

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2

REVISED PLANT EMERGENCY PROCEDURES

SECTION NUMBER	TITLE	REVISION NUMBER
2.1*	Initial Emergency Actions	9
2.2*	Emergency Control - Unusual Event	5
2.3*	Emergency Control - Alert	5
2.4*	Emergency Control - Site Emergency	5
2.5*	Emergency Control - General Emergency	6
3.1.1*	Follow-Up Notifications and Communications	4
3.4.1	Initial Dose Projections	7
3.6.1*	Release Estimate Based Upon Stack/Vent Readings	5
App. A*	Emergency Response Resources	10

* Partial instruction or modification

(8243WRMccc)

8404050374 831019
PDR ADOCK 05000324
F PDR

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

INITIAL DOSE PROJECTIONS

PLANT EMERGENCY PROCEDURE: PEP-03.4.1

VOLUME XIII

Rev. 007

Reviewed By:	<u>William R. Zelen</u> QA	Date:	<u>9-15-83</u>
Recommended By:	<u>L. C. Sawyer</u> Director - Administrative Support	Date:	<u>9/19/83</u>
Approved By:	<u>MD Hall for</u> General Manager	Date:	<u>9/22/83</u>

LIST OF EFFECTIVE PAGES

PEP-03.4.1

<u>Page(s)</u>	<u>Revision</u>
1 - 14	7

1.0 Responsible Individual and Objectives

This procedure is intended to be used by Control Room personnel until the Dose Projection Team can be activated in the Technical Support Center.

2.0 Scope and Applicability

This procedure is intended to enable a rapid determination of the severity of an emergency. It should be implemented as the first step subsequent to recognition that an unplanned off-site release has occurred or could have occurred. The procedure can be used to make either whole body or thyroid dose projections. Thyroid dose projections made using this procedure are extremely conservative and are realistic only if there is reasonable assurance that significant quantities of iodine are being released.

The dose projections calculated by use of this procedure are to be compared against pre-established criteria (Emergency Action Levels and Protective Action Guidelines) for possible consequences off site. These projections pertain to the radioactive gases at ground level and do not include radiation from an overhead cloud that may contribute to the whole body dose at ground level. Under certain meteorological conditions (elevated release and E, F, or G stability classes), direct radiation from an overhead plume may produce somewhat higher doses than those calculated by this procedure.

A simplified formula for estimating radiological consequences of an accidental release to the atmosphere is:

$$D = \frac{x}{Q} \cdot Q \cdot DCF$$

where D = Dose in rem.

x/Q = Atmospheric Dispersion Factor in units of sec/m^3 , and
with values determined by atmospheric stability and wind speed.

Q = Source Term in curies per second.

DCF = Dose Conversion Factor.

NOTE: This procedure makes use of scientific notation, i.e., $2\text{E}-6$ is the same as 2×10^{-6} .

Completion of this procedure can be performed by using a computer program designed for use on the IBM Personal Computer. Exhibit 3.4.1-2 provides instructions for using this program. Exhibit 3.4.1-3 provides an example test case which can be used to verify that the computer program is working properly.

NOTE: Any changes to this procedure or computer program need to be coordinated through the Dose Projection Coordinator.

3.0 Actions

List of Exhibits

- 3.4.1-1 Initial Dose Projection Record Sheet
- 3.4.1-2 Instructions for Using the IBM Personal Computer for Automation of Initial Dose Projections
- 3.4.1-3 Verification of "IDP" (a computer program for initial emergency dose projections)

- 3.1 Obtain a copy of Exhibit 3.4.1-1 (Initial Dose Projection Record Sheet) and record time and your initials in column 1.
- 3.2 Record in column 2 whether this calculation is for whole body or thyroid dose projections. Recall that thyroid dose projections should only be made using this procedure if there is reasonable assurance that significant quantities of iodine are being released.
- 3.3 Determine wind speed, wind direction, and stability class using one of the following five methods listed in order of preferred use. Record in column 3 of Exhibit 3.4.1-1.

NOTE: USE UPPER WIND SPEED AND DIRECTION FOR A STACK RELEASE; OTHERWISE USE LOWER WIND SPEED AND DIRECTION.

- 3.3.1 If operable, use the plant computer or E&RC computer to obtain the wind speed, wind direction, and stability class.
- 3.3.2 Call E&RC and request meteorological data in accordance with PEP-02.6.20, Exhibit 2.6.20-1.
- 3.3.3 Call National Weather Service for area conditions (PEP Appendix A-4).
- 3.3.4 Call corporate meteorologists and request assistance from meteorological section (PEP Appendix A-4).

- 3.3.5 If there is no meteorological data readily available, a general estimate of the current atmospheric stability class can be made by visual observation, using the following table:

	<u>Sunny</u> <u>Day</u>	<u>Cloudy</u> <u>Day</u>	<u>Cloudy</u> <u>Night</u>	<u>Clear</u> <u>Night</u>
light wind or calm (≤ 4 m/sec or 8.9 mph)	B	C	E	F
moderately strong wind (> 4 m/sec or 8.9 mph)	C	D	D	D
<u>NOTE:</u> Assume Stability Class D whenever it is raining.				

3.4 Determine the X/Q value

- 3.4.1 If the release is from the stack, use Table 3.4.1-1. (If not, go to Step 3.4.3.) Read across the appropriate row based on wind speed to the X/Q value under the atmospheric stability class determined in Step 3.3.

TABLE 3.4.1-1
METEOROLOGICAL DISPERSION (X/Q) VALUE AT
BSEP PROPERTY BOUNDARY (4000 FEET)

ELEVATED LEVEL RELEASE*

X/Q Values By Atmospheric Stability Class								
(Units: sec/m ³)								
Wind Speed								
mph	m/sec	A	B	C	D	E	F	G
1.0	0.4	4.1 E-6	2.1 E-5	3.0 E-5	5.2 E-6	1.4 E-7	6.5 E-12	2.0 E-22
2.0	0.9	2.1 E-6	1.1 E-5	1.5 E-5	2.6 E-6	6.8 E-8	3.3 E-12	9.9 E-23
3.0	1.3	1.4 E-6	7.1 E-6	1.0 E-5	1.7 E-6	4.6 E-8	2.2 E-12	6.6 E-23
4.0	1.8	1.0 E-6	5.3 E-6	7.6 E-6	1.3 E-6	3.4 E-8	1.6 E-12	4.9 E-23
5.0	2.2	8.3 E-7	4.3 E-6	6.1 E-6	1.0 E-6	2.7 E-8	1.3 E-12	4.0 E-23
6.0	2.7	6.9 E-7	3.6 E-6	5.1 E-6	8.7 E-7	2.3 E-8	1.1 E-12	3.3 E-23
7.0	3.1	5.9 E-7	3.0 E-6	4.4 E-6	7.5 E-7	2.0 E-8	9.3 E-13	2.8 E-23
8.0	3.6	5.2 E-7	2.7 E-6	3.8 E-6	6.6 E-7	1.7 E-8	8.2 E-13	2.5 E-23
9.0	4.0	4.6 E-7	2.4 E-6	3.4 E-6	5.8 E-7	1.5 E-8	7.2 E-13	2.2 E-23
10.0	4.5	4.1 E-7	2.1 E-6	3.0 E-6	5.2 E-7	1.4 E-8	6.5 E-13	2.0 E-23
11.0	4.9	3.8 E-7	1.9 E-6	2.8 E-6	4.8 E-7	1.2 E-8	5.9 E-13	1.8 E-23
12.0	5.4	3.5 E-7	1.8 E-6	2.5 E-6	4.4 E-7	1.1 E-8	5.4 E-13	1.6 E-23
13.0	5.8	3.2 E-7	1.6 E-6	2.3 E-6	4.0 E-7	1.1 E-8	5.0 E-13	1.5 E-23
14.0	6.2	3.0 E-7	1.5 E-6	2.2 E-6	3.7 E-7	9.8 E-9	4.7 E-13	1.4 E-23
15.0	6.7	2.8 E-7	1.4 E-6	2.0 E-6	3.5 E-7	9.1 E-9	4.3 E-13	1.3 E-23
16.0	7.2	2.6 E-7	1.3 E-6	1.9 E-6	3.3 E-7	8.5 E-9	4.1 E-13	1.2 E-23
17.0	7.6	2.4 E-7	1.3 E-6	1.8 E-6	3.1 E-7	8.8 E-9	3.8 E-13	1.2 E-23
18.0	8.0	2.3 E-7	1.2 E-6	1.7 E-6	2.9 E-7	7.6 E-9	3.6 E-13	1.1 E-23
19.0	8.5	2.2 E-7	1.1 E-6	1.6 E-6	2.8 E-7	7.2 E-9	3.4 E-13	1.0 E-23
20.0	8.9	2.1 E-7	1.1 E-6	1.5 E-6	2.6 E-7	6.8 E-9	3.3 E-13	9.9 E-24
21.0	9.4	2.0 E-7	1.0 E-6	1.5 E-6	2.5 E-7	6.5 E-9	3.1 E-13	9.4 E-24
22.0	9.8	1.9 E-7	9.7 E-7	1.4 E-6	2.4 E-7	6.2 E-9	3.0 E-13	9.0 E-24
23.0	10.3	1.8 E-7	9.3 E-7	1.3 E-6	2.3 E-7	5.9 E-9	2.8 E-13	8.6 E-24
24.0	10.7	1.7 E-7	8.9 E-7	1.3 E-6	2.2 E-7	5.7 E-9	2.7 E-13	8.2 E-24
25.0	11.2	1.7 E-7	8.5 E-7	1.2 E-6	3.1 E-7	5.5 E-9	2.6 E-13	7.9 E-24
26.0	11.6	1.6 E-7	8.2 E-7	1.2 E-6	2.0 E-7	5.3 E-9	2.5 E-13	7.6 E-24
27.0	12.1	1.5 E-7	7.9 E-7	1.1 E-6	1.9 E-7	5.1 E-9	2.4 E-13	7.3 E-24
28.0	12.5	1.5 E-7	7.6 E-7	1.1 E-6	1.9 E-7	4.9 E-9	2.3 E-13	7.1 E-24
29.0	13.0	1.4 E-7	7.4 E-7	1.1 E-6	1.8 E-7	4.7 E-9	2.2 E-13	6.8 E-24
30.0	13.4	1.4 E-7	7.1 E-7	1.0 E-6	1.7 E-7	4.6 E-9	2.2 E-13	6.6 E-24

*For stack release using upper level wind speed.

NOTE: If wind speed is between adjacent values, use the lower value to find x/Q.

3.4.2 Record the selected x/Q value in column 4 of Exhibit 3.4.1-1.

3.4.3 If release is NOT from the stack, use Table 3.4.1-2. Read across the appropriate row based on wind speed to the x/Q value under the atmosphere stability class determined in Step 3.3, Table 3.4.1-2.

TABLE 3.4.1-2

METEOROLOGICAL DISPERSION (x/Q) VALUE AT
BSEP PROPERTY BOUNDARY (4,000 FT.)
GROUND LEVEL RELEASE*

Wind Speed		x/Q Values By Atmospheric Stability Class						
		(Units: sec/m ³)						
mph	m/sec	A	B	C	D	E	F	G
1.0	0.4	4.2 E-6	2.8 E-5	7.7 E-5	2.3 E-4	4.7 E-4	1.1 E-3	2.5 E-3
2.0	0.9	2.1 E-6	1.4 E-5	3.9 E-5	1.2 E-4	2.3 E-4	5.4 E-4	1.2 E-3
3.0	1.3	1.4 E-6	9.3 E-6	2.6 E-5	7.8 E-5	1.6 E-4	3.6 E-4	8.2 E-4
4.0	1.8	1.0 E-6	7.0 E-6	1.9 E-5	5.8 E-5	1.2 E-4	2.7 E-4	6.1 E-4
5.0	2.2	8.4 E-7	5.6 E-6	1.5 E-5	4.7 E-5	9.4 E-5	2.1 E-4	4.9 E-4
6.0	2.7	7.0 E-7	4.7 E-6	1.3 E-5	3.9 E-5	7.8 E-5	1.8 E-4	4.1 E-4
7.0	3.1	6.0 E-7	4.0 E-6	1.1 E-5	3.3 E-5	6.7 E-5	1.5 E-4	3.5 E-4
8.0	3.6	5.2 E-7	3.5 E-6	9.7 E-6	2.9 E-5	5.9 E-5	1.3 E-4	3.1 E-4
9.0	4.0	4.7 E-7	3.1 E-6	8.6 E-6	2.6 E-5	5.2 E-5	1.2 E-4	2.7 E-4
10.0	4.5	4.2 E-7	2.8 E-6	7.7 E-6	2.3 E-5	4.7 E-5	1.1 E-4	2.5 E-4
11.0	4.9	3.8 E-7	2.5 E-6	7.0 E-6	2.1 E-5	4.3 E-5	9.8 E-5	2.2 E-4
12.0	5.4	3.5 E-7	2.3 E-6	6.5 E-6	1.9 E-5	3.9 E-5	8.9 E-5	2.0 E-4
13.0	5.8	3.2 E-7	2.1 E-6	6.0 E-6	1.8 E-5	3.6 E-5	8.3 E-5	1.9 E-4
14.0	6.2	3.0 E-7	2.0 E-6	5.5 E-6	1.7 E-5	3.4 E-5	7.7 E-5	1.8 E-4
15.0	6.7	2.8 E-7	1.9 E-6	5.2 E-6	1.6 E-5	3.1 E-5	7.2 E-5	1.6 E-4
16.0	7.2	2.6 E-7	1.7 E-6	4.8 E-6	1.5 E-5	2.9 E-5	6.7 E-5	1.5 E-4
17.0	7.6	2.5 E-7	1.6 E-6	4.6 E-6	1.4 E-5	2.8 E-5	6.3 E-5	1.4 E-4
18.0	8.0	2.3 E-7	1.6 E-6	4.3 E-6	1.3 E-5	2.6 E-5	6.0 E-5	1.4 E-4
19.0	8.5	2.2 E-7	1.5 E-6	4.1 E-6	1.2 E-5	2.5 E-5	5.6 E-5	1.3 E-4
20.0	8.9	2.1 E-7	1.4 E-6	3.9 E-6	1.2 E-5	2.3 E-5	5.4 E-5	1.2 E-4
21.0	9.4	2.0 E-7	1.3 E-6	3.7 E-6	1.1 E-5	2.2 E-5	5.1 E-5	1.2 E-4
22.0	9.8	1.9 E-7	1.3 E-6	3.5 E-6	1.1 E-5	2.1 E-5	4.9 E-5	1.1 E-4
23.0	10.3	1.8 E-7	1.2 E-6	3.4 E-6	1.0 E-5	2.0 E-5	4.7 E-5	1.1 E-4
24.0	10.7	1.7 E-7	1.2 E-6	3.2 E-6	9.7 E-6	2.0 E-5	4.5 E-5	1.0 E-4
25.0	11.2	1.7 E-7	1.1 E-6	3.1 E-6	9.4 E-6	1.9 E-5	4.3 E-5	9.8 E-5
26.0	11.6	1.6 E-7	1.1 E-6	3.0 E-6	9.0 E-6	1.8 E-5	4.1 E-5	9.4 E-5
27.0	12.1	1.6 E-7	1.0 E-6	2.9 E-6	8.7 E-6	1.7 E-5	4.0 E-5	9.1 E-5
28.0	12.5	1.5 E-7	1.0 E-6	2.8 E-6	8.4 E-6	1.7 E-5	3.8 E-5	8.8 E-5
29.0	13.0	1.5 E-7	9.6 E-7	2.7 E-6	8.1 E-6	1.6 E-5	3.7 E-5	8.4 E-5
30.0	13.4	1.4 E-7	9.3 E-7	2.6 E-6	7.8 E-6	1.6 E-5	3.6 E-5	8.2 E-5

*For vent release using lower level wind speed.

NOTE: If wind speed is between adjacent values, use the lower value to find x/Q.

3.4.4 Record the selected x/Q value in column 4 of Exhibit 3.4.1-1.

3.5 Determine Source Term

- 3.5.1 Determine which effluent radiation monitor is (or monitors are) indicating an abnormal release.
- 3.5.2 Determine the release rate ($\mu\text{Ci/sec}$) indicated by this monitor(s) as per PEP-03.6.1, "Release Estimates Based upon Stack/Vent Readings."
- 3.5.3 For WHOLE BODY DOSE PROJECTIONS, calculate the release rate in $\text{Ci/sec} = (\mu\text{Ci/sec}) \times (1.0 \times 10^{-6} \text{ Ci}/\mu\text{Ci})$.

OR

- 3.5.4 For THYROID DOSE PROJECTIONS, calculate the release rate in $\text{Ci/sec} = (\mu\text{Ci/sec}) \times (1.0 \times 10^{-6} \text{ Ci}/\mu\text{Ci}) \times (0.15)$.
- 3.5.5 Record the results of either Steps 3.5.3 or 3.5.4 in column 5 of Exhibit 3.4.1-1.

3.6 Determine Dose Conversion Factor

- 3.6.1 Use Table 3.4.1-3 to determine the Whole Body or Thyroid Dose Conversion Factor (DCF). Record the appropriate DCF in column 6 of Exhibit 3.4.1-1.

TABLE 3.4.1-3

DOSE CONVERSION FACTORS (rem/hr)/(Ci/m^3)

Accident Condition	Whole Body	Thyroid
Unknown/unidentified	287	7.49E+5
Major damage to fuel cladding	287	7.49E+5
RCS leaks or steam line leaks but no major cladding failure	133	1.25E+6
Accidental discharge of waste gas	45	2.06E+6
Fuel handling accident	19	2.94E+6

- 3.7 To obtain the projected dose at the property boundary, multiply column 4 x column 5 x column 6 = column 7. Record the product in column 7 of Exhibit 3.4.1-1.

NOTE: If the release was via the stack (elevated), maximum radiological exposures could occur beyond the property boundary depending on stability class. Step 3.8 projects doses at distances beyond the property boundary for both elevated and ground level releases.

3.8 Determine Extrapolation Factor

3.8.1 If the release is from the stack, use Table 3.4.1-4. (If not, go to Step 3.8.3.) Read across the appropriate row based on distance from the plant to the extrapolation factor under the atmospheric stability class determined in Step 3.3.

NOTE: With an elevated release, maximum radiological exposures may occur beyond the property boundary depending on stability class. The following table indicates the downwind distance where maximum exposures are likely to occur as the result of an elevated release.

<u>Stability Class</u>	<u>Downwind Distance</u>
A	0.27 miles (0.43 km)
B	0.45 miles (0.72 km)
C	0.76 miles (1.22 km) (Property Boundary)
D	1.8 miles (2.9 km)
E	3.5 miles (5.6 km)
F	9 miles (14.5 km)
G	33 miles (53 km)

TABLE 3.4.1-4

EXTRAPOLATION FACTOR FOR ESTIMATING DOSES BEYOND BSEP PROPERTY BOUNDARY (4,000 ft.) ELEVATED RELEASE

<u>DISTANCE FROM PLANT</u>		<u>EXTRAPOLATION FACTORS BY ATMOSPHERIC STABILITY CLASS</u>							
<u>Miles</u>	<u>km</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	
1	1.6	4.2 E-1	6.6 E-1	9.2 E-1	2.1	8.4 E+0	2.3 E+2	4.2 E+5	
2	3.2	5.2 E-2	1.9 E-1	3.8 E-1	3.4	6.7 E+1	8.8 E+4	8.5 E+11	
3	4.8	1.6 E-2	8.4 E-2	2.0 E-1	2.8	8.7 E+1	3.3 E+5	3.4 E+13	
4	6.4	6.5 E-3	4.7 E-2	1.2 E-1	2.2	8.6 E+1	5.8 E+5	1.8 E+14	
5	8.0	3.4 E-3	3.1 E-2	8.2 E-2	1.8	8.0 E+1	7.3 E+5	4.6 E+14	
6	9.7	2.0 E-3	2.1 E-2	5.9 E-2	1.4	7.3 E+1	8.1 E+5	8.4 E+14	
7	11.3	1.2 E-3	1.5 E-2	4.5 E-2	1.2	6.6 E+1	8.8 E+5	1.3 E+15	
8	12.9	8.2 E-4	1.2 E-2	3.6 E-2	1.0	6.0 E+1	8.8 E+5	1.6 E+15	
9	14.5	5.8 E-4	9.4 E-3	2.8 E-2	8.6 E-1	5.5 E+1	8.8 E+5	2.2 E+15	
10	16.1	4.3 E-4	7.6 E-3	2.4 E-2	7.6 E-1	4.9 E+1	8.8 E+5	2.5 E+15	

3.8.2 Record the selected extrapolation factor in column 8 of Exhibit 3.4.1-1.

- 3.8.3 If the release is not from the stack, use Table 3.4.1-5. Read across the appropriate row based on distance from the plant to the extrapolation factor under the atmospheric stability class determined in Step 3.3.

TABLE 3.4.1-5

EXTRAPOLATION FACTOR FOR ESTIMATING DOSES BEYOND
BSEP PROPERTY BOUNDARY (4,000 ft.) GROUND LEVEL RELEASE

DISTANCE FROM PLANT		EXTRAPOLATION FACTORS BY ATMOSPHERIC STABILITY CLASS						
Miles	km	A	B	C	D	E	F	G
1	1.6	4.3 E-1	5.8 E-1	6.1 E-1	6.4 E-1	6.3 E-1	6.5 E-1	6.5 E-1
2	3.2	5.3 E-2	1.5 E-1	1.7 E-1	2.2 E-1	2.3 E-1	2.3 E-1	2.4 E-1
3	4.8	1.6 E-2	6.5 E-2	8.4 E-2	1.2 E-1	1.3 E-1	1.3 E-1	1.4 E-1
4	6.4	6.5 E-3	3.7 E-2	4.8 E-2	7.8 E-2	8.4 E-2	9.3 E-2	1.0 E-1
5	8.0	3.4 E-3	2.4 E-2	3.2 E-2	5.6 E-2	6.3 E-2	7.0 E-2	7.6 E-2
6	9.7	2.0 E-3	1.6 E-2	2.4 E-2	4.2 E-2	4.9 E-2	5.6 E-2	6.1 E-2
7	11.3	1.2 E-3	1.2 E-2	1.8 E-2	3.4 E-2	4.0 E-2	4.4 E-2	5.0 E-2
8	12.9	8.2 E-4	9.1 E-3	1.4 E-2	2.8 E-2	3.4 E-2	3.7 E-2	4.3 E-2
9	14.5	5.8 E-4	7.3 E-3	1.2 E-2	2.3 E-2	2.9 E-2	3.3 E-2	3.8 E-2
10	16.1	4.3 E-4	5.9 E-3	9.4 E-3	2.0 E-2	2.5 E-2	2.8 E-2	3.3 E-2

- 3.8.4 Record selected extrapolation factor in column 8 of Exhibit 3.4.1-1.
- 3.9 To obtain projected dose at points beyond the property boundary, multiply column 7 x column 8 = column 9. Record the product in column 9 of Exhibit 3.4.1-1. Indicate the distance from the property boundary the projected dose represents.
- 3.10 Report the projected doses to the Site Emergency Coordinator or Radiological Control Director.
- 3.11 Refer to PEP-02.1, Section 4, "Abnormal Radiological Effluent or Radiation Levels" to determine if any EAL has been met or exceeded. If the EAL for a general emergency has been met, refer to Exhibit 2.5-4 for recommended protective actions.
- 3.12 Repeat this procedure whenever source term or meteorological conditions change or as directed.

EXHIBIT 3.4.1-1

INITIAL DOSE PROJECTION RECORD SHEET

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5	COLUMN 6	COLUMN 7	COLUMN 8	COLUMN 9
TIME/ INITIAL	WHOLE BODY OR THYROID	WIND SPEED/DIRECTION/CLASS (MPH) (BLOWING FROM)	X/Q	SOURCE TERM (Ci/sec)	DOSE CONVERSION FACTOR	DOSE AT PROPERTY BOUNDARY (rem/hr)	EXTRAPO- LATION FACTOR	DOSE BEYOND PROPERTY BOUNDARY (rem/hr) # INDICATE DISTANCE

EXHIBIT 3.4.1-2

INSTRUCTIONS FOR USING THE IBM PERSONAL COMPUTER
FOR AUTOMATION OF INITIAL DOSE PROJECTIONS

This exhibit is intended to provide instructions for the proper operation of "IDP," a computer program designed for use on the IBM Personal Computer. The calculations are intended to automate PEP-03.4.1, the initial emergency dose projection procedure, and PEP-03.6.1; the procedure for calculation of source terms based upon effluent monitor readings.

Individuals using the computer program should be familiar with the above mentioned procedures. The program allows the capability of calculating downwind centerline doses at the distances of site boundary, and 1-10 miles in 1-mile increments.

If necessary, refer to the appropriate plant emergency procedure for guidance in determining the necessary inputs called for by the computer program. The computer printout can also be used for documenting dose projections.

The computer program uses similar calculational methods as those described in PEP-03.4.1 and PEP-03.6.1. The program calculates X/Q values from the basic equation using inputs of release height, stability class, wind direction, and wind velocity. Other inputs include those for calculating a source term and classification of the accident condition. The accident condition allows for the selection of a dose conversion factor which has been previously computed.

1. Determine the diskette and/or disk drive on which the program IDP resides. While in the DOS mode, type IDP, then RETURN. (Do not actually type RETURN but instead press the RETURN key on the keyboard. This notation is the same throughout this exhibit.)

NOTES:

1. You are in the DOS mode if one of the letters A, B, C, or D appears on the left of the screen followed by the symbol >.
2. If the operations IBM-PC with hard disk memory is used, the program is located on disk A. To initiate the IDP program, follow the instructions on the master menu. Instructions for returning to the normal operations programs are also provided. Continue as described below.
2. After a short pause, the screen will clear and the introduction to the IDP program will be displayed. As instructed, press any key to continue.
3. The screen will display a reminder to correctly distinguish between stack (elevated) and vent (ground level) releases. If both types of releases are occurring, they must be calculated independently of one another. Only after dose rates for each have been computed can the dose rates be summed to represent the impact of the entire release.

4. The screen will display IS THIS A STACK-<S> OR VENT-<V> RELEASE. Enter an S if the dose projection is for a stack (elevated) release; otherwise enter a V.
5. If an S was entered for a stack release, the screen will display ENTER SOURCE TERM FROM EFFLUENT CHANNEL IN MICROCURIES/SECOND. IF THE FLOW INSTRUMENT LOOP IS NOT OPERABLE, HIT THE RETURN KEY? Enter the microcuries/second as determined from the effluent channel. If the flow instrument loop is not operable such that the source term cannot be taken directly from the effluent channel, then hit the RETURN key and the screen will prompt you for microcuries/cc and stack flow in order to calculate a source term.
6. If a V was entered for a vent release, a list of the vent monitors will be displayed. Choosing a monitor will cause the program to go through a series of prompts (different prompts depending on the type of monitor) in order to determine the release rate. The list of vent monitors will then be redisplayed. The final option in the vent monitor list is to cease entering alarming monitor data. Choose this option once all the alarming monitor data has been entered. The computer will calculate a ground level source term which is the sum of the releases from all alarming vent monitors.
7. The screen will display WHICH ONE OF THE BELOW ACCIDENT CONDITIONS APPLIES. ANSWER 1-5. The possible choices will then be displayed as follows:
 - 1 - UNKNOWN/UNIDENTIFIED
 - 2 - MAJOR DAMAGE TO FUEL CLADDING
 - 3 - RCS LEAKS OR STEAM LINE LEAKS
BUT NO MAJOR CLADDING FAILURE
 - 4 - ACCIDENTAL DISCHARGE OF WASTE GAS
 - 5 - FUEL HANDLING ACCIDENT

Enter by number the applicable choice. Unknown/unidentified conditions will give worst case possibilities.
8. The screen will display STABILITY CLASS (A-G). Enter the appropriate stability class.
9. The screen will display <UPPER or LOWER> WIND VELOCITY (MPH). Enter the appropriate wind velocity in units of miles per hour as determined from the MET tower.
10. The screen will display DIRECTION WIND BLOWING FROM-<UPPER or LOWER> (DEGREES). Make sure to enter the direction the wind is blowing from as determined from the MET tower.

11. At this point, the screen will clear and the information entered will be displayed. In addition, the whole body and thyroid doses at the specified distances will be displayed. If emergency actions levels (EALs) for a site emergency or a general emergency have been met, this will be indicated on the display. If the EAL for a general emergency has been met, the program will refer you to EXHIBIT 2.5-4 for recommended protective actions.
12. The information displayed on the screen is now directed to the line printer. The printer needs to on-line in order to print the results.
13. The screen will display ENTER IDP TO REUSE PROGRAM. To use the program again, type IDP and then RETURN. To return to the normal operations program menu from the DCS mode after A> type dbase CCCC.
14. Report the projected dose rates to the Site Emergency Coordinator or Radiological Control Director.
15. Repeat this procedure whenever source term or meteorological conditions change or as directed.

EXHIBIT 3.4.1-3

VERIFICATION OF IDP

(A COMPUTER PROGRAM FOR INITIAL EMERGENCY DOSE PROJECTIONS)

This exhibit is intended to provide a means to ensure that the IDP program designed for the IBM Personal Computer, is working properly. This is demonstrated by duplicating expected results of known computer inputs. These results may also be validated by comparison to manual calculations for the same input.

The test case with its expected results follows:

TEST CASE

<u>Computer Prompt</u>	<u>Expected Input</u>
>Is this a stack-<S> or vent-<V> release Enter S or V?	S
>Enter source term from effluent channel in microcuries/sec If the flow instrument loop is not operable, hit the return key?	5.0 E+8
>Which one of the below accident conditions applies? 1 - Unknown/Unidentified 2 - Major damage to fuel cladding 3 - RCS leaks or steam line leaks but no major cladding failure 4 - Accidental discharge of waste gas 5 - Fuel handling accident	1
>Stability class?	C
>Upper wind velocity (mph)?	18
>Direction wind blowing from- upper (degrees)?	44

The results should resemble the printout on the following page. If they do not, carefully check your inputs and try the test again. If the results still are not similar, try a backup copy of the program. If that fails, revert to hand calculations.

INITIAL DOSE PROJECTIONS

17:58:47

06-21-1983

ACCIDENT CONDITION: UNKNOWN/UNIDENTIFIED

STABILITY CLASS: C

WIND VELOCITY: 18 (MPH) BLOWING FROM 44 (DEGREES)

WHOLE BODY: SOURCE TERM = 500 (Ci/S) DCF = 287 (REM/HR)/(Ci/mA3)

THYROID: SOURCE TERM = 75 (Ci/S) DCF = 749000 (REM/HR)/(Ci/mA3)

RELEASE HEIGHT: 100 (METERS)

ALARMING MONITORS AND INPUTS USED IN CALCULATION OF SOURCE TERM:

PLANT STACK MONITOR

DISTANCE (MILES)	WHOLE BODY DOSE RATE (REM/HR)	THYROID DOSE RATE (REM/HR)
0.76	2.43E-01 *	9.51E+01 ***
1.00	2.13E-01 *	8.33E+01 ***
2.00	9.06E-02	3.55E+01 ***
3.00	4.72E-02	1.85E+01 ***
4.00	2.89E-02	1.13E+01 ***
5.00	1.96E-02	7.66E+00 ***
6.00	1.42E-02	5.55E+00 ***
7.00	1.08E-02	4.22E+00 *
8.00	8.49E-03	3.32E+00 *
9.00	6.87E-03	2.69E+00 *
10.00	5.69E-03	2.23E+00 *

* EAL FOR SITE EMERGENCY HAS BEEN MET

*** EAL FOR GENERAL EMERGENCY HAS BEEN MET

REFER TO EXHIBIT 2.5-4 FOR RECOMMENDED PROTECTIVE ACTIONS

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

RELEASE ESTIMATES BASED UPON STACK/VENT READINGS

PLANT EMERGENCY PROCEDURE: PEP-03.6.1

VOLUME XIII

Rev. 005

Reviewed By:

William R. Zelen
QA

Date:

9-15-83

Recommended By:

L. C. Boyer
Director - Administrative Support

Date:

9/16/83

Approved By:

Michael J. Fox
General Manager

Date:

9/28/83

LIST OF EFFECTIVE PAGES

PEP-03.6.1

<u>Page(s)</u>	<u>Revision</u>
1	5
2 - 4	4
5	5
6	4
7	5

1.0 Responsible Individual and Objectives

The Radiological Control Director is responsible to the Site Emergency Coordinator for determining the magnitude and rate of radioactive release to the environment. The Radiological Control Director may delegate the calculational aspects of this procedure to the Dose Projection Coordinator. This procedure may be used by the Control Room personnel until the dose projection team is activated in the Technical Support Center.

2.0 Scope and Applicability

This procedure shall be implemented by the Site Emergency Coordinator, or by the Radiological Control Director, whenever an abnormal radiological release through an identifiable release point is suspected, including any Site or General Emergency. The only apparatus required is a scientific calculator.

3.0 Actions and Limitations

NOTE: The detector response will depend on the specific isotopic mixture being released at various times. Grab samples must be taken, analyzed and evaluated to provide an exact relationship; however, the predetermined relationship used in this procedure should be sufficiently accurate to guide initial emergency response actions and assessments.

List of EXHIBITS:

- 3.6.1-1 Source Term Calculation from Plant Stack Monitors
- 3.6.1-2 Source Term Calculation from #1 RX Gas (1-CAC-AQH-1264-3)
- 3.6.1-3 Source Term Calculation from #1 Turbine Vent
- 3.6.1-4 Source Term Calculation from #2 Rx Gas (2-CAC-AQH-1264-3)
- 3.6.1-5 Source Term Calculation from #2 Turbine Vent

- 3.1 Depending upon alarming channel(s), use appropriate EXHIBIT (EXHIBIT 3.6.1-1 through EXHIBIT 3.6.1-5) to calculate the release source term.

Note: If the time duration of the release is unknown, assume 60 minutes and perform this procedure as directed by the Radiological Control Director.

- 3.2 If only one channel is alarming or reading abnormally high, the source term determined on the appropriate EXHIBIT is the total.

1

SOURCE TERM CALCULATION FROM #1 TURBINE VENT

Release rate is read in $\mu\text{Ci/sec}$ directly from 1-D12-RR-4549 (effluent channel) when the 1-VA-FT-3358 flow instrument loop is operational. The following calculations are necessary when this loop is not operational.

[illegible]

- (1) The monitor automatically selects the most accurate operational channel, either low, mid, or high range. Read the $\mu\text{Ci/cc}$ from the appropriate channel (low, mid, or high) of 1-D12-RR-4548.
- (2) If not available, use 15,000 cfm.
- (3) Release Rate ($\mu\text{Ci/sec}$) = $\mu\text{Ci/cc} \times \text{cfm} \times 472$

EXHIBIT 3.6.1-5

SOURCE TERM CALCULATION FROM #2 TURBINE VENT

Release rate is read in $\mu\text{Ci/sec}$ directly from 2-D12-RR-4549 (effluent channel) when the 2-VA-FT-3358 flow instrument loop is operational. The following calculations are necessary when this loop is not operational.

TIME	MONITOR READING ⁽¹⁾ ($\mu\text{Ci/cc}$)	FLOW ⁽²⁾ (cfm)	CONVERSION FACTOR $\frac{\text{cc/sec}}{\text{cfm}}$ 472	RELEASE RATE ⁽³⁾ ($\mu\text{Ci/sec}$)

- (1) The monitor automatically selects the most accurate operational channel, either low, mid, or high range. Read the $\mu\text{Ci/cc}$ from the appropriate channel (low, mid, or high) of 2-D12-RR-4548.
- (2) If not available, use 15,000 cfm.
- (3) $\text{Release Rate } (\mu\text{Ci/sec}) = \mu\text{Ci/cc} \times \text{cfm} \times 472$

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

INITIAL EMERGENCY ACTIONS

PLANT EMERGENCY PROCEDURE: PEP-02.1

VOLUME XIII

Rev. 009

Reviewed By:

William R. Zoller
QA

Date: 9-30-83

Recommended By:

J. C. Boyer
Director - Administrative Support

Date: 10/4/83

Approved By:

Clint
General Manager

Date: 10/17/83

LIST OF EFFECTIVE PAGES

PEP-02.1

<u>Page(s)</u>	<u>Revision</u>
1 - 3	5
4 - 7	8
8 - 28	9

Section 1 - Abnormal Primary Leak Rate

1.1 Unusual Event

- 1.1.1 Reactor Coolant System total leakage greater than 25 gpm averaged over any 24-hour period using the sum of drywell equipment drain integrator (G16-FQ-K603) and drywell floor drain integrator (G16-FQ-K601), and the leakage rate has not been reduced to less than 25 gpm within eight hours, or plant shutdown is not achieved within required time period.
- 1.1.2 Unidentified Reactor Coolant System leakage greater than 5 gpm averaged over any 24-hour period using the drywell floor drain integrator (G16-FQ-K601), and the leakage rate has not been reduced to less than 5 gpm within eight hours, or plant shutdown is not achieved with required time period.
- 1.1.3 Any nonisolable Reactor Coolant System pressure boundary leakage.

1.2 Alert

- 1.2.1 Loss of coolant accident (primary system leakage greater than 50 gpm) as indicated by:
 - a. Reactor vessel water level falling and normal feedwater system unable to restore (N004A, B, and C).
 - b. Low or falling Reactor Coolant System pressure with rising drywell pressure and temperature (C32-LPC-R6C8, CAC-PIC-2685, and CAC-TR-1258).
 - c. Any time EI-01.2 is implemented.

1.3 Site Emergency

- 1.3.1 Alert indicated above AND failure of any two (or more) ECCS trains to function on demand (HPCI, Core Spray A, Core Spray B, RHR Loop A, or RHR Loop B indicated by annunciators on P601).

1.4 General Emergency

- 1.4.1 Site emergency indicated above AND inability to provide makeup water to the Reactor Coolant System (i.e., simultaneous failure of HPCI, Core Spray A and B, RHR Loops A and B, RCIC, condensate, and feedwater) as indicated by falling or low reactor vessel level with attempts to inject water not successful within 15 minutes.

Section 2 - Steam Line Break or Safety/Relief Valve Failure

2.1 Unusual Event

- 2.1.1 Failure of a nuclear steam system safety/relief valve, including ADS, to open if challenged as indicated at panel (P603) on C32-R608, C32-R609, or C32-R605.

OR

- 2.1.2 Failure to close following reduction from applicable pressure as indicated on annunciator panel A-3, 1-1, 1-10.

CAUTION

Failure is due to an overpressure event, not a test.

2.2 Alert

- 2.2.1 Steam line break downstream of MSIVs or upstream of feedwater isolation valves as indicated by either a and c or b and c:

a. Reactor trip with:

- (1) Low RCS pressure (C32-R608 or C32-R605)

OR

- (2) Low steam pressure (C32-R609)

OR

- (3) Low reactor vessel water level (C32-R608)

OR

- (4) High steam flow (C32-R603)

b. Anytime EI-01.3 is implemented.

AND

- c. Shift Operating Supervisor's opinion or evidence on P601 and P603 of continuing steam flow with steam line break outside of primary containment.

2.3 Site Emergency

- 2.3.1 Alert indicated above AND inability to close MSIVs within 15 minutes.

2.4 General Emergency

N/A

Section 3 - Abnormal Core Conditions and Fuel Damage

3.1 Unusual Event

Failed fuel as indicated by:

3.1.1 Liquid

- a. Reactor Coolant System (RCS) activity greater than 4.0 $\mu\text{Ci/ml}$ I-131 dose equivalent.
- b. RCS activity greater than 0.2 $\mu\text{Ci/ml}$ I-131 dose equivalent but less than limit above for more than 48 hours.
- c. RCS activity greater than $100/\bar{E}$ $\mu\text{Ci/ml}$ for all isotopes.

3.1.2 Gaseous

- a. Condenser off-gas radiation monitor (D12-RM-K601 A & B) reading of greater than 3×10^4 mR/hr.
- b. An increase of greater than 6×10^3 mR/hr in 30 minutes on the condenser off-gas radiation monitor (D12-RM-K601 A & B).

3.2 Alert

3.2.1 Liquid

Reactor coolant activity greater than 40 $\mu\text{Ci/ml}$ I-131 dose equivalent.

3.2.2 Gaseous

Condenser off-gas radiation monitor (D12-RM-K601 A & B) reading of greater than 3×10^5 mR/hr.

3.3 Site Emergency

- 3.3.1 Reactor Coolant System activity is greater than 400 $\mu\text{Ci/ml}$ I-131 dose equivalent.

3.4 General Emergency

- 3.4.1 Reactor Coolant System activity is greater than 4000 $\mu\text{Ci/ml}$ I-131 dose equivalent.
- 3.4.2 Loss of any two of the three fission product barriers below:
 - a. Failed fuel causing RCS activity greater than 40 $\mu\text{Ci/ml}$.

- b. Loss of primary coolant boundary.
 - (1) Loss of coolant accident (defined in Section 1 - Alert).
 - (2) Major steam line break (defined in Section 2 - Alert).
- c. Loss of primary containment integrity as defined in technical specifications.

NOTE

- (1) Primary containment integrity, according to technical specifications, shall exist when:
 - (a) All penetrations required to be closed during accident conditions are either:
 - 1) Capable of being closed by an operable containment automatic isolation valve system, or;
 - 2) Closed by at least one manual valve, blind flange, or deactivated automatic valve secured in its closed position, except as provided in Table 3.6.3-1 of Technical Specification 3.6.3.1.
- (2) All equipment hatches are closed and sealed.
- (3) Each containment air lock is operable pursuant to Technical Specification 3.6.1.3.
- (4) The containment leakage rates are within the limits of Technical Specification 3.6.1.2.
- (5) The sealing mechanism associated with each penetration (e.g., welds, bellows, or O-rings) is operable.

Section 4 - Abnormal Radiological Effluent or Radiation Levels

4.1 Unusual Event

4.1.1 Liquid Release

- a. Any unplanned release from the liquid waste system resulting in activity levels greater than those in 10CFR20, Appendix B, Table II, Column 2 to the discharge canal.
- b. A planned release giving activity levels greater than those given in 10CFR20, Appendix B, Table II, Column 2 to the discharge canal as indicated by a failure to isolate or terminate the release upon:
 - (1) Exceeding the RMS setpoint.

OR

- (2) Exceeding two times the permitted release flow rate and loss of a circulating water pump.
- c. Any other accidental, unplanned, or uncontrolled off-site liquid release which exceeds or which could have exceeded 10 curies.

4.1.2 Gaseous Release

- a. Any gaseous release which exceeds the dose rate limit specified in BSEP Environmental Technical Specification 2.5.2.a(1) or Technical Specification 3.11.2.1(a) when it is implemented (i.e., exceeding the noble gas instantaneous dose rate limit as evaluated by OG-06).

- 4.1.3 Any building evacuation based on confirmed radiological conditions (i.e., greater than 10 mpc airborne [except precautionary]).

4.2 Alert

4.2.1 Liquid Release

- a. Any liquid release resulting in activity concentration levels in the discharge canal that are greater than 10 times those given in 10CFR20, Appendix B, Table II, Column 2 as indicated by:

- (1) The service water discharge monitor (D12-RM-K605) reading greater than 1000 cps.

OR

- (2) Actual field measurements.

4.2.2 Gaseous Release

Any gaseous release which exceeds 10 times the dose rate limit specified in BSEP Environmental Technical Specification 2.5.2.a(1) or Technical Specification 3.11.2.1(a) when it is implemented (i.e., exceeding 10 times the noble gas instantaneous dose rate limit as evaluated by OG-06).

4.2.3 In-plant Leak or Spill

- a. Any area radiation monitor or continuous air monitor off-scale high and radiological conditions are confirmed.
- b. Any site evacuation based on confirmed radiological conditions.
- c. Reactor Building closed cooling water monitor (D12-RM-K606) off-scale high and high activity is confirmed by sampling.

4.3 Site Emergency

- 4.3.1 Any release to the environment resulting in an off-site dose rate in excess of 0.1 rem/hr (whole body) or 0.5 rem/hr (thyroid) as indicated by:

- a. Dose projections using actual effluent data and actual meteorological conditions calculated in accordance with PEP Section 3.4.
- b. Dose projections using estimated or assumed data (if actual data is unavailable) calculated in accordance with PEP Section 3.4.
- c. Field measurements at or beyond the site boundary.

- 4.3.2 EPA protective action guidelines are projected to be exceeded outside the site boundary.

4.4 General Emergency

- 4.4.1 Any release to the environment resulting in an off-site dose rate in excess of 1.0 rem/hr (whole body) or 5.0 rem/hr (thyroid) as indicated by:

- a. Dose projections using actual effluent data and actual meteorological conditions calculated in accordance with PEP Section 3.4.
- b. Dose projections using estimated or assumed data (if actual data is unavailable) calculated in accordance with PEP Section 3.4.
- c. Field measurement at or beyond the site boundary.

Section 5 - Loss of Shutdown Functions: Decay Heat and Reactivity

5.1 Unusual Event

N/A

5.2 Alert

5.2.1 Complete loss of ability to maintain plant in cold shutdown:

- a. Loss of essential service water loops.

OR

- b. Loss of RHR loops A and B.

AND

- c. Loss of Condenser Condensate System.

5.2.2 Failure of the Reactor Protection System to initiate and complete a scram, indicated on Panel A-5, which brings the reactor to a subcritical condition as indicated by full core display panel P603 and neutron monitoring instruments (APRM and IRM).

5.3 Site Emergency

5.3.1 Failure of the Reactor Protection System to initiate and complete a scram as indicated by Alert 5.2.2.

AND

Failure of standby liquid control to bring the reactor to a subcritical condition.

5.4 General Emergency

5.4.1 Site emergency indicated above lasting greater than 30 minutes.

AND

5.4.2 Loss of main condenser heat removal capability indicated by MSIVs shut or loss of vacuum on condenser vacuum indicator.

AND EITHER

- a. Failure of all low pressure coolant injection trains indicated on panel P601.

OR

- b. Failure of all service water trains necessary for decay heat removal indicated on panel P601 (RHR service water) and panel XU2 (nuclear and conventional service water).

Section 6 - Electrical or Power Failures

6.1 Unusual Event

- 6.1.1 Loss of all off-site power, indicated by turbine trip, and startup auxiliary transformer deenergized.

OR

- 6.1.2 Loss of all on-site AC power capability indicated by failure of diesel generators to start or synchronize.

6.2 Alert

- 6.2.1 Loss of all vital DC power.

OR

- 6.2.2 a. Loss of off-site power, indicated by turbine trip, and startup auxiliary transformer deenergized.

AND

- b. Loss of all on-site AC power capability indicated by failure of diesel generators to start or synchronize.

6.3 Site Emergency

- 6.3.1 Either Alert condition 6.2.1 or 6.2.2 listed above AND lasting more than 15 minutes.

6.4 General Emergency

N/A

Section 7 - Fire

7.1 Unusual Event

- 7.1.1 Unplanned fire within the protected area not brought under control more than 10 minutes after activation of a Fire Suppression System or 10 minutes after manual fire fighting efforts have begun.

7.2 Alert

- 7.2.1 Conditions described in unusual event above AND which could potentially affect vital safety-related equipment.

7.3 Site Emergency

- 7.3.1 Any fire that impairs the operability of any vital equipment which, in the opinion of the Shift Operating Supervisor, is essential to maintain the plant in a safe condition.

7.4 General Emergency

N/A

Section 8 - Control Room Evacuation

8.1 Unusual Event

N/A

8.2 Alert

- 8.2.1 Evacuation of Control Room anticipated or required with control of shutdown established from local stations.

8.3 Site Emergency

- 8.3.1 Evacuation of Control Room AND local control of shutdown is not established in 15 minutes.

8.4 General Emergency

N/A

Section 9 - Loss of Monitors or Alarm

9.1 Unusual Event

- 9.1.1 Indications or alarms on process or effluent parameters not functional in the Control Room to an extent requiring plant shutdown or other significant loss of assessment or communication capability for greater than 60 minutes.

9.2 Alert

- 9.2.1 Loss of all alarms or annunciators for greater than 15 minutes.

9.3 Site Emergency

- 9.3.1 Loss of all alarms or annunciators AND occurrence of a plant transient.

9.4 General Emergency

N/A

Section 10 - Fuel Handling Accident

10.1 Unusual Event

N/A

10.2 Alert

10.2.1 Fuel handling accident involving damage to new or spent fuel indicated by:

- a. Observation/report AND alarm on:
 - (1) Reactor Building ventilation monitor D12-K610A, B.
 - (2) Reactor Building roof ventilation monitor CAC-1264.
 - (3) Refuel floor area monitor channel 1-28 or 2-28.
- b. Any time EI-22, Spent Fuel Damage, is implemented.

10.3 Site Emergency

10.3.1 Major damage to spent fuel indicated by:

- a. Observation of substantial damage to multiple fuel assemblies.
- b. Observation that water level has dropped below the top of the fuel.

AND

- c. Indications or alarms listed in 10.2.1.a above.

10.4 General Emergency

N/A

Section 11 - Security Threats

11.1 Unusual Event

- 11.1.1 Security threats (bomb threat, attack threat, and civil disobedience).
- 11.1.2 Attempted sabotage.
- 11.1.3 Attempted unauthorized entry.

11.2 Alert

- 11.2.1 Attempted sabotage with successful entry into the protected area.

11.3 Site Emergency

- 11.3.1. Physical attack on the plant involving imminent occupancy of the Control Room, auxiliary shutdown panels, and other vital areas.

11.4 General Emergency

- 11.4.1 Physical attack on the plant has resulted in unauthorized personnel occupying the Control Room and other vital areas.

Section 12 - Injury or Specific LCOs

12.1 Unusual Event

- 12.1.1 Transportation of a contaminated injured individual from the site to an off-site hospital.
- 12.1.2 Emergency Core Cooling System initiated and discharging to vessel, other than by operator action, which in the opinion of the Shift Operating Supervisor constitutes declaration of an unusual event.
- 12.1.3 Loss of containment integrity requiring shutdown by technical specifications and shutdown is not achieved within required time period.
- 12.1.4 Loss of engineered safety feature or Fire Protection System function requiring shutdown by technical specifications and shutdown is not achieved within required time period.

12.2 Alert

N/A

12.3 Site Emergency

N/A

12.4 General Emergency

N/A

Section 13 - Hazards to Plant Operations

13.1 Unusual Event

- 13.1.1 Aircraft crash within site boundaries with the potential to endanger safety-related equipment.
- 13.1.2 Unplanned explosion within the site boundaries with the potential to endanger safety-related equipment.
- 13.1.3 Release of toxic or flammable gas that could endanger personnel.

13.2 Alert

- 13.2.1 Explosion, aircraft crash, or missile resulting in major damage to structures housing safety-related systems.
- 13.2.2 Unplanned and uncontrolled entry of toxic or flammable gases into vital areas in sufficient quantities to endanger personnel or the operability of safety-related equipment.
- 13.2.3 Turbine failure causing penetration of its outer casing.

13.3 Site Emergency

- 13.3.1 Explosion, aircraft crash, or missile resulting in major damage to safe shutdown equipment.
- 13.3.2 Uncontrolled entry of flammable or toxic gases into vital areas where lack of access constitutes a safety problem.

13.4 General Emergency

N/A

Section 14 - Natural Events

14.1 Unusual Event

14.1.1 Alarm on seismic monitor AND confirmation of earthquake.

14.1.2 Hurricane requiring implementation of EI-37.1.

14.2 Alert

14.2.1 Earthquake registering greater than 0.08g on seismic instrumentation.

14.2.2 Any adverse weather conditions that causes a loss of function of two or more safety trains.

14.3 Site Emergency

14.3.1 Earthquake registering greater than 0.16g on seismic instrumentation.

14.3.2 Flood, low water, or hurricane surge greater than design levels or failure to protect vital equipment at lower levels and plant not in cold shutdown.

14.3.3 Plant not in cold shutdown with hurricane winds exceeding:

a. 0 - 50 ft. above ground level (130 mph).

b. 51 - 100 ft. above ground level (150 mph).

c. 101 - 300 ft. above ground level (130 mph).

14.4 General Emergency

N/A

Section 15 - Shift Operating Supervisor/Site Emergency Coordinator Judgments

When any condition exists which indicates a necessity for an increased level of awareness or readiness above previous plant conditions, the Shift Operating Supervisor/Site Emergency Coordinator should use his judgment to declare the appropriate emergency status for the plant.

15.1 Unusual Event

- 15.1.1 Plant conditions exist that warrant increased awareness by plant staff such as exceeding any technical specification safety limit.

15.2 Alert

- 15.2.1 Plant conditions exist that reflect a significant degradation in the safety of the reactor, but releases from this event would be small.

15.3 Site Emergency

- 15.3.1 Plant conditions exist that involve major failures of equipment and that will lead to core damage. Unless corrective action is taken, significant radiation releases may occur.

15.4 General Emergency

- 15.4.1 Plant conditions exist that make a release of a large amount of radioactivity in a short time possible; any core melt situation.

Shift Operating Supervisor learns of an off normal condition, determined by instrument readings or observation. Shift Operating Supervisor implements PEP-2.1, which flows as shown on this sheet.

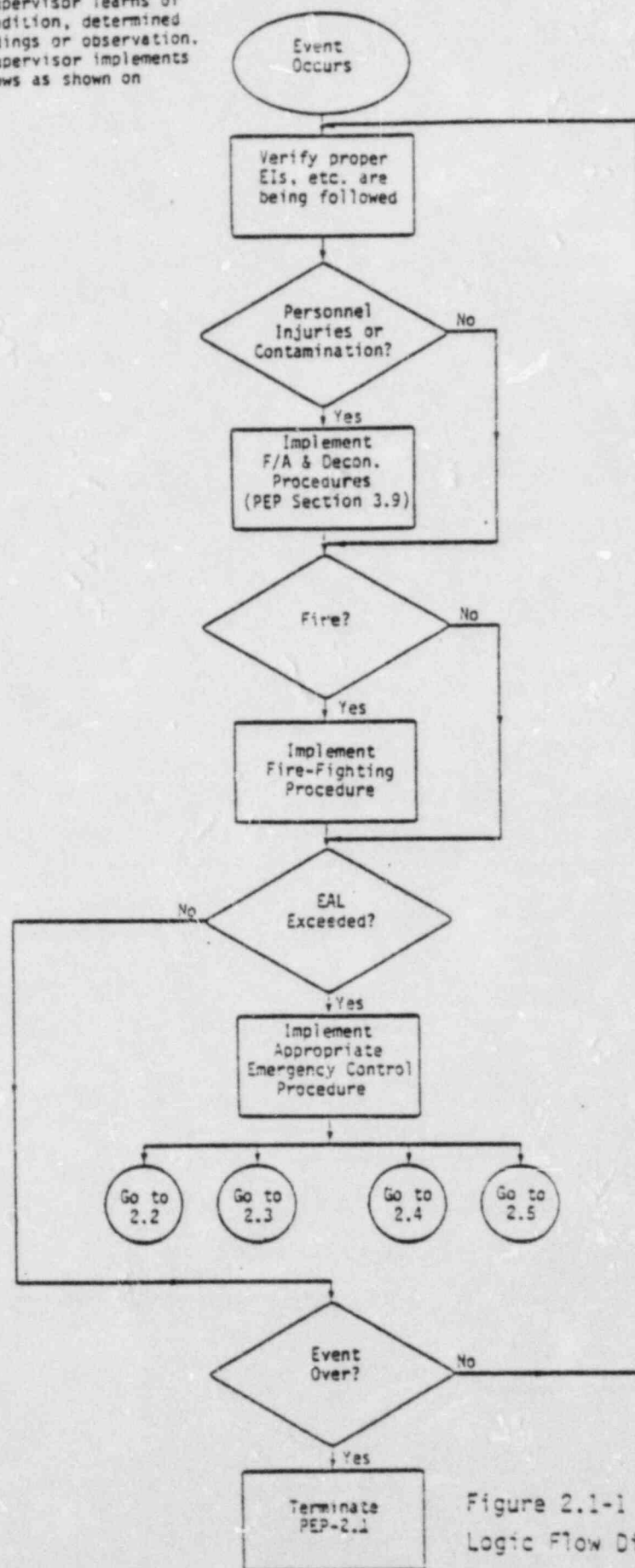


Figure 2.1-1
Logic Flow Diagram for PEP-2.1

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

EMERGENCY CONTROL - UNUSUAL EVENT

PLANT EMERGENCY PROCEDURE: PEP-02.2

VOLUME XIII

Rev. 005

Reviewed By:

William R. Zolner
QA

Date: 10-4-83

Recommended By:

LC Bayer
Director - Administrative Support

Date: 10/4/83

Approved By:

Clint
General Manager

Date: 10/14/83

LIST OF EFFECTIVE PAGES

PEP-02.2

<u>PAGE(S)</u>	<u>REVISION</u>
1 - 5	2
6	5
7 - 10	3
11 - 12	5
13 - 14	3

EXHIBIT 2.2-1

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

A. For Sender:

1. Complete Part I for the Initial Warning Message.
2. Complete Part I and II for follow-up messages.
3. When the event is terminated return this form to the Director - Administrative Support.
4. Have message form approved before beginning notifications.

Approved _____ Date _____

PART I

1. This is the Brunswick Steam Electric Plant.
2. My name is: _____
3. This message (number ____):
____ (a) Reports a real emergency.
____ (b) Is an exercise message.
4. My telephone number/extension is _____.
5. Message Authentication: _____
(Verify code word or call back to the facility.)
6. The class of emergency is:
____ (a) Notification of Unusual Event
____ (b) Alert
____ (c) Site Emergency
____ (d) General Emergency

4. _____
 (name) (title)

(date) (time) (warning point)

5. _____
 (name) (title)

(date) (time) (warning point)

6. _____
 (name) (title)

(date) (time) (warning point)

7. _____
 (name) (title)

(date) (time) (warning point)

END OF FOLLOW-UP MESSAGE

-NOTE-

WHEN THE EVENT IS TERMINATED RETURN THIS FORM TO THE
 DIRECTOR - ADMINISTRATIVE SUPPORT

EXHIBIT 2.2-2

IMMEDIATE NOTIFICATION CHECKLIST FOR AN UNUSUAL EVENT

Instructions:

- 1) The sequence of notification priority is shown on the chart below.
- 2) State and County Warning Points should be notified by Automatic Ringdown phone (ARD). Be sure all three (3) parties are on the line before beginning message. If not operable, use telephone number provided.
- 3) Notification of indicated organization/individual should be made within sixty (60) minutes from the declaration of an Unusual Event.
- 4) Appendix A contains supplemental phone numbers for off-site individuals/organizations not listed below.

CONTACT TIME	ORGANIZATION/INDIVIDUAL TO BE CONTACTED	PERSON CONTACTED	TIME CONTACTED
60 min.	State Warning Point(1) (ARD or [REDACTED])		
60 min.	Brunswick County Warning Point (ARD or [REDACTED])		
60 min.	New Hanover County Warning Point (ARD or [REDACTED])		
60 min.	U.S. Coast Guard [REDACTED]		
60 min.	Nuclear Regulatory Commission (Red Phone or Appendix A)		
60 min.	V.P. - Brunswick Nuclear Project (Home [REDACTED] or Appendix A.4) (Office [REDACTED])		
	NRC Resident Inspector D. O. Myers Home [REDACTED] Page [REDACTED]		

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

EMERGENCY CONTROL - ALERT

PLANT EMERGENCY PROCEDURE: PEP-02.3

VOLUME XIII

Rev. 005

Reviewed By: William R. Zoler
QA

Date: 10-4-83

Recommended By: L. E. Boyer
Director - Administrative Support

Date: 10/4/83

Approved By: C. J. [Signature]
General Manager

Date: 10/14/83

LIST OF EFFECTIVE PAGES

PEP-02.3

<u>PAGE(S)</u>	<u>REVISION</u>
1 - 6	2
7	5
8 - 11	3
12 - 13	5
14 - 15	3

EXHIBIT 2.3-1

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

A. For Sender:

1. Complete Part I for the Initial Warning Message.
2. Complete Part I and II for follow-up messages.
3. When the event is terminated return this form to the Director - Administrative Support.
4. Have message form approved before beginning notifications.

Approved _____ Date _____

PART I

1. This is the Brunswick Steam Electric Plant.
2. My name is: _____
3. This message (number ____):
____ (a) Reports a real emergency.
____ (b) Is an exercise message.
4. My telephone number/extension is _____.
5. Message Authentication: _____
(Verify code word or call back to the facility.)
6. The class of emergency is:
____ (a) Notification of Unusual Event
____ (b) Alert
____ (c) Site Emergency
____ (d) General Emergency

4. _____
 (name) _____ (title) _____

 (date) _____ (time) _____ (warning point) _____

5. _____
 (name) _____ (title) _____

 (date) _____ (time) _____ (warning point) _____

6. _____
 (name) _____ (title) _____

 (date) _____ (time) _____ (warning point) _____

7. _____
 (name) _____ (title) _____

 (date) _____ (time) _____ (warning point) _____

END OF FOLLOW-UP MESSAGE

-NOTE-

WHEN THE EVENT IS TERMINATED RETURN THIS FORM TO THE
 DIRECTOR - ADMINISTRATIVE SUPPORT

EXHIBIT 2.3-2

IMMEDIATE NOTIFICATION CHECKLIST FOR AN ALERT

Instructions:

- 1) The sequence of notification priority is shown on the chart below.
- 2) State and County Warning Points should be notified by Automatic Ringdown Phone (ARD). Be sure all three (3) parties are on the line before beginning the message. If not operable, use telephone number provided.
- 3) Notification of the organization/individual should be made within the time indicated after the declaration of an Alert.
- 4) Appendix A contains phone numbers for off-site organizations/individuals not listed below.

CONTACT TIME	ORGANIZATION/INDIVIDUAL TO BE CONTACTED	PERSON CONTACTED	TIME CONTACTED
15 min.	State Warning Point (ARD or [REDACTED])		
15 min.	Brunswick County Warning Point (ARD or [REDACTED])		
15 min.	New Hanover County Warning Point (ARD or [REDACTED])		
60 min.	U.S. Coast Guard [REDACTED]		
60 min.	U.S. Nuclear Regulatory Commission (Red Phone or Appendix A)		
60 min.	V.P. - Brunswick Nuclear Project (Home [REDACTED] or Appendix A.4) (Office [REDACTED])		
	INPO [REDACTED]		
	NRC Resident Inspector D. O. Myers Home [REDACTED] Page [REDACTED]		

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

EMERGENCY CONTROL - SITE EMERGENCY

PLANT EMERGENCY PROCEDURE: PEP-02.4

VOLUME XIII

Rev. 005

Reviewed By: William Burton Date: 10-13-83
QA

Recommended By: LE Bayer Date: 10/13/83
Director - Administrative Support

Approved By: D. J. [Signature] Date: 10/14/83
General Manager

LIST OF EFFECTIVE PAGES

PEP-02.4

<u>PAGE(S)</u>	<u>REVISION</u>
1 - 7	2
8	5
9 - 11	3
12 - 13	5
14 - 15	3

EXHIBIT 2.4-1

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

A. For Sender:

1. Complete Part I for the Initial Warning Message.
2. Complete Part I and II for follow-up messages.
3. When the event is terminated, return this form to the Director - Administrative Support.
4. Have message form approved before beginning notifications.

Approved _____ Date _____

Time: _____ Date: _____

Message Received By: _____

PART I

1. This is Brunswick Steam Electric Plant.
2. My name is: _____
3. This message (number ____):
____ (a) Reports a real emergency.
____ (b) Is an exercise message.
4. My telephone number/extension is _____.
5. Message Authentication: _____
(Verify code word or call back to the facility.)
6. The class of emergency is:
____ (a) Notification of Unusual Event
____ (b) Alert
____ (c) Site Emergency
____ (d) General Emergency
7. This classification of emergency was declared at ____ (a.m./p.m.) on
____ (date).

4. _____
 (name) _____ (title) _____

(date) _____ (time) _____ (warning point) _____

5. _____
 (name) _____ (title) _____

(date) _____ (time) _____ (warning point) _____

6. _____
 (name) _____ (title) _____

(date) _____ (time) _____ (warning point) _____

7. _____
 (name) _____ (title) _____

(date) _____ (time) _____ (warning point) _____

END OF FOLLOW-UP MESSAGE

-NOTE-

WHEN THE EVENT IS TERMINATED RETURN THIS FORM TO THE
 DIRECTOR - ADMINISTRATIVE SUPPORT

EXHIBIT 2.4-2

IMMEDIATE NOTIFICATION CHECKLIST FOR SITE EMERGENCY

Instructions:

1. The sequence of notification priority is shown on the chart below.
2. If S.E.R.T. headquarters is activated, DO NOT notify state, county, or Coast Guard warning points.
3. If S.E.R.T. is NOT activated, state and county warning points should be notified by Automatic Ringdown Phone (ARD). If not operable, use phone numbers provided.
4. Notification of the organization/individual should be made within the time indicated after the declaration of Site Emergency.

Contact Time	Organization/Individual To Be Contacted	Person Contacted	Time Contacted
15 minutes	S.E.R.T. Headquarters (if activated) (ARD or [REDACTED])		
15 minutes	State Warning Point (ARD or [REDACTED])		
15 minutes	Brunswick County Warning Point (ARD or [REDACTED])		
15 minutes	New Hanover County Warning Point (ARD or [REDACTED])		
60 minutes	U. S. Coast Guard [REDACTED]		
60 minutes	Nuclear Regulatory Commission (Red Phone or Appendix A)		
60 minutes	V.P. - Brunswick Nuclear Project (Home [REDACTED] or Appendix A.4) (Office [REDACTED])		
	INPO [REDACTED]		
	NRC Resident Inspector D. O. Myers Home [REDACTED]		

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

EMERGENCY CONTROL - GENERAL EMERGENCY

PLANT EMERGENCY PROCEDURE: PEP-02.5

VOLUME XIII

Rev 006

Reviewed By:

William R. Zoler
QA

Date: 10-4-83

Recommended By:

LL Bayne
Director - Administrative Support

Date: 10/4/83

Approved By:

Chas
General Manager

Date: 10/14/83

LIST OF EFFECTIVE PAGES

PEP-02.5

<u>PAGE(S)</u>	<u>REVISION</u>
1	6
2	5
3	6
4 - 5	5
6	2
7	6
8 - 10	3
11 - 15	6
16 - 17	5

PEP-2.5 EMERGENCY CONTROL - GENERAL EMERGENCY

1.0 Responsible Individuals and Objectives

1.1 The Site Emergency Coordinator is responsible for:

- 1.1.1 Directing and coordinating the combined activities of plant personnel in the Control Room, the Technical Support Center, the Operational Support Center, the Plant Media Center, and elsewhere on the site.
- 1.1.2 Making the immediate in-plant notifications.
- 1.1.3 Making the immediate off-site notifications prior to activation of the Emergency Operations Facility. This notification should include recommendations to consider sheltering the population in a two-mile radius.
- 1.1.4 Activating and issuing instructions to the Radiological Emergency Teams and the Technical Support Group.
- 1.1.5 Activating and issuing instructions to additional Emergency Teams, as needed, and assuring that the appropriate procedures are being followed.
- 1.1.6 Requesting outside emergency response assistance, if required.
- 1.1.7 Augmenting the on-site shift personnel.
- 1.1.8 Assessing the emergency condition for possible reclassification or termination.
- 1.1.9 Assigning Emergency Communicator.

Note: Figure 2.5-1 (found at the end of this procedure) provides a Logic Flow Diagram of this procedure.

1.2 The Emergency Communicator is responsible to the Site Emergency Coordinator for:

- 1.2.1 Assisting in making the notifications.
- 1.2.2 Contacting needed off-duty personnel and requesting they report to the site.
- 1.2.3 Contacting outside emergency response agencies, if required, prior to Emergency Response Facility Activation.
- 1.2.4 Documenting calls in accordance with PEP Section 3.1, "Communications Procedures."

1.3 Upon activation, the Emergency Response Manager is responsible for:

Note: If the Parking Lot is not the appropriate assembly area for non-emergency response personnel, announce an alternate location over the plant PA.

If the Service Building is not the appropriate location for the Operational Support Center, announce an alternate location over the plant PA.

3.2 Initiate appropriate on-site protective actions:

3.2.1 Implement PEP-3.8.1, "Evacuation."

3.2.2 Implement PEP-3.8.2, "Personnel Accountability."

Note: Personnel Accountability reports shall be completed within 30 minutes of time recorded in Step 3.1 above.

3.2.3 Implement PEP-3.8.4, "Access Control."

3.2.4 Activate the Operational Support Center once personnel accountability is complete.

3.3 Complete (or direct completion of) and approve EXHIBIT 2.5-1, "Immediate Notification Information - General Emergency." Refer to Exhibit 2.5-4 for Recommended Protective Actions.

Note: At a minimum, recommend that the public notification process be initiated with consideration given to sheltering of the population in a two-mile radius.

3.4 Direct Emergency Communicator to transmit the information on EXHIBIT 2.5-1 to those persons and agencies identified in EXHIBIT 2.5-2, "Immediate Notification Checklist for a General Emergency."

Note: The Emergency Communicator shall perform Steps 3.4.1 through 3.4.5. These notifications should indicate that mobilization and activation is required for a General Emergency.

Note: If the EOF has been activated, the Emergency Communicator will transmit the information on EXHIBIT 2.5-1, "Immediate Notification Information - General Emergency," to the Emergency Response Manager or his designated representative. The Emergency Response Manager, in coordination with the Site Emergency Coordinator, is then responsible to carry out Steps 3.4.1 through 3.4.5.

3.4.1 Utilize EXHIBIT 2.5-2, "Immediate Notification Checklist for General Emergency," to determine which organizations and individuals must be contacted. Request information from the Site Emergency Coordinator regarding which of the optional contacts should be made.

EXHIBIT 2.5-1

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

A. For Sender:

1. Complete Part I for the Initial Warning Message.
2. Complete Part I and II for follow-up messages.
3. When the event is terminated, return this form to the Director - Administrative Support.
4. Have message form approved before beginning notifications.

Approved _____ Date _____

PART I

1. This is Brunswick Steam Electric Plant.
2. My name is: _____
3. This message (number ____):
____ (a) Reports a real emergency.
____ (b) Is an exercise message.
4. My telephone number/extension is _____.
5. Message Authentication: _____
(Verify code word or call back to the facility.)
6. The class of emergency is:
____ (a) Notification of Unusual Event
____ (b) Alert
____ (c) Site Emergency
____ (d) General Emergency

2.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
3.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
4.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
5.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
6.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
7.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)

END OF FOLLOW-UP MESSAGE

-NOTE-

WHEN THE EVENT IS TERMINATED RETURN THIS FORM TO THE
DIRECTOR - ADMINISTRATIVE SUPPORT

EXHIBIT 2.5-2

IMMEDIATE NOTIFICATION CHECKLIST FOR GENERAL EMERGENCY

Instructions:

- 1) The sequence of notification priority is shown on the chart below.
- 2) If SERT Headquarters is activated do not notify State, County, or Coast Guard Warning Points.
- 3) If SERT Headquarters is not activated, State and County Warning Points should be notified by automatic ringdown phone, (ARD). If not operable, use phone numbers provided.
- 4) Notification of the organization/individual should be made within the time indicated after the Declaration of General Emergency.

CONTACT TIME	ORGANIZATION/INDIVIDUAL TO BE CONTACTED	PERSON CONTACTED	TIME CONTACTED
15 min.	SERT Headquarters (If activated) (ARD or [REDACTED])		
15 min.	State Warning Point (ARD or [REDACTED])		
15 min.	Brunswick County Warning Point (ARD or [REDACTED])		
15 min.	New Hanover County Warning Point (ARD or [REDACTED])		
60 min.	U.S. Coast Guard [REDACTED]		
60 min.	U.S. Nuclear Regulatory Commission (Red Phone or Appendix A)		
60 min.	V.P. - Brunswick Nuclear Project (Home [REDACTED] or Appendix A.4) (Office [REDACTED])		
	INPO [REDACTED]		
	NRC Resident Inspector D. O. Myers Home [REDACTED] Page [REDACTED]		

EXHIBIT 2.5-3

EMERGENCY ORGANIZATION NOTIFICATION CHECKLIST (General Emergency)

EMERGENCY ORGANIZATION POSITION	Interim Assign- ment (Name)	Key Personnel Called to		
		Standby (√)	Activate (√)	Person Contacted
Primary Site Emergency Coordinator			✓	
Primary Emergency Communicator			✓	
Plant Operations Director			✓	
Emergency Repair Director			✓	
Logistics Support Director			✓	
Radiological Control Director			✓	
Environmental Monitoring Team Leader			✓	
Plant Monitoring Team Leader			✓	
Personnel Protection and Decontamination Team Leader			✓	
Dose Projection Team Leader			✓	
Accident Assessment Leader			✓	
Emergency Security Team Leader			✓	
Damage Control Team Leader			✓	
Operational Support Center Leader			✓	
Representative at the State Emergency Response Team Headquarters			✓	
Emergency Switchboard Operators			✓	
OTHER PERSONNEL				
Name	Emergency Assignment			

Approved for release: _____/_____/_____
initials time date

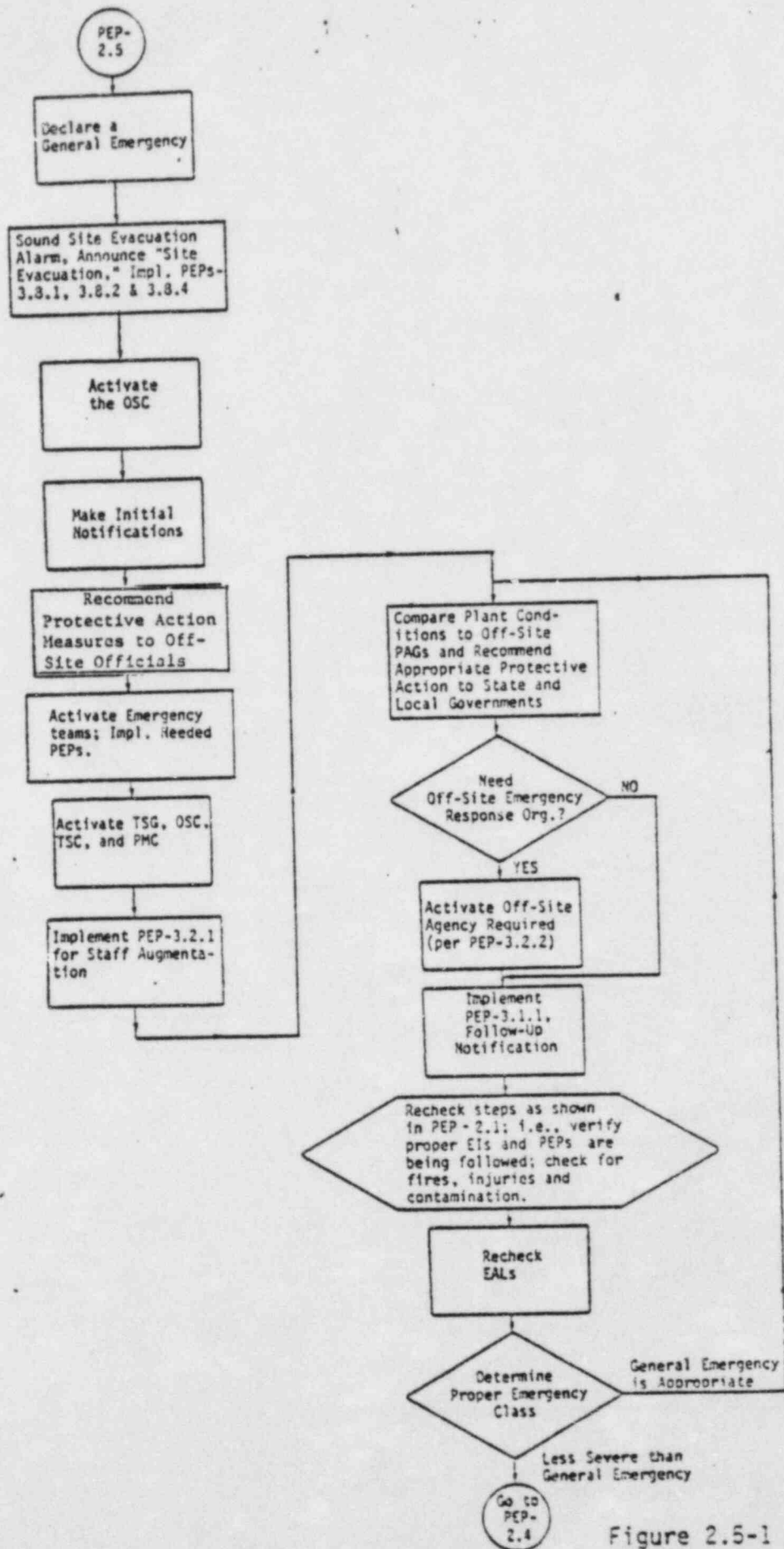


Figure 2.5-1
Logic Flow Diagram for PEP-2.5
Rev. 6

EXHIBIT 2.5-4*

PROTECTIVE ACTION RECOMMENDATIONSI. PROTECTIVE ACTIONS FOR IMMEDIATE NOTIFICATIONS
(NO DOSE PROJECTION REQUIRED)

RECOMMEND STATE SHOULD CONSIDER SHELTERING TWO-MILE RADIUS AND
FIVE MILES DOWNWIND WHEN GENERAL EMERGENCY IS DECLARED

II. EPA PROTECTIVE ACTIONS AT VARIOUS
PROJECTED DOSES

REPRESENTATIVE PROTECTIVE ACTIONS TO REDUCE WHOLE BODY AND THYROID DOSE
FROM EXPOSURE TO A GASEOUS PLUME

<u>Projected Dose (rem)</u>	<u>Recommended Action(s)</u>	<u>Comments</u>
	(a)	
	(b)	
Whole Body < 1.0 or Thyroid < 5.0	No planned protective action. State may issue an advisory to seek shelter and await further instructions. Monitor environmental radiation levels.	Previously recommended protective actions may be reconsidered or terminated.
Whole Body 1 to < 5 or Thyroid 5 to < 25	Seek shelter as a minimum. Consider evacuation unless constraints make it impractical. Monitor environmental radiation levels. Control access.	If constraints exist, special consideration should be given for evacuation of children and pregnant women.
Whole Body 5 or above or Thyroid 25 or above	Conduct mandatory evacuation. Monitor environmental radiation levels and adjust for mandatory evacuation based on these levels. Control access.	Seeking shelter would be an alternative if evacuation were not immediately possible.

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

(b) At the time of the incident, officials may implement low-impact protective actions in keeping with the principle of maintaining radiation exposures as low as reasonably achievable.

*References: EPA-520 and FDA recommendations made in the Federal Register/Volume 47, No. 205/10-22-82/
Notices pp. 47073-47084.

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

FOLLOW-UP NOTIFICATIONS AND COMMUNICATIONS

PLANT EMERGENCY PROCEDURE: PEP-03.1.1

VOLUME XIII

Rev 004

Reviewed By: William R. Zolner
QA

Date: 10-4-83

Recommended By: W. G. Boyer
Director - Administrative Support

Date: 10/4/83

Approved By: C. J. [Signature]
General Manager

Date: 10/4/83

LIST OF EFFECTIVE PAGES

PEP-03.1.1

<u>Page(s)</u>	<u>Revision</u>
1 - 2	3
3	4
4 - 7	3
8	4
9 - 10	3

WARNING MESSAGE: NUCLEAR FACILITY TO STATE/LOCAL GOVERNMENT

Instructions:

A. For Sender:

1. Complete Part I for the Initial Warning Message.
2. Complete Part I and II for follow-up messages.
3. When the event is terminated return this form to the Director - Administrative Support.
4. Have message form approved before beginning notifications.

Approved _____ Date _____

PART I

1. This is Brunswick Steam Electric Plant.
2. My name is: _____
3. This message (number ____):
____ (a) Reports a real emergency.
____ (b) Is an exercise message.
4. My telephone number/extension is _____.
5. Message Authentication: _____
(Verify code word or call back to the facility.)
6. The class of emergency is:
____ (a) Notification of Unusual Event
____ (b) Alert
____ (c) Site Emergency
____ (d) General Emergency

4.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
5.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
6.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)
7.	_____		_____
	(name)		(title)
	_____		_____
	(date)	(time)	(warning point)

END OF FOLLOW-UP MESSAGE

-NOTE-

WHEN EVENT IS TERMINATED RETURN THIS FORM TO THE
DIRECTOR - ADMINISTRATIVE SUPPORT

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

UNIT 0

EMERGENCY RESPONSE RESOURCES

PLANT EMERGENCY PROCEDURES: PEP-APPENDIX A

VOLUME XIII

Rev. 010

Reviewed By:

William R. Zoller
QA

Date:

9-30-83

Recommended By:

J. C. Boyer
Director - Administrative Support

Date:

10/4/83

Approved By:

C. J. King
General Manager

Date:

10/14/83

LIST OF EFFECTIVE PAGES

PEP-APPENDIX A

<u>Pages</u>	<u>Revision</u>
1 - 3	9
4	10
5	9
6	7
7	8
8	7
9	10
10	8

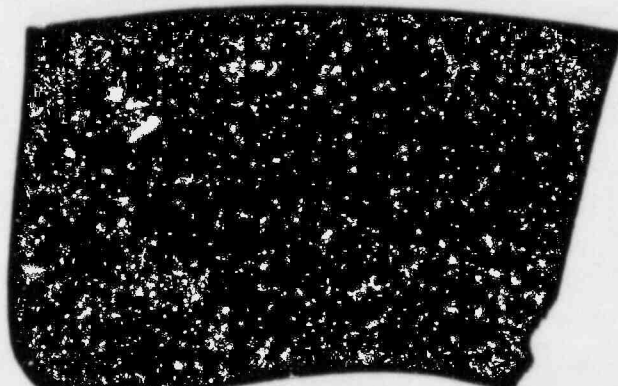
Environmental and Radiation Control

Home

Office

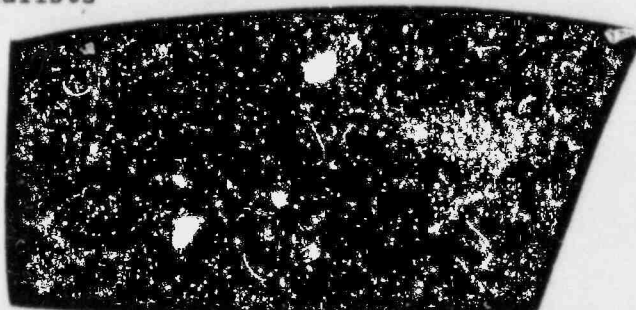
Foremen

A. H. Caylor (E&C)
W. L. Conn (RC)
T. W. Doudna (RC)
B. E. Faylor (RC)
J. B. Keyser (RC)
M. L. Millinor (E&C)
W. A. Nurnberger (E&C)
R. S. Otey (RC)
C. L. Priest (RC)
H. M. Shaver (RC)
J. D. Ward (RC)



Specialists

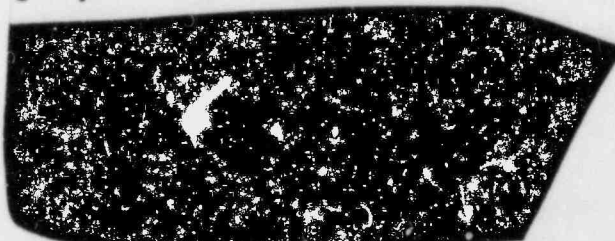
J. W. Davis (E&C)
J. L. Kiser (RC ALARA)
R. E. Queener (RC)
P. B. Snead (RC)
R. E. Pennock (RC)
S. B. Potter (RC)
J. B. Cook (RC)
P. A. Gallagher



Operations

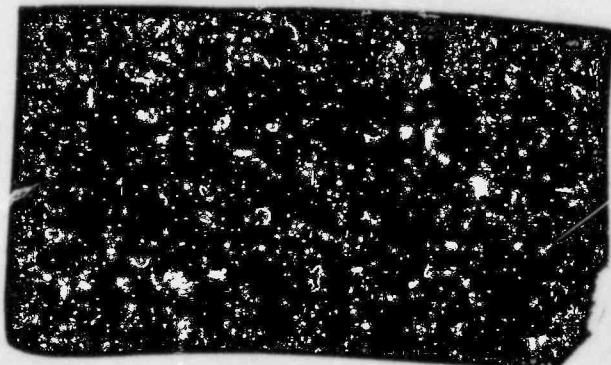
Shift Operating Supervisors

P. T. McNeill
W. L. Johnson
J. L. Simon
D. C. Cooper
R. A. LaBelle
R. D. Tart



Shift Foremen

M. R. Foss
W. D. Link
D. Savage
S. B. York
S. K. Taylor
E. C. Hawkins
K. F. Horn
B. S. Strickland
B. A. Harris
D. Pate



APPENDIX A.4 - OTHER EMERGENCY RESPONSE CONTACTS

CP&L CORPORATE HEADQUARTERS

Vice President - Nuclear Operations:
B.J. Furr

Alternate: H. R. Banks,
Manager,
Corporate Quality
Assurance

Senior Vice President - Power Supply
Lynn W. Eury
Alternate: E. E. Utley

Meteorological Center

Corporate Meteorologists
Brian D. McFeaters
Meteorological Supervisor

Tim D. Drum
Meteorologist

Office

Home

TRANSMISSION SUBSTATION MAINTENANCE IN WILMINTON FOR EMERGENCY COMMUNICATIONS
REPAIRS

C. C. Pearce
J. B. Combs
M. W. Russ

Office

Home

Pager

NATIONAL WEATHER SERVICE

Wilmington, NC
Raleigh, NC

AMERICAN NUCLEAR INSURERS (ANI)

Farmington, Connecticut

INSTITUTE OF NUCLEAR POWER OPERATIONS (INPO)

Atlanta, Georgia

Telecopier:



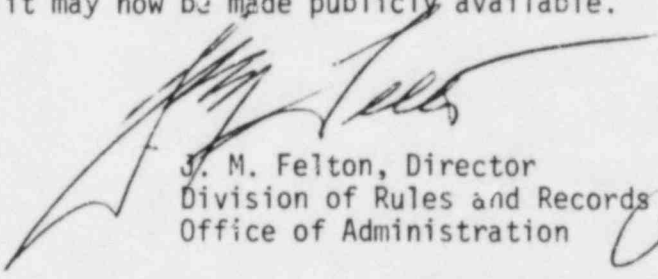
UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 26, 1984

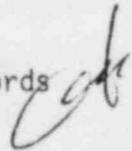
50-324/325 Brunswick

MEMORANDUM FOR: Chief, Document Management Branch, TIDC
FROM: Director, Division of Rules and Records, ADM
SUBJECT: REVIEW OF UTILITY EMERGENCY PLAN DOCUMENTATION

The Division of Rules and Records has reviewed the attached document and has determined that it may now be made publicly available.



J. M. Felton, Director
Division of Rules and Records
Office of Administration



Attachment: As stated



Carolina Power & Light Company

SERIAL: LAP-83-489

October 19, 1983

Mr. James P. O'Reilly, Regional Administrator
United States Nuclear Regulatory Commission
Suite 2900
101 Marietta Street, NW
Atlanta, GA 30303

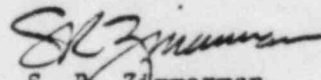
BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 AND 50-324
LICENSE NOS. DPR-71 AND DPR-62
EMERGENCY PLANNING

Dear Mr. O'Reilly:

In accordance with 10 CFR 50, Appendix E, Carolina Power & Light Company (CP&L) hereby transmits one copy of recent revisions to the Brunswick Steam Electric Plant Emergency Procedures.

A list of the revisions to the Plant Emergency Procedures and the Emergency Response Plan is attached for your use. If you have any questions on this subject, please contact our staff.

Yours very truly,


S. B. Zimmerman
Manager

Nuclear Licensing & Special Nuclear Programs

WRM/lcv (8243WRM)

Enclosure

cc: Mr. D. O. Myers (NRC-BSEP)
Mr. M. Grotenhuis (NRC)

Document Control Desk (2 Copies)
U. S. Nuclear Regulatory Commission
Washington, DC 20555

3311010057 831019
CP&L ADGCK 05000324
-OF

X005
1/2