor coolant pressure, PZR level, Tave 2) RIA 16 or 17 and 40 high alarms 3) Stabilized PZR level on HPI initiation. B. 1) all of above plus chemistry results positive on failed fuel analysis 2) Possible high Reactor Building pressure and temperature
5. Loss of off-site power and loss of on-site AC power for more than 25 minutes.	5. Continued undervoltage on main feeder buses; realignment of CCW-8 for gravity flow to Keowee tailrace; load shed of all non-essential loads in preparation for emergency start of Keowee Hydro Station and transfer to standby buses.
6. Loss of all vital on-site DC power for more than 25 minutes.	6. Continued DC trouble alarms in Control Room; DC trouble alarms on Emergency Power Switching Logic; Loss of Some Computer Indications
7. Complete loss of any functions needed for plant hot shutdown.	7. Inability to establish emergency feedwater or auxiliary service water flow.

Site Area Emergency	
Initiating Conditions	Symptoms and Indications
8. Transient requiring operation of shutdown systems with failure to scram (continued power generation but no core damage immediately evident).	8. RPS, ES Channels trip with failure of of RX trip function. (Highly improbable)
9. Major damage to spent fuel A. In containment (e.g., water loss below fuel level) B. In Fuel Handling Building (SFP) (e.g., large object damages fuel)	9. A. 1) RIA's 2, 3 high alarm 2) Gaseous indication of radiation from RB CMS. B. 1) RIA 6 high alarm in Spent Fuel Pool 2) RIA 41 (SFP gas)
10. Fire compromising the functions of the safety systems.	10. Visual observation; fire detector indications as listed in Technical Specifications.
11. All alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while all alarms lost.	11. Visual observation of event.

Site Area Emergency	
Initiating Conditions	Symptoms and Indications
12. Accidental Release of Gases.	12. A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. C. EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.

Site Area Emergency	
Initiating Conditions	**Symptoms and Indications**
13. Imminent loss of physical control of the plant.	13. Subversive activity; determined by Security Supervisor; Imminent loss of Control Room and Auxiliary Shutdown Panels.
14. Severe natural phenomena being experienced or projected with plant not in cold shutdown. A. Earthquake greater than SSE levels. B. Flood, low water, hurricane surge, seiche greater than design levels or failure of protection of vital equipment at lower levels.	14. A. Seismic Trigger Statalarm B. Visual Observation C. Visual Observation or Meteorological indications in Control Room.

Site Area Emergency	
Initiating Conditions	**Symptoms and Indications**
15. Other hazards being experienced or projected with plant not in cold shutdown. A. Aircraft crash affecting vital structures by impact or fire. B. Severe damage to safe shutdown equipment from missiles or explosion. C. Entry of uncontrolled flammable gases into vital area. Entry of uncontrolled toxic gases into vital areas where lack of access to the area constitutes a safety problem.	15. A. Visual Observation B. Visual Observation C. Visual Observation Chemistry Results of samples in areas.
16. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Plant Manager warrant activation of emergency centers and monitoring teams and a precautionary public notification.	16. As directed by Emergency Coordinator

Site Area Emergency	
Initiating Conditions	Symptoms and Indications
17. Evacuation of control room and control of shutdown systems not established from local stations in 15 minutes.	17. As directed by Emergency Coordinator and Shift Supervisor.

General Emergency	
Initiating Condition	Symptoms and Indications
I. Accidental Release	1. A. Effluent monitors detect level corresponding to 1 rem/hr W. B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions. B. These dose rates are projected based on other plant parameters (e.g., Radiation levels in the containment pressure with some confirmation from effluent monitors or are measured in the environs. NOTE: Consider evacuation only within about 2 miles of the site boundary unless these site boundary levels are exceeded by a factor of 10 or projected to continue for 10 hours or EPA Protective Action Guideline exposure levels are predicted to be exceeded at longer distances.
2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier	2. A. Loss of primary coolant boundary B. Clad failure C. High potential for loss of containment integrity after an accident.

General Emergency	
Initiating Condition	**Symptoms and Indications**
3. Loss of physical control of the facility (Note: Consider the 2 mile precautionary evacuation).	3. As determined by Security Force
4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	4. A. Small and large LOCA's with failure of ECCS to perform leading to severe core degradation or melt in from minutes to hours. Ultimate failure of containment likely for melt sequences. (Several hours likely to be available to complete protective actions unless containment is not isolated.) B. Transient initiated by loss of feedwater and condensate systems (principal heat removal system) followed by failure of emergency feedwater system for extended period. Core melting possible in several hours. Ultimate failure of containment if core melts. C. Transient requiring operation of shutdown systems with failure to scram which results in core damage or additional failure of core cooling and makeup systems (which could lead to core melt.) D. Failure of off-site and on-site power along with total loss of emergency feedwater makeup capability for several hours. Would lead to eventual core melt and likely failure of containment.

General Emergency	
Initiating Condition	Symptoms and Indications
	4. (Continued) E. Small LOCA and initially successful ECCS. Subsequent failure of containement heat removal systems over several hours could lead to core melt and likely failure of containment. NOTE: Most likely containment failure mode is melt-through with release of gases only for dry containment. Quicker release expected for failure of containment isolation system for any PWR.
5. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis.)	5. A. Visual observation fire alarms control room. B. Seismic Trigger

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/A/1000/02
Change(s) N/A to
N/A Incorporated

(2) STATION: Oconee Nuclear Station

(3) PROCEDURE TITLE: Emergency Action Level (EAL) - UNUSUAL EVENT

(4) PREPARED BY: Coleman C. Jarvis DATE: 3/9/82

(5) REVIEWED BY: R R Rogers DATE: 3/9/82

Cross-Disciplinary Review By: _____ N/R: N

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tony B. Owen Date: 3/9/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: R. T. B. Date: 3/9/82

Reviewed/Approved By: _____ Date: _____

FORM SPD-1001-2

DUKE POWER COMPANY
NUCLEAR SAFETY EVALUATION CHECK LIST

(1) STATION: Oconee UNIT: 1 ____ 2 ____ 3 ____
OTHER: all

(2) CHECK LIST APPLICABLE TO: AD/O/A/1000/02

(3) SAFETY EVALUATION - PART A

The item to which this evaluation is applicable represents:

Yes ____ No ✓ A change to the station or procedures as described in the FSAR; or a test or experiment not described in the FSAR?

If the answer to the above is "Yes", attach a detailed description of the item being evaluated and an identification of the affected section(s) of the FSAR.

(4) SAFETY EVALUATION - PART B

Yes ____ No ✓ Will this item require a change to the station Technical Specifications?

If the answer to the above is "Yes," identify the specification(s) affected and/or attach the applicable pages(s) with the change(s) indicated.

(5) SAFETY EVALUATION - PART C

As a result of the item to which this evaluation is applicable:

Yes ____ No ✓ Will the probability of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of an accident which is different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the probability of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the margin of safety as defined in the bases to any Technical Specification be reduced?

If the answer to any of the preceding is "Yes", an unreviewed safety question is involved. Justify the conclusion that an unreviewed safety question is or is not involved. Attach additional pages as necessary.

(6) PREPARED BY: Colena C. Davis DATE: 3/9/82

(7) REVIEWED BY: R R Rader DATE: 3/9/82

This procedure does not affect the operation of safety-related equipment.

(8) Page 1 of 1

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

EMERGENCY ACTION LEVEL (EAL) - UNUSUAL EVENT

1.0 Symptoms: The symptoms of an Unusual Event will vary according to the initiating conditions. Enclosure 4.1 defines the different conditions and gives specific symptoms of each of the same.

2.0 Immediate Action

2.1 Automatic - NA

2.2 Manual

Date/Name
Time

_____2.2.1 If at any time during this event the Emergency Plan is deactivated, proceed directly to Step 3.1.

_____2.2.2 Initiate immediate remedial action necessary to protect the health and safety of personnel, minimize the radiation and contamination hazards and minimize damage to the station. Record actions and results on Enclosure 4.4, Plant Data and Status Information.

_____2.2.3 If radiation or contamination is involved, direct Health Physics to evaluate hazards and recommend methods of controlling radiological problems. Record data and recommendations on Enclosure 4.4, Plant Data and Status Information.

_____2.2.4 If a possibility of an offsite dose exists as a result of this event, evaluate the need for an offsite dose calculation.

NOTE: AP/0/B/1000/07 is for the Control Room use only for dose calculation. The Health Physics Section will use H.P. procedures if they perform the calculation.

_____2.2.5 Determine from Enclosure 4.1, Unusual Event Initiating Conditions, the most descriptive initiating condition for the event.

_____2.2.6 Appoint an individual to be responsible for keeping records of the emergency and to notify offsite agencies and company personnel.

____2.2.6.1 Notify company personnel and offsite authorities of the nature of the plant conditions using Enclosure 4.1, Unusual Event Initiating Conditions, as a guide for notification. Refer to the Emergency Telephone Listing in the Implementing Procedures manual for the telephone number that corresponds to the notification code under each initiating condition.

2.2.6.2 Enclosure 4.3, Message Format, is to be used in notifying staff and offsite authorities for both initial and followup contacts. Offsite notifications should be accomplished within 15 minutes of the identification of the EAL. Establish update time frame with offsite agencies.

2.2.6.3 Record actions taken and events as they occur on Enclosure 4.4, Plant Data and Status Information.

____2.2.7 Proceed using proper procedures to bring the plant to a stable, safe condition.

3.0 Subsequent Action

____3.1 When plant conditions warrant, The Unusual Event Emergency should be accelerated to a more severe classification or closed out. Both of these actions require a verbal summary to offsite authorities. Use only one of the following steps depending upon whether the event is escalating or being terminated.

____3.1.1 If the event is escalating, use Enclosure 4.2, Guide for Escalation, to identify the appropriate EAL. When a new EAL is identified, advance to the new EAL abnormal procedure. From the time a new EAL is identified, all offsite authorities should be notified within 15 minutes.

____3.1.2 When closing out an Unsual Event Emergency, notify all personnel and authorities previously notified in Step 2.2.6 that the event is terminated.

____3.1.3 A copy of Enclosure 4.3, Message Format, must follow the verbal contact to offsite authorities within 24 hours.

____3.2 In the event that Protective Action Guides need to be issued to offsite authorities, this event must first be escalated to a General Emergency.

4.0 Enclosures

4.1 Unusual Event Initiating Conditions with Associated Symptoms, FSAR, Tech. Spec. and EP References

4.2 Guide for Escalating an Unusual Event

4.3 Message Format

4.4 Plant Data and Status Information

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
1. Emergency Core Cooling initiated (co incident with positive finding that initiation is NOT spurious). ES actuates and discharges to vessel. Notification Code: 1-2-4-6-7	Redundant actuation verification -KZ Module Control Room - ES Channels 1-8	Inadvertent operation of ECCS during Power Operation, Loss of Reactor Coolant from small ruptured pipe.	EP/0/A/1800/04, T.S.3.3, T.S.3.5.3
2. Radiological effluent Technical Specification limits exceeded: Notification Code: 1-2-5-6-7 1-2-5-6-7-13	A. Gaseous effluent instantaneous release rate Technical Specification limits exceeded for one (1) hour. Any of the following gaseous effluent monitors in valid alarm mode for more than 1 hour: RIA - 37, 38, 43, 44, 45, 46, 47, 48, 49. Interim Radwaste Building - RIA 52. B. Liquid effluent concentration. Technical Specification limits exceeded for 15 minutes. Any of the following liquid effluent monitors in valid alarm mode for more than 1 hour: RIA 33, 34; RIA 54	Waste Gas Decay Tank Rupture; Liquid Waste Storage Tank Rupture	EP/0/A/1800/24, T.S.3.10, T.S.3.9

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
1. Fuel damage indication: A. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity) Notification Code: 1-2-4-6-7	A. Dose equivalent I-131 activity concentration greater than limit in Technical Specifications.	Loss of Coolant Accident	EP/0/A/1800/04 T.S.3.1.4 EP/0/B/1800/24 T.S.3.13 EP/0/A/1800/27
4. Abnormal Coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits (>2500 psig) Notification Code: 1-2-4-6-7	Narrow range, wide range RCS pressure indication; narrow range, wide range RCS temperature indication; incore thermocouple temperature indication; subcooled margin monitors.	Accidental Depressurization of Reactor Coolant System; Loss of Forced Reactor Coolant Flow; Loss of Coolant Accident.	EP/0/A/1800/04, T.S.3.1.2 EP/0/A/1800/06,

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (>10 gpm total P/S leakage) A. Primary -requiring shutdown B. Primary to secondary Unit 1 >0.30 gpm Notification Code: 1-2-4-6-/	A. LDST, PZR, RB sump, HAWT, LAWT level. RCS pressure and RB pressure. PT/1/2/3/A/600/10 - Reactor Coolant Leakage. B. RIA 40; RIA 16, 17; Chemistry Analysis RIA 54 C. RIA 40; RIA 16, 17; Chemistry Analysis RIA 54	Accidental Depressurization of Reactor Coolant System (RCS)	EP/0/A/1800/04 T.S.3.16 EP/0/A/1800/17
6. Failure of a safety or relief valve in a safety related system to close following reduction of applicable pressure. A. RCS System B. Main Steam Notification Code: 1-2-4-6-/	A. RCS pressure, RV tailpipe temperatures, QT temperature level and pressure, PZR level. B. Main steam pressure, visual inspection RC temperature and pressure	Loss of Coolant Accident	EP/0/A/1800/04 T.S.2.2 EP/0/A/1800/06 EP/0/A/1800/08

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
7. Loss of offsite power or loss of onsite AC Power capability. A. Loss of offsite power B. Loss of on-site AC power Notification Code: 1-2-6-7	A. Underfrequencies - undervoltage on 230 KV buses. B. Underfrequencies - undervoltage on MFB.	Loss of Offsite Power to Station Auxiliaries	EP/0/A/1800/16 T.S.3.7 EP/0/A/1800/25
8. Loss of containment integrity requiring shutdown by technical specifications. Notification Code 1-2-4-6-7	Any automatic containment isolation valve found to be inoperable, or any penetration fails its leak test as specified in the Technical Specifications		EP/0/A/1800/23 T.S.3.6 T.S.3.7 T.S.4.4.1

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy). A. Engineered Safety Feature Notification Code: 1-2-4-6-7 B. Fire Protection System Notification Code: 1-2-6-7	A. Engineered Safety Features System found inoperable. B. Fire Suppression Water System found inoperable. (Note that technical specifications now include Keowee Hydro).	Loss of external electrical load. Loss of offsite power to station auxiliaries.	EP/0/A/1800/16 T.S.3.5.3 EP/0/A/1800/25 T.S.3.17
10. Fire lasting more than 10 minutes: A. Onsite Notification Code: 1-2-6-7 B. Offsite (surrounding the station) Notification Code: 1-2-6-7-10	A. Observation B. Observation		EP/0/A/1800/12

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
11. Indications of radiation monitoring process and effluent parameters which require plant shutdown or significant loss of vital assessment or communication equipment. Notification Code: 1-2-6-7 (5)	Loss of Radiation Monitoring System; Loss of Meteorological Equipment; Significant Loss of Communication to offsite capability.	Loss of Offsite Power to Station Auxiliaries; Loss of Instrument Air	EP/0/A/1800/16 EP/0/A/1800/25 EP/0/A/1800/29 OP/0/A/1103/20
12. Security threat or attempted entry or attempted sabotage. A. Bomb/explosive or missiles B. Subversive activity attempted Notification Code: 1-2-6-7	A. Security force declares initiation of proper security procedure. B. Security force declares initiation of proper security procedure.		Station Security Plan

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
13. Natural phenomenon being experienced or projected beyond usual levels: A. Any earthquake (<.05 g design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave) C. Any tornado near site. D. Any hurricane (>74 mph) Notification Code: 1-2-6-7	A. Seismic Recording System start indication and alarm. B. Observation of event C. Observation of event D. Observation of event	Tornado, Missile impact	EP/0/A/1800/09 EP/0/A/2800/10 EP/0/A/1800/15 EP/0/A/1800/19 AP/0/A/000/ ONS Fire Plan
14. Other hazards being experienced or projected A. Aircraft crash on-site or unusual aircraft activity over facility. Notification Code: 1-2-6-7 B. Near or on-site explosion. Notification Code: 1-2-6-7 C. Near or on-site toxic or flammable gas release of a magnitude that threatens personnel. Notification Code: 1-2-6-7	A. Observation of event B. Observation of explosion or warning from offsite. C. Observation of explosion or warning from offsite. D. Decrease in Condenser Vacuum; Main Turbine Vibration; Turbine Generator Trip.	Turbine Trip, Turbine Trip with Failure of Generator Breaker to Open	EP/0/A/1800/02 EP/0/A/1800/07

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
14. (Continued) D. Turbine rotating component failure causing rapid plant shutdown. Notification Code: 1-2-4-6-7 .			
15. Other plant conditions: A. Conditions that warrant increased awareness of part of state and/or local offsite authorities. B. Conditions that require shutdown under technical specifications. Notification Code: 1-2-4-6-7	A. Shift Supervisor's Discretion B. Shift Supervisor's Discretion; R.O.'s discretion.		As directed by plant conditions.

Unusual Events Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
16. Transportation of contaminated injured individual from site to offsite. Notification Code: 1-2-6-7	Same as initiating conditions.		
17. Rapid depressurization of PWR secondary side. Notification Code: 1-2-4-6-7	MS pressure; RC temperature and pressure; FDW flow.	Accidental depressurization of Main Steam System, Loss of External Load or Turbine Trip	EP/0/A/1800/08 EP/0/A/1800/16 EP/0/A/1800/02

Unusual Events	Alert	Site Area Emergency	General Emergency
1. Emergency Core Cooling initiated (co incident with positive finding that initiation is NOT spurious. ES actuates and discharges to vessel.	5. Primary coolant leak rate greater than 50 gpm.	11. Know loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm).	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.
2. Radiological effluent Technical Specification limits exceeded: A. Gaseous effluent instantaneous release rate Technical Specification limits exceeded for one (1) hour. B. Liquid effluent concentration. Technical Specification limits exceeded for 15 minutes.	6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings). 15. Radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about 1 mR at the Site Boundary under average meteorological conditions or whenever effluent monitors or radiological monitoring detect these levels.	12. Accidental Release of Gases A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. (Continued)	1. Accidental Release A. Effluent monitors detect level corresponding to 1 rem/hr W.B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions. 4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.

Unusual Events	Alert	Site Area Emergency	General Emergency
		12. C. EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.	
1. Fuel damage indication: A. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity)	1. Severe loss of fuel cladding: A. Very high coolant activity sample (e.g., 300 µCi/cc equivalent of I-131)	2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels).	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.
4. Abnormal coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits (>2500 psig)	1. Severe loss of fuel cladding: A. Very high coolant activity sample (e.g., 300 microCi/cc equivalent of I-131) (Continued)	2. Degraded core with possible loss of coolable geometry. (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels).	2. Loss of 2 or 3 fission product barriers with a potentail loss of third barrier.

Unusual Events	Alert	Site Area Emergency	General Emergency
	9. Coolant pump seizure leading to fuel failure.		
5. Exceeding either primary/ secondary leak rate technical specifications or primary leak rate technical specifications. (>10 gpm total P/S/ leakage) A. Primary - requiring shutdown B. Primary to secondary Unit 1 >0.10 gpm	3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate). 5. Primary coolant leak rate greater than 50 gpm. 6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings)	1. Known loss of coolant accident greater than makeup pump capacity (any leakage >500 gpm). 3. Rapid failure of more than 10 steam generator tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate). 4. PWR steam line break with greater than: A. 50 gpm primary to secondary leakage B. 50 gpm primary to secondary leakage and indication of fuel damage.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time. Core melt situation.

Unusual Events	Alert	Site Area Emergency	General Emergency
6. Failure of a safety relief valve in a safety related system to close following reduction of applicable pressure. A. RCS System B. Main Steam			
7. Loss of offsite power or loss of onsite AC power capability. A. Loss of offsite power B. Loss of on-site power	2. Rapid gross failure of one steam generator tube with loss of offsite power from all sources.. (OTSG Tube) 7. Loss of off-site power and loss of all on-site AC power for up to 15 minutes (loss of Keowee not credible so not considered).	5. Loss of off-site power and loss of on-site AC power for more than 25 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time of time possible. Core melt situation.

Unusual Events	Alert	Site Area Emergency	General Emergency
8. Loss of containment integrity requiring shutdown by technical specifications.	6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings).	15. Other hazards being experienced or projected with plant not in cold shutdown.	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.
9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g. malfunction, personnel error, or procedural inadequacy). A. Engineered Safety Feature B. Fire Protection System	10. Complete loss of all functions for plant cold shutdown.	7. Complete loss of any functions needed for plant hot shutdown.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time of time possible. Core melt situation.
	14. Most or all alarm (annunciators) lost.	11. All alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while all alarms lost.	

Unusual Events	Alert	Site Area Emergency	General Emergency
10. Fire lasting more than 10 minutes: A. Onsite B. Offsite (surrounding the Station)	11. Fire potentially affecting safety systems.	10. Fire compromising the functions of the safety systems.	4. Other Plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation. 5. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis). Notify: 1-2-6-7-8-11-12
11. Indications of radiation monitoring process and effluent parameters which require plant shutdown or significant loss of vital assessment or communication equipment.	6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings). (Continued)	12. Accidental Release of Gases	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.

Unusual Events	Alert	Site Area Emergency	General Emergency
	15. Radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about 1 mR at the Site Boundary under average meteorological conditions or whenever effluent monitors or radiological monitoring detect these levels).		
12. Security threat or attempted entry or attempted sabotage. A. Bomb/explosive or missiles B. Subversive activity attempted.	16. Ongoing Security Compromise.	13. Imminent loss of physical control of the plant. 17. Evacuation of control room and control of shutdown systems not established from local stations in 15 minutes.	3. Loss of physical control of the facility (Note: Consider the 2 mile precautionary evacuation).*

Unusual Events	Alert	Site Area Emergency	General Emergency
13. Natural phenomenon being experienced or projected beyond usual levels: A. Any earthquake (<.05 g design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave) C. Any tornado near site D. Any hurricane (>74 mph)	17. Severe natural phenomona being experienced or projected (See specific conditions)	14. Severe natural phenomena being experienced or projected with plant not in cold shutdown	5. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis).
14. Other hazards being experienced or projected: A. Aircraft crash on-site or unusual aircraft activity over facility. B. Near or on-site explosion. C. Near or on-site toxic or	18. Other hazards being experienced or projected: A. Aircraft on facility. B. Missile impacts from whatever source on facility. C. Known explosion damage to facility affecting plant operation. (Continued)	15. Other hazards being experienced or projected with plant not in cold shutdown: A. Aircraft crash effecting vital structures by impact or fire. B. Severe damage to safe shutdown equipment from missiles	4. Other plant conditions exist, from whatever source, that makes release of large amounts of radioactivity in a short period

Unusual Events	Alert	Site Area Emergency	General Emergency
flammable gas release of a magnitude that threatens personnel. D. Turbine rotating component failure causing rapid plant shutdown.	D. Entry into facility environs of toxic or flammable gases. E. Turbine failure causing casing penetration.	or explosion. C. Entry of uncontrolled flammable gases into vital area. Entry of uncontrolled toxic gases into vital areas where lack of access to the area constitutes a safety problem.	
15. Other plant conditions: A. Conditions that warrant increased awareness of part of state and/or local offsite and authorities. B. Conditions that require shutdown under technical specifications.			
16. Transportation of contaminated injured individual from site to offsite.			
17. Rapid depressurization of PWR secondary site.			

ENCLOSURE 4.3 Message Format

1. MESSAGE

☐ Drill
☐ Emergency
☐ Initial
☐ Follow-up

Every _____ minute(s)

2. CR / TSC / CMC _____

DATE _____ TIME _____ MESSAGE NO. _____

3. _____ Telephone

4. _____ Authentication

5. ACCIDENT INFORMATION

Time _____ Unit _____ Emergency Condition

_____

_____

_____

_____

6. OFFSITE NOTIFICATION

Time _____ Pickens _____

Time _____ Oconee _____

Time _____ S.C. State _____

Time _____ Other _____

7. EMERGENCY CLASSIFICATION

☐ Unusual Event
☐ Alert
☐ Site Area Emergency
☐ General Emergency

8. PLANT STATUS

☐ Stable
☐ Improving
☐ Degrading
☐ Not Known

9. PROGNOSIS (Based on Plant Information)

☐ Escalating Emergency
☐ De-escalating Emergency
☐ Termination
☐ Not Known

RADIOLOGICAL INFORMATION:

10. RELEASE

☐ Actual
☐ Projected
☐ Airborne
☐ Waterborne

11. Rate of Release _____ Curies/sec

Time of Release _____

Release Duration _____

12. Assume Ground Release _____ Yes / No

13. METEOROLOGY

Wind Speed _____ mph

Wind Direction (from) _____ °

Stability Class _____

Precipitation Form _____

14. ESTIMATES

	QUANTITY	CONCENTRATION
Noble Gas		
I-131 (equivalent)		
Particulate		

19. SECTOR(S) AFFECTED

Oconee 5mi _____
10mi _____

Pickens 5mi _____
10mi _____

15. Actual - Site Boundary _____ 2mi _____ 5mi _____ 10mi _____

16. Projected - Site Bdry. _____ 2mi _____ 5mi _____ 10mi _____

17. Integrated 2mi _____ 5mi _____ 10mi _____

18. Surface Radiation Contamination Estimate _____

20. PROTECTIVE ACTION RECOMMENDATIONS:

_____

_____

_____

_____

_____

_____

1. Does not involve the release of radioactive material from the station or involve the public.
2. Involves the potential for the release of radioactive, but no radioactive material has been released.
3. Does involve the release of some radioactive material from the station, but at a level below that considered a public hazard.
4. Does involve the release of radioactive materials from the station at a level at which protective action is advisable.

21. OTHER INFORMATION _____

_____

22. USE REVERSE SIDE FOR ADDITIONAL COMMENTS: (Report to Counties information listed in 1-9, 19, 20, 21, 22.)
(Report to State all information available.)

ENCLOSURE 4.4
DUKE POWER COMPANY
OCONEE NUCLEAR STATION

PLANT STATUS (Circle) Oconee NUCLEAR STATION UNIT _____
Unusual Event - Alert PLANT DATA AND STATUS DATE _____
Site Emer. - Gen. Emer. INFORMATION TIME _____

Control Room TSC _____

_____ HPC _____

OSC _____

By _____

Title _____

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/A/1000/03
Change(s) N/A to
N/A Incorporated

(2) STATION: Oconee Nuclear Station

(3) PROCEDURE TITLE: Emergency Action Level (EAL) - ALERT

(4) PREPARED BY: Coleman C. Davis DATE: 3/9/82

(5) REVIEWED BY: Robert Rogers DATE: 3/9/82

Cross-Disciplinary Review By: _____ N/R: N

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tony B. Owen Date: 3/9/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: R. L. Bost Date: 3/9/82

Reviewed/Approved By: _____ Date: _____

FORM SPD-1001-2

DUKE POWER COMPANY
NUCLEAR SAFETY EVALUATION CHECK LIST

(1) STATION: Oconee UNIT: 1 ____ 2 ____ 3 ____
OTHER: all

(2) CHECK LIST APPLICABLE TO: AP/0/A/1000/03

(3) SAFETY EVALUATION - PART A

The item to which this evaluation is applicable represents:

Yes ____ No ✓ A change to the station or procedures as described in the FSAR; or a test or experiment not described in the FSAR?

If the answer to the above is "Yes", attach a detailed description of the item being evaluated and an identification of the affected section(s) of the FSAR.

(4) SAFETY EVALUATION - PART B

Yes ____ No ✓ Will this item require a change to the station Technical Specifications?

If the answer to the above is "Yes," identify the specification(s) affected and/or attach the applicable pages(s) with the change(s) indicated.

(5) SAFETY EVALUATION - PART C

As a result of the item to which this evaluation is applicable:

Yes ____ No ✓ Will the probability of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of an accident which is different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the probability of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the margin of safety as defined in the bases to any Technical Specification be reduced?

If the answer to any of the preceding is "Yes", an unreviewed safety question is involved. Justify the conclusion that an unreviewed safety question is or is not involved. Attach additional pages as necessary.

(6) PREPARED BY: Colleen C. Jennings DATE: 3/9/82

(7) REVIEWED BY: Lisa Rapp DATE: 3/9/82

This procedure does not affect the operation of safety related equipment.

(8) Page 1 of 1

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

EMERGENCY ACTION LEVEL (EAL) - ALERT

1.0 Symptoms: The symptoms of an Alert will vary according to the initiating conditions. Enclosure 4.1 defines the different conditions and gives specific symptoms of each of the same.

2.0 Immediate Action

2.1 Automatic - NA

2.2 Manual

Date/Name
Time

____2.2.1 If Hazardous Radiological conditions or the potential for such conditions exist, initiate a site assembly using S. D. 2.9.1. Record results on Enclosure 4.4, Station Personnel Accountability. Take immediate remedial action to insure the health and safety of personnel, minimize radiation and contamination problems, and minimize damage to the plant. Record actions taken on Enclosure 4.5, Plant Data and Status Information.

____2.2.2 If radition or contamination is involved, dispatch onsite monitoring teams with necessary communication equipment to assess and recommend methods of controlling or containing radiation and contamination. Record action taken and results of survey on Enclosure 4.5, Plant Data and Status Information.

____2.2.3 If a possibility of an offsite dose exists as a result of this event, evaluate the need for an offsite dose calculation.

NOTE: AP/0/B/1000/07 is for the Control Room use only for dose calculation. The Health Physics Section will use H.P. procedures if they perform the calculation.

____2.2.4 Determine from Enclosure 4.1, Alert Initiating Conditions, the most descriptive initiating condition for the event.

____2.2.5 Activate the Technical Support Center. Use Enclosure 4.6 or 4.7, Emergency Organization Recall. Have the Station Manager (or Emergency Coordinator alternate) bring the Crisis Management Team to a standby alert status.

Date/Name
Time

_____2.2.6 Appoint an individual to be responsible for keeping records of the emergency and to notify offsite agencies and company personnel.

_____2.2.6.1 Notify company personnel and offsite authorities of the nature of the plant conditions using Enclosure 4.1, Alert Initiating Conditions, as a guide for notification. Refer to the Emergency Telephone Listing in the Implementing Procedures Manual for the telephone number that corresponds to the notification code under each initiating condition.

_____2.2.6.2 Enclosure 4.3, Message Format, to be used in notifying staff and offsite authorities for both initial and followup contacts. Offsite notifications should be accomplished within 15 minutes of the EAL. Establish update time frame with offsite agencies.

_____2.2.6.3 Record actions taken and events as they occur on Enclosure 4.5, Plant Data and Status Information. The Control Room will be responsible for notification of offsite authorities and for recording events as they occur until the Techincal Support Center is fully activated and operational. After that time, the Technical Support Center will be responsible for recording events and notifying offsite agencies.

_____2.2.7 Technical Support Center is fully activated and operational.

_____2.2.8 Operational Support Center is activated and operational.

_____2.2.9 Evacuate all station areas where unexpected exposures to greater than 2.5 mRem/hr or 40 MPC-HRS could result.

NOTE: If such exposures apply to areas outside the RCA, initiate a station evacuation as per S. D. 2.9.1, AP/0/A/1000/10, and HP/0/B/1009/16, and evaluate the need for event escalation.

_____2.2.10 Proceed through use of the proper procedures to bring the plant to a stable safe condition. Record actions taken on Enclosure 4.5, Plant Data and Status Information.

3.0 Subsequent Action:

_____3.1 When plant conditions warrant, the Alert emergency should be de-escalated or escalated to the next emergency action level.

Date/Name
Time

NOTE: Use Enclosure 4.2, Guide for Escalation, to identify the proper EAL if a change is warranted. From the time a new EAL is identified, all offsite authorities should be notified within 15 minutes.

_____3.2 In the event that Protective Action Guides need to be issued to offsite authorities, this event must be escalated to a General Emergency.

_____3.3 In the event the emergency is to be terminated, de-escalate to an Unusual Event.

_____3.4 De-escalation requires the concensus of the Nuclear Regulatory Commission and the state of South Carolina.

4.0 Enclosures

4.1 Alert Initiating Conditions

4.2 Guide for Escalation

4.3 Message Format

4.4 Station Personnel Accountability

4.5 Plant Data and Status Information

4.6 Emergency Organization Recall - Normal Working Hours

4.7 Emergency Organization Recall - Backshifts, Holidays, Weekends

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
1. Severe loss of fuel cladding; Notification Code: 1-2-6-7-11-12	A. Very high coolant activity sample (e.g., 300 µCi/cc equivalent of I-131) B. Decrease in reactor coolant flow. Control Room indication. C. Loose parts monitor indicates particles in reactor coolant system.	Loss of Coolant Accident; Based on Chemistry Analysis	EP/0/A/1800/04 EP/0/A/1800/27 EP/0/A/1800/11
2. Rapid gross failure of one steam generator tube with loss of offsite power from all sources (OTSG Tube) Notification Code: 1-2-6-7-11-12	Reactor trip on low pressure; RIA 16 or 17 and 40 high alarm; loss of RC inventory via pressurizer level; increasing SG level on affected SG; undervoltage alarms on main feeder buses; transfer of auxiliary power to standby buses; load shed of non-essential loads; TDEFWP start; switchyard isolation; Keowee turbine generators emergency start	Steam Generator Tube Rupture and loss of offsite power.	EP/0/A/1800/04 EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/17 EP/0/A/1800/29

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate). Notification Code: 1-2-6-7-11-12	Low RC pressure alarm; low PZR level alarm; RIA 16 or 17 and 40 high alarms (Control Room indication); increasing SG level on affected SG (Control Room indication) decreasing reactor coolant inventory via pressurizer level & RC pressure (Control Room indication), eventual reactor trip on low RC pressure excessive RC makeup flow. RIA-40 reads offscale.	Steam Generator Tube Rupture	EP/0/A/1800/04 EP/0/A/1800/17
4. Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate or MSIV malfunction. Notification Code: 1-2-6-7-11-12	Rapid decrease in MS pressure, Elec. load, PZR level, RC pressure and Tc; reactor trip on low pressure or high power; increase reactor building pressure and temperature (inside break); actuation of ES channels 1-6; actuation of ES channels 1 and 2.	Steam Generator Tube Rupture; Minor Secondary System Pipe Break; Major Secondary System Pipe Rupture	EP/0/A/1800/04 EP/0/A/1800/08 EP/0/A/1800/17
5. Primary coolant leak rate greater than 50 gpm. Notification Code: 1-6-7-11-12	RCS leakage rate shows leak rate; decreasing per level (prior to HP injection pump start); increasing pressure in reactor building; visual observation Continued:	Partial loss of Reactor Coolant Flow; loss of Reactor Coolant from Small Ruptured Pipes; loss of Coolant Accident	EP/0/A/1800/04

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
	with TV camera; LDST level decreasing more than normal; RB sumps - HAWT & LAWT level.		
b. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings). Notification Code: 1-2-6-7-11-12	Increase of RIA readings in affected areas (RIA's around vent header or gas decay room); plant area iodine or particulate airborne concentration greater than 1000 mpc.	Waste Gas Decay Tank Rupture; Steam Generator Tube Rupture; Loss of Coolant Accident	EP/0/A/1800/24
f. Loss of off-site power and loss of all on-site AC power for up to 15 minutes (loss of Keowee not credible so not considered). Notification Code: 1-2-6-7-11-12	Load rejection > reactor trip; switchyard isolation on 2/3 undervolt and underfrequency - Keowee emergency start transfer of auxiliaries to standby buses in ~ 21 sec.; immediate indication is loss of voltage on main feeder buses; reactor coolant pumps trip; ES actuation on low RC pressure; ECCS starts on ES.	Loss of off-site power to Station Auxiliaries (Station Black-out)	EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/25 EP/0/A/1800/29

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
8. Loss of on-site DC power. Notification Code: 1-2-6-7-11-12	Control Room Indication: statalarm indication DC trouble and battery breakers open, low voltage on DC buses DA, DB, DC trouble on EPSL.		EP/0/A/1800/16 EP/0/A/1800/31
9. Coolant pump seizure leading to fuel failure. Notification Code: 1-2-6-7-11-12	Reactor coolant pump auto trip alarm; reactor trip on flux/flow/imbalance; chemistry analysis per sample request indicate fuel clad breakdown; prior to pump seizure, high vibration alarm.	Partial loss of Reactor Coolant Flow; Single Reactor Coolant Pump Locked Rotor	EP/0/A/1800/06
10. Complete loss of all functions for plant cold shutdown Notification Code: 1-2-6-7-11-12	ECCS systems are not operational, loss BPI, LPI, RBS, RBCU, redundant indication in Control Room, natural circulation cannot be obtained.		EP/0/A/1800/16 EP/0/A/1800/14 EP/0/A/1800/29 EP/0/A/1800/31 EP/0/A/1800/06 EP/0/A/1800/08

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
11. Failure of the reactor protection system to initiate and complete a scram which brings the reactor subcritical. Notification Code: 1-2-6-7-11-12	Reactor remains critical after trip. Rods remain out.		EP/0/A/1800/03 EP/0/A/1800/21
12. Fuel damage accident with release of radioactivity to containment or fuel handling building. A. Containment B. Fuel handling building (SFP) C. Auxiliary Building Notification Code: 1-2-6-7-11-12	A. RIA's 2, 3, 4 alarm. Building isolation (Control Room indication and local). B. RIA 6 alarm (Control Room indication and local) C. RIA 11, 15, 7, 10 alarms (Control Room indication)	Fuel Handling Accident; Inadvertent loading of Fuel Assembly into an Improper Position	EP/0/A/1800/13 EP/0/A/1800/24

Alert *Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
13. Fire potentially affecting safety systems. Notification Code: 1-2-6-7-11-12	Visual observation - fire alarm in safety related areas		
14. Most or all alarms (annunciators) lost. Notification Code: 1-2-6-7-11-12	Visual observation by operator; loss of computer; RC pressure and temperature still available on chart recorders in Control Room, incore thermocouples can be read manually.	Loss of off-site power.	EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/29 EP/0/A/1800/31

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
15. Radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about 1 mR at the Site Boundary under average meteorological conditions or whenever effluent monitors or radiological monitoring detect these levels). Notification Code: 1-2-6-7-11-12	High radiation alarms on RIA's 18, 15 11, 45, 44, 43 for longer than 15 minutes.	Waste Gas Decay Tank Rupture; Liquid Waste Storage Tank Rupture, Steam Generator Tube Rupture; Loss of Coolant Accident	EP/0/A/1800/24
16. Ongoing Security compromise. Notification Code: 1-2-6-7-11-12	Determined by Security Force - event resulting in adversaries commandeering an area of the plant but not control of shutdown capability.		Station Security Plan

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
17. Severe natural phenomona being experienced or projected			EP/0/A/1800/09 EP/0/A/1800/15 EP/0/A/1800/10 EP/0/A/1800/25 EP/0/A/1800/19 AP/0/A/1000/
A. Earthquake greater than Operational Basis Earthquake Levels (> .05 g)	A. Visual Observation		
	B. Visual Observation		
	C. Visual Observation		
	D. Visual Observation		
B. Flood, low water, hurricane surge, seiche near design levels (lake tidel wave)		Tornado Missile Impact, Spent Fuel Analysis	
C. Any tornado striking facility			
D. Hurricane winds near design basis level (< 95 mph).			
Notification Code: 1-2-6-7-11-12			
18. Other hazards being experienced or projected:	Visual Observation		
A. Aircraft crash on facility		Tornado Missile Impact, Spent Fuel Analysis	
B. Missile impacts from whatever source on facility			
C. Known explosion damage to facility affecting plant operation			
Continued		Continued:	

Alert Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
B. Entry into facility environs of toxic or flammable gases E. Turbine failure causing casing penetration. Notification Code: 1-2-6-7-11-12		Loss of External Electric Load and/or Turbine Trip	
19. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations, or the Plant Manager warrant precautionary activation of Technical Support Center and near-site Crisis Management Center. Notification Code: 1-2-6-7-11-12			As directed by Plant Conditions

Alert	Site Area Emergency	General Emergency	Unusual Event
1. Severe loss of fuel cladding:	2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels).	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	3. Fuel damage indication: A. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity).
2. Rapid gross failure of one steam generator tube with loss of offsite power from all sources (OTSG Tube).	5. Loss of off-site power and loss of on-site AC power for more than 25 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	7. Loss of offsite power or loss of onsite AC power capability. A. Loss of offsite power B. Loss of on-site AC power
3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate).	1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm).	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (>10 gpm total P/S leakage) A. Primary - requiring shutdown B. Primary to secondary Unit 1 >0.30 gpm Continued:

Alert	Site Area Emergency	General Emergency	Unusual Event
4. Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate or MSIV malfunction.	3. Rapid failure of more than 10 generator tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate). 4. PWR steam line break with greater than A. 50 gpm primary to secondary leakage B. 50 gpm primary to secondary leakage and indication of fuel damage.	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (> 10 gpm total P/S/ leakage). A. Primary - requiring shutdown B. Primary to secondary Unit 1 > 0.30 gpm
5. Primary coolant leak rate greater than 50 gpm.	1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm).	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	1. Emergency Core Cooling initiated (co incident with positive finding that initiation is NOT spurious. ES actuates and discharges to vessel.

Alert	Site Area Emergency	General Emergency	Unusual Event
6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings).	12. Accidental Release of Gases A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. C. EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.	1. Accidental Release A. Effluent monitors detect level corresponding to 1 rem/hr W.B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions. 4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	
7. Loss of off-site power and loss of all on-site AC power for up to 15 minutes (loss of Keowee not credible so not considered).	5. Loss of off-site power and loss of on-site AC power for more than 25 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	7. Loss of off-site power or loss of on-site AC power capability A. Loss of off-site power B. Loss of on-site AC power

Alert	Site Area Emergency	General Emergency	Unusual Event
8. Loss of on-site DC power.	6. Loss of all vital on-site DC power for more than 15 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	
9. Coolant pump seizure leading to fuel failure.	2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels.	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	3. Fuel damage indication: A. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity).
10. Complete loss of functions for plant cold shutdown.	5. Loss of off-site power and loss of on-site AC power for more than 25 minutes. 7. Complete loss of any functions needed for plant hot shutdown. 17. Evacuation of control room and control of shutdown systems not established from local stations in 15 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy.

Alert	Site Area Emergency	General Emergency	Unusual Event
11. Failure of the reactor protection system to initiate and complete a scram which brings the reactor subcritical.	2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels). 8. Transient requiring operation of shutdown systems with failure to scram (continued power generation but no core damage immediately evident).	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy).
12. Fuel damage accident with release of radioactivity to containment or fuel handling building.	9. Major damage to spent fuel A. In containment (e.g., water loss below fuel level) B. In Fuel Handling Building (SFP) (e.g., large object damages fuel	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	4. Abnormal coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits (>2500 psig)
11. Fire potentially affecting safety systems.	10. Fire compromising the functions of the safety systems.	5. Any major internal or external events that could cause massive common damage to plant systems.	10. Fire lasting more than 10 minutes: A. Onsite B. Offsite (surrounding the Station

Alert	Site Area Emergency	General Emergency	Unusual Event
14. Most or all alarms (annunciators) lost.	5. Loss of off-site power and loss of on-site AC power for more than 25 minutes. 6. Loss of all vital on-site DC power for more than 15 minutes. 7. Complete loss of any functions needed for plant hot shutdown. 11. All alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while all alarms lost.	5. Any major internal or external events that could cause massive common damage to plant systems.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy). A. Engineered Safety Feature B. Fire Protection System
15. Radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about 1 mR at the Site Boundary under average meteorological conditions or whenever effluent monitors or radiological monitoring detect these levels).	12. Accidental Release of Gases A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing (continued)	1. Accidental Release A. Effluent monitors detect level corresponding to 1 rem/hr W.B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions. B. These dose rates are projected based on other plant parameters (e.g., Radiation levels in the containment with leak rate appropriate for existing (continued)	2. Radiological effluent Technical Specification limits exceeded. A. Gaseous effluent instantaneous release rate Technical Specification limits exceeded for one (1) hour. B. Liquid effluent concentration Technical Specification limits exceeded for 15 minutes.

Alert	Site Area Emergency	General Emergency	Unusual Event
	12. B. containment pressure) or are measured in the environs. C. EPA Protective Action Guidelines are projected to be exceeded outside boundary.	1. B. containment pressure with some confirmation from effluent monitors or are measured in the environs.	
16. Ongoing Security compromise.	13. Imminent loss of physical control of the plant. 17. Evacuation of control room and control of shutdown systems not established from local stations in 15 minutes.	3. Loss of physical control of the facility (Note: Consider the 2 mile precautionary evacuation).	12. Security threat or attempted entry or attempted sabotage. A. Bomb/explosive or missiles B. Subversive activity attempt attempted
17. Severe natural phenomena being experienced or projected A. Earthquake greater than Operational Basis Earthquake levels (>.05 g) B. Flood, low water, hurricane surge, seiche near design levels (lake tidal wave)	14. Severe phenomena being experienced or projected with plant not in cold shutdown.	5. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis).	13. Natural phenomenon being experienced or projected beyond usual levels: A. Any earthquake (>.05 g design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave) (continued)

Alert	Site Area Emergency	General Emergency	Unusual Event
			13. C. Any tornado near site D. Any hurricane (> 74 mph)
18. Other hazards being experienced or projected: A. Aircraft crash on facility B. Missile impacts from whatever source on facility C. Known explosion damage to facility affecting plant operation D. Entry into facility environs of toxic or flammable gases E. Turbine failure causing casing penetration.	15. Other hazards being experienced projected with plant not in cold shutdown. A. Aircraft crash affecting vital structures by impact or fire. B. Severe damage to safe shutdown equipment from missiles or explosion. C. Entry of uncontrolled flammable gases into vital area. Entry of uncontrolled toxic gases into vital areas where lack of access to the area constitutes a safety problem.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	14. Other hazards being experienced or projected: A. Aircraft crash on-site or unusual aircraft activity over facility. B. Near or on-site explosion. C. Near or on-site toxic or flammable gas release of a magnitude that threatens personnel. D. Turbine rotating component failure causing rapid plant shutdown.
19. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty (continued)	16. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the (continued)	4. Other plant conditions exist, from whatever source, that make release of large amounts of (continued)	15. Other plant conditions: A. Conditions that warrant in- (continued)

Alert	Site Area Emergency	General Emergency	Unusual Event
17. Engineer, the Superintendent of Operations, or the Plant Manager warrant precautionary activation of Technical Support Center and near-site Crisis Management Center.	16. Superintendent of Operations or the Plant Manager warrant activation of emergency centers and monitoring teams and a precautionary public notification.	4. radioactivity in a short period of time possible. Core melt situation.	15. A. creased awareness of part of of state and/or local offsite authorities B. Conditions that require shutdown under technical specifications.

Enclosure 4.3 Message Format

DATE_____ TIME_____ MESSAGE NO.____

1. MESSAGE

- ☐ Drill
- ☐ Emergency
- ☐ Initial
- ☐ Follow-up

Every _____minute(s)

2. CR / TSC / CMC _____

3. _____ Telephone

4. ____ Authentication

5. ACCIDENT INFORMATION

Time_____Unit_____Emergency Condition

_____

_____

_____

_____

6. OFFSITE NOTIFICATION

Time ____Pickens_____

Time ____Oconee_____

Time ____S.C. State_____

Time ____Other_____

7. EMERGENCY CLASSIFICATION

- ☐ Unusual Event
- ☐ Alert
- ☐ Site Area Emergency
- ☐ General Emergency

8. PLANT STATUS

- ☐ Stable
- ☐ Improving
- ☐ Degrading
- ☐ Not Known

9. PROGNOSIS (Based on Plant Information)

- ☐ Escalating Emergency
- ☐ De-escalating Emergency
- ☐ Termination
- ☐ Not Known

RADIOLOGICAL INFORMATION:

10. RELEASE

- ☐ Actual
- ☐ Projected
- ☐ Airborne
- ☐ Waterborne

11. Rate of Release _____Curies/sec

Time of Release _____

Release Duration _____

12. Assume Ground Release _____ Yes / No

13. METEOROLOGY

Wind Speed _____mph

Wind Direction (from)_____°

Stability Class_____

Precipitation Form_____

14. ESTIMATES

	QUANTITY	CONCENTRATION
Noble Gas	_____	_____
I-131 (equivalent)	_____	_____
Particulate	_____	_____

19. SECTOR(S) AFFECTED

Oconee 5mi _____

10mi _____

Pickens 5mi _____

10mi _____

15. Actual - Site Boundary _____ 2mi _____ 5mi _____ 10mi _____

16. Projected - Site Bdry. _____ 2mi _____ 5mi _____ 10mi _____

17. Integrated 2mi _____ 5mi _____ 10mi _____

18. Surface Radiation Contamination Estimate _____

---

20. PROTECTIVE ACTION RECOMMENDATIONS:

_____

_____

_____

_____

_____

_____

1. Does <u>not</u> involve the release of radioactive material from the station or involve the public.
2. Involves the <u>potential</u> for the release of radioactive, but no radioactive material has been released.
3. <u>Does</u> involve the <u>release</u> of some radioactive material from the station, but at a level below that considered a public hazard.
4. <u>Does</u> involve the <u>release</u> of radioactive materials from the station at a level at which protective action is advisable.

---

21. OTHER INFORMATION _____

_____

_____

22. USE REVERSE SIDE FOR ADDITIONAL COMMENTS: (Report to Counties information listed in 1-9, 19, 20, 21, 22.)
(Report to State all information available.)

Enclosure

STATION PERSONNEL ACCOUNTABILITY

DATE _____

GROUP	REPORTING NAME	NUMBER TELEPHONE	Number PEOPLE
Administration			
Contract Services:			
K-Mac			
Southern Security			
Training & Safety:			
Administrative Services:			
Wometco			
Visitors' Center:			
Keowee Hydro:			
Station Visitors:			
Receptionist Lobby			
Security Lobby			
Others: _____			
TIME: _____	TOTAL ADMINISTRATION GROUP		
Operations			
Operators On-Shift:			
Engineers/Staff:			
Training Center:			
B&W Personnel:			
Others: _____			
TIME: _____	TOTAL OPERATIONS GROUP		
Maintenance			
Planning & Materials:			
I&E:			
Mechanical Maintenance:			
System Maintenance Support:			
Substation Maintenance:			
Others: _____			
TIME: _____	TOTAL MAINTENANCE GROUP		

GROUP	REPORTING NAME	NUMBER TELEPHONE	NUMBER PEOPLE
Technical Services			
Performance:			
Environmental:			
Licensing & Projects:			
Design Engineering			
NRC			
Health Physics:			
Chemistry:			
Others: _____			
TIME: _____	TOTAL TECHNICAL SERVICES GROUP		
Quality Assurance			
TIME: _____	Quality Assurance Total:		
Station Support Division			
TIME: _____	Station Support Division Total:		
Others: _____			
			Others Total:
BEGINNING TIME: _____	ENDING TIME: _____	TOTAL PEOPLE ON-SITE:	

Unaccounted Personnel	Group	Action Taken	Person Reporting	Telephone

REMARKS:

AP/O/A/1300/03

DUKE POWER COMPANY
OCONEE NUCLEAR STATION

ENCLOSURE 4.5

PLANT STATUS (Circle)
Unusual Event - Alert
Site Emer. - Gen. Emer.

OCONEE NUCLEAR STATION
PLANT DATA AND STATUS
INFORMATION

UNIT _____
DATE _____
TIME _____

Control Room

TSC _____

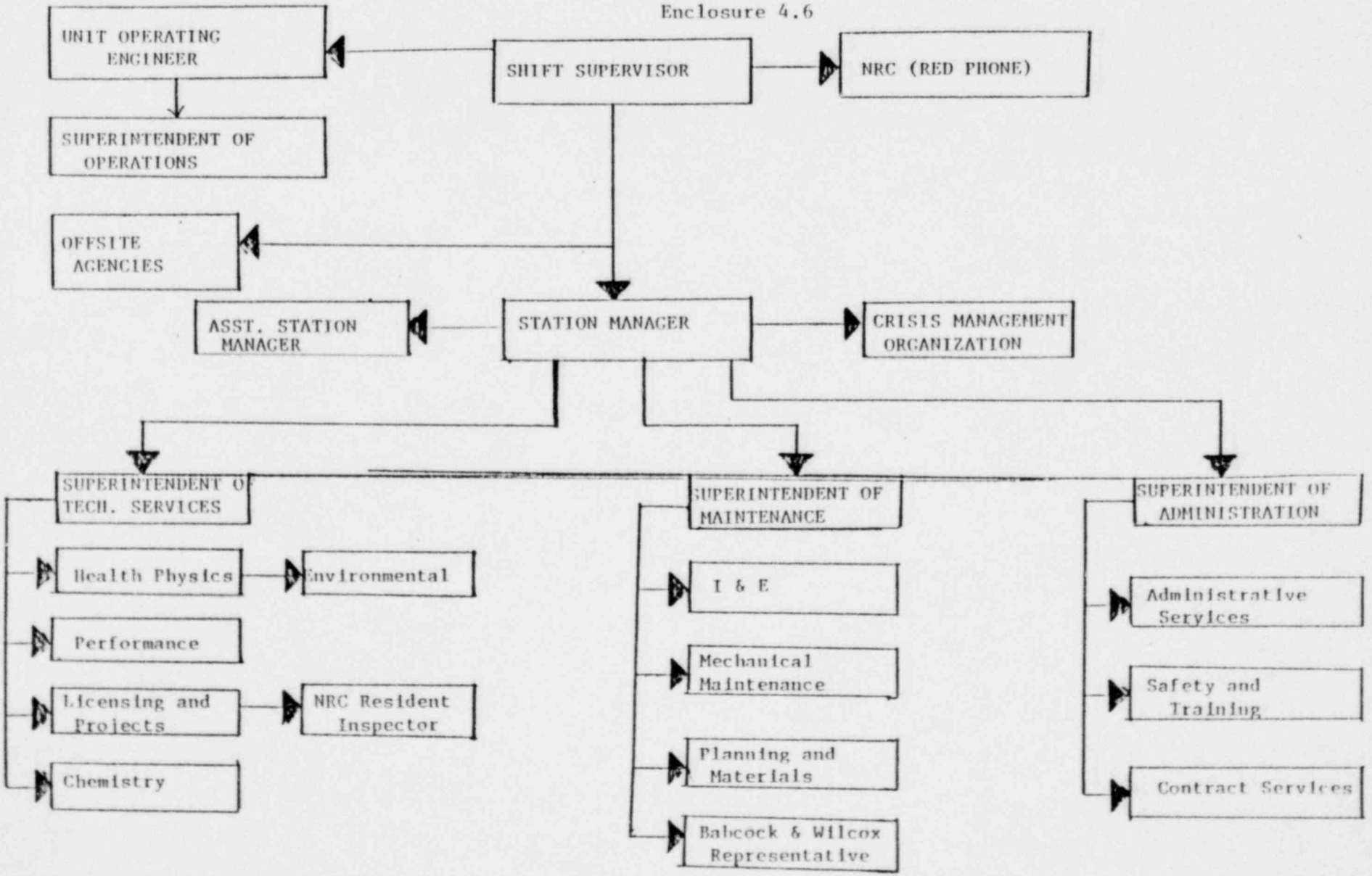
HPC _____

OSC _____

By _____

Title _____

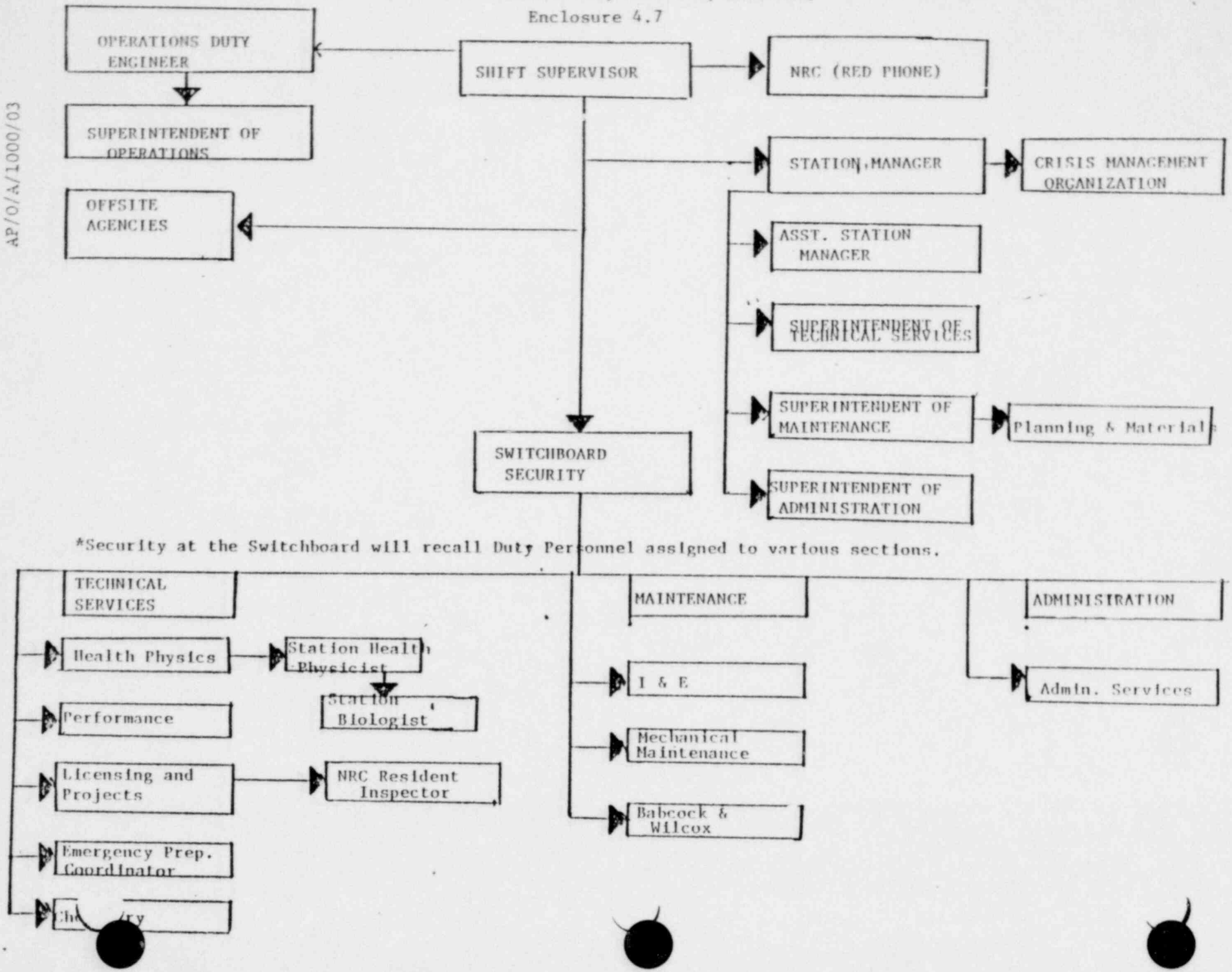
OCONEE NUCLEAR STATION
EMERGENCY ORGANIZATION RECALL
NORMAL WORKING HOURS
Enclosure 4.6



OCONEE NUCLEAR STATION
EMERGENCY ORGANIZATION RECALL
(BACKSHIFT, WEEKENDS, HOLIDAYS)

Enclosure 4.7

AP/O/A/1000/03



INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/O/A/1000/04
Change(s) N/A to
N/A Incorporated

(2) STATION: Oconee Nuclear Station

(3) PROCEDURE TITLE: Emergency Action Level (EAL) - SITE AREA EMERGENCY

(4) PREPARED BY: Coleman C. Jennings DATE: 3/9/82

(5) REVIEWED BY: Rick Rogers DATE: 3/9/82

Cross-Disciplinary Review By: _____ N/R: N

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Doug B. Owen Date: 3/9/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: R. T. Bond Date: 3/9/82

Reviewed/Approved By: _____ Date: _____

FORM SPD-1001-2

DUKE POWER COMPANY
NUCLEAR SAFETY EVALUATION CHECK LIST

(1) STATION: Oconee UNIT: 1 ____ 2 ____ 3 ____
OTHER: All

(2) CHECK LIST APPLICABLE TO: AP/0/A/1000/04

(3) SAFETY EVALUATION - PART A

The item to which this evaluation is applicable represents:

Yes ____ No ✓ A change to the station or procedures as described in the FSAR; or a test or experiment not described in the FSAR?

If the answer to the above is "Yes", attach a detailed description of the item being evaluated and an identification of the affected section(s) of the FSAR.

(4) SAFETY EVALUATION - PART B

Yes ____ No ✓ Will this item require a change to the station Technical Specifications?

If the answer to the above is "Yes," identify the specification(s) affected and/or attach the applicable pages(s) with the change(s) indicated.

(5) SAFETY EVALUATION - PART C

As a result of the item to which this evaluation is applicable:

Yes ____ No ✓ Will the probability of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of an accident which is different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the probability of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the margin of safety as defined in the bases to any Technical Specification be reduced?

If the answer to any of the preceding is "Yes", an unreviewed safety question is involved. Justify the conclusion that an unreviewed safety question is or is not involved. Attach additional pages as necessary.

(6) PREPARED BY: Colena C. Jennings DATE: 3/9/82

(7) REVIEWED BY: Rick Rogers DATE: 3/9/82

This procedure does not affect the operation of safety-related equipment.

(8) Page 1 of 1

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

EMERGENCY ACTION LEVEL (EAL) - SITE AREA EMERGENCY

1.0 Symptoms: The symptom of a Site Emergency will vary according to the initiating conditions. Enclosure 4.1 defines the different conditions and gives specific symptoms of each of the same.

2.0 Immediate Action

2.1 Automatic - NA

2.2 Manual

Date/Name
Time

_____2.2.1 If Hazardous Radiological conditions or the potential for such conditions exist, initiate a site assembly using Station Directive 2.9.1 record results on Enclosure 4.4, Station Personnel Accountability. Take immediate remedial action to insure the health and safety of personnel, minimize radiation and contamination problems, and minimize damage to the plant. Record actions taken on Enclosure 4.5, Plant Data and Status Information.

_____2.2.2 If radiation or contamination is involved, dispatch onsite monitoring teams with necessary communication equipment to assess and recommend methods of controlling or containing radiation and contamination. Record action taken and results of survey on Enclosure 4.5, Plant Data and Status Information.

_____2.2.3 If the possibility of an offsite dose exists as a result of this event, evaluate the need for an offsite dose calculation.

NOTE: AP/0/B/1000/07 is for the Control Room use only for dose calculation. The Health Physics Section will use H.P. procedures if they perform the calculation.

_____2.2.4 Determine from Enclosure 4.1, Site Area Emergency Initiating Conditions, the most descriptive initiating condition for the event.

_____2.2.5 Activate the Technical Support Center (if not already activated). Use Enclosure 4.6 or 4.7, Emergency Organization Recall. Have the Station Manager (or Emergency Coordinator alternate) to activate the Crisis Management Team.

Date/Name
Time

_____2.2.6 Appoint an individual to be responsible for keeping records of the emergency and to notify offsite agencies and company personnel.

_____2.2.6.1 Notify company personnel and offsite authorities of the nature of the plant conditions using Enclosure 4.1, Site Area Emergency Initiating Conditions, as a guide for notification. Refer to the Emergency Telephone Listing in the Implementing Procedures Manual for the telephone number that corresponds to the notification code under each initiating condition.

_____2.2.6.2 Enclosure 4.3, Message Format, is to be used in notifying staff and offsite authorities for both initial and followup contacts. Offsite notifications should be accomplished within 15 minutes of the identification of the EAL. Establish update time frame with offsite agencies.

_____2.2.6.3 Record actions taken and events as they occur on Enclosure 4.5, Plant Data and Status Information. The Technical Support Center will be responsible for notification of offsite authorities and for recording events as they occur until the Crisis Management Center is fully operational either nearsite or remote from site. Once the Crisis Management Center is fully operational, offsite authorities will be contacted by the Crisis Management Center. The Technical Support Center will continue with record keeping and plant updates to the Crisis Management Center.

_____2.2.7 Technical Support Center is fully activated and operational.

_____2.2.8 Operational Support Center is activated and operational.

_____2.2.9 Evacuate all non-essential personnel per Procedure AP/0/A/1000/10.

_____2.2.10 Start the Control Room Ventilation System if radioactivity exists outside the RCA.

2.2.10.1 Have Technical Support Center personnel read dosimetry every hour. Record readings on Enclosure 4.8, Record of Dosimetry Readings.

_____2.2.11 Insure that Senior Members of plant staff onsite are available for consultation with NRC on a periodic basis.

_____2.2.12 Insure that an individual is dedicated to periodic briefings with news media. This individual would be a member of the Crisis Management Team.

Date/Name
Time

_____2.2.13 Proceed through use of the proper procedures to bring the plant to a stable, safe condition.

3.0 Subsequent Action

_____3.1 When plant conditions warrant, the Site Area Emergency should be de-escalated or escalated to the next emergency action level. In the event that close-out is warranted, de-escalate to an Unusual Event.

NOTE: Use Enclosure 4.2, Guide for Escalation, to identify the proper EAL if a change is warranted. From the time a new EAL is identified all offsite authorities should be notified within 15 minutes.

_____3.2 In the event that Protective Action Guides need to be issued to offsite authorities as identified in AP/0/A/1000/06, this event must be escalated to a General Emergency.

NOTE: Only the Emergency Coordinator and/or the Recovery Manager may issue PAG.

_____3.3 De-escalation requires the concensus of the Nuclear Regulatory Commission and the state of South Carolina.

4.0 Enclosures

4.1 Site Area Emergency Initiating Conditions

4.2 Guide for Escalation

4.3 Message Format

4.4 Station Personnel Accountability

4.5 Plant Data and Status Information

4.6 Emergency Organization Recall

4.7 Emergency Organization Recall

4.8 Record of Dosimetry Readings

Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm). Notification Code: 1-6-7- 11-12	Reactor trip on low pressure; LPI ES actuation; HPI ES actuation; reactor building atmosphere indications of high pressure, humidity, etc.; continued loss of RC inventory-no pressurizer level; high reactor building sump indication; high reactor coolant pump vibration-indicating voids in RCS; high reactor building pressure	Accidental Depressurization of the Reactor Coolant System; Loss of Coolant Accident; Partial Loss of Reactor Coolant Flow	EP/0/A/1800/04 EP/0/A/1800/06
2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels). Notification Code: 1-6-7- 11-12	Subcooling monitor and high incore thermocouple readings; T_H & T_C diverging; SAT monitor indicates no subcooling; chemistry results on sample request indicate failed fuel; reactor building RIA's high alarm, RIA's high alarm, RIA's 2, 3, 4, 5; low Reactor Coolant Flow	Complete Loss of Forced Reactor Coolant Flow, Major Reactor Coolant System Pipe Rupture: Partial Loss of Reactor Coolant Flow	EP/0/A/1800/04 EP/0/A/1800/06 EP/0/A/1800/11 EP/0/A/1800/27
3. Rapid failure to more than 10 steam generator tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate). Notification Code: 1-6-7- 11-12	Reactor trip on low pressure; pressurizer low level alarm; undervoltage alarms; on main feeder buses; transfer of auxiliaries to standby buses; continued loss of RC inventory beyond HPI capacity, pressurizer level decreasing	Accidental Depressurization of Main Steam System; Steam Generator Tube Rupture	EP/0/A/1800/04 EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/17 EP/0/A/1800/29 EP/0/A/1800/08

Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
4. PWR steam line break with greater than A. 50 gpm primary to secondary leakage B. 50 gpm primary to secondary leakage and indication of fuel damage. Notification Code: 1-6-7- 11-12	A. 1) Decreasing reactor coolant pressure, PZR level, T_{ave} 2) RIA 16 or 17 and 40 high alarms 3) Stabilized PZR level on HPI initiation. B. 1) All of above plus chemistry results positive on failed fuel analysis 2) Possible high Reactor Building pressure and temperature	Steam Generator Tube Rupture: Accidental Depressurization or Reactor Coolant System	EP/0/A/1800/04 EP/0/A/1800/08 EP/0/A/1800/17
5. Loss of off-site power and loss of on-site AC power for more than 25 minutes. Notification Code: 1-6-7- 11-12	Continued undervoltage on main feeder buses; realignment of CCW-8 for gravity flow to Keowee tailrace; load shed of all non-essential loads in preparation for emergency start of Keowee Hydro Station and transfer to standby buses.	Loss of Coolant Accident; Loss of off-site power to Station	EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/25 EP/0/A/1800/29
6. Loss of all vital on-site DC power for more than 15 minutes. Notification Code: 1-6-7- 11-12	Continued DC trouble alarms in Control Room; DC trouble alarms on Emergency Power Switching Logic; Loss of some Computer Indications		EP/0/A/1800/16 EP/0/A/1800/31

Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
7. Complete loss of any functions needed for plant hot shutdown. Notification Code: 1-6-7- 11-12	Inability to establish emergency feedwater of auxiliary service water flow RPS, ES Channels Trip with failure of Rx. Trip function. (highly improbable).		
8. Transient requiring operation of shutdown systems with failure to scram (continued power generation but no core damage immediately evident). Notification Code: 1-6-7- 11-12	RPS, ES Channels Trip with failure of Rx Trip function (highly improbable).		
9. Major damage to spent fuel A. In containment (e.g., water loss below fuel level) B. In Fuel Handling Building (SFP) (e.g., large object damages fuel) Notification Code: 1-6-7- 11-12	A. 1) RIA's 2, 3, high alarm 2) Gaseous indication of radiation from RB CMS. B. 1) RIA 6 high alarm in Spent Fuel Pool 2) RIA 41 (SFP gas)	Fuel Handling Accident; Tornado Missile Impact, Spent Fuel Analysis	EP/0/A/1800/13 EP/0/A/1800/24 EP/0/A/1800/23

Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
10. Fire compromising the functions of the safety systems. Notification Code: 1-6-7- 11-12	Visual observation; fire detector indications as listed in Technical Specifications		AP/0/A/1000/08 Pre-Fire Plan
11. All alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while all alarms lost. Notification Code: 1-6-7- 11-12	Visual observation of event		EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/29 EP/0/A/1800/31
12. Accidental Release of Gases	A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in Continued:	Waste Gas Decay Tank Rupture; Liquid Waste Storage Tank Rupture; Loss of Coolant Accident	EP/0/A/1800/24

Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
	the environs. C. EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.		
13. Imminent loss of physical control of the plant. Notification Code: 1-6-7-8-11-12	Subversive activity; determined by Security Supervisor; Imminent loss of Control Room and Auxiliary shutdown Panels		Station Security Plan
14. Severe natural phenomena being experienced or projected with plant not in cold shutdown A. Earthquake greater than SSE levels. B. Flood, low water, hurricane surge, seiche greater than design levels or failure of protection of vital equipment at lower levels. Notification Code: 1-6-7- 11-12	A. Seismic Trigger Statalarm B. Visual Observation C. Visual Observation or Meteorological indications in Control Room	Tornado Missile Impact, Spent Fuel Analysis	EP/0/A/1800/09 EP/0/A/1800/10 EP/0/A/1800/15 EP/0/A/1800/25 EP/0/A/1800/19 EP/0/A/1800/07

Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
15. Other hazards being experienced or projected with plant not in cold shutdown. A. Aircraft crash affecting vital structures by impact or fire. B. Severe damage to safe shutdown equipment from missiles or explosion C. Entry of uncontrolled flammable gases into vital area. Entry of uncontrolled toxic gases into vital areas where lack of access to the area constitutes a safety problem. Notification Code: 1-6-7- 11-12	A. Visual Observation B. Visual Observation C. Visual + Chemistry Results of samples in areas.	Tornado Missile Impact, Spent Fuel Analysis	A. EP/0/A/1800/2, EP/0/A/1800/9 B. EP/0/A/1800/10, EP/0/A/1800/15 C. EP/0/A/1800/23, EP/0/A/1800/25
16. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Plant Manager warrant activation of emergency centers and monitoring teams and a precautionary public notification. Notification Code: 1-6-7- 11-12	As directed by Emergency Coordinator.		As dictated by Plant Conditions

	Site Area Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
17	Evacuation of control room and control of shutdown systems not established from local stations in 15 minutes. Notification Code: 1-6-7- 11-12	As directed by Emergency Coordinator and Shift Supervisor.		EP/0/A/1800/12

Site Area Emergency	General Emergency	Unusual Event	Alert
1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm).	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (> 10 gpm total P/S leakage) A. Primary - requiring shutdown B. Primary to secondary Unit 1 > 0.30 gpm	3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate). 5. Primary coolant leak rate greater than 50 gpm.
2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels).	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	3. Fuel damage indication: A. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity).	1. Severe loss of fuel cladding: 9. Coolant Pump seizure leading to fuel failure.
4. Rapid failure of more than 10 steam generator tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate).	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (>10 gpm total P/S leakage) continued:	3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate). continued:

Site Area Emergency	General Emergency	Unusual Event	Alert
		5. A. Primary-requiring shutdown B. Primary to secondary Unit > 0.30 gpm	5. Primary coolant leak rate greater than 50 gpm.
4. PWR steam line break with greater than A. 50 gpm primary to secondary leakage B. 50 gpm primary to secondary leakage and indication of fuel damage.	2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	5. Exceeding either primary/secondary leak rate technical specifications or primary leak rate technical specifications. (> 10 gpm total P/S leakage) A. Primary-requiring shutdown B. Primary to secondary Unit I> 0.30 gpm	4. Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate of MSIV malfunction.
5. Loss of off-site power and loss of on-site AC power for more than 25 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	7. Loss of off-site power or loss of on-site AC power capability. A. Loss of off-site power B. Loss of on-site AC power continued:	2. Rapid gross failure of one steam generator tube with loss of off-site power from all sources (OTSG Tube) 10. Complete loss of all functions for plant cold shutdown. continued:

Site Area Emergency	General Emergency	Unusual Event	Alert
		9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy).	7. Loss of off-site power and loss of all on-site AC power for up to 15 minutes (loss of Keowee not credible so not considered).
6. Loss of all vital on-site DC power for more than 15 minutes.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy).	8. Loss of on-site DC power.
7. Complete loss of any functions needed for plant hot shutdown.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy).	10. Complete loss of all functions for plant cold shutdown. 14. Most or all alarms (annunciators) lost.

Site Area Emergency	General Emergency	Unusual Event	Alert
8. Transient requiring operation of shutdown systems with failure to scram (continued power generation but no core damage immediately evident).	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy).	11. Failure of the reactor protection system to initiate and complete a scram which brings the reactor subcritical.
9. Major damage to spent fuel A. In containment (e.g., water loss below fuel level) B. In Fuel Handling Building (SFP) (e.g., large object damages fuel)	2. Loss of 2 or 3 fission product barriers with a potential loss	4. Abnormal coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits (>2500 psig).	12. Fuel damage accident with release of radioactivity to containment or fuel handling building.
10. Fire compromising the functions of the safety systems.	5. Any major internal or external events that could cause massive common damage to plant systems.	10. Fire lasting more than 10 minutes A. Onsite B. Offsite (surrounding the Station)	13. Fire potentially affecting safety systems.

Site Area Emergency	General Emergency	Unusual Event	Alert
11. All alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while all alarms lost.	5. Any major internal or external events that could cause massive common damage to plant systems.	9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy). A. Engineered Safety Feature B. Fire Protection System	14. Most or all alarms (annunciators) lost
12. Accidental Release of Gases A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. continued:	1. Accidental Release A. Effluent monitors detect level corresponding to 1 rem/hr W/B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions.	2. Radiological effluent Technical Specification limits exceeded: A. Gaseous effluent instantaneous release rate Technical Specification limits exceeded for one (1) hour. B. Liquid effluent concentration Technical Specification limits exceeded for 15 minutes.	6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings).

Site Area Emergency	General Emergency	Unusual Event	Alert
12. C. EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.			
13. Imminent loss of physical control of the plant.	3. Loss of physical control of the facility (Note: Consider the 2 mile precautionary evacuation).	12. Security threat or attempted entry or attempted sabotage. A. Bomb/explosive or missiles B. Subversive activity attempted.	16. Ongoing Security compromise.

Site Area Emergency	General Emergency	Unusual Event	Alert
14. Severe natural phenomena being experienced or projected with plant not in cold shutdown.	5. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis).	13. Natural phenomenon being experienced or projected beyond usual levels. A. Any earthquake (.05 g design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave) C. Any tornado near site D. Any hurricane (74 mph)	17. Severe natural phenomena being experienced or projected A. Earthquake greater than Operational Basis Earthquake Levels (.05 g) B. Flood, low water, hurricane surge, seiche near design levels (lake tidal wave)
15. Other hazards being experienced or projected with plant not in cold shutdown. A. Aircraft crash affecting vital structures by impact or fire. B. Severe damage to safe shutdown equipment from missiles or explosion. continued:	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible.	14. Other hazards being experienced or projected: A. Aircraft crash on-site or unusual aircraft activity over facility. B. Near on-site explosion. C. Near or on-site toxic or flammable gas release of a magnitude that threatens personnel. continued	18. Other hazards being experienced or projected: A. Aircraft crash on facility B. Missile impacts from whatever source on facility. C. Know explosion damage to facility affecting plant operation. continued

Site Area Emergency	General Emergency	Unusual Event	Alert
17. C. Entry of uncontrolled flammable gases into vital area. Entry of uncontrolled toxic gases into vital areas where lack of access to the area constitutes a safety problem.		14. D. Turbine rotating component failure causing rapid plant shutdown.	18. D. Entry into facility environs of toxic or flammable gases. E. Turbine failure causing casing penetration.
16. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Plant Manager warrant activation of emergency centers and monitoring teams and a precautionary public notification.	4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation.	15. Other plant conditions: A. Conditions that warrant increased awareness on part of state and/or local offsite authorities. B. Conditions that require shutdown under technical specifications.	19. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations, or the Plant Manager warrant precautionary activation of Technical Support Center and near-site Crisis Management Center.

OCONEE NUCLEAR STATION
MESSAGE FORMAT

Enclosure 4.3

DATE_____TIME_____MESSAGE NO.____

1. MESSAGE
- ☐ Drill
- ☐ Emergency
- ☐ Initial
- ☐ Follow-up

Every _____minute(s)

2. CR / TSC / CMC _____, _____

3. _____ Telephone

4. ____ _____ Authentication

5. ACCIDENT INFORMATION

Time_____Unit_____Emergency Condition

_____

_____

_____

_____

6. OFFSITE NOTIFICATION

Time ____Pickens_____

Time ____Oconee_____

Time ____S.C. State_____

Time ____Other_____

7. EMERGENCY CLASSIFICATION
- ☐ Unusual Event
- ☐ Alert
- ☐ Site Area Emergency
- ☐ General Emergency

8. PLANT STATUS
- ☐ Stable
- ☐ Improving
- ☐ Degrading
- ☐ Not Known

9. PROGNOSIS (Based on Plant Information)
- ☐ Escalating Emergency
- ☐ De-escalating Emergency
- ☐ Termination
- ☐ Not Known

RADIOLOGICAL INFORMATION:

10. RELEASE
- ☐ Actual
- ☐ Projected
- ☐ Airborne
- ☐ Waterborne

11. Rate of Release _____Curies/sec

Time of Release _____

Release Duration _____

12. Assume Ground Release _____ Yes / No

13. METEOROLOGY

Wind Speed _____mph

Wind Direction (from)_____°

Stability Class_____

Precipitation Form_____

14. ESTIMATES

	QUANTITY	CONCENTRATION
Noble Gas		
I-131 (equivalent)		
Particulate		

15. Actual - Site Boundary _____ 2mi _____ 5mi _____ 10mi _____

16. Projected - Site Bdry. _____ 2mi _____ 5mi _____ 10mi _____

17. Integrated 2mi _____ 5mi _____ 10mi _____

18. Surface Radiation Contamination Estimate _____

19. SECTOR(S) AFFECTED

Oconee 5mi _____
10mi _____

Pickens 5mi _____
10mi _____

20. PROTECTIVE ACTION RECOMMENDATIONS:

_____

_____

_____

_____

_____

_____

_____

1. Does not involve the release of radioactive material from the station or involve the public.
2. Involves the potential for the release of radioactive, but no radioactive material has been released.
3. Does involve the release of some radioactive material from the station, but at a level below that considered a public hazard.
4. Does involve the release of radioactive materials from the station at a level at which protective action is advisable.

21. OTHER INFORMATION _____

_____

_____

22. USE REVERSE SIDE FOR ADDITIONAL COMMENTS: (Report to Counties information listed in 1-9, 13, 20, 21, 22.)
(Report to State all information available.)

Enclosure 4.4

STATION PERSONNEL ACCOUNTABILITY

DATE _____

AP/O/A/1000/04

GROUP	REPORTING NAME	NUMBER TELEPHONE	Number PEOPLE
Administration			
Contract Services:			
K-Mac			
Southern Security			
Training & Safety:			
Administrative Services:			
Wometco			
Visitors' Center:			
Keowee Hydro:			
Station Visitors:			
Receptionist Lobby			
Security Lobby			
Others:			
TIME: _____	TOTAL ADMINISTRATION GROUP		
Operations			
Operators On-Shift:			
Engineers/Staff:			
Training Center:			
B&W Personnel:			
Others:			
TIME: _____	TOTAL OPERATIONS GROUP		
Maintenance			
Planning & Materials:			
I&E:			
Mechanical Maintenance:			
System Maintenance Support:			
Substation Maintenance:			
Others:			
TIME: _____	TOTAL MAINTENANCE GROUP		

GROUP	REPORTING NAME	NUMBER TELEPHONE	NUMBER PEOPLE
Technical Services			
Performance:			
Environmental:			
Licensing & Projects:			
Design Engineering			
NRC			
Health Physics:			
Chemistry:			
Others:			
TIME: _____	TOTAL TECHNICAL SERVICES GROUP		
Quality Assurance			
TIME: _____	Quality Assurance Total:		
Station Support Division			
TIME: _____	Station Support Division Total:		
Others:			
			Others Total:
BEGINNING TIME: _____	ENDING TIME: _____		TOTAL PEOPLE ON-SITE:

Unaccounted Personnel	Group	Action Taken	Person Reporting	Telephone

REMARKS:

DUKE POWER COMPANY
OCONEE NUCLEAR STATION

Enclosure 4.5

PLANT STATUS (Circle)
Unusual Event - Alert
Site Emer. - Gen. Emer.

OCONEE NUCLEAR STATION
PLANT DATA AND STATUS
INFORMATION

UNIT _____
DATE _____
TIME _____

Control Room

TSC _____

HPC _____

OSC _____

By _____

Title _____

DUKE POWER COMPANY
OCONEE NUCLEAR STATION

ENCLOSURE 4.5

PLANT STATUS (Circle)
Unusual Event - Alert
Site Emer. - Gen. Emer.

OCONEE NUCLEAR STATION
PLANT DATA AND STATUS
INFORMATION

UNIT _____
DATE _____
TIME _____

Control Room

TSC _____

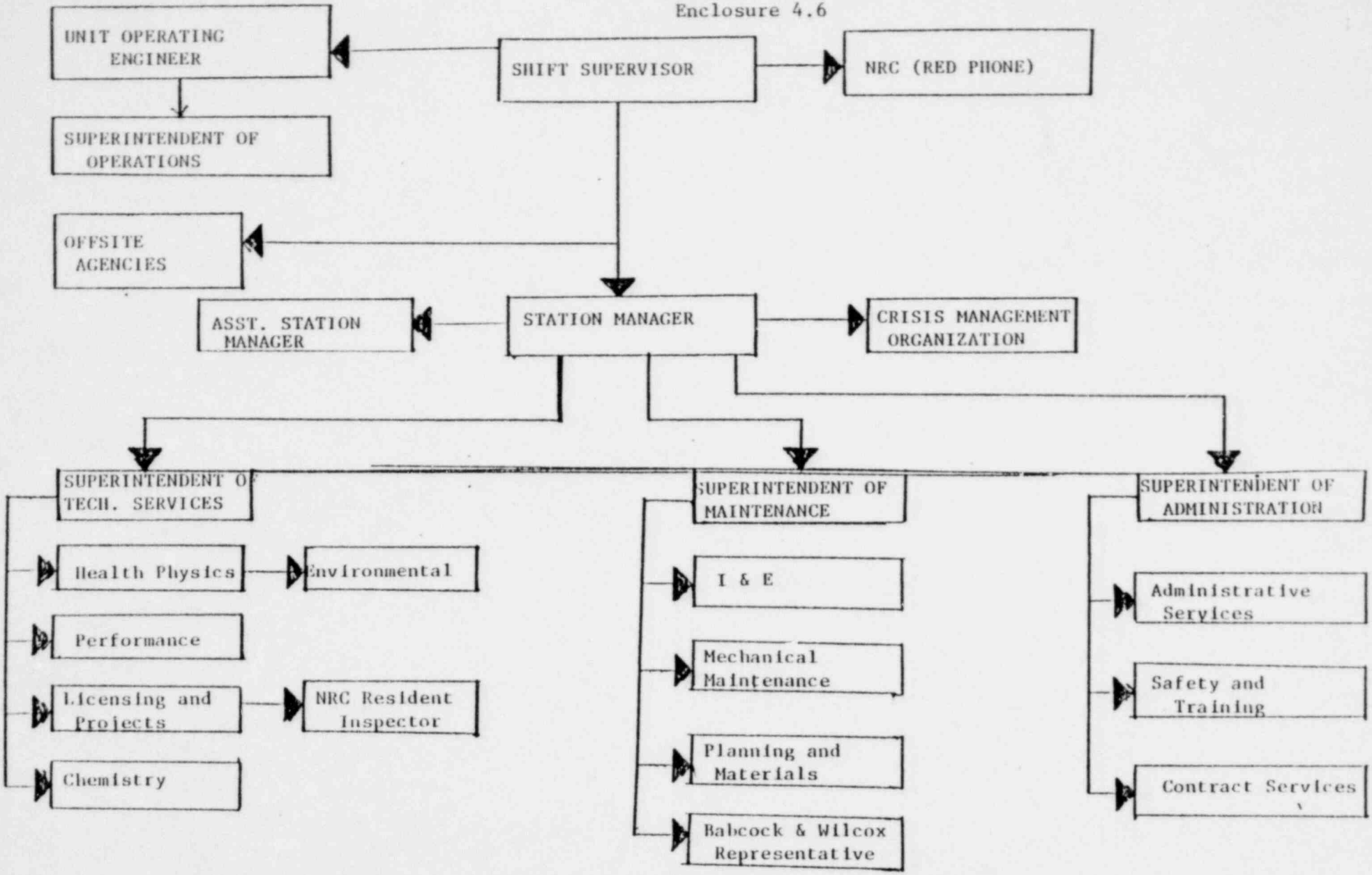
HPC _____

OSC _____

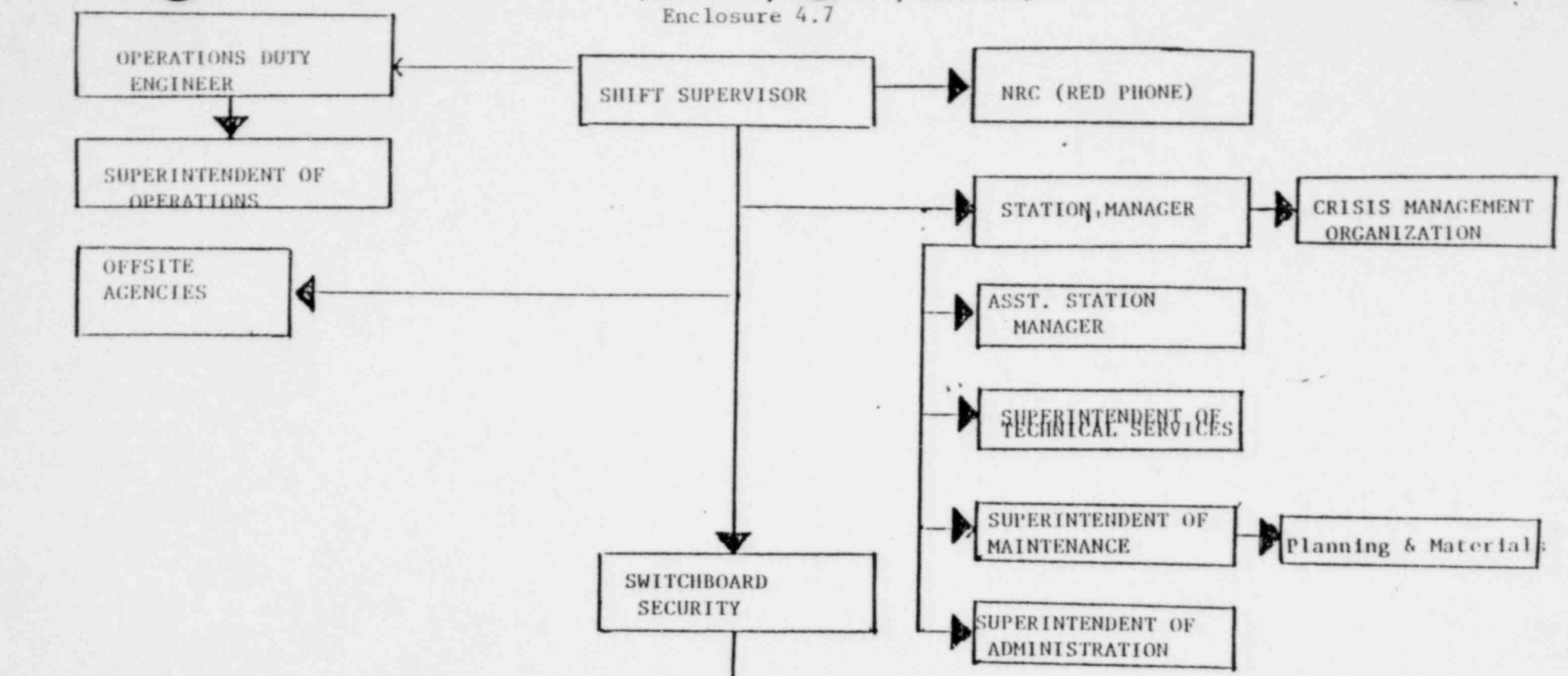
By _____

Title _____

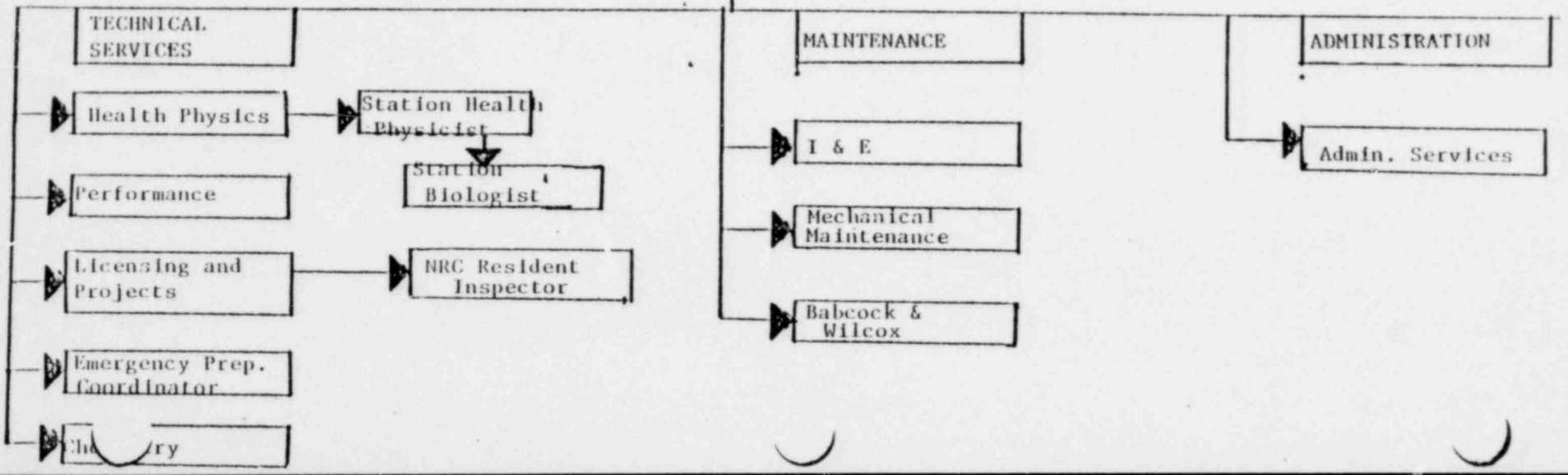
O[illegible]E NUCLEAR STATION
EMERGE[illegible]ORGANIZATION RECALL
NORMAL WORKING HOURS
Enclosure 4.6



OCONEE NUCLEAR STATION
EMERGENCY ORGANIZATION RECALL
(BACKSHIFT, WEEKENDS, HOLIDAYS)
Enclosure 4.7



*Security at the Switchboard will recall Duty Personnel assigned to various sections.



RECORD OF DOSIMETER READINGS

ENCLOSURE 4.8

Name _____ S.S. Number _____

Section _____ Group _____

Date/Time	Dosimeter Reading

NOTE: Turn over to Section Head at shift rotation during emergency conditions.

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/A/1000/05
Change(s) N/A to
N/A Incorporated

(2) STATION: Oconee Nuclear Station

(3) PROCEDURE TITLE: Emergency Action Level (EAL) - GENERAL EMERGENCY

(4) PREPARED BY: Colleen C. Davis DATE: 3/9/82

(5) REVIEWED BY: Rick Rogers DATE: 3/9/82

Cross-Disciplinary Review By: _____ N/R: NR

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Perry B. Owen Date: 3/9/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: R. T. Bond Date: 3/9/82

Reviewed/Approved By: _____ Date: _____

FORM SPD-1001-2

DUKE POWER COMPANY
NUCLEAR SAFETY EVALUATION CHECK LIST

(1) STATION: Oconee UNIT: 1 ____ 2 ____ 3 ____
OTHER: all

(2) CHECK LIST APPLICABLE TO: AP/0/A/1000/0.5

(3) SAFETY EVALUATION - PART A

The item to which this evaluation is applicable represents:

Yes ____ No ✓ A change to the station or procedures as described in the FSAR; or a test or experiment not described in the FSAR?

If the answer to the above is "Yes", attach a detailed description of the item being evaluated and an identification of the affected section(s) of the FSAR.

(4) SAFETY EVALUATION - PART B

Yes ____ No ✓ Will this item require a change to the station Technical Specifications?

If the answer to the above is "Yes," identify the specification(s) affected and/or attach the applicable pages(s) with the change(s) indicated.

(5) SAFETY EVALUATION - PART C

As a result of the item to which this evaluation is applicable:

Yes ____ No ✓ Will the probability of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of an accident which is different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the probability of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the margin of safety as defined in the bases to any Technical Specification be reduced?

If the answer to any of the preceding is "Yes", an unreviewed safety question is involved. Justify the conclusion that an unreviewed safety question is or is not involved. Attach additional pages as necessary.

(6) PREPARED BY: Coleman C. Jones DATE: 3/9/82

(7) REVIEWED BY: R.A. Rogers DATE: 3/9/82

This procedure does not affect the operation of safety related equipment.

(8) Page 1 of 1

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

EMERGENCY ACTION LEVEL (EAL) - GENERAL EMERGENCY

1.0 Symptoms: The symptoms of a General Emergency will vary according to the initiating Enclosure 4.1 defines the different conditions and gives specific symptoms of each of the same.

2.0 Immediate Action

2.1 Automatic - NA

2.2 Manual

Time/Name
Date _____ 2.2.1 If Hazardous Radiological conditions or the potential for such conditions exist, initiate a site assembly using Station Directive 2.9.1 record results on Enclosure 4.4, Station Personnel Accountability. Take immediate remedial action to insure the health and safety of personnel, minimize radiation and contamination problems, and minimize damage to the plant. Record actions taken on Enclosure 4.5, Plant Data and Status Information.

_____ 2.2.1.1 If radiation or contamination is involved, contact the Station Health Physicist or his Designee to initiate the displacement of Onsite and Offsite Monitoring Teams and assess and recommend methods to control Radiological Hazards. Record Actions taken on Enclosure 4.5, Plant Data and Status Information.

_____ 2.2.1.2 If the possibility of an offsite dose exists as a result of this event, evaluate the need for an offsite dose calculation.

NOTE: AP/0/B/1000/07 is for the Control Room use only for dose calculation. The H.P. Section will use H.P. Procedures if they perform the calculation.

_____ 2.2.1.3 Issue Protective Action Guides to offsite authorities per AP/0/A/1000/06 only if the Crisis Management Team is not available to do so.

_____ 2.2.2 Determine from Enclosure 4.1, General Emergency Initiating Conditions, the most descriptive initiating condition for the event.

Time/Name
Date

_____2.2.3 Activate the Technical Support Center (if not already activated). Use Enclosure 4.6, Emergency Organization Recall. Have the Station Manager (or Emergency Coordinator alternate) to activate the Crisis Management Team.

_____2.2.4 Appoint an individual to be responsible for keeping records of the emergency and to notify offsite agencies and company personnel.

_____2.2.4.1 Notify company personnel and offsite authorities of the nature of the plant conditions using Enclosure 4.1, Site Area Emergency Initiating Conditions, as a guide for notification. Refer to the Emergency Telephone Listing in the Implementing Procedures Manual for the telephone number that corresponds to the notification code under each initiating condition.

_____2.2.4.2 Enclosure 4.3, Message Format, is to be used in notifying staff and offsite authorities for both initial and followup contacts. Offsite notifications should be accomplished within 15 minutes of the identification of the EAL. Establish update time frame with offsite agencies.

_____2.2.4.3 Records actions taken and events as they occur on Enclosure 4.5, Plant Data and Status Information. The Technical Support Center will be responsible for notification of offsite authorities and for recording events as they occur until the Crisis Management Center is fully operational either nearsite or remote from site. Once the Crisis Management Center is fully operational, offsite authorities will be contacted by the Crisis Management Center. The Technical Support Center will continue with record keeping and plant updates to the Crisis Management Center.

_____2.2.5 Technical Support Center is fully activated and operational.

_____2.2.6 Operational Support Center is activated and operational.

_____2.2.7 Evacuate all non-essential personnel per Procedure AP/0/-A/1000/10.

_____2.2.8 Start the Control Room Ventilation System if radioactivity exists outside the RCA.

2.2.8.1 Have Technical Support Center personnel read dosimetry every hour. Record readings on Enclosure 4.8, Record of Dosimetry Readings.

Time/Name
Date

_____2.2.9 Insure that Senior Members of plant staff onsite are available for consultation with NRC on a periodic basis.

_____2.2.10 Insure that an individual is dedicated to periodic briefings with news media. This individual would be a member of the Crisis Management Team.

_____2.2.11 Proceed through use of the proper procedures to bring the plant to a stable, safe condition.

3.0 Subsequent Action

_____3.1 When plant conditions warrant, the General Emergency should be de-escalated to a lower class emergency.

NOTE: Use Enclosure 4.2, Guide for Escalation, to identify the change in initiating conditions. From the time the event is identified to be de-escalated, all offsite authorities should be notified within 15 minutes.

_____3.2 Terminate the emergency after de-escalating to an Unusual Event.

_____3.3 De-escalation requires the concensus of the Nuclear Regulatory Commission and the State of South Carolina.

4.0 Enclosures

4.1 General Emergency Initiating Conditions

4.2 Guide for Escalation

4.3 Message Format

4.4 Station Personnel Accountability

4.5 Plant Data and Status Information

4.6 Emergency Organization Recall - Normal Hours

4.7 Emergency Organization Recall - Backshift, Holidays, Weekends

4.8 Record of Dosimetry Readings

General Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
1. Accidental Release Notify: 1-2-6-7-11-12	A. Effluent monitors detect level corresponding to 1 rem/hr W.B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions. B. These dose rates are projected based on other plant parameters (e.g., Radiation levels in the containment with leak rate appropriate for existing containment pressure with some confirmation from effluent monitors or are measured in the environs). NOTE: Consider evacuation only within about 2 miles of the site boundary unless these site boundary levels are exceeded by a factor of 10 or projected to continue for 10 hours or EPA Protective Action Guideline exposure levels are predicted to be exceeded at longer distances.	Waste Gas Decay Tank Rupture; Liquid Waste Tank Rupture; Loss of Coolant Accident	EP/0/A/1800/24

General Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier. Notify: 1-6-7- 11-12	A. Loss of primary coolant boundary B. Clad Failure C. High potential for loss of containment integrity after an accident.	Loss of Coolant Accident; Steam Generator Tube Rupture	EP/0/A/1800/04
3. Loss of physical control of the facility (NOTE: Consider the 2 mile precautionary evacuation). Notify: 1-6-7- 11-12	As determined by Security Force		EP/0/A/1800/25 EP/0/A/1800/12
4. Other plant conditions exist, from whatever source, that make release of large amounts of radioactivity in a short period of time possible. Core melt situation: (Continued)	A. Small and large LOCA's with failure of ECCS to perform leading to severe core degradation or melt in from minutes to hours. Ultimate failure of containment likely for melt sequences. (Several hours likely to be available to complete protective actions unless containment is not isolated.) (Continued)	Loss of Coolant Accident; Steam Generator Tube Rupture; Waste Gas Decay Tank Rupture	As dictated by plant conditions

General Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
4. (Continued) Notify: 1-6-7- 11-12	B. Transient initiated by loss of feedwater and condensate systems (principal heat removal system) followed by failure of emergency feedwater system for extended period. Core melting possible in several hours. Ultimate failure of containment if core melts.	Major Secondary System Pipe Rupture; Loss of Coolant Accident; Loss of Normal Feedwater Turbine Trip	EP/0/A/1800/04 EP/0/A/1800/14 EP/0/A/1800/28 EP/0/A/1800/08 EP/0/A/1800/19 EP/0/A/1800/07
	C. Transient requiring operation of shutdown systems with failure to scram which results in core damage or additional failure of core cooling and makeup systems (which could lead to core melt.)		
	D. Failure of off-site and on-site power along with total loss of emergency feedwater makeup capability for several hours. Would lead to eventual core melt and likely failure of containment. (Continued)	Loss of Off-site Power to Station Auxiliaries	EP/0/A/1800/14 EP/0/A/1800/16 EP/0/A/1800/28

General Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
	E. Small LOCA and initially successful ECCS. Subsequent failure of containment heat removal system over several hours could lead to core melt and likely failure of containment. NOTE: Most likely containment failure mode is melt-through with release of gases only for dry containment. Quicker release expected for failure of containment isolation system for any PWR.	Loss of Reactor Coolant from Small Ruptured Pipe; Loss of Coolant Accident	
5. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis). Notify: 1-6-7- 11-12	A. Visual observation fire alarms control room B. Seismic Trigger		

General Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
Protective Actions			EP/0/A/1800/04
A. For core melt sequences where significant releases from containment are not yet taking place and large amounts of fission products are not yet in the containment atmosphere, consider 2 mile precautionary evacuation. Consider 5 mile downwind evacuation (45° to 90° sector) if large amounts of fission products (greater than gap activity) are in the containment atmosphere. Recommend sheltering in other parts of the plume exposure Emergency Planning Zone under this circumstance.			
B. For core melt sequences where significant releases from containment are not yet taking place and containment failure leading to a direct atmospheric release is likely in the sequence but not imminent and large amounts of fission products in addition to noble gases are in containment atmosphere, consider precautionary			

General Emergency Initiating Conditions	Symptoms	Oconee Nuclear Station Final Safety Analysis Report Section 14.1	Emergency Procedure/Document
Protective Actions (Cont'd.) evacuation to 5 miles and 10 miles downwind evacuation (45° to 90° sector). C. For core melt sequences where large amounts of fission products other than noble gases are in the containment atmosphere and containment atmosphere and containment failure are judged imminent, recommend shelter for those areas where evacuation cannot be completed before transport of activity to that location. D. As release information becomes available, adjust these actions in accordance with dose projections, time available to evacuate and estimated evacuation times given current conditions.			

General Emergency	Unusal Event	Alert	Site Area Emergency
1. Accidental Release A. Effluent monitors detect level corresponding to 1rem/hr W.B. or 5 rem/hr thyroid at the site boundary under actual meteorological conditions. B. These dose rates are projected based on other plant parameters (e.g., Radiation levels in the containment with leak rate appropriate for existing containment pressure with some confirmation from effluent monitors or are measured in the environs.)	2. Radiological effluent Technical Specification limits exceeded: A. Gaseous effluent instantaneous release rate Technical Specification limits exceeded for one (1) hour. B. Liquid effluent concentration. Technical Specification limits exceeded for 15 minutes.	15. Radiological effluents greater than 10 times Technical Specifications instantaneous limits (an instantaneous rate which, if continued over 2 hours, would result in about 1 mR at the Site Boundary under average meteorological conditions or whenever effluent monitors or radiological monitoring detect these levels.)	12. Accidental Release of Gases A. Effluent monitors detect levels corresponding to greater than 50 mR/hr for 1/2 hour or greater than 500 mR/hr W.B. for two minutes (or five times these levels to the thyroid) at the site boundary for adverse meteorology. B. These dose rates are projected based on other plant parameters (e.g., radiation level in containment with leak rate appropriate for existing containment pressure) or are measured in the environs. C. EPA Protective Action Guidelines are projected to be exceeded outside the site boundary.

General Emergency	Unusal Event	Alert	Site Area Emergency
2. Loss of 2 or 3 fission product barriers with a potential loss of third barrier.	3. Fuel damage indication: A. High coolant activity sample (e.g., exceeding coolant technical specification for iodine spike). (High Reactor Coolant Sample Activity) 4. Abnormal coolant temperature and/or pressure or abnormal fuel temperatures outside of technical specification limits (> 2500 psig) 9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specificaitons (e.g., malfunction, personnel error, or procedural inadequacy). A. Engineered Safety Feature B. Fire Protection System	1. Severe loss of fuel cladding: 3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate). 4. Steam line break with significant (e.g., greater than 10 gpm) primary to secondary leak rate or MSIV malfunction. 9. Coolant pump siezure leading to fuel failure. 12. Fuel damage accident with release of radioactivity to containment or fuel handling building.	1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm). 2. Degraded core with possible loss of coolable geometry (indicators should include instrumentation to detect inadequate core cooling, coolant activity and/or radioactivity levels). 3. Rapid failure of more than 10 steam generator tubes with loss of off-site power (e.g., several hundred gpm primary to secondary leak rate). 4. PWR steam line break with greater than: A. 50 gpm primary to secondary leakage B. 50 gpm primary to secondary leakage and indication of fuel damage. 9. Major damage to spent fuel A. In containment (e.g., water loss below fuel level) (Continued)

General Emergency	Unusal Event	Alert	Site Area Emergency
			9. B. In Fuel Handling Building (SFP) (e.g., large object damages fuel)
1. Loss of physical control of the facility (Note: Consider the 2 mile precautionary evacuation).	12. Security threat or attempted entry or attempted sabotage. A. Bomb/emplosive or missiles B. Subversive activity attempted). Natural phenomenon being experienced or projected beyond usual levels: A. Any earthquake (> .05 g design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave) C. Any tornado near site D. Any hurricane (> 74 mph)	16. Ongoing Security compromise.	13. Imminent loss of physical control of the plant.

General Emergency	Unusal Event	Alert	Site Area Emergency
4. Other Plant conditions exist, from whatever source, that make release of large amounts of of time possible. Core melt situation.	1. Emergency Core Cooling initiated (co incident with positive finding initiation is NOT spurious. ES actuates and discharges to vessel. 2. Radiological effluent Technical Specification limits exceeded; A. Gaseous effluent instantaneous release rate Technical Specification limits exeeded for one (1) hour. B. Liquid effluent concentration. Technical Specification limits exceeded 15 minutes. 5. Exceeding either primary/ secondary leak rate technical specifications or primary leak rate technical specifications. (> 10 gpm total P/S leakage) A. Primary - requiring shutdown B. Primary to secondary Unit 1 > 0.30 gpm.	2. Rapid gross failure of one steam generator tube with loss of off-site power from all sources (OTSG Tube) 3. Rapid failure of more than 10 steam generator tubes (e.g., several hundred gpm primary to secondary leak rate). 5. Primary coolant leak rate greater than 50 gpm. 6. High radiation levels or high airborne contamination which indicates a severe degradation in the control of radioactive materials (e.g., increase by a factor of 1000 in direct radiation readings). 7. Loss of off-site power and loss of all on-site AC power for up to 15 minutes (loss of Keowee not credible so not considered). 8. Loss of on-site DC power. 10. Complete loss of all functions for plant cold shutdown. 11. Failure of the reactor protection system to initiate and complete a scram which brings the reactor subcritical. (Continued)	1. Known loss of coolant accident greater than makeup pump capacity (any leakage > 500 gpm). 5. Loss of off-site power and loss of on-site AC power for more than 25 minutes. 6. Loss of all vital on-site DC power for more than 15 minutes. 7. Complete loss of any functions needed for plant hot shutdown. 8. Transient requiring operation of shutdown systems with failure to scram (continued power generation but no core damage immediately evident). 15. Other hazards being experienced or projected with plant not in cold shutdown. A. Aircraft crash affecting vital structures by impact or fire. B. Severe damage to safe shutdown equipment from missiles or explosion. (Continued)

(Continued)

General Emergency	Unusal Event	Alert	Site Area Emergency
	7. Loss of offsite power or loss of site AC power capability. A. Loss of offsite power B. Loss of on-site AC power 9. Loss of engineered safety feature or fire protection system function requiring shutdown by technical specifications (e.g., malfunction, personnel error, or procedural inadequacy). 10. Fire lasting more than 10 minutes. 14. Other hazards being experienced or projected: A. Aircraft crash on-site or unusual aircraft activity over facility. B. Near or on-site explosion. C. Near or on-site toxic or flammable gas release of a magnitude that threatens personnel. D. Turbine rotating component failure causing rapid plant shutdown.	18. Other hazards being experienced or projected. A. Aircraft crash on facility. B. Missile impacts from whatever source on facility. C. Known explosion damage to facility affecting plant operation. D. Entry into facilit environs of toxic or flammable gases. E. Turbine failure causing casing penetration. 19. Other plant conditions exist that in the judgment of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations, or the Plant Manager warrant precautionary activation of Technical Support Center and near-site Crisis Management Center.	15. C. Entry of uncontrolled flammable gases into vital area. Entry of uncontrolled toxic gases into vital areas where lack of access to the area constitutes a saftey problem. 16. Other plant conditions exist that in the judgement of the Shift Supervisor, the Operations Duty Engineer, the Superintendent of Operations or the Plant Manager warrant activation of emergency centers and monitoring teams and a precautionary public notification.

General Emergency	Unusal Event	Alert	Site Area Emergency
9. Any major internal or external events that could cause massive common damage to plant systems. A. Fires B. Earthquakes (substantially beyond design basis.)	10. Fire lasting more than 10 minutes: A. Onsite B. Offsite (surrounding the Station) 13. Natural phenomenon being experienced or projected beyond usual levels: A. Any earthquake (>.05 design acceleration) B. 50-year flood or low water, hurricane surge, seiche (lake tidal wave). C. Any tornado near site D. Any hurricane (> 74 mph).	13. Fire potentially affecting safety systems. 14. Severe natural phenomena being experienced or projected with plant not in cold shutdown. A. Earthquake greater than SSE levels. B. Flood, low water, hurricane surge, seiche greater than design levels or failure of protection of vital equipment at lower levels. C. Sustained winds or tornadoes in excess of design levels (greater than 95 mph). 17. Severe natural phenomena being experienced or projected: A. Earthquake greater than Operational Basis Earthquake Levels (> .05 g) B. Flood, low water, hurricane surge, seiche near design levels (lake tidal wave) C. Any tornado striking facility D. Hurricane winds near design basis level (> 95 mph).	10. Fire compromising the functions of the safety systems. 11. All alarms (annunciators) lost for more than 15 minutes and plant is not in cold shutdown or plant transient initiated while alarms lost. 14. Severe natural phenomena being experienced or projected with plant not in cold shutdown. A. Earthquake greater than SSE levels. B. Flood, low water, hurricane surge, seiche greater than design levels or failure of protection of vital equipment at lower levels. C. Sustained winds or tornadoes in excess of design levels (greater than 95 mph).

OCONEE NUCLEAR STATION
MESSAGE FORMAT
Enclosure 4.3

DATE _____ TIME _____ MESSAGE NO. ____

1. MESSAGE
- ☐ Drill
- ☐ Emergency
- ☐ Initial
- ☐ Follow-up

Every _____ minute(s)

2. CR / TSC / EMC _____

3. _____ Telephone

4. _____ Authentication

5. ACCIDENT INFORMATION

Time _____ Unit _____ Emergency Condition

_____

_____

_____

_____

6. OFFSITE NOTIFICATION

Time ____ Pickens _____

Time ____ Oconee _____

Time ____ S.C. State _____

Time ____ Other _____

7. EMERGENCY CLASSIFICATION
- ☐ Unusual Event
- ☐ Alert
- ☐ Site Area Emergency
- ☐ General Emergency

8. PLANT STATUS
- ☐ Stable
- ☐ Improving
- ☐ Degrading
- ☐ Not Known

9. PROGNOSIS (Based on Plant Information)
- ☐ Escalating Emergency
- ☐ De-escalating Emergency
- ☐ Termination
- ☐ Not Known

RADIOLOGICAL INFORMATION:

10. RELEASE
- ☐ Actual
- ☐ Projected
- ☐ Airborne
- ☐ Waterborne

11. Rate of Release _____ Curies/sec

Time of Release _____

Release Duration _____

12. Assume Ground Release _____ Yes / No

13. METEOROLOGY

Wind Speed _____ mph

Wind Direction (from) _____ °

Stability Class _____

Precipitation Form _____

14. ESTIMATES

	QUANTITY	CONCENTRATION
Noble Gas		
I-131 (equivalent)		
Particulate		

15. Actual - Site Boundary _____ 2mi _____ 5mi _____ 10mi _____

16. Projected - Site Bdry. _____ 2mi _____ 5mi _____ 10mi _____

17. Integrated 2mi _____ 5mi _____ 10mi _____

18. Surface Radiation Contamination Estimate _____

19. SECTOR(S) AFFECTED

Oconee 5mi _____
10mi _____

Pickens 5mi _____
10mi _____

20. PROTECTIVE ACTION RECOMMENDATIONS:

_____

_____

_____

_____

_____

_____

_____

1. Does not involve the release of radioactive material from the station or involve the public.
2. Involves the potential for the release of radioactive, but no radioactive material has been released.
3. Does involve the release of some radioactive material from the station, but at a level below that considered a public hazard.
4. Does involve the release of radioactive materials from the station at a level at which protective action is advisable.

21. OTHER INFORMATION _____

_____

_____

22. USE REVERSE SIDE FOR ADDITIONAL COMMENTS: (Report to Counties information listed in 1-9, 19, 20, 21, 22.)
(Report to State all information available.)

Enclosure 4.4

STATION PERSONNEL ACCOUNTABILITY

DATE _____

GROUP	REPORTING NAME	NUMBER TELEPHONE	Number PEOPLE
Administration			
Contract Services:			
K-Mac			
Southern Security			
Training & Safety:			
Administrative Services:			
Wometco			
Visitors' Center:			
Keowee Hydro:			
Station Visitors:			
Receptionist Lobby			
Security Lobby			
Others:			
TIME: _____	TOTAL ADMINISTRATION GROUP		
Operations			
Operators On-Shift:			
Engineers/Staff:			
Training Center:			
B&W Personnel:			
Others:			
TIME: _____	TOTAL OPERATIONS GROUP		
Maintenance			
Planning & Materials:			
I&E:			
Mechanical Maintenance:			
System Maintenance Support:			
Substation Maintenance:			
Others:			
TIME: _____	TOTAL MAINTENANCE GROUP		

GROUP	REPORTING NAME	NUMBER TELEPHONE	NUMBER PEOPLE
Technical Services			
Performance:			
Environmental:			
Licensing & Projects:			
Design Engineering			
NRC			
Health Physics:			
Chemistry:			
Others:			
TIME: _____	TOTAL TECHNICAL SERVICES GROUP		
Quality Assurance			
TIME: _____	Quality Assurance Total:		
Station Support Division			
TIME: _____	Station Support Division Total:		
Others:			
			Others Total:
BEGINNING TIME: _____	ENDING TIME: _____		TOTAL PEOPLE ON-SITE:

Unaccounted Personnel	Group	Action Taken	Person Reporting	Telephone

REMARKS:

DUKE POWER COMPANY
OCONEE NUCLEAR STATION

Enclosure 4.5

PLANT STATUS (Circle)
Unusual Event - Alert
Site Emer. - Gen. Emer.

OCONEE NUCLEAR STATION
PLANT DATA AND STATUS
INFORMATION

UNIT _____
DATE _____
TIME _____

Control Room

TSC _____

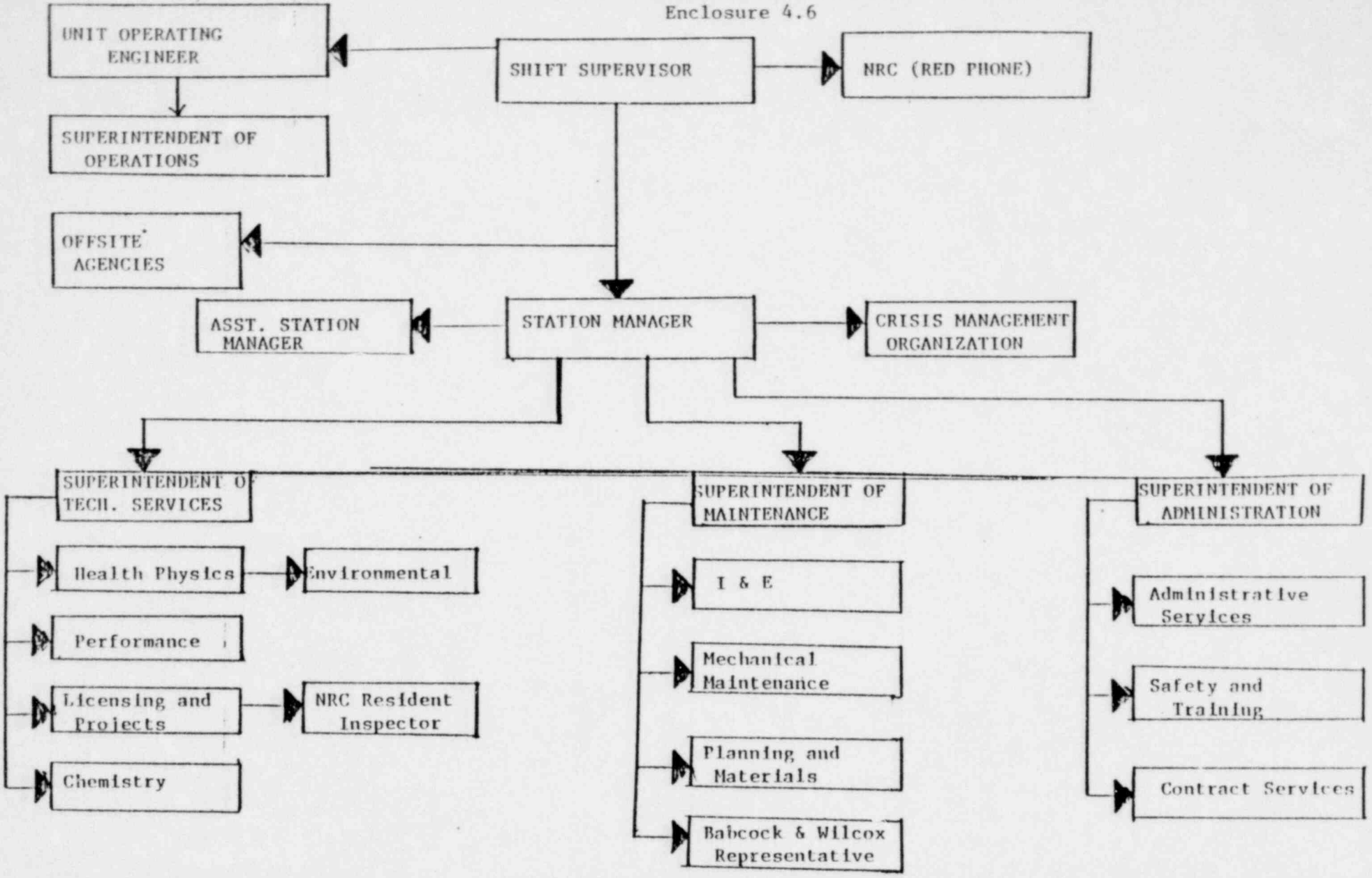
HPC _____

OSC _____

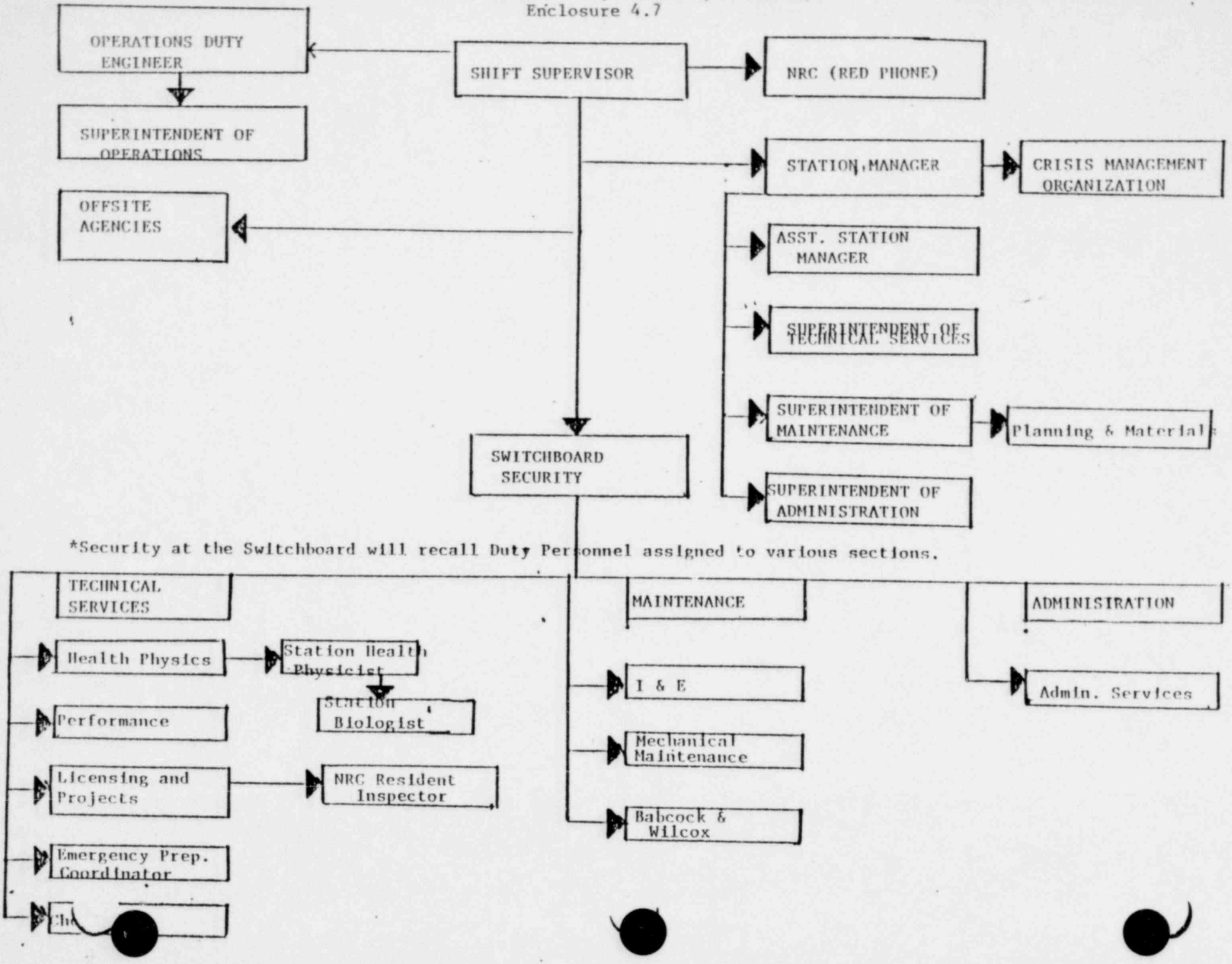
By _____

Title _____

OCONEE NUCLEAR STATION
EMERGENCY ORGANIZATION RECALL
NORMAL WORKING HOURS
Enclosure 4.6



EMERGENCY ORGANIZATION RECALL
(BACKSHIFT, WEEKENDS, HOLIDAYS)
Enclosure 4.7



OCONEE NUCLEAR STATION

AP/0/A/1000/05

ENCLOSURE 4.8

RECORD OF DOSIMETER READINGS

NAME _____ S.S. NUMBER _____

SECTION _____ GROUP _____

Date/Time	Dosimeter Reading

NOTE: Turn over to Section Head at shift.rotation during emergency conditions.

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/A/1000/06
Change(s) NA to
NA Incorporated

(2) STATION: Oconee

(3) PROCEDURE TITLE: Procedure for Initiating Protective Action Guides For the General Public in The Emergency Planning Zone

(4) PREPARED BY: Coleen C Jorgi DATE: 3/4/82

(5) REVIEWED BY: Rick Rogers DATE: 3/9/82

Cross-Disciplinary Review By: _____ N/R: N

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tony B Cheatham Date: 3/9/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: R T B Date: 3/9/82

Reviewed/Approved By: _____ Date: _____

FORM SPD-1001-2

DUKE POWER COMPANY
NUCLEAR SAFETY EVALUATION CHECK LIST

(1) STATION: Oconee UNIT: 1 2 3
OTHER: AP/0/A/1000/06

(2) CHECK LIST APPLICABLE TO: _____

(3) SAFETY EVALUATION - PART A

The item to which this evaluation is applicable represents:

Yes ____ No ✓ A change to the station or procedures as described in the FSAR; or a test or experiment not described in the FSAR?

If the answer to the above is "Yes", attach a detailed description of the item being evaluated and an identification of the affected section(s) of the FSAR.

(4) SAFETY EVALUATION - PART B

Yes ____ No ✓ Will this item require a change to the station Technical Specifications?

If the answer to the above is "Yes," identify the specification(s) affected and/or attach the applicable pages(s) with the change(s) indicated.

(5) SAFETY EVALUATION - PART C

As a result of the item to which this evaluation is applicable:

Yes ____ No ✓ Will the probability of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of an accident previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of an accident which is different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the probability of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ Will the consequences of a malfunction of equipment important to safety previously evaluated in the FSAR be increased?

Yes ____ No ✓ May the possibility of malfunction of equipment important to safety different than any already evaluated in the FSAR be created?

Yes ____ No ✓ Will the margin of safety as defined in the bases to any Technical Specification be reduced?

If the answer to any of the preceding is "Yes", an unreviewed safety question is involved. Justify the conclusion that an unreviewed safety question is or is not involved. Attach additional pages as necessary.

(6) PREPARED BY: Colleen C. Jennings DATE: 3/4/82

(7) REVIEWED BY: R.T. Bond DATE: 3/9/82

This procedure does not involve safety-related equipment

(8) Page 1 of 1

OCONEE NUCLEAR STATION

PROCEDURE FOR INITIATING PROTECTIVE ACTION GUIDES FOR THE GENERAL PUBLIC IN THE EMERGENCY PLANNING ZONE

1.0 Symptoms

1.1 Should radioactive releases that would produce exposures in excess of the Protective Action Guides in Enclosure 4.1 carry beyond the station boundaries, it will be necessary to take protective actions in the affected portions of the Emergency Planning Zone.

2.0 Immediate Actions

2.1 Automatic

2.1.1 Not applicable

2.2 Manual

2.2.1 General Emergency class emergencies have the potential for requiring Protective Actions in all, or more likely, a portion, of the Emergency Planning Zone. Lower classes of emergencies would be escalated to a General Emergency before Protective Actions would be required.

3.0 Subsequent Actions (Emergency Response Organizations in Operation)

3.1 In the majority of cases, it is anticipated that a deterioration of an emergency situation classified as an alert or site emergency would generate the need for a General Emergency and Protective Actions for portions of the Emergency Planning Zone.

3.2 The emergency response organizations (Technical Support Center, Crisis Management Center, State Forward Emergency Operations Center, and County Emergency Operations Centers) would be in operation.

3.3 The Crisis Management Center through the Recovery Manager will make recommendations to the State Forward Emergency Operations Center for the areas requiring Protective Actions. Protection of the General Public in the Emergency Planning Zone is the responsibility of the State.

3.4 Based upon Duke Power's recommendations and direction from the Bureau of Radiological Health of the S. C. Department of Health and Environmental Control, the State would initiate protective actions for the necessary portions of the Emergency Planning Zone.

3.0 Subsequent Actions (Emergency Response Organizations Not in Operations)

3.1 Should the situation arise where an off-site release of radioactivity will generate doses in excess of Protective Action Guides and the various offsite emergency response facilities are not established, the Shift Supervisor and/or Station Manager (Emergency Coordinator) would proceed as follows:

3.1.1 Project exposure levels to the general public, and determine sectors requiring Protective Action.

3.1.1.1 Control Room - AP/0/B/1000/07

3.1.1.2 Technical Support Center - Health Physics Offsite Dose Procedures

3.1.2 Notify the Oconee County Emergency Preparedness Agency and the Pickens County Civil Defense Agency of the emergency situation. Recommend protective actions for the effected areas using Enclosure 4.1 as a guide. The Directors of the county emergency agencies have the responsibility for the protection of the general public in their county. Notify the State Emergency Operations Center in Columbia of the protective action guides. Use Procedure AP/0/A/1000/05 for guidance.

4.0 Enclosures

4.1 Protective Action Guides

ENCLO 4.1

PROTECTIVE ACTION GUIDES

Recommended protective actions to avoid whole body and thyroid dose from exposure to a gaseous plume.

Projected Dose (Rem) to the Population	Recommended Actions[a]	Comments
Whole body <1 Thyroid <5	·No protective action required. ·State may issue an advisory to seek shelter and await further instructions or to voluntarily evacuate. ·Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated.
Whole body 1 to <5 Thyroid 5 ot <25	·Seek shelter and await further instructions. ·Consider evacuation particularly for children and pregnant women. ·Monitor environmental radiation levels. ·Control access.	
Whole body 5 and above Thyroid 25 and above	·Conduct mandatory evacuation of populations in the predetermined area. ·Monitor environmental radiation levels and adjust area for mandatory evacuation based on these levels. ·Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible.
Projected Dose (Rem) to Emergency Team Workers		
Whole body 5 Skin of Whole Body or Thyroid 30 Extremities 75	·Control exposure of emergency team members to these levels except for lifesaving missions. (Appropriate controls for emergency workers, include time limitations, respirators, and stable iodine.)	Although respirators and stable iodine should be used where effective to emergency team workers, thyroid dose may not be a limiting factor for lifesaving missions.
Whole body 75 Skin of Whole Body or Thyroid 150 Extremities 375	·Control exposure of emergency team members performing lifesaving missions to this level. (Control of time of exposure will be most effective.) VOLUNTARY BASIS ONLY	

(a) These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take into consideration the impact of existing constraints.

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: AP/0/B/1000/07
Change(s) 0 to
0 Incorporated

(2) STATION: OCONEE NUCLEAR

(3) PROCEDURE TITLE: Procedure for Offsite Dose Calculations by Control Room Personnel or Emergency Coordinator During A Loss of Coolant Accident

(4) PREPARED BY: R A Yarbrough DATE: 2-26-82

(5) REVIEWED BY: W M Davis DATE: 2/26/82

Cross-Disciplinary Review By: Craig L Hyde N/R: _____

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: J N Pope Date: 2-26-82

(8) MISCELLANEOUS:

Reviewed/[redacted] By: Ed Payson Date: 2-26-82

Reviewed/[redacted] By: EA Ridgeway Date: 2-26-82

PROCEDURE FOR OFFSITE DOSE CALCULATIONS BY CONTROL ROOM PERSONNEL OR EMERGENCY COORDINATOR DURING A LOSS OF COOLANT ACCIDENT

1.0 Symptoms

1.1 RIA-4 reading increasing with indications of a loss of coolant accident.

1.1.1 RIA-4 reading < 30R (Case A)

1.1.2 RIA-4 reading > 30R (Case B)

2.0 Immediate Action

CASE A

2.1 Automatic

2.1.1 None

2.2 Manual

2.2.1 None

3.0 Subsequent Action

3.1 Deploy monitoring teams

CASE B

2.0 Immediate Action

2.1 Automatic

2.1.1 None

2.2 Manual

2.2.1 Determine the reactor building dose rate by either of the following methods. Record dose rate on Enclosure 4.1, Step 3.

2.2.1.1 Containment high range radiation monitor.

2.2.1.2 Survey with a calibrated Eberline PIC-6A (or a similar hand held survey instrument) at one foot

from the reactor building wall and four feet off the floor in the Reactor Building Purge Fan Room on the sixth floor of the Auxilliary Building of the affected unit.

NOTE: A reading on the survey instrument ranging from <0 to 0.3R would indicate that the release source term is a gap activity release.

NOTE: A reading on the survey instrument range from 0.3R to 3R would indicate that the release source term is a design basis accident.

2.2.2 This procedure is intended to provide on-shift personnel and members of the Technical Support Center a means of projecting offsite exposure levels for radiological accidents at Oconee Nuclear Station. These dose projections can be made based upon the source of the release to the Reactor Building atmosphere and available tower meterological data. It is intended that projections made by this procedure would be conservative and precede information available from field monitoring teams and the assumption of offsite dose projection responsibility by the Crisis Management Center. Recommendations for evacuation of offsite areas are to be made based on the calculations completed in this procedure.

NOTE: Health Physics personnel in both the Technical Support Center and the Crisis Management Center may use alternate means for projecting offsite dose when their organizations are operational.

NOTE: If site meteorological data is not available, the data can be obtained from the National Weather Service office at the Greenville-Spartanburg Airport. (Number is listed in Emergency Telephone Directory).

The following are conversion formulas for the meteorological data obtained from the National Weather Service:

mph = .869 (Knots)

°F = (9/5°C) + 32

2.2.3 The need for protective action should be reassessed every hour. The Control Room will complete the Offsite Dose Calculation every hour until the Technical Support Center is operational and are relieved by the Health Physics Center.

2.2.4 Complete Enclosure 4.1, Offsite Dose Calculation.

3.0 Subsequent Actions

3.1 After notifying the Station Manager of the results of the Offsite Dose Calcualtion, the Shift Supervisor/Emergency Coordinator will provide the recommendations to the following agencies and record in Enclosure 4.1, Step 12.

3.1.1 Pickens County Civil Defense

3.1.2 Oconee County Emergency Preparedness

3.1.3 S. C. Bureau of Radiological Health

3.2 Deploy onsite and offsite monitoring teams.

4.0 Enclosures

4.1 Offsite Dose Calculation

4.2 Survey Instrument Correlation

ENCLOSURE 4.1

OCONEE NUCLEAR STATION

OFFSITE DOSE CALCULATION

Unit _____

Calculation performed by _____

1) Time now _____ Date now _____

Time of incident _____ Date of incident _____

Time (hours) since incident _____

Wind speed _____mph Wind Direction (from) _____° ΔT_____°F

Weather conditions _____

2) Calculate TF (time factor) based upon time (hours) since incident from the table below and record value _____.

Time Since Incident In Hours	Time Factor (TF)	Time Since Incident In Hours	Time Factor (TF)
0.2	0.20	10	0.94
0.3	0.22	15	1.22
0.5	0.24	20	1.50
0.7	0.26	30	2.0
1.0	0.28	50	2.7
1.5	0.32	70	3.3
2.0	0.36	100	4.2
3.0	0.44	150	5.2
5.0	0.60	200	6.0
7.0	0.74	300	6.6
		500	6.6

3) Reactor Building DR (dose rate) by either a) or b).

a) Containment high range radiation monitor _____rem/hr.

b) PIC-6-A (or similar hand held survey instrument) reading x correlation value (Encl. 4.2).

Survey Inst. _____ x Corr. value _____ = DR _____rem/hr.

4) Calculate DT (time determined dose)

DT _____ = DR _____ x TF _____

5) Is wind speed $\geq$ 15 mph?

If yes, go to Step 7.

If no, go to Step 6.

6) Is time of day between 1000 hrs and 1600 hrs (10:00 am and 4:00 pm)?

If yes, go to Step 7.

If no, go to Step 11.

7) Calculate DW (wind determined dose) based upon DT and WS (wind speed)

DW _____ = $\frac{DT}{WS}$ _____

* If WS $\leq$ 1.0 mph, use WS = 1.0 mph.

8) Determine distances and level of protective actions based upon DW and ΔT°F from table below:

Number suffix of areas on evacuation map to be evacuated:

Children and pregnant women _____

Everyone _____

Find the horizontal row corresponding to the ΔT°F. Follow across the row from left to right until the box containing the calculated DW value is reached. Read down the vertical column to find the appropriate actions and the corresponding distances from the plant.

ΔT°F	DW	DW	DW	DW
∞ to -1.3	$\leq$2.09E5	2.09E5 to 7.8E5	7.8E5 to 3.9E6	>3.9E6
-1.2 to -1.0	$\leq$5.4E3	5.4E3 to 2.70E4	2.7E4 to 3.2E5	>3.2E5
-0.9 to -0.4	$\leq$2.09E3	2.09E3 to 1.04E4	1.04E4 to 7.4E4	>7.4E4
-0.3 to +10.0	$\leq$1.08E3	1.08E3 to 5.4E3	5.4E3 to 3.2E4	>3.2E4
	No action procedure is completed	Evacuate children and pregnant women 0-4 miles (Downwind areas with suffix 1)	Evacuate everyone 0-4 miles (Downwind areas with suffix 1)	Evacuate everyone 0-4 miles (Downwind area with suffix 1)
		No action for 4-10 miles	Evacuate children and pregnant women 4-10 (Downwind areas with suffix 2)	Evacuate everyone 4-10 miles (Downwind areas with suffix 2)

Example: If ΔT°F is -1.1 and DW is 2.9E4, evacuate everyone from 0-4 miles and children and pregnant women from 4-10 miles.

9) a) Is wind speed $\geq$ 3mph?

If yes, use table in Step 9 b.

If no, assume sectors A, B, C, D, E, and F of evacuation map are affected.

b) Wind direction (from) _____°.

Find the wind direction and follow across the row to find the letter prefixes of the areas on the evacuation map to be evacuated and record.

Wind Direction (From)	Letter Prefixes of Areas to be Evacuated
15° - 41°	C, D, E
41° - 67°	D, E
67° - 103°	D, E, F
103° - 127°	E, F
127° - 174°	A, E, F
174° - 182°	A, F
182° - 215°	A, B, F
215° - 256°	A, B
256° - 270°	A, B, C
270° - 298°	B, C
298° - 344°	B, C, D
344° - 15°	C, D

c) Letter prefixes of areas on evacuation map to be evacuated _____.

10) Combine the numbers determined in Step 8 combined with the letters from Step 9 to determine which sectors of evacuation map to evacuate.

Children and pregnant women _____

Everyone _____

The 2 mile Emergency Planning Zone on the evacuation map will always be evacuated if evacuation of any area is required.

11) Use the table below if WS is ≤ 15 mph and time of day is not betwen 1000 hrs and 1600 hrs.

Apply the DT value from Step 4 on the table below. Read the corresponding action in the column to the right and record.

DT	PROTECTIVE ACTION
≤ 610	No protective action is necessary
610 to 3100	Evacuate children and pregnant women 0 to 4 miles in all directions (all areas with number suffix 1)
3100 to 15600	Evacuate everyone 0 to 4 miles in all directions. (All areas with number suffix 1). Evacuate children and pregnant women 4-10 miles in all directions. (All areas with number suffix 2)
> 15600	Evacuate everyone 0 to 10 miles in all directions. (All areas with number suffixes 1 and 2)

Children and pregnant women _____

Everyone _____

The 2 mile Emergency Planning Zone on the evacuation map will always be evacuated if evacuation of any area is required.

12) Persons contacted and provided the protective action recommendations from Case B subsequent Actions, Step 3.0.

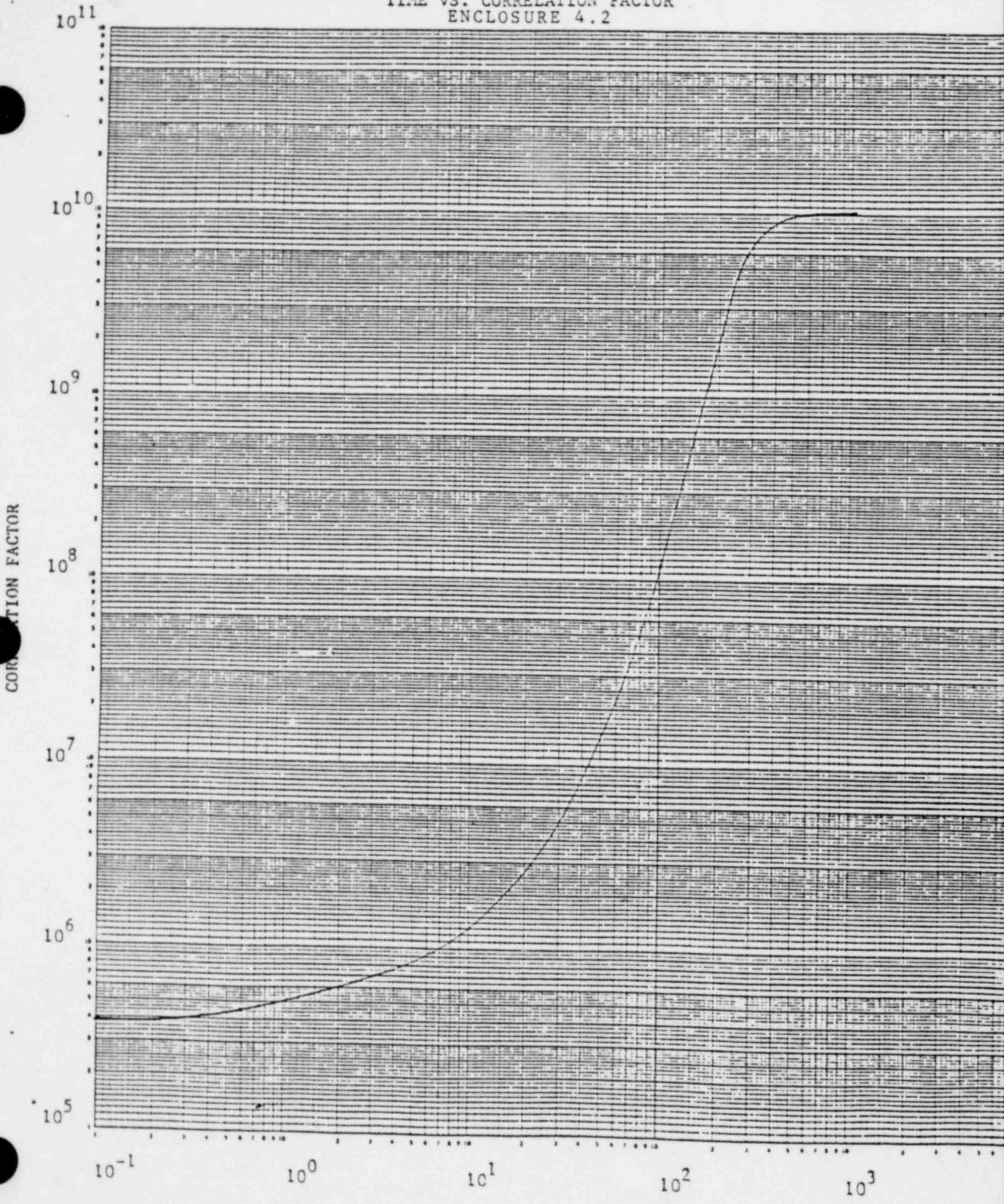
	NAME	POSITION	PHONE NO.	TIME CONTACTED
a)				
b)				
c)				
d)				
e)				

Additional Notes or Comments

SURVEY INSTRUMENT CORRELATION CURVE

TIME VS. CORRELATION FACTOR

ENCLOSURE 4.2



INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/12
Change(s) 1 to
NA Incorporated

(2) STATION: Oconee

(3) PROCEDURE TITLE: Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release

(4) PREPARED BY: Douglas J Berkshire DATE: 2/24/82

(5) REVIEWED BY: Charlie Younger DATE: 2-24-82

Cross-Disciplinary Review By: _____ N/R: G

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Bonny Br. Owen Date: 3/2/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: Elsie L Ward Date: 3/2/82

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

DISTRIBUTION OF POTASSIUM IODIDE TABLETS IN THE EVENT OF A RADIOIODINE RELEASE

1.0 Purpose

This procedure provides information necessary to distribute Active Potassium Iodide (KI) tablets to inplant personnel in the event of a release of radioiodine. Also, it outlines storage and supply information to assure sufficient quality and quantity of thyroid blocking material.

2.0 References

2.1 NCRP Report No. 55; Protection of the Thyroid Gland in the Event of Releases of Radioiodine 1977

2.2 NCRP Report No. 65; Management of Persons Accidentally Contaminated with Radioiodine 1980

2.3 Body Burden Analysis procedure

2.4 System Health Physics Manual

2.5 NUREG 0654

3.0 Limits and Precautions

3.1 Persons who are allergic to KI must not receive these tablets.

3.2 Nursing mothers who receive KI tablets must be advised to use nutrient substitutes (ex: milk or a formula) for children for the duration of the ten-day tablet use period.

3.3 Personnel must be advised not to deviate from prescribed dosages and dosage rates.

3.4 Best results will be achieved when KI tablets are administered immediately (within 2 hours) after an exposure, although administration as late as 24 hours after an emergency will be of (limited) value.

3.5 Discolored or disfigured tablets, tablets that have reached the expiration date listed on bottles, and bottles of KI with loose tops shall be discarded.

3.6 Hands of personnel must be free from contamination prior to taking KI tablets.

4.0 Procedure

4.1 Responsibilities for Distribution

4.1.1 Persons suspected of having been in the affected area prior to detection and during the release, persons present in the affected area, and persons who will enter the area while a significant amount of radioiodine is present will be instructed by the Station Health Physicist to immediately register in the KI distribution center (for example, the Technical Support Center (TSC) for each unit).

NOTE: A significant amount of radioiodine in this case is that amount taken into the body that would result in a quarterly permissible occupational dose, or more. For example, exposure to 4.6×10^{-6} µCi/ml airborne iodine for one hour would result in such an exposure. This corresponds to 520 MPC-hrs which is the quarterly limit.

4.2 Registration of persons exposed to a significant amount of radioiodine

4.2.1 When persons notified by Health Physics arrive at the distribution area, record appropriate data per Enclosure 5.1.

4.2.2 The Station Health Physicist or his designee should give one (1) tablet to each affected person and instructions concerning the use of the tablet. Then issue to each affected person one bottle containing nine (9) KI tablets, and the package insert for the use of the tablets (refer to Enclosure 5.2 for an example of the package insert).

4.2.2.1 Tablets are to be taken only as directed. One (1) tablet per day for ten (10) days is the recommended dosage.

4.2.2.2 After the initial dose of KI, subsequent doses will be taken on a daily basis. Tablets should be taken as near a 24-hour schedule as possible.

NOTE: For best results, emphasis must be placed upon the proper use of these tablets.

4.2.3 Tablets removed from full bottles of KI should be stored in 10 ml plastic vials. The expiration date on the bottle from which the tablets were taken and the name of the Health Physics representative must be recorded on the 10 ml vials. Tablets stored in 10 ml plastic vials should then be used for the single tablet initial issuance of KI to affected persons.

4.3 Thyroid Burden Analysis Following Radioiodine Exposure

4.3.1 All personnel receiving KI tablets should receive a thyroid scan. If the number of people render this step impractical, the Count Room Supervisor should draw a representative sample of persons listed on Enclosure 5.1 who received KI tablets.

NOTE: Subsequent action involving thyroid burden analysis should follow guidelines established in the System Health Physics Manual.

4.3.2 Records of thyroid scan should be maintained per procedure.

NOTE: Thyroid scans immediately after an accident could lengthen KI distribution time and cause confusion among personnel. Distribute KI before analyzing thyroid concentration.

4.4 Storage Requirements

4.4.1 There are three major storage requirements to be observed:

4.4.1.1 Store in a temperature range of 59 to 86 degrees F.

4.4.1.2 Store in a low humidity area (avoid direct exposure to liquids).

4.4.1.3 Store in an area protected from exposure to light.

4.4.2 Upon receiving a shipment of KI, boxes should be opened as soon as possible and bottles examined to ensure that an airtight seal has been maintained. Bottles must be returned to boxes, and boxes must be sealed shut, so as to avoid exposure to light.

4.4.3 To ensure a sufficient supply of tablets, a minimum of 1,000 bottles with 14 tablets per bottle should be maintained on-site.

4.5 Shelf Life and Changeout of KI Tablets

4.5.1 Thryo Block™ tablet bottles are labelled with an expiration date from the factory. As tablets reach the expiration dates, the tablets must be discarded.

NOTE: Replacement tablets should be ordered at least three (3) months prior to the date of expiration listed on the bottles of KI.

4.5.2 Upon receiving a shipment of KI tablets, supplies should be shifted so as to use older tablets before new tablets.

4.5.3 After the radioiodine emergency, tablets in the 10 ml plastic vials must be discarded.

5.0 Enclosures

5.1 Potassium Iodide Tablet Distribution Data Sheet

5.2 Package Insert for Thyro-Block™ Tablets and Solution

ENCLOSURE 5.1

POTASSIUM IODIDE TABLET DISTRIBUTION DATA SHEET

HP BADGE NUMBER	NAME	DEPARTMENT	DATE & TIME OF SUSPECTED EXPOSURE	DATE & TIME OF INITIAL ISSUANCE

Package Insert for Thyro-Block™ Tablets and Solution

Patient Package Insert For

THYRO-BLOCK™

(POTASSIUM IODIDE)
(pronounced poe-TASS-e-um EYE-oh-dyed)
(abbreviated: KI)
TABLETS and SOLUTION U.S.P.

IF YOU ARE TOLD TO TAKE THIS MEDICINE, TAKE IT ONE TIME EVERY 24 HOURS. DO NOT TAKE IT MORE OFTEN. MORE WILL NOT HELP YOU AND MAY INCREASE THE RISK OF SIDE EFFECTS. *DO NOT TAKE THIS DRUG IF YOU KNOW YOU ARE ALLERGIC TO IODIDE.* (SEE SIDE EFFECTS BELOW.)

INDICATIONS

THYROID BLOCKING IN A RADIATION EMERGENCY ONLY.

DIRECTIONS FOR USE

Use only as directed by State or local public health authorities in the event of a radiation emergency.

DOSE

Tablets:
ADULTS AND CHILDREN 1 YEAR OF AGE OR OLDER: One (1) tablet once a day. Crush for small children.
BABIES UNDER 1 YEAR OF AGE: One-half (1/2) tablet once a day. Crush first.

Solution:
ADULTS AND CHILDREN 1 YEAR OF AGE OR OLDER: Add 6 drops to one-half glass of liquid and drink each day.
BABIES UNDER 1 YEAR OF AGE: Add 3 drops to a small amount of liquid once a day.

For all dosage forms: Take for 10 days unless directed otherwise by State or local public health authorities.

Store at controlled room temperature between 15° and 30°C (59° to 86°F). Keep container tightly closed and protect from light. Do not use the solution if it appears brownish in the nozzle of the bottle.

WARNING

Potassium iodide should not be used by people allergic to iodide. Keep out of the reach of children. In case of overdose or allergic reaction, contact a physician or the public health authority.

DESCRIPTION

Each THYRO-BLOCK™ TABLET contains 130 mg of potassium iodide.

Each drop of THYRO-BLOCK™ SOLUTION contains 21 mg of potassium iodide.

HOW POTASSIUM IODIDE WORKS

Certain forms of iodine help your thyroid gland work right. Most people get the iodine they need from foods, like iodized salt or fish. The thyroid can "store" or hold only a certain amount of iodine.

In a radiation emergency, radioactive iodine may be released in the air. This material may be breathed or swallowed. It may enter the thyroid gland and damage it. The damage would probably not show itself for years. Children are most likely to have thyroid damage.

If you take potassium iodide, it will fill-up your thyroid gland. This reduces the chance that harmful radioactive iodine will enter the thyroid gland.

WHO SHOULD NOT TAKE POTASSIUM IODIDE

The only people who should not take potassium iodide are people who know they are allergic to iodide. You may take potassium iodide even if you are taking medicines for a thyroid problem (for example, a thyroid hormone or antithyroid drug). Pregnant and nursing women and babies and children may also take this drug.

HOW AND WHEN TO TAKE POTASSIUM IODIDE

Potassium Iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

SIDE EFFECTS

Usually, side effects of potassium iodide happen when people take higher doses for a long time. You should be careful not to take more than the recommended dose or take it for longer than you are told. Side effects are unlikely because of the low dose and the short time you will be taking the drug.

Possible side effects include skin rashes, swelling of the salivary glands, and "iodism" (metallic taste, burning mouth and throat, sore teeth and gums, symptoms of a head cold, and sometimes stomach upset and diarrhea).

A few people have an allergic reaction with more serious symptoms. These could be fever and joint pains, or swelling of parts of the face and body and at times severe shortness of breath requiring immediate medical attention.

Taking iodide may rarely cause overactivity of the thyroid gland, underactivity of the thyroid gland, or enlargement of the thyroid gland (goiter).

WHAT TO DO IF SIDE EFFECTS OCCUR

If the side effects are severe or if you have an allergic reaction, stop taking potassium iodide. Then, if possible, call a doctor or public health authority for instructions.

HOW SUPPLIED

THYRO-BLOCK™ TABLETS (Potassium Iodide, U.S.P.) bottles of 14 tablets (NDC 0037-0472-20.) Each white, round, scored tablet contains 130 mg potassium iodide.

THYRO-BLOCK™ SOLUTION (Potassium Iodide Solution, U.S.P.) 30 ml (1 fl. oz.) light-resistant, measured-drop dispensing units (NDC 0037-4287-25). Each drop contains 21 mg potassium iodide.

WALLACE LABORATORIES
Division of
CARTER-WALLACE, INC.
Cranbury, New Jersey 08512

CW—107915—10/79 Issue 10/79

INFORMATION ONLY

Form SPD-1002-1

DUKE POWER COMPANY
PROCEDURE PREPARATION
PROCESS RECORD

(1) ID No: HP/0/B/1009/16
Change(s) 1 to
NA Incorporated

(2) STATION: Oconee

(3) PROCEDURE TITLE: Procedure for Emergency Decontamination of Personnel and Vehicles On Site and From Off-Site Remote Assembly Area

(4) PREPARED BY: _____ DATE: _____

(5) REVIEWED BY: Charlie Yongue DATE: 2-24-82

Cross-Disciplinary Review By: _____ N/R: g

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: _____ (SRO) Date: _____

By: _____ Date: _____

(7) APPROVED BY: Tony B. Owen Date: 3/2/82

(8) MISCELLANEOUS:

Reviewed/~~Approved~~ By: [signature] Date: 02/25/82

Reviewed/Approved By: _____ Date: _____

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

PROCEDURE FOR EMERGENCY DECONTAMINATION OF PERSONNEL AND VEHICLES ON SITE AND FROM OFFSITE REMOTE ASSEMBLY AREA.

1.0 Purpose

To provide a procedure for decontamination of personnel and personal vehicles during a radiological emergency condition from both an onsite and offsite assembly area and to provide a procedure for a quarterly audit of the decontamination supplies.

2.0 References

2.1 NUREG 0654, FEMA-REP-1, Rev. 1, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants.

2.2 Oconee Nuclear Station Emergency Plan

3.0 Limits and Precautions

3.1 If the radiological emergency should occur during normal working hours, personal vehicles would not be used for evacuation purposes should it be determined by the Emergency Coordinator that time to decontaminate cars would affect the safety of station personnel. Bus transportation would be obtained from the Oconee County Bus Transportation Department by the Technical Support Center or the Crisis Management Center.

3.2 Keys to the appropriate school and cabinets should be obtained by Health Physics technicians from Security in the Control Room.

3.3 Security guards will assist in maintaining order during the exit from the station and will secure all gates to make sure egress is from the recommended exit.

4.0 Procedure

4.1 Onsite-Personnel & Vehicle Decontamination Procedure for Evacuation

4.1.1 Should evacuation become necessary, personnel should exit the station through the Personnel Access Portal.

4.1.2 Health Physics technicians shall perform a whole body survey of personnel with a Model E-120 Geiger Counter survey instrument and release personnel at < 2 mrem/hr to Keowee or Daniel High School. (See Enclosure 5.2)

4.1.2.1 Personnel with dose rate survey readings greater than 2 mrem/hr should use showers in the maintenance locker room with Health Physics supervising decontamination efforts. These personnel should be released at a dose rate < 2 mrem/hr to Keowee or Daniel High School. (See Enclosure 5.2)

4.1.2.1.1 Complete Enclosure 5.3 Initial Personnel Contamination Form for those persons contaminated to levels > 2 mrem/hr.

4.1.2.1.2 Enclosure 5.3 shall be retained by the Station Health Physicist for dose assessment information.

4.1.2.2 Rotate use of showers--male at one time interval, female the next time interval, etc.

4.1.3 If time permits, a hose station should be used to wash down vehicles external contamination to levels of < 2 mrem/hr. Health Physics Technicians should secure hose from hose cabinets and attach hose to fire hydrants at the designated exit point from the station as shown below. The Emergency Coordinator shall determine which exit to use by using meteorological information from the control room together with recommendations from the Station Health Physicist.

1. Exit from station - North 130. Administration Building Fire Hydrants.

2. Exit from station - South 183 - Intake road. CCW Fire Hydrant.

3. Exit from station South 183. 230 kv Switchyard Fire Hydrant.

4.1.3.1 Health Physics technicians with Model E-120 Geiger Counter instruments shall survey vehicles for release at < 2 mrem/hr. Health Physics will determine need for protective clothing and breathing protection to be worn by technicians.

4.1.3.2 Private vendor personnel, dressed in protective clothing (i.e. wet suits and respirators if warranted) will wash down vehicles if required by H.P.

4.2 Offsite-Decontamination of Personnel and Vehicles at Keowee/Daniel High School (See Enclosure 5.5 for maps of the schools)

4.2.1 With the appropriate key, the Health Physics Technicians will go to the designated school. The Technician will establish the decontamination area and await the evacuated personnel.

4.2.2 Health Physics Technicians will survey personnel with RM-14 instruments with thin window GM detectors and decontaminate and release personnel in accordance with limits specified in procedure HP/0/B/1005/11.

4.2.3 Health Physics shall periodically collect waste water samples for analysis using the 1 liter bottles found in the decontamination supplies.

4.2.4 After all personnel have exited and the building is no longer needed, a private vendor shall decontaminate building, site and private vehicles to levels < 200 dpm/100cm^2 $\beta\gamma$ and < .05 mrem/hr.

4.2.5 Complete release card for all personnel, Enclosure 5.1. Give one copy to individual and retain the other for personnel folder and exposure records.

4.3 Quarterly, Audit Offsite Emergency Decontamination Supplies

4.3.1 Once a quarter, audit the Offsite Emergency Decontamination supplies at both Keowee and Daniel High School using Enclosure 5.4. Supplies must also be audited after each use in a drill or actual emergency upon returning to normal operating conditions.

4.3.2 Upon completing the inventory, Enclosure 5.6 must be filled out if any items are missing. Missing items must be replaced within 72 hours. If the missing items cannot be replaced within 72 hours, the Station Health Physicist will evaluate the consequences the missing items will have on Offsite Emergency Decontamination.

4.2.3.1 Complete Enclosure 5.6 as follows:

a) under the column, Deviation Description, write the items that are missing.

b) under the column, Action Taken to Remedy Deviation, identify action taken to replace missing items.

c) under the column, Completion Date (72 hours), note the date the missing items were replaced.

d) sign and date the form in the appropriate column.

5.0 Enclosures

5.1 Individual Contamination Exposure Levels

Enclosure 5.1

INDIVIDUAL CONTAMINATION EXPOSURE LEVELS

LICENSEE	
Duke Power Company	Date: Time:

IDENTIFICATION INFORMATION	
Name:	Social Security Number:
HP Badge Number:	Employer:

CONTAMINATION EXPOSURE LEVELS	
Instrument Used: RM-14 with thin window detector	Instrument Reading: _____

Date_____ Employee Signature_____

Remarks_____ Address_____

_____ _____

_____ _____

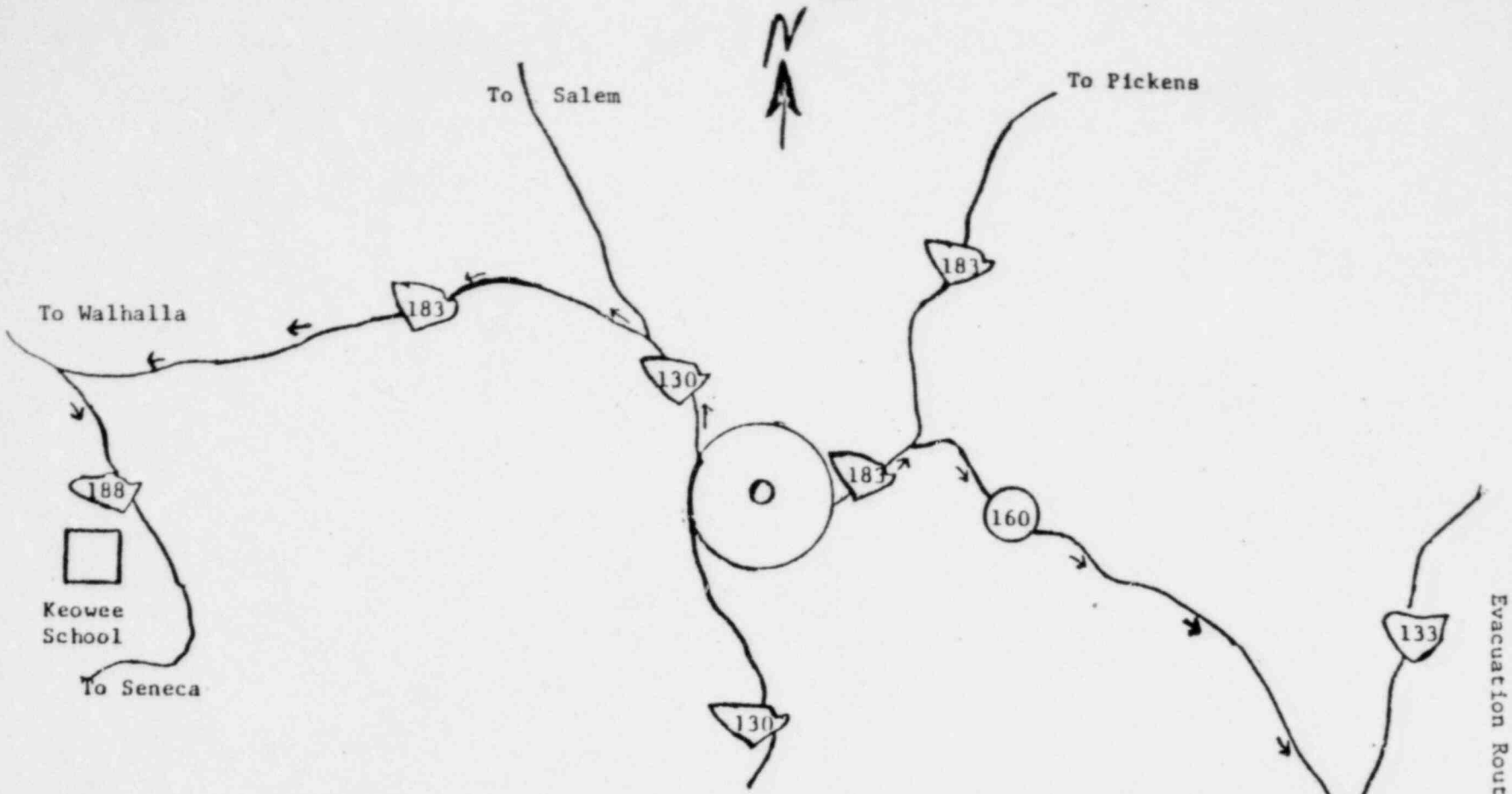
To the individual named above:

This report is furnished to you so that you have a prompt record of your radiation contamination level.

_____
Station Health Physicist

Copies to: G.O. HP ___
Individual ___
Employer ___
Individual File ___

_____
Date



EMERGENCY EVACUATION ROUTES FROM STATION

ASSEMBLY AREAS:

To be determined by Emergency Coordinator

1. Keowee School
2. Daniel High School

Evacuation Route

OCONEE NUCLEAR STATION
Enclosure 5.2

HP/O/B/1009/16

OCONEE NUCLEAR STATION

INITIAL PERSONNEL CONTAMINATION RECORD

NAME	HP BADGE NUMBER	INITIAL DOSE RATE (mrem/hr)	DOSE RATE (mrem/hr) After Decon

ENCLOSURE 5.4
HP/0/B/1009/16
LIST OF SUPPLIES FOR DECONTAMINATION OFFSITE

Date/Initials		
____/____	1 copy	Station Directive 3.8.18
____/____	1 copy	Health Physics Procedure HP/0/B/1005/11
____/____	100 min	Individual Contamination Exposure forms (Enclosure 5.1)
____/____	50 bars	Ivory Soap
____/____	2 bundles	Cotton Glove Liners
____/____	2 boxes	PVC Gloves
____/____	50 pair	Disposable Shoe Covers
____/____	50 pair	Disposable Coveralls (Blue)
____/____	50 ea.	Large Poly Bags
____/____	50 ea.	Small Poly Bags
____/____	100 ea.	Nucon Smears
____/____	1 roll	2" Masking Tape
____/____	1 roll	50 Yard Barricade Tape (Magenta & Yellow)
____/____	50 ea.	Caution: Radiation/Radioactive Material Tags
____/____	2 ea.	Caution Sign w/Radiation Area, Radioactive Material, and Contaminated Area Inserts
____/____	10 ea.	STEP OFF Pads
____/____	1 gal. bottle	4324 Turco Decon Soap
____/____	5 ea.	Nail Brushes
____/____	5 packages	Cotton Swabs
____/____	1 pair	Scissors
____/____	2 cans	Hand Cream
____/____	5 bottles	Prell Shampoo
____/____	100 ea.	Cloth Towels

ENCLOSURE 5.4
HP/0/B/1009/16
LIST OF SUPPLIES FOR DECONTAMINATION OFFSITE

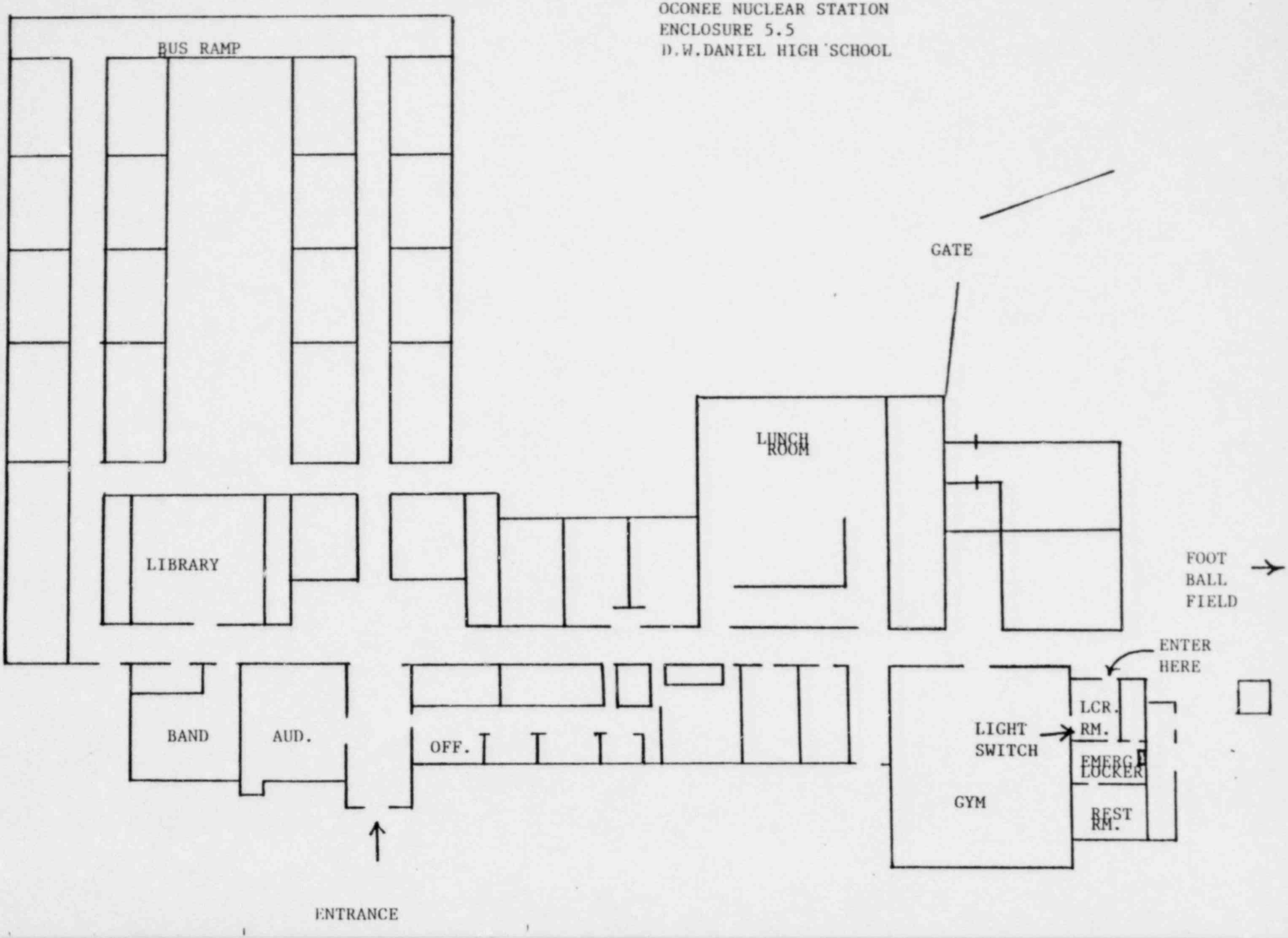
(Continued)

Date/Initials		
____/____	* 3 ea.	RM 14/15 Instruments with thin window detector
____/____	* 2 ea.	Eberline E120 Geiger Counter
____/____	5 ea.	Poly Bottles - 1 liter size
____/____	1 box	Black Marker Pens
____/____	1 box	Pens
____/____	1 box	Pencils
____/____	2 Pads	Writing Tablet

*These will be located at Oconee Nuclear Station

H.P./O/B/1009/16

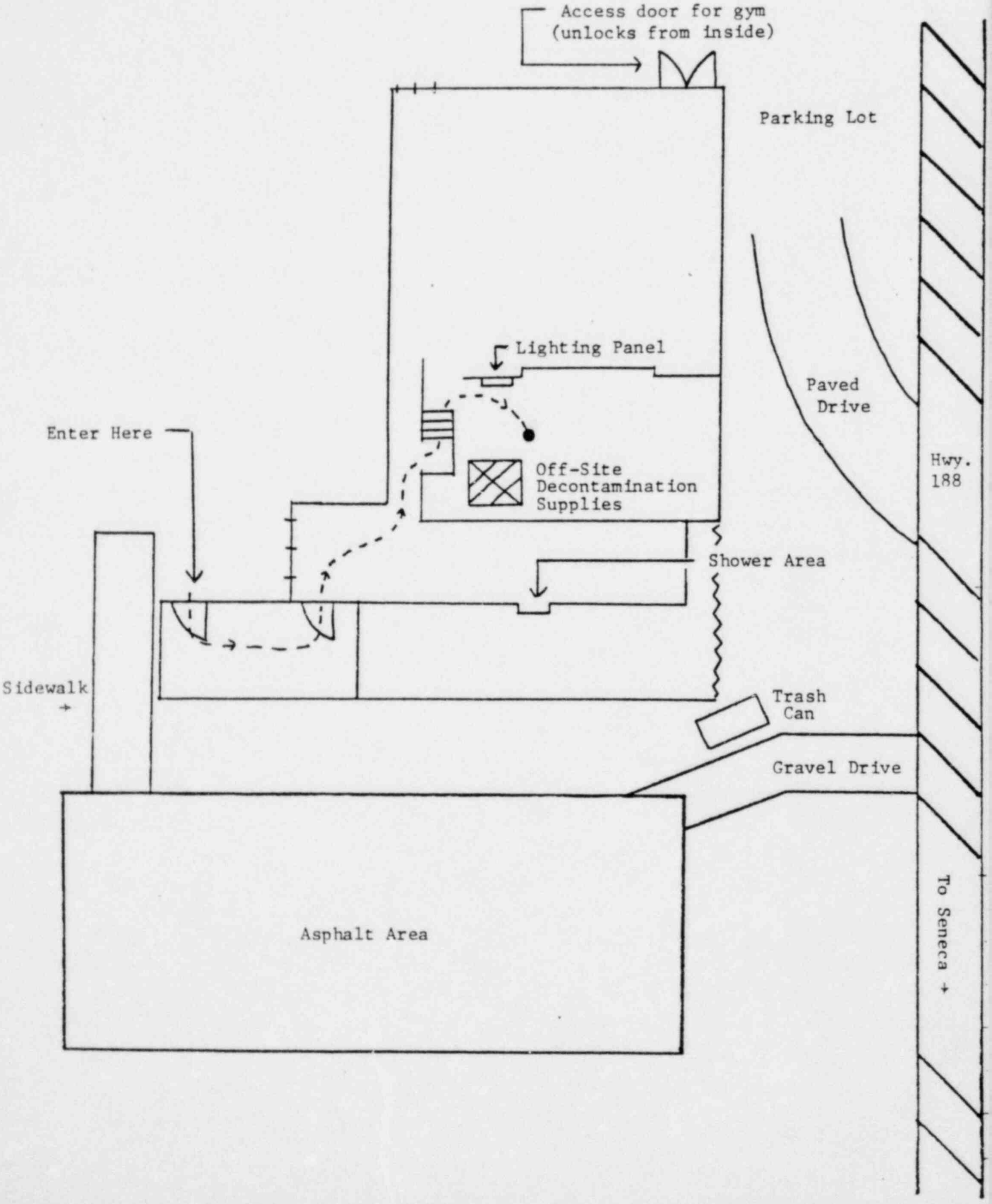
OCONEE NUCLEAR STATION
ENCLOSURE 5.5
D.W.DANIEL HIGH SCHOOL



Enclosure 5.5

HP/O/B/1009/16

KEOWEE SCHOOL



ENCLOSURE 5.6

DUKE POWER COMPANY

OCONEE NUCLEAR STATION

EMERGENCY SUPPLIES DEVIATION AUTHORIZATION SHEET

DATE	DEVIATION DESCRIPTION	ACTION TAKEN TO REMEDY DEVIATION	COMPLETION DATE (72 Hours)	SIGNATURE