VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261
April 26, 2000

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555-0001

Serial No. 00-236
SS&L/BAG R0
Docket No. 50-280
50-281
License No. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
REVISIONS TO EMERGENCY PLAN IMPLEMENTING PROCEDURES

Pursuant to 10 CFR 50.54(q), enclosed are revisions to four Surry Power Station Emergency Plan Implementing Procedures. The revisions do not implement actions which decrease the effectiveness of our Emergency Plan. The Emergency Plan and Implementing Procedures continue to meet the standards of 10 CFR 50.47(b). Please update your manual by performing the actions described in the enclosed tabulation of changes.

Very truly yours,

E. S. Grecheck, Site Vice President
Surry Power Station

Enclosure

Commitments contained in this letter: None.

cc: U. S. Nuclear Regulatory Commission (2 copies)
Region II
Atlanta Federal Center
61 Forsyth Street S.W., Suite 23 T85
Atlanta, Georgia 30303-8931

Mr. R. A. Musser
NRC Senior Resident Inspector
Surry Power Station

A045

Serial No. 00-236
Surry EPIP Revisions

VIRGINIA ELECTRIC AND POWER COMPANY
REVISION TO SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

Enclosed are revisions to Surry Power Station Emergency Plan Implementing Procedures. Please take the following actions in order to keep your manual updated with the most recent revisions.

REMOVE AND DESTROY:	EFFECTIVE DATE:	INSERT:	EFFECTIVE DATE:
EPIP-3.05, Rev. 0	03/31/99	EPIP-3.05, Rev. 1	04/19/00
EPIP-4.01, Rev. 15	07/01/96	EPIP-4.01, Rev. 16	04/19/00
EPIP-4.03, Rev. 9	03/14/96	EPIP-4.03, Rev. 10	04/19/00
EPIP-4.34, Rev. 3	04/25/96	EPIP-4.34, Rev. 4	04/19/00

Emergency Plan Privacy and Proprietary Material have been removed.
Reference Generic Letter No. 81-27

VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-3.05	AUGMENTATION OF EMERGENCY RESPONSE ORGANIZATION (With No Attachments)	1
		PAGE 1 of 5

PURPOSE

Provide guidance for notifying the augmentation emergency response organization (ERO).

ENTRY CONDITIONS

Any one of the following:

1. Declaration of an Alert, Site Area Emergency or General Emergency.
2. Direction of the Station Emergency Manager through the on-duty Security Team Leader.

Approvals on File

Effective Date 04|19|00

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 1 INITIATE PROCEDURE:

- By: _____

  Date: _____

  Time: _____

_____ 2 USE INSTRUCTIONS IN SEALED ENVELOPE TO ACTIVATE SURRY AND INNSBROOK GROUP PAGERS

_____ 3 USE INSTRUCTIONS IN SEALED ENVELOPE TO DIRECT COMMUNITY ALERT NETWORK (CAN) TO IMPLEMENT NOTIFICATION

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 4	CHECK CAN - ABLE TO PERFORM AUGMENTATION NOTIFICATION	IF CAN NOT able to perform augmentation notification, THEN do the following: a) Notify Innsbrook Security. b) Call ((804) (Network) (Public)) c) Provide the following information: 1) Title/Name 2) Location 3) Emergency classification 4) Indicate results of pager activation attempts: • Surry Group Pager • Innsbrook Group Pager d) Direct Innsbrook Security to initiate back-up ERO augmentation notification IAW CPIP-3.4, INNSBROOK SECURITY SUPPORT. e) GO TO Step 6.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 5 NOTIFY INNSBROOK SECURITY:

a) Call (Network)
(Public))

b) Provide the following information:

1) Title/Name

2) Location

3) Emergency classification

_____ 6 NOTIFY PERSONNEL IN ADMINISTRATIVE BUILDING:

a) Call Administrative Building Public Address system access number

b) Read the following announcement (insert event classification in blank space):

> This is an emergency message. A(n) _____ has been declared. All emergency response personnel report to your assigned stations. All departments send representatives to the cafeteria for plant status updates.

_____ 7 INITIATE GENERAL ORDER #15 (REMOTE AREA EMERGENCY NOTIFICATIONS)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 8 TERMINATE EPIP-3.05:

- Give completed EPIP-3.05, forms and other applicable records to Security Team Leader
- Completed by: _____

  Date: _____

  Time: _____

-END-

VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.01	RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE (With 1 Attachment)	16
		PAGE 1 of 30

PURPOSE

To initially assess emergency conditions, provide protective measures recommendations, establish an emergency organization and direct Health Physics response to an emergency.

ENTRY CONDITIONS

Activation by EPIP-1.01, EMERGENCY MANAGER CONTROLLING PROCEDURE.

Approvals on File

Effective Date 04/19/00

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 1 INITIATE PROCEDURE:

- By: _____

Date: _____

Time: _____

NOTE:
- During the initial stages of an emergency, the Operations Shift Supervisor may assume the Station Emergency Manager (SEM) position and the HP Shift Supervisor may assume the Radiological Assessment Director (RAD) position. The RAD may report to the Control Room if the TSC is not activated.
- Notification of an Alert or higher emergency classification is normally made via Gai-Tronics. The SEM normally informs the RAD of a Notification of Unusual Event declaration via telephone.

_____ 2 ASK SEM FOR BRIEFING:

- Existing plant conditions
- Emergency Action Levels (EALs) exceeded
- Emergency Classification

_____ 3 CHECK IF OFFSITE RELEASE - IS OCCURRING OR HAS OCCURRED

GO TO Step 5.

_____ 4 DIRECT INITIATION OF EPIP-4.30, USE OF MIDAS CLASS A MODEL

IF MIDAS NOT available, THEN evaluate release using desk-top calculations:

- EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT
- EPIP-4.09, SOURCE TERM ASSESSMENT
- EPIP-4.10, DETERMINATION OF X/Q

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 5	CHECK EMERGENCY CLASSIFICATION - NOTIFICATION OF UNUSUAL EVENT	GO TO Step 7.
_____ 6	CHECK HP SUPPORT - REQUIRED	IF HP support NOT immediately required, THEN standby to provide support AND GO TO Step 7 when support is required OR WHEN emergency is terminated, THEN GO TO Step 32.
_____ 7	EVALUATE ASSIGNING EPIP-4.02, RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE	
_____ 8	PROVIDE SUPPORT FOR EMERGENCY OPERATING PROCEDURE (EOP) AND ACCIDENT MITIGATION TASK ACTIVITIES, AS NECESSARY: a) Notify RPS when an EOP or Accident Mitigation Task is planned or in progress b) Make sure priority is given to expediting EOP and Accident Mitigation Task activities	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 9 CHECK EVENT - LIMITING FAULT: GO TO Step 14.

- LOCA - GO TO NOTE prior to Step 10
- Main Steam Line Rupture - GO TO NOTE prior to Step 11
- Steam Generator Tube Rupture - GO TO Step 12
- Fuel Handling Accident - GO TO NOTE prior to Step 13

NOTE: A LOCA may not initially result in a large release, but may produce a large potential for release from containment.

_____ 10 INITIATE RESPONSE TO LOCA:

a) Ask SEM to evacuate Auxiliary Building and Safeguards

b) Block entry until surveys confirm radiological hazards

c) Evaluate manpower support for Post Accident Containment Air or Reactor Coolant sampling

d) Determine crane wall radiation monitor reading

e) GO TO Step 14

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: Potential releases from a Main Steam Line Rupture may develop from Containment, Main Steam Safety or AFWPT exhaust.

_____ 11 INITIATE RESPONSE TO MAIN STEAM LINE RUPTURE:

a) Check station ventilation effluent monitors

b) Ask SEM for the following data:

- Location of steam break
- Status of actual or potential Main Steam Safety Valve lift
- Number valves lifted: _____
- Length of time valves remained open (if lifted):_____(min.)
- AFWPT status
- Main Steam and AFWPT exhaust monitor readings
- Assistance in flow rate (lbs/hr) determination

c) GO TO Step 14

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 12	INITIATE RESPONSE TO STEAM GENERATOR TUBE RUPTURE:	
	a) Ask SEM for the following data: • Status of Air Ejector divert • Number of Main Steam Relief Valves lifted or that may potentially lift:_____ • Length of time valves remained open (if lifted):_____ min. • Assistance in flow rate (lbs/hr) determination • Status of Main Steam supply to AFWPT • Steam Generator Blowdown status	
	b) Check steam supply to AFWPT - ISOLATED	b) IF steam supply to AFWPT NOT isolated, THEN ask SEM to initiate isolation.
	c) Ask SEM place personnel in Emergency Switchgear Room to report Main Steam and AFWPT exhaust monitor readings	

(STEP 12 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

12 INITIATE RESPONSE TO STEAM GENERATOR TUBE RUPTURE: (Continued)

d) Consider blocking access to the following areas until surveyed:

- Service Building Hallway
- Turbine Deck
- Steam Generator Blowdown Cooler, Turbine Building Basement
- Steam Generator Blowdown lines, Auxiliary Building Basement
- Relief Valves, Safeguards Roof
- AFWPT exhaust, Unit #1 or #2 alleyway
- Condensate Polishing Building

e) Evaluate sampling:

- Steam Generator Blowdowns
- Air Ejectors
- Main Steams

f) GO TO Step 14

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: Analysis of accidents involving decayed spent fuel should include consideration of onsite skin dose due to Kr-85.

_____ 13 INITIATE RESPONSE TO FUEL HANDLING ACCIDENT:

a) Check event - Fuel cask drop or suspected seal leak — a) GO TO Step 13.d.

b) Evaluate the following:

- Access control in affected area
- Neutron monitoring
- Air sampling to confirm fission product release

c) GO TO Step 14

d) Do the following for Fuel Handling Accident in Spent Fuel Pool or Containment:

1) Ask SEM to evacuate all non-essential personnel from Fuel Building and affected Containment

2) Isolate purge of affected Containment

3) Consider potential radiological problems with Reactor Cavity or Spent Fuel Clean-up System

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE:
- Additional manpower may be needed to assist in offsite dose calculations.
- Initial offsite release assessments should be made using EPIP-4.30, USE OF MIDAS CLASS A MODEL, to quickly assess the release and to recommend protective measures.

_____ 14 CHECK EVENT - RADIOLOGICAL RELEASE:

GO TO Step 17.

a) Initiate effluent sampling if manpower permits

a) Use monitor readings for follow-up assessment.

b) Give consideration to initiating EPIP-4.03, DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE

c) Initiate EPIP-4.30, USE OF MIDAS CLASS A MODEL

c) IF MIDAS NOT available, THEN evaluate release using desk-top calculations:
- EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT
- EPIP-4.09, SOURCE TERM ASSESSMENT
- EPIP-4.10, DETERMINATION OF X/Q

d) Consider having RPS prepare for dispatch of Offsite Monitoring Teams:
- Team assembly
- Preparation of equipment and vehicles

e) Direct initiation of 40CFR302 EPA Notification Requirements and Reportable Quantity calculations in accordance with normal HP procedures

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 15 VERIFY EMERGENCY CLASSIFICATION:

a) Check results of offsite release assessment at Site Boundary greater than or equal to the following:

- 50 mR/hr TEDE

OR

- 250 mR/hr Thyroid CDE

a) GO TO Step 16.

b) Get estimate of current or potential release duration (hours) from SEM

b) IF estimate NOT available, THEN assume 2 hours.

c) Calculate projected dose:

Duration (hours) x Dose Rate = Projected Dose

d) Confirm emergency classification:

RESULTS OF CALCULATION	EMERGENCY CLASSIFICATION
Projected dose greater than or equal to 1 Rem TEDE or 5 Rem Thyroid CDE	General Emergency
Projected dose greater than or equal to 0.1 Rem TEDE or 0.5 Rem Thyroid CDE	Site Area Emergency
% Technical Specifications greater than or equal to 1000%	Alert
% Technical Specifications greater than or equal to 100%	Notification of Unusual Event
Below 100% Technical Specifications	N/A

e) Notify SEM of emergency classification

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 16	DETERMINE OFFSITE PROTECTIVE MEASURES FOR GENERAL EMERGENCY CLASSIFICATION:	IF classification NOT a General Emergency, THEN GO TO Step 17.
	a) Use Site Boundary 2, 5 and 10 mile TEDE and Thyroid CDE doses from EPIP-4.30, USE OF MIDAS CLASS A MODEL	a) IF MIDAS NOT available, THEN use dose rates from desk-top calculations: • EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT • EPIP-4.09, SOURCE TERM ASSESSMENT • EPIP-4.10, DETERMINATION OF X/Q
	b) Initiate EPIP-4.07, PROTECTIVE MEASURES	
	c) Make recommendations to SEM that address the following: • Protective measures offsite • Distance protective measures are required	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 17	CHECK LEOF (CEOF) HAS LEAD FOR OFFSITE DOSE ASSESSMENT	Do the following: a) Assure dose assessment result identification number recorded on all pages. b) Record initials on each page to document approval for issuance of results. c) Review offsite release assessment results with SEM. d) Give applicable dose assessment report to State/Local Emergency Communicator: • MIDAS Radiological Status Report (2 pages). • EPIP-4.03, DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE, Attachment 1. e) Provide updated dose assessment results when any of the following occur: • Every 60 minutes during Alert or higher classification. • Within 15 minutes after a classification change. • Change in radiological conditions.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: The following response actions may have to be coordinated by the RAD. These actions are not listed in order of priority.

_____ 18 EVALUATE HP RESPONSE ACTIONS

AND

DETERMINE RESPONSES ON A PRIORITY BASIS:

- Offsite monitoring: GO TO NOTE prior to Step 19
- Injured contaminated personnel: GO TO NOTE prior to Step 20
- Inplant / Onsite radiological assessment: GO TO NOTE prior to Step 21
- TSC activated, establish organization: GO TO Step 22
- Offsite release assessment: GO TO Step 23
- Evacuate non-essential personnel: GO TO Step 24
- Activate LEOF: GO TO Step 25
- Dosimetry for offsite assistance (Fire, rescue squads): GO TO Step 26
- Respiratory Protection: GO TO Step 27
- Relief: GO TO Step 28
- Limiting Fault event (LOCA, Main Steam Line Break, SGTR or Fuel Handling Accident): RETURN TO Step 9
- Radiological release: RETURN TO Step 14

WHEN all necessary response actions addressed, THEN GO TO Step 29.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE:
- A minimum of 2 (two) Offsite Monitoring Teams must be dispatched (i.e., sent into the field) at a Site Area Emergency or General Emergency.
- Plume tracking/offsite monitoring will be the responsibility of the Radiological Assessment Coordinator (RAC) upon LEOF activation.

_____ 19 EVALUATE NEED FOR OFFSITE MONITORING:

a) Consult with Dose Assessment Team Leader:

- Meteorological conditions
- Number of teams needed
- Need for protective clothing
- Projected Whole Body and Thyroid dose rates
- Respiratory protection
- Team location and placement

(STEP 19 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

19 EVALUATE NEED FOR OFFSITE MONITORING: (Continued)

b) Check if TEDE exposure is expected to exceed 5 Rem:

b) GO TO Step 19.c.

- Do calculation using sample results, MIDAS runs or default TEDE/DDE ratio table:

FORMULA:

Exposure time x Dose rate x Ratio TEDE/DDE = Estimated TEDE dose
_____ hours x _____ Rem/hr x _____ Ratio = _____Rem TEDE

TEDE/DDE RATIO TABLE:

ACCIDENT TYPE	RATIO	ACCIDENT TYPE	RATIO
MSLB	49	VCT Rupture	1
SGTR	26	LOCA (Melt, Gap, PC)	3
Fuel Handling	1.5	Locked Rotor	13
WGDT Rupture	1	SRF	1

- Consider placing team further downwind

- Consider initiation of EPIP-4.04, EMERGENCY PERSONNEL RADIATION EXPOSURE

(STEP 19 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

19 EVALUATE NEED FOR OFFSITE MONITORING: (Continued)

c) Check if Thyroid CDE expected to exceed 25 Rem:

c) GO TO Step 19.d.

1) Do calculation using concentration (µCi/cc) based on survey results and actual or projected exposure duration (hours):

_____µCi/cc x 1.57E+6 x _____hours = _____Rem THY CDE

2) Ask SEM for approval to administer radioprotective drugs

3) Consider initiation of EPIP-5.07, ADMINISTRATION OF RADIOPROTECTIVE DRUGS

d) Notify RPS of resource and equipment requirements:

- Number teams required
- Protective clothing required
- Respiratory protection required
- Have teams assemble equipment and vehicles

AND

Have teams notify TSC via radio prior to dispatch

e) RETURN TO Step 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: First aid considerations must be given priority over decontamination efforts.

_____ 20 INITIATE RESPONSE TO CONTAMINATED INJURED INDIVIDUAL:

a) Determine the following information:

- Offsite medical treatment - REQUIRED
- Contamination survey confirms personnel contamination
- Clothing removal cannot be used to clear individual

b) Check data indicates need to transport contaminated personnel to hospital

b) RETURN TO Step 18.

c) Have RPS direct initiation of normal HP procedures for response to contaminated injured personnel

d) Have HP representative accompany victim

e) RETURN TO Step 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: Inplant/Onsite monitoring teams shall be used to assess radiological conditions within the site boundary and to accompany Damage Control, Sample Analysis and Post Accident Sample Teams.

_____ 21 INITIATE INPLANT/ONSITE RADIOLOGICAL ASSESSMENT:

a) Consult with RPS:

- Plant conditions
- Equipment failure
- Elevated radiation monitor readings
- Radiological release points, plume direction and affected areas
- Access control points established
- Recent survey results

b) Help RPS select the following:

- Monitoring and sample locations
- Protective clothing and respiratory protection
- Dosimetry and monitoring devices

(STEP 21 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

21 INITIATE INPLANT/ONSITE RADIOLOGICAL ASSESSMENT: (Continued)

c) Check if survey results (µCi/cc) and exposure time indicate exposure greater than 25 Rem Thyroid CDE:

c) GO TO Step 21.d.

1) Do calculation:

_____µCi/cc x 1.57E+6 x _____hours = _____Rem THY CDE

2) Consider use of SCBA

3) Ask SEM for approval to administer radioprotective drugs

4) Initiate EPIP-5.07, ADMINISTRATION OF RADIOPROTECTIVE DRUGS

5) Get supply of drugs from TSC closet

(STEP 21 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

21 INITIATE INPLANT/ONSITE RADIOLOGICAL ASSESSMENT: (Continued)

d) Check if projected TEDE exposure exceeds 5 Rem:

d) GO TO Step 21.e.

- Do calculation using sample results, MIDAS runs or default TEDE/DDE ratio table:

FORMULA:

Exposure time x Dose rate x Ratio TEDE/DDE = Estimated TEDE dose
_____ hours x _____ Rem/hr x _____ Ratio = _____Rem TEDE

TEDE/DDE RATIO TABLE:

ACCIDENT TYPE	RATIO	ACCIDENT TYPE	RATIO
MSLB	49	VCT Rupture	1
SGTR	26	LOCA (Melt, Gap, PC)	3
Fuel Handling	1.5	Locked Rotor	13
WGDT Rupture	1	SRF	1

- Initiate EPIP-4.04, EMERGENCY PERSONNEL RADIATION EXPOSURE

e) Check if entry required to monitor Damage Control Teams:

e) GO TO Step 21.f.

- Brief RPS on planned activity
- Verify team briefing prior to dispatch

(STEP 21 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	INITIATE INPLANT/ONSITE RADIOLOGICAL ASSESSMENT: (Continued)	
	f) Determine if radiological conditions require monitoring of emergency response facilities: • Have RPS initiate EPIP-4.17, MONITORING OF EMERGENCY RESPONSE FACILITIES • Have RPS initiate EPIP-4.18, MONITORING OF LEOF	f) GO TO Step 21.g.
	g) WHEN Post Accident Primary Coolant or Containment Air sample requested, THEN do the following: 1) Determine system to be used: • Normal sampling systems OR • Post Accident Sampling System (results may take up to 3 hours) 2) Notify RPS of preferred sampling system 3) Ask RPS to support Post Accident sampling	g) GO TO Step 21.h.

(STEP 21 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21	INITIATE INPLANT/ONSITE RADIOLOGICAL ASSESSMENT: (Continued)	
	h) WHEN radiological release and plume direction changes or release increases, THEN do the following: • Notify RPS • Consider need for re-surveys • Direst establishment of new access control points based on revised survey data	h) RETURN TO Step 18.
	i) RETURN TO Step 18	
_____ 22	ESTABLISH EMERGENCY ORGANIZATION:	
	a) Establish Dose Assessment Team: • Assign one team leader and two team members • Assign EPIP-4.03, DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE	
	b) Establish Radiation Protection Supervisor position AND Assign EPIP-4.02, RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE	
	c) RETURN TO Step 18	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 23	REVIEW OFFSITE RELEASE ASSESSMENTS:	
	a) Check radiological monitoring and meteorological parameters available to Dose Assessment Team from ERFCS (MIDAS imports ERFCS automatically)	a) IF parameters NOT available from ERFCS, THEN give completed copy of Attachment 1 to Dose Assessment Team.
	b) Review offsite release assessments	b) RETURN TO Step 18.
	c) RETURN TO Step 15	
_____ 24	EVALUATE NEED TO EVACUATE/SHELTER NON-ESSENTIAL PERSONNEL:	
	a) Determine onsite exposure of non-essential personnel:	
	1) Review plant surveys and samples	
	2) Calculate iodine dose commitment using radioiodine concentration (µCi/cc) based on air sample data and actual or projected exposure duration (hours):	
	_____µCi/cc x 1.57E+6 x _____hours = _____Rem THY CDE	

(STEP 24 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
24	EVALUATE NEED TO EVACUATE/SHELTER NON-ESSENTIAL PERSONNEL: (Continued)	
	b) Check if results indicate onsite exposure of non-essential personnel greater than 1 Rem TEDE or 5 Rem Thyroid CDE	b) Do one of the following: • IF onsite exposure for non-essential personnel greater than or equal to 0.5 Rem TEDE or 1 Rem Thyroid CDE, THEN recommend sheltering AND GO TO Step 24.d OR • IF onsite exposure for non-essential personnel less than 0.5 Rem TEDE or 1 Rem Thyroid CDE, THEN GO TO Step 24.d
	c) Make recommendation to SEM for evacuation of non-essential personnel	
	d) Consider early release of personnel upon Alert if plant conditions appear to degrade	
	e) Do the following if non-essential personnel are to be evacuated: • Review offsite release assessments • Check direction of plume • Determine appropriate evacuation route and remote assembly area	e) RETURN TO Step 18.

(STEP 24 CONTINUED ON NEXT PAGE)

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

24 EVALUATE NEED TO EVACUATE/SHELTER NON-ESSENTIAL PERSONNEL: (Continued)

f) Have RPS assign EPIP-4.21, EVACUATION AND REMOTE ASSEMBLY AREA MONITORING

g) Have RPS do the following:

1) Tell survey team to notify TSC when departing from station and arriving at Remote Assembly Area

2) Dispatch Remote Assembly Area monitoring team

h) Notify SEM of Emergency Assembly Area monitoring status

i) RETURN TO Step 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 25 INITIATE LEOF ACTIVATION:

a) Give information to Radiological Assessment Coordinator:

- Existing plant conditions
- Current offsite dose projections
- HP actions underway

b) Have Dose Assessment Team Leader brief Radiological Assessment Coordinator:

- Status and location of Offsite Monitoring Teams
- Meteorological data
- Radiation Monitoring System data
- Sample analysis data

c) Have RPS assign EPIP-4.18, MONITORING OF LEOF

d) RETURN TO Step 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 26 HAVE DOSIMETRY ISSUED TO OFFSITE RESPONDERS:

a) Consult with RPS:

- Arrival time of offsite support (fire, rescue squads)
- Dosimetry requirements

b) Ask RPS to consider having individual meet fire or rescue squad prior to entry onsite in order to supply dosimetry

c) RETURN TO Step 18

_____ 27 EVALUATE RESPIRATORY PROTECTION REQUIREMENTS:

a) Assess results of air sample analyses

b) Recommend relocation of non-essential personnel from areas where high airborne activity is expected or airborne activity > 0.30 DAC

c) Initiate EPIP-4.05, RESPIRATORY PROTECTION

d) RETURN TO Step 18

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 28	GIVE TURNOVER TO RELIEF: a) <u>WHEN</u> a more senior HP individual arrives onsite <u>OR</u> <u>WHEN</u> relief is needed, <u>THEN</u> brief successor: • Existing plant conditions • Emergency Classification • Offsite release assessments • HP actions underway b) Notify SEM of change in position c) Stay with relief for about 30 minutes to ensure proper turnover d) RETURN TO Step 18	
_____ 29	CHECK EMERGENCY - CONTINUES	GO TO Step 32.
_____ 30	CONSULT WITH SEM AND RPS AS TO INCREASING OR DECREASING TRENDS	
_____ 31	RETURN TO NOTE PRIOR TO STEP 2	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 32 INITIATE EVENT TERMINATION AND RECOVERY ACTIONS:

a) Verify SEM declared event - TERMINATED

b) Notify RPS and RAC of event termination

c) Evaluate continued use of monitoring teams for data collection

d) Consult with SEM about recovery phase:

- Access control to outside contaminated areas
- Return to normal access control areas throughout site
- Assistance requirements:
  - Decontamination efforts
  - HP support personnel
  - Radwaste packaging and disposal

_____ 33 INITIATE REPLACEMENT OF PROCEDURES AND EMERGENCY EQUIPMENT

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 34	TERMINATE EPIP-4.01: • Give completed EPIP-4.01, forms and other applicable records to the Emergency Procedures Coordinator in the TSC • Completed by: _____ Date: _____ Time: _____	• Give to STA.

-END-

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.01	RADIOLOGICAL DATA WORKSHEET	16
ATTACHMENT 1		PAGE 1 of 1

Name:_____; Date:_____; Time:_____

METEOROLOGICAL DATA

Wind Direction (from): _____ Stability Class: _____

Affected Sectors: _____ Precipitation: _____

Wind Speed (mph): _____

RADIATION SYSTEM MONITORING DATA

Vent Vent: VG-110:_____cpm VG-131:_____µCi/sec
_____µCi/cc
VG-123:_____mR/hr

Process Vent: GW-102:_____cpm GW-130:_____µCi/sec
_____µCi/cc
GW-122:_____mR/hr

Containment, Inside:

High Range: RMS-127:_____mR/hr RMS-227:_____mR/hr

RMS-128:_____mR/hr RMS-228:_____mR/hr

Containment, Outside:

High Range: RMS-161:_____mR/hr RMS-261:_____mR/hr

Air Ejector: SV-111:_____cpm SV-211:_____cpm

Main Steam: MS-124:_____mR/hr MS-224:_____mR/hr

MS-125:_____mR/hr MS-225:_____mR/hr

MS-126:_____mR/hr MS-226:_____mR/hr

AFWPT: MS-129:_____mR/hr MS-229:_____mR/hr

VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.03	DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE (With 1 Attachment)	10 PAGE 1 of 11

PURPOSE

Provide guidance to the Dose Assessment Team on organizational control and on percent Technical Specification, dose rate and projected dose calculations due to a radioactive release, and for direction in Health Physics Network and Field Team Radio operations.

ENTRY CONDITIONS

Any one of the following:

1. Activation by EPIP-4.01, RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE.

2. Direction by the Radiological Assessment Coordinator.

Approvals on File

Effective Date 04/19/00

1. HEALTH PHYSICS NETWORK (HPN) COMMUNICATIONS CRITERIA

WHEN the NRC ENS Communicator conveys the NRC's announcement that establishment of HPN is desired, THEN direct initiation of EPIP-4.33, HEALTH PHYSICS NETWORK COMMUNICATIONS.

2. TSC-TO-LEOF DOSE ASSESSMENT FUNCTION TRANSFER CRITERIA

WHEN dose assessment functions are to be transferred from the TSC to LEOF, THEN do the following:

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- Assignment and location of Offsite Monitoring Teams
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- HPN Communications

b) Transfer Field Team Radio Operations from TSC to LEOF (CEOF). IF radio communications cannot be established between teams and the LEOF (CEOF), THEN set up a network between the LEOF (CEOF) and the TSC to relay meteorological, monitoring and sample analysis information.

c) Transfer responsibility for HPN communications from the TSC to LEOF (CEOF). IF HPN communications already initiated by TSC, THEN coordinate transfer IAW EPIP-4.33, HEALTH PHYSICS NETWORK COMMUNICATIONS.

d) Assign TSC Dose Assessment Team Members the following responsibilities:

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- Keep RAD aware of LEOF (CEOF) dose assessment activities and status
- Help RAD interface with RPS (normally via the Radiological Protection Communications Network)
- Help RAD track allocation of HP and Chemistry personnel resources
- Continue to monitor inplant and onsite radiation levels, plume direction, and affected areas using available maps, status boards and logs
- Verify TSC monitoring per EPIP-4.17, MONITORING OF EMERGENCY RESPONSE FACILITIES, and EPIP-4.29, TSC/LEOF RADIATION MONITORING SYSTEM

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 1 INITIATE PROCEDURE:

- By: _____

  Date: _____

  Time: _____

NOTE: Responsibility for plume tracking and offsite monitoring transfers from the Radiological Assessment Director (RAD) in the TSC to the Radiological Assessment Coordinator (RAC) in the LEOF once the LEOF is activated.

_____ 2 ASK RAD/RAC FOR BRIEFING:

- Emergency Classification
- Initial offsite release calculations
- Monitor Data:
  - Current readings
  - Flow rates for pathway(s) of interest
- Current meteorological data
- Accident type

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 3	EVALUATE EMERGENCY CLASSIFICATION AGAINST PERCENT TECHNICAL SPECIFICATIONS (TECH. SPECS.):	
	a) Check current emergency classification - Notification of Unusual Event or Alert	a) GO TO Step 4.
	b) Use effluent pathway sample results to assess release: 1) Ask RPS to dispatch sample team 2) Ask Count Room for results	b) IF sample results NOT available, THEN use monitor readings to assess release.
	c) Initiate EPIP-4.30, USE OF MIDAS CLASS A MODEL AND Determine % Tech. Specs for gaseous release	c) IF MIDAS NOT available or liquid % Tech. Spec. calculation required, THEN evaluate release using EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT.
	d) Check results indicate % Tech. Specs. ≥ 100%	d) IF % Tech. Specs. < 100%, THEN notify RAD/RAC of results AND GO TO Step 9.
	e) Check results indicate % Tech. Specs. ≥ 100%, but < 1,000%	e) Confirm an Alert classification pending dose rate determination AND GO TO Step 3.g.
	f) Confirm/recommend Notification of Unusual Event classification	
	g) Give % Tech. Spec. results and event classification to RAD/RAC	
	h) Check classification - ALERT OR HIGHER	h) IF release - CONTINUES, THEN RETURN TO Step 3.a. IF release - TERMINATED, THEN GO TO Step 9.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE:
- A minimum of 2 (two) offsite monitoring teams must be dispatched (i.e., sent into the field) at a Site Area Emergency or General Emergency.
- The first available monitoring team should be used for near-site monitoring. As resources become available, additional teams should be sent to pre-selected monitoring locations.

_____ 4 CHECK WITH RAD/RAC TO DETERMINE IF OFFSITE MONITORING TEAMS WILL BE DISPATCHED

IF NO dispatch of offsite teams, THEN GO TO Step 6.

_____ 5 DIRECT INITIATION OF FIELD TEAM RADIO OPERATIONS:

a) Direct initiation of EPIP-4.34, FIELD TEAM RADIO OPERATOR INSTRUCTIONS

b) Brief Field Team Radio Operator:

- Meteorological conditions to determine team placement
- Projected offsite dose rates at anticipated monitoring locations
- Protective measures for team (Protective clothing, respiratory equipment, radio-protective drugs)
- Radiological composition of release
- Plume direction
- Number of teams required
- Exposure limits

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 6 GIVE BRIEFING TO DOSE ASSESSMENT TEAM:

- Plant/radiological status
- Meteorological conditions
- Monitoring team status (locations, importance of command and control)
- Dose assessment results

_____ 7 DIRECT INITIATION OF EPIP-4.29, TSC/LEOF RADIATION MONITORING SYSTEM

_____ 8 MONITOR PARAMETERS USING AVAILABLE MAPS, STATUS BOARDS AND LOGS:

- Inplant and onsite radiation levels
- Plume direction
- Affected areas

1. HEALTH PHYSICS NETWORK (HPN) COMMUNICATIONS CRITERIA

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 9	DO OFFSITE DOSE ASSESSMENT:	
	a) Use EPIP-4.30, USE OF MIDAS CLASS A MODEL	a) IF MIDAS NOT available, THEN do assessment as follows: 1) Do desk-top calculations: • EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT • EPIP-4.09, SOURCE TERM ASSESSMENT • EPIP-4.10, DETERMINATION OF X/Q 2) Complete Attachment 1, Radiological Status.
	b) Give data and completed report to the RAD/RAC	
	c) Check if manual determination of source term or atmospheric dispersion factor desired	c) GO TO Step 9.e.
	d) Direct initiation of the following: • EPIP-4.09, SOURCE TERM ASSESSMENT • EPIP-4.10, DETERMINATION OF X/Q	
	e) Check with RAD/RAC to determine if integrated dose assessments need to be made using MIDAS Class B Model	e) GO TO Step 10.
	f) Direct initiation of EPIP-4.31, USE OF MIDAS CLASS B MODEL	

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- Continue to monitor inplant and onsite radiation levels, plume direction, and affected areas using available maps, status boards and logs
- Verify TSC monitoring per EPIP-4.17, MONITORING OF EMERGENCY RESPONSE FACILITIES, and EPIP-4.29, TSC/LEOF RADIATION MONITORING SYSTEM

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE:
- The Surry Emergency Plan (Monitoring Points) Map should be used for selecting monitoring locations and tracking teams. It is a grid/sector map of the plume exposure (10-mile) EPZ. Pre-selected monitoring locations are marked.
- Pre-selected monitoring location H-1.9 may not be accessible by vehicle.

_____ 10 CHECK RELOCATION OF MONITORING TEAMS - NEEDED:

IF NO dispatch of monitoring teams, THEN GO TO Step 15.

a) Review dose projections

b) Evaluate downwind locations, distance, plume arrival time, team travel time and anticipated dose rates

c) Determine monitoring location

d) Have Field Team Radio Operator do the following:

1) Move monitoring team(s) to specified location

2) Have team(s) relay readings at time of plume arrival

1. HEALTH PHYSICS NETWORK (HPN) COMMUNICATIONS CRITERIA

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: EPIP-4.34, FIELD TEAM RADIO OPERATOR INSTRUCTIONS, contains provisions for determining the Thyroid CDE dose rate from offsite air sample results.

_____ 11 CHECK DETERMINATION OF THYROID CDE DOSE RATE FROM OFFSITE MONITORING TEAM AIR SAMPLE - NEEDED:

GO TO Step 12.

a) Ask Field Team Radio Operator to get results of field air sample analysis:

- Activity:_____
- Sample Volume:_____
- Background count rate:_____

b) Check sample activity given in cpm

b) IF activity in µCi/ml, THEN GO TO Step 11.f.

IF readings given in mR/hr (e.g., from RO-2), THEN do the following:

1) Get Net mR/hr reading.

2) Convert Net mR/hr to CPM:

Net mR/hr x 10,000 = Net CPM

3) GO TO Step 11.d.

c) Calculate NET cpm:

Sample cpm - Background cpm = NET cpm

(STEP 11 CONTINUED ON NEXT PAGE)

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

11 CHECK DETERMINATION OF THYROID CDE DOSE RATE FROM OFFSITE MONITORING TEAM AIR SAMPLE - NEEDED: (Continued)

d) Calculate conversion factor (CF) for specific sample volume collected:

$$\frac{3.33\ E\text{-}10}{\#\ ft^3} = CF$$

e) Calculate activity (μCi/ml):

NET cpm x Conversion Factor = Activity (μCi/ml)

f) Calculate Thyroid CDE dose rate:

Activity (μCi/ml) x 1.57E+9 = Dose Rate (mrem/hr)

g) Estimate release duration (hours)

h) Calculate Thyroid CDE dose:

THY CDE Dose Rate (mrem/hr)	x	Duration (hours)	=	THY CDE Dose (mrem)

_____ 12 CHECK IF CONFIRMATION OF DOSE PROJECTIONS USING ENVIRONMENTAL DATA - DESIRED — GO TO Step 14.

_____ 13 INITIATE EPIP-4.13, OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 14	COMPARE PROJECTED TO ACTUAL OFFSITE DOSE:	
	a) Compare dose rates from offsite monitoring teams to projected dose rates at corresponding distances	
	b) Check if data is significantly different (greater than a factor of 3)	b) GO TO Step 15.
	c) Consult with RAD/RAC to determine whether actual or projected dose rates to be used for protective action recommendations	
	d) Initiate investigation into cause of discrepancy	
_____ 15	ASSIST IN DEVELOPMENT OF PROTECTIVE MEASURES: • Refer to EPIP-4.07, PROTECTIVE MEASURES • Review MIDAS Special Report and field data (as available) • Confer with RAD/RAC	
	NOTE: Fixed air samplers and TLDs provide information on the total release. Collection of these samples may provide the best information after termination of the release.	
_____ 16	GIVE CONSIDERATION TO HAVING OFFSITE MONITORING TEAMS COLLECT ENVIRONMENTAL SAMPLES AND TLDs	
_____ 17	CHECK EMERGENCY - CONTINUES	GO TO Step 19.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 18 RETURN TO Step 3

_____ 19 TERMINATE EPIP-4.03:

- Give completed EPIP-4.03, forms and other applicable records to the RAD/RAC
- Completed by: _____

  Date: _____

  Time: _____

-END-

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NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.03	RADIOLOGICAL STATUS	10
ATTACHMENT 1		PAGE 1 of 1

No.:_____
Date/Time:_____
Trend: [ ] Increasing
[ ] Decreasing
[ ] Stationary
Initials: _____

[ ] Based on offsite surveys; [ ] Based on Radiation Monitoring System data

1. Type of release is: [ ] Airborne, released at elevation of _____ ft;
[ ] Waterborne;
[ ] Surface Spill.

1.a. Physical form of release is: [ ] Gas; [ ] Liquid; [ ] Solid; [ ] Unknown.

1.b. Chemical form of release is: [ ] Inert Noble Gas; [ ] Radioiodines; [ ] Unknown.
[ ] Specifically:_____.

2. Release: [ ] began at _____ (24-hr time); [ ] is estimated to begin at _____ (24-hr time).

3. Release duration: [ ] was _____ hours; [ ] is estimated to be _____ hours.

4. Time between reactor shutdown and beginning of release [ ] was _____ hours; [ ] not applicable.

5. Wind direction is from _____; Wind speed is _____ mph; Stability Class is _____;
Time of meteorological conditions:_____ (24-hr time).

6. Temperature is _____ degrees F;
Precipitation form: [ ] None; [ ] Rain; [ ] Sleet; [ ] Snow; [ ] Other_____.

7. The gross release rate is:
[ ] _____ Ci/sec Noble Gas;
[ ] _____ Ci/sec Iodines;
[ ] _____ Ci/sec Particulates;
[ ] Unknown.

8. Actual Deep Dose Equivalent (DDE) field measurement at Site Boundary is:
[ ] _____ R/hr; [ ] Unknown.

9. Projections based on: [ ] sample taken at _____(24-hr. time)
[ ] monitor reading at _____(24-hr. time)
are: [ ] Unknown;
[ ] As follows:

		Site Boundary	2 Miles	5 Miles	10 Miles
PAG DOSE	TEDE 4-day, Rem	Rem	Rem	Rem	Rem
	Thy CDE, Rem	Rem	Rem	Rem	Rem
DOSE RATE	TEDE, Rem/hr	Rem/hr	Rem/hr	Rem/hr	Rem/hr
	Thy CDE, Rem/hr	Rem/hr	Rem/hr	Rem/hr	Rem/hr
	DDE, Rem/hr	Rem/hr	Rem/hr	Rem/hr	Rem/hr
RATIO	TEDE/DDE				

10. Remarks: _____
_____
_____.

VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.34	FIELD TEAM RADIO OPERATOR INSTRUCTIONS (With 4 Attachments)	4
		PAGE 1 of 9

PURPOSE

Provide guidance to the Field Team Radio Operator (FTRO) to control Offsite Monitoring Team activities including:

- Confirming radiological releases
- Plume tracking
- Determining radiological composition of releases

ENTRY CONDITIONS

Any of the following:

1. Release of radioactive material in conjunction with a Site Area Emergency or General Emergency.
2. Direction by the Radiological Assessment Director or Radiological Assessment Coordinator.
3. Activation by another EPIP.

Approvals on File

Effective Date 04/19/00

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 1	INITIATE PROCEDURE: • By: _____ Date: _____ Time: _____	
_____ 2	GET STATUS UPDATE FROM DOSE ASSESSMENT TEAM LEADER: a) Emergency classification b) Initial offsite release calculations c) Current monitor readings d) Current meteorological data: • Wind speed • Wind direction (from) • Stability Class	
_____ 3	CHECK WITH DOSE ASSESSMENT TEAM LEADER TO DETERMINE IF OFFSITE MONITORING - REQUIRED	WHEN offsite monitoring team(s) are to be dispatched, THEN GO TO Step 4. WHEN emergency is terminated, THEN GO TO Step 24.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE:
- A minimum of 2 Offsite Monitoring Teams must be dispatched (i.e., sent into the field) at a Site Area Emergency or General Emergency.
- The first available monitoring team should be used for near-site monitoring. As resources become available, additional teams should be sent to pre-selected monitoring locations.

_____ 4 CHECK STATUS OF OFFSITE MONITORING TEAMS:

- Unavailable: GO TO Step 5

OR

- Assembled and on stand-by: GO TO Step 6

OR

- Dispatched: GO TO Step 7

_____ 5 ASK DOSE ASSESSMENT TEAM LEADER TO COORDINATE ASSEMBLY OF MONITORING TEAMS

_____ 6 ASK DOSE ASSESSMENT TEAM LEADER IF MONITORING TEAMS SHOULD BE DISPATCHED

WHEN instructed to dispatch teams, THEN GO TO Step 7.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 7 REVIEW THE FOLLOWING PARAMETERS WITH DOSE ASSESSMENT TEAM LEADER:

a) Meteorological conditions to determine team placement

b) Projected offsite dose rates at anticipated monitoring locations

c) Protective measures for team:

- Protective clothing
- Respiratory equipment
- Radioprotective drugs

d) Radiological composition of release

e) Plume direction

f) Number of teams required

g) Exposure limits

_____ 8 ESTABLISH RADIO CONTACT:

a) Use the radio desk set to establish communications (Depress mode key until EP1 appears on the display)

b) Give your telephone number to monitoring team in case of radio failure

c) Use Attachment 4, OFFSITE MONITORING TEAM INFORMATION, to record messages and data

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	NOTE: Attachment 1 provides an estimate of plume width at 1 and 2 miles downwind for Stability Classes A through G.	
_____ 9	ESTABLISH MONITORING LOCATIONS:	
	a) Verify teams dispatched	a) IF teams NOT dispatched, THEN do the following: 1) Review offsite maps to determine pre-selected monitoring locations. 2) Send teams to pre-selected location in downwind sector.
	b) Determine length of time for plume to reach monitoring location: • Ask Dose Assessment Team member for estimate OR • Calculate plume arrival time: $\text{Time (hours)} = \frac{\text{Distance from plant (miles)}}{\text{Wind speed (mph)}}$	
	c) Have teams find plume centerline and report centerline location	
	d) Have teams periodically check exposure	
	e) Check if maximum plume concentration expected at location other than pre-selected monitoring point	e) GO TO Step 10.
	f) Identify off-centerline location using offsite map (in facility or Emergency Kit)	
	g) Identify location using sector designation and distance in miles (e.g., A-2)	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
_____ 10	DETERMINE SAMPLE MEDIUM TO BE COLLECTED AND NOTIFY TEAM ACCORDINGLY: • Particulate and iodine • Gas • Soil • Snow or ice	
_____ 11	CHECK IF AIR SAMPLE - REQUIRED	IF air sample NOT required, THEN GO TO Step 16.
	NOTE: Air sample volume should be at least 2.5 cubic feet.	
_____ 12	HAVE TEAM GET AIR SAMPLE	
_____ 13	CHECK WITH DOSE ASSESSMENT TEAM LEADER TO DETERMINE IF COUNT ROOM ANALYSIS OF INITIAL CONFIRMATORY SAMPLE IS REQUIRED	GO TO Step 16.
_____ 14	HAVE INITIAL CONFIRMATORY SAMPLE DELIVERED TO SECURITY	
_____ 15	ASK DOSE ASSESSMENT TEAM LEADER TO COORDINATE THE FOLLOWING: a) Transport of sample to Count Room b) Count Room analysis of sample c) Determination of TEDE/DDE Ratio	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

_____ 16 CALCULATE ESTIMATED TEDE DOSE USING ATTACHMENT 2, DETERMINATION OF TEDE/DDE RATIO

_____ 17 CALCULATE THYROID CDE DOSE RATES USING ATTACHMENT 3, DETERMINATION OF THYROID OFFSITE DOSE RATE FROM SAMPLE ANALYSIS

_____ 18 RECORD THE FOLLOWING ON ATTACHMENT 4, OFFSITE MONITORING TEAM INFORMATION:

a) Monitoring Data

- Current location
- Maximum dose rates

b) Dosimetry readings

c) Estimated TEDE dose

d) Thyroid CDE dose rate

e) Plume width and location

f) Air sample data

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	NOTE: Unexpected readings may result from plume rise, looping or cloud meander.	
_____ 19	CONTINUE PLUME TRACKING:	
	a) Get dose rates and location at plume centerline	
	b) Check if unexpected readings occur	b) GO TO Step 19.d.
	c) Have team travel downwind until plume is located	
	d) Review Attachment 1, FACTORS CONTROLLING THE AREA AFFECTED BY A RELEASE, concerning plume width	
_____ 20	CHECK WITH DOSE ASSESSMENT TEAM LEADER TO DETERMINE IF FIXED ENVIRONMENTAL SAMPLES AND TLDs ARE TO BE COLLECTED	GO TO Step 22.
_____ 21	HAVE TEAMS COLLECT SAMPLES	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE: Additional sampling of ingestion exposure pathway is not normally within the scope of initial response actions, but may be performed as a follow-up action as time permits.

_____ 22 CHECK IF INGESTION EXPOSURE PATHWAY SAMPLING IS REQUIRED: — GO TO Step 23.

a) Have teams prepare for additional sampling

b) Ask team to get samples specified by Dose Assessment Team Leader:

- Milk
- Water
- Crops/Vegetation

_____ 23 CHECK IF CONTINUED MONITORING IS REQUIRED: — GO TO Step 24.

a) Consult with Dose Assessment Team Leader

b) RETURN TO Step 9

_____ 24 TERMINATE EPIP-4.34:

- Give completed EPIP-4.34, forms and other applicable records to the RAD/RAC
- Completed by: _____

  Date: _____

  Time: _____

-END-

The area affected by a release is dependent on a number of variables including atmospheric stability class, wind speed and direction, precipitation, and terrain. From a practical standpoint, only stability class, which affects the width of the affected area, and wind speed and direction, which affect distance and direction of the area, will be considered.

The width of an affected area as a function of stability class and distance from the release point is illustrated by the following table. The table lists the different stability classes and the width of an area in feet which will contain a certain percent of the maximum calculated concentrations (or doses). The percentages considered are 90, 50 and 10%. The distances are 1 and 2 miles from a release point. These tables may be used as guidelines on what to tell the monitoring team to expect, such as Stability Class F, where the team would be expecting a small area of rapidly increasing concentration if the cloud were approached from the side.

Wind speed affects the area since higher speeds cause the cloud to arrive sooner; but, concentrations are reduced. The affected area will be downwind of the release point. If the direction is variable, the area with the highest average downwind direction will be affected the greatest.

STABILITY CLASS	PERCENT OF MAXIMUM	AREA WIDTH (feet) 1 Mile	2 Miles
A	90	878	1632
	50	2256	4195
	10	4109	7641
B	90	653	1227
	50	1676	3152
	10	3053	5741
C	90	472	887
	50	1213	2279
	10	2209	4152
D	90	319	595
	50	819	1530
	10	1492	2787
E	90	235	433
	50	603	1112
	10	1098	2027
F	90	161	299
	50	414	768
	10	754	1399
G	90	97	179
	50	249	460
	10	453	843

NOTE: TEDE = DDE + CEDE, when applied to emergency worker dose.

____ 1. Get Ratio TEDE/DDE from actual sample results AND GO TO Step 4 of this attachment

OR

IF sample results NOT available, THEN continue this instruction

____ 2. Get Ratio TEDE/DDE from MIDAS report AND GO TO Step 4 of this attachment

OR

IF MIDAS results NOT available, THEN continue this instruction

____ 3. Use default TEDE/DDE ratio:

ACCIDENT TYPE	RATIO	ACCIDENT TYPE	RATIO
MSLB	49	VCT Rupture	1
SGTR	26	LOCA	3
Fuel Handling	1.5	Locked Rotor	13
WGDT Rupture	1	SRF	1

NOTE: SRD or DAD readings are equivalent to DDE.

____ 4. Determine estimated TEDE dose:

$$\text{DDE dose from DAD or SRD} \times \text{Ratio } \frac{\text{TEDE}}{\text{DDE}} = \text{TEDE dose}$$

____ 5. Record resulting estimated TEDE dose on Attachment 4

____ 6. Determine DDE limit:

$$\frac{\text{Remaining dose, rem from Attachment 4} - \text{Estimated TEDE, rem from Step 4 above}}{\text{Ratio TEDE/DDE}} = \text{DDE limit, rem}$$

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.34	DETERMINATION OF THYROID OFFSITE DOSE RATE FROM SAMPLE ANALYSIS	4
ATTACHMENT 3		PAGE 1 of 1

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
__1.	DETERMINE EQUIVALENT I-131 ACTIVITY FROM AIR SAMPLE ANALYSIS:	
	a) Check if sample data given in counts per minute (cpm)	a) IF data given in µCi/ml, THEN GO TO Step 2. IF data given in mR/hr (e.g., from RO-2), THEN do the following: 1) Get Net mR/hr reading. 2) Calculate Net CPM: Net mR/hr x 10,000 = Net CPM 3) GO TO Step 1.d.
	b) Get data from monitoring team(s): • Background cpm: _____ • Gross (sample) cpm: _____	
	c) Calculate NET counts per minute: Gross cpm - Background cpm = NET cpm	
	d) Calculate Conversion factor (CF) for sample volume collected: $\frac{3.33\ E\text{-}10}{\#\ ft^3} = CF$	
	e) Calculate activity: NET cpm x CF = Activity, µCi/ml	
__2.	CALCULATE THYROID CDE DOSE RATE USING THE FOLLOWING CALCULATION: Activity, µCi/ml x 1.57 E+9 = Thyroid CDE, mrem/hr	
__3.	RECORD RESULTS ON ATTACHMENT 4	

TEAM IDENTIFICATION No.: _____

TEAM MEMBER DATA:

NAME(s)	BADGE No.	REMAINING DOSE	COMMENTS

MONITORING DATA:

NOTE: Use "Remarks" spaces to make notes about a specific monitoring or air sample point (e.g., plume width, terrain). Use back of form to log instructions to team, pertinent comments, etc.

LOCATION	DATE / TIME	DAD/SRD READING	ESTIMATED TEDE DOSE*	WINDOW OPEN	WINDOW CLOSED
	REMARKS:				
	REMARKS:				
	REMARKS:				

* **Estimate using Attachment 2.**

AIR SAMPLE DATA:

AIR SAMPLE ID.:	DATE / TIME:	LOCATION:
GROSS CPM:	BKG CPM:	NET CPM (GROSS - BKG):
AIR SAMPLE VOLUME (ft^3):	ACTIVITY, $\mu Ci/ml$** =	
THYROID CDE, mrem/hr = Activity, μ Ci/ml x 1.57E+9 =		
REMARKS:		

** **Determine using Attachment 3.**

AIR SAMPLE ID.:	DATE / TIME:	LOCATION:
GROSS CPM:	BKG CPM:	NET CPM (GROSS - BKG):
AIR SAMPLE VOLUME (ft^3):	ACTIVITY, $\mu Ci/ml$** =	
THYROID CDE, mrem/hr = Activity, μ Ci/ml x 1.57E+9 =		
REMARKS:		

** **Determine using Attachment 3.**

FIELD TEAM RADIO OPERATOR LOG

DATE/TIME:	COMMENTS:
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