Implementing Procedures (VY Emergency Plan) February 2, 1982

Change #7

- Instructions -

1. Under the tab "Table of Contents" remove the table of contents and insert the attached table of contents dated February 2, 1982.

2. Under the tab "Contact List" remove the list dated October 1981 and insert the attached list dated January 1982. (Remove only if applicable)

3. Under the tab "Unusual Event" remove the procedure numbered O.P. 3500, Rev. 0 and insert the procedure numbered O.P. 3500, Rev. 1.

4. Under the tab "Alert" remove the procedure numbered O.P. 3501, Rev. 1 and insert the procedure numbered O.P. 3501, Rev. 2.

5. Under the tab "Site Area Emergency" remove the procedure numbered O.P. 3502, Rev. 13 and insert the procedure numbered O.P. 3502, Rev. 14.

6. Under the tab "General Emergency" remove the procedure numbered O.P. 3503, Rev. 14 and insert the procedure numbered O.P. 3503, Rev. 15.

7. Under the tab "Evaluation of Radiological Data" remove the procedure numbered O.P. 3513, Rev. 4 and insert the procedure numbered O.P. 3513, Rev. 5.

8. Under the tab "Off-Site Monitoring" remove the procedure numbered O.P. 3510, Rev. 8 and insert the procedure numbered O.P. 3510, Rev. 9.

9. Under the tab "Emergency Exposure Control" remove the procedure numbered O.P. 3507, Rev. 11 and insert the procedure numbered O.P. 3507, Rev. 12.

10. Under the tab "On-Site Medical Emergency" remove the procedure numbered O.P. 3508, Rev. 9 and insert the procedure numbered O.P. 3508, Rev. 10.

11. Under the tab "Security Force Actions" remove the procedure numbered O.P. 3524, Rev. 1 and insert the procedure numbered O.P. 3524, Rev. 2.

12. Under the tab "Radiological Coordination" remove the procedure numbered O.P. 3525, Rev. 0 and insert the procedure numbered O.P. 3525, Rev. 1.

13. Under the tab "Environmental Sample Collection" remove the procedure numbered O.P. 3509, Rev. 6 and insert the procedure numbered O.P. 3509, Rev. 7.

14. Under the tab "Emergency Exercises/Drills" remove the procedure numbered O.P. 3505, Rev. 8 and insert the procedure numbered O.P. 3505, Rev. 9.

15. Under the tab "Emergency Equipment Check" remove the procedure numbered O.P. 3506, Rev. 13 and insert the procedure numbered O.P. 3506, Rev. 14.

16. Under the tab "Coordination and Communications" remove the procedure numbered O.P. 3504, Rev. 13 and the two DI's and insert the procedure numbered O.P. 3504, Rev. 14.

VERMONT YANKEE EMERGENCY PLAN

IMPLEMENTING PROCEDURES February 2, 1982

TABLE OF CONTENTS

Dept. Supv.		Proc. No.	O.P. 3500
PORC		Rev. No.	1
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

UNUSUAL EVENT

Purpose:

To outline the actions required of plant personnel, visitors, and contractors when an Unusual Event is declared.

Discussion:

An Unusual Event is defined as any plant-related event which indicates a potential degradation of plant safety margins which is not likely to affect personnel on-site or the public off-site or result in radioactive releases requiring off-site monitoring. Unusual Event conditions will not have caused serious damage to the plant and may not require a change in operation status.

The basic shift complement is able to deal with Unusual Event conditions. Additional plant personnel will be notified and will respond at the discretion of the Shift Supervisor/Plant Emergency Director.

The decision to make an immediate initial declaration rests with the Shift Supervisor/Plant Emergency Director, who, in turn, instructs Control Room personnel to activate the notification system. On-duty personnel are assigned to functions as required. Notification is made to off-site authorities as delineated. Additional members of the plant organization including top management, are notified and augment on-duty personnel as necessary. Public information via established mechanisms and closeout or escalation to a more severe classification will occur as appropriate.

References:

A. Tech Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. Vermont Yankee Emergency Plan

Prerequisites:

1. None

Procedure:

1. Select the appropriate appendix checklist from the following:

	Appendix I	Shift Supervisor/Plant Emergency Director
	Appendix II	Security Shift Supervisor
*	Appendix III	Technical Support Center Coordinator
*	Appendix IV	Emergency Operations Facility Coordinator

NOTE: Actions required in each appendix may be assigned by the responsible individual to other personnel as appropriate. The designated individual, however, has the overall responsibility for the execution of his checksheet.

2. Proceed with the implementation of the appropriate appendix and record time and initials as required.

Final Conditions:

1. As specified in the appropriate appendices.

SPS/emr

APPENDIX I

UNUSUAL EVENT - SHIFT SUPERVISOR/PLANT EMERGENCY DIRECTOR

Immediate Actions:

Time/Initials

1. Conditions have been assessed and the applicable Emergency Operating Procedure is utilized.

2. The type of emergency (Unusual Event) has been determined from O.P. 3125, Classification of Emergencies. ____/____

3. Determine immediate personnel response to be taken.

4. Turn the Page System Volume Increase Switch to the "Alert" position, turn the Alarm Switch to the "ON" position for ten seconds, and then announce the following over the Plant Paging System:

   a. "Unusual Event, Unusual Event, Unusual Event"

   b. There is (what) in/at (where)

   c. The following personnel (as determined in Step 3) report to (where). All other personnel stay clear of the area" ____/____

5. Request the Shift Technical Advisor to report to the Control Room and provide assistance. ____/____

* 6. Notify the NRC on the NRC Emergency Notification System red phone. Maintain an open, continuous communications channel on this line. ____/____

7. a. Notify the New Hampshire, Massachusetts, and Vermont
* State Police Agencies by depressing number 111 on the
* Nuclear Alert System orange phone (or utilizing
* telephone backup) and making the following announcement upon establishing communications:

   "This is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have an Unusual Event. I repeat, this is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have an Unusual Event. Please acknowledge with your name, your state, and a repetition of the message."

* Vermont_____
Name of Dispatcher

N.H._____
Name of Dispatcher

* Mass._____
Name of Dispatcher

APPENDIX I (Continued)

Time/Initials

* * b. Expect calls from State Health and/or C.D. Officials concerning plant conditions.

8. Notify the Security Shift Supervisor to activate the telephone paging system. Advise him, at this time, of the paged individuals required to report to the plant site. ____/____

* 9. When contacted by the Emergency Operations Facility Coordinator, advise him of classification and event conditions. ____/____

10. Direct activities of emergency response personnel until overall responsibility is assumed by the * Technical Support Center Coordinator.

11. Request assistance of outside agencies (fire, law enforcement, or medical rescue personnel and related equipment) as needed to deal with the event.

a. Fire ____/____

b. Medical ____/____

c. Law Enforcement (in conjunction with the Security Shift Supervisor) ____/____

Subsequent Actions:

1. Changing conditions may require escalation of emergency classification to a more severe condition. Assess conditions periodically and be prepared to initiate this escalation.

* OR

* 2. In concert with the T.S.C. Coordinator, provide information to assist with the final closeout of the * emergency Unusual Event condition.

Final Conditions:

1. When the Unusual Event conditions no longer exist, announce on the plant page system that the Unusual Event is ended. ____/____

2. Summarize all actions and resultant conditions in the Shift Supervisor's Log.

APPENDIX II

UNUSUAL EVENT - SECURITY SHIFT SUPERVISOR

Immediate Actions:

		Time	Initials
1.	When requested by the Shift Supervisor/Plant Emergency Director, notify the plant personnel listed below using the automatic telephone paging system. Dial one of the following numbers; [redacted], [redacted], or [redacted] State name and location, request the initiation of a group page for VY pagers, and give the following message, "All personnel please call the plant immediately."		
	(In the event this system is out of order, notification must be made by manual dialing of the appropriate numbers in the plant phone list.)		
*	V.Y. President		
	V.Y. Manager of Operations		
	Plant Manager		
	Asst. Plant Manager		
	Operations Support Manager		
	Operations Superintendent		
	Technical Services Superintendent		
*	Director of Communications		
	Engineering Support Supervisor		
	Reactor and Computer Supervisor		
	Chem. and H.P. Supervisor		
	I&C Supervisor		
	Maintenance Supervisor		
	Operations Supervisor		
	Asst. Operations Supervisor		
	Training Supervisor		
2.	Advise individuals listed below of emergency classification as they call into plant security gate. Advise individuals required on site by the SS/PED to report to the site.		
*	V.Y. President		
	V.Y. Manager of Operations		
	Plant Manager		
	Assistant Plant Manager		
	Operations Support Manager		
	Operations Superintendent		
*	Technical Services Superintendent		

APPENDIX II (Continued)

	Time	Initials
Director of Communications		
Engineering Support Supervisor		
Operations Supervisor		
Reactor & Computer Supervisor		
Chemistry & Health Physics Supervisor		
Instrument & Control Supervisor		
Maintenance Supervisor		
Asst. Operations Supervisor		
Training Supervisor		

3. Manual dialing and notification of any individuals listed in Step 2. who have not contacted the plant security gate should be initiated 15 minutes after initial notification in Step 1. _____ _____

4. Request outside Law Enforcement as necessary or as requested by the Operations Shift Supervisor/Plant Emergency Director. _____ _____

Subsequent Actions:

1. Advise other individuals, as they call in, of the emergency classification.

Name of caller		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. Route phone calls from State Health and C.D. Officials to the appropriate C.R. personnel when received.

Name of Caller	Title		
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

APPENDIX III

UNUSUAL EVENT - TECHNICAL SUPPORT CENTER COORDINATOR

Time/Initials

Immediate and Subsequent Actions:

1. Contact SS/PED to obtain specific information concerning the event.

2. Assume the overall responsibility for direction of activities of the emergency response personnel from the Shift Supervisor/Plant Emergency Director in a timely manner. _____/_____

*

Final Conditions:

* 1. Upon termination of the Unusual Event, closeout the event with verbal summary to off-site authorities and agencies.

   a. Nuclear Regulatory Commission _____/_____

   b. State of Vermont _____/_____

   c. State of Massachusetts _____/_____

   d. State of New Hampshire _____/_____

* OR

* 2. Escalate the emergency classification as conditions
* warrant.

APPENDIX IV

UNUSUAL EVENT - EMERGENCY OPERATIONS FACILITY COORDINATOR

Time/Initials

Immediate and Subsequent Actions:

1. Contact Shift Supervisor/Plant Emergency Director to obtain specific information concerning the event.

* 2. Augment plant resources as requested by the T.S.C.
* Coordinator and the Shift Supervisor/Plant Emergency Director.

Final Condition:

1. Direct the appropriate personnel to restore all emergency equipment to its normal readiness state. _____/_____

Dept. Supv.		Proc. No.	O.P. 3501
PORC		Rev. No.	2
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

ALERT

Purpose:

To outline the actions required of plant personnel, visitors, contractors, and other affected personnel when an Alert is declared.

Discussion:

An Alert event is defined as an indication of a 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.

An Alert event requires action beyond the normal capability of the basic shift complement. Plant response and off-site notification associated with this event classification will assure that sufficient emergency response personnel are mobilized to activate the Technical Support Center and the Operations Support Center. The Emergency Operations Facility will be activated with the EOF Coordinator and other EOF staff members. Sufficient emergency assistance personnel to assess off-site radiological impact will be assigned if the Alert event is producing releases off site.

The decision to make an immediate initial declaration rests with the Shift Supervisor/Plant Emergency Director. Plant response and off-site notification associated with this event classification assure that sufficient emergency response personnel, both on and off site, are mobilized and respond to event conditions. Actual releases of radioactivity which substantially exceed Technical Specification limits may be involved, and thus radiation monitoring and dose projection may be an integral portion of the emergency response required.

Prompt notification is made to State officials and follow-up information is provided as needed to off-site emergency organizations.

References:

A. Tech. Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. Vermont Yankee Emergency Plan

Prerequisites:

1. None

Procedure:

1. Select the appropriate appendix checklist from the following:

	Appendix I	Shift Supervisor/Plant Emergency Director
	Appendix II	Security Shift Supervisor
*	Appendix III	Technical Support Center Coordinator
*	Appendix IV	Emergency Operations Facility Coordinator
	Appendix V	Emergency Tag Board Assignments
	Appendix VI	Radiological Habitability Assessment
	Appendix VII	Operations Support Center Coordinator

NOTE: Actions required in each appendix may be assigned by the responsible individual to other personnel as appropriate. The designated individual; however, has the overall responsibility for the execution of his checksheet.

2. Proceed with the implementation of the appropriate appendix and record time and initials as required.

Final Conditions:

1. As specified in the appropriate appendices.

SPS/emr

APPENDIX I (Continued)

		Time	Initial
*	Vermont_____ Name of Dispatcher		
	N.H._____ Name of Dispatcher		
	Mass._____ Name of Dispatcher		
*	b. Expect calls from State Health and/or C.D. Officials concerning plant conditions.		
*	8. Notify the Security Shift Supervisor to activate the telephone paging system for plant personnel and Yankee NSD personnel.	_____	_____
* *	9. When contacted by the Emergency Operations Facility Coordinator advise him of the classification and event conditions.	_____	_____
	10. Direct the activities of the emergency response personnel until overall responsibility is assumed by the Technical Support Center Coordinator.		
*	11 Request assistance of outside agencies (fire, law enforcement, or medical rescue personnel and related equipment) as needed to deal with the alert event.		
	a. Fire	_____	_____
	b. Medical	_____	_____
	c. Law Enforcement (in conjunction with the Security Shift Supervisor)	_____	_____

Subsequent Actions:

	1. Changing conditions may require escalation of emergency classification to a more severe condition. Assess conditions periodically and be prepared to initiate this escalation in concert with the		
*	T.S.C. Coordinator	_____	_____
	OR		
*	2. In concert with the T.S.C. Coordinator, provide information to assist with the final closeout of the emergency Alert condition.		

Final Conditions:

	1. When the Alert conditions no longer exist, announce on the plant page system that the Alert is ended.	_____	_____
	2. Summarize all actions and resultant conditions in the Shift Supervisor's Log.		

APPENDIX I

ALERT - SHIFT SUPERVISOR/PLANT EMERGENCY DIRECTOR

	Time	Initials

Immediate Actions:

1. Conditions have been assessed and the applicable Emergency Operating Procedure is utilized.

2. The type of emergency (Alert) has been determined from A.P. 3125, Classification of Emergencies. _____ _____

3. Determine the immediate personnel response to be taken.

4. Turn the Page System Volume Increase Switch to the "Alert" position, turn the Alarm Switch to the "ON" position for ten seconds, and then announce the following over the plant paging system:

   a. "Alert, Alert, Alert"

   b. "There is (what) in/at (where)."

   c. "Emergency personnel report to the Technical Support Center, the Operations Support Center, and the Emergency Operations Facility as required. All other personnel and contractors return to your department area and await further instructions. All visitors return to Governor Hunt House Information Center. All personnel stay clear of the affected area."

5. Request that the Shift Technical Advisor report to the Control Room and provide assistance. _____ _____

* 6. Notify the NRC on the NRC Emergency Notification System red phone. Maintain an open, continuous communications channel on the line. _____ _____

7. a. Notify the New Hampshire, Massachusetts, and Vermont
* State Police Agencies by depressing number 111 on
* the Nuclear Alert System orange phone (or utilizing
* telephone backup) and making the following announcement upon establishing communications:

   "This is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have an Alert. I repeat, this is Vermont Yankee Nuclear Power Station in Vernon,
* Vermont. We have an Alert. Please acknowledge
* with your name, your state, and a repetition of
* the message."

APPENDIX II

ALERT - SECURITY SHIFT SUPERVISOR

	Time	Initials

Immediate Actions:

1. Upon hearing the announcement of the Alert, notify the plant personnel listed below using the automatic telephone paging system. Dial one of the following numbers; [redacted], [redacted] or [redacted] State name and location, request the initiation of a group page for VY pagers, and give the following message, "All personnel please call the plant immediately." _____ _____

   (In the event this system is out of order, notification must be made by manual dialing of the appropriate numbers in the plant phone list.)

*	V.Y. President	
	V.Y. Manager of Operations	
	Plant Manager	
	Asst. Plant Manager	
	Operations Support Manager	
	Operations Superintendent	
	Technical Services Superintendent	
*	Director of Communications	
	Engineering Support Supervisor	
	Reactor and Computer Supervisor	
	Chem. and H.P. Supervisor	
	I&C Supervisor	
	Maintenance Supervisor	
	Operations Supervisor	
	Asst. Operations Supervisor	
	Training Supervisor	

2. Notify Yankee Nuclear Services Division Security (Microwave [redacted] or phone [redacted] extension [redacted]) and give the following message:

   "This is Vermont Yankee. We have an Alert. Standby for Yankee Staff calls." (Repeat this message and request acknowledgement) _____ _____

3. Notify Yankee Nuclear Services Division personnel:

   a. Dial the following number:

   [redacted]

APPENDIX II (Continued)

	Time	Initials
b. The ZIP-CALL operator will answer.		
c. Ask for pager [redacted] to be activated.		
d. Repeat Steps a, b, and c approximately 15 minutes after the initial call to assure that all YNSD personnel have been reached.	_____	_____

4. Advise individuals listed below of emergency classification as they call into plant security gate:

V.Y. President	_____	_____
Vermont Yankee Manager of Operations	_____	_____
Plant Manager	_____	_____
Assistant Plant Manager	_____	_____
Operations Support Manager	_____	_____
Operations Superintendent	_____	_____
Technical Services Superintendent	_____	_____
Director of Communications	_____	_____
Engineering Support Supervisor	_____	_____
Operations Supervisor	_____	_____
Reactor & Computer Supervisor	_____	_____
Chemistry & Health Physics Supervisor	_____	_____
Instrument & Control Supervisor	_____	_____
Maintenance Supervisor	_____	_____
Asst. Operations Supervisor	_____	_____
Training Supervisor	_____	_____

5. Manual dialing and notification of any individuals listed in Step 4. who have not contacted the plant security gate should be initiated 15 minutes after initial notification in Step 1. _____ _____

6. Request outside Law Enforcement as necessary or as requested by the Operations Shift Supervisor/Plant Emergency Director. _____ _____

7. Request a habitability check of the Security Gate II as soon as personnel become available according to Appendix VI of this procedure. _____ _____

Subsequent Actions:

1. Advise other individuals, as they call in, of the emergency classification.

APPENDIX II (Continued)

Name of Caller	Time	Initials

2. Route phone calls from State Health and C.D. Officials to the appropriate C.R. personnel when received.

Name of Caller	Title	Time	Initials

APPENDIX III

ALERT - TECHNICAL SUPPORT CENTER COORDINATOR

	Time	Initials

Immediate Actions:

1. Contact the SS/PED to obtain specific information concerning the event. _____ _____

2. Assume the overall responsibility for directing the activities of the emergency response personnel from the Shift Supervisor/Plant Emergency Director in a timely manner. _____ _____

3. Assure that the Technical Support Center Staff is in place:

   - Instrument and Control Supervisor
   - Chemistry and Health Physics Supervisor (or alternate)
   - Reactor and Computer Supervisor
   - Operations Supervisor
   - Maintenance Supervisor
   - Engineering Support Supervisor
   - G.E. Resident Engineer (as necessary)
   - Other staff as required to fulfill the functions of the Tech. Support Center

4. Periodically, ensure that radiological assessment is performed according to Appendix VI for the Tech. Support Center and the Control Room. _____ _____

5. Assign the Operations Support Center Coordinator. _____ _____

Subsequent Actions

1. a. Notify INPO (by dialing [redacted] of emergency classification, plant, name of caller, and nature of emergency. _____ _____

   b. Notify American Nuclear Insurer's (by dialing [redacted] of the emergency. _____ _____

   NOTE: During normal office hours, the call will be answered directly. During other time periods, an answering service will require name, affiliation, and phone number of the caller so that an ANI staff member may return the call.

Final Conditions

1. Upon termination of the emergency, prepare verbal and later written closeout summaries to off-site authorities.

APPENDIX III (Continued)

*	a. State of Vermont	_____	_____
	b. State of New Hampshire	_____	_____
	c. State of Massachusetts	_____	_____
*	d. Nuclear Regulatory Commmission	_____	_____
2.	Escalate or deescalate the emergency classification as conditions warrant.	_____	_____

APPENDIX IV

* ALERT - EMERGENCY OPERATIONS FACILITY COORDINATOR

	Time	Initials

* Immediate Actions:

1. Contact the Shift Supervisor/Plant Emergency Director and obtain specific information concerning the event. _____ _____

2. Activate the Emergency Operations Facility. _____ _____

3. Assign personnel as required to the various functions in the Emergency Operations Facility (Refer to Appendix V).

4. Assure that the Emergency Operations Facility/Recovery Center Staff is in place.

*
- Chemistry and Health Physics Supervisor (or alternate)
- Training Supervisor
- Administrative Supervisor
- Public Information Liaison
- Other personnel as required to perform functions described in Appendix V.

NOTE: The Administrative Supervisor is not equipped with a pager and will have to be notified by land line to respond to the EOF.

5. Periodically ensure that radiological assessment is performed according to Appendix VI for the Emergency Operations Facility. _____ _____

Subsequent Actions

1. Provide protective actions/recommendations to various state agencies in the event of release or expected releases.

Final Conditions

1. Direct the responsible personnel to restore all emergency equipment to its normal readiness state. _____ _____

2. Review and initial all Emergency Operations Facility logs to assure completeness and accuracy. _____ _____

APPENDIX V

ASSIGNMENT TAG BOARD

Tag No.

* (1) EOF Coordinator's Assistant

1. Break out EOF Coordinator's kit from the equipment closet, install plant phone extension and contact Control Room. Inform the Tech. Support Coordinator, or in the absence of personnel in the Tech. Support Center, inform Plant Emergency Director of your presence and request the following:

   a. Summary evaluation of plant conditions. (Take notes)

   * b. Type of release (and appropriate meteorological data): (one of the following)

      1) Elevated (stack only) release -

         "Upper" delta t (Δt)
         Wind speed
         Wind direction

      2) Ground (including combination stack and other release paths) release -

         "Lower" delta t (Δt)
         Wind speed
         Wind direction *

   c. Directional stability of the wind (i.e., any indication of trending toward new direction?).

   d. Whether or not the Plant Emergency Director needs assistance in notifying plant management personnel, or other on-site assistance.

2. Determine habitability of the EOF using Appendix VI. If * this facility is not habitable (criteria in O.P. 3507, Table II), then:

   a. Announce relocation to Alternate Emergency Operations Facility at Vernon Town Hall. (South door to basement.)

   b. Write a message to this effect on blackboard and request assistance in transporting any remaining emergency equipment.

   c. Proceed with the Coordinator's kit to the Vernon Town Hall.

   d. Confirm that the Town Hall is in the better location by means of the portable survey instruments.

   e. Log the results of both surveys.

3. Take charge of the Emergency Operations Facility until arrival * of the EOF Coordinator. Connect addtional phones, check radio and gai-tronics, etc.

Tag No.

(1) Cont. 4. Initiate EOF Coordinator's Check List O.P. 3501, Alert Appendix IV on EOF Coordinator's clipboard.

5. Organize equipment, set up tables, status and mapboards, select the appropriate plume stability angle in accordance with reported meteorological conditions.

6. Upon arrival of EOF Coordinator, advise him of the situation and its status (per the check list) and act as his assistant by keeping a log of significant events on VYOPF 3504.01, and other duties as he may request.

7. Be alert for a possible shift in wind direction. Periodically, contact the TSC for a current wind direction and speed.

8. Direct the placement of EOF area signs as time and personnel availability permit.

(2)(3) Site Boundary Survey Team

1. Open Site Boundary Kit, obtain clipboard and follow instructions of O.P. 3510.

(4)(5) Personnel and Equipment Monitoring Team

1. Obtain two count rate meters (PRM-4A and/or RM-14's) from the charging shelf in emergency equipment storage closet and the "Personnel Monitoring" clipboard from the EOF Coordinator's kit.

2. Monitor yourself first then all personnel on duty at the EOF. Segregate for decontamination all individuals exceeding 2X background for 2000 net c/m.

3. As soon as practicable, establish a control point to monitor all personnel arriving from the plant area. (e.g., front porch (good weather), or lobby area.)

4. Check off name of each person monitored on the clipboard gate list. If name is not on list, write name on blank log sheets.

5. Immediately segregate all personnel arriving in P.C. clothing and identify their vehicles, if applicable. One member of the team will survey P.C.-attired personnel and their vehicles with priority. Note on gate list log or log sheets the name(s) and vehicle(s) exceeding 2X background or 2000 net c/m. Hold for decontamination and release.

6. When appropriate (i.e., gross contamination or inhalation) take nasal smears, or tissue "blow" samples.

Tag No.

(4)(5) Cont.

7. The second member of team will, with priority, survey the exterior (including tires) of any emergency vehicle leaving the site. Log the results.

* 8. Report all significant or positive results to the EOF Coordinator or the Radiological Assistant.

(6) Communications Assistant

1. Insure phones are installed in phone jacks.

NOTE:

a. RED phone is the NRC Emergency Notification System phone and mates with the labelled NRC jack on west wall of stage.

b. BLACK phones are the Emergency Coordinator's private unlisted line and mates with labelled jacks on west wall of stage.

* c. GREEN phone is for use by the various state health departments and mates with phone jack on west wall of exhibit area.

* d. The BLUE phone is the NRC Health Physics Network phone and mates with the labelled jack on the west wall of the stage.

2. Obtain box of Message Forms (O.P. 3504, Figure 2) from the Emergency Coordinator's kit.

3. Assign someone to man the kitchen and state phones and provide them with a supply of blank forms.

4. Establish radio communications with all on-site and off-site teams prior to their departure from the outer gatehouse if practicable.

NOTE: Utilize radio procedures contained in O.P. 3504.

5. Record the parties involved, date and time of each incoming or outgoing message by telephone, Gai-tronics or radio on a Message Form.

* 6. On incoming calls, forward copies 1 and 3 to the EOF Coordinator or his appropriate assistant.

NOTE: Retain copy 2 (yellow) as a "tickler" for those messages requiring a reply.

7. When copy 1 is returned for dispatching a reply, discard copy 2 and note date and time the reply message was dispatched.

8. Retain completed copy 1 as a log record of all communications.

Tag No.

(7)(8) (9)(10) On-site Assistance/Rescue Team

1. Dress in full protective clothing immediately.

2. Respiratory protection apparatus.

   a. Respiratory Protection apparatus
   b. High-range dosimeter
   c. PIC-6 survey meter (1 per team)

3. Check operability of survey instrument.

4. Proceed immediately to outer gatehouse and obtain assigned TLD badges and a portable radio.

5. Check operability of radio by calling Technical Support Center and announcing your readiness to provide assistance, if needed.

* 6. Standby for instructions from the T.S.C. Coordinator at the outer gatehouse, or if conditions permit, proceed to the inner gatehouse and await instructions.

7. When requested, provide assistance within guidelines specified in O.P. 3507, Exposure Control During an Emergency.

8. If injured personnel are involved:

* a. Request ambulance and H.P. representative from the T.S.C. Coordinator.

   b. Provide first-aid treatment at the scene, as appropriate. (Note excessively high dose rate levels)

   c. When practicable, move victim to H.P. Control Point or other low radiation area.

   d. Survey victim's clothing, and depending upon good first-aid procedures, remove as much grossly contaminated clothing as possible.

   e. Wrap the victim and stretcher with a blanket or other suitable material available.

   f. Transfer the victim into the ambulance, avoiding direct personal contact with the ambulance.

* g. Notify the EOF Coordinator the ambulance is on its way out and request that a survey of the ambulance tires be made at the outer gate.

Tag No.

* (7)(8)(9)(10) Cont. 9. On-site assistance teams will keep the T.S.C. Coordinator advised as significant information is developed and take other actions as directed by him.

* 10. Upon completion of assigned duties, contact the EOF Coordinator to determine if additional instruments or supplies are needed at the EOF.

* 11. Return to the EOF, request monitoring prior to entry, and report any pertinent information to the EOF Coordinator or his Assistant for the log.

(11) Radiological Assistant (Chem. & H.P. Supervisor or alternate)

1. Make dose projections as per the procedure outlined in O.P. 3513, Evaluation of Off-site Radiological Conditions.

2. Assemble all available information relating to the radiological situation both on and off-site.

3. Organize the information and concisely state the latest radiological conditions on the status and mapboards with a wax crayon.

4. As new or additional information becomes available, update the boards.

* 5. Coordinate and direct the activities of the monitoring teams as the EOF Coordinator may request.

NOTE: If conditions warrant, a third off-site team may be activated by utilizing the spare off-site monitoring kit at the Vernon Town Hall.

* 6. Keep the EOF Coordinator informed, as appropriate.

* 7. Assist the EOF Coordinator as he may request.

(12) Manpower and Planning Assistant

1. Determine the nature of the emergency and approximate the extent of damage to the plant and equipment.

2. Mobilize available manpower by listing plant personnel present and not otherwise assigned to emergency duties in the following specialty groups. (Emergency Assistance Personnel List)

NOTE: A person may be listed in more than one category.

a. Medical Backup Team and those trained in First-Aid
b. Chemistry and Health Physics
c. Fire Brigade
d. Welders
e. Electricians

Tag No.

(12)Cont.

f. Mechanics
g. Instrument & Control
h. Stores
i. Reactor and Computer
j. Engineering Support
k. Secretarial

3. Keep the above list current as personnel continue to arrive at the Emergency Operations Facility.

4. As soon as practicable, reassign tag board duties to make available those specialties needed to best cope with the emergency situation.

5. Prepare to assign specialized assistant teams as requested * by the T.S.C. Coordinator.

* 6. Assist the EOF Coordinator by attempting to anticipate * and provide for future manpower and logistics needs.

7. Depending upon the anticipated duration of the emergency, prepare relief schedules and excuse those personnel not presently needed.

(13)(14) Offsite Team #1

1. Obtain one Off-site Monitoring Kit, one RM-14, one PIC-6A, and one air sampler.

2. Open kit and remove O.P. 3510, "Off-site and Site Boundary Monitoring." (on clipboard)

3. Complete checklist instructions as indicated in O.P. 3510.

(15)(16) Offsite Team #2

1. Obtain one Off-site Monitoring Kit, One RM-14, one PIC-6A, and one air sampler.

2. Open kit and remove O.P. 3510, "Off-site and Site Boundary Monitoring." (on clipboard)

3. Complete checklist instructions as indicated in O.P. 3510.

APPENDIX VI

ALERT - RADIOLOGICAL HABITABILITY ASSESSMENT

1. Obtain a copy of O.P. 3507, Emergency Radiation Exposure Control.

2. Obtain a RM-14, a PIC-6A, and a low volume charcoal air sample. Perform the necessary function checks on the instrumentation.

3. Monitor conditions in the area(s) assigned:

   Technical Support Center
   Operations Support Center
   Emergency Operations Facility
   Other areas as requested by the Plant Emergency Director or the Chemistry and Health Physics Supervisor or his alternate.

4. Using Table II in O.P. 3507, assess personnel actions with respect to radiological conditions encountered.

5. Report findings and recommendations on VYOPF 3501.01 and submit to the appropriate center coordinator.

   NOTE: Additional information, such as area surveys, should be recorded on the reverse side of VYOPF 3501.01.

APPENDIX VII

* ALERT - OPERATIONS SUPPORT CENTER COORDINATOR

1. Provide system valve alignment and equipment operations support to auxiliary operators.

2. Assist in coordination of operations relief planning.

3. Assure that Operations Support Center Staff is in place:

   - Chemistry & Health Physics Assistant(s)
   - Spare Operations Staff
   - Other personnel as required.

4. Assist in the coordination of recovery efforts requiring the plant operations staff.

5. Periodically ensure that radiological assessment is performed according to Appendix VI for the Operations Support Center.

6. Report findings to and receive instruction from the Shift Supervisor/ Plant Emergency Director and/or the T.S.C. Coordinator.

EMERGENCY CONDITIONS RADIOLOGICAL ASSESSMENT FORM

Date_____

Time_____

Location of Sampling_____

DATA

Maximum Dose Rate (W.B.)_____

Average Dose Rate (W.B.)_____

Air Sample Results_____

Recommended Action (From sampling information and specifications in Table I, O.P. 3507, Emergency Radiation Exposure Control)

_____

_____

_____

_____

_____

Comments _____

_____

NOTE: Additional information, such as area surveys, should be recorded on the reverse side of this form.

_____/_____
Surveyor Date

VYOPF 3501.01
Rev. 2

Dept. Supv.		Proc. No.	O.P. 3502
PORC		Rev. No.	14
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

SITE AREA EMERGENCY

Purpose:

To outline the actions required of plant personnel, visitors, contractors and other affected personnel in the event of a Site Area Emergency.

Discussion:

A Site Area Emergency indicates an event which involves likely or actual major failures of plant functions needed for the protection of the public. Possibilities exist for amounts of contamination to be released and this procedure emphasizes the ability to monitor these releases and to provide protective action information to state officials and follow-up information as needed to off-site emergency organizations.

Plant resources are anticipated to be sufficient to cope with a Site Area Emergency. Outside resources, however, are mobilized and selected members are dispatched to the site. All emergency centers are activated following the declaration of a Site Area Emergency. All non-essential personnel are evacuated from the site.

The decision to make an immediate initial declaration rests with the Shift Supervisor/Plant Emergency Director. Prompt notification is made to the off-site governmental authorities to assure that sufficient emergency response personnel are mobilized and respond to the event in accordance with their respective emergency plan arrangements.

Representatives from the adjoining states will be dispatched to the Emergency Operations Facility. Assessment of off-site radiological parameters will determine the type of protective measures necessary for protection of the public sector. The public will be notified of the event by local media facilities and periodic updates of information will be released to assure uniform, adequate response to real conditions.

Plant representatives will closeout, escalate, or reduce the emergency classification as conditions warrant. Written summaries of the event will be provided to off-site authorities.

References:

A. Tech. Specs.

1 None

B. Admin. Limits

1. None

C. Other

1. Vermont Yankee Emergency Plan

Prerequisites:

1. None

Procedure:

1. Select the appropriate appendix checklist from the following:

	Appendix I	Shift Supervisor/Plant Emergency Director
	Appendix II	Security Shift Supervisor
*	Appendix III	Technical Support Center Coordinator
*	Appendix IV	Emergency Operations Facility Coordinator
	Appendix V	Emergency Tag Board Assignments
	Appendix VI	Radiological Habitability Assessment
	Appendix VII	Operations Support Center Coordinator
	Appendix VIII	Site Recovery Manager

NOTE: Actions required in each appendix may be assigned by the responsible individual to other personnel as appropriate. The designated individual, however, has the overall responsibility for the execution of his checksheet.

2. Proceed with the implementation of the appropriate appendix and record time and initials as required.

Final Conditions:

1. As specified in the appropriate appendices.

SPS/emr

APPENDIX I

* SITE AREA - SHIFT SUPERVISOR/PLANT EMERGENCY DIRECTOR

	Time	Initials

* Immediate Actions:

1. Conditions have been assessed and the applicable Emergency Operating Procedures are utilized.

   If a release is in progress, refer to O.P. 3513,
* "Evaluation of Radiological Conditions."

2. The type of emergency (Site Area) has been determined from A.P. 3125, Classification of Emergencies. _____ _____

3. Determine the immediate personnel response to be taken.

4. Turn the Page System Volume Increase Switch to the "Evacuation" position, turn the Alarm Switch to the "ON" position for fifteen seconds, and then announce the following over the Plant Paging System:

   a. "Site Area Emergency, Site Area Emergency, Site Area Emergency"

   b. "There is (what) in/at (where)."

   c. "Emergency response personnel report to the Technical Support Center, the Operations Support Center, and the Emergency Operations Facility as required. All other personnel, visitors, and contractors report to the Govenor Hunt House Information Center" _____ _____

5. Notify the Shift Technical Advisor to report to the Control Room and provide assistance. _____ _____

* 6. Notify the NRC on the NRC Emergency Notification System red phone. Maintain an open, continuous communications channel on this line.

7. a. Notify the New Hampshire, Massachusetts, and Vermont
* State Police Agencies by depressing number 111 on
* the Nuclear Alert System orange phone (or utilizing
* telephone backup) and making the following announcement upon establishing communications:

   "This is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have a Site Area Emergency. I repeat, this is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have a Site Area
* Emergency, please acknowledge with your name,
* your state, and a repetition of the message."

Time Initials

Vermont_____
Name of Dispatcher

N.H._____
Name of Dispatcher

Mass._____
Name of Dispatcher

b. Expect calls from State Health and/or C.D. Officials concerning plant conditions.

8. Notify the Security Shift Supervisor to activate the telephone paging system for plant personnel and Yankee NSD personnel. _____ _____

9. When contacted by the Emergency Operations Facility Coordinator, advise him of the classification and emergency conditions. _____ _____

10. Direct the activities of the emergency response personnel until overall responsibility is assumed by the Technical Support Center Coordinator.

11. Request assistance of outside agencies (fire, law enforcement, or medical rescue personnel and related equipment) as needed to deal with the Site Area Emergency.

Fire _____ _____
Medical _____ _____
Law Enforcement (in conjunction with the Security Shift Supervisor) _____ _____

Subsequent Actions:

1. Changing conditions may require escalation of emergency classification to a more severe condition. Assess conditions periodically and be prepared to initiate this condition in concert with the T.S.C. Coordinator. _____ _____

OR

. In concert with the T.S.C. Coordinator, provide information to assist with the final closeout of the Site Area Emergency condition.

Final Conditions:

1. When the Site Area Emergency conditions no longer exist, announce on the plant page system that the Site Area Emergency is ended. _____ _____

2. Summarize all actions and resultant conditions in the Shift Supervisor's Log.

APPENDIX II

SITE AREA - SECURITY SHIFT SUPERVISOR

	Time	Initials
Immediate Actions		
1. Upon hearing the announcement of the Site Area Emergency, notify the plant personnel listed below using the automatic telephone paging system. Dial one of the following numbers: [redacted], [redacted], or [redacted] State name and location, request the initiation of a group page for VY pagers, and give the following message, "All personnel please call the plant immediately." (In the event this sytem is out of order, notification must be made by manual dialing of the appropriate numbers in the plant phone list.)	_____	_____
* V.Y. President	_____	_____
V.Y. Manager of Operations	_____	_____
Plant Manager	_____	_____
Asst. Plant Manager	_____	_____
Operations Support Manager	_____	_____
Operations Superintendent	_____	_____
Technical Services Superintendent	_____	_____
* Director of Communications	_____	_____
Engineering Support Supervisor	_____	_____
Reactor and Computer Supervisor	_____	_____
Chemistry & Health Physics Supervisor	_____	_____
I & C Supervisor	_____	_____
Maintenance Supervisor	_____	_____
Operations Supervisor	_____	_____
Asst. Operations Supervisor	_____	_____
Training Supervisor	_____	_____
2. Notify Yankee Nuclear Services Division Security (Microwave [redacted] or phone [redacted] extention [redacted] and give the following message: "This is Vermont Yankee. We have a Site Area Emergency. Standby for Yankee Staff calls." (Repeat this message and request acknowledgement)	_____	_____
3. Notify Yankee Nuclear Services Division personnel:	_____	_____
a. Dial the following number: [redacted]		
b. The ZIP-CALL operator will answer.		
c. Ask for pager [redacted] to be activated.		
d. Repeat Steps a, b, and c approximately 15 minutes after the initial call to assure that all YNSD personnel have been reached.	_____	_____

APPENDIX II (Continued)

	Time	Initials
4. Advise individuals listed below of emergency classification as they call in to plant security gate:		
* V.Y. President	_____	_____
V.Y. Manager of Operations	_____	_____
Plant Manager	_____	_____
Assistant Plant Manager	_____	_____
Operations Support Manager	_____	_____
Operations Superintendent	_____	_____
Technical Services Superintendent	_____	_____
* Director of Communications	_____	_____
Engineering Support Supervisor	_____	_____
Operations Supervisor	_____	_____
Reactor & Computer Supervisor	_____	_____
Chemistry & Health Physics Supervisor	_____	_____
Instrument & Control Supervisor	_____	_____
Maintenance Supervisor	_____	_____
Asst. Operations Supervisor	_____	_____
Training Supervisor	_____	_____
5. * Manual dialing and notification of any individuals listed in Step 4 who have not contacted the plant security gate should be initiated 15 minutes after initial notification in Step 1.	_____	_____
6. Request outside law enforcement as necessary or as requested by the Operations Shift Supervisor/Plant Emergency Director.	_____	_____
7. Ensure that an accountability has been completed as per D.P. 0906, Emergency Procedures.	_____	_____

Subsequent Actions:

1. Advise other individuals, as they call in, of the emergency classification.		
Name of Caller		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPENDIX II (Continued)

		Time	Initials
2.	Route phone calls from State Health and C.D. Officials to the appropriate C.R. personnel when received.		
	Name of Caller / Title		
	_____ / _____	_____	_____
	_____ / _____	_____	_____
	_____ / _____	_____	_____

APPENDIX III

* SITE AREA - TECHNICAL SUPPORT CENTER COORDINATOR

	Time	Initial
Immediate and Subsequent Actions		
1. Contact the SS/PED to obtain specific information concerning the event.	_____	_____
2. Assume the overall responsibility for directing the activities of the emergency response personnel from the Shift Supervisor/Plant Emergency Director in a timely manner.	_____	_____
3. Assure that the Technical Support Center Staff is in place:		
- Instrument & Control Supervisor		
* - Chemistry & Health Physics Supervisor (or alternate)		
- Reactor & Computer Supervisor		
- Operations Supervisor		
- Maintenance Supervisor		
- Engineering Support Supervisor		
* - G.E. Resident Engineer (as necessary)		
- Other staff as required to fulfill the functions of the Tech. Support Center		
4. Assign the Operations Support Center Coordinator.	_____	_____
5. Inform the Site Recovery Manager of emergency response actions on a periodic basis or with changes in status.		
6. a. Notify INPO (by dialing [redacted]) of emergency classification, plant, name of caller, and nature of emergency.	_____	_____
* b. Notify American Nuclear Insurer's (by dialing [redacted] of the emergency.	_____	_____
NOTE: During normal office hours the call will be answered directly. During other time periods an answering service will require name, affiliation and phone number of the caller so that an ANI staff member may return the call.		
7. Periodically ensure that radiological assessment is performed according to Appendix VI for the Technical Support Center and the Control Room.	_____	_____

APPENDIX III (Continued)

	Time	Initials

NOTE: Ensure the placement of two (2) 5R dosimeters in a representative location for the assessment of total exposure for the center.

Final Conditions

* 1. Upon termination of the emergency, assist the Recovery Manager in closeout summaries to the States of Vermont, New Hampshire, Massachusetts, the NRC, INPO, and other affected agencies.

a.	State of Vermont	_____	_____
b.	State of New Hampshire	_____	_____
c.	State of Massachusetts	_____	_____
d.	NRC	_____	_____
e.	INPO	_____	_____
f.	FEMA	_____	_____

* 2. Escalate or de-escalate the emergency classification as conditions warrant. _____ _____

APPENDIX IV

* SITE AREA - EMERGENCY OPERATIONS FACILITY COORDINATOR

	Time	Initials

* Immediate Actions:

1. Contact the Shift Supervisor/Plant Emergency Director and obtain specific information concerning the event. _____ _____

2. Activate the Emergency Operations Facility. _____ _____

   - Direct the assessment of EOF habitability on a frequent basis.

   - Assess on-site and off-site radiological conditions
* associated with any accidental releases. (Reference O.P. 3509, 3510, 3513)

   - Coordinate information on radiological assessments.

   - Act as a liason with off-site authorities.

   - Document and Coordinate emergency team activities.

   - Prepare facilities for the arrival of off-site authorities and other support personnel.

   - Assure that the Emergency Operations Facility/Recovery Center Staff is in place:

* - Chemistry and Health Physics Supervisor (or alternate)
* - Training Supervisor
   - Administrative Supervisor
   - Public Information Liaison
   - Other personnel as required to perform functions described in Appendix V.

   NOTE: The Administrative Supervisor is not equipped with a pager and will have to be notified by land line to respond to the EOF.

   - Assign personnel as required to the various functions in the Emergency Operations Facility (refer to Appendix V)

3. Direct the call-in of off-duty personnel as required. Personnel are requested and assigned as per Appendix V.

4. Receive advice and direction from the Site Recovery Manager.

APPENDIX IV (Continued)

	Time	Initials

5. Periodically ensure that radiological assessment is performed according to Appendix VI for the Emergency Operations Facility.

   NOTE: Ensure the placement of two (2) 5R dosimeters in a representative location for the assessment of total exposure for the center.

6. Assign the Radiological Coordinator and direct him to perform the procedure outlined in O.P. 3525, Radiological Coordination.

Subsequent Actions

1. Provide protective actions/recommendations to various state agencies in the event of release or expected releases.

Final Conditions

1. Direct the responsible personnel to restore all emergency equipment to its normal readiness state. _____ _____

2. Review and initial all Emergency Operations Facility logs to assure completeness and accuracy. _____ _____

APPENDIX V

ASSIGNMENT TAG BOARD

Tag No.

* (1) EOF Coordinator's Assistant

* 1. Break out EOF Coordinator's kit from the equipment closet, install plant phone extension and contact Control Room. Inform the Tech. Support Coordinator, or in the absence of personnel in the Tech. Support Center, inform Plant Emergency Director of your presence and request the following:

a. Summary evaluation of plant conditions. (Take notes)

* b. Type of release (and appropriate meteorological data): (one of the following)

1) Elevated (stack only) release -

"Upper" delta t (Δt)
Wind speed
Wind direction

2) Ground (including combination stack and other relese paths) release -

"Lower" delta t (Δt)
Wind speed
Wind direction

*

c. Directional stability of the wind (i.e., any indication of trending toward new direction?).

d. Whether or not the plant Emergency Director needs assistance in notifying plant management personnel, or other onsite assistance.

2. Determine habatability of the EOF using Appendix VI. If
* this facility is not habitable (criteria in O.P. 3507, Table II), then:

* a. Announce relocation to Alternate Emergency Operations Facility at Vernon Town Hall. (South door to basement.)

b. Write a message to this effect on blackboard and request assistance in transporting any remaining emergency equipment.

c. Proceed with the Coordinator's kit to the Vernon Town Hall.

d. Confirm that the Town Hall is in the better location by use of the portable survey instruments.

e. Log the results of both surveys.

* 3. Take charge of the Emergency Operations Facility until arrival of the EOF Coordinator. Connect additional phones, check radio and gaitronics, etc.

Tag No.

(1) Cont. 4. Initiate EOF Coordinator's Check List O.P. 3502 Site Area Emergency Appendix IV on EOF Coordinator's clipboard.

5. Organize equipment, set up tables, status and mapboards, select the appropriate plume stability angle in accordance with reported meteorological conditions.

6. Upon arrival of EOF Coordinator, advise him of the situation and its status (per the check list) and act as his assistant by keeping a log of significant events on VYOPF 3504.01, and other duties as he may request.

7. Be alert for a possible shift in wind direction. Periodically, contact the T.S.C. for a current wind direction and speed.

8. Direct the placement of EOF area signs as time and personnel availability permit.

(2)(3) Site Boundary Survey Team

1. Open Site Boundary Kit, obtain clipboard and follow instructions of O.P. 3510.

(4)(5) Personnel and Equipment Monitoring Team

1. Obtain two count rate meters (PRM-4A and/or RM-14's) from the charging shelf in emergency equipment storage closet and the "Personnel Monitoring" clipboard from the EOF Coordinator's kit.

2. Monitor yourself first then all personnel on duty at the Emergency Operations Facility. Segregate for decontamination all individuals exceeding 2X background for 2000 net c/m.

3. As soon as practicable, establish a control point to monitor all personnel arriving from the plant area. (e.g., front porch (good weather), or lobby area.)

4. Check off name of each person monitored on the clipboard gate list. If name is not on list, write name on blank log sheets.

5. Immediately segregate all personnel arriving in P.C. clothing and identify their vehicles, if applicable. One member of the team will survey P.C.-attired personnel and their vehicles with priority. Note on gate list log or log sheets the name(s) and vehicle(s) exceeding 2X background or 2000 net c/m. Hold for decontamination and release.

6. When appropriate (i.e., gross contamination or inhalation) take nasal smears, or tissue "blow" samples.

Tag No.

(4)(5) Cont.

7. The second member of team will, with priority, survey the exterior (including tires) of any emergency vehicle leaving the site. Log the results.

* 8. Report all significant or positive results to the EOF Coordinator or the Radiological Assistant.

(6) Communications Assistant

1. Insure phones are installed in phone jacks.

* NOTE:
a. RED phone is the NRC Emergency Notifications System phone and mates with the labelled NRC jack on west wall of stage.

b. BLACK phones are the Emergency Coordinator's private unlisted line and mates with labelled jacks on west wall of stage.

* c. GREEN phone is for use by the various state health departments and mates with phone jack on west wall of exhibit area.

* d. BLUE phone is the NRC Health Physics Network phone and mates with the labelled jack on the west wall of the stage.

2. Obtain box of Message Forms (O.P. 3504, Figure 2) from
* the EOF Coordinator's kit.

3. Assign someone to man the kitchen and state phones and provide them with a supply of blank forms.

4. Establish radio communications with all onsite and offsite teams prior to their departure from the outer gatehouse, if practicable.

NOTE: Utilize radio procedures contained in O.P. 3504.

5. Record the parties involved, date and time of each incoming or outgoing message by telephone, Gaitronics or radio on a Message Form.

* 6. On incoming calls, forward copies 1 and 3 to the EOF Coordinator or his appropriate assistant.

NOTE: Retain copy 2 (yellow) as a "tickler" for those messages requiring a reply.

7. When copy 1 is returned for dispatching a reply, discard copy 2 and note date and time the reply message was dispatched.

8. Retain completed copy 1 as a log record of all communications.

Tag No.

(7)(8)
(9)(10) Onsite Assistance/Rescue Team

1. Dress in full protective clothing immediately.

2. Respiratory protection apparatus.

   a. Respiratory Protection apparatus
   b. High-range dosimeter
   c. PIC-6 survey meter (1 per team)

3. Check operability of survey instrument.

4. Proceed immediately to outer gatehouse and obtain assigned TLD badges and a portable radio.

5. Check operability of radio by calling Technical Support Center and announcing your readiness to provide assistance, if needed.

* 6. Standby for instructions from the T.S.C. Coordinator at the outer gatehouse, or if conditions permit, proceed to the inner gatehouse and await instructions.

7. When requested, provide assistance within guidelines specified in O.P. 3507, Exposure Control During an Emergency.

8. If injured personnel are involved:

   * a. Request ambulance and H.P. representative from the T.S.C. Coordinator.

   b. Provide first-aid treatment at the scene, as appropriate. (Note excessively high dose rate levels)

   c. When practicable, move victim to H.P. Control Point or other low radiation area.

   d. Survey victim's clothing, and depending upon good first-aid procedures, remove as much grossly contaminated clothing as possible.

   e. Wrap the victim and stretcher with a blanket or other suitable material available.

   f. Transfer the victim into the ambulance, avoiding direct personal contact with the ambulance.

   * g. Notify the EOF Coordinator the ambulance is on its way out and request that a survey of the ambulance tires be made at the outer gate.

Tag No.

* (7)(8) (9)(10) Cont. 9. On-site assistance teams will keep the T.S.C. Coordinator advised as significant information is developed and take other actions as directed by him.

* 10. Upon completion of assigned duties, contact the EOF Coordinator to determine if additional instruments or supplies
* are needed at the Emergency Operation Facility.

11. Return to the Emergency Operations Facility, request monitoring prior to entry, and report any pertinent information to the
* EOF Coordinator or his Assistant for the log.

* (11) Radiological Assistant (Chem. & H.P. Supervisor or alternate)

1. Make dose projections as required and outlined in O.P. 3513, Evaluation of Offsite Radiological Conditions.

2. Assemble all available information relating to the radiological situation both on and offsite.

3. Organize the information and concisely state the latest radiological conditions on the status and mapboards with a wax crayon.

4. As new or additional information becomes available, update the boards.

5. Coordinate and direct the activities of the monitoring teams
* as the EOF Coordinator may request.

NOTE: If conditions warrant, a third offsite team may be activated by utilizing the spare offsite monitoring kit at the Vernon Town Hall.

* 6. Keep the EOF Coordinator informed, as appropriate.

* 7. Assist the EOF Coordinator as he may request.

(12) Manpower and Planning Assistant

1. Determine the nature of the emergency and approximate the extent of damage to the plant and equipment.

2. Mobilize available manpower by listing plant personnel present and not otherwise assigned to emergency duties in the following specialty groups (Emergency Assistance Personnel List):

NOTE: A person may be listed in more than one category.

a. Medical Backup Team and those trained in First-Aid
b. Chemistry and Health Physics
c. Fire Brigade
d. Welders
e. Electricians
f. Mechanics

Tag No.

(12)Cont.

g. Instrument & Control
h. Stores
i. Reactor and Computer
j. Engineering Support
k. Secretarial

3. Keep the above list current as personnel continue to arrive at the Emergency Operations Facility.

4. As soon as practicable, reassign tag board duties to make available those specialties needed to best cope with the emergency situation.

5. Prepare to assign specialized assistant teams as requested * by the T.S.C. Coordinator.

* 6. Assist the EOF Coordinator by attempting to anticipate and provide for future manpower and logistics needs.

7. Depending upon the anticipated duration of the emergency, prepare relief schedules and excuse those personnel not presently needed.

(13)(14) Offsite Team #1

1. Obtain one offsite Monitoring Kit, one RM-14, one PIC-6A, and one air sampler.

2. Open kit and remove O.P. 3510, "Offsite and Site Boundary Monitoring." (on clipboard)

3. Complete checklist instructions as indicated in O.P. 3510.

(15)(16) Offsite Team #2

1. Obtain one Offsite Monitoring Kit, One RM-14, one PIC-6A, and one air sampler.

2. Open kit and remove O.P. 3510, "Offsite and Site Boundary Monitoring." (on clipboard)

3. Complete checklist instructions as indicated in O.P. 3510.

APPENDIX VI

SITE AREA - RADIOLOGICAL HABITABILITY ASSESSMENT

1. Obtain a copy of O.P. 3507, Emergency Radiation Exposure Control.

2. Obtain an RM-14 a PIC-6A and a low volume charcoal air sample. Perform the necessary function checks on the instrumentation.

3. Monitor conditions in the areas assigned:

   Technical Support Center
   Operations Support Center
   Emergency Operations Facility
   Other areas as requested by the Plant Emergency Director or the Chemistry and Health Physics Supervisor or his alternate.

4. Using Table II in O.P. 3507, assess personnel actions with respect to radiological conditions encountered.

5. Report findings and recommendations on VYOPF 3502.01 and submit to the appropriate center coordinator.

   NOTE: Additional information, such as area surveys, should be recorded on the reverse side of VYOPF 3502.01.

APPENDIX VII

* SITE AREA - OPERATIONS SUPPORT CENTER COORDINATOR

1. Provide system valve alignment and equipment operations support to auxiliary operators.

2. Assist in coordination of operations relief planning.

3. Assure that Operations Support Center Staff is in place:

   - Chemistry & Health Physics Assistant(s)
   - Spare Operations Staff
   - Other personnel as required

4. Assist in the coordination of recovery efforts requiring the plant operations staff.

5. Periodically determine the habitability of the center by using the procedure outlined in Appendix VI.

   NOTE: Ensure the placement of two (2) 5R dosimeters in a representative location for the assessment of total exposure for the center.

6. * Report findings to and receive instruction from the Shift Supervisor/ Plant Emergency Director and/or the T.S.C. Coordinator.

APPENDIX VIII

* SITE AREA - SITE RECOVERY MANAGER

	Time	Initials

1. Assume the overall responsibility for the emergency response organization and all response efforts.

2. Act as the principle plant emergency response organization spokesman in all interfacing with off-site authorities.

3. Assess plant conditions as reported by the response organization and direct that all needed response efforts are addressed.

4. Insure that manpower planning is being conducted to provide for response efforts over an extended period.

5. * Review and approve periodic news releases prepared by the Director of Communications or his designee prior to release.

6. Devise a recovery plan applicable to the plant condition(s) following the termination of the emergency phase.

7. Reach agreement with off-site authorities on the official termination of the emergency.

8. Close out the event by verbal summary to the off-site authorities and provide a written summary of the event to the off-site authorities indicated below:

a.	NRC	_____	_____
b.	FEMA	_____	_____
c.	State of Vermont	_____	_____
d.	State of Massachusetts	_____	_____
e.	State of New Hampshire	_____	_____

OR

Escalate or de-escalate the emergency classification based on changing plant conditions.

EMERGENCY CONDITIONS RADIOLOGICAL ASSESSMENT FORM

Date_____

Time_____

Location of Sampling_____

DATA

Maximum Dose Rate (W.B.)_____

Average Dose Rate (W.B.)_____

Air Sample Results_____

Recommended Action (From sampling information and specifications in Table I, O.P. 3507, Emergency Radiation Exposure Control)

_____

_____

_____

_____

_____

Comments _____

_____

NOTE: Additional information, such as area surveys, should be recorded on the reverse side of this form.

_____ / _____
Surveyor Date

VYOPF 3502.01
Rev. 14

Dept. Supv.		Proc. No.	O.P. 3503
PORC		Rev. No.	15
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

GENERAL EMERGENCY

Purpose:

To outline the actions required of plant personnel, visitors and contractors in the event that a General Emergency is declared.

Discussion:

A General Emergency is declared when substantial core degradation or melting has occurred, with a potential for loss of containment integrity. Possibilities exist for amounts of contamination to be released and this procedure emphasizes the ability to monitor these releases and to provide protective action information to State Authorities and the general public. Prompt notification of the population at risk will also be made in a General Emergency by appropriate State Authorities. Off-site authorities will take appropriate protective measures based on meteorlogical information, radiological dose projections and effected populations.

Contracted service organizations, sponsor utilities and other industry resources will be alerted and requested to render assistance as appropriate. In addition, Federal resources will be called upon for assistance. All emergency centers are activated following the declaration of a General Emergency. All nonessential personnel are evacuated from the site. Representatives from the adjoining States will be dispatched to the Emergency Operations Facility. Assessment of off-site radiological parameters will determine the type of protective measures necessary for the protection of the public sector. The public will be notified of the event by local media facilities and periodic updates of information will be released to assure uniform, adequate response to real conditions.

Plant representatives will closeout or reduce the emergency classification as conditions warrant. Written summaries will be provided to off-site authorities and other affected agencies.

References:

A. Tech. Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. Vermont Yankee Emergency Plan

Prerequisites:

1. None

Procedure:

1. Select the appropriate appendix checklist from the following:

	Appendix I	Shift Supervisor/Plant Emergency Director
	Appendix II	Security Shift Supervisor
*	Appendix III	Technical Support Center Coordinator
*	Appendix IV	Emergency Operations Facility Coordinator
	Appendix V	Emergency Tag Board Assignments
	Appendix VI	Radiological Habitability Assessment
	Appendix VII	Operations Support Center Coordinator
	Appendix VIII	Site Recovery Manager

NOTE: Actions required in each appendix may be assigned by the responsible individual to other personnel as appropriate. The designated individual; however, has the overall responsibility for the execution of his checksheet.

2. Proceed with the implementation of the appropriate appendix and record time and initials as required.

Final Conditions:

1. As specified in the appropriate appendices.

SPS/emr

APPENDIX I

* GENERAL - SHIFT SUPERVISOR/PLANT EMERGENCY DIRECTOR

	Time	Initials

* Immediate Actions:

1. Conditions have been assessed and the applicable Emergency Operating Procedures are utilized.

   If a release is in progress, refer to O.P. 3513,
   * "Evaluation of Radiological Conditions."

2. The type of emergency (General) has been determined from A.P. 3125, Classification of Emergencies. _____ _____

3. Determine the immediate personnel response to be taken.

4. Turn the Page System Volume Increase Switch to the "Evacuation" position, turn the Alarm Switch to the "ON" position for fifteen seconds, and then announce the following over the Plant Paging System:

   a. "General Emergency, General Emergency, General Emergency"

   b. "There is (what) in/at (where)."

   c. "Emergency response personnel report to the Technical Support Center, the Operations Support Center, and the Emergency Operations Facility as required. All other personnel, visitors, and contractors report to the Govenor Hunt House Information Center" _____ _____

5. Notify the Shift Technical Advisor to report to the Control Room and provide assistance. _____ _____

* 6. Notify the NRC on the NRC Emergency Notifica-
* tion System red phone. Maintain an open, continuous communications channel on this line.

7. a. Notify the New Hampshire, Massachusetts, and Vermont
* State Police Agencies by depressing number 111 on the
* Nuclear Alert System orange phone (or utilizing telephone
* backup) and making the following announcement upon establishing communications:

   "This is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have a General Emergency.

* We recommend that the general public be advised
* to seek shelter.

	Time	Initials

I repeat, this is Vermont Yankee Nuclear Power Station in Vernon, Vermont. We have a General Emergency, please acknowledge with your name, your state and a repetition of the message." _____ _____

Vermont_____
Name of Dispatcher

N.H._____
Name of Dispatcher

Mass._____
Name of Dispatcher

b. Expect calls from State Health and/or C.D. Officials concerning plant conditions.

8. Notify the Security Shift Supervisor to activate the telephone paging system for plant personnel and Yankee NSD personnel. _____ _____

9. When contacted by the EOF Coordinator, advise him of the classification and emergency conditions. _____ _____

10. Direct the activities of the emergency response personnel until overall responsibility is assumed by the Technical Support Center Coordinator.

11. Request assistance of outside agencies (fire, law enforcement, or medical rescue personnel and related equipment) as needed to deal with the General Emergency.

Fire _____ _____
Medical _____ _____
Law Enforcement (in conjunction with the Security Shift Supervisor) _____ _____

Subsequent Actions:

1. In concert with the T.S.C. Coordinator, provide information to assist with the final closeout of the General Emergency condition.

Final Conditions:

1. When the General Emergency conditions no longer exist, announce on the plant page system that the General Emergency is ended. _____ _____

2. Summarize all actions and resultant conditions in the Shift Supervisor's Log.

APPENDIX II

GENERAL EMERGENCY - SECURITY SHIFT SUPERVISOR

	Time	Initials

Immediate Actions

1. Upon hearing the announcement of a General Emergency, notify the plant personnel listed below using the automatic telephone paging system. Dial one of the following numbers; [redacted] or [redacted] State name and location, request the initiation of a group page for VY pagers, and give the following message, "All personnel please call the plant immediately." _____ _____

   (In the event this system is out of order, notification must be made by manual dialing of the appropriate numbers in the plant phone list.)

V.Y. President	_____	_____
V.Y. Manager of Operations	_____	_____
Plant Manager	_____	_____
Asst. Plant Manager	_____	_____
Operations Support Manager	_____	_____
Operations Superintendent	_____	_____
Technical Services Superintendent	_____	_____
Director of Communications	_____	_____
Engineering Support Supervisor	_____	_____
Reactor and Computer Supervisor	_____	_____
Chem. and H.P. Supervisor	_____	_____
I&C Supervisor	_____	_____
Maintenance Supervisor	_____	_____
Operations Supervisor	_____	_____
Asst. Operations Supervisor	_____	_____
Training Supervisor	_____	_____

2. Notify Yankee Nuclear Services Division Security (Microwave [redacted] or phone [redacted] extension [redacted] and give the following message:

   "This is Vermont Yankee. We have a General Emergency. Standby for Yankee Staff calls." (Repeat this message and request acknowledgement) _____ _____

3. Notify Yankee Nuclear Services Division personnel:

   a. Dial the following number: [redacted]

   b. The ZIP-CALL operator will answer.

	Time	Initials

c. Ask for pager [redacted] to be activated.

d. Repeat Steps a, b, and c approximately 15 minutes after the initial call to assure that all YNSD personnel have been reached.

4. Advise individuals listed below of emergency classification as they call into plant security gate:

V.Y. President		
V.Y. Manager of Operations		
Plant Manager		
Assistant Plant Manager		
Operations Support Supervisor		
Operations Superintendent		
Technical Services Superintendent		
Director of Communications		
Engineering Support Supervisor		
Operations Supervisor		
Reactor & Computer Supervisor		
Chemistry & Health Physics Supervisor		
Instrument & Control Supervisor		
Maintenance Supervisor		
Asst. Operations Supervisor		
Training Supervisor		

5. Manual dialing and notification of any individuals listed in Step 4. who have not contacted the plant security gate should be initiated 15 minutes after initial notification in Step 1.

6. Request outside Law Enforcement as necessary or as requested by the Operations Shift Supervisor/Plant Emergency Director.

7. Ensure that an accountability of personnel has been completed as per D.P. 0906, Emergency Procedures.

Subsequent Actions:

1. Advise other individuals, as they call in, of the emergency classification.

Name of Caller		

		Time	Initials
2.	Route phone calls from State Health and C.D. Officials to the appropriate C.R. personnel when received.		

Name of Caller	Title		

APPENDIX III

GENERAL - TECHNICAL SUPPORT CENTER COORDINATOR

	Time	Initials

Immediate and Subsequent Actions

1. Contact the SS/PED to obtain specific information concerning the event. _____ _____

2. Assume the overall responsibility for directing the activities of the emergency response personnel from the Shift Supervisor/Plant Emergency Director in a timely manner. _____ _____

3. Assure that the Technical Support Center Staff is in place:

   - Instrument & Control Supervisor
   - Chemistry & Health Physics Supervisor (or alternate)
   - Reactor & Computer Supervisor
   - Operations Supervisor
   - Maintenance Supervisor
   - Engineering Support Supervisor
   - G.E. Resident Engineer (as necessary)
   - Other staff as required to fulfill the functions of the Technical Support Center.

4. Assign the Operations Center Coordinator. _____ _____

5. Inform the Site Recovery Manager of emergency response actions on a periodic basis or with changes in status.

6. a. Notify INPO (by dialing [redacted]) of emergency classification, plant, name of caller, and nature of emergency. _____ _____

   b. Notify American Nuclear Insurer's (by dialing [redacted] of the emergency. _____ _____

   NOTE: During normal office hours the call will be answered directly. During other time periods an answering service will require name, affiliation, and phone number of the caller so that an ANI staff member may return the call.

7. Periodically ensure that radiological assessment is performed according to Appendix VI for the Technical Support Center and the Control Room.

   NOTE: Ensure the placement of two (2) 5R dosimeters in a representative location for the assessment of total exposure for the center.

APPENDIX III (Continued)

	Time	Initials

Final Conditions:

* 1. Upon termination of the emergency, assist the Site Recovery Manager in closeout summaries to the States of Vermont, New Hampshire, Massachusetts, the NRC, INPO, and other affected agencies.

State of Vermont	_____	_____
" " New Hampshire	_____	_____
" " Massachusetts	_____	_____
NRC	_____	_____
INPO	_____	_____
FEMA	_____	_____

OR

* 2. * De-escalate the emergency classification as conditions warrant. _____ _____

APPENDIX IV

* GENERAL - EMERGENCY OPERATIONS FACILITY COORDINATOR

	Time	Initials

* Immediate Actions:

1. Contact the Shift Supervisor/Plant Emergency Director and obtain specific information concerning the event. _____ _____

2. Activate the Emergency Operations Facility. _____ _____

   - Direct the assessment of EOF habitability on a frequent basis.

   - Assess on-site and off-site radiological conditions * associated with any accidental releases. (Reference O.P. 3509, 3510, 3513)

   - Coordinate information on radiological assessments.

   - Act as a liason with off-site authorities.

   - Document and Coordinate emergency team activities.

   - Prepare facilities for the arrival of off-site authorities and other support personnel.

   - Assure that the Emergency Operations Facility/Recovery Center Staff is in place:

*
     - Chem. & H. P. Supervisor (or alternate)
     - Training Supervisor
     - Administrative Supervisor
     - Public Information Liaison
     - Other personnel as required to perform functions described in Appendix V.

     NOTE: The Administrative Supervisor is not equipped with a pager and will have to be notified by land line to respond to the EOF.

   - Assign personnel as required to the various functions in the Emergency Operations Facility (refer to Appendix V)

3. Direct the call-in of off-duty personnel as required. Personnel are requested and assigned as per Appendix V.

4. Receive advice and direction from the Site Recovery Manager.

APPENDIX IV (Continued)

	Time	Initials

5. Periodically ensure that radiological assessment is performed according to Appendix VI for the Emergency Operations Facility.

   NOTE: Ensure the placement of two (2) 5R dosimeters in a representative location for the assessment of total exposure for the center.

6. Assign the Radiological Coordinator and direct him to perform the procedure outlined in O.P. 3525, Radiological Coordination.

Subsequent Actions

1. Provide protective actions/recommendations to various state agencies in the event of release or expected releases.

Final Conditions

1. Direct the responsible personnel to restore all emergency equipment to its normal readiness state. _____ _____

2. Review and initial all Emergency Operations Facility logs to assure completeness and accuracy. _____ _____

APPENDIX V

ASSIGNMENT TAG BOARD

Tag No.

* (1) EOF Coordinator's Assistant

* 1. Break out EOF Coordinator's kit from the equipment closet, install plant phone extension and contact Control Room. Inform the Tech. Support Coordinator, or in the absence of personnel in the Tech. Support Center, inform Plant Emergency Director of your presence and request the following:

a. Summary evaluation of plant conditions. (Take notes)

* b. Type of release (and appropriate meteorological data): (one of the following)

1) Elevated (stack only) release -

"Upper" delta t (Δt)
Wind speed
Wind direction

2) Ground (including combination stack and other release paths) release -

"Lower" delta t (Δt)
Wind speed
Wind direction

*

c. Directional stability of the wind (i.e., any indication of trending toward new direction?).

d. Whether or not the plant Emergency Director needs assistance in notifying plant management personnel, or other on-site assistance.

2. Determine habatability of the EOF using Appendix VI. If
* this facility is not habitable (criteria in O.P. 3507, Table
* II), then:

* a. Announce relocation to Alternate Emergency Operations Facility at Vernon Town Hall. (South door to basement.)

b. Write a message to this effect on blackboard and request assistance in transporting any remaining emergency equipment.

c. Proceed with the Coordinator's kit to the Vernon Town Hall.

d. Confirm that the Town Hall is in the better location by use of the portable survey instruments.

e. Log the results of both surveys.

3. Take charge of the Emergency Operations Facility until arrival
* of the EOF Coordinator. Connect additional phones, check radio and gaitronics, etc.

Tag No.

(1) Cont. 4. Initiate EOF Coordinator's Check List O.P. 3503, General Emergency Appendix IV on EOF Coordinator's clipboard.

5. Organize equipment, set up tables, status and mapboards, select the appropriate plume stability angle in accordance with reported meteorological conditions.

6. Upon arrival of EOF Coordinator, advise him of the situation and its status (per the check list) and act as his assistant by keeping a log of significant events on VYOPF 3504.01, and other duties as he may request.

7. Be alert for a possible shift in wind direction. Periodically, contact the T.S.C. for a current wind direction and speed.

8. Direct the placement of EOF area signs as time and personnel availability permit.

(2)(3) Site Boundary Survey Team

1. Open Site Boundary Kit, obtain clipboard and follow instructions of O.P. 3510.

(4)(5) Personnel and Equipment Monitoring Team

1. Obtain two count rate meters (PRM-4A and/or RM-14's) from the charging shelf in emergency equipment storage closet and the "Personnel Monitoring" clipboard from the EOF Coordinator's kit.

2. Monitor yourself first then all personnel on duty at the Emergency Operations Facility. Segregate for decontamination all individuals exceeding 2X background for 2000 net c/m.

3. As soon as practicable, establish a control point to monitor all personnel arriving from the plant area. (e.g., front porch (good weather), or lobby area.)

4. Check off name of each person monitored on the clipboard gate list. If name is not on list, write name on blank log sheets.

5. Immediately segregate all personnel arriving in P.C. clothing and identify their vehicles, if applicable. One member of the team will survey P.C.-attired personnel and their vehicles with priority. Note on gate list log or log sheets the name(s) and vehicle(s) exceeding 2X background or 2000 net c/m. Hold for decontamination and release.

6. When appropriate (i.e., gross contamination or inhalation) take nasal smears, or tissue "blow" samples.

Tag No.

(4)(5) Cont. 7. The second member of team will, with priority, survey the exterior (including tires) of any emergency vehicle leaving the site. Log the results.

* 8. Report all significant or positive results to the EOF Coordinator or the Radiological Assistant.

(6) Communications Assistant

1. Insure phones are installed in phone jacks.

* NOTE: a. RED phone is the NRC Emergency Notification System phone and mates with the labelled NRC jack on west wall of stage.

b. BLACK phones are the Emergency Coordinator's private unlisted line and mates with labelled jacks on west wall of stage.

c. GREEN phone is for use by the various stage health departments and mates with phone jack on west wall of exhibit area.

* d. BLUE phone is the NRC Health Physics Network
* phone and mates with the labelled jack on the
* west wall of the stage.

2. Obtain box of Message Forms (O.P. 3504, Figure 2) from
* the EOF Coordinator's kit.

3. Assign someone to man the kitchen and state phones and provide them with a supply of blank forms.

4. Establish radio communications with all onsite and offsite teams prior to their departure from the outer gatehouse, if practicable.

NOTE: Utilize radio procedures contained in O.P. 3504.

5. Record the parties involved, date and time of each incoming or outgoing message by telephone, Gaitronics or radio on a Message Form.

* 6. On incoming calls, forward copies 1 and 3 to the EOF Coordinator or his appropriate assistant.

NOTE: Retain copy 2 (yellow) as a "tickler" for those messages requiring a reply.

7. When copy 1 is returned for dispatching a reply, discard copy 2 and note date and time the reply message was dispatched.

8. Retain completed copy 1 as a log record of all communications.

Tag No.

(7)(8) (9)(10) Onsite Assistance/Rescue Team

1. Dress in full protective clothing immediately.

2. Respiratory protection apparatus.

   a. Respiratory Protection apparatus
   b. High-range dosimeter
   c. PIC-6 survey meter (1 per team)

3. Check operability of survey instrument.

4. Proceed immediately to outer gatehouse and obtain assigned TLD badges and a portable radio.

5. Check operability of radio by calling Technical Support Center and announcing your readiness to provide assistance, if needed.

* 6. Standby for instructions from the T.S.C. Coordinator at the outer gatehouse, or if conditions permit, proceed to the inner gatehouse and await instructions.

7. When requested, provide assistance within guidelines specified in O.P. 3507, Exposure Control During an Emergency.

8. If injured personnel are involved:

* a. Request ambulance and H.P. representative from the T.S.C. Coordinator.

   b. Provide first-aid treatment at the scene, as appropriate. (Note excessively high dose rate levels)

   c. When practicable, move victim to H.P. Control Point or other low radiation area.

   d. Survey victim's clothing, and depending upon good first-aid procedures, remove as much grossly contaminated clothing as possible.

   e. Wrap the victim and stretcher with a blanket or other suitable material available.

   f. Transfer the victim into the ambulance, avoiding direct personal contact with the ambulance.

* g. Notify the EOF Coordinator the ambulance is on its way out and request that a survey of the ambulance tires be made at the outer gate.

Tag No.

* (7)(8)(9)(10) Cont. 9. On-site assistance teams will keep the T.S.C. Coordinator advised as significant information is developed and take other actions as directed by him.

* 10. Upon completion of assigned duties, contact the EOF Coordinator to determine if additional instruments or supplies
* are needed at the Emergency Operations Facility.

11. Return to the Emergency Operations Facility, request monitoring prior to entry, and report any pertinent information to the EOF Coordinator or his Assistant for the log.

(11) Radiological Assistant

1. Make dose projections as required and outlined in O.P. 3513, Evaluation of Offsite Radiological Conditions.

2. Assemble all available information relating to the radiological situation both on and offsite.

3. Organize the information and concisely state the latest radiological conditions on the status and mapboards with a wax crayon.

4. As new or additional information becomes available, update the boards.

5. Coordinate and direct the activities of the monitoring teams
* as the EOF Coordinator may request.

NOTE: If conditions warrant, a third offsite team may be activated by utilizing the spare offsite monitoring kit at the Vernon Town Hall.

* 6. Keep the EOF Coordinator informed, as appropriate.

* 7. Assist the EOF Coordinator as he may request.

(12) Manpower and Planning Assistant

1. Determine the nature of the emergency and approximate the extent of damage to the plant and equipment.

2. Mobilize available manpower by listing plant personnel present and not otherwise assigned to emergency duties in the following specialty groups (Emergency Assistance Personnel List):

NOTE: A person may be listed in more than one category.

a. Medical Backup Team and those trained in First-Aid
b. Chemistry and Health Physics
c. Fire Brigade
d. Welders
e. Electricians
f. Mechanics

Tag No.

(12)Cont.

g. Instrument & Control
h. Stores
i. Reactor and Computer
j. Engineering Support
k. Secretarial

3. Keep the above list current as personnel continue to arrive at the Emergency Operations Facility.

4. As soon as practicable, reassign tag board duties to make available those specialties needed to best cope with the emergency situation.

5. Prepare to assign specialized assistant teams as requested * by the T.S.C. Coordinator.

* 6. Assist the EOF Coordinator by attempting to anticipate and provide for future manpower and logistics needs.

7. Depending upon the anticipated duration of the emergency, prepare relief schedules and excuse those personnel not presently needed.

(13)(14) Offsite Team #1

1. Obtain one offsite Monitoring Kit, one RM-14, one PIC-6A, and one air sampler.

2. Open kit and remove O.P. 3510, "Offsite and Site Boundary Monitoring." (on clipboard)

3. Complete checklist instructions as indicated in O.P. 3510.

(15)(16) Offsite Team #2

1. Obtain one Offsite Monitoring Kit, One RM-14, one PIC-6A, and one air sampler.

2. Open kit and remove O.P. 3510, "Offsite and Site Boundary Monitoring." (on clipboard)

3. Complete checklist instructions as indicated in O.P. 3510.

APPENDIX VI

* GENERAL - RADIOLOGICAL HABITABILITY ASSESSMENT

1. Obtain a copy of O.P. 3507, Emergency Radiation Exposure Control.

2. Obtain an RM-14, a PIC-6A, and a low volume charcoal air sample. Perform the necessary function checks on the instrumentation.

3. Monitor conditions in the area(s) assigned -

   Technical Support Center
   Operations Support Center
   Emergency Operations Facility
   Other areas as requested by the Plant Emergency Director or the Chemistry and Health Physics Supervisor or his alternate.

4. Using Table II in O.P. 3507, assess personnel actions with respect to radiological conditions encountered.

5. Report findings and recommendations on O.P. 3503.01 and submit to the appropriate center coordinator.

   NOTE: Additional information, such as area surveys, should be recorded on the reverse side of VYOPF 3503.01.

APPENDIX VII

* GENERAL - OPERATIONS SUPPORT CENTER COORDINATOR

1. Provide system valve alignment and equipment operations support to auxiliary operators.

2. Assist in coordination of operations relief planning.

3. Assure that Operations Support Center Staff is in place:

   - Chemistry & Health Physics Assistant(s)
   - Spare Operations Staff
   - Other personnel as required

4. Assist in the coordination of recovery efforts requiring the plant operations staff.

5. Periodically determine the habitability of the center by using the procedure outlined in Appendix VI.

   NOTE: Ensure the placement of two (2) 5R dosimeters in a representative location for the assessment of total exposure for the center.

6. * Report findings to and receive instruction from the Shift Supervisor/ Plant Emergency Director and/or the T.S.C. Coordinator.

APPENDIX VIII

* GENERAL - SITE RECOVERY MANAGER

		Time	Initials
1.	Assume the overall responsibility for the emergency response organization and all response efforts.		
2.	Act as the principle plant emergency response organization spokesman in all interfacing with off-site authorities.		
3.	Assess plant conditions as reported by the response organization and direct that all needed response efforts are addressed.		
4.	Insure that manpower planning is being conducted to provide for response efforts over an extended period.		
5.	* Review and approve periodic news releases prepared by the Director of Communications or his designee prior to release.		
6.	Devise a recovery plan applicable to the plant condition(s) following the termination of the emergency phase.		
7.	Reach agreement with off-site authorities on the official termination of the emergency.		
8.	Close out the event by verbal summary to the off-site authorities and provide a written summary of the event to the off-site authorities indicated below:		
	a. NRC	_____	_____
	b. FEMA	_____	_____
	c. State of Vermont	_____	_____
	d. State of Massachusetts	_____	_____
	e. State of New Hampshire	_____	_____

* OR

* * De-escalate the emergency classification based on changing plant conditions.

EMERGENCY CONDITIONS RADIOLOGICAL ASSESSMENT FORM

Date_____

Time_____

Location of Sampling_____

DATA

Maximum Dose Rate (W.B.)_____

Average Dose Rate (W.B.)_____

Air Sample Results_____

Recommended Action (From sampling information and specifications in Table I, O.P. 3507, Emergency Radiation Exposure Control)

_____

_____

_____

_____

_____

Comments _____

_____

NOTE: Additional information, such as area surveys, should be recorded on the reverse side of this form.

_____/_____
Surveyor Date

VYOPF 3503.01
Rev. 15

Dept. Supv.		Proc. No.	O.P. 3513
PORC		Rev. No.	5
Plant Mgr.		Issue Date	1/28/82
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EVALUATION OF OFF-SITE RADIOLOGICAL CONDITIONS

Purpose:

To specify the method used to evaluate the stack release rate and projected off-site whole body dose rate, and to determine estimated and actual downwind whole body and thyroid doses, based on field measurements and current meteorology.

Discussion:

In an emergency declared on the basis of an actual stack or ground release, the Plant Emergency Director/Shift Supervisor determines the initial projected off-site whole body dose rate. In an emergency declared on the basis of a potential high level release (i.e., high level activity in containment, but no actual release), the Technical Support Center Coordinator, or Emergency Operations Facility Coordinator, will determine and report the initial whole body off-site dose rate to State Officials should an actual release occur. An Off-Site Dose Nomogram (See Figure 1 and Appendix A) is used for this initial determination.

Following the initial evaluation, a subsequent method to further evaluate and refine the downwind off-site radiological conditions based on actual field measurements and current meteorology has been developed. The results of this evaluation are reported to the various State Health Officials as they call into the Emergency Operations Facility (EOF) for more detailed and refined information.

The method described in Appendix B utilizes two sets of diffusion factor ($\bar{u}X/Q$) values: one set for ground level releases which are independent of wind direction, and the other set for elevated stack releases which are dependent on wind direction because of our valley location. Both sets of diffusion factors are presented as a function of atmospheric stability class and distance from the plant out to 10 miles.

In order to help qualitatively define plume width, a transparent overlay has been prepared for the area base map. This transparency consists of three colored angles as follows:

Blue - For all unstable meteorological classes
Red - For neutral meteorology
Orange - For all stable meteorological classes

Included within each angle are areas lateral to the plume centerline having radionuclide concentrations of at least 5% of the plume centerline value. Centering the stability-dependent angles over the appropriate downwind direction on the area base map will help qualitatively define the plume width. Using the sector/zone designation appropriate to the plume width, Vermont Yankee can provide State officials with

the affected area and corresponding projected whole body dose rates, or airborne concentrations of I-131, out to ten miles.

To facilitate and expedite the necessary classification of meteorological conditions, the selection of the appropriate diffusion factor table and subsequent calculations, two programs for the Texas Instrument programmable (TI-59) calculator-printer have been developed. The first, MET DATA, expeditiously calculates the following:

1. Actual time of arrival of the plume downwind for any given distance,

2. The downwind direction corresponding to the "wind from" direction indicated by the meteorological data,

3. The meteorological stability classification for any given hour, and,

4. The proper sectored angle to use on the mapboard overlay.

The second, RADOSE II, then calculates the following:

1. The projected whole body sector average dose rate at any assumed distance from any field measured sector dose rate at a known distance,

2. The projected I-131 centerline concentration at any assumed distance from any field measured centerline I-131 concentration at a known distance, and,

3. The 5% I-131 concentration value at the angle boundary.

This procedure utilizes the above programs. In the event the calculator should become inoperable, hand calculations will be made as indicated in Appendix B.

Responsibility for completion of Section A of this procedure rests
* primarily with the Plant Emergency Director/Shift Supervisor, however, during off-shift hours he also has a collateral responsibility to initiate Section B of this procedure to the extent that such action does not impair his ability to bring the plant to a safe condition.
* Upon activiation of the EOF, the EOF Coordinator "takes over" and completes this procedure. A mapboard, angle overlay and calculator-printer are provided in the Control Room emergency kit.

The following table, forms, figures and appendices are attached:

Table I	Air Sample Codes
VYOPF 3513.01	Meteorological Data Sheet
VYOPF 3513.02	Doses at Selected Locations
Figure 1	VY Emergency Off-Site Dose Nomogram
Figure 2	Field Sample Thyroid Dose Nomogram
Appendix A	VY Emergency Off-Site Dose Rate Nomogram, Description and Use
Appendix B	Diffusion Factors
Appendix C	TI-59 Calculator-Printer Instructions

References:

A. Tech. Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. 10 CFR 50, Appendix E
2. VY Meteorology System Manual
3. O.P. 3510, Off-Site Monitoring

Precautions:

1. Actual location of reported off-site monitoring team data relative to plant should be verified prior to using the data in calculations.

2. Periodically check on the quarter hour for significantly changed meteorological conditions.

Procedure:

* A. Immediate action by the Plant Emergency Director/Shift Supervisor, or his designated assistant, in the event a high level stack release is occurring at the time of the emergency declaration.

NOTE: In the event an emergency is declared on the basis of a potential release (i.e., activity confined in containment), the Technical Support Center Coordinator, or his designated assistant, will complete this section should a subsequent release occur.

*

	Initials
1. Determine the elapsed time in hours following reactor shutdown. _____(hrs)	_____
2. Obtain current windspeed_____(mph)	_____
3. Obtain high range stack gas monitor reading. _____(mR/hr)	_____
4. Obtain the stack flow._____(ft/min)	_____

*

NOTE: Data Point C062 may be accessed on the Plant Computer to obtain stack flow rate.

$$\frac{\text{C062 value}}{144.9} = \text{Stack Flow (ft/min)}$$

*

5. Go to Figure 1 and determine the off-site dose rate at .35 miles_____(mR/hr)	_____

* B. Action initiated by the Plant Emergency Director or his designated assistant pending activation of the Emergency Operations Facility,
* or by the EOF Coordinator upon activation of the EOF.

1. Obtain data called for in item 1 of Meteorological Data Sheet (VYOPF 3513.01).

NOTE: 1. In the event the meteorological computer and printer are not operating properly, this data may be obtained from strip charts in the Relay House.

* 2. In the event that the primary meteorological tower instrumentation is not functioning, instrumentation on the secondary tower provides a read-out of wind speed, wind direction, ambient temperature and one value for delta t (Δt).
* CRP 9-48 contains all of this information.

3. In the event all instrumented meteorological parameters are unavailable, a generalized determination of atmospheric stability may be made by observing the cloud cover as follows:

a. Heavy overcast day or night = D-neutral
b. Any clear sky in daytime = B-mod. unstable
c. Any clear sky at night = F-mod. stable

4. The Albany National Weather Service (NWS) Station (tel. [redacted] and ask for "Public Forcaster") may be consulted regarding meteorological observations and forecasts.

2. After obtaining the TI-59 calculator-printer and program cards, press 4, 2nd, 917 (display should show 639.39), then CLR, and
* load the four sides of MET DATA program. (After each side is
* loaded and a steady number is seen on display, press CLR.)

Initials

NOTE: 1. See appendix C for basic calculator instructions.

2. In the event the calculator is inoperable, complete the Meteorological Data Sheet (VYOPF 3513.01) by hand.

a. Enter time of day the release commenced in HH.MM format. (e.g., 9:15 AM = 9.15, 2:37 PM = 2.37 PM or 14:37 = 14.37)

1) If in AM, or 24 hour "Navy" time - Press A
2) If in PM clock time - Press 2nd A

_____

Initials

b. Enter wind speed ($\bar{u}$ mph) - Press B _____

c. Calculate estimated time of arrival of plume (in actual 24 hour time), in one mile increments out to five miles, and the 10 mile arrival time.

Enter		Calculated 24 hour time
1	Press B	_____
2	" "	_____
3	" "	_____
4	" "	_____
5	" "	_____
10	" "	_____

_____

d. Post arrival times at mile markers on mapboard with wax crayon. _____

e. Enter "WIND FROM" as indicated by meteorology typer and press C.

Enter Wind From	Calculated Wind Toward	
_____	_____	_____

f. Enter appropriate ΔT.

1) If stack release, enter upper ΔT - Press 2nd D
2) If ground, or combination, enter lower ΔT - Press D

Enter		
Upper ΔT _____ or Lower ΔT _____	Calculated Met Class No.	
	_____	_____
	Angle	
	_____	_____

g. In the event the wind speed changes significantly (per MET system typer) enter actual time of new average (from MET typer) in 24 hour time (HH.MM) and press E.

Enter
Change time_____ _____

Calculated plume distance_____ __

1) Enter new data as in Step B.2.b, above.

NOTE: 1. A new "wind from" or "ΔT" may be entered as in Steps B.2.e and f above at any time (i.e., Do NOT press E).

Initials

2. Future time and distance calculations (Step B.2.c) are corrected from the time and distance the new wind speed ($\bar{u}$) was specified.

3. The calculator can no longer calculate time or distance problems prior to the wind speed change. If attempted, the display will flash and a question mark will be printed.

3. Position mapboard angle wheel in above (Step 2.e) downwind direction and note the distance to the most significant population center within the above specified color angle. (Step 2.f)

Selected landmark_____ _____

Distance (miles)_____ _____

NOTE: For example: center of Brattleboro, Hinsdale racetrack, Hinsdale Town Hall, Vernon Nursing Home, etc.

4. Determine the appropriate Gamma dose μX/Q value from Tables in Appendix D.

Elevated or ground release (Step B.2.f)_____ _____

Met class (Step 2.f with 1=A, 2=B, 3=C, etc.) _____ _____

Gamma dose μX/Q value for the selected distance _____X10^{-6} _____

5. Calculate the projected whole body dose rate (mR/hr) at the selected location, as follows:

$D=[(5 \times 10^{4})]x[\text{Gamma Dose } \mu X/Q \times 10^{-6}]x[\text{Dose rate in mR/hr}]$

where: Dose rate = The off-site dose rate at 1/3 mi. from Fig. 1, if an elevated release;
OR
The reported measured site boundary dose rate, if a ground release.

Estimated projected dose rate at selected location (Step B.3) is:

_____mR/hr _____

6. Post projected dose at selected location on mapboard with wax crayon and record on VYOPF 3513.02. _____

7. As State Health Department personnel call in for additional
* details, report the following through the EOF Coordinator:

   a. Nature of emergency
   b. Elevated or ground release
   c. Off-site "boundary" dose rate
   d. Downwind direction of plume
   e. Estimated time of arrival at selected locations
   f. Estimated projected dose rate at selected locations
   g. Other information requested and available

   Reported to Vermont by_____ Time_____

   " " Mass. by_____ " _____

   " " NH by_____ " _____

* C. Actions by the EOF Coordinator upon activation of the Emergency Operations Facility.

1. Determine the status of actions required in Section B above
* from the Plant Emergency Director and assume responsibility for completion, if necessary. Assign this and following duties to the Radiological Assistant.

2. Turn calculator OFF, then ON, and load RADOSE II program (sides 1 and 2) and appropriate memory data (sides 3 and 4).

   NOTE: 1. For ground releases, use "ground release" card (sides 3 and 4) for all wind directions.

   2. For elevated releases, use the "elevated release" card (sides 3 and 4) with the applicable "wind to" designation.

   a. Enter appropriate Met Class # (see printer readout, Step A.2.e above, or Met Data Sheet) and press A.

   b. Enter current average wind speed ($\bar{u}$) and press 2nd A.

   c. As monitoring teams report "air code" numbers, determine the corresponding net CPM from Table I, then enter Figure 2 to determine the I-131 concentration.

      NOTE: Unless otherwise specified, a "standard" sample is as follows:

      Counting efficiency (RM-14) = 2.5%
      Flow rate = 10 LPM
      Collection time = 1 minute

   d. Enter the above data, and reported dose rates, on VYOPF 3513.02.

   e. Enter the reported data and the distance to the monitored location in the TI-59 as follows:

Enter	Press	Enter	Press
Dose rate (mR/hr)	B	Distance (mi)	C
I-131 Conc. (μCi/cc)	2nd B	Distance (mi)	2nd C

f. Determine the projected downwind (or upwind) radiological conditions for any number of selected locations by entering the selected distance in miles and pressing D (for average sector dose rate), or 2nd D (for I-131 centerline and 22½ angle boundary concentrations).

NOTE: A flashing display following a selected upwind distance indicates the plume is still elevated at the selected distance.

g. Log results of step f above on [illegible] - Doses at Selected Locations.

* h. Report results to the Emergency Operations Facility Coordinator for relay to State Officials, and post on marboard.

i. Request off-site monitoring, or other special teams to obtain TLD's and/or air samples at environmental monitoring stations (O.P. 3309), if appropriate.

Final Conditions:

* 1. Turn in all log sheets and calculator printouts to the EOF Coordinator.

SPS/emr

TABLE I

AIR SAMPLE CODES

"AIR CODE"	NET CPM	"AIR CODE"	NET CPM
0	40	24	1750
1	40	25	2000
2	60	26	2250
3	80	27	2500
4	100	28	2750
5	125	29	3000
6	150	30	3250
7	175	31	3500
8	200	32	3750
9	225	33	4000
10	250	34	4250
11	275	35	4500
12	300	36	5000
13	325	37	7500
14	350	38	10000
15	375	39	12500
16	400	40	15000
17	425	41	17500
18	450	42	20000
19	500	43	25000
20	750	44	30000
21	1000	45	35000
22	1250	46	40000
23	1500	47	50000

METEOROLOGICAL DATA SHEET

Time_____

Date_____

1. Meteorological Data

Type of Release	ΔT°F	Wind Speed (MPH)	Wind Direction (FROM)
Elevated (Stack only) or Ground Level (ground or stack/ground comb.)	_____	_____	_____
	_____	_____	_____

2. Wind Direction Correction

Wind direction FROM _____°

If direction ≤180°, add 180° = _____° Wind direction toward

If direction >180°, subtract 180° = _____°

3. Stability Class (Circle appropriate MET Class)

Δt(°F) Ground Release	Δt(°F) Elevated Release	MET Class	Stability Category	Use Angle
Δt≤-1.72	Δt≤-2.74	1-A	Extremely Unstable	
-1.71≤Δt≤-1.54	-2.73≤Δt≤-2.45	2-B	Moderatly Unstable	Blue
-1.53≤Δt≤-1.36	-2.44≤Δt≤-2.16	3-C	Slightly Unstable	
-1.35≤Δt≤-0.46	-2.15≤Δt≤-0.72	4-D	Neutral	Red
-0.45≤Δt≤+1.35	-0.71≤Δt≤+2.15	5-E	Slightly Stable	
+1.36≤Δt≤+3.62	+2.16≤Δt≤+5.74	6-F	Moderately Stable	Orange
+3.63≤Δt	+5.75≤Δt	7-G	Extremely Stable	

4. Wind Speed Conversion

Last 15 min ave_____MPH x 0.447 = _____meters/sec.

5. Data Summary

Type of release (Circle One)	Wind from	Stability (Circle One)	Wind Speed Meters/sec.	Wind Toward
Elevated	_____	Stable Neutral	_____	_____
Ground	_____	Unstable	_____	_____

4

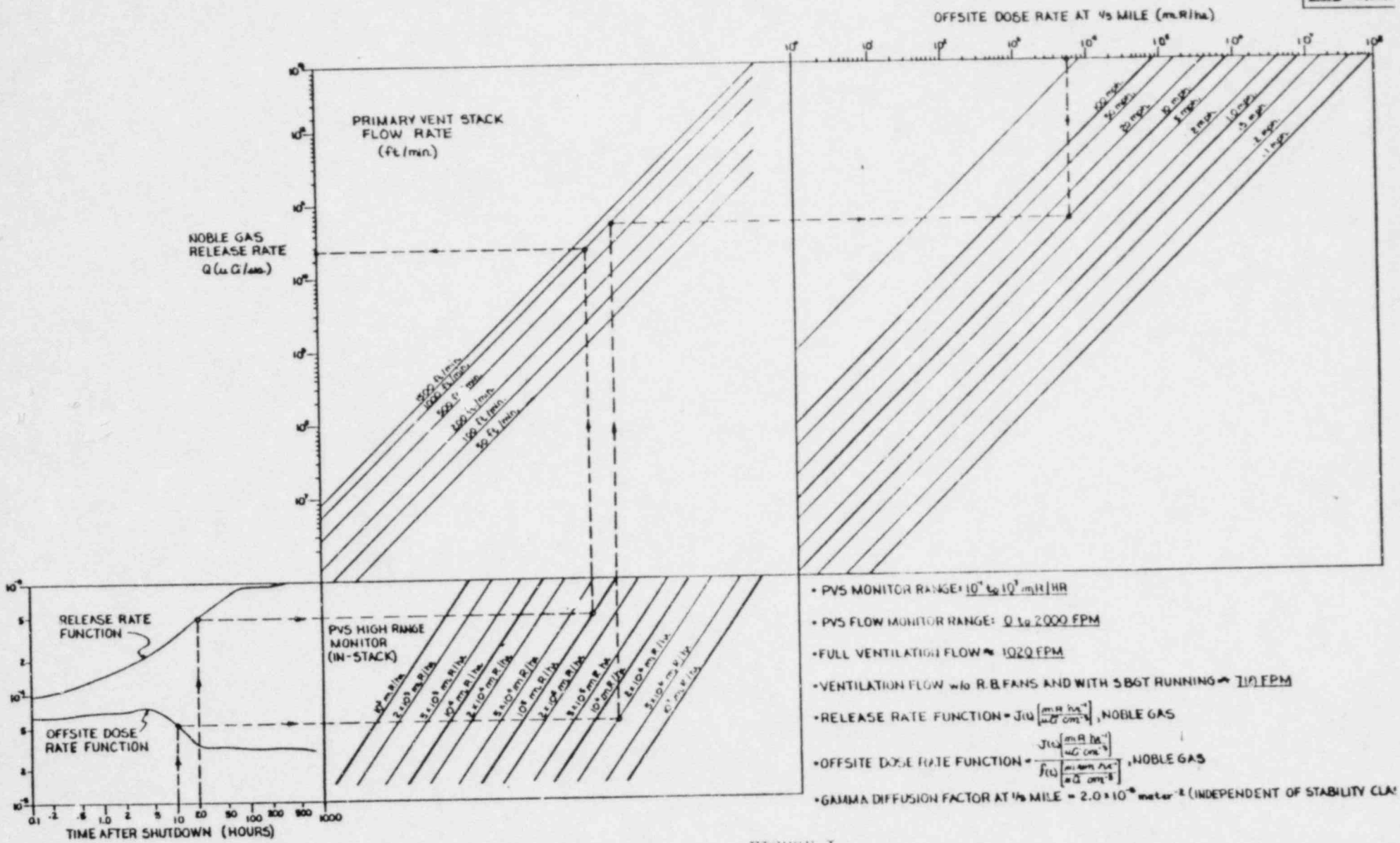
DOSES AT SELECTED LOCATIONS

Date & Time	Location	Results(1) Type	Gamma Dose Rate (mR/hr)	I-131 Conc. µCi/cc	Estimated Duration (hrs)	Off-Site Doses			Initials
						Whole Body (REM)	Thyroid Adult	Thyroid Child	

(1) P = Projected; A = Actual field measurement; or C = Concurred (i.e., concurred in by State and Federal agencies)

VERMONT YANKEE
EMERGENCY OFFSITE DOSE RATE
NOMOGRAM

REV: 1
DATE: 12/22/18



- PVS MONITOR RANGE: 10^{-1} to 10^{3} mR/HR
- PVS FLOW MONITOR RANGE: 0 to 2000 FPM
- FULL VENTILATION FLOW ≈ 1020 FPM
- VENTILATION FLOW w/o R.B. FANS AND WITH SBGT RUNNING ≈ 710 FPM
- RELEASE RATE FUNCTION = $J(t)\left[\frac{mR\ hr^{-1}}{\mu Ci\ cm^{-3}}\right]$, NOBLE GAS
- OFFSITE DOSE RATE FUNCTION = $\frac{J(t)\left[\frac{mR\ hr^{-1}}{\mu Ci\ cm^{-3}}\right]}{f(t)\left[\frac{mrem\ hr^{-1}}{\mu Ci\ cm^{-3}}\right]}$, NOBLE GAS
- GAMMA DIFFUSION FACTOR AT ¼ MILE = 2.0×10^{-6} meter^{-2} (INDEPENDENT OF STABILITY CLA

FIGURE 1

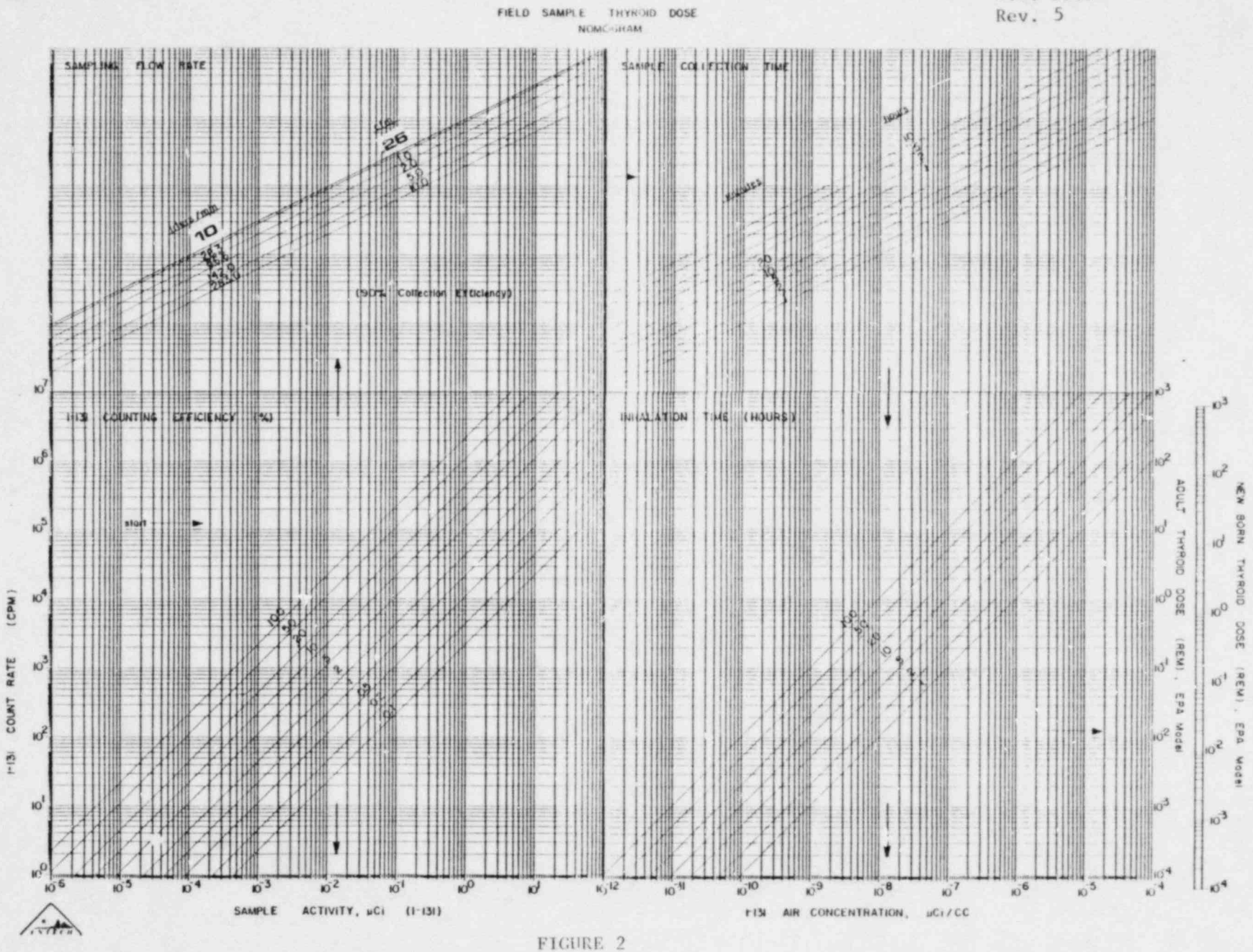

FIELD SAMPLE THYROID DOSE
NOMOGRAM
SAMPLING FLOW RATE
SAMPLE COLLECTION TIME
(90% Collection Efficiency)
I-131 COUNTING EFFICIENCY (%)
INHALATION TIME (HOURS)
start
I-131 COUNT RATE (CPM)
SAMPLE ACTIVITY, μCi (I-131)
I-131 AIR CONCENTRATION, μCi/CC
ADULT THYROID DOSE (REM), EPA MODEL
INFANT THYROID DOSE (REM), EPA MODEL

FIGURE 2

APPENDIX A

EMERGENCY OFF-SITE DOSE NOMOGRAM, DESCRIPTION AND USE

Description:

This nomogram should be used to determine the release rate and off-site dose rate at 1/3 mile (i.e., the "site boundary") when the high range noble gas stack monitor is on scale >.2 mR/hr. The information required to use this nomogram is: 1) time after reactor shutdown, T, 2) the stack high range monitor response, 3) The stack flow rate, and 4) wind speed.

The stack high range monitor is a Victoreen 847A-1 ion chamber which measures the radiation in the base of the stack. The monitor has a readout in the Control Room on CRP 9-2 with a range from 0.1 mR/hr to 1×10^7 mR/hr.

The stack flow is determined from a local readout in the stack monitoring room and may be approximated by accessing data point C062 on the Plant Computer and applying the following formula:

$$\frac{\text{C062 value}}{144.9} = \text{Stack Flow (ft/min)}$$

The wind speed (in mph) may be determined from the Met computer terminal in the rear of the Control Room, from the secondary meteorological instrumentation readout on CRP 9-48 in Control Room, or from primary meteorological instrumentation readouts in the Relay House.

APPENDIX B

DIFFUSION FACTORS

Description:

Two sets of diffusion factors for both ground and elevated releases are presented in the attached tables. Both sets are presented as a function of atmospheric stability and downwind distance from the plant, and in the case of elevated releases, the specific downwind direction. The two types of diffusion factors are as follows:

Concentration (χ/Q) Values - Can be used to evaluate relative radionuclide concentrations which contribute to dose to the whole body through inhalation.

Effective Gamma Dose (μX/Q) Values - Can be used to evaluate gamma radiation levels which contribute to the whole body dose.

NOTE: Use care that the correct μX/Q value is selected from the table for use in the following equations.

I. Initial and Subsequent Off-Site Whole Body Gamma Dose Estimates

An estimate of the sector average whole body gamma dose rates at any given downwind distances i can be determined as follows:

$$D_i = \frac{[(\mu X/Q)\gamma]_i}{[(\mu X/Q)\gamma]_o} \cdot D_o \quad (1)$$

Rewritten: $D_i = 5 \times 10^{4} \cdot [(\mu X/Q)\gamma]_i \cdot D_o$

Where: D_i = Whole body gamma dose rate at selected downwind distance i (mRem/hr)

$[(\mu X/Q)\gamma]_i$ = Elevated effective gamma dose μX/Q value for downwind distance i (from tables).

$[(\mu X/Q)\gamma]_o$ = Elevated effective gamma dose μX/Q value at the downwind distance of 0.35 miles (equals 2×10^{-5}).

NOTE: This is an average value for initial estimate only.

D_o = Whole body gamma dose rate at the downwind distance of 0.35 miles (mRem/hr, from emergency nomogram).

(1) As field measured dose rates (D_o) at known distances become available, select the appropriate $[\mu X/Q]_o$ from the tables and substitute in the above equation.

APPENDIX B (Continued)

II. Estimating I-131 Concentrations at Other Downwind Distances

Similarly, measured ground level plume centerline I-131 concentration at one downwind distance can be extrapolated to estimate a centerline I-131 concentration at another downwind distance as follows:

$$X_i = \frac{[(\mu X/Q)]_i}{[(\mu X/Q)]_0} \cdot X_0$$

Where: X_i = Plume centerline concentration at selected downwind distance i (μCi/cc).

$[(\mu X/Q)]_i$ = Concentration μX/Q value for selected downwind distance i.

X_0 = Measured plume centerline concentration (μCi/cc).

$[(\mu X/Q)]_0$ = Concentration μX/Q value for measurement location.

TABLE B-1

GROUND LEVEL RELEASE DIFFUSION FACTORS

A. GROUND LEVEL RELEASE - PLUME CENTERLINE EFFLUENT CONCENTRATION $(\omega\chi/Q)_Y (m^{-2})$

(Multiply all values by 10^{-6})

Downwind Distance	Stability Category						
	Pasquill A	Pasquill B	Pasquill C	Pasquill D	Pasquill E	Pasquill F	Pasquill G
0.5 miles	6.4	27.	61.	160.	260.	450.	920.
1.0	1.3	4.9	19.	60.	110.	210.	350.
2.0	0.70	0.96	5.9	21.	41.	86.	170.
3.0	0.50	0.66	3.0	12.	24.	53.	110.
4.0	0.39	0.51	1.8	7.6	16.	38.	80.
5.0	0.32	0.42	1.2	5.5	12.	29.	62.
6.0	0.28	0.36	0.92	4.3	9.6	23.	50.
7.0	0.24	0.32	0.72	3.5	7.9	20.	43.
8.0	0.21	0.29	0.58	3.0	6.8	17.	37.
9.0	0.19	0.26	0.48	2.5	5.8	15.	32.
10.0	0.18	0.24	0.41	2.2	5.1	13.	29.

TABLE B-1

B. GROUND LEVEL RELEASE - EFFECTIVE GAMMA DOSE $(u\chi/Q)_\gamma (m^{-2})$

(Multiply all values by 10^{-6})

Downwind Distance	Stability Category						
	Pasquill A	Pasquill B	Pasquill C	Pasquill D	Pasquill E	Pasquill F	Pasquill G
0.5 miles	8.3	19.	26.	34.	37.	41.	47.
1.0	1.3	4.3	9.5	14.	16.	19.	20.
2.0	0.63	0.68	3.1	5.8	6.9	8.3	9.5
3.0	0.42	0.42	1.6	3.3	4.2	5.2	6.1
4.0	0.31	0.31	0.97	2.2	2.9	3.7	4.4
5.0	0.25	0.25	0.66	1.6	2.2	2.9	3.4
6.0	0.21	0.21	0.49	1.3	1.7	2.3	2.8
7.0	0.18	0.18	0.37	1.0	1.4	2.0	2.4
8.0	0.16	0.16	0.30	0.85	1.2	1.7	2.1
9.0	0.14	0.14	0.24	0.72	1.0	1.5	1.8
10.0	0.13	0.13	0.20	0.62	0.92	1.3	1.6

TABLE B-2 (Sheet 1 of 7)

VY ELEVATED RELEASE DIFFUSION FACTORS (m^{-2})

(Multiply all values by 1.0E-6)

Stability A Concentration $u\chi/Q$ (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.11	6.15	6.15	6.11	6.11
1.0	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
2.0	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70
3.0	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
4.0	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39	.39
5.0	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33	.33
6.0	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28	.28
7.0	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24
8.0	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21
9.0	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19	.19
10.0	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18

Stability A Gamma Dose $u\chi/Q$

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.66	7.71	7.71	7.66	7.66
1.0	1.25	1.25	1.25	1.25	1.25	1.25	1.24	1.24	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.24
2.0	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62	.62
3.0	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42
4.0	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31
5.0	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25
6.0	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21
7.0	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18
8.0	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16
9.0	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14
10.0	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12

TABLE B-2 (Sheet 2 of 7)

VY ELEVATED RELEASE DIFFISION FACTORS (m^{-2})

(Multiply all values by 1.0E-6)

Stability B Concentration χ/Q (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	17.11	17.11	17.11	17.11	17.11	17.11	17.11	17.11	17.11	17.11	17.11	17.11	18.16	18.16	17.11	17.11
1.0	4.82	4.76	4.79	4.82	4.79	4.79	4.70	4.70	4.73	4.85	4.89	4.91	4.91	4.82	4.82	4.70
2.0	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96
3.0	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66	.66
4.0	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51	.51
5.0	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42
6.0	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36	.36
7.0	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32	.32
8.0	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29
9.0	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26	.26
10.0	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24

Stability B Gamma Dose χ/Q

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	13.67	13.67	13.67	13.67	13.67	13.67	13.67	13.67	13.67	13.67	13.67	13.67	14.13	14.13	13.67	13.67
1.0	4.08	4.04	4.06	4.08	4.06	4.06	3.99	3.99	4.01	4.10	4.13	4.14	4.14	4.08	4.08	3.99
2.0	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67	.67
3.0	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42	.42
4.0	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31
5.0	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25	.25
6.0	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21	.21
7.0	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18	.18
8.0	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16	.16
9.0	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14	.14
10.0	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12

TABLE B-2 (Sheet 3 of 7)

VY ELEVATED RELEASE DIFFUSION FACTORS (m^{-2})

(Multiply all values by 1.0E-6)

Stability C Concentration ux/Q (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	14.98	14.98	14.98	14.98	14.98	14.98	14.98	14.98	14.98	14.98	14.98	14.98	18.09	18.09	14.98	14.98
1.0	15.13	13.77	14.46	15.13	14.46	14.46	12.34	12.34	13.06	15.77	16.93	17.43	17.43	15.13	15.13	12.34
2.0	5.83	5.91	5.92	5.92	5.89	5.75	5.50	5.57	5.75	5.92	5.92	5.92	5.92	5.92	5.92	5.57
3.0	2.96	2.98	2.98	2.98	2.98	2.98	2.94	2.93	2.98	2.98	2.98	2.98	2.98	2.98	2.98	2.90
4.0	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83
5.0	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
6.0	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
7.0	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72	.72
8.0	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58	.58
9.0	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48
10.0	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41	.41

Stability C Gamma Dose ux/Q

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	13.47	13.47	13.47	13.47	13.47	13.47	13.47	13.47	13.47	13.47	13.47	13.47	14.37	14.37	13.47	13.47
1.0	7.64	7.23	7.44	7.64	7.44	7.44	6.89	6.80	7.02	7.81	8.15	8.30	8.30	7.64	7.64	6.80
2.0	2.94	2.96	2.97	2.97	2.96	2.90	2.81	2.84	2.90	2.97	2.97	2.97	2.97	2.97	2.97	2.84
3.0	1.51	1.52	1.52	1.52	1.52	1.52	1.51	1.50	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.49
4.0	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94	.94
5.0	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65	.65
6.0	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48	.48
7.0	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37	.37
8.0	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29
9.0	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24	.24
10.0	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20

VY ELEVATED RELEASE DIFFUSION FACTORS (m^{-2})

(Multiply all values by 1.0E-6)

Stability D Concentration ux/Q (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	1.42	1.42	.68	.68
1.0	20.47	12.96	16.44	20.47	16.44	16.44	7.60	7.60	10.03	15.04	15.25	10.67	10.67	20.47	20.47	7.60
2.0	20.09	21.74	22.07	22.07	21.33	18.36	14.03	15.17	18.36	22.07	22.07	22.07	22.07	22.07	22.07	15.17
3.0	11.18	11.82	11.82	11.82	11.82	11.82	10.76	10.60	11.82	11.82	11.82	11.82	11.82	11.82	11.82	9.87
4.0	7.71	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72	7.72
5.0	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59
6.0	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34	4.34
7.0	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56	3.56
8.0	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99	2.99
9.0	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55
10.0	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19	2.19

Stability D Gamma Dose ux/Q

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	11.47	11.47	11.47	11.47	11.47	11.47	11.47	11.47	11.47	11.47	11.47	11.47	12.30	12.30	11.47	11.47
1.0	8.51	7.40	7.94	8.51	7.94	7.94	6.41	6.41	6.89	9.09	10.28	10.85	10.85	8.51	8.51	6.41
2.0	5.01	5.22	5.26	5.26	5.17	4.78	4.19	4.35	4.78	5.26	5.26	5.26	5.26	5.26	5.26	4.35
3.0	2.94	3.04	3.04	3.04	3.04	3.04	2.87	2.85	3.04	3.04	3.04	3.04	3.04	3.04	3.04	2.74
4.0	2.04	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05
5.0	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
6.0	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
7.0	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96	.96
8.0	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80	.80
9.0	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68	.68
10.0	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59	.59

VY ELEVATED RELEASE DIFFUSION FACTORS (m^{-2})

(Multiply all values by 1.0E-6)

Stability E Concentration ux/Q (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.01	.03	.03	.01	.01
1.0	12.98	5.28	8.43	12.98	8.43	8.43	1.85	1.85	3.18	19.25	37.81	50.12	50.12	12.98	12.98	1.85
2.0	35.98	42.41	43.78	43.78	40.78	29.83	17.01	20.04	29.83	43.78	43.78	43.78	43.78	43.78	43.78	20.04
3.0	21.70	24.72	24.72	24.72	24.72	24.72	19.85	19.16	24.72	24.72	24.72	24.72	24.72	24.72	24.72	16.24
4.0	16.62	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69	16.69
5.0	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39	12.39
6.0	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79	9.79
7.0	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10	8.10
8.0	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87	6.87
9.0	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94	5.94
10.0	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18	5.18

Stability E Gamma Dose ux/Q

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	11.09	11.09	11.09	11.09	11.09	11.09	11.09	11.09	11.09	11.09	11.09	11.09	11.86	11.86	11.09	11.09
1.0	8.01	6.83	7.39	8.01	7.39	7.39	5.88	5.88	6.32	8.70	10.25	11.09	11.09	8.01	8.01	5.88
2.0	5.77	6.21	6.30	6.30	6.10	5.33	4.29	4.55	5.33	6.30	6.30	6.30	6.30	6.30	6.30	4.55
3.0	3.58	3.81	3.81	3.81	3.81	3.81	3.43	3.37	3.81	3.81	3.81	3.81	3.81	3.81	3.81	3.12
4.0	2.66	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67	2.67
5.0	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
6.0	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
7.0	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32	1.32
8.0	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
9.0	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97	.97
10.0	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85	.85

TABLE B-2(Sheet 6 of 7)

VY ELEVATED RELEASE DIFFUSION FACTORS (m^{-2})
(Multiply all values by 1.0E-6)

Stability F Concentration χ/Q (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
1.0	.53	.04	.16	.53	.16	.16	.00	.00	.01	1.58	10.40	22.82	22.82	.53	.53	.00
2.0	58.77	92.92	101.51	101.51	83.29	34.86	7.28	11.50	34.86	101.51	101.51	101.51	101.51	101.51	101.51	11.50
3.0	41.19	59.02	59.02	59.02	59.02	59.02	32.17	29.21	59.02	59.02	59.02	59.02	59.02	59.02	59.02	18.47
4.0	40.88	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36	41.36
5.0	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91	30.91
6.0	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69	24.69
7.0	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79	20.79
8.0	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93	17.93
9.0	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72	15.72
10.0	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95	13.95

Stability F Gamma Dose χ/Q

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87	10.87	11.60	11.60	10.87	10.87
1.0	7.35	6.35	6.83	7.35	6.83	6.83	5.53	5.53	5.91	7.98	9.50	10.47	10.47	7.35	7.35	5.53
2.0	6.43	7.52	7.77	7.77	7.23	5.53	3.94	4.29	5.53	7.77	7.77	7.77	7.77	7.77	7.77	4.29
3.0	4.16	4.78	4.78	4.78	4.78	4.78	3.82	3.69	4.78	4.78	4.78	4.78	4.78	4.78	4.78	3.20
4.0	3.39	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41	3.41
5.0	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62	2.62
6.0	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
7.0	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79
8.0	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
9.0	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
10.0	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19

VY ELEVATED RELEASE DIFFUSION FACTORS (m^{-2})

(Multiply all values by 1.0E-6)

Stability G Concentration ux/Q (Wind Toward)

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.00	.00	0.00	0.00
1.0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.17	1.18	1.18	.00	.00	.00
2.0	51.17	191.42	246.95	246.95	139.69	11.37	.13	.47	11.37	246.95	246.95	246.95	246.95	246.95	246.95	.47
3.0	49.91	144.90	144.90	144.90	144.90	144.90	24.01	18.02	144.90	144.90	144.90	144.90	144.90	144.90	144.90	4.64
4.0	96.12	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49	99.49
5.0	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45	74.45
6.0	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32	59.32
7.0	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43	49.43
8.0	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33	42.33
9.0	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97	36.97
10.0	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78	32.78

Stability G Gamma Dose ux/Q

MILES	N 349-11	NNE 12-33	NE 34-56	ENE 57-78	E 79-101	ESE 102-123	SE 124-146	SSE 147-168	S 169-191	SSW 192-213	SW 214-236	WSW 237-258	W 259-281	WNW 282-303	NW 304-326	NNW 327-348
.5	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	10.80	11.53	11.53	10.80	10.80
1.0	7.17	6.22	6.67	7.17	6.67	6.67	5.43	5.43	5.80	7.73	9.09	9.94	9.94	7.17	7.17	5.43
2.0	6.39	8.62	9.31	9.31	7.92	5.16	3.65	3.95	5.16	9.31	9.31	9.31	9.31	9.31	9.31	3.95
3.0	4.33	5.83	5.83	5.83	5.83	5.83	3.72	3.55	5.83	5.83	5.83	5.83	5.83	5.83	5.83	2.93
4.0	4.13	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18	4.18
5.0	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25
6.0	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65	2.65
7.0	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22	2.22
8.0	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91
9.0	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
10.0	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49

APPENDIX C

TI-59 CALCULATOR-PRINTER INSTRUCTIONS

After obtaining "met" data from "met" typer, (or Relay House), the TI-59 calculator-printer and the type of release:

1. Turn printer ON, then calculator ON. (Printer switch on right side to rear, and calculator switch on top left.) TRACE button on printer should be in UP position.

2. Prepare calculator to accept "Met Data" program "mag" cards by pressing the sequence 4, 2^{nd}, 917. (The display should show 639.39) Clear the display by pressing CLR.

3. From the mag card folder, select the two "Met Data" cards. Insert side 1 (upper left corner on card) into lower slot (top right) of calculator.

   NOTE: A steady-"1" (or other negative side number) displayed by the calculator indicates side-1 of the program was loaded successfully. A flashing-"1" indicates the opposite. In this event, clean the dark side of card by wiping gently on soft cloth (i.e., shirt sleeve or pant leg, etc.), press CLR and reinsert as required to obtain a steady display.

4. Invert card, press CLR and insert side 2 as in Step 3, above.

5. Using second card, press CLR and insert sides 3 and 4 as in Steps 3 and 4 above.

   NOTE: The display should be cleared prior to entering each side of a card.

6. Place first card in upper slot (top right) to cue you for future data entry locations. (Return second card to card folder).

7. Run "MET DATA" or RADOSE II programs as indicated in the procedure.

8. At any time, the calculator may be used for "side calculations" that may be desired without affecting the program entered. Should the operator desire to "log" the result of a "side calculation" press PRINT on the printer when the calculator answer is displayed. Press ADV ↑ on printer to advance tape to identify the printed value, its limits, or make other notes.

9. When use of the calculator-printer is no longer required, return displayed cue card to the card folder and turn calculator and printer OFF in the stated order.

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OFF-SITE AND SITE BOUNDARY MONITORING

Purpose:

To survey and report off-site radiological conditions to the
* Emergency Operations Facility Coordinator.

Discussion:

The prime objective of the Off-Site and Site Boundary Monitoring Teams is to rapidly survey areas downwind of the plant site in order to determine the extent and magnitude of any release of radioactive material following an incident. It should be stressed that the initial off-site and boundary survey is of great importance; decisions regarding the extent and types of protective actions required by the public will be based upon initial data reported by the survey teams.

The task of each monitoring team is to collect radiological data and air samples, and transmit information to and/or receive instructions from the Emergency Operations Facility. Unless directed
* otherwise by the Emergency Operations Facility Coordinator, the basic duties and responsibilities of the monitoring teams are as follows:

Site Boundary ("Yellow" or Security Teams) - Obtains a dose rate reading and a 1 minute (10 LPM) air sample, unless otherwise directed, at the site boundary downwind location where maximum radiation levels are detected.

Off Site (Green) - Proceeds off-site to inner predetermined sample location in downwind sector (i.e., green dot in appropriate downwind sector on area map) obtaining radiation level readings enroute and a 1 minute (10 LPM) air sample, unless otherwise directed, when on station. The data obtained is radioed to the Emergency Operations Facility.

Off-Site (Blue) - Proceeds off-site to the vicinity of the outer predetermined sample location in downwind section (i.e., blue dot in appropriate downwind sector of area map) and tranverses the plume to determine maximum radiation levels, or the plume centerline. A 1 minute (10 LPM) air sample, unless otherwise directed, is taken at that location and data obtained is radioed to the Emergency Operations Facility.

The overriding consideration in the initial survey is speed combined with reasonable accuracy. Information is required with as little delay as possible; therefore, the survey consists of simple methods to approximate the magnitude of the accident. Once the initial urgency of the situation is completed, subsequent surveys and/or analysis may be made to obtain more accurate detailed information and a more precise evaluation. Additionally, samples will be collected and returned to the Emergency Operations Facility for further analysis as the emergency and recovery phases continue.

The following table is attached:

Table 1 1 Minute Air Sample I-131 Cartridge Readings

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. None

C. Other

1. None

Precautions:

1. Use care not to contaminate monitoring equipment.

2. During foul weather, use care not to damage filters by exposing them to the elements. (e.g., sample under hood or inside car.)

3. The individual driving the vehicle will not perform radio communications or take radiological readings while he is driving the vehicle.

Prerequisites:

1. None

Procedure:

NOTE: 1. If an incident occurs during normal work hours, the
* EOF Coordinator will assign tags (i.e., duties) to personnel. If an incident occurs during off hours, the Emergency Assignment Tag Board will be used in numerical sequence.

2. Each step of this procedure is to be initialed by a member of the monitoring team.

NOTE: If any equipment malfunctions or is missing,
* notify the EOF Coordinator.

Section I - TO BE COMPLETED PRIOR TO LEAVING SITE (Unless otherwise directed by the EOF Coordinator) *

Team Name _____

Team Members _____ Date _____

_____ Time _____

Initial

A. Site Boundary ("Yellow" or Security) Team - Obtain respirator, high range dosimeter, dose rate rate meter (PIC-6) and air sampler. _____

Off-Site ("Green"& Blue") Teams - Obtain Off-Site Monitoring Kit, air sampler, Eberline RM-14, and dose rate meter (PIC-6). _____

B. Perform the following checks:

1. Air Sampler

a. Insure that a new filter paper and charcoal cartridges are properly installed in their respective holders. _____

2. RM-14 (Off-Site Teams only)

a. Turn range switch to BATTERY CHECK position and insure meter reads in the BATT OK range. _____

b. Insure that the response switch is in SLOW position and that the test switch in back is in the DOWN position. _____

c. Verify instrument responds properly to radiation by use of the check source in the emergency kit. _____

d. Serial #_____. _____

3. PIC-6

a. Turn range switch to BATTERY CHECK position and verify that the battery condition is within the indicated range. _____

b. Verify that instrument responds properly to radiation by use of the check source in the emergency kit. _____

c. Serial #_____. _____

Initial

C. Determine wind speed and downwind direction from the EOF Coordinator, the Radiological Assistant, or by calling Control Room. _____

1. Wind speed _____mph; Direction _____ _____

NOTE: If use of a company vehicle is required, request same from the Manpower and Planning Assistant.

D. Rezero high range dosimeter, if necessary, and/or note initial reading of each. _____ _____ _____ _____

E. Obtain potassium iodide (KI) treatment from E.C., if conditions indicate. _____

F. Proceed to outer gatehouse and obtain one portable radio transceiver per team and your assigned TLD badges.

1. Check operability of radio as follows:

a. Place frequency selector switch to position 3.

NOTE: In the event of failure of Freq. 3 in the field, switch to Freq. 1.

b. In a normal voice and with microphone approximately 8-10 inches in front of mouth, push microphone button and say: "Coordinator Base, this is (specify color) Team requesting a radio check. Do you read me?" Release microphone button. (The Operation Facility base radio should respond to your call.)

c. Acknowledge response by pushing microphone button and saying: "Coordinator Base, this is (specify color) Team. We are proceeding to predetermined sample location in (downwind) sector unless you have special instructions for us. Over." (Base station will acknowledge or will give special instructions.)

d. Upon completion of transmissions, the last unit to leave the air should say "This is WRZ-941. Clear."

NOTE: If this is a drill, then state "This is a drill."

2. If radio is inoperable, obtain a replacement and repeat above step.

3. Radio operable and contact made with Coordinator Base. _____

Initial

NOTE: Boundary and off-site teams should attempt to minimize their radiation exposure, as practicable, while performing their duties. Inform the
* EOF Coordinator by radio in the event a high range dosimeter exceeds 1R while performing this procedure.

SECTION II - OFF-SITE SURVEY ENROUTE - (Off-Site Teams only, Site Boundary Team proceed to Section III)

A. Monitor tires of vehicle prior to leaving the site and note initial general background on RM-14 in vicinity of Emergency Operations Facility.

Bkg_____cpm _____

NOTE: Unless otherwise specified by the
* EOF Coordinator:

Green Team proceeds directly to inner (green) down wind sample location and takes air sample.

Blue Team proceeds to vicinity of outer (blue) sample location and attempt to locate the approximate centerline of plume prior to taking air sample.

B. While enroute, team passenger holds probe of RM-14 inside car window (shielded from wind) and notes the approximate location at which the above background doubles or commences to increase.

Location_____ _____

NOTE: This is intended to locate the approximate plume boundary. Do not stop to determine a precise location.

C. Note additional readings enroute at easily identified landmarks. (Should the RM-14 go off the highest scale, switch to PIC-6.)

Location	Reading	(Circle one)
_____	_____	(RM-14)(PIC-6)
_____	_____	(RM-14)(PIC-6)
_____	_____	(RM-14)(PIC-6)
_____	_____	(RM-14)(PIC-6)
_____	_____	(RM-14)(PIC-6)

Initial

NOTE: Step D below for "Blue" Team only. (Green team proceed to Step E.)

D. In the vicinity of the outer (blue) sample location on map, seek out nearest roads crossing the direction of the plume and determine the location of the maximum reading as precisely as possible.

NOTE: While crossing the plume, a rapid dose rate change is not anticipated. Look for a wide maximum plateau and do not spend more than 5 mirutes in selecting a sampling location.

Location _____

_____

Reading _____ (RM-14)(PIC-6) _____

E. Contact Coordinator Base and advise him your team is on location and (in accordance with the following note) summarize the results of Steps B & C. (Blue team also reports on findings in Step D.) _____

NOTE: Do NOT announce actual measurement units over radio; simply refer to them as "counts" (i.e., counts per minute), "Mikes" (i.e., MR/hr) or "Rogers" (i.e., R/hr).

NOTE: While on station, keep Coordinator Base advised of any significant changes in radiation levels, wind direction, rain, etc.

Section III - ON LOCATION MONITORING

A. Site Boundary (Yellow or Security) Teams - Determine downwind location at site boundary where maximum radiation levels are detected.

Off-Site (Green and Blue) Teams - Upon arrival at sampling location, insure that release cloud has arrived by observing stable elevated RM-14 or PIC-6 background, or by calculating arrival time based on wind speed. _____

B. Using the PIC-6, take the following survey: (Green Team and Blue Team use RM-14 if dose rate is less than 1 mR/hr) _____

1. Monitor the radiation level at waist height.

Initial

Waist level: _____"Counts", _____"Mike" or _____"Roger" _____

2. Check the radiation level 2" above the ground.

Ground level: _____"Counts", _____"Mike" or _____"Roger" _____

NOTE: All teams report these readings by radio to the EOF (or Plant Emergency Director).

C. Using the stopwatch, start air sample by connecting leads to car battery. Record time here and on air sample envelopes (one for particulate filter and one for charcoal cartridge).

Time _____ _____

D. Check air flow indication.

1. Adjust to 10 LPM and note the flow on air sample envelope. _____

E. Maintain flow rate during the one minute (or as otherwise directed) sample period, and end the sample by use of the stopwatch. _____

F. After air sampler has operated for the sampling period, disconnect from battery. _____

NOTE: Yellow or Security Team - Return to the EOF, request personnel monitoring prior to entry, obtain an RM-14; do an instrument check (Step B.2), then, complete Steps G through N.

G. Retreat to nearest area outside the plume (background RM-14 readings), run air sampler an additional period of time to approximately equal the sample duration and rate of flow. This step is to purge noble gases from the charcoal cartridge.

H. Check RM-14 background level.

Background _____cpm _____

I. Remove charcoal cartridge wrap in parafilm, and place in probe holder on RM-14. (The sample should be centered in the circled area.) Place filter paper in properly labelled envelope. _____

J. Place the probe directly over the sample. _____

K. Obtain count rate of sample after the needle is relatively stable.

Gross count rate _____cpm _____

Initial

L. Correct for background in the following manner:

Step K_____cpm minus Step H_____cpm = _____net cpm

M. Refer to Table I "NET cpm" column and locate net cpm value of Step L above and note the corresponding "Air Code" number.

"Air Code" number is _____. _____

N. Report the "Air Code" number to Coordinator Base.

NOTE: Use of "Walkie-Talkies"

a. To make initial call, say: "Coordinator Base, this is (specify team color) Team. Over."

b. When Coordinator Base responds:

1) Identify your team by color.
2) Describe sample location.
3) Results are "Air Code _____."
4) Request acknowledgement.

c. Upon acknowledgement or completion of other message exchanges, end final transmission with: "This is WRZ-941, Clear." If a drill, state: "This is a drill."

d. The only known radio "dead area" is on Broadbrook Road midway between Guilford and Rte. 142. If samples are taken in this area, it may be necessary to proceed to either end (i.e., Guilford or Rte. 142) to establish radio communications and report sample results.

e. In the event radio communications cannot be established at other locations, seek higher elevations then attempt to contact Coordinator Base or relay message through other teams who are in contact with the EOF Coordinator.

NOTE: Telephone - In the event of a radio breakdown, proceed to nearest available phone and call [redacted] or [redacted]

Initial

o. Check and log high range dosimeter reading.

Team member #1 _____ _____

Team member #2 _____ _____

P. Place sample cartridge in separate labelled envelope and deliver both samples to the Radiological Coordinator for further analysis and storage. _____

NOTE: After each survey, the Off-Site Monitoring Teams should check their equipment and themselves for contamination using the RM-14. If contamination is found, notify the EOF Coordinator. In any case, contact EOF Coordinator and request further instructions. If a new location is assigned, complete Sections II and III on a blank copy of this procedure. _____

Final Conditions:

1. Return radio to outer gatehouse.

2. Return Emergency Kit and equipment to the Emergency Operations Facility locker.

3. Submit completed copy of this procedure to the Radiological Assistant at the EOF.

4. Turn in all dosimeters to the Radiological Assistant for evaluation.

SPS/emr

TABLE I

1 MINUTE AIR SAMPLE I-131 CARTRIDGE RESULTS

"AIR CODE"	NET CPM
0	<40
1	40
3	80
4	100
5	125
6	150
7	175
8	200
9	225
10	250
11	275
12	300
13	325
14	350
15	375
16	400
17	425
18	450
19	500
20	750
21	1000
22	1250
23	1500
24	1750
25	2000
26	2250
27	2500
28	2750
29	3000
30	3250
31	3500
32	3750
33	4000
34	4250
35	4500
36	5000
37	7500
38	10000
39	12500
40	15000
41	17500
42	20000
43	25000
44	30000
45	35000
46	40000
47	50000

NOTE: AS SOON AS POSSIBLE, samples should each be reevaluated isotopically on available laboratory counting equipment to determine more accurate concentrations and projected doses.

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EMERGENCY RADIATION EXPOSURE CONTROL

Purpose:

To specify emergency worker dose guidelines, including emergency center habitability, and the methods to perform emergency personnel dosimetry and record-keeping.

Discussion:

During a plant emergency, abnormally high levels of radiation and/or radioactivity may be encountered. These levels may range from slightly above those experienced during normal plant operation to life-endangering levels of several hundred Rem in a short period of time (e.g., spent fuel cask accident, loss of coolant
* accident or a spent fuel pool immersion). Under all emergency situations, whether it is immediate actions to regain control of the emergency or for life-saving purposes, care should be taken to minimize personnel exposures from external and/or internal sources of radiation whenever practicable.

Specific exposure guidelines for entry or re-entry into areas in order to (1) remove injured persons, and (2) undertake corrective
* actions, are defined in Table I. The Plant Manager will authorize emergency dose guidelines consistent with these or more restrictive dependent upon emergency conditions. The senior Medical Team Representative and the senior Health Physicist present should discuss the hazards involved in rescue procedures with the members of the response team prior to undertaking any rescue mission. Considerations to be made prior to allowing personnel to accept risks associated with rescue operations are indicated in Table I.

Exposure to individuals providing other emergency functions will be consistent with the limits specified in Table I, with every attempt being made to keep exposures "as low as reasonably achievable."

The Chemistry and Health Physics Supervisor, or a designated alternate, is responsible for developing emergency radiological protection programs for plant staff support personnel. Emergency kits in each emergency center are provided with self-reading dosimeters. Each member reporting to the site will be provided a TLD badge. Dose records will be maintained at each center based upon the results of the self-reading dosimeters. This information

will be cross-referenced with TLD badge data, as soon as they can be processed by the mobile YNSD facility, or the Environmental Lab in Westboro, Masschusetts. The Environmental Lab will make a supply of TLD badges available to the plant. Processing of the TLD badges will provide a turnover rate of about 20 badges per hour.

Guideline action levels for continuous habitability of all emergency centers is presented in Tables I and II.

This procedure consists of three parts as follows:

I. Search and Rescue of Personnel
II. Emergency On-Site Assistance
III. Personnel Dosimetry Record-keeping

The following tables and form are attached:

Table I Emergency Dose Limits
Table II Emergency Center Habitability and Protective Action Criteria
VYOPF 3507.01 Personnel Exposure Log

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. None

C. Other

1. 10 CFR 20
2. NCRP Report #39
3. 10 CFR 50 App. E (11/3/80)

Precautions:

1. During any emergency involving radiological hazards, exposure to personnel should be minimized consistent with the nature of the emergency response required.

2. Utilize radiological protective measures and equipment whenever practical.

3. Each emergency center coordinator should administer potassium Iodide (KI) to all Rescue, Assistance, Site Boundary and Off-Site teams prior to potential I-131 exposure, if practicable.

Prerequisites:

1. None

Procedure:

I. Personnel Search and/or Rescue

A. Immediate Life-Saving Rescue Required

1. Within the limits allowed by the urgency of the situation, make every reasonable effort to assemble as much of the following as can be brought to bear:

a. pertinent information (i.e., what happened, what may happen, what hazards are present, what can be done, etc.).

b. available protective and monitoring equipment and possible rescue devices.

c. backup assistance from others nearby or request assistance from the Control Room, or Technical Support Center if activated.

2. Evaluate available information and discuss best apparent rescue approach with senior Medical and Health Physics personnel prior to attempt if practicable.

3. If available, other personnel in the area should render assistance, keep the Control Room, or Technical Support Center, if activated, advised and monitor the time rescuer(s) are in a high radiation area.

4. Perform rescue mission consistent with good first aid practices and as dictated by dose rates encountered and the limits discussed above.

NOTE: Work as quickly as is consistent with safety and avoid sources of high dose rates within the rescue area, whenever practicable.

5. Limit exposure of rescuers in accordance with Table I, Condition 4.

B. Organized Search and Rescue - following a personnel accountability check

1. Upon notification of missing personnel, the Technical Support Coordinator will page on the Gai-tronics to determine if missing personnel may be unharmed, but isolated in some area of the plant or plant site.

2. If personnel are unaccounted for, the Technical Support Center Coordinator requests assistance from the Operations Support Center or the Emergency Operations Facility Coordinator.

3. If practicable, the Rescue Team quickly assembles any additional protective equipment or survey meters, such as a Teletector, which may be needed, at the H.P. Control Point.

4. Concurrently with 3 above, a member of the Rescue Team scans the Radiation Work Permits posted on the RWP board in an effort to learn the possible location of missing personnel.

NOTE: As members of the Emergency Medical Backup Team become available the coordinator involved should anticipate the possible need for medical assistance and dispatch members to relieve nonmedical members of the Rescue Team.

5. Lacking other guidance or direction, proceed to the incident area.

6. Conduct a search, keeping all members of the team in the same general area (i.e., frequent visual checks), but each searching independently.

7. When victim or victims are located, notify the Technical Support Center Coordinator immediately. This should be followed up with additional relevant information (i.e, nature and extent of injuries, dose rates encountered, etc.) as this information develops.

NOTE: To the extent practicable, plan rescue operations prior to your entry and rescue attempt.

8. Limit exposure of rescuers to appropriate level specified in Table I.

9. Treat victims in accordance with O.P. 3508, On-Site Medical Emergency.

II. Emergency On-Site Assistance

A. Actions to correct or prevent plant degradation

1. The Control Room, or Technical Support Center, if activated, requests assistance from the Operations Support Center or the off-site Emergency Operations Facility by specifying:

a. the problem and its location; and
b. the corrective actions to be undertaken.

2. The assigned Assistance Team proceeds to the H.P. Control Point and quickly assembles any additional protective equipment or survey meters that may be needed depending on the circumstances. (Two members may be dispatched to the Storeroom for required supplies.)

3. The Assistance Team proceeds to the specified area, evaluates conditions, preplans activities prior to entry into the incident area, and works as quickly as is consistent with safety and time restraints.

4. Perform only those assigned duties intended to control the emergency, but as dictated by the dose rates encountered and the appropriate emergency exposure limits specified in Table I, Condition 2.

5. Report progress and/or completion of the assigned work to the Control Room or Technical Support Center, if activated, by radio or Gai-tronics.

III. Personnel Dosimetry Record-keeping

A. In-plant Emergency Centers (CR, TSC, & OSC)

1. The Chemistry and Health Physics representative assigned to each emergency center insures that:

a. Habitability action levels specified in Tables I and II are observed, unless otherwise directed by plant management, and

b. All assigned personnel at the emergency center are wearing their TLD badge and pocket dosimeter.

c. Two rezeroed 5R dosimeters are appropriately located to representatively monitor the area dose.

2. All personnel assigned duties in high radiation areas, or in the vicinity of the incident, are issued a high range (5R) dosimeter prior to leaving their assigned emergency center.

3. All personnel are responsible for periodically reading their dosimeter and noting their level of exposure. Notify the appropriate emergency center coordinator if the dosimeter exceeds 4R.

4. If personnel on site have off-scale dosimeters, one of the following methods should be used for assigning a dose:

   a. If the individual received the exposure in the immediate area where another individual had an on-scale dosimeter, rezero the dosimeter, perform a TLD change, have the old TLD processed at the earliest possible time, and assign the individual the dose as read on the on-scale dosimeter.

   b. Perform a calculation based on areas, times, and radiological conditions and stay time to determine an estimated dose and assign this estimated dose to the individual. Have TLD read at the earliest possible time.

   c. Exchange TLD's and have the original TLD processed. Have the TLD read as soon as possible and limit any further exposure.

5. Upon being relieved, each person shall report to his assigned emergency center where his dosimeter reading will be logged on VYOPF 3507.01 by the Chemistry and Health Physics representative.

6. Following each shift change, the Chemistry and Health Physics representative assigned to the Technical Support Center shall collect the dosimetry logsheets from the Control Room and Operations Support Center and forward them to the Radiological Assistant at the Emergency Operations Facility (EOF).

B. Off-site Emergency Operations Facility (EOF)

1. The Radiological Assistant, or his designated representative insures that:

   a. Habitability action levels specified in Tables I and II are observed, unless otherwise directed by plant management, and

   b. All plant personnel at the EOF are wearing their TLD badge and pocket dosimeter.

NOTE: Upon completion of the accountability check by Security at the Main Gate, TLD badges and pocket dosimeter are delivered to the EOF for reissue to personnel present.

c. Two rezeroed 5R dosimeters are appropriately located to representatively monitor the cummulative area dose.

2. Prior to leaving the EOF, all personnel assigned to Rescue or Assistance Teams shall turn in their low-level (500 mR) dosimeters to the Radiological Assistant who will log the reading on VYOPF 3507.01. A zeroed 5R dosimeter will be issued for use within the plant. Site Boundary and Off-Site teams will pick up their TLD's at Main Gate prior to departure.

3. All personnel are responsible for periodically reading their dosimeters and noting their level of exposure. * Notify the EOF Coordinator if the dosimeter exceeds 4R.

4. In the event a dosimter goes off scale, assign a dose as in Step III.A.4 above.

5. All non-VY emergency personnel arriving at the EOF will be assigned a visitor's TLD badge and low range dosimeter by the Radiological Assistant.

6. At the conclusion of each shift, or as people are individually relieved, all personnel will turn in their TLD badges and dosimeters to the Radiological Assistant prior to leaving the EOF.

7. The Radiological Assistant, or a designated assistant, will log all dosimeter results on VYOPF 3507.01.

NOTE: It is suggested that separate log sheets be maintained for each non-VY group (e.g., NRC, FEMA, EPA, VT, NH, MASS, etc.).

8. The Radiological Assistant is responsible for maintaining a cumulative exposure record for each individual present in-plant, or at the EOF, on a current shift basis.

NOTE: In-plant emergency center logsheets will be delivered to the EOF at the conclusion of each shift.

9. When appropriate, TLD badges will be exchanged by the Radiological Assistant, and used badges will be sent to the YNSD Mobile Processing Lab, or to YNSD Environmental Lab for processing.

10. As TLD results become available, they will be logged on VYOPF 3507.01 by the Radiological Assistant.

11. The Radiological Assistant shall maintain personnel exposure records manually until such time as the computer based record keeping function is again available and logsheet data has been properly entered.

Final Conditions:

1. Deliver all personnel exposure records to the Plant Health Physicist.

SPS/emr

TABLE I

EMERGENCY DOSE LIMITS

	Dose Level	Criteria
1.	5 Rem to the whole body, or its equivalent to any part of the body.	Dose limit applied to emergency center personnel and center habitability.
2.	12.5 Rem to the whole body, or its equivalent to any part of the body.	Dose limit applied to in-plant activities required to correct or prevent plant degradation.
3.	25 Rem to the whole body, or its equivalent to any part of the body.	Maximum allowable dose to an emergency worker for the duration of the accident.
4.	100 Rem to the whole body, or its equivalent to any part of the body.	Immediate evaluation and action required for saving of life. When efforts are completed, revert to limits 1 through 3 above, as appropriate.

NOTE: If the limit specified in 4 is involved, the following considerations should be made:

1. Female employees of child-bearing age should not be allowed to participate;
2. Volunteers above the age of 45 years should be given priority;
3. The individual(s) awareness of the biological consequences that such an exposure can have;
4. All practical protective measures to limit such an exposure;
5. Concurrence of individual(s) involved (i.e., voluntary risk acceptance);
6. The probability of success should be balanced against the exposure limit;
7. The individual's familiarity with the task to be performed and;
8. The speed with which the individual can perform the task.

TABLE II

EMERGENCY CENTER HABITABILITY
AND PROTECTIVE ACTION CRITERIA

1. Exposure to individuals providing emergency functions within each emergency center will be limited to 25 Rem Whole Body, or its equivalent to any part of the body, for the duration of the accident.

2. A dose rate of 50 mR/hr will increase the frequency of radiation monitoring in the center and require an immediate evaluation of the accumulated center whole body dose. A reading of 1 R on the high-range dosimeter will initiate planning for possible evacuation to the alternate center.

3. An accumulated center whole body dose reading of 4R on the area dosimeters will initiate a phased evacuation to the alternate EOF.

4. If SAM II or RM-14 sample results verify iodine activity, potassium iodide will be administered to all center personnel and to arriving relief shifts.

5. Protective clothing (lab coats, shoe covers, cotton gloves) may be required if area contamination surveys indicate levels greater than 1000 dpm/100 cm^2 (β, γ) or 100 dpm (alpha).

NOTE: If the OSC has to be evacuated, its staff will operate from the EOF.

NOTE: If the EOF has to be evacuated, its staff will move to the alternate EOF and a Forward Control Point established by the Recovery Manager.

PERSONNEL EXPOSURE LOG

Emergency Center _____

Affiliation _____ Period _____ To _____

Name	SS Number	Dosimeter Readings			Accum. Dose (Dosimeter)	Period Dose	TLD Dose in Computer (Initial)
		IN	OUT	DATE			

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PORC		Rev. No.	10
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

ON-SITE MEDICAL EMERGENCY PROCEDURE

Purpose:

To provide instructions for plant personnel on handling and caring of injured personnel in radiation control areas.

Discussion:

If injuries to plant personnel occur in the radiation control area, such injuries may be complicated by radiation exposure or contamination. It is important to quickly take a dose rate measurement and estimate the total dose that the victim has accumulated. The victim should be removed to a low radiation area as soon as this condition allows. At that time, the extent of contamination should be determined and a judgement made as to whether decontamination should be attempted prior to transporting him to the hospital. This judgement will be made by the most qualified person available.

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. None

C. Other

1. D.P. 4532, Personnel Contamination Surveys
2. D.P. 4530, Radiation Dose Rate Surveys
3. R.P. 0520, Personnel Decontamination Procedures

Prerequisites:

1. Medical emergency team and Health Physics representative will use equipment required in References C.1, 2, and 3 and the usual first aid equipment located throughout the plant.

2. Response team will notify the Control Room or the Technical Support Center if activated, prior to entering and after departing from any emergency area.

3. Response team will keep the Control Room or the Technical Support Center, if activated, informed of patient(s) status.

Procedure:

A. Upon Initial Discovery

1. The individual(s) discovering a medical need shall immediately announce slowly and distinctly the following on the plant page system:

   "Medical Emergency - Medical Emergency, Medical assistance needed (where). Medical assistance needed (where)."

2. Call the Control Room to verify they heard the above announcement and understand the nature and location of the emergency.

3. Render appropriate first-aid treatment consistent with prior training until medical assistance arrives.

B. For Minor Injuries

1. Check for contamination.

2. If no contamination exists, remove protective clothing and assist the patient to the first aid room.

3. If a wound area is contaminated, wash gently with mild soap and flush with copious amounts of water.

   NOTE: Never scrub any wound that involves tissue below the skin.

4. After decontamination is complete, assist the patient to the first aid room.

5. Minor wounds that may require debriding, X-rays, sutures, or other follow-up but are not severe enough to be considered major injuries should be handled as above with the exception that no deep cleaning or debriding should be done on site. If the embedded material is contaminated, this should be noted when notification is made to the Brattleboro Hospital Emergency Room that a person is enroute for treatment, stating nature of the injury, treatment already rendered and radiological considerations if any (stating none if none exist). Control Room should be notified if personnel are to leave site for treatment.

6. The patient, after treatment, should have a body burden determination and other tests made as applicable to determine if contaminants have been absorbed.

C. Major Injuries or Illness

1. The first person who becomes aware of a serious injury will notify the Control Roo .

2. The Control Room will alert available Medical and Health Physics personnel and direct them to the area of the patient(s).

3. The Medical Team notifies the Control Room, or the Technical Support Center if activated, that they are entering the emergency area.

4. After locating the patient(s), monitor the areas around the patient(s) for radiation levels.

5. Estimate the total dose received by the patient(s).

   a. If the estimated total dose is more than 100 Rem (whole body), remove the patient to a low radiation area as soon as practical. Use caution not to aggravate the patients injuries.

   b. If the estimated radiation dose is less than 100 Rem (whole body), do not move the patient until it can be determined that movement will not jeopardize his condition.

6. Based on the results, Medical and Health Physics representatives decide whether or not it is an acceptable risk to rescue the victim(s).

7. If it is not an acceptable risk to rescue the accident victim(s), the Medical representative will inform the Control Room, or Technical Support Center if activated, of their intentions.

8. If it is an acceptable risk to move the accident pati nt to a lower radiation area, move the patient and commence administering first aid. Prevention of cardiac arrest and/or respiratory failure must be of prime concern.

9. If hospitalization is required, notify the Control Room, (or Technical Support Center) of the patient's status and treatment for relay to Rescue, Inc. and Brattleboro Memorial Hospital. Keep Control Room (or Technical Support Center) informed throughout the treatment of the patient.

10. The Control Room, or Technical Support Center, if activated, will notify Rescue, Inc. [redacted] and request transportation of injured to Brattleboro Memorial Hospital.

NOTE: If for some reason off-site transportation is not available, patient(s) will be transported to hospital by best means available.

NOTE: Any fatality or serious injury occurring on the site and requiring transport to an off-site medical facility for treatment shall be reported to the NRC, utilizing the NRC ENS red phone, as soon as possible and in all cases within one (1) hour of the occurance. The caller shall identify that this event is being reported pursuant to Part 50, Section 50.72. Serious injury is considered to be an injury that in the judgment of the licensee representative will require admission of the injured individual to a hospital for treatment or observation for an extended period of time (greater than 48 hours). Injuries that only require treatment and/or medical observation at a hospital or off-site medical facility, but do not meet the conditions specified above, are not required to be reported.

11. The Control Room, or Technical Support Center, if activated, will notify the Brattleboro Memorial Hospital (257-0341 - ask for Emergency Room) and provide the following:

    a. Number of accident victims (and whether they are radioactively contaminated).

    b. Magnitude of radiation aspect, if applicable.

    c. Nature of medical problem of each, current status, and treatment instituted.

    d. Anticipated time of arrival at the hospital.

    e. Who will accompany or meet patient(s) if contamination is involved.

12. The Control Room, or Technical Support Center, if activated, will:

    a. Ensure that arrangements have been made with Security (outer gate) to properly escort and issue appropriate personnel dosimetry to ambulance personnel.

    b. Ensure that an H.P. representative accompanies or meets the patient(s) at the hospital if contamination is involved.

13. Recover patient's individual TLD and dosimeter for processing and replace with new dosimetry.

14. If time permits, biological samples should be taken for subsequent evaluation.

15. When ambulance arrives, brief attending personnel on the patient's medical and radiological status, provide protective clothing (as applicable) and turn over responsibility of the patient to the ambulance personnel.

16. Notify Control Room, or Technical Support Center, if activated, when ambulance has departed for the hospital with the patient.

NOTE: For cases of high radiation exposures (i.e., greater than 50 REM whole body), the Plant Health Physicist or Brattleboro Hospital will contact the Peter Bent Brigham Hospital (PBBH) Emergency Ward Head Nurse of the possible referral of patient(s). Indicate the most probable time of arrival and the nature and the extent of the injuries if this information is available. PBBH will then activate their emergency procedures to the alert phase. The numbers are:

PBBH - Emergency Ward Head Nurse - [redacted]

PBBH - Radiation Protection Officer

Dr. David Drum (work) - [redacted]

Dr. David Drum (home) - [redacted]

17. Health Physics representatives who are required to accompany or meet contaminated patient(s) at the Brattleboro Hospital, shall take the following actions upon arrival at the hospital:

a. Advise ambulance attendents they are not to leave the hospital until they and the ambulance are monitored for contamination.

NOTE: This survey may be delayed, but should be done as soon as practicable.

b. Advise the attending physician of the patient's radiological complications, such as:

1) Significant total external dose,
2) Contamination levels detected on the patient,
3) Probable isotopes in wound,
4) Radioactivity probably inhaled or ingested at accident scene,
5) Contamination level of object causing the wound(s), or
6) Other similar appropriate information

NOTE: Avoid speaking in technical terms unless you are certain they are understood. Instead, use descriptive words such as "slightly", "extremely", "low-level", "trace", "life-threatening", etc.

c. Suggest to the attending physician actions you feel should be done; such as excreate samples, if ingestion was involved, nasal tissue samples, if inhalation was probable, etc.

d. Provide dose rate and/or contamination levels to attending personnel periodically, or as requested, and interpret them into meaningful terms. Be reassuring.

e. Assist in the decontamination of the patient as appropriate.

f. Assist in the final survey and cleanup of the treatment area and return all contaminated equipment and wastes to Vermont Yankee.

Final Conditions:

1. Inventory and replace all used equipment and supplies.

SPS/emr

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PORC		Rev. No.	2
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EMERGENCY ACTIONS BY PLANT SECURITY PERSONNEL

Purpose:

To define necessary actions by members of the security police force, in conjunction with plant personnel during times of Alert, Site Area, or General Emergencies at Vermont Yankee.

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. None

C. Other

* 1. O.P. 3501, Alert
2. O.P. 3502, Site Area Emergency
3. O.P. 3503, General Emergency
4. O.P. 3510, Off-Site and Site Boundary Monitoring

Discussion:

*

Under emergency conditions, the security police force functions are to aid the Plant Emergency Director, the Emergency
* Operations Facility Coordinator, and the TSC Coordinator by providing pertinent information, regulating access to the site, and performing security functions deemed necessary.

Procedure:

1. Upon notification of an Alert condition by alarm or verbal report, the security police force shall collect accountability reports from all of the plant departments, and on-site contractors.

   a. Plant personnel and contractors will assemble at their respective work areas in the plant. The senior person in each department will take a head count and report to Security Gate II the names of individuals missing from each department or contractor unit.

   b. After determining the identity of the missing individuals who are still on site, the security personnel at Gate II will call the Technical Support Center, if it is manned, or the Control Room and report these individuals as missing inside the plant (or in the inner protected area).

c. The personnel in the Technical Support Center, if it is manned, or the Control Room will page the missing individual(s) in an effort to locate them.

d. On-site search and rescue teams will be dispatched by the Technical Support Center, if it is manned, or the Control Room to locate the missing individual(s).

2. Upon notification of a Site Area or General Emergency condition by alarm or verbal report, the security police force shall take required actions for functional duty assignment.

a. The Security Shift Supervisor (SSS) will contact the Plant Emergency Director to ascertain the need for a site boundary survey. If a survey is requested, the following information should be provided by the Control Room:

1) Downwind direction
* 2) Type of release (elevated or ground)

b. Security Policemen at the Inner Gate (Protected Area Gatehouse) will upon declaration of a Site Area or General Emergency:

(1) Remove film badge racks and all portable radio units not in use, and the RM-14 and relocate them to the outer gate.

(2) Insure weapons not actually in use are physically secured.

c. Security Policemen at the Outer Gate will:

(1) Establish a barricade and restrict access to the
* plant site except as authorized by the Plant Emergency Director. If limited access is ordered, permit only persons with specific permission
* granted by the Plant Emergency Director, EOF
* Coordinator, or the T.S.C. Coordinator.

(2) Check regular and visitor dosimetry badge racks; determine the name(s) of individuals who are still inside the plant (or in the inner protected area), and report this information to the Technical Support Center, if it is manned, or the Control Room:

(a) The personnel in the Technical Support Center, if it is manned, or the Control Room will page the missing individuals in effort to locate them.

(b) On-site search and rescue teams will be dispatched by the Technical Support Center, if it is manned, or the Control Room to locate the missing individuals.

(3) Issue keys as necessary to any plant employee from the Emergency Key Repository as directed by the * EOF Coordinator. These could include either or both key rings which contain the Vital Area Override Mechanical Key and the Radiation Area Key.

(4) Aid in evacuation of persons from the plant site by indicating evacuation paths to the Emergency Operations * Facility or the Vernon Town Hall (alternate EOF).

d. Security Policemen on Patrol will:

(1) Report to the Inner Gate to draw monitoring equipment or take action as directed by the Security Shift Supervisor (SSS).

NOTE: If patrol function is not being performed at the time, duties below shall be accomplished by a Security Policeman on duty at the Inner Gate.

(2) If a site boundary survey is required, obtain a * portable dose rate meter (PIC-6A), air sampler and a vehicle from the Inner Gate.

(3) At the downwind location from the release (or where * specified by the Plant Emergency Director), find maximum dose rate and take air sample survey at the site boundary fence (or other location designated by * the Plant Emergency Director) in accordance with O.P. 3510. Report the maximum dose rate to the * Plant Emergency Director by radio as soon as practicable.

(4) Report the results of the air sample to the EOF * Coordinator or, if not present, to the Plant Emergency Director in the Control Room.

* (5) If requested by the EOF Coordinator or the Plant Emergency Director, an additional downwind survey may be required.

e. The SSS on duty will assure that the site access road is not permanently obstructed so as to prevent personnel evacuation or passage of emergency equipment and will see that the following actions are taken:

(1) Park all standby emergency equipment in bus parking lot.

(2) Park incoming employees in visitors parking lot.

* (3) Upon the arrival of the EOF Coordinator, report the status of plant security, perimeter integrity, location of security policemen, values and location of readings obtained and number of persons on site.

(4) Assure that no non-VY emergency personnel are permitted beyond Inner Gate until proper escort arrangements have been confirmed through the EOF Coordinator or the Plant Emergency Director. *

f. The SSS on duty is responsible for ensuring that all security force functions are completed. He may call in off duty security personnel as required.

g. The SSS is responsible for notification to the Chief of Security and Security Supervisor in the event of any emergency situation.

h. If on patrol, the K-9 handler will return his dog to the pen area and take action as specified by the SSS.

Final Conditions:

1. Return emergency equipment to normal location at Gate 2.

SPS/emr

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PORC		Rev. No.	1
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RADIOLOGICAL COORDINATION

Purpose:

To evaluate all samples obtained by VY Monitoring Teams and to coordinate and verify the results obtained with other official * agencies present prior to reporting results to the EOF Coordinator.

Discussion:

Samples taken by off-site Monitoring Teams are delivered to the Radiological Coordinator. He will normally be at the Emergency Operations Facility (EOF), or the Vernon Dam, until such time as Federal and State officials may establish a Radiological Coordination Center at an alternate location upon their arrival to the site. Off-site samples taken by all official agencies and Vermont Yankee will be evaluated at this center. When possible, all sample results will be intercompared and verified as representative and accurate. These * results are then reported to the Emergency Operations Facility Coordinator and other official agencies, thus insuring that con- * sistent information eventually reaches the public. The Environmental * Coordinator or his alternate is assigned by the Emergency Operations * Facility Coordinator to assume the duties of Radiological Coordinator.

References:

A. Tech. Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. NUREG 0654

Precautions:

1. Upon moving the SAM-II to a new location, allow sufficient warm-up time to achieve stability.

Prerequisites:

1. None

Procedure:

* NOTE: The Environmental Coordinator or his alternate, assigned
* by the EOF Coordinator, or his R[illegible]ological Assistant,
to assume the duties of the Rad[illegible]ogical Coordinator (RC)
shall make appropriate entries on this procedure/logsheet.

Section I - To Be Completed Prior To Leaving EOF

Date_____ Time_____

* Assigned Radiological Coord._____

Location of Rad. Coordination Center_____

Initial

A. Obtain Radiological Coordinator's Kit. _____

NOTE: In the event the Radiological Coordinator is to remain at the Emergency Operations Facility, go directly to Section II. If and when the RC is transferred to another location, complete Section I.

B. Note the wind speed and downwind direction.

1. Wind speed_____ Wind Direction_____ _____

C. Proceed to outer gatehouse and obtain one portable radio transceiver and your assigned TLD badge.

1. Check operability of radio as follows:

a. Place frequency selector switch to Position F3.

b. In a normal voice and with microphone approximately 8-10 inches in front of mouth, push microphone button and say: "Coordinator Base, this is the Radiological Coordinator requesting a radio check. Do you read me?" Release microphone button. (The EOF base radio should respond to your call.)

c. Acknowledge response by pushing microphone button and saying: "Coordinator Base, this is the Radiological Coordinator and I am proceeding to the designated Center."

d. Upon completion of transmissions, the last unit to leave the air should say "This is WRC 941. Clear."

NOTE: If this is a drill, state "This is a drill."

Initial

2. If radio is inoperable, obtain a replacement and repeat above step.

3. Assigned TLD badge obtained, radio operable, and contact made with Coordinator Base. _____

4. While enroute to the designated Radiological Coordination Center, note any abnormal or unusual conditions and * report them to the EOF Coordinator. _____

5. Upon arrival at designated location report to Coordinator Base. Time_____ _____

Section II - Radiological Coordination Center (RCC) Duties

A. Immediately upon arrival at the RCC, select a convenient location and energize the Eberline SAM-II to initiate it's warm-up period. _____

NOTE: Allow 1½ to 2 hour warm-up prior to operational check and use. Do not turn OFF for duration of emergency.

B. Initiate a 10 minute air particulate and iodine air sample at 10 LPM. Record time here and on air sample envelope. Time_____ _____

C. Note RM-14 background level. CPM_____ _____

D. Organize equipment and coordinate its location with other official agency personnel as they arrive.

E. Perform a preoperational check of the SAM II.

1. Check instrument, power cord, and detector cable for damage.
2. Connect Detector cable and detector, plug cable into front of instrument labelled "DETECTOR."
3. Place detector into an appropriate shield.
4. Check that front instrument controls are set as indicated on the calibration sticker located on the top of the instrument.

a) DISPLAY - ON
b) TIMED-STOP-MAN - STOP
c) CH 1 +, OFF, -, to +
d) CH 2 +, OFF, -, to OFF _____

F. Upon completion of 10 minute air sample period, remove charcoal cartridge and wrap in parafilm. Place filter paper and cartridge in properly labeled envelopes. _____

Initial

G. Log the above, and all incoming field air samples with positive RM-14 results, on VYOPF 3525.01. Assign a priority for analysis, if necessary. _____

H. When the SAM II is properly warmed up, perform an operational check.

1. Set TIMED - STOP - MAN switch to MAN. Unit should begin to count.
2. Set TIMED - STOP - MAN switch to TIMED.
3. Set COUNT TIME IN MINUTES switches to 1 and X1.
4. Obtain SAM-II check source, place detector directly on top of source.
5. Press Reset - Start switch.
6. After a 1 minute count, the instrument should indicate the number of counts within the range labelled on top of the instrument _____

NOTE: In the event of failure, allow more warm-up time and repeat this step.

I. Proceed to count the charcoal cartridge samples.

1. With instrument settings remaining as above, perform a background count.
2. Place sample on detector and count.
3. Calculate the iodine-131 concentration as follows:

$$I^{131}\ \mu Ci/cc = \frac{\text{net cpm}}{(E)\ (Vs)\ (2.22 \times 10^6)}$$

Where: cpm = count rate from SAM-II
E = counting efficiency (instrument top)
Vs_6 = sample volume in cc
2.22×10^6 = dpm/µci conversion

4. Log the results on VYOPF 3525.01.

J. Log all other incoming field samples on VYOPF 3525.01 (e.g., TLD's, water, silage, grass, etc.), assign analysis priorities if necessary, and arrange for their analysis.

NOTE: If the YNSD Mobile Environmental Lab is not on site, or enroute to VY, dispatch samples to the Environmental Laboratory in Westboro by courier.

K. Log all sample results on VYOPF 3525.01.

L. Compare the results of all field samples with the results obtained by other official agencies (if present) on similar samples.

NOTE: Request others present to review calculations and concur that the results obtained are representative and accurate.

M. Report results to the Radiological Assistant at the EOF.

NOTE: If results were reviewed by other official agency personnel, report them as "official." If no other agency personnel are present, report them as "Preliminary."

N. Keep the Radiological Assistant informed of other significant results obtained by official agencies present at the RCC.

O. Upon being relieved, return your dosimeter and TLD badge to the Radiological Assistant at the EOF.

Final Conditions:

1. Return radio to outer gatehouse.
2. Return Emergency Kit and equipment to the Emergency Operations Facility locker.
3. Submit completed copy of this procedure and log sheets to the Radiological Assistant at the Emergency Operations Facility.
4. Turn in all [illegible] tion.

SPS/emr

RADIOLOGICAL COORDINATOR'S LOG

DATE

SMPL #	TYPE	TIME	SAMPLE LOCATION	ANALYST	TIME	RESULTS	REFERENCES	TIME REPTD	P OR O *

*P - Preliminary, or O - Official

VYOPF 3525.01
Rev. 1

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PORC		Rev. No.	7
Plant Mgr.		Issue Date	1/28/82
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ENVIRONMENTAL SAMPLE COLLECTION DURING AN EMERGENCY

Purpose:

To specify the procedure to be used for the collection of environmental samples during an emergency.

Discussion:

The Off-site Environmental Monitoring System will provide additional data on radioactive releases from the plant following an incident. This 9 station environmental monitoring system includes continuous air sampling equipment and thermoluminescent dosimeters at various locations within a 15 mile radius of the plant.

The location of off-site environmental monitoring stations are indicated in Appendix A. Air samples and thermoluminescent dosimeters downwind should be collected.

The following appendix is attached:

Appendix A Environmental Monitoring Station Locations

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. None

C. Other

1. O.P. 4510, Environmental Radiation Surveillance

Precautions:

1. None

Prerequisites:

1. Apparatus Required:

* a. Keys for the environmental stations and the River Station
* Gate are contained in the off-site emergency kits.

Procedure:

1. As personnel availability and emergency conditions permit, collect the air filters and TLD's from the downwind locations listed in Appendix A and replace with new filters and TLD's observing the procedural steps specified in O.P. 4510, Environmental Radiation Surveillance.

2. Analyze the air filters and TLD's in accordance with O.P. 4510, Environmental Radiation Surveillance.

   NOTE: More precise airborne results may be obtained by counting samples in H.P. Counting Room, if available. TLD analysis requires use of reader in Environmental Office. If these are not available, TLD's may be analyzed at the Vermont Department of Health, reader in the Vernon Town Hall or air samples sent to Maine Yankee or Yankee Rowe.

* 3. Report results to the Emergency Operations Facility Coordinator.

Final Conditions:

* 1. Emergency Operations Facility Coordinator has received results of the sample collection.

SPS/emr

APPENDIX A

Environmental Monitoring Station Locations

Station	General Location	Specific Location
1.0 Hinsdale	N.H. Rte. 119, directly across river East of plant near Hinsdale High School.	On power pole beside Rt. 119 just West of Hinsdale village.
1.1 North Hinsdale	N.H. Rte. 119, in North Hinsdale near Race Track.	On power pole directly opposite north (Service) entrance to Race Track.
1.2 Hinsdale Depot	Off N.H. Rte. 119 at Hinsdale Town Hall (Bldg. with tower and Clock) in middle of town.	Turn south at Town Hall, cross bridge and railroad tracks. On power pole just south of tracks beside power substation.
1.3 River Station	Off Vt. Rte. 142 south of plant near Vernon Nursing Home.	Turn off Rte. 142 at Nursing Home, proceed to transmission lines, turn left (north) under lines and proceed to small building on bank of river.
1.4 Fairman Road	Off Vt. Rte. 142 south of plant near Central Park Station.	Turn west off Rte. 142 at railroad underpass, bear right at fork to Fairman Road. Turn right to monitor on power pole directly under transmission Lines.
1.5 Tyler Hill	Off Vt. Rte. 142 north of plant on road to Guilford near Stony Acres campsite.	Look for monitor on power pole in woods just west of road to Stony Acres.
2.1 Hogback	On Vt. Rte. 9 west of Brattleboro at Hogback Ski Area.	Take entrance to Skyline Restaurant. Look for monitor mounted on side of building near upper parking area.
2.2 Spofford	Just off N.H. Rte. 9 on Rt. 9-A east of Spofford village.	Follow Rte. 9 east past intersection with #63 (blinker light). Do not take 9-A to left. Proceed on 9 until 9-A rejoins 9 east of Spofford. Double back on 9-A about 100 yards and look for monitor on power pole on north (right) side of road.

Station	General Location	Specific Location
2.3 Northfield	South of Northfield at junction of Mass. Routes #63 and #10 (to Bernardston).	Mounted on power pole east side of intersection.

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EMERGENCY PREPAREDNESS EXERCISES AND DRILLS

Purpose:

This procedure provides the criteria for testing and evaluating the adequacy of emergency facilities, equipment, procedures, communication channels, actions of emergency response personnel and coordination between off-site authorities and the plant.

Discussion:

An exercise tests the execution of the overall plant emergency preparedness and the integration of the preparedness with off-site authorities.

A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular emergency response function. Certain drills will be conducted as a component of an exercise.

Emergency Exercises and Drills will be conducted as specified in this procedure to test individual tasks and the overall plant readiness capability to execute the Emergency Plan and its implementing procedures. It outlines the process by which exercises and drills are developed and evaluated.

* * An Exercise Coordinator, who is appointed by the Plant Manager, or his designated representative, plans the annual radiation emergency exercise. The Exercise Coordinator may assist the plant personnel in preparing and conducting drills, when requested; otherwise, drill preparation and conduct will be by plant personnel.

Plant management has the option to include a fire drill and/or a medical drill during the annual radiation emergency exercise or any combination thereof. Plant management has the option to conduct drills, with or without off-site agencies, designed to test the plants readiness capability.

All observers comments (including off-site) will be documented as specified in this procedure. Off-site agencies will be contacted to inform them of the proposed exercise/date and to determine their degree of participation.

The following forms are attached:

VYOPF 3505.01	Emergency Exercise Planning Form
VYOPF 3505.02	Emergency Exercise/Drill Observers Evaluation Form
VYOPF 3505.03	Emergency Medical Drill Planning Form
VYOPF 3505.04	Emergency Exercise Documentation Form
VYOPF 3505.05	Health Physics Drill Planning Form
VYOPF 3505.06	Radiation Emergency Drill Documentation Form

References:

A. Tech. Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. None

Precautions:

1. The initiating announcement and subsequent communications associated with the emergency exercise must include the words "THIS IS A TEST".

2. During a simulated accident, no action to materially alter the plant operating conditions will be permitted unless previously
* authorized in writing by the Plant Manager.

3. An emergency exercise may be terminated by the Shift Supervisor or higher management at any time plant operational conditions warrant such action.

4. Prior to conducting the annual Radiation Emergency Exercise,
* obtain the approval of the Plant Manager on the Radiation Emergency Exercise Planning Form.

Prerequisites:

1. Before initiating a "formal" radiation emergency exercise, all applicable off-site agencies will be made cognizant of the intended exercise and a determination made as to their degree of participation.

Procedure:

A. Radiation Emergency Exercises

1. At least one "formal" exercise will be conducted annually to test and evaluate the overall emergency organization's preparedness.

2. An Exercise Coordinator will be selected.

* 3. In conjunction with the Plant Manager, or his designated representative, the Exercise Coordinator will select a simulated accident which will call for the mobilization of off-site agencies.

* 4. Obtain from the Plant Manager, or his alternate, a list of all events recognized by plant personnel that would be accomplished in an actual emergency, but which will not be carried out during the exercise.

5. Contact appropriate off-site agencies to determine their degree of participation.

6. Insure that all Letters of Agreement with off-site agencies are current and document findings. If not current, take necessary update action.

7. Obtain observers to evaluate the performance of participating personnel and the adequacy of emergency facilities, equipment and procedures during the emergency exercise.

8. Notify NRC-IE Region I and Site Inspector of the Radiation Emergency Exercise date.

9. Prepare and submit the Radiation Emergency Exercise Planning Form VYOPF 3505.01 to the Plant Superintendent for his approval.

* 10. Prepare and submit the Radiation Emergency Exercise Packages
* to the Manager of Operations for submittal to the NRC and FEMA
* prior to the date of the exercise.

11. Ensure that assumed emergency conditions are translated into simulated instrument responses and information for use during the exercise.

12. Prior to commencement of the exercise, the Exercise Coordinator briefs the selected observers on their assignments. This briefing will include all the exercise information each observer will require to fulfill his evaluation assignment. Issue observers Evaluation Form VYOPF 3505.02.

13. Immediately following the exercise, evaluate the results with observers prior to the scheduled critique.

14. Conduct an exercise critique with all observers and assure critique documentation is provided to the Plant Superintendent for corrective action considerations.

15. All comments and/or recommendations will be documented and resolved as outlined in Paragraph H below.

B. Drills

1. <u>Medical Drills</u>

a. At least one drill will be conducted annually to evaluate the training of the plant's medical response teams and off-site medical response personnel. This drill may be performed as part of the required annual radiation emergency exercise or fire drill.

b. In conjunction with the Emergency Plan Coordinator, the Medical Services/Safety Coordinator (MS/SC) will develop a realistic drill scenario. Utilize Medical Drill Planning Form VYOPF 3505.03.

c. The MS/SC will contact off-site medical response personnel (ambulance and hospital) to request their participation in the drill.

d. The MS/SC will brief observers on the drill and issue observers Evaluation Form VYOPF 3505.02.

e. The MS/SC will conduct a critique for observers and participants to present their observations and comments to Plant Management within 5 working days.

f. All observer's Evaluation Forms will be collected at the conclusion of the critique.

g. All comments and/or recommendations will be documented and resolved as outlined in Paragraph H below, utilizing Radiation Emergency Exercise Documentation Form VYOPF 3505.04.

NOTE: Comments on the drill should be included in the next training session for Medical Team personnel.

2. Health Physics Drills

a. A drill will be conducted semi-annually which will involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the plant.

b. In conjunction with the Chemistry and Health Physics Supervisor, the Emergency Plan Coordinator will direct the development of a realistic drill scenario utilizing the Health Physics Drill Planning Form VYOPF 3505.05.

c. The Emergency Plan Coordinator will brief observers on the drill and distribute Observers Evaluation Form VYOPF 3505.02.

d. The Emergency Plan Coordinator will conduct a critique for observers and participants to present their observations and comments. These comments and observations will be listed on the Radiation Emergency Drill Documentation Form VYOPF 3505.06.

e. All documented items that require corrective action will be completed within six (6) months of the scheduled drill.

f. Copies of the completed drill planning form, the drill documentation form and other papers related to the drill will be retained in the plant files.

3. Radiological Monitoring Drills

a. At least one drill will be conducted each year to evaluate on-site and off-site collection and analysis of airborne sample media. This drill will be performed as part of the required Annual Radiation Emergency Exercise.

4. Fire Drills

a. A number of fire drills are conducted annually to test and evaluate the response and training of the plant's fire brigade and coordination of the same with off-site fire support. Fire drills will be conducted as outlined in A.P. 3023, Fire Training.

5. Communciation Tests

a. To ensure Emergency Communication Systems are operable between the plant and off-site emergency response organizations, Communication Tests will be conducted as outlined below:

1) Communication channels with state governments within the plume exposure pathway will be tested monthly as per O.P. 3506, Emergency Equipment Readiness Check.

2) Communications with State Emergency Operations Centers and field assessment teams will be conducted as part of the required annual Radiation Emergency Exercise.

C. Documentation

1. All comments and/or recommendations (including NRC and off-site agencies) will be documented on Emergency Exercise Documentation Form VYOPF 3505.04.

2. Submit Exercise Documentation Form to Department Heads for evaluation and determination of plant's position on those items pertaining to their department.

3. All Exercise Documentation Forms will be submitted to PORC for review of the plant's position as determined by Department Heads.

a. PORC's review will consist of carefully studying each documented item to ensure chat the plant's position is considered adequate.

4. After PORC has reviewed the forms, submit all documentation forms to the Plant Manager, or his designated representative, for final approval.

5. All documented items that require corrective action will be completed within six (6) months of the scheduled exercise/ drill.

   a. Any department that cannot complete an item within the specified time frame, will request an extension
* from the Plant Manager, or his designated representative.

6. Copies of the completed exercise and drill planning forms, the exercise documentation form, and other papers related to the exercise and drills will be retained in the plant files.

Final Conditions:

1. All emergency equipment used in the exercise and drill has been inventoried and checked for operability. Any missing or non-operable equipment will be replaced.

2. All documented items requiring corrective action have been corrected and documentation forms so noted.

SPS/emr

RADIATION EMERGENCY EXERCISE PLANNING FORM

1.0 DATE AND TIME OF EXERCISE:

2.0 DESCRIPTION OF SIMULATED ACCIDENT:

3.0 DATA FOR INSTRUMENTAL RESPONSES, ACTIONS AND INFORMATION FOR SIMULATED EVENTS:

4.0 SIMULATION LIST (ITEMS THAT WOULD BE ACCOMPLISHED IN AN EMERGENCY, BUT WILL NOT BE CARRIED OUT FOR THE EXERCISE):

5.0 SELECTION OF EXERCISE AUDITORS:

Name	Title	Assigned Post

6.0 SPECIAL INSTRUCTIONS TO AUDITORS:

7.0 PRE-DRILL NOTIFICATION OF OFF-SITE AGENCIES:

A. Yankee Mutual Assistance

Person contacted: _____ Date _____
Degree of Participation: _____
_____ Initials: _____

B. Vermont Civil Defense

Person contacted: _____ Date _____
Degree of Participation/Agreement letter: _____
_____ Initials: _____

C. Vermont Dept. of Health

Person contacted: _____ Date _____
Degree of Participation/Agreement letter: _____
_____ Initials: _____

D. Mass. Civil Defense

Person contacted: _____ Date _____
Degree of Participation/Agreement letter: _____
_____ Initials: _____

E. Mass. Radiation Control

Person contacted: _____ Date _____
Degree of Participation/Agreement letter: _____
_____ Initials: _____

F. N.H. Civil Defense

Person contacted: _____ Date _____
Degree of Participation/Agreement letter: _____
_____ Initials: _____

I. ERDA - Brookhaven

Person contacted: _____ Date _____
Degree of Participation/Agreement letter: _____
_____ Initials: _____

J. ANI

Person contacted:_____ Date_____
Degree of Participation/Agreement letter:_____
_____ Initials:_____

K. Brattleboro Memorial Hospital

Person contacted:_____ Date_____
Degree of Participation/Agreement letter:_____
_____ Initials:_____

L. Rescue, Inc.

Person contacted:_____ Date_____
Degree of Participation/Agreement letter:_____
_____ Initials:_____

M. Vernon Fire Dept.

Person contacted:_____ Date_____
Degree of Participation/Agreement letter:_____
_____ Initials:_____

N. VY - West Brattleboro

Person contacted:_____ Date_____
Degree of Participation:_____
_____ Initials:_____

O. NRC

1. I&E Region I

Person contacted:_____ Date_____
Degree of Participation_____
_____
_____ Initials:_____

2. Site Inspector

Person contacted:_____ Date_____
Degree of Participation_____
_____
_____ Initials:_____

P. FEMA

Person contacted:_____ Date_____
Degree of Participation_____
_____ Initials:_____

8.0 EMERGENCY PLAN EXECUTION (List the procedures of the Emergency Plan that will be tested):

APPROVED:

_____	_____	_____
Plant Manager		Date

MEDICAL DRILL PLANNING FORM

Type of Drill:_____ Date of Drill_____

Location of Drill_____

1. Description of Drill:

2. Special Hazards (if any):

3. Safety Precautions (if any):

4. Selection of Observers:

Name	Title

5. Special Instructions to Observers:

6. Expected Actions:

7. Pre-Drill Notification of Off-site Agencies:

A. Brattleboro Memorial Hospital

Person contacted:_____ Date_____

Degree of Participation:_____

_____ Initials:_____

B. Rescue

Person contacted:_____ Date_____

Degree of Participation:_____

_____ Initials:_____

8. Emergency Plan Procedures to be Tested:

APPROVED:

_____ _____

Plant Manager Date

RADIATION EMERGENCY EXERCISE DOCUMENTATION FORM

EMERGENCY EXERCISE FOLLOW-UP ACTIONS

RESULTING FROM

COMMITMENTS (C), OBSERVER COMMENTS (OC), RECOMMENDATIONS (R), ETC.

Date _____

No.	Category	Comments/Recommendations (Include all)	Management Position (Explain Rejections)	Assigned Responsibility	Scheduled Completion	Completion

RADIATION EMERGENCY DRILL DOCUMENTATION FORM

EMERGENCY DRILL FOLLOW-UP ACTIONS

RESULTING FROM

COMMITMENTS (C), OBSERVER COMMENTS (OC), RECOMMENDATIONS (R), ETC.

Date _____

No.	Category	Comments/Recommendations (Include all)	Management Position (Explain Rejections)	Assigned Responsibility	Scheduled Completion	Completion

EMERGENCY EXERCISE/DRILL
OBSERVERS EVALUATION FORM

Observers Name:_____ Drill Date_____

Observers Location_____

Typer of Exercise/Drill:_____

Information to Provide:_____

Time Commenced:_____ Time Terminated:_____

OBSERVATION, COMMENTS & RECOMMENDATIONS Page_____of_____

NOTE: Observations should include the proper and effective use of procedures, equipment and personnel.

NOTE: Use additional pages as necessary.

Signature_____ Title_____

HEALTH PHYSICS DRILL PLANNING FORM

Type of Drill_____ Date of Drill_____

Location of Drill_____

1. Description of Drill:

2. Special Hazards (if any):

3. Safety Precautions (if any):

4. Selection of Observers:

Name	Title

5. Special Instructions to Observers:

6. Expected Actions:

7. Emergency Plan Procedures to be Tested:

APPROVED: _____

Chemistry and Health Physics
Supervisor

Dept. Supv.		Proc. No.	O.P. 3506
PORC		Rev. No.	14
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

EMERGENCY EQUIPMENT READINESS CHECK

Purpose:

To insure that emergency radiological and communication equipment is periodically inventoried and maintained in an operable condition by assigned plant personnel.

Discussion:

Monthly, the Operations Department will conduct a test of certain emergency communications equipment as outlined in this procedure. Monthly, and subsequent to each usage, a Chemistry and Health Physics Technician will be assigned the following:

1. Physical inventory of Emergency Kit contents as listed on
* VYOPF 3506.02.

NOTE: Corrective actions taken in response to deficiencies noted must be initialed and dated.

2. Rotation of survey instruments normally used in the plant with instruments in the Emergency Kits to assure that emergency equipment has been recently calibrated and is fully operable.

3. Check of the operability of equipment (e.g., flashlights, dosimeter charger, survey meters, etc.) and recharging or changing of their batteries as necessary. Change stopwatch batteries annually. Record date of change on reverse side of each electric stopwatch.

* 4. Verification that the keys to the off-site Emergency Operations Facility and Emergency Kits are in their proper location
* at the outer gatehouse.

The assigned C & HP Technician shall report the status of all emergency equipment to the Emergency Plan Coordinator by completing and submitting an Emergency Equipment Checklist (VYOPF 3506.02) monthly.
* The Emergency Plan Coordinator will inspect the emergency equipment maintained at Brattleboro Memorial Hospital and report his findings on VYOPF 3506.03 semi-annually. Enter under remarks column any
* replacement parts (i.e., batteries, pencils, missing equipment, etc.).

The following forms are attached:

VYOPF 3506.01 Emergency Communications Checklist
VYOPF 3506.02 Emergency Equipment Checklist
VYOPF 3506.03 Brattleboro Memorial Hospital Emergency Equipment Inventory

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. The Emergency Communications Checklist (VYOPF 3506.01) will be completed monthly.

2. The Emergency Equipment Check List (VYOPF 3506.02) will be conducted monthly and subsequent to each use.

3. The Brattleboro Memorial Hospital Emergency Equipment Inventory (VYOPF 3506.03) will be conducted semi-annually and subsequent to each use.

C. Other

1. Appropriate Operating Manuals for Emergency Kit Equipment
* listed on VYOPF 3506.02 and on VYOPF 3506.03.

Precautions:

1. The lack of proper equipment at the time of an emergency can delay regaining control of the situation, thereby compounding its adverse effects.

Prerequisites:

1. Apparatus required:

a. Fresh batteries for equipment as required.
b. Recently calibrated and operable survey meters in accordance with D.P. 4540.

Procedure:

1. Emergency Communications Check (Use VYOPF 3506.01)

A. Monthly, the Operations Department will test the Nuclear Alert System by contacting each of the three states (Vermont, New Hampshire, Massachusetts) using the following procedure:

1) Lift handset and keypunch number 111.

NOTE: This number initiates a group call to all three State Police agencies. However, no audible ringing is present at the transmit station. The station receiver will continue to ring until it is answered even if the transmit station is recradled.

2) As each State Police agency answers, advise of the test of the Nuclear Alert System and record the successful test on VYOPF 3506.01, Section A.

3) If any part of the system fails to operate, notify the Communications Dept., NEES, Westboro, MA (ext 2460).

B. Monthly, the Operations Department will test the Unusual Event, Alert, Site Area and General Emergency Alarms using the following procedure:

1) To test the Alert Alarm (used for Unusual Event and Alert emergencies):

a) Turn the Page System Volume Increase Switch to the "Alert" position.

b) Make the following announcement by picking up the Gai-Tronics handset and depressing the page button and speaking into the receiver:

"The following is a test of the Emergency Alert Alarm, please disregard." Repeat the announcement.

c) Turn the Alarm switch to the "ON" position for three seconds and then return the switch to the "OFF" position.

d) Make the following announcement over the page system:

"Test of the Emergency Alert Alarm is complete. Regard all further alarms."

e) Turn the Page System Volume Increase Switch to the "OFF" position.

2) To test the Evacuation Alarm (used for Site Area and General emergencies):

a) Turn the Page System Volume Increase Switch to the "Evacuation" position.

b) Make the following announcement by picking up the Gai-Tronics handset and depressing the page button, and speaking into the receiver:

"The following is a test of the Emergency Evacuation Alarm. Please Disregard." Repeat the announcement.

c) Turn the Alarm switch to the "ON" position for three seconds and then return the switch to the "OFF" position.

d) Make the following announcement over the page system:

"Test of the Emergency Evacuation Alarm is complete. Regard all further alarms."

e) Turn the Page System Volumne Increase Switch to the "OFF" position.

3) Contact the Auxiliary Operators and verify that they heard the alarm announcements and alarm signals. Complete VYOPF 3506.01, Section B.

C. Monthly, the Operations Department will test the Southwest Fire Mutual Aid and Tri-State Fire Mutual Aid radio (Deskon II) by contacting the Keene and Greenfield dispatchers as follows:

1) Press the TRANSMIT bar for sending. Release for receiving.

2) Speaking into the microphone say, "KCE-579 (Keene), this is KCP-596, Remote 2."

3) When answered, say: "This is a radio check. How do you read?"

4) When answered, say: "Thank you. KCP-596, Remote 2 clear."

5) Repeat Steps 1) through 4) with KCE-358 (Greenfield).

6) Complete VYOPF 3506.01, Section C and return to the Shift Supervisor.

7) Notify the Instrument and Control Supervisor if there is a fault with either mutual aid radios communications system.

2. Emergency Equipment Check (Use VYOPF 3506.02)

a. Obtain those items listed as apparatus.

b. Proceed to the outer gate and obtain the keys to the Governor Hunt House and Vernon Town Hall.

c. Proceed to the Governor Hunt House and note that the keys are tagged correctly.

d. Inventory the Emergency Kit contents against those items listed on VYOPF 3506.02 and test, charge, or replace equipment as required. Inspect respiratory protective equipment and complete VYAPF 0505.02.

NOTE: After a complete inventory of the kits, a seal may be attached. If the seal is not broken, the kit need not be reinventoried on subsequent routine checks. Only those items indicated for each kit have to be inspected and a new seal attached where applicable.

e. Return equipment to the kits and lock the storage room door.

f. Lock the Governor Hunt House, as appropriate, and proceed to the Vernon Town Hall.

g. Note that the keys are tagged properly for the Town Hall and the Emergency Kit Storage Room.

h. Inventory the Emergency Kit contents against equipment and material listed on VYOPF 3506.02 and test, charge, or replace equipment as required.

i. Return equipment to the kit and lock the storage room.

j. Lock the Vernon Town Hall access door upon leaving.

k. At the Inner Gatehouse, inventory those items listed on VYOPF 3506.02.

l. At the Main Control Room, inventory those items listed on VYOPF 3506.02.

m. At Technical Support Center Communications Room, inventory those items listed on VYOPF 3506.02.

n. Submit the completed VYOPF 3506.02 form to the Emergency Plan Coordinator who will review it, take appropriate action on exceptions noted, and file it in the Chemistry and Health Physics files.

3. Brattleboro Memorial Hospital Emergency Equipment Inventory (use VYOPF 3506.03).

a. Obtain a freshly calibrated PIC-6A, 6 TLD's and a PRM-4 (or RM-14) (survey to ensure a clean instrument).

b. Proceed to B.M.H., obtain key to radiological emergency room.

c. Inventory the emergency kits contents against those items listed on VYOPF 3506.03 and replace the instruments listed in Step A. Replace batteries in charger for self-reading dosimeters.

d. Return equipment to the kits and secure the radiological emergency room.

e. Return the key.

f. Submit the completed VYOPF 3506.03 to the Chemistry and Health Physics Supervisor who will review it and file it in the Chemistry and Health Physics files.

Final Conditions:

1. All equipment is complete and in operable condition.

2. All documentation retained in accordance with A.P. 0834.

SPS/emr

Date_____

Time_____

MONTHLY EMERGENCY COMMUNICATIONS CHECKS

A. Nuclear Alert System

a. Successful Test with Vermont Yes___No____Initials_____

b. Successful Test with New Hampshire Yes___No____Initials_____

c. Successful Test with Massachusetts Yes___No____Initials_____

d. Communications Dept., NEES (ext. 2460), Westboro, Mass. informed of the following discrepancies:

_____

_____

_____

B. Emergency Alert and Evacuation Alarms

a. Emergency Alert Alarm Tested and Heard By Auxiliary Operators_____
Initials

b. Evacuation Alarm Tested and Heard by Auxiliary Operators_____
Initials

c. Notify I & C Department of following discrepancies:

_____

_____

C. Southwest Fire Mutal Aid and Tri-State Mutual Aid Radio Tests

a. Successful test with Keene Dispatcher Yes____ No____

b. Successful test with Greenfield Dispatcher Yes____ No____

Discrepancies Noted:_____

_____

_____

Completed By_____

Reviewed By_____
Shift Supervisor

Reviewed By_____
Operations Supervisor

Forward to Chemistry and Health Physics Department for filing.

EMERGENCY EQUIPMENT CHECKLIST

Date_____

Items:	Initials	Remarks
I. Outer Gate Guardhouse		
(A) Keys to Emergency Centers and Emergency Kits Obtained	_____	_____
(B) Keys Tagged Properly	_____	_____
(C) Keys Returned	_____	_____
(D) Inspect respirators (6) (as per A.P. 0505)	_____	_____
1) Charcoal and Particulate Filters (6)	_____	_____
2) Tear Gas Filters (6)	_____	_____
II. Governor Hunt House		
(A) ECC Kit: Sealed Unsealed (Circle one)		
If unsealed, inventory the following:	(If sealed, inventory items 5a, 6a, 16a, 18a, and 19a.)	
1. Emergency Plan	_____	_____
2. Emergency Plan Implementing Procedures	_____	_____
3. V.Y. Fire Protection Plan	_____	_____
4. Coordinator's clipboard	_____	_____
a. Implementing Procedure checklists		
1) O.P. 3501 (Alert)	_____	_____
2) O.P. 3502 (Site Area)	_____	_____
3) O.P. 3503 (General)	_____	_____
4) O.P. 3513 (Initial Eval)	_____	_____
5) O.P. 3504 (Comm.)	_____	_____
b. Logsheets (VYOPF 3504.01)	_____	_____
c. Met. Data (VYOPF 3513.01)	_____	_____
d. Offsite Doses (VYOPF 3513.02)	_____	_____
e. Paper pad	_____	_____

		Initials	Remarks
5.	Personnel Monitoring Team Clipboard		
	a. Current Gate List		
	b. Paper pad		
6.	Manpower & Planning Clipboard		
	a. Emergency Assistance Personnell List		
	b. Paper pad		
7.	Pencils (Approx. 12)		
8.	Wax marking pencils (approx. 4)		
9.	Felt-tip pens (Approx. 4)		
10.	Envelopes (Approx. 25)		
11.	Poly sample bottles (Approx. 3)		
12.	Assorted sample containers		
13.	Check source		
14.	Air sample filters (1 box)		
15.	Air sample charcoal cartridges (approx. 6)		
16.	High range dosimeters (24)		
	a. Calibration up to date		
17.	Sliderule		
18.	Telephones (8)		
	a. Check operability of all except NRC red and blue phones		
19.	Potassium iodide solution (1 bottle)		
	a. Check expiration date		
20.	TI-59 Calculator, Printer and 20 program cards in booklet holder.		

	Initials	Remarks
(B) Battery-Operated Equipment		
1. PRM-4A (or RM-14) (1)	_____	_____
a. Battery check OK	_____	_____
b. Calibration up-to-date	_____	_____
2. RM-14 with 210 probe (3)	_____	_____
a. Battery check OK	_____	_____
b. Calibration up-to-date	_____	_____
3. PIC-6A (3)	_____	_____
a. Battery check OK	_____	_____
b. Calibration up-to-date	_____	_____
4. Dosimeter charger	_____	_____
a. Operational check OK	_____	_____
5. Bullhorn	_____	_____
a. Operational check OK	_____	_____
6. Flashlights (Approx. 12)	_____	_____
a. Operational check OK (change batteries if weak)	_____	_____
b. Spare batteries (approx. 8)	_____	_____
7. Air Samplers (3)	_____	_____
a. Operational check OK (use car battery)	_____	_____
b. Left with fresh filter paper and cartridge in holders	_____	_____
(C) Miscellaneous Items		
1. Assignment Tag Board	_____	_____
2. Area map & dispersion "wheel"	_____	_____
3. Status Board	_____	_____
4. Lo-Vol air sampler	_____	_____
5. Stabilized Assay Meter(SAM II)	_____	_____

	Initials	Remarks
6. Inspect respirators (12 min.) (as per A.P. 0505).	_____	_____
a. Check expiration date on filter.	_____	_____
7. Check State of Vermont telephone system located on the stage in the EOF, by dialing 32.		
a. Vermont Civil Defense will answer if operable.		
_____ Name of Vt. CD Official	_____	_____
b. If no answer, call Vermont Civil Defense [redacted] and report system inoperable.		
_____ Name of Vt. CD Official	_____	_____
(D) Site Boundary Team Kit If unsealed, inventory all of the following:		(If sealed, inventory items 5a and 9)
1. Site Boundary clipboard	_____	_____
a. Implementing procedure checklist (O.P. 3510) (approx. 5 copies)	_____	_____
b. Paper pad	_____	_____
2. Coveralls (2)	_____	_____
3. Filter paper, air sample (1 box)	_____	_____
4. Charcoal filter cartridges (approx. 6)	_____	_____
5. High range dosimeters (2)	_____	_____
a. Calibration up to date	_____	_____
6. Pencils (approx. 4)	_____	_____
7. Air sample envelopes (approx. 5)	_____	_____
8. Check source	_____	_____
9. Stop watch (if Electronic - change batteries annually)	_____	_____

		Initials/Remarks		
(E)	Off-Site Emergency Kits (If sealed, inventory 9a and 16)	Kit 1 (Hunt)	Kit 2 (Hunt)	Kit 3 (Town Hall)
	If unsealed, inventory all of the following:			
	1. Off-Site Team Clipboard	_____	_____	_____
	a. Implementing procedure checklist (O.P. 3510) (Approx. 5 copies each)	_____	_____	_____
	b. Paper pad	_____	_____	_____
	2. Coveralls (2)	_____	_____	_____
	3. Poly bottles (3)	_____	_____	_____
	4. Poly bags (3)	_____	_____	_____
	5. Smear paper (1 box)	_____	_____	_____
	6. Filter paper, air sample (1 box)	_____	_____	_____
	7. Activated charcoal filter cartridges (Approx. 6)	_____	_____	_____
	8. Radiation tape and signs	_____	_____	_____
	9. High range dosimeters (2)	_____	_____	_____
	a. Calibration up to date	_____	_____	_____
	10. Pencils (approx. 4)	_____	_____	_____
	11. Marking pencils (approx. 2)	_____	_____	_____
	12. Felt tip pen (approx. 2)	_____	_____	_____
	13. Air Sample Envelopes (approx. 25)	_____	_____	_____
	14. Check source	_____	_____	_____
	15. Screwdriver	_____	_____	_____
	16. Stopwatch (if Electronic - change batteries annually)	_____	_____	_____
	17. Keys to Envir. Stations	_____	_____	_____
	18. "NUSORB" cartridges for Envir. Stations (Approx. 4)	_____	_____	_____

	Initials	Remarks
(F) Two seabags each containing: If unsealed, inventory all of the following:		Sealed Unsealed (Circle one)
1. Coveralls (10)	_____	_____
2. Hoods (10)	_____	_____
3. Plastic boots (10 prs)	_____	_____
4. Rubber boots (10 prs)	_____	_____
5. Rubber gloves (12 pr)	_____	_____
6. Cloth gloves (2 bundles)	_____	_____
7. Masking tape	_____	_____
(G) Decontamination Barrel containing: If unsealed, inventory all of the following:		Sealed Unsealed (Circle one)
1. Towels (12)	_____	_____
2. Face cloths (12)	_____	_____
3. Decon soap (3)	_____	_____
4. Plastic bags (12)	_____	_____
5. Poly 6 ml x 6' x 100' (1 roll)	_____	_____
6. Paper towels (5 boxes)	_____	_____
7. Scissors (1 pr)	_____	_____
8. Blotter (3 - 10' sections)	_____	_____
9. Masking tape (5 rolls)	_____	_____
10. Cloth gloves (2 bundles)	_____	_____
11. Surgeons gloves (1 box)	_____	_____
12. Plastic basins (3)	_____	_____
13. Scrub brushes (12)	_____	_____
14. "Contaminated" tape (2 rolls)	_____	_____
(H) Radiological Coordinator's Kit		
If unsealed, inventory all of the following:		(If sealed, inventory 2a)
1. Notebook containing	_____	_____
a. O.P. 3525 Checklist	_____	_____

	Initials	Remarks
2. Low range dosimeter (1)	_____	_____
a. Calibrate up to date	_____	_____
3. Air sample filters (1 box)	_____	_____
4. Air sampler charcoal cartridges (approx. 6)	_____	_____
5. Environmental station cartridges (approx. 6)	_____	_____
6. Air sample envelopes (approx. 12)	_____	_____
7. Assorted sample containers		
a. Poly bottles (approx. 6)	_____	_____
b. Poly bags (approx. 12)	_____	_____
8. Paper pad	_____	_____
9. Pencils (approx. 4)	_____	_____
10. Small area map	_____	_____
(I) All equipment and materials returned to kits, the kits sealed, and storage area locked	_____	_____
III. Vernon Town Hall		
(A) EC Supplies		
1. Telephones (7) Check operability of all phones	_____	_____
	_____	_____
2. PIC-6A	_____	_____
a. Battery check OK	_____	_____
b. Calibration up-to-date	_____	_____
3. Area map	_____	_____
4. RM-14 with HP 210 probe	_____	_____
a. Battery check OK	_____	_____
b. Calibration up-to-date	_____	_____
5. Emergency Plan	_____	_____

	Initials	Remarks
6. Emergency Implementing Procedures	_____	_____
7. V.Y. Fire Protection Plan	_____	_____
8. Air sampler	_____	_____
9. Flashlight (2)	_____	_____

(B) Decontamination Barrel Containing: If unsealed, inventory all of the following: Sealed Unsealed (Circle one)

1. Towels (12)	_____	_____
2. Face cloths (12)	_____	_____
3. Decon soap (3)	_____	_____
4. Plastic bags (12)	_____	_____
5. Poly 6 ml x 6' x 100' (1 roll)	_____	_____
6. Paper towels (5 boxes)	_____	_____
7. Scissors (1 pr)	_____	_____
8. Blotter (3 - 10' sections)	_____	_____
9. Masking tape (5 rolls)	_____	_____
10. Cloth gloves (2 bundles)	_____	_____
11. Surgeons gloves (1 box)	_____	_____
12. Plastic basins (3)	_____	_____
13. Scrub brushes (12)	_____	_____
14. "Contaminated" tape (2 rolls)	_____	_____

(C) Off-Site Emergency Kit #3
(Refer to checklist, Section II (E) Page 5 of this form)

IV. Inner Gatehouse

1. RM-14 with HP 210 probe (This can be standby unit for portal monitor)	_____	_____

	Initials	Remarks
a. Battery check OK		
b. Calibration up-to-date		
2. PIC-6A		
a. Battery check OK		
b. Calibration up-to-date		
3. Air sampler		
4. Stopwatch (if Electronic - change batteries annually)		
5. Filter papers (1 box)		
6. Charcoal Cartridges (approx. 6)		
7. Air Sample Envelopes (approx. 6)		
8. O.P. 3510		
9. Inspect respirators (6) (as per A.P. 0505)		
a. Charcoal and Particulate Filters (6)		
b. Tear Gas Canisters (6)		
10. High Range Dosimeters (2)		
11. Check source		
V. Main Control Room		
1. Area Map & Dispersion "wheel"		
2. Boundary Dose Nomogram		
3. Emergency Logbook		
4. Emergency Plan		
5. Emergency Plan Implementing Procedures		
6. V.Y. Fire Protection Plan		
7. Inspect respirators, (4) (as per A.P. 0505)		
a. Check expiration date on filter		
8. Air sampler		

	Initials	Remarks
9. Air Sample Envelopes(approx. 6)		
10. Filter papers (1 box)		
11. High range dosimeters (5)		
a. Calibration up to date		
12. Potassium iodide (KI) solution (1 bottle)		
a. Check expiration date		
13. TI-59 Calculator, Printer and 20 cards in booklet holder		
(B) Inspect Scott Air Pack (as per A.P. 0505)		
(C) Check PIC-6 calibration		
VI. Technical Support Center		
(A) (Note: Items 10, 11, & 12 are located in the Engineering Support Department office. All others are located in the TSC Communications Center.)		
1. Dose rate meter (PIC-6A or equiv.)		
2. RM-14 with HP 210 probe		
3. Air sampler, low volume, with charcoal cartirdge		
4. Air sample envelopes (approx 6)		
5. Charcoal filter cartridges (approx 6)		
6. Filter paper, air sample (1 box)		
7. High range dosimeter (4)		
8. Inspect respirators (4) (as per A.P. 0505)		
a. Charcoal and particulate filters		

		Initials	Remarks
9.	Potassium iodide (KI) solution (1 bottle)	_____	_____
	a. Check expiration date	_____	_____
10.	Emergency Plan	_____	_____
11.	Emergency Implementing Procedures	_____	_____
12.	V.Y. Fire Protection Plan	_____	_____
13.	Smear Papers (1 box)	_____	_____
14.	NRC Emergency Notification System Red Phone	_____	(Note: Do not test)_____
15.	Plant Radio	_____	_____

Performed by_____

Approved by_____
Emergency Plan Coord.

Date _____

BRATTLEBORO MEMORIAL HOSPITAL
EMERGENCY EQUIPMENT INVENTORY

Instructions: Initial inventoried items and note comments in the right hand column.

Name of kit:

DECONTAMINATION KIT

Initials	Item	Quantity	Code# (Yellow Round Labels Marked:)	Comments
	1. Skin Decontamination			
	(a) Utensils:			
_____	Absorbent balls, extra large		DSK1	
_____	Sponge-holding forceps	1	DSK2	
_____	Plastic beaker, large (to discard used sponges)	2	DSK4	
_____	Pre-op sponges (for large area decontamination)		DSK5	
_____	Surgical hand brushes (for hands/feet decontamination		DSK6	
_____	Wash bottle (to hold water for decontamination)	1	DSK7	
	(b) Decontaminants			
_____	TURCO decon soap, bottles (for first decon effort, general)	2	DSK8	
_____	Clorox, bottle (for second decon effort)	1	DSK9	
	2. Wound Cleaning			
	(a) Utensils:			
_____	Gauze Pads, 4" x 4"		DW1	
_____	Surgical gloves, assorted sizes sterile, pair	5	DW2	
_____	Solution bowl, plastic	1	DW3	
_____	Plungerless syringes, 50 cc sterile	1	DW4	
_____	Cotton tipped applicators		DW7	
	(b) Cleansing agents:			
_____	Saline solutions, normal sterile, bottle	1	DW8	
_____	Hydrogen peroxide, 3% solution bottle	1	DW9	

DECONTAMINATION KIT (Continued)

Initials	Item	Quantity	Code#	Comments
	3. Miscellaneous materials			
_____	Nivea cream, jar (apply on dry skin after complete decon)	1	DM1	
_____	Prep Kit (for clipping and shaving)	1	DM2	
_____	Nail clippers, pair	1	DM3	
_____	Scissors, heavy duty, HARE paramedic	1	DM4	
_____	New Form Patient Radiation and Medical Status Record Sheets (for recording essential data on patients' medical and radiation status)		DM5	
_____	Plastic bags, (to hold decon materials after use)		DM6	
_____	Tags, with wire (to indicate contents of container and bags)		DM7	
_____	Tissue paper, box		DM8	
_____	Notebook		DM9	
_____	Pencils		DM10	

SAMPLE TAKING KIT

Initials		Item	Quantity	Code # (Green Round Labels Marked:)	Comments
	1.	Blood Sampling			
_____		Vacutainers, heparinized 10 ml, sterile	6	SB1 (green stopper)	
_____		Vacutainers, uncoated 10 ml, sterile	6	SB2 (red stopper)	
_____		Vacutainers, oxalated, 10 ml, sterile	6	SB3 (gray stopper)	
_____		Needle-holder combination sterile	12	SB4	
_____		Alcohol wipes, sterile pre-packaged	12	SB5	
	2.	Wound Fluid, Nose Swabs			
_____		Cotton tipped applicators, in test tube, sterile		SWN1	
_____		Envelopes (for storage of nose swabs)		SWN4	
_____		Tissue paper, box (for nose blows)		SWN5	
	3.	Small specimins (hair, nails, tissue samples, sputum)			
_____		Bottles, wide mouth, 100 ml	5	SSS2	
	4.	Excreta, irrigation fluids, vomitus			
_____		Jar, plastic for feces samples	2	SF1	
_____		Urine: specitainers, 2500	5	SF3	
_____		Bottles, wide mouth, 500 ml, for collection of irrigation fluids	2	SF4	
	5.	Skin Smears			
_____		NUCON smear pads, with envelopes		SSK1	

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SAMPLE TAKING KIT (Continued)

Initials	Item	Quantity	Code#	Comments
	6. Miscellaneous Items			
_____	Plastic bags, assorted sizes		SM1	
_____	Tags, with wire		SM2	
_____	Patient Radiation and Medical Status Record Sheets (to record specimens collected)		SM4	
_____	Notebook		SM5	
_____	Pencils		SM6	

HEALTH PHYSICS EQUIPMENT AND SUPPLIES

Initials	Item	Quantity	Comments
_____	Gamma Dose Rate Survey Instrument Digi-Master 0.1 M/R to 100 R/H or PIC 6A	1 (Note 1)	
_____	Beta-Gamma Monitor-PRM 4 or RM-14	1 (Note 1)	
_____	Self-Reading Pocket Dosimeters, 0-1R	6 (Note 1)	
_____	Thermoluminescent Dosimeters, Body Type	10	
_____	Thermoluminescent Dosimeters, Ring Type	10	
_____	Charger for Self-Reading Dosimeters	1	
_____	Decontamination Table-Top with Stretcher, Side Panels, Hose, 2 each 5 gal containers	1	
_____	Lead Container, high activity samples	1	
_____	Plastic sheets, 4-5 mils	1	
_____	Krylon-floor covering		
_____	Masking tape, 2 inch		
_____	Apron, Plastic	10	
_____	Shoecovers	6 pr.	
_____	Poly Bags (large)	20	
_____	Poly, pail	1	
_____	Signs "Gaution Radiation Area"	4	
_____	Signs "Caution Radioactive Material"	4	
_____	Stickers "Contaminated Material"	10	
_____	Barrier Tape	1 roll	
_____	Disposable Clothing Kit	12	
_____	Suits, plastic	5	
_____	Tongs	1 pair	
_____	Step-off Pads		
_____	Respirators, half-face	3	

(Note 1): Since these instruments are used infrequently, they will be rotated every six (6) months for calibration.

PROCEDURE

Initials	Item	Quantity	Comments
_____	Control Copy #15, Peter Bent Brigham Hospital Procedures for Radioactively Contaminated Patients	1	

Performed by_____

Approved by_____
Chemistry & Health Physics Supervisor

Dept. Supv.		Proc. No.	O.P. 3504
PORC		Rev. No.	14
Plant Mgr.		Issue Date	1/28/82
Mgr. of Ops.		Review Date	1/28/84

EMERGENCY COMMUNICATIONS

Purpose:

To specify the procedures for communicating with various Federal and State authorities, emergency assistance teams, the Brattleboro Hospital, the news media, and other off-site support groups.

Discussion:

The plant staff has available to it various types of communications equipment, which when properly used, allow for effective communications with off-site groups. Basic communications channels are graphically illustrated in Figure 1, "Emergency Communications Channels."

Required notification of off-site groups is accomplished as
* outlined in the Unusual Event, Alert, Site Area and General Emergency Procedures. Notification is the responsibility of the Plant Emergency Director, with assistance from Operations Department personnel
* in the Control Room or the EOF Coordinator, when so requested. Responses from those off-site groups notified or other off-site
* groups who may become involved is channeled through the EOF Coordinator; the basic philosophy being to minimize outside distractions to the Plant Emergency Director so he can devote full attention toward regaining control of the plant emergency situation.

* During an Alert, Site Area or a General Emergency, a Communi-
* cations Assistant assists the EOF Coordinator by handling all incoming and outgoing telephone, Gai-tronics and radio messages. A log of each incoming message and appropriate reply is recorded on a three part Message Form (Figure 2), Part 3 of which is retained by the Communications Assistant as a record of the completed communication. The date and time of message receipt and reply is noted on the form by the Communications Assistant. These three part message forms are also used at the Technical Support Center, the
* Operations Support Center, and the Recovery Center.

The following appendix is attached for guidance in the use and operation of emergency communications equipment:

Appendix A - Communications Phone List

The following form is attached and is used for logging times and events during the emergency:

VYOPF 3504.01 Emergency Monitoring Log

The following figures and table are attached:

Figure I Emergency Communication Channels
Figure II Message Form
Table 1 Pager Assignments

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. None

C. Other

1. VYNPS Emergency Plan
2. ERDA Emergency Radiological Assistance Agreement
3. Vermont Radiological Incident Plan and Agreement
4. New England Interstate Radiation Incident Plan
5. Yankee Mutual Assistance
6. Radiation Accident Plan and Agreement - Brattleboro Hospital

Prerequisites:

1. None

Procedure:

A. Use of the Nuclear Alert System for initial notification and as a continuing communications link to off-site agencies.

1. After verification and subsequent classification of an emergency, it is necessary to notify the state police agencies of Vermont, New Hampshire and Massachusetts.

2. The Nuclear Alert System orange phone is located in the Control Room under forward center console.

3. For initial notification of the three state police agencies, remove the receiver and key punch number 111.

NOTE: This number simultaneously activates the ringing mechanism at the three state police agencies. The ringing will not cease until the affected phone is answered. No audible ringing will be heard when making a call.

4. When all three state police agencies have acknowledged, then announce the type and extent of the emergency as per the appropriate emergency procedure, [redacted] and [redacted]

5. To utilize the Nuc ear Alert System for follow-up calls to various state agencies and Yankee Rowe and Yankee Atomic in Framingham, refer to the Nuclear Alert System Station Numbers List, Table 2 and key punch the desired number.

B. Use of the Bell Telephone to contact the State Police

NOTE: In case the Nuclear Alert System is not working, the Bell System can be used to contact the state police of the three states. See Appendix A for phone numbers.

1. Verify that an emergency condition exists necessitating notification of the State Police of all three states. Notify first, the state most directly involved.

2. Call the Vermont State Police (See Appendix A).

   a. Report state of emergency as indicated in A.4 above.

3. Call the Massachusetts State Police (See Appendix A).

   a. Report state of emergency as indicated in A.4 above.

4. Call the New Hampshire State Police (See Appendix A).

   a. Report state of emergency as indicated in A.4 above.

5. Expect that the State Police of the three states will return the call to authenticate the emergency situation.

C. Use of Utility Microwave

1. To call VELCO or REMVEC (Velco dispatcher notifies Rutland office of emergency conditions).

   a. On one of the two Bell Call Directors, push the button marked "VELCO or REMVEC."

   b. Pick up the phone - it will ring automatically at VELCO or REMVEC.

2. To call any other po'nt in the Microwave System:

   a. Look up the number you want to call in the Microwave Directory.

b. On any Bell phone in the plant, select an unoccupied extension.

c. Dial the Microwave Access Code [redacted].

d. Dial the number you wish to call.

D. Use of Tri-State and Southwest Mutual Fire Assistance Radio

1. On the Plectron control unit (located under the computer console), depress microphone switch and establish radio contact as follows:

"(Posted SW Mutual call sign) and (Posted Tri-State call sign), this is (posted VY call sign). Over."

* 2. Give message and make certain message is properly acknowledged.

E. Use of Emergency Utility Radio

NOTE: This radio is mounted at the base of the 150 ft. "old" Weather Tower and can be used to contact REMVEC and VELCO in an emergency. The handset and control for the radio are in the Control Room with an auxiliary handset at the radio.

1. Ascertain that the Microwave is out of service.

2. Pick up the Radio Handset (located under the computer console) and call REMVEC using the call letters written on the card under the handset in the following manner:

THIS IS VERMONT YANKEE ([redacted]) CALLING WESTBORO (WDF 83)
OVER

NOTE: There is no need to use the call letters again during the conversation until you sign off.

F. Use of Special NRC Phones

* 1. Use of NRC Emergency Notification System Red Phone

a. Pick up phone and identify nature of the call as per O.P. [redacted]

b. Do not hang up phone unless allowed to do so by NRC representative.

* NOTE: Refer to manual provided with each red phone
* for more detailed instructions.

2. Use of NRC Health Physics Network (Blue) Phones

a. Lift telephone receiver.

b. Dial desired number.

NOTE: No dial tone is present in this system. Refer to manual provided with each blue phone for phone numbers and more detailed instructions.

c. No audible ringing will be heard when making a call. Therefore, wait for 30 seconds and then repeat Step b. This will reactivate the desired phone.

G. Use of Mobile UHF Radio System

NOTE:

1. This system is utilized by all emergency teams and consists of a 100 watt UHF MASTR II (repeater) with its high gain antenna mounted on top of the 150 foot "Old" Met Tower and a 75 watt UHF MICOR COMPA (repeater) with its high gain antenna mounted on top of the 330 foot "New" Met tower. These repeaters are
* actuated by six remote controllers located in the Control Room, Gates 1 & 2, the Secondary Alarm Station (SAS), the Gov. Hunt House, and
* the T.S.C. Communications Room. Twenty-eight Portable units actuate the 100 watt repeater on the F1 position of the frequency switch. Twenty-eight portable units also actuate the 75 watt repeater when their unit is in the F3 position of the frequency switch. <u>All emergency teams will utilize the F3 position of the frequency switch.</u> Within approximately 5 miles of the plant, the only known "Dead Spot" under this maximum range of operation is midway between Guilford and Route 142 on Broad Brook Road near the Brattleboro-Vernon town line.

2. In the event the F3 position repeater fails, switch to the position F1 of the frequency switch. In the event both repeaters for channels F1 and F3 fail, a "talk around" (the repeaters) feature allows continued communications between portable units at 4 watts output when their frequency selector switch is in the position F2.

3. During a Site Area or General Emergency all portable radios are issued at the outer gatehouse to emergency teams requiring their use. During an Alert, radios are issued from the inner gatehouse, if needed.

4. Portable radios are NOT to be used behind the Control Room panels or in the vicinity of the EPR panel near the head of the stairs to the Feed Pump Room.

5. In the event that messages of a routine nature are occupying the radio channel and it is necessary to transmit an urgent message, depress the microphone button and announce "Break, Break, Break - Urgent Message." When the channel is cleared of traffic, proceed with the urgent message.

1. Remote Controllers

a. Insure unit is ON.

b. Depress microphone switch when transmitting; release for receiving.

c. Initiate call by saying "This is [redacted] (unit calling) to (unit called). Over".

NOTE: Unit designations used during conversation are as follows:

Base or Mobile Unit	Unit Designator (or "handle")
Control Room	Control Room
Emergency Operations Facility	Coordinator Base
* T.S.C. Communications Room	T.S.C. Base
Security - Gate 1	Outer Gate
Security - Gate 2	Inner Gate
Security - Secondary Alarm Station	SAS
On-Site Assistance 1,2, etc.	Red, 1, 2, etc.
Site Boundary	Yellow Team
Off-Site Monitoring 1	Green Team
Off-Site Monitoring 2	Blue Team

NOTE: Memory hint - Red (a "hot" color) closest to source, to blue (a "cool" color) furthest from source of emergency.

d. When acknowledged, carry out conversation.

e. The party completing the conversation should end with "This is [redacted], Clear".

NOTE: If a drill, state "This is a drill."

2. Portable Units

a. Rotate the portable radio volume control one-half turn clockwise to turn ON the radio.

b. Place the Squelch Switch in its OFF position (☐).

c. Rotate the radio squelch control to the maximum Counterclockwise position and set radio volume control to a comfortable listening level.

d. When the channel is clear, slowly rotate the squelch control Clockwise until the noise stops (squelches).

e. Set the Frequency Select Switch on the radio to the desired channel for monitoring.

f. Place the Squelch Switch in the ON position (☒) after monitoring.

g. To transmit, hold the push to talk switch depressed and speak normally across the radio with lips about 6 inches from the grille.

3. Vehicle Communications - MT 500 Radio Converta-COM Console

The Converta-Com Consoles are mounted in the two company station wagons, the company sedan, the Maintenance Department pick-up truck, the Stores Department stake body truck, and the Security vehicle. The Converta-Com Console improves range and performance of the portable radios. When a portable radio is inserted into the console, automatic connection is made to an external mobile antenna, console mounted weatherproof mobile microphone, and an external speaker. The console contains separate lights to indicate transmit and battery charge as well as a light for night operation. The vehicle ignition switch must be ON to permit the radio to transmit or receive and for the battery charging circuitry to operate. To ensure proper use of the MT 500 Radio Converta-Com Console the following operating procedure should be used.

a. Install the Radio in the Console

1) Place the portable radio in the console pocket so the radio speaker grille faces the bottom of the console.

2) Push the radio until it latches (top of the radio about flush with the face of the console).

3) Turn the key clockwise to lock the radio in the pocket.

4) The key may be removed from the lock when in its locked or unlocked position.

b. Turning On, Setting Volume, Setting Sqelch, Monitoring

1) Rotate the portable radio volume control one-half turn clockwise to turn ON the radio. This also turns on the night light which illuminates the radio controls. The night light is also turned on when the ignition switch is turned on.

2) Place the Squelch Switch in its OFF position (☐).

3) Rotate the radio squelch control to the maximum Counterclockwise position and set volume of Console volume control to a comfortable listening level.

4) When the channel is clear, slowly rotate the squelch control Clockwise until the noise stops (squelches).

5) Set the frequency Selector Switch on the radio to the desired channel for monitoring.

6) Place the squelch switch in the ON position (☒) after monitoring.

7) To transmit, ensure the ingition switch is on. Hold the push to talk witch depressed (on the microphone) and speak normally across the microphone with lips about two inches from the grille.

NOTE: The red transmitter indicator glows when the transmitter is on the air.

c. Removing Radio When Leaving Vehicle

1) Turn the key Counterclockwise to unlock the radio and while still holding the key, push the key lock barrel. The radio will spring forward for easy removal. Pull the radio gently out of the console.

H. Use of Three-Part Message and Reply Form (Figure 2)

1. All incoming and outgoing communications at the emergency centers are handled by a communications assistant. Each center is supplied with blank three part forms (Figure 2).

2. Incoming messages are logged (with time noted) on a blank form with a writing instrument capable of making clear copies.

3. If a reply is required, the assistant retains Part 2 (yellow copy) as a "tickler" to insure a reply is made within a reasonable period, or in a timely manner. "Urgent" messages should be so designated in the upper left corner under "To".

4. Parts 1 and 3 are dispatched to the appropriate center coordinator for reply.

5. All replies are briefly written in the Reply section by the person assigned to make the reply and are returned to the center coordinator for his information and concurrence.

6. The center coordinator retains Part 3 (pink copy) for logging and/or future reference, and returns Part 1 (original) to the communications assistant for dispatching the reply.

7. Upon completion, the communications assistant retains the Original (white copy) as the Communications Log copy and discards the related Part 2 (yellow) "tickler" copy.

I. Dedicated GAI-Tronics

1. During an Unusual Event, Alert, Site Area, or General Emergency, Channel 4 of GAI-Tronics is reserved for use by three parties: Control Room, Emergency Operations Facility, and the Technical Support Center.

J. Personnel Paging Systems

1. Vermont Yankee Personnel

a. Dial one of the following numbers:

[redacted]

b. To initiate a group page:

1) State name and location
2) Request the initiation of a group page for VY pagers
3) Give the message that should be passed to the paged individuals

c. To initiate a single person page:

1) State name and location
2) State individual(s) name (Table 1) and,
3) Give message that should be passed to the paged individual

2. YNSD Personnel

a. Dial the following number: [redacted]

b. The ZIP-CALL operator will answer

c. Ask for pager [redacted] to be activated.

d. Repeat Steps a, b, and c approximately 15 minutes after the initial call to assure that all YNSD personnel have been reached.

* K. Utilization of Alternative Communications Links in the Event of Failure of the Bell Telephone System

NOTE: Failure of the Bell Telephone System Link jeopardizes use of the Special NRC phones (ENS and Health Physics Network).

1. Verify the failure of the Bell Telephone System link and the NRC Emergency Notification System red phone and for the NRC Health Physics Network blue phone.

2. Contact REMVEC via the dedicated microwave line from the Control Room, advise them of the nature of the failure, advise REMVEC that they will be utilized as a phone patch for NRC/Vermont Yankee communications and request them to patch into the NRC Region I Operations Center (See Appendix A).

3. When contact has been established with the NRC Operations Center, advise the NRC representative of the failure of the specific system and request the NRC Representative to utilize the REMVEC phone patch capability for further communications with the plant site.

NOTE: Advise the NRC Operations Center representative of the REMVEC number (See Appendix A).

4. The Yankee Atomic Electric Company's main switchboard at Framingham may also be accessed via microwave by dialing (See Appendix A).

NOTE: This link may be utilized in the same fashion as the REMVEC System described in Steps 1 through 3. However, the Framingham switchboard is activated weekdays from 0800 to 1700 whereas the REMVEC System is available continuously. *

Final Conditions:

1. None

SPS/emr

APPENDIX A

COMMUNICATIONS PHONE LIST

		TELEPHONE NUMBER
	Manager of Operations - W. Brattleboro (normal hours)	Ext. [redacted]
	(nonwork hours)	[redacted]
*	ERD Radiological Assistance Brookhaven Lab.	[redacted]
	NRC, Region I	215-337-5000
	NRC Operations Center (Bethesda Central Office)	301-492-8111
	NRC Operations Center (Silver Spring Central Office)	301-427-4056
	NRC Operator (Bethesda Central Office)	301-492-7000
*	Yankee Atomic Electric Company (activates pagers)	[redacted]
	Brattleboro Memorial Hospital (ask for Emergency Room)	802-257-0341
	Vermont State Police	802-828-2115 (2117 alt.)
	Vermont Dept. of Health	802-828-2886, 7 or 8
	Massachusetts State Police	617-566-4500
	New Hampshire State Police	603-271-3636
	VELCO Dispatcher (Rutland Office notification)	[redacted]
	REMVEC	[redacted]
	Rescue, Inc.	[redacted]
	INPO	[redacted]
*	American Nuclear Insurers (ANI)	[redacted]
	Peter Bent Brigham Hospital (PBBH)	
	a. Referral of patients (call both in given order)	
*	Emergency Room Head Nurse	[redacted]
	PBBH Switchboard	[redacted]

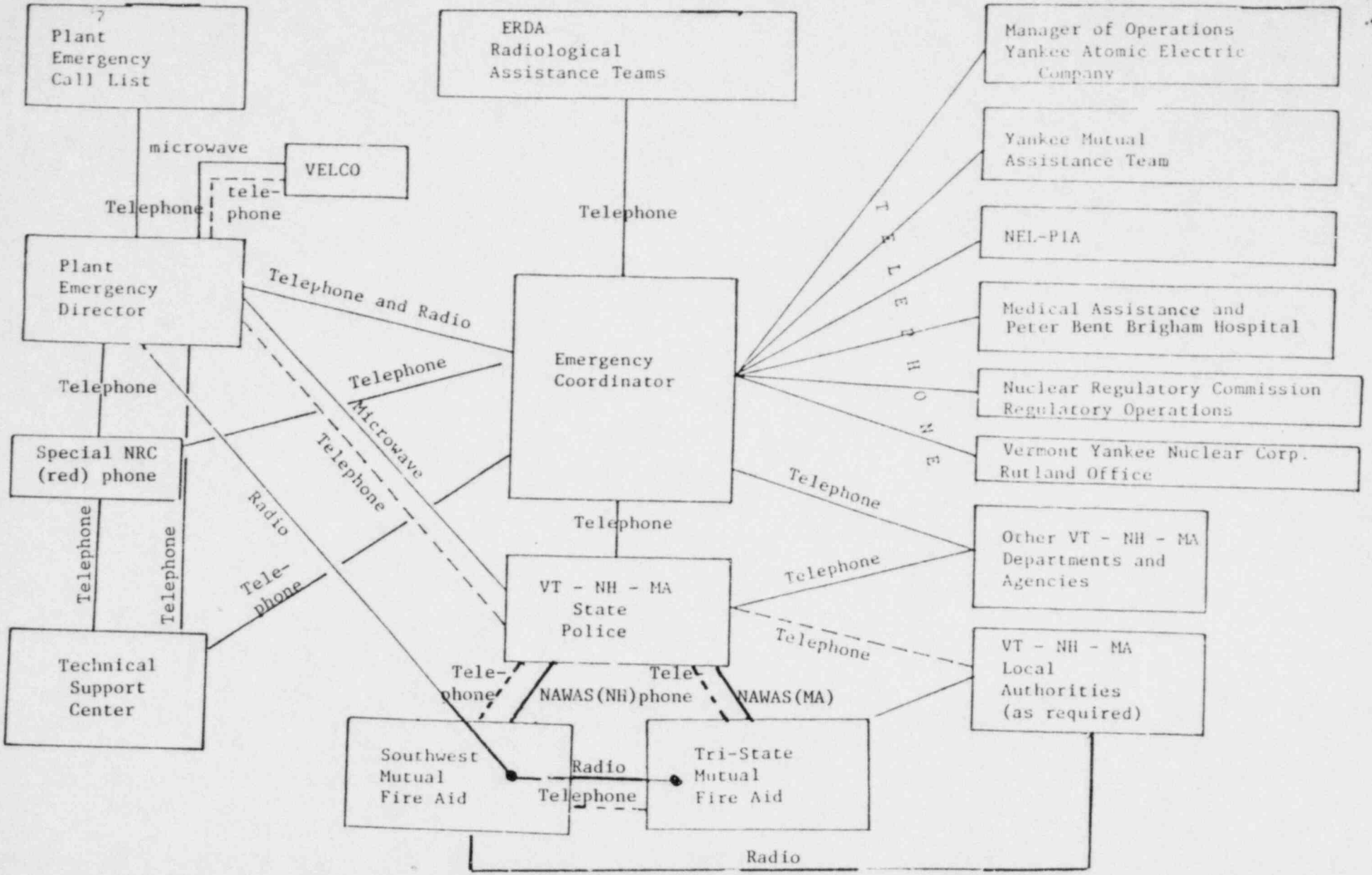
APPENDIX A (Continued)

		TELEPHONE NUMBER
	b. Consultation:	
	Dr. Drum, Radiation Safety Officer	617-732-2184 (office)
*		[redacted] (home)
	Staff Physician, Nuclear Medicine	617-732-6215 (via pager)
	Dr. Mettler, University of New Mexico	505-277-2161 (office)
		[redacted] (home)
	Tri-State Mutual Fire Aid	413-774-4321
	Southwest Mutual Fire Aid	603-352-1100
	U.S. Weather Bureau (Burlington, VT) Forecasts	802-862-9883
	Vernon Hydro Station	[redacted]
*	Yankee Atomic Electric Company, Framingham, MA	[redacted] (via microwave)
*	(Main Switchboard)	[redacted] (Bell Tel.)

SHEET NO._____

EMERGENCY MONITORING LOG

Date	Time	Entry	Initials



O.P. 3504, Figure 1
Rev. 14

EMERGENCY COMMUNICATION CHANNELS

SAVE TIME AND MONEY — USE THIS REPLY MESSAGE FORM

TO _____ FROM _____

_____

_____

SUBJECT _____

Message _____

DATE SIGNED

Reply _____

DATE SIGNED

67-RM2

RETURN THIS COPY TO SENDER

SEND PARTS 1 AND 3 WITH CARBONS INTACT - KEEP PART 2 FOR FOLLOW-UP

O.P. 3504, Figure 2
Rev. 14

Table 1

PAGER ASSIGNMENTS

	Title	Name	Home Phone
*	President	William F. Conway	[redacted]*
	Manager of Operations	Earl W. Jackson	[redacted]
	Plant Manager	Warren P. Murphy	[redacted]
	Asst. Plant Manager	James P. Pelletier	[redacted]
	Eng. Support Supervisor	Donald A. Reid	[redacted]
	Operations Supt.	Michael D. Lyster	[redacted]
	Tech. Service Supt.	Stanley J. Jefferson	[redacted]
	Chemistry & HP Supv.	G. Dean Weyman	[redacted]
	Instr. & Control Supv.	Patrick J. [illegible]nelly	[redacted]
	Maintenance Supervisor	William L. Wittmer	[redacted]
	Communications Director	Steven F. Stoll	[redacted]
	Operations Supervisor	Richard L. Branch	[redacted]
	Asst. Operations Supv.	Barry W. Metcalf	[redacted]
	Training Supervisor	Edwin W. Bowles	[redacted]
	React. & Computer Supv.	Bernard R. Buteau	[redacted]
	Nuclear Safety Engineer		
*	Operations Support Manager	Richard W. Burke	[redacted]

*Unlisted

TABLE 2

NUCLEAR ALERT STATION NUMBERS

STATION	INDIVIDUAL NUMBERS
CONTROL ROOMS	
Yankee Rowe	[redacted]
Vermont Yankee	
EMERGENCY OPERATING CENTERS	
Belchertown, MA	[redacted]
Brattleboro, VT	
Concord, NH	
Framingham, MA	
Keene, NH	
Montpelier, VT	
EMERGENCY OPERATION FACILITIES	
Furlon House (Yankee Rowe)	[redacted]
Governor Hunt House (Vermont Yankee)	
Shelburne Falls (Yankee Rowe - Alternate)	
W. Brattleboro Office (Vermont Yankee - Alternate)	
STATE POLICE	
Massachusetts State Police	[redacted]
New Hampshire State Police	
Vermont State Police	
New Hampshire State Police (Radio Room)	
MISCELLANEOUS	
Engineering Support Center (Framingham)	[redacted]
Gate House (Yankee Rowe)	
NEPSCO Mux Room	

STATION	GROUP NUMBER
Control Room (VY)	[redacted]
State Police (MA)	
State Police (NH)	
State Police (VT)	
Control Room (YR)	[redacted]
State Police (MA)	
State Police (NH)	
State Police (VT)	
Emergency Operations Facility (VY)	[redacted]
Emergency Operations Facility (Alt. - VY)	
Emergency Operating Center (MA)	
Emergency Operating Center (NH)	
Emergency Operating Center (VT)	
Emergency Operations Facility (YR)	[redacted]
Emergency Operations Facility (Alt. - YR)	
Emergency Operating Center (MA)	
Emergency Operating Center	