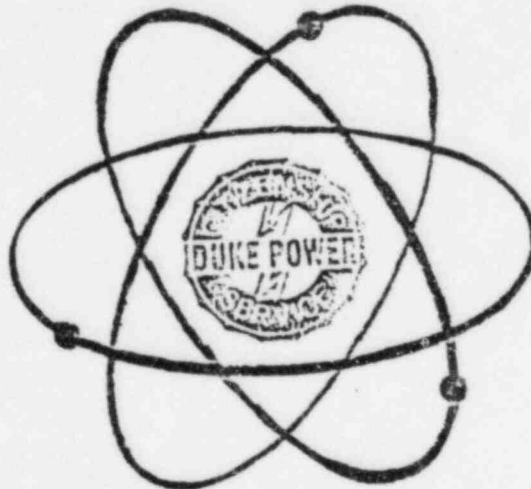


# DUKE POWER COMPANY

## OCONEE NUCLEAR STATION

### EMERGENCY PLAN IMPLEMENTING PROCEDURES



APPROVED:

  
J. Ed Smith, Station Manager

November 17, 1983  
Date Approved

November 17, 1983  
Effective Date

Revision 83-8.

8401060090 831228  
PDR ADOCK 05000269  
F PDR

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**Confidential**

Not For Publication

#### EMERGENCY TELEPHONE NUMBERS

This enclosure 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.



## 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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11. EMERGENCY COORDINATOR AND ALTERNATES (TSC Activation)

(If the first person cannot be reached, go to the next person down the list until one person is contacted)

Emergency Coordinator/Station Manager

J. E. Smith, Office . . . . .	Ext. 1211
Home . . . . .	654-2866

Superintendent of Technical Services

T. B. Owen, Office . . . . .	Ext. 1213
Home . . . . .	882-1499

Superintendent of Maintenance

J. M. Davis, Office . . . . .	Ext. 1227
Home . . . . .	647-9721

Superintendent of Operations

J. N. Pope, Office . . . . .	Ext. 1210
Home . . . . .	882-3866

12. 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 . . . . .	882-8359
Home . . . . .	882-1005

Lake Hartwell

City of Clemson

Mayor of Clemson, Office . . . . .	654-2636
Home . . . . .	654-1785

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

Clemson Administrator's Office . . . . .	654-2636
Home . . . . .	654-6263

Clemson Filter Plant (0700-1700) . . . . .	654-1550
--	----------

Clemson University

President's Office . . . . .	656-3412
	654-2466
Home . . . . .	656-2340

Security - Police (24 hours) . . . . .	656-2222
(If the President cannot be reached, call)	
Clemson University Physical Plant (0800-1630) . . . . .	656-2186

<u>Anderson Water Works</u> (24 Hr. Number) . . . . .	226-9676
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AGENCIES THAT MAY RESPOND TO AN EMERGENCY AT THE OCONEE NUCLEAR STATION

LAW ENFORCEMENT (24-hour numbers)

S. C. Highway Patrol (Greenville, S.C.) . . . . .	235-7471
S. C. Enforcement Division (Columbia, S.C.) . . . . .	758-6000
FBI (Columbia, S.C.) . . . . .	254-3011

BOMB DISPOSAL

Explosives Ordinance Disposal Control (24-hour) . . . . .	751-5126
(Fort Jackson, Columbia, S.C.)	

RADIATION AND CONTAMINATION

REACTS, Department of Energy (Oak Ridge, Tennessee . . . (24 hr. number - after 1700 ask for Beeper number) . .	615-482-2441 241
DOE Emergency Radiological Monitoring Team (Aiken, S.C.) .	725-3333 (24 hrs.)
N. C. Division of Emergency Management . . . . . (Warning Point - State of North Carolina)	919-733-3861 (24 hrs)
Georgia Department of Natural Resources Environmental Radiation Program . . . . . (Warning Point - State of Georgia)	404-656-4300 (24 hrs.)

NUCLEAR REGULATORY COMMISSION

NRC Operations Center (via Bethesda Central Office) . . .	202-951-0550
NRC Operations Center (via Silver Spring Central Office) .	301-427-4056
Health Physics Network to NRC Operations Center . . . . .	22
Health Physics Network to NRC, Region II	23
NRC Operator (Via Bethesda Central Office) . . . . .	301-492-7000
US NRC, Region II (Operations Center). . . . .	404-221-4503
US NRC, Oconee Resident Inspectors . . . . .	882-5363 Ext. 1108
Jack Bryant Home	882-4527
Dolan Falconer Home	654-6693

BUS TRANSPORTATION

Anderson Retail Office (24 hour number) . . . . . (Contact John Holland, Jerry Whitfield)	224-6363
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NATIONAL WEATHER SERVICE - METEOROLOGICAL BACK-UP SOURCE

Greenville-Spartanburg Weather Service . . . . (24 hour) .	877-6998
--	----------

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

Seneca Lines	882-5363	
(803)	882-5368	
	882-5369	
	882-5370	
	882-5371	
Easley Lines	859-0108	
(803)	859-0113	
	859-0116	
Anderson Line	224-8376	
(803)		
Six Mile Line	868-2717	
(803)		
Dial Code	80	(Charlotte General Office)
(Micro-Wave)	80-188	(Catawba)
	80-212	(McGuire)
	80-115	(Cherokee)
	0	Attendant (To access Bell Line)
	9	Seneca
	60	Easley
	61	Anderson
	63	Six Mile

OCONEE NUCLEAR STATION  
CRISIS PHONE DIRECTORY  
TECHNICAL SUPPORT CENTER

<u>POSITION/NAME</u>	<u>Telephone Number</u>	
	<u>Outside Line</u>	<u>Station Number</u>
Emergency Coordinator . . . . .	882-7076	1211
Supt. of Operations . . . . .		1210
Supt. of Technical Services . . . . .		1213
Supt. of Maintenance . . . . .		1227
Supt. of Administration . . . . .		1212
NRC Resident Engineer . . . . . FTS	677-9309	1108
B&W Resident Engineer . . . . .		1140
Station Health Physicist . . . . .		1234
<u>HEALTH PHYSICS CENTER</u>		1480
Field Monitoring Coordinator . . . . .		1417
Data Report Coordinator (Off-Site Dose Projection)		1138
Dose Coordination to CMC . . . . .		1276
FTS Line to NRC . . . . .	677-9309	

	<u>Telephone Number</u>	
	<u>Outside</u>	<u>Station</u>
	<u>Line</u>	<u>Number</u>
<u>TECHNICAL SERVICES GROUP</u> (Located in Computer Room CR 1&2)		
Performance . . . . .		1409
Compliance . . . . .		1229
Chemistry . . . . .		1220
<u>OPERATIONAL SUPPORT CENTER</u>		1387
(Support group consists of Health Physics, Chemistry, Maintenance, Safety Operations group)		
Operational Support Center Coordinator . . . . .		1216
Mechanical Maintenance Engineer . . . . .		1223
Mechanical Maintenance Supervisor . . . . .		1440
I & E Engineer . . . . .		1219
I & E Supervisor . . . . .		1189
Health Physics Support . . . . .		1190
Dose Control . . . . .		1178
S & C Coordinator . . . . .	1365,	1519
Support Function Coordinator. . . . .		1179
Chemistry Support . . . . .		1165
Medical Support . . . . .		1151
Clerical . . . . .		1387
Operations Group		
Unit #3 Operations Offices . . . . .		1277
		1214
		1221
Nuclear Equipment Operators (Unit 1 & 2 Emergencies)		1333
Nuclear Equipment Operators (Unit 3 Emergencies)		1388



CONTROL ROOM

Unit 1 . . . . .	1261, 1335
Unit 2 . . . . .	1321, 1206
Unit 3 . . . . .	1278, 1357
Shift Supervisor (Unit 1 & 2) . . . . .	1272, 1316
Unit 3 . . . . .	1392

COMMUNICATIONS COORDINATION

Data Transmission Coordinator. . . . .	1409
Data Release (Vax Computer Program). . . . .	1669
	1670
Telecopier (Technical Support Center). . . . .	1314
Offsite Communicator . . . . .	1244
TSC Clerical Support . . . . .	1233
Emergency Response . . . . .	1111

EMERGENCY COUNT ROOM (Located in Visitor's Center). . . . . 1763, 1764

OCONEE NUCLEAR STATION  
CRISIS PHONE DIRECTORY  
CRISIS MANAGEMENT CENTER

<u>POSITION/NAME</u>	<u>PRIVATE LINE</u>	<u>ONS SWITCHBOARD</u>
<u>RECOVERY MANAGER</u>		
State of S.C. (FEOC Line)	654-9367	1713
(Duke Line)	882-9801	
<u>SCHEDULING/PLANNING</u>		
		1711
		1712
<u>RADIOLOGICAL SUPPORT</u>		
	882-8148	
Bureau of Radiological Health (Duke Line)	882-9593	
(FEOC Line)	654-9371	
<u>OFFSITE RADIOLOGICAL COORDINATOR</u>		
		1705
		1706
<u>TECHNICAL SUPPORT . . . . .</u>		
	882-8650	1714
		1715
		1716
		1717
<u>DESIGN AND CONSTRUCTION SUPPORT. . . . .</u>		
	882-8650	1726
		1727
		1728
<u>ADMINISTRATION AND LOGISTICS . . . . .</u>		
	882-9208	1707
		1708
		1709
		1710
<u>DATA COORDINATION</u>		
<u>TELECOPIER . . . . .</u>		
		1718
		1719
		1700
<u>ADVISORY SUPPORT</u>		
<u>NUCLEAR REGULATORY COMMISSION . . . . . FTS 677-9314</u>		
		1725
		1716
		1717
<u>BABCOCK &amp; WILCOX (NSSS SUPPLIER) . . . . .</u>		
		1714
		1715
<u>CORPORATE HEADQUARTERS</u>		
(Contact with the Governor)		
A. C. Thies	704-373-4249	
W. H. Owen	704-373-4120	

- 12 -  
OCONEE NUCLEAR STATION  
CRISIS PHONE DIRECTORY  
GENERAL OFFICE SUPPORT CENTER

WACHOVIA CENTER

<u>RECOVERY MANAGER</u> (Room 1010)	(Speaker Phone)	704-373-7951
	(Dedicated line to State Director)	704-373-5743

NRC	704-372-4240
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<u>SCHEDULING/PLANNING</u> (Room 1010)	704-373-5731
	704-373-7949

<u>RADIOLOGICAL SUPPORT</u> (Room 2390)	704-373-7790
	704-373-5444
	704-373-3008

<u>OFFSITE RADIOLOGICAL COORDINATOR</u> (Room 1222)	704-373-3141
	704-373-6265
	704-373-6150
	371-6804

NRC FTS LINE

<u>TECHNICAL SUPPORT</u> (Room 1704)	704-373-5177
	704-373-5235
	704-373-5236

<u>ADMINISTRATION AND LOGISTICS</u> (Room 0925)	704-373-3121
	704-373-3122
	704-373-3123

<u>NUCLEAR REGULATORY COMMISSION</u> (Room 1488)	704-373-2689
	704-373-7405
	704-373-7406

ELECTRIC CENTER

<u>DESIGN AND CONSTRUCTION SUPPORT</u> (Room 32, 3rd Floor)	704-373-4662
	704-373-5304
	704-373-5305
	704-373-2825

POWER BUILDING

CRISIS NEWS GROUP - DUKE (Rooms 5010, 5012, 5014)	704-373-4023
	704-373-5584
	704-373-3107
	704-373-2864
	704-373-7303

S.C. PUBLIC INFORMATION OFFICERS (Rooms 5020, 5022)	704-373-7302
	704-372-9818*
	704-372-9824
	704-372-0970

NRC NEWS STAFF (Room 5024)	704-373-2328
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\*Dedicated line to State Center

OCONEE NUCLEAR STATION  
CRISIS PHONE DIRECTORY  
BACKUP CRISIS MANAGEMENT CENTER  
LIBERTY RETAIL OFFICE, LIBERTY, S.C.

	<u>AREA CODE - 803</u> <u>Telephone Number</u>
<u>RECOVERY MANAGER</u>	843-2751
<u>SCHEDULING/PLANNING</u>	843-2752
<u>PUBLIC INFORMATION OFFICERS*</u>	843-2753
State of South Carolina	843-2754
Oconee County	843-2755
Pickens County	
<u>DESIGN AND CONSTRUCTION</u>	843-2701
	843-2702
<u>TECHNICAL SUPPORT</u>	843-2703
	843-2704
<u>OFFSITE RADIOLOGICAL COORDINATOR</u>	843-2705
	843-2761
<u>ADMINISTRATION AND LOGISTICS</u>	843-2762
	843-2763
<u>HEALTH PHYSICS/RADWASTE</u>	843-2764
	843-2765
<u>GOVERNMENT AGENCIES*</u>	843-6935
NRC	843-9014
State of South Carolina	
Oconee County	
Pickens County	

\*NOTE: Call any one of the numbers listed to reach the desired representative.

OCONEE NUCLEAR STATION  
CRISIS PHONE DIRECTORY  
CRISIS NEWS CENTER  
KEOWEE-TOXAWAY VISITORS' CENTER

<u>Position/Name</u>	<u>Private Line</u>	<u>Telephone Number</u> 882-5363 ONS <u>Switchboard</u>
<u>CRISIS NEWS DIRECTOR</u>	882-0601	1430
Mary Cartwright	882-5620	1431
		1720
		1721
		1722
		1723
		1724
 <u>COMMERCIAL NEWS MEDIA</u>	882-6514	
(Active Numbers)	882-6515	
For drill purposes only	882-6519	
	882-6520	
	882-6522	
 <u>COMMERCIAL NEWS MEDIA</u>	882-6529	
(Inactive Numbers)	882-6530	
Activated only during an	882-6533	
actual emergency	882-6535	
	882-6536	
	882-6538	
	882-6540	
	882-6541	
	882-6543	
	882-6544	
 <u>NRC/STATE/COUNTY PUBLIC INFORMATION OFFICERS (PIO'S)</u>		
NRC	882-8094*	
Oconee County	882-4505*	
Pickens County	882-6744*	
	882-5537*	
State of S.C. (FECO Line)	654-9363	
(Duke Line)	882-6746	

\*Note: NRC, Oconee County or Pickens County may be reached on any one of these phones.

## 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.

The Station has jacks for the HPN phones in the Performance Office (Control Room 1 & 2) and in the Oconee Training Center.

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.

For convenience, the codes most often used are listed below:

<u>HPN Phone</u>	<u>Code</u>
1. NRC region 2 (Atlanta) office	23
2. NRC headquarters (24 hours)	22
3. B&W Research Center	83
4. Oconee NRC Resident Inspector	72
5. Oconee Nuclear Station	73
6. <u>All</u> NRC region 2 Resident Inspectors	26
7. <u>All</u> region 2 Operating Nuclear Plants	25

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.

# OCONEE NUCLEAR STATION EMERGENCY RADIO

The call letters WQC699 identify the Emergency Radio frequency. The following is a listing of radio locations, unit call letters, and identifiers. Use identifiers to begin a transmission and the call letters to close out the radio transmission. (For example: Oconee Nuclear Station Control Room to Pickens County Law Enforcement Center. Close out with WQC699 off.)

## ONS Base Station Remotes

	<u>Location</u>	<u>Unit Call Letters</u>	<u>Identifier</u>
1.	Unit 1&2 Control Room	WQC699	Oconee Control Room
2.	Crisis Management Center	WQC699	Oconee CMC
3.	Technical Support Center	WQC699	Oconee TSC

## Coded Squelch Radios

	<u>Location</u>	<u>Encode</u>	<u>Unit Call Letters</u>	<u>Identifier</u>
4.	Pickens LEC	35	KNBZ-965	Pickens LEC
	Pickens EOC	31	KNBE-487	Pickens EOC
	Pickens EPD	31	KNBE-480	Pickens EPD
5.	Oconee LEC	32	KNBE-488	Oconee LEC
6.	State FEOC - (Clemson)	34	KA-82139	State FEOC

ALL ABOVE RADIOS MAY BE ACTIVATED BY ENCODING NO. 30

## Field Monitoring Teams

	<u>Location</u>	<u>Unit Call Letters</u>	<u>Identifier</u>
8.	Field Monitor Coordinator	KA82139	Leader
9.	Field Monitor Team	KA82139	Alpha
10.	Field Monitor Team	KA82139	Bravo
11.	Field Monitor Team	KA82139	Charlie
12.	Field Monitor Team	KA82139	Delta
13.	Field Monitor Team	KA82139	Echo
14.	Field Monitor Team	KA82139	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 878-7808

EXECUTIVE GROUP\*

Emergency Preparedness 878-7527  
County Administrator  
County Council  
Legal Officer

OPERATIONS GROUP\*

Law Enforcement 878-7494  
Rescue Squad  
EMS  
  
Fire Service 878-7409  
Medical Service  
Health Service  
Dept. of Public Works

ASSESSMENT\*

Transportation 855-1020  
Emergency Welfare Service  
Shelter Service  
Red Cross  
  
Public Information 878-4886  
RADEF  
  
Mental Health 878-7499  
Damage Assessment  
Supply and Procurement

ALTERNATE NUMBER (to any group) 868-9207

PUBLIC INFORMATION OFFICER

CRISIS NEWS CENTER-ONS\*

State of South Carolina 882-8094  
Oconee County 882-4505  
Pickens County 882-5537  
NRC 882-6744

CRISIS NEWS CENTER LIBERTY RETAIL OFFICE\*

State of South Carolina 843-2753  
Oconee County 843-2754  
Pickens County 843-2755  
NRC

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



EMERGENCY OPERATION CENTER

Oconee County

Primary Number (24-hour) . . . . . 638-3097

OPERATIONS\*

Fire Protection . . . . . 638-2633

Police . . . . . 638-2864  
638-3002

Public Roads . . . . .

Emergency Medical Services . . . . .

Rescue Squads . . . . .

ASSESSMENT\*

Emergency Welfare Services . . . . . 638-2177  
638-2482

Radiological Defense . . . . .

Damage Assessment . . . . .

EXECUTIVE GROUP\*

Supervisor/Chairman County Council . . . . . 638-2540

EOC Director . . . . .

Financial Officer . . . . .

FNF Representative . . . . .

PUBLIC INFORMATION OFFICER

CRISIS NEWS CENTER-ONS

State of South Carolina 882-8094  
Oconee County 882-4505  
Pickens County 882-5537  
NRC 882-6744

CRISIS NEWS CENTER LIBERTY RETAIL OFFICE

State of South Carolina 843-2753  
Oconee County 843-2754  
Pickens County 843-2755  
NRC

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

CONTROL COPY

DUKE POWER COMPANY  
PROCEDURE PREPARATION  
PROCESS RECORD

(1) ID No: AP/0/8/1000/07  
Change(s)    to  
   Incorporated

(2) STATION: OCONEE NUCLEAR STATION

**INFORMATION ONLY**

(3) PROCEDURE TITLE: Procedure for Offsite Dose Calculation by Control Room  
Personnel or Emergency Coordinator During a Radiological Accident

(4) PREPARED BY: Black DATE: 10-12-83

(5) REVIEWED BY: George A. Ridgway DATE: 10-19-83

Cross-Disciplinary Review By:                      N/R:                     

(6) TEMPORARY APPROVAL (IF NECESSARY):

By:                                      (SRO) Date:                     

By:                                      Date:                     

(7) APPROVED BY: J. N. Pope Date: 11-11-83

(8) MISCELLANEOUS:

Reviewed/Approved By: R. L. Swingert Date: 10-21-83

Reviewed/Approved By: Jerry Campbell Date: 10-21-85

AP/O/B/1000/07

PROCEDURE FOR OFFSITE DOSE CALCULATIONS  
BY CONTROL ROOM PERSONNEL OR EMERGENCY  
COORDINATOR DURING A RADIOLOGICAL 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/hr (Case A)

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

1.2 RIAs-44, 45 and 46 increasing with indications of a radiological accident. (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 RIA-45 high alarm will secure a Reactor Building Purge if in progress.

## 2.2 Manual

2.2.1 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 unit vent, Reactor Building atmosphere and available meteorological 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.

2.2.2 The meteorology data needed to calculate offsite dose should be obtained from the tower. Data not available from this primary source should be obtained from its back up source. These back up sources are the river and National Weather Service. All meteorology data obtained from the tower or river must be a 15 minute average. National Weather Service data is a standard observation and is not a 15 minute average.

2.2.2.1 The following are conversion formulas for the meteorological data obtained from the National Weather Service Office at the Greenville-Spartanburg Airport. (Number is listed in the Emergency Telephone Directory).

mph = 1.15 (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. Wind direction and speed will be rechecked every 15 minutes to ensure additional sectors have not been affected during daytime (1000-1600 hrs.).

NOTE: Once a sector has been determined to be affected, then it cannot be removed from the list of affected sectors.

2.2.4 Complete the proper enclosure for the existing conditions.

1. Enclosure 4.1 - LOCA With Vent Release
2. Enclosure 4.2 - LOCA; No Vent Release
3. Enclosure 4.3 - Vent Release; No LOCA
4. Enclosure 4.6 - Computer Dose Assessment Program

2.2.5 Complete Enclosure 4.5 (Stability Class). This information is used in the "warning message" to offsite agencies.

### 3.0 Subsequent Actions

3.1 Notify the proper agencies per AP/0/B/1000/05 (Notification Procedure - General Emergency).

- 3.2 Deploy onsite and offsite monitoring teams per AP/0/B/1000/05  
(Notification Procedure - General Emergency).

4.0 Enclosures

- 4.1 Offsite Dose Calculation - LOCA Vent Release
- 4.2 Offsite Dose Calculation - LOCA; No Vent Release
- 4.3 Offsite Dose Calculation - Vent Release; No LOCA
- 4.4 Survey Instrument Correlation
- 4.5 Stability Class
- 4.6 Offsite Dose Calculation - Using Computer:

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Page 1 of 3

Time/Date \_\_\_\_\_

ENCLOSURE 4.1

OCONEE NUCLEAR STATION  
OFFSITE DOSE CALCULATION  
LOCA WITH VENT RELEASE  
AP/O/B/1000/07

Unit \_\_\_\_\_

Calculation performed by \_\_\_\_\_

TIME DATE

- 1) A) Now \_\_\_\_\_/\_\_\_\_\_.  
B) Incident \_\_\_\_\_/\_\_\_\_\_.  
C) Hours Since Incident \_\_\_\_\_
- 2) Meteorology Data - 15 minute average.

NOTE: Sources of data are listed in order of preference. If the first choice is unavailable, use the second choice, etc. Fill in only one blank for each data point.

- (A)  $\Delta T(^{\circ}\text{F})$  1) Tower \_\_\_\_\_ $^{\circ}\text{F}$   
2) Use a  $\Delta T$  of  $0.4^{\circ}\text{F}$  if tower  $\Delta T$  is not available.

- (B) Wind Direction 1) Tower \_\_\_\_\_ $^{\circ}$   
2) River \_\_\_\_\_ $^{\circ}$   
3) National Weather Service \_\_\_\_\_ $^{\circ}$

- (C) Wind Speed - 1) Tower \_\_\_\_\_mph  
2) River \_\_\_\_\_mph  
3) National Weather Service \_\_\_\_\_mph

NOTE: National Weather Service data is a standard observation, not a 15 minute average and is updated only once per hour.

## ENCLOSURE 4.1

AP/O/B/1000/07

- 3) 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)
0-1.0	0.28
1.1-2.0	0.36
2.1-5.0	0.60
5.1-10.0	0.94
10.1-20.0	1.50

TF = \_\_\_\_\_

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

a) Containment high range radiation monitor (RIA-57 or RIA-58)

\_\_\_\_\_ R/hr.

b) PIC-6-A (or similar hand held survey instrument) reading x correlation value (Encl. 4.4).

Survey Inst. \_\_\_\_\_ x Corr. value \_\_\_\_\_ = DR \_\_\_\_\_ R/hr.

NOTE: A reading on the survey instrument < 0.3 R/hr would indicate that the release source term used for the "warning message" to offsite agencies is a gap activity release.

NOTE: A reading on the survey instrument > 0.3 R/hr would indicate that the release source term used for the "warning message" to offsite agencies is a design basis accident.

- 5) Determine through which unit vent(s) (if any) activity is being released.

Vent releases may occur on all three units' vents simultaneously since the Oconee Auxiliary Building is one enclosure with three vents.

Vent release on Unit(s) \_\_\_\_\_.



## ENCLOSURE 4.1

AP/O/B/1000/07

- 6) Record the following information for the affected unit(s) vent monitors identified in Step 5.

	Unit 1	Unit 2	Unit 3
Unit Vent Flow (Fv) (A0946)	_____ cfm	_____ cfm	_____ cfm
RIA-45 (A1679)	_____ cpm	_____ cpm	_____ cpm
RIA-46 (if > 10 cpm) (A1680)	_____ cpm	_____ cpm	_____ cpm
RIA-44* (R-1678)			
a) -Start of time period			
-count rate	_____ cpm	_____ cpm	_____ cpm
b) -end of time period			
-count rate	_____ cpm	_____ cpm	_____ cpm
c) -Δ time	_____ min	_____ min	_____ min
-Δ cpm	_____	_____	_____

NOTE: If the RIA Chart is used as a reference, use the 15 minute interval during the last hour that had the greatest increase in RIA-44 counts.

RIA-44 rate of increase may be read directly from the plant computer. (R-1678)

- 7) Multiply unit vent flow times the RIA readings and add to the results as follows for the affected units' vents.

- a) Noble Gas (NG)

RIA-45

Fv x RIA-45 (cpm)

U-1 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

U-2 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

U-3 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

total RIA-45 = \_\_\_\_\_

## ENCLOSURE 4.1

AP/O/B/1000/07

RIA-46

$$F_v \times \text{RIA-46 (cpm)}$$

$$\text{U-1} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{U-2} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{U-3} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{total RIA-46} = \underline{\hspace{1cm}}$$

$$\text{NG} = [\text{total RIA-45} \times 1.71 \text{ E-3}] + [\text{total RIA-46} \times 6.82 \text{E-4}]$$

$$\text{NG} = \underline{\hspace{2cm}} \quad (\text{record this value on Step 8c})$$

b) Iodine Vent (I<sub>v</sub>)RIA-44

$$F_v \times \frac{\Delta \text{RIA-44 (cpm)}}{\Delta \text{time (min)}}$$

$$\text{U-1} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{U-2} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{U-3} \quad \underline{\hspace{1cm}} \times \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\text{total RIA-44} = \underline{\hspace{1cm}}$$

$$\text{I}_v = \text{total RIA-44} \times 2.76 \text{E-7}$$

$$\text{I}_v = \underline{\hspace{2cm}}$$

## 8) Calculate DT by completing Step A through C.

a) Building Iodine (I<sub>RB</sub>)

$$\text{I}_{\text{RB}} = \text{DR (Step 4)} \times \text{TF (Step 3)}$$

$$\text{I}_{\text{RB}} = \underline{\hspace{2cm}}$$

b) Total Iodine (I<sub>T</sub>)

$$\text{I}_T = \text{I}_{\text{RB}} (\text{Step 8a}) + \text{I}_v (\text{Step 7b})$$

$$\text{I}_T = \underline{\hspace{2cm}}$$

## ENCLOSURE 4.1

AP/O/B/1000/07

c) Total Iodine ( $I_T$ ) vs Noble Gas (NG) $I_T$  (Step 8b) = \_\_\_\_\_ NG (Step 7a) = \_\_\_\_\_
$$DT = \begin{cases} \text{if } I_T > NG, DT = I_T \\ \text{if } I_T < NG, DT = NG \end{cases}$$

DT = \_\_\_\_\_

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

If yes, go to Step 10.

If no, go to Step 14.

- 10) Calculate DW (wind determined dose) based upon DT (Step 8c) and WS (wind speed).

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

- 11) Determine distances and level of protective actions based upon DW (Step 10) and
- $\Delta T^\circ F$
- 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  $\Delta T^\circ F$ . 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.

## ENCLOSURE 4.1

AP/O/B/1000/07

	$\Delta T^{\circ}F$	DW	DW	DW	DW
A)	$-\infty$ to -1.3	$\leq 2.09E5$	2.09E5 to 7.8E5	7.8E5 to 3.9E6	$> 3.9E6$
B)	-1.2 to -1.0	$\leq 5.4E3$	5.4E3 to 2.70E4	2.7E4 to 3.2E5	$> 3.2E5$
C)	-0.9 to -0.4	$\leq 2.09E3$	2.09E3 to 1.04E4	1.04E4 to 7.4E4	$> 7.4E4$
D)	-0.3 to +10.0	$\leq 1.08E3$	1.08E3 to 5.4E3	5.4E3 to 3.2E4	$> 3.2E4$
		No action procedure is com- pleted	Evacuate children and pregnant women 0-4 miles (Downwind areas with suffix 1)	Evacuate every- one 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 chil- dren and preg- nant women 4-10 miles (Downwind areas with suffix 2)	Evacuate everyone 4-10 miles (Downwind areas with suffix 2)

Example: If  $\Delta T^{\circ}F$  is -1.1 and DW is 2.9E4, evacuate everyone from 0-4 miles and children and pregnant women from 4-10 miles.

12) a) Is wind speed  $\geq 5$  mph?

☐ If yes, use table in Step 12 b.

☐ If no, assume Sectors A1, B1, C1, D1, E1, and F1 are affected. Then use Table 12b to determine additional areas to be evacuated out beyond 4 miles.

b) Wind direction (from) and wind speed - 15 minute average.

Reverify every 15 minutes.

1st 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

2nd 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

3rd 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

## ENCLOSURE 4.1

AP/O/E/1000/07

4th 15 min. average \_\_\_\_°; \_\_\_\_ mph

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 \_\_\_\_\_.

- 13) Combine the numbers determined in Step 11 with the letters from Step 12 to determine which sectors of evacuation map to evacuate.

Children and pregnant women \_\_\_\_\_

Everyone \_\_\_\_\_

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

## ENCLOSURE 4.1

AP/O/B/1000/07

- 14) Use the table below if time of day is not between 1000 hrs and 1600 hrs. Apply the DT value from Step 8 on the table below. Read the corresponding action in the column to the right and record.

DT	PROTECTIVE ACTION
$\leq 610$	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 \_\_\_\_\_

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

Additional Notes or Comments

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Time/Date \_\_\_\_\_

## ENCLOSURE 4.2

OCONEE NUCLEAR STATION

OFFSITE DOSE CALCULATION

LOCA; NO VENT RELEASE

AP/0/B/1000/07

Unit \_\_\_\_\_

Calculation performed by \_\_\_\_\_

## TIME DATE

- 1) A) Now \_\_\_\_\_/\_\_\_\_\_  
B) Incident \_\_\_\_\_/\_\_\_\_\_  
C) Hours Since Incident \_\_\_\_\_
- 2) Meteorology Data - 15 minute average.

NOTE: Sources of data are listed in order of preference. If the first choice is unavailable, use the second choice, etc. Fill in only one blank for each data point.

- (A)  $\Delta T(^{\circ}F)$  1) Tower \_\_\_\_\_ $^{\circ}F$   
2) Use a  $\Delta T$  of  $0.4^{\circ}F$  if tower  $\Delta T$  is not available.

- (B) Wind Direction 1) Tower \_\_\_\_\_ $^{\circ}$   
2) River \_\_\_\_\_ $^{\circ}$   
3) National Weather Service \_\_\_\_\_ $^{\circ}$

- (C) Wind Speed 1) Tower \_\_\_\_\_mph  
2) River \_\_\_\_\_mph  
3) National Weather Service \_\_\_\_\_mph

NOTE: National Weather Service data is a standard observation, not a 15 minute average.



## ENCLOSURE 4.2

AP/O/B/1000/07

- 3) 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)
0-1.0	0.28
1.1-2.0	0.36
2.1-5.0	0.60
5.1-10.0	0.94
10.1-20.0	1.50

TF = \_\_\_\_\_

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

a) Containment high range radiation monitor (RIA-57 or RIA-58)

\_\_\_\_\_ R/hr.

b) PIC-6-A (or similar hand held survey instrument) reading x correlation value (Encl. 4.4).

Survey Inst. \_\_\_\_\_ x Corr. value \_\_\_\_\_ = DR \_\_\_\_\_ R/hr.

NOTE: A reading on the survey instrument < 0.3 R/hr would indicate that the release source term used for the "warning message" to offsite agencies is a gap activity release.

NOTE: A reading on the survey instrument > 0.3 R/hr would indicate that the release source term used for the "warning message" to offsite agencies is a design basis accident.

- 5) Calculate DT (time determined dose)

DT \_\_\_\_\_ = DR \_\_\_\_\_ x TF \_\_\_\_\_

- 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 (Step 5) and WS (wind speed).

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



## ENCLOSURE 4.2

AP/O/B/1000/07

- 8) Determine distances and level of protective actions based upon DW (Step 7) and  $\Delta T^{\circ}F$  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  $\Delta T^{\circ}F$ . 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.

	$\Delta T^{\circ}F$	DW	DW	DW	DW
A)	$-\infty$ to -1.3	$\leq 2.09E5$	2.09E5 to 7.8E5	7.8E5 to 3.9E6	$> 3.9E6$
B)	-1.2 to -1.0	$\leq 5.4E3$	5.4E3 to 2.70E4	2.7E4 to 3.2E5	$> 3.2E5$
C)	-0.9 to -0.4	$\leq 2.09E3$	2.09E3 to 1.04E4	1.04E4 to 7.4E4	$> 7.4E4$
D)	-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)	
			No action for 4-10 miles	Evacuate children and pregnant women 4-10 miles (Downwind areas with suffix 2)	Evacuate everyone 4-10 miles (Downwind areas with suffix 2)

Example: If  $\Delta T^{\circ}F$  is -1.1 and DW is 2.9E4, evacuate everyone from 0-4 miles and children and pregnant women from 4-10 miles.

ENCLOSURE 4.2  
AP/O/B/1000/07

9) a) Is wind speed  $\geq 5$  mph?

☐ If yes, use table in Step 9 b.

☐ If no, assume Sectors A1, B1, C1, D1, E1, and F1 are affected. Then use Table 9b to determine additional areas to be evacuated out beyond 4 miles.

b) Wind direction (from) and wind speed - 15 minute average.

Reverify every 15 minutes.

1st 15 min. average \_\_\_\_\_°; \_\_\_\_\_ mph

2nd 15 min. average \_\_\_\_\_°; \_\_\_\_\_ mph

3rd 15 min. average \_\_\_\_\_°; \_\_\_\_\_ mph

4th 15 min. average \_\_\_\_\_°; \_\_\_\_\_ mph

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

ENCLOSURE 4.2

AP/O/B/1000/07

- c) Letter prefixes of areas on evacuation map to be evacuated \_\_\_\_\_.
- 10) Combine the numbers determined in Step 8 with the letters from Step 9 to determine which sectors of evacuation map to evacuate.

Children and pregnant women \_\_\_\_\_

Everyone \_\_\_\_\_

NOTE: 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 time of day is not between 1000 hrs and 1600 hrs. Apply the DT value from Step 5 on the table below. Read the corresponding action in the column to the right and record.

DT	PROTECTIVE ACTION
$\leq 610$	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 \_\_\_\_\_

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

ENCLOSURE 4.2

AP/O/B/1000/07

Additional Notes or Comments

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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Page 1 of 1

Time/Date \_\_\_\_\_

ENCLOSURE 4.3

OCONEE NUCLEAR STATION

OFFSITE DOSE CALCULATION

VENT RELEASE; NO LOCA

AP/O/B/1000/7

Unit \_\_\_\_\_

Calculation performed by \_\_\_\_\_

TIME DATE

1) A) Now \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

B) Incident \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_

C) Hours Since Incident \_\_\_\_\_

2) Meteorology Data - 15 minute average.

NOTE: Sources of data are listed in order of preference. If the first choice is unavailable, use the second choice, etc. Fill in only one blank for each data point.

(A)  $\Delta T(^{\circ}\text{F})$  1) Tower \_\_\_\_\_ $^{\circ}\text{F}$

2) Use a  $\Delta T$  of  $0.4^{\circ}\text{F}$  if tower  $\Delta T$  is not available.

(B) Wind Direction 1) Tower \_\_\_\_\_ $^{\circ}$

2) River \_\_\_\_\_ $^{\circ}$

3) National Weather Service \_\_\_\_\_ $^{\circ}$

(C) Wind Speed 1) Tower \_\_\_\_\_mph

2) River \_\_\_\_\_mph

3) National Weather Service \_\_\_\_\_mph

NOTE: National Weather Service data is a standard observation, not a 15 minute average and is updated only once per hour.

ENCLOSURE 4.3

AP/O/B/1000/07

- 3) Determine through which unit vent(s) (if any) activity is being released. Vent releases may occur on all three units' vents simultaneously since the Oconee Auxiliary Building is one enclosure with three vents. Vent release on Unit(s) \_\_\_\_\_.
- 4) Record the following information for the affected unit(s) vent monitors identified in Step 3.

	Unit 1	Unit 2	Unit 3
Unit Vent Flow (Fv) (A0946)	_____ cfm	_____ cfm	_____ cfm
RIA-45 (A1679)	_____ cpm	_____ cpm	_____ cpm
RIA-46 (if > 10 cpm) (A1680)	_____ cpm	_____ cpm	_____ cpm
RIA-44* (R-1678)			
a) -Start of time period	_____ cpm	_____ cpm	_____ cpm
-count rate	_____ cpm	_____ cpm	_____ cpm
b) -end of time period	_____ cpm	_____ cpm	_____ cpm
-count rate	_____ cpm	_____ cpm	_____ cpm
c) -Δ time	_____ min	_____ min	_____ min
-Δ cpm	_____	_____	_____

NOTE: If the RIA Chart is used as a reference use the 15 minute interval during the last hour that had the greatest increase in RIA-44 counts. RIA-44 rate of increase may be read directly from the computer. (R-1678)

- 5) Multiply unit vent flow times the RIA readings and add to the results as follows for the affected units' vents.

a) Noble Gas (NG)

RIA-45

Fv x RIA-45 (cpm)

U-1 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_  
 U-2 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_  
 U-3 \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_  
 total RIA-45 = \_\_\_\_\_

## ENCLOSURE 4.3

AP/O/B/1000/07

RIA-46Fv x RIA-46 (cpm)

U-1     x     =     \_\_\_\_\_

U-2     x     =     \_\_\_\_\_

U-3     x     =     \_\_\_\_\_

total RIA-46 = \_\_\_\_\_

NG = [total RIA-45 x 1.71 E-8] + [total RIA-46 x 6.82E-4]

NG = \_\_\_\_\_ (record this value on Step 6)

b) Iodine Vent (I<sub>T</sub>)RIA-44Fv x  $\frac{\Delta \text{RIA-44 (cpm)}}{\Delta \text{time (min)}}$ 

U-1     x     =     \_\_\_\_\_

U-2     x     =     \_\_\_\_\_

U-3     x     =     \_\_\_\_\_

total RIA-44 = \_\_\_\_\_

I<sub>T</sub> = total RIA-44 x 2.76E-7I<sub>T</sub> = \_\_\_\_\_ (record this value on Step 6)6) Calculate DT by comparing Total Iodine (I<sub>T</sub>) vs Noble Gas (NG)I<sub>T</sub> (Step 5b) = \_\_\_\_\_ NG (Step 5a) = \_\_\_\_\_DT = if I<sub>T</sub> > NG, DT = I<sub>T</sub>  
if I<sub>T</sub> < NG, DT = NG

DT = \_\_\_\_\_

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

If yes, go to Step 8.

If no, go to Step 12.



## ENCLOSURE 4.3

AP/0/B/1000/07

- 8) Calculate DW (wind determined dose) based upon DT (Step 6) and WS (wind speed).

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

- 9) Determine distances and level of protective actions based upon DW (Step 8) and  $\Delta T^{\circ}F$  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  $\Delta T^{\circ}F$ . 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.

	$\Delta T^{\circ}F$	DW	DW	DW	DW
A)	$-\infty$ to -1.3	$\leq 2.09E5$	2.09E5 to 7.8E5	7.8E5 to 3.9E6	$> 3.9E6$
B)	-1.2 to -1.0	$\leq 5.4E3$	5.4E3 to 2.70E4	2.7E4 to 3.2E5	$> 3.2E5$
C)	-0.9 to -0.4	$\leq 2.09E3$	2.09E3 to 1.04E4	1.04E4 to 7.4E4	$> 7.4E4$
D)	-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)	
			No action for 4-10 miles	Evacuate children and pregnant women 4-10 miles (Downwind areas with suffix 2)	Evacuate everyone 4-10 miles (Downwind areas with suffix 2)



ENCLOSURE 4.3

AP/O/B/1000/07

Example: If  $\Delta T^{\circ}F$  is -1.1 and DW is 2.9E4, evacuate everyone from 0-4 miles and children and pregnant women from 4-10 miles.

10) a) Is wind speed  $\geq 5$  mph?

☐ If yes, use table in Step 10 b.

☐ If no, assume Sectors A1, B1, C1, D1, E1, and F1 are affected. Then use Table 10b to determine additional areas to be evacuated out beyond 4 miles.

b) Wind direction (from) and wind speed - 15 minute average.

Reverify every 15 minutes.

1st 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

2nd 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

3rd 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

4th 15 min. average \_\_\_\_\_ $^{\circ}$ ; \_\_\_\_\_ mph

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.

## ENCLOSURE 4.3

AP/O/B/1000/07

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 \_\_\_\_\_.
- 11) Combine the numbers determined in Step 9 with the letters from Step 10 to determine which sectors of evacuation map to evacuate.
- Children and pregnant women \_\_\_\_\_
- Everyone \_\_\_\_\_

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

- 12) Use the table below if time of day is not between 1000 hrs and 1600 hrs. Apply the DT value from Step 6 on the table below. Read the corresponding action in the column to the right and record.

## ENCLOSURE 4.3

AP/C/B/1000/07

DT	PROTECTIVE ACTION
$\leq 610$	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 \_\_\_\_\_

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

Additional Notes or Comments

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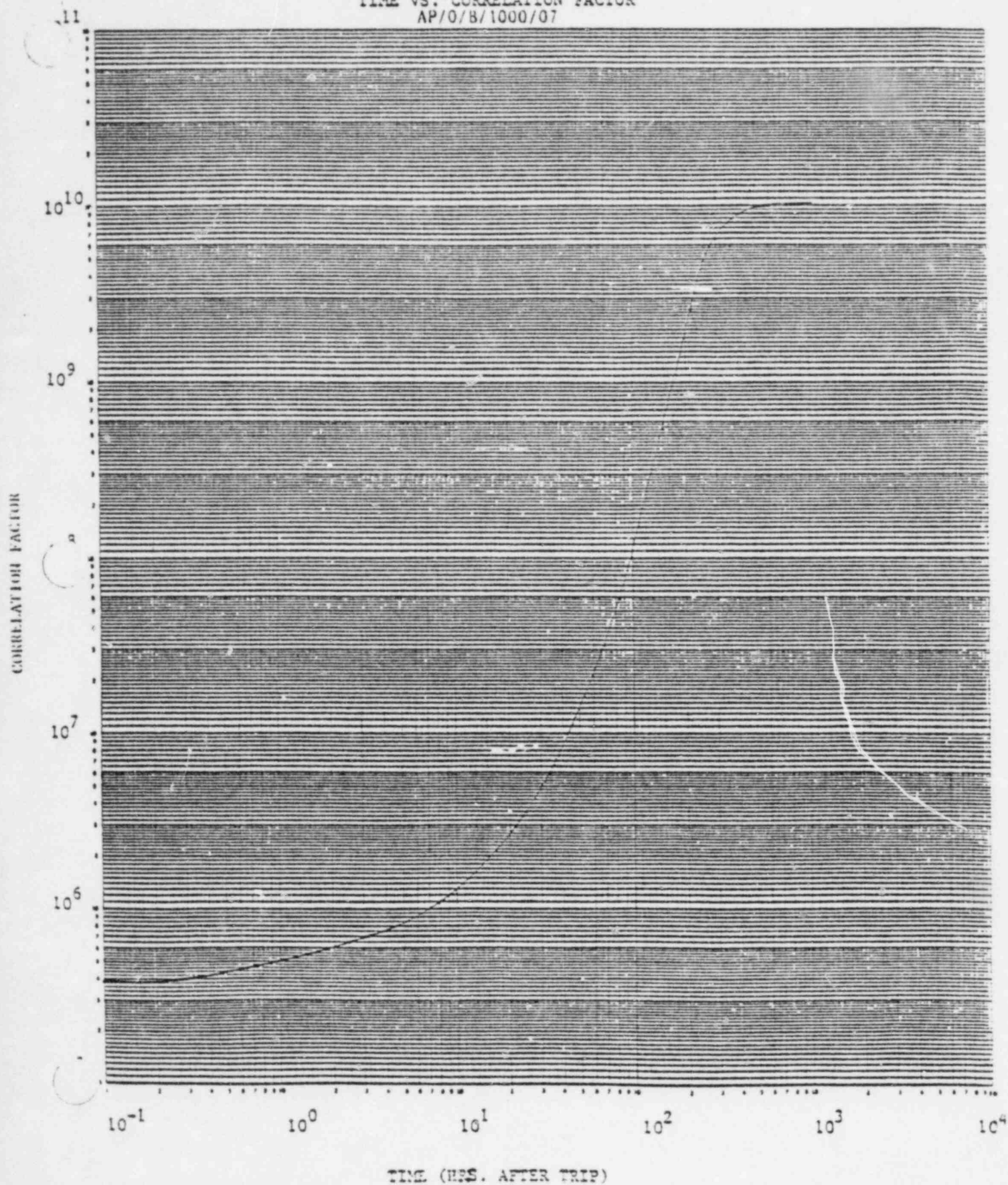
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ENCLOSURE 4.4  
SURVEY INSTRUMENT CORRELATION CURVE  
TIME VS. CORRELATION FACTOR  
AP/0/8/1000/07



Time \_\_\_\_\_

Page 1 of 1

Date \_\_\_\_\_

Checked Control Copy \_\_\_\_\_ ENCLOSURE 4.5

STABILITY CLASS

AP/0/B/1000/07

1) $\Delta T$	<u>Stability Class</u>
$-\infty$ to -1.3	A
-1.2 to -1.0	C
-0.9 to -0.4	D
-0.3 to +0.9	E
+1.0 to $+\infty$	F

NOTE: Circle current atmospheric stability class. This information is used in the "warning message" to offsite agencies.

Checked With Control Copy \_\_\_\_\_

Time/Date \_\_\_\_\_

ENCLOSURE 4.6  
OCONEE NUCLEAR STATION  
OFFSITE DOSE CALCULATION  
USING COMPUTER DOSE  
ASSESSMENT PROGRAM

Unit \_\_\_\_\_

Calculation Performed By \_\_\_\_\_

1. Dose Assessment Program (DAP) is general panel program 23 and is available from all panels. The available options are select and abort.
2. Upon initial entry, all inputs associated with the dose assessment procedure will be displayed. Values for the last four (4) items displayed are manual inputs and therefore must be entered by the operator. These manual inputs must be entered only in the applicable unit's computer with correct data for that unit. Unit Stack Flow, RIA 44, RIA 45, and RIA 46 values are data linked between the three units' computers. These computer points should be verified by comparing to actual values on all three units before the program dose assessment is initiated:  
  
A0946. RBV Unit Stack Flow  
A1678 RIA 44 Unit Vent Iodine  
A1679 RIA 45 Unit Vent Gas LR  
A1680 RIA 46 Unit Vent Gas FR
3. To insert values for the manual inputs, the line finder should be positioned to the appropriate item and the value keyed in. If the line finder is not positioned to a valid line, the "Posn LF" message will be blinked.



## ENCLOSURE 4.6

Shutdown time must be entered in military time (HHMM) and shutdown date must be entered in a MMDDYY form. Shutdown time and date will be validity checked and if found to be invalid, the instruction message will be blinked. Reactor Building DR (dose rate) by either a) or b).

- a) Containment high range radiation monitor (RIA-57 or RIA-58)

\_\_\_\_\_ R/hr.

- b) PIC-6-A (or similar hand held survey instrument) reading x correlation value (Encl. 4.5).

Survey Inst. \_\_\_\_\_ x Corr. value \_\_\_\_\_ = DR \_\_\_\_\_ R/hr.

NOTE: A reading on the survey instrument  $< 0.3$  R/hr would indicate that the release source term used for the "warning message" to offsite agencies is a gap activity release.

NOTE: A reading on the survey instrument  $> 0.3$  R/hr would indicate that the release source term used for the "warning message" to offsite agencies is a design basis accident.

4. After all necessary inputs have been entered, the operator may initiate the dose assessment by positioning the line finder to the designated line and pressing the ENTER button. If any inputs are found to be invalid, the following message will be output on the VIDEO and DAP will turn off:

DUE TO INVALID DATA, DOSE ASSESSMENT  
CANNOT BE DETERMINED AT THIS TIME

5. After initiation, DAP will printout on the typer associated with the calling panel the inputs, calculated time factor, corrected dose rate value, stability class and the recommended protection actions to be taken.

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24

INFORMATION ONLY

DUKE POWER COMPANY  
PROCEDURE PREPARATION  
PROCESS RECORD

(1) ID No 22/0/3/1000/10  
Change(s) 0 to  
0 Incorporated

- (2) STATION: Oconee
- (3) PROCEDURE TITLE: Procedure for Emergency Evacuation of Station Personnel  
Technical Support Center
- (4) PREPARED BY: Colma C. Springs DATE: 11/16/83
- (5) REVIEWED BY: RTB DATE: 11/16/83  
Cross-Disciplinary Review By: \_\_\_\_\_ N/R: RTB
- (6) TEMPORARY APPROVAL (IF NECESSARY):  
By: \_\_\_\_\_ (SRO) Date: \_\_\_\_\_  
By: \_\_\_\_\_ Date: \_\_\_\_\_
- (7) APPROVED BY: Ed Smith Date: 11/16/83
- (8) MISCELLANEOUS:  
Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_  
Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



DUKE POWER COMPANY

OCONEE NUCLEAR STATION

PROCEDURE FOR EMERGENCY EVACUATION OF STATION PERSONNEL

TECHNICAL SUPPORT CENTER

The purpose of this procedure is to set guidelines for dealing with an emergency evacuation should it become necessary for non-essential personnel to be evacuated during a radiological emergency.

1.0 Symptoms

- 1.1 All members of the general public, and other persons who are not subject to occupational radiation exposure at Oconee Nuclear Station must be evacuated if they are likely to be exposed to doses in excess of:

- 1) External Radiation Level > 2 mrems in any one hour
- 2) Airborne Radioactivity > 1 x mpc for an unrestricted area (10CFR20, Appendix B, Table II)

- 1.2 Personnel subject to occupational radiation exposure at Oconee Nuclear Station who are not a part of the Emergency Response Organization will be evacuated if they are likely to be exposed to unplanned doses in excess of:

- 1) External Radiation Level > 2.5 mrem/hr 100 mrems/week, or 1250 mrems in a quarter
- 2) Airborne Radioactivity > equivalent amount inhaled for 40 hours/week for 13 weeks at 1 mpc (10CFR20, Section 20.103 and Appendix B, Table 1)

2.0 Immediate Action

2.1 Automatic

- 2.1.1 Not applicable

2.2 Manual

- 2.2.1 When it is determined that the emergency situation requires station evacuation, the Emergency Coordinator (Station Manager or Shift Supervisor) shall:

- \_\_\_\_\_ 2.2.1.1 Determine evacuation route using meteorological information available and local area maps.
- \_\_\_\_\_ 2.2.1.2 Determine offsite assembly location. Health Physics Surveillance and Control personnel should obtain the keys to the appropriate school from

Security. Keys are located in the Security-Controlled Key Box in the Unit #3 Shift Supervisor's office.

- \_\_\_\_\_ 2.2.1.3 Determine re-entry routes to be used for entry into the station.
- \_\_\_\_\_ 2.2.1.4 Work with available group representatives; make a determination of station support staff required to safely operate the station and deal with an emergency.
- \_\_\_\_\_ 2.2.1.5 Prepare instructions to be relayed to onsite personnel.
- \_\_\_\_\_ 2.2.1.6 Direct Health Physics personnel to implement emergency surveillance and decontamination plans for personnel and vehicle evacuation.
- \_\_\_\_\_ 2.2.1.7 Provide information determined in 2.2.1.1 through 2.2.1.4 to senior group/area supervisors onsite for distribution to station personnel.
- \_\_\_\_\_ 2.2.1.8 Direct the sounding of the station evacuation alarm and announcement of evacuation instructions over the Public Address System.
- \_\_\_\_\_ 2.2.1.9 Direct Station Security to patrol the station general areas to assure evacuation instructions have been carried out.

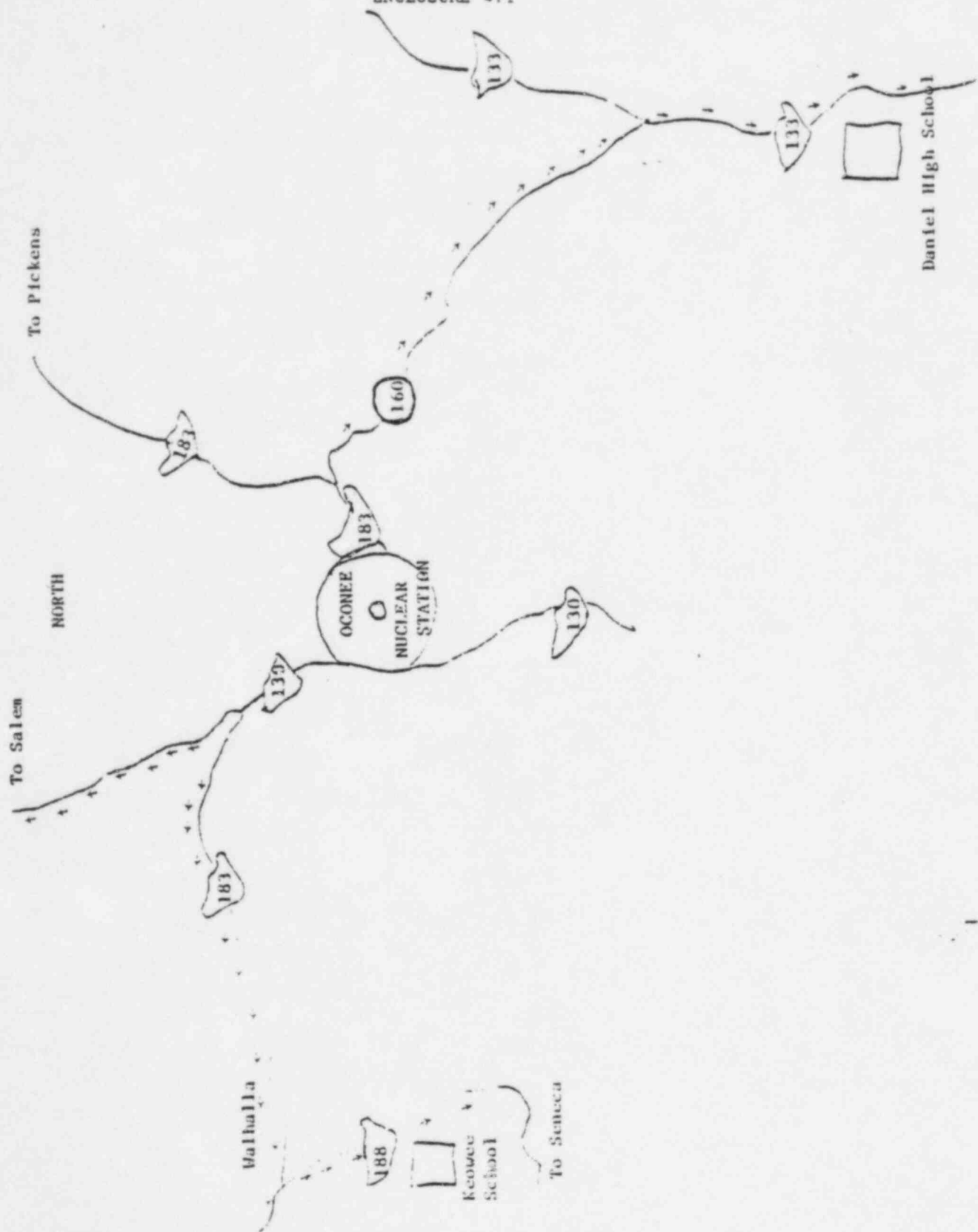
### 3.0 Subsequent Action

- \_\_\_\_\_ 3.1 Station Security will set up the evacuation exit points from the station.
- \_\_\_\_\_ 3.2 The Appropriate County EOC will be made aware that the station is being evacuated so that law enforcement escort can be provided. Officers will be required to properly secure the area so that processing may be carried out in an orderly manner. Supervisory personnel evacuated to the remote area will assist in maintaining order and control.
- \_\_\_\_\_ 3.3 Health Physics will monitor and decontaminate personnel and vehicles in accordance with HP/O/B/1009/16, both onsite and offsite.
- \_\_\_\_\_ 3.4 If personal vehicles cannot be used for evacuation, the Emergency Coordinator shall arrange for bus transportation through the Anderson Retail Office. See Emergency Telephone Directory located in TSC Emergency Procedure Cart.
- \_\_\_\_\_ 3.5 Once transportation has been determined, evacuation will take place as declared by the Emergency Coordinator using routes determined from meteorological information.

4.0 Enclosures

4.1 Emergency Evacuation Routes from Station

OCONEE NUCLEAR STATION  
ENCLOSURE 4.1



Form SPD-1002-1

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DUKE POWER COMPANY  
PROCEDURE PREPARATION  
PROCESS RECORD

(1) ID No: PT/0/3/2000/04  
Change(s) 2 to  
2 Incorporated

- (2) STATION: Oconee
- (3) PROCEDURE TITLE: Procedure for Establishment and Inspection of the Technical Support Center
- (4) PREPARED BY: Colman B. Jennings DATE: 11/14/83
- (5) REVIEWED BY: R.T.B. DATE: 11/16/83  
Cross-Disciplinary Review By: \_\_\_\_\_ N/R: R.T.B.
- (6) TEMPORARY APPROVAL (IF NECESSARY):  
By: \_\_\_\_\_ (SRO) Date: \_\_\_\_\_  
By: \_\_\_\_\_ Date: \_\_\_\_\_
- (7) APPROVED BY: J.D. Smith Date: 11/16/83
- (8) MISCELLANEOUS:  
Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_  
Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

DUKE POWER COMPANY  
OCONEE NUCLEAR STATION  
PROCEDURE FOR ESTABLISHMENT  
AND INSPECTION OF THE  
TECHNICAL SUPPORT CENTER

1.0 Purpose

This procedure provides for the establishment of the Technical Support Center and for quarterly inspection of emergency equipment and supplies necessary to activate the Technical Support Center and specifies the inspection frequency and documentation requirements.

2.0 References

2.1 Oconee Nuclear Station Emergency Plan

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

3.0 Time Required

3.1 Varied/quarterly test.

4.0 Prerequisite Test

4.1 Not applicable

5.0 Test Equipment

5.1 Not applicable

6.0 Limits and Precautions

6.1 Maintain record of all documentation for a minimum of five years.

6.2 Ascertain availability of the phone line to be checked.

7.0 Required Station Status

7.1 Not applicable

8.0 Prerequisite System Conditions

8.1 Not applicable

## 9.0 Test Method

- 9.1 All emergency supplies, equipment, and telephone numbers that would be used upon activation of the Technical Support Center are to be inspected and/or reviewed on a quarterly basis.

## 10.0 Data Required

- 10.1 Not applicable

## 11.0 Acceptance Criteria

- 11.1 Periodic quarterly inspection of supplies and emergency equipment and quarterly review of telephone directories must comply with the regulations as specified in the Oconee Nuclear Station Emergency Plan and as required by NUREG 0654.

## 12.0 Procedure

- 12.1 Use enclosures listed in 13.0 as a guide to inspect the following emergency equipment and supplies:

- 12.1.1 Verify all items for the Technical Support Center Telephone Communication System on Enclosure 13.2 are available and operational.
- 12.1.2 Verify that the Emergency Telephone Directories are current.
- 12.1.3 Verify that all supplies as designated in Enclosure 13.1 are on hand for the activation of the Technical Support Center.
- 12.1.4 Verify that all drawings located in the Technical Support Center are up to date. Use 13.7 as a guide.

- 12.2 Use enclosures listed in 13.0 as a guide for setting up the Technical Support Center during an emergency, drill, and/or exercise:

- 12.2.1 Each Superintendent shall be responsible for having his emergency telephone system switched to the Technical Support Center and/or Operational Support Center.
  - 12.2.1.1 The phones for the Technical Support Center/ Operational Support Center shall be set up according to the Check-Off List in Enclosure 13.2.
- 12.2.2 Follow Check-Off List for setting up the Technical Support Center, Enclosure 13.6, to determine that equipment, supplies, documents, manuals, procedures are in place.
- 12.2.3 All supplies shall be inspected after the emergency, drill and/or exercise and replenished as necessary.

13.0 Enclosures

13.1 Inventory List Checkoff

13.2 Check-off List for Setting up the Phone System in the Technical Support Center

13.3 General Arrangement of Technical Support Center

13.4 General Arrangement of Operational Support Center

13.5 Emergency Telephone Switching Diagram

13.6 Check off List for Setting up the Technical Support Center

13.7 Drawings in the Technical Support Center



TECHNICAL SUPPORT CENTER  
INVENTORY LIST  
ENCLOSURE 13.1

	<u>Date</u>	<u>Name</u>
13.1.1	_____	24 Telephones
13.1.2	_____	Drawings (Enclosure 13.6)
13.1.3	_____	2 Base Station Radios (a) Battery - Check dates and/or replace
13.1.4	_____	Telephone Directories
	_____	25 Station Directories
	_____	5 Corporate Directories
	_____	25 Emergency Telephone Directories
	_____	1 NRC Directories
	_____	2 Local Municipal Directories
13.1.5	_____	4 Reams Copy Machine Paper
13.1.6	_____	1 Box Telecopier Paper
13.1.7	_____	20 Pads (writing)
13.1.8	_____	2 Boxes Pencils
13.1.9	_____	2 Boxes Ball Point Pens
13.1.10	_____	1 7½ volt hand-held light
13.1.11	_____	2 Staplers
13.1.12	_____	2 Boxes Staples
13.1.13	_____	1 Box Chalk
13.1.14	_____	1 Eraser
13.1.15	_____	4 Grease Pencils
13.1.16	_____	2 Logbooks
13.1.17	_____	1 Package Rubber Bands
13.1.18	_____	1 Box Colored Magic Markers
13.1.19	_____	50 Bottles KI Tablets
13.1.20	_____	1 Box 12" Printer Paper
13.1.21	_____	1 Box Diskettes

NOTE: Emergency supplies (minimum quantities inventoried) will be restocked after any emergency or after any drill or exercise where the Technical Support Center was activated.

OCONEE NUCLEAR STATION

ENCLOSURE 13.2

CHECK OFF LIST FOR SETTING UP THE PHONE SYSTEM  
IN THE TSC AND OSC

Date \_\_\_\_\_

Name \_\_\_\_\_

Time	Phone Number	Response	Time	Phone Number	Response
_____	1669 (1 & 3)	VAX	_____	1111	Emergency Response
_____	1670 (1 & 3)	VAX	_____	1212	Administration
_____	1138	Dose Evaluator	_____	1233	Clerical Support
_____	1417	Environmental	_____	1227	Maintenance
_____	1178	Dose Control	_____	1219	I & E
_____	1179	Support Functions	_____	1216	OSC
_____	1409	Performance	_____	1223	NM
_____	1229	Compliance	_____	1211	Station Manager
_____	1210	Operations	_____	882-8076	Station Manager
_____	1213	Tech. Serv.	_____	1151	Medical
_____	1234	Station HP	_____	1189	I & E (Shift)
_____	ENS	NRC (HDQ.)	_____	1440	NM (Shift)
_____	HPN	NRC	_____	RINGDOWN	County EPZ
_____	1140	B & W	_____	1108	NRC Res. Insp.
_____	1244	Offsite Communicator	_____	1519	S & C Coordinator

1. If the procedure is performed during a normal weekday, contact the persons with the phones listed above to make them aware that the line will be out of service for approximately 2 hours. Switch phone lines in accordance with directions given on Enclosure 13.5.
2. Secure key from Shift supervisor to TSC Cabinet. Check each phone to make sure that a dial tone exists and that the phone line is operable -- incoming and outgoing. Lock boxes and return the system to normal service.
3. Note problems encountered and list on Procedure Discrepancy Process Record.

DUKE POWER COMPANY  
EMERGENCY RESPONSE FACILITIES  
OCONEE NUCLEAR STATION

## ENCLOSURE 13.3

## TECHNICAL SUPPORT CENTER \*

## Communication System Includes:

Outside Line (Southern Bell System)

ONS Switchboard

Microwave

Radio

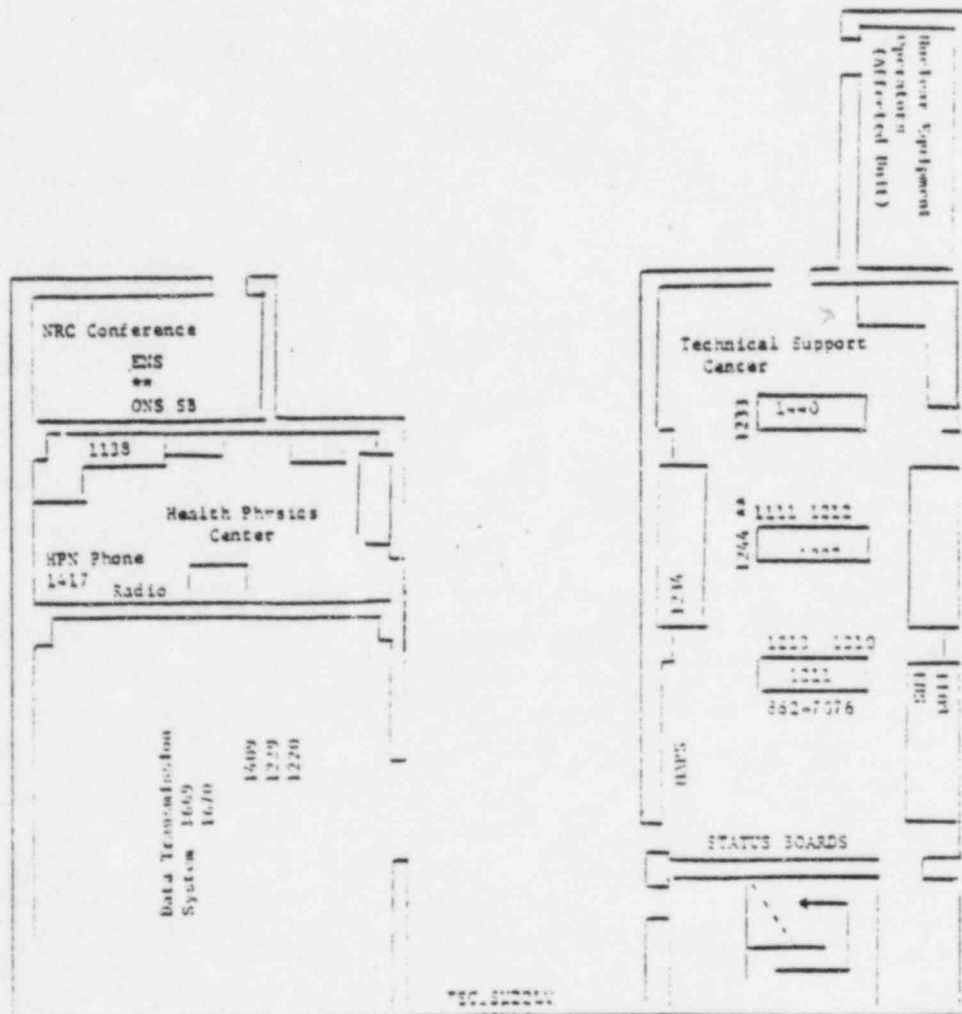
Computer (OAC, VAX, TSO)

Telecopier

ENS System (Red Phone)

HPN System (Health Physics - NRC)

\*\*Ringdown Phone to Offsite Agencies (State FEOC, Oconee EOC, Pickens EOC)



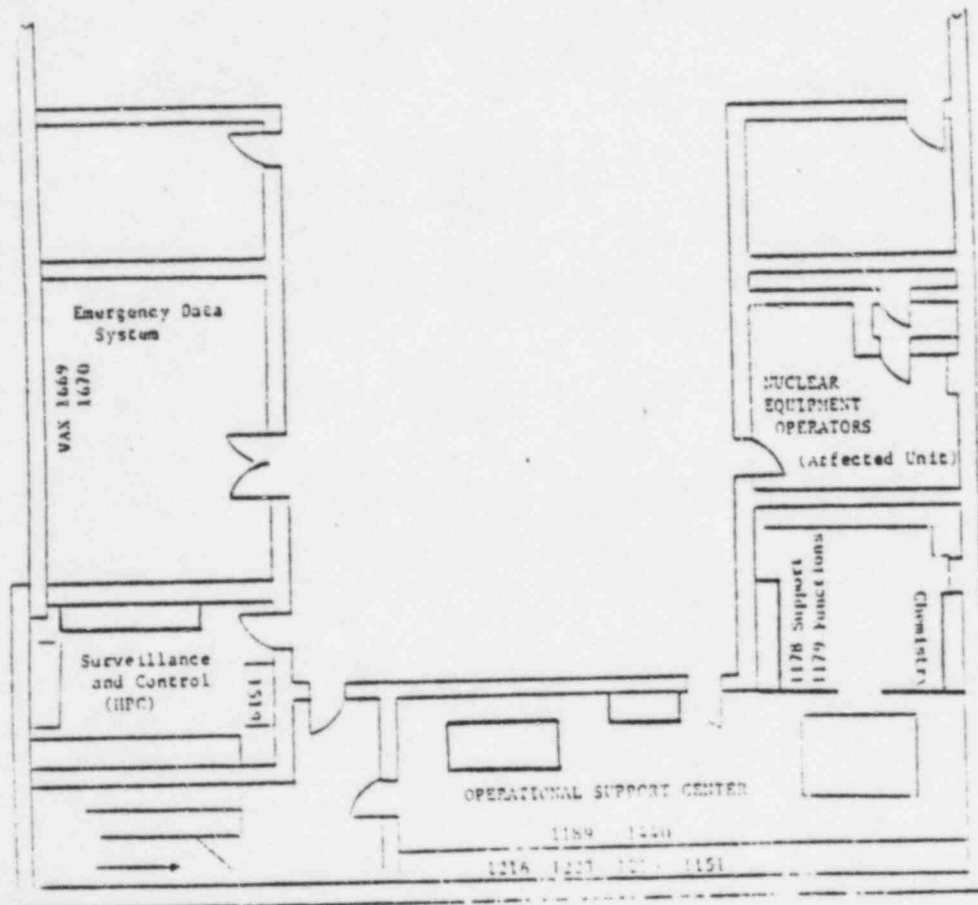
\*The areas designated as the Technical Support Center have the same ventilation and shielding as the Control Room.

PT/O/B/2000/04

DUKE POWER COMPANY  
EMERGENCY RESPONSE FACILITIES  
OCONEE NUCLEAR STATION  
ENCLOSURE 13.4  
OPERATIONAL SUPPORT CENTER\*  
LOCATION: UNIT #3 I&E SHOP

COMMUNICATION:

ONS Switchboard  
Microwave



\*The area designated as the Operational Support Center has the same ventilation and shielding as the Control Room. Provisions for protective clothing and breathing apparatus have been established.



## OCONEE NUCLEAR STATION

Check-off list for setting up the Technical Support Center

## ENCLOSURE 13.6

Date/TimeName

- 13.6.1     Set up phones - (Determine that phones have been switched in the telephone room in the Administration Building.)
- 13.6.2     Set up radio.
- 13.6.3     Check off list of Documents needed.
- Emergency Plan & Implementing Procedures
- Crisis Management Plan
- Pickens & Oconee Emergency Plan
- Technical Specifications
- FSAR
- General Arrangement Drawings
- Emergency Planning Zone maps and nomographs
- Safety related structures, systems and components
- Station Directives
- Administrative Policy Manual
- Various I&E Drawings
- Site Drawings
- Emergency Procedures
- Plant Operations Drawings
- Fire Plan
- 13.6.4     Paper & pads, pencils & pens, notebooks.
- 13.6.5     Set up TSC Logbook.
- 13.6.6     Determine if everyone has been called that is a part of the emergency response organization.
- 13.6.7     Notification Procedures
- Message forms available
- Authentication Procedures available

## OCCONEE NUCLEAR STATION

Check-off list for setting up the Technical Support Center

## ENCLOSURE 13.6 (Cont'd)

Date/TimeName

- \_\_\_\_\_ Crisis Telephone Directory
- \_\_\_\_\_ 13.6.8 Verify that Security is at the Control Room entrances.
- \_\_\_\_\_ Control access points.
- \_\_\_\_\_ 13.6.9 Set up Data Displays for information update in TSC, HPC, OSC.
- \_\_\_\_\_ Assign someone to keep the information posted.
- 13.6.10 VAX system on line and operable.
- \_\_\_\_\_ Plant Data system available
- 13.6.11 Transmission of information
- \_\_\_\_\_ Telecopier operable
- \_\_\_\_\_ Copier operable
- \_\_\_\_\_ 13.6.12 Drawings listed on Enclosure 13.6 taken out of cabinet and placed in TSC and OSC.
- \_\_\_\_\_ 13.6.13 Operational Support Center
- \_\_\_\_\_ Personnel in place
- \_\_\_\_\_ Supplies/first aid kits available
- \_\_\_\_\_ Survey instruments available
- \_\_\_\_\_ Dosimetry (low-range)
- \_\_\_\_\_ Dosimetry (high-range)

DRAWINGS IN TECHNICAL SUPPORT CENTER  
ENCLOSURE 13.7

<u>Date/ Name</u>				<u>Document Control/Date</u>
DRAWING NUMBER		TITLE		
0-1	_____	13.7.1	Site Plan	
0-2	_____	13.7.2	General Plan	
0-3	_____	13.7.3	Plot Plan	
0-5	_____	13.7.4	General Arrangement, Plan Elevation 758 + 0	
0-6	_____	13.7.5	General Arrangement, Plan Elevation 771 + 0	
0-7	_____	13.7.6	General Arrangement, Plan Elevation 783 + 9	
0-8	_____	13.7.7	General Arrangement, Plan Elevation 796 + 6	
0-9	_____	13.7.8	General Arrangement, Plan Elevation 809 + 3	
0-10	_____	13.7.9	General Arrangement, Plan Elevation 822 + 0	
0-11	_____	13.7.10	General Arrangement, Plan Elevation 838 + 0	
0-12-A	_____	13.7.11	General Arrangement, Cross Section	
0-12-B	_____	13.7.12	General Arrangement, Cross Section	
0-12B-V	_____	13.7.13	General Arrangement, Cross Section	
0-12-C	_____	13.7.14	General Arrangement, Longitudinal Section	
0-13	_____	13.7.15	General Arrangement, Turbine Basement	
0-14	_____	13.7.16	General Arrangement, Turbine Mezzanine	
0-15	_____	13.7.17	General Arrangement, Turbine Operating Floor	
0-16	_____	13.7.18	General Arrangement, Auxiliary 758 + 0	
0-17A	_____	13.7.19	General Arrangement, Auxiliary 771 + 0	
0-17B	_____	13.7.20	General Arrangement, Auxiliary 771 + 0	
0-18A	_____	13.7.21	General Arrangement, Auxiliary 783 + 9	
0-18B	_____	13.7.22	General Arrangement, Auxiliary 783 + 9	
0-18C	_____	13.7.23	General Arrangement, Spent Fuel Pool	
0-460	_____	13.7.24	Unit 1 Reactor Building Basement 777 + 6	
0-461	_____	13.7.25	Unit 1 Reactor Building Ground Floor 797 + 6	



<u>Date/ Name</u>			
DRAWING NUMBER		TITLE	
0-462	_____	13.7.26	Unit 1 Reactor Building Intermediate Floor 825 + 0
0-463	_____	13.7.27	Unit 1 Reactor Building Operating Floor 844 + 6
0-464	_____	13.7.28	Unit 1 Reactor Building Shielding 861 + 6
0-465	_____	13.7.29	Unit 1 Reactor Building Sectional View North
0-466	_____	13.7.30	Unit 1 Reactor Building Sectional View East
0-467	_____	13.7.31	Unit 1 Reactor Building Sections
0-468	_____	13.7.32	Unit 1 Reactor Building Accessible Areas
0-1013	_____	13.7.33	General Arrangement Turbine Building - Basement
0-1014	_____	13.7.34	General Arrangement Turbine Building - Mezzanine
0-1015	_____	13.7.35	General Arrangement Turbine Building - Operating Floor
0-1460	_____	13.7.36	Unit 2 Reactor Building Basement 777 + 6
0-1461	_____	13.7.37	Unit 2 Reactor Building Ground 797 + 6
0-1462	_____	13.7.38	Unit 2 Reactor Building Intermediate 825 + 0
0-1463	_____	13.7.39	Unit 2 Reactor Building Operating Floor 844 + 6
0-1464	_____	13.7.40	Unit 2 Reactor Building Top of Shielding 861 + 6
0-1465	_____	13.7.41	Unit 2 Reactor Building Sectional View South
0-1466	_____	13.7.42	Unit 2 Reactor Building Sectional View East
0-1467	_____	13.7.43	Unit 2 Reactor Building Section
0-1468	_____	13.7.44	Unit 2 Reactor Building Accessible Areas
0-2460	_____	13.7.45	Unit 3 Reactor Building Basement 777 + 6
0-2461	_____	13.7.46	Unit 3 Reactor Building Ground Floor 797 + 6
0-2462	_____	13.7.47	Unit 3 Reactor Building Intermediate Floor 825 + 0
0-2463	_____	13.7.48	Unit 3 Reactor Building Operating Floor 844 + 6
0-2464	_____	13.7.49	Unit 3 Reactor Building Top of Shielding 861 + 6
0-2465	_____	13.7.50	Unit 3 Reactor Building Sectional View South
0-2466	_____	13.7.51	Unit 3 Reactor Building Sectional View East
0-2467	_____	13.7.52	Unit 3 Reactor Building Section

# INFORMATION ONLY

Form 34731 (10-81)  
(Formerly SPD-1002-1)

## DUKE POWER COMPANY PROCEDURE PREPARATION PROCESS RECORD

(1) ID No: IP/O/B/1601/3  
Change(s) 7 to  
7 Incorporated

(2) STATION: Oconee

(3) PROCEDURE TITLE: Environmental Equipment Checks

(4) PREPARED BY: John Sambrall DATE: 9-2-83

(5) REVIEWED BY: Bill McPhee RAK DATE: 9/6/83

Cross-Disciplinary Review By: \_\_\_\_\_ N/R: UCM

(6) TEMPORARY APPROVAL (IF NECESSARY):

By: \_\_\_\_\_ (SRO) Date: \_\_\_\_\_

By: \_\_\_\_\_ Date: \_\_\_\_\_

(7) APPROVED BY: Joe M. Quinn Date: 9/28/83

(8) MISCELLANEOUS:

Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed/Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

DUKE POWER COMPANY  
OCONEE NUCLEAR STATION  
ENVIRONMENTAL EQUIPMENT CHECKS

1.0 Purpose

- 1.1 To furnish a procedure for documentation of weekly data collection and equipment functional checks.

2.0 References

- 2.1 Duke Dwg. O-714-D, O-829, O-829-A

3.0 Test Equipment Required

- 3.1 Portable psychrometer

4.0 Prerequisites (Sign-offs on Enclosure 11.1)

- 4.1 This procedure should not be performed during a gaseous waste release period.
- 4.2 Supervisor has reviewed and initialed all portions of this procedure which are not applicable to the activity being performed. The Supervisor's review is not required if the procedure specifies sections to be omitted.
- 4.3 Verify that all changes in the Control Copy are incorporated in the Working Copy.
- 4.4 This procedure must be retyped within 30 days of any approved change.
- 4.5 A copy of the control copy must be sent to emergency preparedness coordinator any time a change is made.

5.0 Limits and Precautions

- 5.1 Use proper precautions while working with components that have high voltage or high pressure present.

6.0 Unit Status

N/A

## 7.0 General Description

The environmental equipment monitors the following parameters and records the information on individual chart recorders; wind speed, wind direction, air temperature, humidity, and amount of rainfall.

There are two meteorological monitoring stations for the wind speed and direction. Site #1 is located at the micro-wave tower and Site #2 is located adjacent to the river below Keowee discharge.

## 8.0 Major Components

<u>Description</u>	<u>Man. Ref.</u>
8.1 Four Esterline Angus Series "A" Analog Recorders	
8.2 One Leeds and Northrup Speedomax H&W Multipoint Recorder	OM-267-514
8.3 Two Teledyne Geotech Series 40 Wind Speed Modules	OM-333-274
8.4 Two Teledyne Geotech Series 40 Wind Direction Modules	OM-333-275
8.5 Two Teledyne Geotech Series 40 AC Power Supplies	OM-333-276
8.6 One Leeds and Northrup 3-Lead Resistance Temperature Detector (RTD) Air Temperature System	
8.7 One Belfort Instrument Company Hygro- thermograph Recorder	
8.8 One Belfort Instrument Company weighing Rain Gauge Recorder	

## 9.0 Equipment Specifications

Wind Speed	0-30 mph (60 and 90 mph selectable ranges)
Wind Direction	0-540 degrees
Ambient Air Temperature	-15 to 105°F
Temperature Differential	-30 to 30°F
Rainfall Gauge	0-12 in.

## 10.0 Procedure Instructions (Sign-offs on Enclosure 11.1)

NOTE: Use Control Room computer clock for all time recordings. Mark on charts all as found calibration points ( $R_z$  Found,  $T_z$  Found and F.S. Found) before adjustments are made. If adjustments are made, mark all as left calibration points ( $R_z$  Left,  $T_z$  Left and F.S. Left) on charts.

Perform as found string checks using the following procedure and complete Enclosure 11.3.a and b.

### 10.1 ONS Site 1

1. Check recorder zero on wind speed and direction recorders by turning translator power off. Rotate charts slowly and individually for good trace. Verify positions on recorders and note time and date. Mark " $R_z$  Found" on each chart beside the trace.
2. Return power on translator and check wind speed and direction Lo Cal. by placing modules in the Lo Cal. position. Rotate charts slowly and individually for good trace. Verify positions on recorders. Mark " $T_z$  Found" on each chart beside the trace.
3. Place the wind direction and wind speed module in the Hi Cal. position. Rotate chart slowly and verify position on recorder. Mark "F.S. Found" on each chart beside the trace.
4. Place wind speed and direction modules in operate position. Verify normal response on recorders. Insure ink wells are full.
5. Change the charts on recorders. Document start time and date on the charts.

### 10.2 ONS Site 2

1. Place Control Room switch in the Lo position. Verify Lo Cal. positions on the wind speed and direction recorders. Rotate charts slowly and individually for good trace. Label chart " $T_z$  Found".
2. Place Control Room switch in the Hi position. Verify Hi Cal. positions on the wind speed and direction recorders. Rotate charts slowly and individually for good trace. Label "F.S. Found".
3. Check recorder zero on wind speed and direction recorders by disconnecting field inputs in back of recorders and installing a jumper wire across the terminals. Label chart " $R_z$  Found". Document time and date on charts. Rotate charts individually and slowly for good trace. Verify position on recorders.
4. Remove jumpers and reconnect field inputs to recorders.

5. Place Control Room switch to the operate position. Verify normal response on recorders. Insure ink wells are full.
6. Change charts on recorders. Document starting time and date on charts.

If all string checks are within tolerance, remove and staple together the front approval sheet, list of enclosures, and sign off sheet. Insure all equipment mentioned above is returned to service and continue.

If all string checks are not within tolerance, continue with Section 10.6.

#### 10.3 Air Temperature Recorder

1. Turn off chart recorder. Document time and date on chart.
2. Remove weeks run of chart paper. Replace chart paper as necessary.
3. Restart chart and recorder. Verify proper response. Document time and date on chart.

NOTE: If there are any problems or you think there may be something wrong with the air temperature system, please note this on the chart from Step 2.

#### 10.4 Hygro-Thermograph Recorder

1. Check the temperature with a thermometer and humidity with a portable psychrometer.
2. Remove old chart from recorder noting time and date on chart.
3. Change the chart on the hygro-thermograph recorder. Document start time and date on chart.
4. Prepare recorder for another week of operation by rewinding clock mechanism, inking the pens, and aligning chart for correct time. Document the temperature and humidity readings from Step 1 on chart.

If the temperature or humidity is found, upon comparison with a thermometer and psychrometer, to be incorrect proceed to Section 10.6 for adjustment procedures.

#### 10.5 Rain Gauge Recorder

1. Open the sliding door and lift the pen from the chart by pulling the pen arm shifter away from the mechanism support column.
2. Next remove the collector and empty the bucket slowly from the platform so that the gauge mechanism will not be subject to any sudden shock as the pen returns to the zero reading.



3. Replace the collector.
4. Lift the chart cylinder and remove old chart noting time and date on chart.
5. Change the chart on the rain gauge recorder. Document start time and date on chart.
6. Prepare recorder for another week of operation by rewinding clock mechanism, inking the pen, and aligning chart for correct time.
7. Verify pen on zero point. If not, adjust the zero knob until zero is obtained.
8. Ink the pen, set the chart to correct time. Press the pen arm shifter all the way in and verify pen is making contact with chart.
9. Close sliding door.

#### 10.6 Calibration Procedures

##### A. Wind System

1. To adjust recorder zero, ensure power supply on translator is off. The zero adjustment arm is located on the inside bottom of recorder under the chart take-up reel. Make adjustments until recorder reads zero. Mark "R. Left" on chart beside the trace after the final adjustment.
2. To adjust the translator full scale, turn the power supply on and the translator mode switch to the Hi Cal position. Adjust the Hi Cal adjusting screw on front of module to achieve a full scale reading. Mark "F.S. Left" on chart beside the trace after the final adjustments.
3. To adjust the translator zero, turn the mode switch to the Lo Cal position. On the wind direction module adjust the Lo Cal adjusting screw on the front of the module to obtain the Lo Cal reading. Mark "T. Left" on chart beside the trace after the final adjustment.

NOTE: The translator zero for the wind speed module should be performed in a lab since the adjustments necessary must be made internal of the translator and requires a considerable amount of time and accuracy.

If translator zero for wind speed exceeds tolerances contact the E.S.S. (Environmental Services Section).



B. Hygro-Thermograph Recorder

1. If the temperature indication is found to be incorrect an adjustment may be made by turning the thumb screw nearest the front of the case until the thermometer and instrument pen are in agreement.
2. If the humidity is found to be incorrect, wet the hairs by stroking them gently with a camel hair brush wetted with distilled water. Continue this wetting for several minutes until no further rise of the pen can be observed. When a stable position is reached, set the humidity pen to read 92% by adjusting the thumbscrew in the base of the instrument located beside the temperature setting screw. Do not set the pen to read 100% humidity. No amount of artificial wetting seems to wet the hair to the same extent as actual exposure to saturated air. If after several checks an error is found in humidity indication, the rear adjustment thumbscrew can be used to correct error per psychrometer reading.

10.7 As Left String Checks (Enclosure 11.5a and b)

Perform as left string checks as required due to maintenance action or calibration in Section 10.2 for all strings affected following procedure steps in Section 10.1.

11.0 Enclosures

11.1 Sign-Off Sheet

11.2 Reference Data (None)

11.3 As Found String Checks

11.3.a ONS Site 1

11.3.b ONS Site 2

11.4 Calibration Data Sheets (None)

11.5 As Left String Checks

11.5.a ONS Site 1

11.5.b ONS Site 2

ENCLOSURE 11.1

IP/O/B/1601/03

SIGN-OFF SHEET

Prerequisites

\_\_\_\_ 4.1

\_\_\_\_ 4.2

\_\_\_\_ 4.3

\_\_\_\_ 4.4

\_\_\_\_ 4.5

Date Begun \_\_\_\_\_

Date Completed \_\_\_\_\_

W.R.# \_\_\_\_\_

String Checks and Data Sections

\_\_\_\_ 10.0

\_\_\_\_ 10.3

\_\_\_\_ 10.6

\_\_\_\_ 11.3.a.

\_\_\_\_ 11.5.a

\_\_\_\_ 10.1

\_\_\_\_ 10.4

\_\_\_\_ 10.7

\_\_\_\_ 11.3.b.

\_\_\_\_ 11.5.b.

\_\_\_\_ 10.2

\_\_\_\_ 10.5

\_\_\_\_/\_\_\_\_ 10.2.3 Wires Removed and Jumpers Installed

\_\_\_\_/\_\_\_\_ 10.2.4 Jumpers Removed and Wires Replaced

Performed By \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
(Tech)  
Init. and Date

Notified Instrument Supervisor that a tolerance of 2%  
was exceeded on the following components:

\_\_\_\_\_  
Inst. Supvr.  
Init. and Date

An evaluation was made on the above problem(s) and the  
following corrective action taken:

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## ENCLOSURE 11.3.a

IP/O/B/1501/03

## AS FOUND INTEGRATED STRING

## VERIFICATION DATA SHEET

Item Wind, Speed & Direction Test Equipment Used \_\_\_\_\_  
Mfg Teledyne Geotech Item \_\_\_\_\_ SN \_\_\_\_\_  
Type Series 40 \_\_\_\_\_  
Calibration Tolerance W/S  $\pm 0.4$  mph; W/D  $\pm 5.0$  \_\_\_\_\_  
System Environmental \_\_\_\_\_  
Span W/S 0-30 mph; W/D 0-540<sup>u</sup> \_\_\_\_\_  
Location Upper Meteorological Site (ONS Site 1)

Input	Required Reading W/S mph	AS Left W/S mph	Required Reading W/D Deg	AS Left W/D Deg
Rz	0		90	
Lo Cal	$0.6 \pm .1$ mph		90	
Hi Cal	Full Scale		Full Scale	

Equipment Removed From Service \_\_\_\_\_

Equipment Returned To Service \_\_\_\_\_

MAXIMUM ERROR (W/S) \_\_\_\_\_ mph, (W/D) \_\_\_\_\_ Deg

PERFORMED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

ENCLOSURE 11.3.b

IP/O/B/1601/03

AS FOUND INTEGRATED STRING

VERIFICATION DATA SHEET

Item Wind, Speed & Direction

Test Equipment Used

Mfg Teledyne Geotech

Item SN

Type Series 40

Calibration Tolerance W/S  $\pm 0.4$  mph; W/D  $\pm 5.0$

System Environmental

Span W/S 0-30 mph; W/D 0-540°

Location Lower Meteorological Site (ONS Site 2)

Input	Required Reading W/S mph	AS Found W/S mph	Required Reading W/D Deg	AS Found W/D Deg
Rz	0		90	
Lo Cal	$0.6 \pm .1$ mph		-90	
Hi Cal	Full Scale		Full Scale	

Equipment Removed From Service \_\_\_\_\_

Equipment Returned To Service \_\_\_\_\_

MAXIMUM ERROR (W/S) \_\_\_\_\_ mph, (W/D) \_\_\_\_\_ Deg

PERFORMED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

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

Bureau of Radiological Health (0800-1700) . . . . .	758-5548
Answering Service after hours, weekends, holidays. . . . .	758-5531
*State Emergency Operations Center, Columbia, S.C. . . . .	758-2826
*Forward Emergency Operations Center, Clemson, S. C. . . . .	Duke Ringdown
Alternate Number . . . . .	654-9371

\*NOTE: These numbers are to be used once the State  
has established their Emergency Operations.

7. COUNTY EMERGENCY PREPAREDNESS AGENCIES

Oconee County Emergency Preparedness . . . . .	Duke Ringdown
Alternate Number - 24 hour, page 251	638-3097
Alternate Number - 24 hour, page 251	638-3678
Pickens County Emergency Preparedness. . . . .	Duke Ringdown
Alternate Number - (0830-1700)	878-7808
Alternate Number - 24 hour, page 77	878-2421

8. COUNTY SHERIFF'S DEPARTMENTS

Oconee County (24 hours) . . . . .	Duke Ringdown
Alternate Number . . . . .	638-3678
Pickens County (24 hours) . . . . .	Duke Ringdown
Alternate Number . . . . .	878-2421
Alternate Number . . . . .	855-1666
Alternate Number . . . . .	878-3500

9. MEDICAL ASSISTANCE

Oconee Memorial Hospital Ambulance Service . . . . .	882-4611
Oconee Memorial Hospital Switchboard/Supervisor or Nursing .	882-3351

Additional Medical assistance may be provided through the  
following institutions:

Pickens County Ambulance Service . . . . .	868-2373
Cannon Memorial Hospital/Supervisor of Nursing . . . . .	878-4791
Easley Baptist Hospital/Supervisor of Nursing . . . . .	859-6365

10. FIRE ASSISTANCE

Oconee County Rural Fire Protection Association . . . . .	638-5846
Woods or Forest Fire (Oconee County, Oakway Tower) . . . . .	972-3600
Woods or Forest Fire (Pickens County, Woodall Mt. Tower) . . .	868-9056

DUKE POWER COMPANY  
OCONEE NUCLEAR STATION

NUMBER CODE FOR IDENTIFYING PERSONNEL/ACTIVITIES TO BE NOTIFIED

CODE

1. NUCLEAR REGULATORY COMMISSION by Red Phone within one hour.
2. UNIT COORDINATOR/OPERATIONS DUTY ENGINEER who will notify:
  - A. Superintendent of Operations
  - B. Station Manager/Emergency Coordinator (or alternate as listed in number 11.)
  - C. Nuclear Production Duty Engineer who will notify: 704-373-5491
    1. Corporate Communications
    2. Crisis Management Organization
3. STATION MANAGER . . . . .
  - J. Ed Smith, Office . . . . . Ext. 1211
  - Home . . . . . 654-2866
4. BABCOCK AND WILCOX RESIDENT ENGINEER
  - Bill Street, Office . . . . . Ext. 1140
  - Home . . . . . 868-2158

(If Bill Street cannot be reached, call)

  - L. H. Williams, Office . . . . . Ext. 1459
  - Home . . . . . 654-3213
5. STATION HEALTH PHYSICIST/DUTY HEALTH PHYSICIST
  - C. T. Yongue, Office . . . . . Ext. 1234
  - Home . . . . . 868-9411

## ENCLOSURE 11.5.b

IP/O/B/1601/03

AS LEFT INTEGRATED STRING

## VERIFICATION DATA SHEET

Item Wind, Speed & Direction Test Equipment Used \_\_\_\_\_  
 Mfg Teledyne Geotech Item \_\_\_\_\_ SN \_\_\_\_\_  
 Type Series 40 \_\_\_\_\_  
 Calibration Tolerance W/S  $\pm 0.4$  mph; W/D  $\pm 5.0$  \_\_\_\_\_  
 System Environmental \_\_\_\_\_  
 Span W/S 0-30 mph; W/D 0-540° \_\_\_\_\_  
 Location Lower Meteorological Site (ONS Site 2)

Input	Required Reading W/S mph	AS Left W/S mph	Required Reading W/D Deg	AS Left W/D Deg
Rz	0		90	
Lo Cal	0.6 $\pm$ .1 mph		90	
Hi Cal	Full Scale		Full Scale	

Equipment Removed From Service \_\_\_\_\_

Equipment Returned To Service \_\_\_\_\_

MAXIMUM ERROR (W/S) \_\_\_\_\_ mph, (W/D) \_\_\_\_\_ Deg

PERFORMED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



IP/O/B/1601/03

## VERIFICATION DATA SHEET

### Test Equipment Used

Item	SN
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Input	Required Reading W/S mph	AS Left W/S mph	Required Reading W/D Deg	AS Left W/D Deg
Rz	0		90	
Lo Cal	0.6 ± .1 mph		90	
Hi Cal	Full Scale		Full Scale	

Equipment Removed From Service \_\_\_\_\_,

Equipment Returned To Service \_\_\_\_\_, \_\_\_\_\_

MAXIMUM ERROR (W/S) \_\_\_\_\_ mph, (W/D) \_\_\_\_\_ Deg

PERFORMED BY: \_\_\_\_\_ DATE: \_\_\_\_\_