TO: USNRC DCC

VERMONT YANKEE CONTROLLED DOCUMENT TRANSMITTAL FORM

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SECTION 1

DOCUMENT TITLE: IMPLEMENTING PROCEDURES TO THE E-PLAN

COPY NUMBER: 54

CHANGE NUMBER: #185

ISSUE DATE: June 08, 2000

INSTRUCTIONS:

a. Attached is an authorized controlled copy to the above listed document for retention as your assigned copy.

b. Review the revised material.

c. Incorporate new change into the controlled document by document issue date, if applicable.

d. Ensure that those who use the document are aware of the change.

e. Destroy all superseded pages.

f. Destroy obsolete forms and insert new forms into the files.

g. Sign and date this form and return to the Executive Secretary (ES) or Document Control Center (DCC).

h. Complete appropriate change information on VY Controlled Document Record of Changes.

TRANSMITTED BY: _____
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AFTER COMPLYING WITH THE ABOVE INSTRUCTIONS, PLEASE RETURN TO THE ES OR DCC WITHIN 10 DAYS OF THE ISSUE DATE.

SECTION 2

The undersigned acknowledges completion of the preceding instructions.

Signature of Recipient: _____ Date: _____

A045

NRR037

Eplan Implementing Plant Procedures

To: Eplan Implementing Procedure Controlled Set Holders

From: Diane McCue

Date: 06/08/00

Re: VY Eplan Implementing Procedure Change # 185, Instruction Sheet

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A Table of Contents is included.

REVISIONS: Please replace the following procedures: -

Proc/Rev #	Canceled DI's	Procedure Title
OP 3125/17		Eplan Classification/Action Level Scheme

LPC's: The fol.lowing LPC should be incorporated into the appropriate procedure:

Proc/Rev #	LPC#	Procedure Title
OP 3513/20	1	Eval of Off-Site Rad Conditions

VERMONT YANKEE EMERGENCY PLAN IMPLEMENTING PROCEDURES

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June 08, 2000

Emergency Plan Classification and Action Level Scheme	AP 3125	Rev. 17	"R"
Unusual Event	OP 3500	Rev. 18	"R"
Alert	OP 3501	Rev. 19	"R"
Site Area Emergency	OP 3502	Rev. 31	"R"
General Emergency	OP 3503	Rev. 33	"R"
Emergency Communications	OP 3504	Rev. 31	"R"
Emergency Preparedness Exercises and Drills	OP 3505	Rev. 23	"I"
Emergency Equipment Readiness Check	OP 3506	Rev. 38	"R"
Emergency Radiation Exposure Control	OP 3507	Rev. 29	"R"
On-Site Medical Emergency Procedure	OP 3508	Rev. 22	"R"
Environmental Sample Collection During an Emergency	OP 3509	Rev. 16	"R"
Off-Site and Site Boundary Monitoring	OP 3510	Rev. 24	"F"
Off-Site Protective Actions Recommendations	OP 3511	Rev. 11	"R"
Evaluation of Off-Site Radiological Conditions	OP 3513	Rev. 20	"R"
Emergency Actions to Ensure Accountability and Security Response	OP 3524	Rev. 16	"R"
Radiological Coordination	OP 3525	Rev. 9	"R"
Emergency Call-In Method	OP 3531	Rev. 13	"R"
Emergency Preparedness Organization	AP 3532	Rev. 9	"I"
Post Accident Sampling of Reactor Coolant	OP 3533	Rev. 4	"C"
Post Accident Sampling of Plant Stack Gaseous Releases	OP 3534	Rev. 2	"C"
Post Accident Sampling and Analysis of Primary Containment	OP 3535	Rev. 3	"C"
In Plant Air Sample Analysis with Abnormal Condition	OP 3536	Rev. 1	"C"
Emergency Plan Training	OP 3712	Rev. 15	"I"

LPC's

VERMONT YANKEE NUCLEAR POWER STATION

OPERATING PROCEDURE

OP 3513

REVISION 20

EVALUATION OF OFF-SITE RADIOLOGICAL CONDITIONS

USE CLASSIFICATION: REFERENCE

LPC No.	Affected Pages
1	Appendix K

Implementation Statement: N/A

Issue Date: 04/16/99

APPENDIX K

GUIDELINES FOR "WHAT IF" PROJECTION OF POTENTIAL RADIOACTIVE MATERIAL RELEASES

LPC 1

NOTE

The following series of calculations is one example of obtaining data for release projections. It is acceptable to use other methods as necessary based on the emergency situation.

1. Determine available source term by making an assumption of fuel conditions based on plant conditions.

LPC 1

NOTE

Figure 5.2 from the Core Damage Methodology Assessment may be helpful in determining extent of fuel conditions.

LPC 1

Source Term (ST) - μCi

	Clad Failure	Fuel Overheat	Fuel Melt
Noble Gas	1E12	5E13	1E14
I-131	4E9	2E13	2E13
Particulate (Cs^{137})	4E8	2E12	2E12

LPC 1

Clad failure assumes a 1% noble gas, 0.01% iodine and particulate release. Fuel overheat assumes a 50% noble gas, iodine and particulate release. Fuel melt assumes a 100% noble gas, 50% iodine and particulate release. The available source term is assumed to be 1E14 μCi noble gas, 4E13 μCi I^{131} and 4E12 particulate (Cs^{137}).

2. Calculate the containment concentration (CC).

$$CC(\mu Ci/cc) = \frac{ST(\mu Ci)}{CV(cc)} = \frac{ST(\mu Ci)}{6.7E9\ cc} = \_\_\_\_\_\ \mu Ci/cc$$

CV = Containment Volume which is 6.7E9 cc for combined Drywell and Torus Gas. See volumes list in information fact sheet for additional numbers.

LPC 1

3. Postulate a release mechanism.

LPC 1

NOTE

Containment leakage is a percentage of the Design Containment Leakage. Containment leakage may be obtained from the TSC or an estimate may be obtained from the ESC.

a. Slow containment leakage (<10%/day) to stack via Reactor Building (Elevated Release).

b. Fast containment leakage (≥10%/day) to stack via Reactor Building (Elevated Release).

c. Containment failure to environment via Reactor Building blowout panels (Ground Level Release).

4. Calculate Metpac/Nomogram input values.

a. Slow containment leakage (<10%/day) to stack via Reactor Building (Elevated). Assumes Stack Release Rate (SRR) is equal to the containment release rate.

SRR(μCi/sec) = CC(μCi/cc) x CLR(cc/sec) x F = _____ μCi/sec

CLR = Containment release rate. The design containment release rate is 7.8E2 cc/sec. See information fact sheet for additional information.

F = SBGT retention values.
F = 1, SBGT not in use
F = 1, SBGT noble gas retention
F = 0.05, SBGT iodine and particulate retention

b. Fast containment leakage (≥10%/day) to stack via Reactor Building (Elevated). Assumes immediate uniform mixing in the Reactor Building.

$$SRR(\mu Ci/sec) = \frac{CC(\mu Ci/cc) \times CV(cc) \times RBFR(cc/sec) \times F}{RV(cc) + CV(cc)}$$

$$= \frac{CC(\mu Ci/cc) \times RBFR(cc/sec) \times F}{5.2} = \_\_\_\_\_ \mu Ci/sec$$

RV = Reactor Building volume which is 2.8E10 cc.

RBFR = Reactor Building Flow Rate which depends upon a combination of SBGT and Reactor Building ventilation alignment. Ventilation alignment and number of fans may be obtained from the TSC. Flow rates are listed below and on the Nomogram.

LPC 1

LPC 1

F = SBGT retention values.
F = 1, SBGT not in use
F = 1, SBGT noble gas retention
F = 0.05, SBGT iodine and particulate retention

c. Fast or slow containment leakage when Reactor Building Air Concentrations are known.

SRR(μCi/sec) = RBC(μCi/cc) x RBFR(cc/sec) x F = _____μCi/sec

RBC = Reactor Building air concentration.

d. Containment failure to environment via Reactor Building blowout panels (Ground Level). Assumes immediate uniform mixing of the Reactor Building with Containment and 50% of the Reactor Building volume is released to the environment in 15 minutes.

GLRR = Ground Level release rate is 1.6E7 cc/sec assuming 50% of the Reactor Building volume is released in 15 minutes.

$$RBC(\mu Ci/cc) = \frac{CC(\mu Ci/cc) \times CV(cc)}{RV(cc) + CV(cc)} = \frac{CC(\mu Ci/cc)}{5.2} = \_\_\_\_\_ \mu Ci/sec$$

5. If Elevated release, obtain Stack High Range Monitor reading SHRM from Nomogram for elevated release using SRR value calculated earlier.

SHRM = _____mR/hr

6. If requested, Stack air concentrations can be calculated using the following formula:

$$\text{Stack Air Concentration}(\mu Ci/cc) = \frac{SRR(\mu Ci/sec)}{\text{Stack Flow Rate(cc/sec)}}$$

7. Insert previously calculated values into Metpac or Nomogram as appropriate to complete release projection.

8. All "what if" dose projections must be clearly marked with appropriate stamp or label. "What if" dose projection stamp is available in the EOF Emergency Cabinet #3.

LPC 1

INFORMATION FACT SHEET

VOLUMES:

Primary System	(Liquid)	7,700ft^3	=	2.2E8cc
Primary System	(Gas)	6,300ft^3	=	1.8E8cc
Drywell	(Gas)	131,850ft^3	=	3.7E9cc
Torus	(Liquid)	70,000ft^3	=	2.0E9cc
Torus	(Gas)	106,250ft^3	=	3.0E9cc
Reactor Building	(Gas)	1E6ft^3	=	2.8E10cc

FLOW RATES:

Reactor Building Ventilation	55,800 cfm	= 2.6E7 cc/sec
Standby Gas Treatment	3,000 cfm	= 1.4E6 cc/sec (2 fans running)
Turbine Building Ventilation	122,000 cfm	= 5.8E7 cc/sec (TEF1A or 1B and TEF 6 & 7)
Radwaste Ventilation	12,200 cfm	= 5.8E6 cc/sec (2 fans running)
AOG Building Ventilation	11,500 cfm	= 5.4E6 cc/sec
Stack with Normal Ventilation	206,000 cfm	= 9.7E7 cc/sec

MISCELLANEOUS FACTS:

Design Containment Leakage = 1% of the radioactive inventory/day
= 2.4E3ft^3/day = 6.7E7 cc/day = 7.8E2 cc/sec

LPC 1

RB Air Turnover Rate Using SBGT - 1/day

If blowout panel goes, assume 1/2 RB volume is released

CONVERSION FACTORS:

472 cc/sec/cfm

28,300 cc/ft^3

LPC 1

VERMONT YANKEE NUCLEAR POWER STATION

ADMINISTRATIVE PROCEDURE

AP 3125

REVISION 17

EMERGENCY PLAN CLASSIFICATION AND ACTION LEVEL SCHEME

USE CLASSIFICATION: REFERENCE

LPC No.	Affected Pages

Implementation Statement: N/A

Issue Date: 06/08/00

Dept. Mgr.		Proc. No.	AP 3125
PORC 98-123	M.M. Houle	Rev. No.	17
Plant Mgr.		Issue Date	06/08/00
Dir. of Ops.		Review Date	06/08/02

EMERGENCY PLAN CLASSIFICATION AND ACTION LEVEL SCHEME

PURPOSE

The purpose of this procedure is to provide a mechanism for classifying off-normal events and plant conditions into one of the four emergency classifications as described in the Vermont Yankee Nuclear Power Station Emergency Plan.

The use classification of this procedure is Reference Use.

DISCUSSION

Vermont Yankee personnel are trained so that when they sense that plant operations are off-normal or exceeding administrative controls, they have cause to refer to emergency operating procedures which will subsequently refer them to this procedure if necessary.

This procedure, in chart form, is designed to assign the appropriate emergency class for events which are in progress or have occurred. The Emergency Plan is then implemented on the basis for the classification. The chart does not necessarily list all situations which would require implementation of the Emergency Plan; therefore, any off-normal condition should be evaluated in light of the "General Criteria." The minimum response to any event listed in the chart once it has occurred would be to classify the event at the Unusual Event level and to implement the Emergency Plan accordingly.

The appendix directs Vermont Yankee personnel to initially follow four classes of Emergency Action Level Operating Procedures:

1. Unusual Event, OP 3500
2. Alert, OP 3501
3. Site Area Emergency, OP 3502
4. General Emergency, OP 3503

The definitions of Emergency Classifications are:

1. Unusual Event: Events are in progress or have occurred which involve potential degradation of plant safety margins, which are not likely to affect personnel on-site or the public off-site or result in radioactive releases requiring off-site monitoring.

   a. Unusual Event (Terminated): Event has occurred and was immediately rectified such that the condition no longer existed by the time of declaration. Further, the event or condition did not affect personnel on-site or the public off-site or result in radioactive releases requiring off-site monitoring.

2. Alert: Events are in progress or have occurred which involve an actual or potential substantial degradation of plant safety margins which could affect on-site personnel safety, could require off-site impact assessment, but is not likely to require off-site public protective action.

3. Site Area Emergency: Events are in progress or have occurred which involve likely or actual major failures of plant functions needed for protection of the public. Any release is not expected to exceed EPA Protective Action Guidelines exposure levels except near the site boundary.

4. General Emergency: Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guidelines exposure levels off-site for more than the immediate site area.

The initial responsibility and authority for classifying the level of emergency is assigned to the duty Shift Supervisor, or in his absence from the Control Room, to the duty Supervisory Control Room Operator. Subsequent escalation or de-escalation of the emergency classification is the responsibility and authority of the senior manager of Vermont Yankee who assumes the overall supervision of the emergency response organization. For Unusual Events, the Technical Support Center Coordinator is the designated individual. For Alert and higher emergency classifications, the Site Recovery Manager is the designated individual, upon assumption of this responsibility from the Technical Support Center Coordinator.

Subsequent to entry into an Emergency Action Level (EAL), a second initiating condition does not require a second declaration for the classification already reached. However, it does merit a timely update to the states and the NRC since it is a significant change in the status of the classification.

ATTACHMENTS

1. Appendix A Chart of Categories and Events
2. Appendix B Deleted

REFERENCES

1. Technical Specifications

   a. All Tech. Specs.

2. Administrative Limits

   a. None

3. Other

a. Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (NUREG-0654)
b. Final Safety Analysis Report (FSAR)
c. NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels", Rev. 2, dated January 1992
d. Vermont Yankee Nuclear Power Station Emergency Plan
e. Vermont Yankee Physical Security Plan
f. Memo, E.C. Porter to Dist., "1989 Emergency Preparedness Exercise - Redundant Classification Declaration", dated 8/10/89
g. INS9214OP1, "Revise AP 3125 to address concerns noted in NRC Inspection Report 50-271/92-14 per BVY 92-116"
h. INS9704_01, Address Concern With OP 3127 Requirement To Declare An Unusual Event Based On A Single Operations Indication As Being Overconservative (Seismic, Earthquake)
i. Memo, C.D. Thomas to M.J. Marian, "AP 3125, Appendix B, Fission Product Barrier Matrix Technical Basis", dated 3/30/93
j. Memo, J.G. Parillo to S. Miller, "Monitor Indications for Failed Fuel", dated 6/27/95
k. Letter, USNRC to VYNPC, "NRC Inspection No. 50-271/95-07", dated 6/12/95
l. USNRC EPPOS No. 1, "Emergency Preparedness Position (EPPOS) on Acceptable Deviations from Appendix 1 of NUREG-0654 Based Upon the Staff's Regulatory Analysis of NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels", dated 6/1/95
m. EPA-400-R-92-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents", dated 5/92
n. NUREG-1228, "Source Estimations During Incident Response to Severe Nuclear Power Plant Accidents"
o. NUMARC, "Questions and Answers - Methodology for Development of Emergency Action Levels, NUMARC/NESP-007 Rev. 2", dated 6/93
p. OP 3500, Unusual Event
q. OP 3501, Alert
r. OP 3502, Site Area Emergency
s. OP 3503, General Emergency
t. OP 3511, Off-Site Protective Action Recommendations

PROCEDURE

1. Refer to Appendix A and based on the event to be classified, locate the appropriate "Event Categories."

2. Determine if any of the Emergency Action Levels (EALs) have been reached for any of the four classes of emergency (Unusual Event, Alert, Site Area Emergency, General Emergency).

NOTE

For any EAL reached the minimum classification is Unusual Event (UE). Also, per OP 3500, it is only at the UE level that the emergency may be immediately terminated by the SS/PED.

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3. If multiple EALs have been reached:

   a. Classify the emergency at the highest emergency class for those EALs which exist.

   b. For EALs which have been reached but are no longer present, the emergency must still be classified at the highest emergency class even though the conditions no longer exist.

   c. If other EAL conditions exist which would not require re-classification:

      1) provide a timely update to the NRC and the states since these other conditions represent a significant change in the status of the classification,

      2) do not make a second EAL declaration for the classification already in existence.

4. If events are in progress or have occurred and no specific EALs in Appendix A have been reached, but in the opinion of the responsible individual conditions warrant the implementation of the Emergency Plan or re-classification, the individual should classify the event as appropriate (refer to Appendix A, "General Criteria" Event Category).

NOTE

In making the classification determination, the responsible individual should request assistance from any source immediately available (Security, Chemistry, Radiation Protection, I/C, Maintenance, Engineering Support, etc.). Input from these sources must be prompt, informal, and advisory in nature.

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5. Once the classification has been assigned, implementation of the appropriate Emergency Operating Procedure should be initiated with the prompt notifications of off-site authorities performed, consistent with the need for other emergency actions.

6. Changing conditions may require re-classification. Assess conditions periodically and be prepared to initiate the appropriate change.

FINAL CONDITIONS

1. None

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED: REV. 17 VY EALs APPENDIX A AP 3125 REV. 17 PAGE 1 OF 1

WITHIN THIS PACKAGE...OR, BY SEARCHING USING THE DOCUMENT/REPORT NUMBER: REV. 17 PAGE 1 OF 1

NOTE: Because of this page's large file size, it may be more convenient to copy the file to a local drive and use the Imaging (Wang) viewer, which can be accessed from the Programs/Accessories menu.