

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

April 21, 2003

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

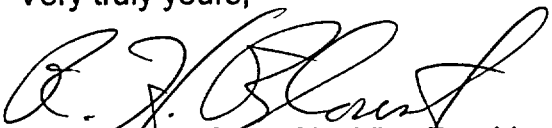
Serial No. 03-248
SS&L/BAG R0
Docket No. 50-280
50-281
License No. DPR-32
DPR-37

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
REVISION TO EMERGENCY PLAN IMPLEMENTING PROCEDURE

Pursuant to 10 CFR 50.54(q), enclosed is the revisions to five Surry Power Station Emergency Plan Implementing Procedures. The revisions do not implement actions that 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,



Richard H. Blount, Site Vice President
Surry Power Station

Enclosure

Commitments contained in this letter: None.

cc: U. S. Nuclear Regulatory Commission, Region II (2 copies)
Sam Nunn 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. 03-248
Surry EPIP Revisions

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

Enclosed is a revision to a Surry Power Station Emergency Plan Implementing Procedure. 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-4.02, Rev. 19 | 07/22/99 | EPIP-4.02, Rev. 20 | 03/24/03 |
| EPIP-4.16, Rev. 15 | 02/04/00 | EPIP-4.16, Rev. 16 | 03/24/03 |
| EPIP-4.30, Rev. 9 | 03/21/02 | EPIP-4.30, Rev. 10 | 03/24/03 |
| EPIP-4.34, Rev. 4 | 04/19/00 | EPIP-4.34, Rev. 5 | 03/24/03 |
| EPIP-4.01, Rev. 17 | 04/10/02 | EPIP-4.01, Rev. 18 | 04/16/03 |

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

VIRGINIA POWER LEVEL 2 CONTROLLED DISTRIBUTION
SURRY POWER STATION MAINTAINED BY THIS DEPARTMENT
EMERGENCY PLAN IMPLEMENTING PROCEDURES DOCUMENT FOR FIELD WORK

| | | |
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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE (With 2 Attachments) | REVISION 18 |
| | | 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 04/16/03

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 1 | INITIATE PROCEDURE: <ul style="list-style-type: none"> By: _____ Date: _____ Time: _____ <p>NOTE:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 | <p><u>IF</u> MIDAS <u>NOT</u> available, <u>THEN</u> evaluate release using desk-top calculations:</p> <ul style="list-style-type: none"> EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT EPIP-4.09, SOURCE TERM ASSESSMENT EPIP-4.10, DETERMINATION OF X/Q |

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| _____ 5 | CHECK EMERGENCY CLASSIFICATION - NOTIFICATION OF UNUSUAL EVENT | GO TO Step 7. |
| _____ 6 | CHECK HP SUPPORT - REQUIRED | <p>IF HP support <u>NOT</u> immediately required, <u>THEN</u> standby to provide support</p> <p><u>AND</u></p> <p>GO TO Step 7 when support is required</p> <p><u>OR</u></p> <p><u>WHEN</u> emergency is terminated, <u>THEN</u> GO TO Step 32.</p> |
| _____ 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: <ul style="list-style-type: none"> 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 | |

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|-----------------|--|-----------------------|
| <p>_____ 9</p> | <p>CHECK EVENT - LIMITING FAULT:</p> <ul style="list-style-type: none"> • 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 <p><u>NOTE:</u> A LOCA may not initially result in a large release, but may produce a large potential for release from containment.</p> | <p>GO TO Step 14.</p> |
| <p>_____ 10</p> | <p>INITIATE RESPONSE TO LOCA:</p> <ul style="list-style-type: none"> 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 | |

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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

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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_____ 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)

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| 12 | <p>INITIATE RESPONSE TO STEAM GENERATOR TUBE RUPTURE: (Continued)</p> <p>d) Consider blocking access to the following areas until surveyed:</p> <ul style="list-style-type: none"> • 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 <p>e) Evaluate sampling:</p> <ul style="list-style-type: none"> • Steam Generator Blowdowns • Air Ejectors • Main Steams <p>f) GO TO Step 14</p> | |

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---|---|-----------------------|
| <p>NOTE: Analysis of accidents involving decayed spent fuel should include consideration of onsite skin dose due to Kr-85.</p> | | |
| <p>13</p> | <p>INITIATE RESPONSE TO FUEL HANDLING ACCIDENT:</p> <p>a) Check event - Fuel cask drop or suspected seal leak a) GO TO Step 13.d.</p> <p>b) Evaluate the following:</p> <ul style="list-style-type: none"> • Access control in affected area • Neutron monitoring • Air sampling to confirm fission product release <p>c) GO TO Step 14</p> <p>d) Do the following for Fuel Handling Accident in Spent Fuel Pool or Containment:</p> <ol style="list-style-type: none"> 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 | |

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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- 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.

- | | |
|---|---|
| <p>____ 14 CHECK EVENT - RADIOLOGICAL RELEASE:</p> <p>a) Verify event limited to plant systems</p> <p>b) Initiate effluent sampling if manpower permits</p> <p>c) Give consideration to initiating EPIP-4.03, DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE</p> <p>d) Initiate EPIP-4.30, USE OF MIDAS CLASS A MODEL</p> <p>e) Consider having RPS prepare for dispatch of Offsite Monitoring Teams:</p> <ul style="list-style-type: none"> • Team assembly • Preparation of equipment and vehicles <p>f) Direct initiation of 40CFR302 EPA Notification Requirements and Reportable Quantity calculations in accordance with normal HP procedures</p> | <p>GO TO Step 18.</p> <p>a) <u>IF</u> radiological event at ISFSI, <u>THEN</u> refer to Attachment 2, Response to ISFSI Event.</p> <p>b) Use monitor readings for follow-up assessment.</p> <p>d) <u>IF</u> MIDAS <u>NOT</u> available, <u>THEN</u> evaluate release using desk-top calculations:</p> <ul style="list-style-type: none"> • EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT • EPIP-4.09, SOURCE TERM ASSESSMENT • EPIP-4.10, DETERMINATION OF X/Q |
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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:

a) GO TO Step 16.

- 50 mR/hr TEDE

OR

- 250 mR/hr Thyroid CDE

- 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

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| 16 | <p>DETERMINE OFFSITE PROTECTIVE MEASURES FOR GENERAL EMERGENCY CLASSIFICATION:</p> <p>a) Use Site Boundary 2, 5 and 10 mile TEDE and Thyroid CDE doses from EPIP-4.30, USE OF MIDAS CLASS A MODEL</p> <p>b) Initiate EPIP-4.07, PROTECTIVE MEASURES</p> <p>c) Make recommendations to SEM that address the following:</p> <ul style="list-style-type: none"> • Protective measures offsite • Distance protective measures are required | <p><u>IF</u> classification <u>NOT</u> a General Emergency, <u>THEN</u> GO TO Step 17.</p> <p>a) <u>IF</u> MIDAS <u>NOT</u> available, <u>THEN</u> use dose rates from desk-top calculations:</p> <ul style="list-style-type: none"> • EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT • EPIP-4.09, SOURCE TERM ASSESSMENT • EPIP-4.10, DETERMINATION OF X/Q |

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| 17 | CHECK LEOF (CEOF) HAS LEAD FOR OFFSITE DOSE ASSESSMENT | <p>Do the following:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Every 60 minutes during Alert or higher classification. • Within 15 minutes after a classification change. • Change in radiological conditions. |

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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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

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

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
- ISFSI event: RETURN TO Step 14.

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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.
 - 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)

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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)

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| 19 | <p>EVALUATE NEED FOR OFFSITE MONITORING: (Continued)</p> <p>c) Check if Thyroid CDE expected to exceed 25 Rem:</p> <p>1) Do calculation using concentration ($\mu\text{Ci/cc}$) based on survey results and actual or projected exposure duration (hours):</p> <p>_____ $\mu\text{Ci/cc}$ x $1.57\text{E}+6$ x _____ hours = _____ Rem THY CDE</p> <p>2) Ask SEM for approval to administer radioprotective drugs</p> <p>3) Consider initiation of EPIP-5.07, ADMINISTRATION OF RADIOPROTECTIVE DRUGS</p> <p>d) Notify RPS of resource and equipment requirements:</p> <ul style="list-style-type: none"> • Number teams required • Protective clothing required • Respiratory protection required • Have teams assemble equipment and vehicles <p style="text-align: center;"><u>AND</u></p> <p>Have teams notify TSC via radio prior to dispatch</p> <p>e) RETURN TO Step 18</p> | <p>c) GO TO Step 19.d.</p> |

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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

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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)

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| 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: 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 | c) GO TO Step 21.d. |

(STEP 21 CONTINUED ON NEXT PAGE)

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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)

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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------------------------------|---|---|
| 21 | <p>INITIATE INPLANT/ONSITE RADIOLOGICAL ASSESSMENT: (Continued)</p> <p>f) Determine if radiological conditions require monitoring of emergency response facilities:</p> <ul style="list-style-type: none"> • Have RPS initiate EPIP-4.17, MONITORING OF EMERGENCY RESPONSE FACILITIES • Have RPS initiate EPIP-4.18, MONITORING OF LEOF <p>g) <u>WHEN</u> Post Accident Primary Coolant or Containment Air sample requested, <u>THEN</u> do the following:</p> <ol style="list-style-type: none"> 1) Determine system to be used: <ul style="list-style-type: none"> • Normal sampling systems <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • Contingency sampling systems 2) Notify RPS of preferred sampling system 3) Ask RPS to support Post Accident sampling | <p>f) GO TO Step 21.g.</p> <p>g) GO TO Step 21.h.</p> |
| (STEP 21 CONTINUED ON NEXT PAGE) | | |

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

(STEP 24 CONTINUED ON NEXT PAGE)

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 PAGE 24 of 30 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|---|
| | <p>24 EVALUATE NEED TO EVACUATE/SHELTER NON-ESSENTIAL PERSONNEL: (Continued)</p> <p>b) Check if results indicate onsite exposure of non-essential personnel greater than 1 Rem TEDE or 5 Rem Thyroid CDE</p> <p>c) Make recommendation to SEM for evacuation of non-essential personnel</p> <p>d) Consider early release of personnel upon Alert if plant conditions appear to degrade</p> <p>e) Do the following if non-essential personnel are to be evacuated:</p> <ul style="list-style-type: none"> • Review offsite release assessments • Check direction of plume • Determine appropriate evacuation route and remote assembly area <p>(STEP 24 CONTINUED ON NEXT PAGE)</p> | <p>b) Do one of the following:</p> <ul style="list-style-type: none"> • <u>IF</u> onsite exposure for non-essential personnel greater than or equal to 0.5 Rem TEDE or 1 Rem Thyroid CDE, <u>THEN</u> recommend sheltering <p style="text-align: center;"><u>AND</u></p> <p style="text-align: center;">GO TO Step 24.d</p> <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • <u>IF</u> onsite exposure for non-essential personnel less than 0.5 Rem TEDE or 1 Rem Thyroid CDE, <u>THEN</u> GO TO Step 24.d <p>e) RETURN TO Step 18.</p> |

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 <hr/> PAGE 25 of 30 |
|----------------------------|---|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| | <p>24 EVALUATE NEED TO EVACUATE/SHELTER NON-ESSENTIAL PERSONNEL: (Continued)</p> <p>f) Have RPS assign EPIP-4.21, EVACUATION AND REMOTE ASSEMBLY AREA MONITORING</p> <p>g) Have RPS do the following:</p> <ol style="list-style-type: none"> 1) Tell survey team to notify TSC when departing from station and arriving at Remote Assembly Area 2) Dispatch Remote Assembly Area monitoring team <p>h) Notify SEM of Emergency Assembly Area monitoring status</p> <p>i) RETURN TO Step 18</p> | |

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 <hr/> PAGE 26 of 30 |
|----------------------------|---|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|--|--------------------------|-----------------------|
| <p>_____ 25 INITIATE LEOF ACTIVATION:</p> <p>a) Give information to Radiological Assessment Coordinator:</p> <ul style="list-style-type: none"> • Existing plant conditions • Current offsite dose projections • HP actions underway <p>b) Have Dose Assessment Team Leader brief Radiological Assessment Coordinator:</p> <ul style="list-style-type: none"> • Status and location of Offsite Monitoring Teams • Meteorological data • Radiation Monitoring System data • Sample analysis data <p>c) Have RPS assign EPIP-4.18, MONITORING OF LEOF</p> <p>d) RETURN TO Step 18</p> | | |

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 <hr/> PAGE 27 of 30 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------|--|-----------------------|
| _____ 26 | <p>HAVE DOSIMETRY ISSUED TO OFFSITE RESPONDERS:</p> <p>a) Consult with RPS:</p> <ul style="list-style-type: none"> • Arrival time of offsite support (fire, rescue squads) • Dosimetry requirements <p>b) Ask RPS to consider having individual meet fire or rescue squad prior to entry onsite in order to supply dosimetry</p> <p>c) RETURN TO Step 18</p> | |
| _____ 27 | <p>EVALUATE RESPIRATORY PROTECTION REQUIREMENTS:</p> <p>a) Assess results of air sample analyses</p> <p>b) Recommend relocation of non-essential personnel from areas where high airborne activity is expected or airborne activity > 0.30 DAC</p> <p>c) Initiate EPIP-4.05, RESPIRATORY PROTECTION</p> <p>d) RETURN TO Step 18</p> | |

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 PAGE 28 of 30 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| 28 | <p>GIVE TURNOVER TO RELIEF:</p> <p>a) <u>WHEN</u> a more senior HP individual arrives onsite</p> <p style="text-align: center;"><u>OR</u></p> <p><u>WHEN</u> relief is needed, <u>THEN</u> brief successor:</p> <ul style="list-style-type: none"> • Existing plant conditions • Emergency Classification • Offsite release assessments • HP actions underway <p>b) Notify SEM of change in position</p> <p>c) Stay with relief for about 30 minutes to ensure proper turnover</p> <p>d) RETURN TO Step 18</p> | |
| 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 | |

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 <hr/> PAGE 29 of 30 |
|----------------------------|---|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------|--|-----------------------|
| <hr/> 32 | <p>INITIATE EVENT TERMINATION AND RECOVERY ACTIONS:</p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> • Access control to outside contaminated areas • Return to normal access control areas throughout site • Assistance requirements: <ul style="list-style-type: none"> • Decontamination efforts • HP support personnel • Radwaste packaging and disposal | |
| <hr/> 33 | <p>INITIATE REPLACEMENT OF PROCEDURES AND EMERGENCY EQUIPMENT</p> | |

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| NUMBER EPIP-4.01 | PROCEDURE TITLE RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE | REVISION 18 <hr/> PAGE 30 of 30 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---|--------------------------|--|
| <p>_____ 34 TERMINATE EPIP-4.01:</p> <ul style="list-style-type: none"> • Give completed EPIP-4.01, forms and other applicable records to the Emergency Procedures Coordinator in the TSC • Completed by: _____ Date: _____ Time: _____ <p style="text-align: center; margin-top: 20px;">-END-</p> | | <ul style="list-style-type: none"> • Give to STA. |

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| NUMBER | ATTACHMENT TITLE | REVISION |
| EPIP-4.01 | RADIOLOGICAL DATA WORKSHEET | 18 |
| ATTACHMENT | | PAGE |
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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: _____ $\mu\text{Ci/sec}$
 _____ $\mu\text{Ci/cc}$
 VG-123: _____ mR/hr

Process Vent: GW-102: _____ cpm GW-130: _____ $\mu\text{Ci/sec}$
 _____ $\mu\text{Ci/cc}$
 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

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| NUMBER | ATTACHMENT TITLE RESPONSE TO ISFSI EVENT | REVISION |
| EPIP-4.01 | | 18 |
| ATTACHMENT | | PAGE |
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- 1. Determine the following from Security or Operations (as appropriate):
 - Any restrictions affecting personnel response to ISFSI.
 - Readings on personal dosimetry (if available).
 - Any visible breach in casks, e.g., number of casks affected, size of breach, etc.
 - Any indication that cask contents dispersed from cask(s).
 - Any indication that cask seal(s) lost.
 - Estimated wind speed and direction.
- 2. IF simultaneous response to both plant event and ISFSI event required, THEN prioritize HP response(s) based upon potential for adverse radiological consequences.

NOTE: Dose rates from holes offset by 90 ° or more are not additive.

- 3. IF breach in cask(s) identified or anticipated, THEN do the following:
 - a) Notify Security to have responders avoid exposure from direction of breach.
 - b) IF cask contents dispersed from cask(s), THEN notify Security of potential for external and internal exposure hazards.

(STEP 3 CONTINUED ON NEXT PAGE)

| NUMBER | ATTACHMENT TITLE | REVISION |
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| EPIP-4.01 | RESPONSE TO ISFSI EVENT | 18 |
| ATTACHMENT | | PAGE |
| 2 | | 2 of 4 |

NOTE: • The dose rate table and graph below are based on a 1-foot diameter hole. Therefore, smaller holes are bounded.

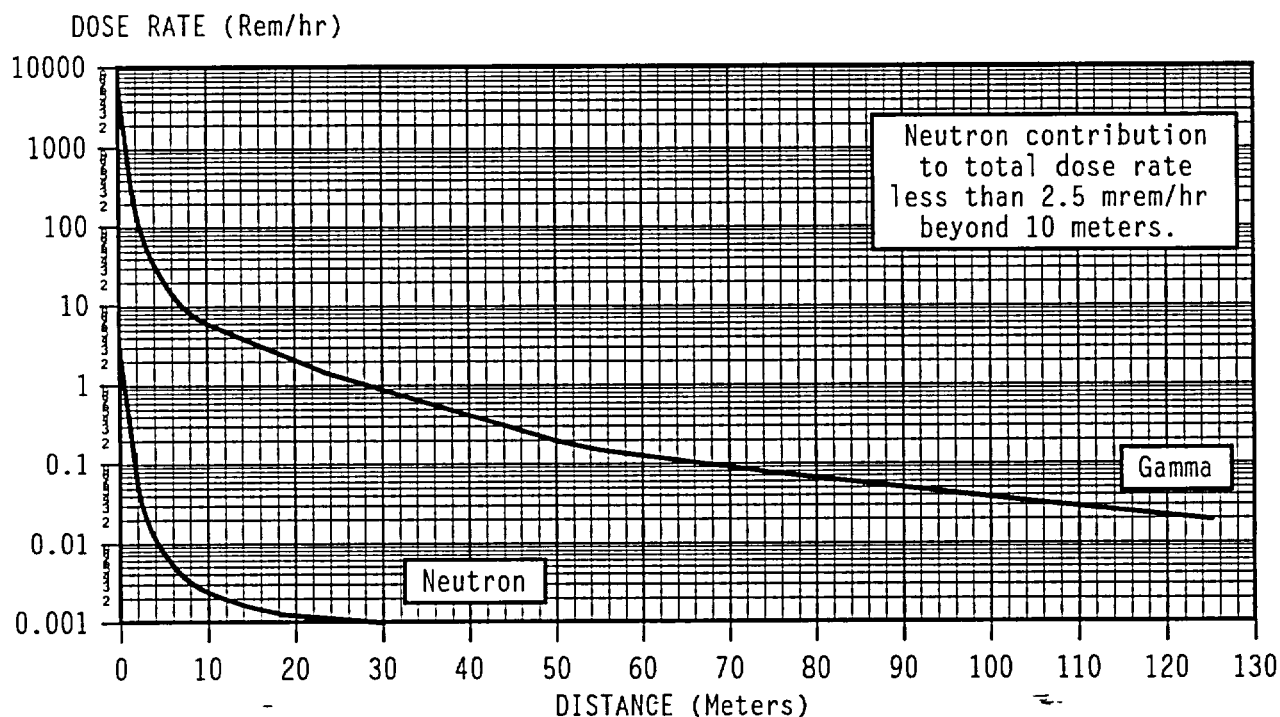
- The neutron dose rate is negligible relative to the gamma dose rate, approximately 0.1%.

3. IF breach in cask(s) identified or anticipated, THEN do the following: (continued)

c) Determine potential external exposure.

1) Use table or graph below for an approximate 1-foot diameter hole [Source: Calculation PA 0204]:

| Location (meters) | Gamma Dose Rate (Rem/hr) | Neutron Dose Rate (Rem/hr) |
|----------------------|-----------------------------|-------------------------------|
| Surface | 5369.8 | 2.7804 |
| 3 | 57.95 | 0.01981 |
| 10 | 5.86 | 0.00239 |
| 50 | 0.19 | < 0.0001 |
| 75 | 0.07 | < 0.0001 |
| 100 | 0.04 | < 0.0001 |
| 125 | 0.02 | < 0.0001 |



(STEP 3 CONTINUED ON NEXT PAGE)

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|-------------------------|----------|
| EPIP-4.01 | RESPONSE TO ISFSI EVENT | 18 |
| ATTACHMENT | | PAGE |
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NOTE: • Holes larger than 1-foot diameter may not respond as a point source. Therefore, in this case the reduction in dose rates over distance would be less. Thus, the multiplier factor of 5 as shown below.

- Exposure rates decrease in accordance with the inverse square rule.

3. IF breach in cask(s) identified or anticipated, THEN do the following: (continued)

c) Determine potential external exposure. (continued)

2) IF more than 1 hole facing same direction, THEN calculate dose rate using the following formula:

$$\begin{array}{ccccc} \text{Dose Rate from} & & \times & \# \text{ of holes} & = & \text{Dose Rate,} \\ \text{Dose Rate Table} & & & & & \text{mrem/hr} \end{array}$$

3) IF hole(s) greater than 1-foot diameter, THEN multiply dose rate(s) by 5.

d) Notify the following of potential exposure determined above:

- SEM
- Security (via the Emergency Administrative Director when TSC activated)
- RPS

— 4. Give the RPS guidance and direction for briefing and equipping team IAW EPIP-4.15, ONSITE MONITORING.

- Monitoring location and surveys required
- Hazards (radiological and physical safety)
- Protective gear (respirators, SCBA, protective clothing, dosimetry, shielding)
- Monitoring equipment (alpha and neutron survey equipment may be needed if cask contents damaged or dispersed)

IF access to ISFSI restricted, THEN notify RPS to assemble and hold team.

WHEN conditions allow for dispatch of Onsite Monitoring Team, THEN have RPS coordinate approach of Onsite Monitoring Team with Security Team.

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|-------------------------|----------|
| EPIP-4.01 | RESPONSE TO ISFSI EVENT | 18 |
| ATTACHMENT | | PAGE |
| 2 | | 4 of 4 |

NOTE: Most of the information needed for the Report of Radiological Conditions to the State will be unknown or not applicable, particularly early in an event at the ISFSI. Therefore, Radiological Status form Item 10, Remarks, will have to provide a description of a radiological event at the ISFSI.

- 5. Use EPIP-4.03, DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE, Attachment 1, Radiological Status, to provide the State and Local Emergency Communicator event information for transmittal to the Virginia EOC (refer to example remarks below).
 - IF survey information available, THEN consider remarks such as: "Survey results indicate affected area limited to ___ meters from affected cask in a ___ direction. Survey readings at a distance of ___ meters from the affected cask are below ____."
 - IF external exposure estimate available, THEN consider remarks such as: "Preliminary analysis indicates direct exposure hazard ___ at ___ meters."
 - IF dosimetry information available, THEN consider remarks such as: "Dosimetry readings for personnel ___ meters from the affected area are below ____."
 - IF no information available, THEN consider remarks such as: "Access to the Independent Spent Fuel Storage Installation (ISFSI) is restricted due to ___ concerns. No radiological information is available. It is anticipated information may be available in ___ hours."
- 6. Assure Dominion Nuclear Analysis & Fuel (NAF) Department notified. The NAF Fuel Performance Analysis Group is responsible for developing calculational methods for producing accident radiation doses for the ISFSI and storage casks. Results of this analysis may not be available during the accident response phase.
- 7. RETURN TO procedure in effect.

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE (With 2 Attachments) | REVISION 20 |
| | | PAGE 1 of 19 |

PURPOSE

Establish a radiation protection program during an emergency (including the dispatch of monitoring teams).

ENTRY CONDITIONS

Any one of the following:

1. Emergency classification of an Alert, Site Area Emergency or General Emergency.
2. Activation by EPIP-4.01, RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE.
3. Whenever deemed necessary by the Radiological Assessment Director.

Approvals on File

Effective Date 03/24/03

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 PAGE 2 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|--|
| 1 | INITIATE PROCEDURE: <ul style="list-style-type: none"> By: _____ Date: _____ Time: _____ | |
| 2 | ESTABLISH RADIATION PROTECTION SUPERVISOR (RPS) OFFICE: <ul style="list-style-type: none"> a) Evaluate HP area radiation levels: <ul style="list-style-type: none"> 1) Do surveys and sampling 2) Use friskers, personnel contamination monitors and count room analysis equipment for indications of abnormal readings b) Verify HP area - HABITABLE c) Establish RPS Office in Supervisor HP (Operations) Office d) Establish continuous monitoring (e.g., ratemeter, DAD) | <ul style="list-style-type: none"> b) <u>IF</u> HP area <u>NOT</u> habitable, <u>THEN</u> do the following: <ul style="list-style-type: none"> 1) Establish RPS Office in a habitable area (consider OSC, ALARA Office, Alternate OSC or Emergency Switchgear Room). 2) Notify Exposure Control personnel. 3) GO TO Step 2.d. |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
| | | PAGE 3 of 19 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---------|---|---------------------------------------|
| _____ 3 | ESTABLISH COMMUNICATIONS: | |
| | a) Check TSC - ACTIVATED | a) GO TO Step 3.d. |
| | b) Notify RAD that RPS Office has been established | |
| | c) Coordinate establishment of Radiological Protection Communications Network between the following locations (as permitted by personnel availability): <ul style="list-style-type: none"> • TSC • RPS Office • Chemistry • OSC | |
| | d) Do radio checks: | |
| | 1) Get portable HP radios, chargers and batteries | |
| | 2) Use appropriate Announce/Talk Group(s) | |
| | 3) Verify radio operability | 3) Notify RAD of radio inoperability. |
| _____ 4 | ESTABLISH ACCESS CONTROL: | |
| | a) Assign individual to control RCA access or to rope off RCA entrance | |
| | b) Limit RCA access to approved individuals | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 4 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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_____ 5 ESTABLISH EXPOSURE CONTROL:

- a) Have Exposure Control personnel initiate EPIP-4.27, EXPOSURE CONTROL EMERGENCY RESPONSE
- b) Notify Exposure Control personnel of HP area habitability

_____ 6 EVALUATE HP READINESS:

- a) Identify available HP resources:
 - Have on-duty HP staff report to HP area
 - Have Exposure Control provide number and location of personnel on shift
- b) Notify RAD of HP readiness

_____ 7 ASSIGN INPLANT/ONSITE TEAMS:

- a) Check personnel available for assignment as inplant and onsite team leaders
- a) GO TO Step 8.
- b) Assign team leaders
- c) Assign inplant and onsite monitoring EPIP packages to team leaders
- d) Assign one team member for each inplant and onsite team

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 5 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------|---|-----------------------|
| <p>8</p> | <p>GET STATUS UPDATE FROM RAD:</p> <ul style="list-style-type: none"> • Emergency classification • Plant status • Meteorological status • HP assistance required • Areas requiring monitoring (e.g., Chemistry Office, Security) | |
| <p>9</p> | <p>ASSIGN INDIVIDUAL TO MONITOR TEAM DISPATCH USING ATTACHMENT 1, MONITORING TEAM LOCATIONS</p> | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
| | | PAGE 6 of 19 |

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 higher emergency class.
 - Emergency conditions may require immediate implementation of radiological protection response actions. Attachments to this procedure and associated documentation may be completed after the fact should these conditions exist.

10 CHECK ANY OF THE FOLLOWING ACTIONS
REQUIRED (BASED ON CONSULTATION
WITH RAD OR DEGRADING RADIOLOGICAL
CONDITIONS):

GO TO Step 21.

- EOP and Accident Mitigation Task support: GO TO Step 11
- Inplant monitoring - GO TO Step 12
- Onsite monitoring - GO TO Step 13
- Brief Inplant/Onsite Monitoring or Damage Control Teams - Initiate Attachment 2, TEAM BRIEFING
- Offsite monitoring - GO TO NOTE prior to Step 14
- Control Room/TSC/OSC/LEOF monitoring - GO TO Step 15
- Contaminated personnel - GO TO Step 16
- Evacuation Monitoring - GO TO Step 17
- Request for Post Accident Sampling - GO TO Step 18
- Respiratory Protection - GO TO Step 19
- Receipt of sample analysis data - GO TO Step 20

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| 11 | <p>PROVIDE SUPPORT FOR EMERGENCY OPERATING PROCEDURE (EOP) <u>AND</u> ACCIDENT MITIGATION TASK ACTIVITIES, AS NEEDED:</p> <ul style="list-style-type: none"> Assure EOP and Accident Mitigation Task teams are expedited through HP Update RAD about HP support in progress | |

NOTE: Tasks to prevent/reduce core damage or terminate a radiological release may be identified as Accident Mitigation Tasks and as such should be expedited by all practical means.

11 PROVIDE SUPPORT FOR EMERGENCY OPERATING PROCEDURE (EOP) AND ACCIDENT MITIGATION TASK ACTIVITIES, AS NEEDED:

- Assure EOP and Accident Mitigation Task teams are expedited through HP
- Update RAD about HP support in progress

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
| | | PAGE 8 of 19 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 12 | <p>INITIATE INPLANT MONITORING:</p> <ul style="list-style-type: none"> a) Consult with RAD to determine location and type of surveys required b) Ask for assessment of radiological hazards in area of surveys c) Verify Inplant Monitoring Team Leader assigned d) Do briefing with Team Leader: <ul style="list-style-type: none"> 1) Have Team Leader initiate EPIP-4.14, INPLANT MONITORING 2) Give Team Leader location and type of surveys required 3) Determine route of entry that should minimize exposure 4) Assign team number 5) Assign the following: <ul style="list-style-type: none"> • Portable radio (Radio use restricted in Radio Frequency Interference (RFI) areas.) • Radio talk group e) Complete Attachment 2, TEAM BRIEFING f) Dispatch team(s) g) Notify RAD when survey information is received and when team returns h) RETURN TO Step 10 | <ul style="list-style-type: none"> c) Assign Inplant Monitoring Team Leader. 5) <u>IF</u> radio <u>NOT</u> available, <u>THEN</u> have team use Gai-Tronics system for communications. |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 PAGE 9 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|-----------|--|--|
| <p>13</p> | <p>INITIATE ONSITE MONITORING:</p> | |
| | <p>a) Consult with RAD to determine location and type of surveys required</p> | |
| | <p>b) Ask for assessment of radiological hazards in area of surveys</p> | |
| | <p>c) Check if transportation required</p> | <p>c) GO TO Step 13.e.</p> |
| | <p>d) Assign vehicle (duplicate keys to vehicles are located in the Supv. HP Operations office key locker)</p> | |
| | <p>e) Verify Onsite Monitoring Team Leader assigned</p> | <p>e) Assign Onsite Monitoring Team Leader.</p> |
| | <p>f) Do briefing with Team Leader:</p> | |
| | <p>1) Have Team Leader initiate EPIP-4.15, ONSITE MONITORING</p> | |
| | <p>2) Give Team Leader location and type of surveys required</p> | |
| | <p>3) Assign team number</p> | |
| | <p>4) Assign the following:</p> <ul style="list-style-type: none"> • Radio (portable or mobile) • Radio talk group | <p>4) <u>IF</u> radio <u>NOT</u> available, <u>THEN</u> have team use Gai-Tronics system for communications.</p> |
| | <p>g) Complete Attachment 2, TEAM BRIEFING</p> | |
| | <p>h) Dispatch team(s)</p> | |
| | <p>i) Notify RAD when survey information is received and when team returns</p> | |
| | <p>j) RETURN TO Step 10</p> | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 10 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| | <p>*****</p> <p>CAUTION: Emergency Kits #1 and #2 have 120 Volt air samplers and friskers with AC power cords. Vehicles assigned to teams with these kits have to be equipped with an inverter or equipment substitutions must be made prior to team departure from the HP area. Emergency Kit #3 has a 12 Volt battery clamp air sampler.</p> <p>*****</p> <p>NOTE: Emergency Kits #1, #2 and #3 are located in the Facilities and Support Building. Instruments for these kits are stored separately in the HP Emergency Response Storage Area.</p> | |
| 14 | <p>INITIATE OFFSITE MONITORING:</p> <ul style="list-style-type: none"> a) Determine from RAD: <ul style="list-style-type: none"> • Need for offsite monitoring teams • Number of offsite teams required • Initial location of each team b) Ask for assessment of possible radiological hazards in area of surveys c) Assign 2 individuals to each Offsite Monitoring Team (at least 1 an HP Tech) d) Assign vehicle (duplicate keys to vehicles are located in the Supv. HP Operations office key locker) e) Use EPIP-4.16, OFFSITE MONITORING to brief Team Leader f) RETURN TO Step 10 | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 PAGE 11 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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NOTE: HP personnel should begin monitoring the LEOF within 60 minutes following declaration of an Alert or higher classification.

15 INITIATE CONTROL ROOM/TSC/OSC/LEOF MONITORING:

- a) Establish monitoring of emergency response centers
- b) Determine frequency of monitoring based on:
 - Spread of contamination from service buildings
 - Increase or decrease of effluent release
 - Increase in emergency classification
 - Change in plume direction
- c) Assign EIPs:
 - EPIP-4.17. MONITORING OF EMERGENCY RESPONSE FACILITIES
 - EPIP-4.18. MONITORING OF LEOF
- d) Notify RAD as to the habitability of emergency response centers
- e) RETURN TO Step 10

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
| | | PAGE 12 of 19 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 16 | <p>CHECK PERSONNEL - CONTAMINATED</p> <p>a) Check contaminated personnel - INJURED</p> <p>b) Use normal station HP procedure for response to contaminated injured personnel</p> <p>c) RETURN TO Step 10</p> <p>d) Use normal station procedures to decontaminate individual(s) and record results</p> <p>e) Notify RAD of results</p> <p>f) Identify location where individual(s) was contaminated</p> <p>g) Evaluate set-up of access controls</p> <p>h) RETURN TO Step 10</p> | <p>RETURN TO Step 10.</p> <p>a) GO TO Step 16.d.</p> |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
| | | PAGE 13 of 19 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|--|
| 17 | INITIATE EVACUATION MONITORING: | |
| | a) Check evacuation - ORDERED | a) <u>IF</u> evacuation planned but <u>NOT</u> ordered, <u>THEN</u> GO TO Step 17.c. |
| | b) GO TO Step 17.d | |
| | c) Do the following when notified of pending evacuation: | |
| | 1) Consult with RAD regarding need of additional onsite surveys to support evacuation | |
| | 2) Check surveys - REQUIRED | 2) <u>IF</u> surveys <u>NOT</u> required, <u>THEN</u> GO TO Step 17.d. |
| | 3) Dispatch Monitoring Teams to determine radiation and contamination levels | |
| | 4) Notify RAD of survey results | |
| | d) Assign EPIP-4.21, EVACUATION AND REMOTE ASSEMBLY AREA MONITORING | |
| | e) Assign Evacuation and Remote Assembly Area monitoring kit located in Facilities and Support Building (Kit #4) | |
| | f) Help team get transportation or make arrangements for transportation with Security | |
| | g) Notify RAD when team is dispatched and when survey results are available | |
| | h) RETURN TO Step 10 | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 14 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| 18 | <p>INITIATE POST ACCIDENT SAMPLING MONITORING:</p> <p>a) Take inplant survey to determine dose rate at sample station</p> <p>b) Notify RAD of survey results</p> <p>c) Assign EIPs:</p> <ul style="list-style-type: none"> • EPIP-4.22, POST ACCIDENT SAMPLING OF CONTAINMENT AIR • EPIP-4.23, POST ACCIDENT SAMPLING OF REACTOR COOLANT • EPIP-4.24, GASEOUS EFFLUENT SAMPLING DURING AN EMERGENCY • EPIP-4.25, LIQUID EFFLUENT SAMPLING DURING AN EMERGENCY <p>d) Provide HP coverage during sampling and sample preparation</p> <p>e) RETURN TO Step 10</p> | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 15 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| 19 | <p>EVALUATE RESPIRATORY PROTECTION REQUIREMENTS:</p> <p>a) Evaluate the following:</p> <ul style="list-style-type: none"> • Airborne activity • Presence of noxious gases or oxygen deficient air <p>b) Evaluate the need for recommending relocation of non-essential personnel from affected areas</p> <p>c) Evaluate the need for initiating EPIP-4.05, RESPIRATORY PROTECTION</p> <p>d) RETURN TO Step 10</p> | |
| 20 | <p>NOTIFY RAD WHEN ANY OF THE FOLLOWING SAMPLE ANALYSIS RESULTS RECEIVED:</p> <ul style="list-style-type: none"> • Sample analysis data requested by RAD • Abnormal or unexpected analysis data | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 21 | <p>IDENTIFY ADDITIONAL ACCESS CONTROL REQUIREMENTS:</p> <p>a) Check if abnormal radiological conditions exist:</p> <ul style="list-style-type: none"> • Airborne contamination greater than 0.30 DAC • Deposition greater than 1000 dpm per 100 cm² • Area dose rate greater than 1000 mR/hr <p>b) Consult with RAD about areas for which access is to be controlled</p> <p>c) Establish access control by:</p> <ul style="list-style-type: none"> • Requiring HP notification prior to entry • Roping and posting affected areas <p>d) Evaluate HP area radiation levels:</p> <ol style="list-style-type: none"> 1) Do surveys and sampling 2) Use friskers, personnel contamination monitors and count room analysis equipment for indications of abnormal readings | <p>a) <u>IF</u> NO abnormal radiological conditions, <u>THEN</u> do the following:</p> <ol style="list-style-type: none"> 1) Use normal station access control procedures. 2) GO TO Step 22. |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 17 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| _____ 22 | EVALUATE STAFFING REQUIREMENTS: a) Consult with RAD about projected duration of emergency b) Check if relief schedule and/or increased staffing schedule required c) Prepare schedule d) Give schedule to RAD for approval e) Check schedule - APPROVED f) Perform callout of personnel g) Notify RAD when callout complete | b) GO TO Step 23. e) GO TO Step 23. |
| _____ 23 | CHECK RELIEF - AVAILABLE | <u>IF</u> NO relief available, <u>THEN</u> GO TO Step 25. |
| _____ 24 | TRANSFER RESPONSIBILITIES TO RELIEF: a) Notify successor about plant conditions and HP actions underway b) Notify RAD of change of position c) Stay with new RPS for approximately 30 minutes to facilitate turnover | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 18 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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| _____ 25 | CONTINUE ASSESSMENT: a) Check if emergency condition still exists b) Verify initial TSC communications established c) Do the following: 1) RETURN TO Step 8 2) Have survey(s) and sampling repeated as necessary to determine/monitor onsite radiological conditions | a) GO TO Step 26. b) <u>WHEN</u> TSC activated, <u>THEN</u> establish communications with RAD. |
| _____ 26 | SECURE FROM EMERGENCY: a) Notify HP staff b) Maintain access control c) Consult with RAD about recovery actions d) Restore procedures and equipment used during the emergency | |

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| NUMBER EPIP-4.02 | PROCEDURE TITLE RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE | REVISION 20 <hr/> PAGE 19 of 19 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------|---|-----------------------|
| _____ 27 | TERMINATE EPIP-4.02: <ul style="list-style-type: none"> • Give completed EPIP-4.02, forms and other applicable records to the RAD _____ • Completed by: _____ Date: _____ Time: _____ <p style="text-align: center;">-END-</p> | |

| | | |
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| NUMBER | ATTACHMENT TITLE | REVISION |
| EPIP-4.02 | MONITORING TEAM LOCATIONS | 20 |
| ATTACHMENT | | PAGE |
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| NUMBER EPIP-4.02 | ATTACHMENT TITLE TEAM BRIEFING FORM | REVISION 20 |
| ATTACHMENT 2 | | PAGE 1 of 1 |

SECTION 1: (TO BE COMPLETED BY TEAM LEADER)

DATE _____ TIME DISPATCHED _____ TEAM DESIGNATION _____

TASK _____

LOCATION _____

EXPECTED CONDITIONS _____

DOSE RATES _____

CONTAMINATION LEVELS _____

SECTION 2: (TO BE COMPLETED BY INDIVIDUAL GIVING BRIEFING)

RADIO TALK GROUP: _____

TEAM PERSONNEL DATA

| NAME | TLD | REMAINING DOSE | RESP. QUAL. Y/N |
|------|-----|----------------|-----------------|
| | | | |
| | | | |
| | | | |
| | | | |

DOSE & STAY TIME _____

PROTECTIVE CLOTHING/RESPIRATORY PROTECTION
 FULL PCs w/PLASTICS _____ w/o PLASTICS _____ PAPER SUIT ONLY _____

STREET CLOTHES _____ SCBA _____ PAPR _____ FULL FACE _____

COMMUNICATIONS EQUIPMENT _____ (DO NOT USE RADIO IN ESGR)

SPECIAL INSTRUCTIONS _____

VIRGINIA POWER
SURREY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

LEVEL 2 DISTRIBUTION
This Document Should Be Verified
And Annotated to A Controlled Source
As Required to Perform Work

| | | |
|---------------------|---|-----------------|
| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING (With 2 Attachments) | REVISION 16 |
| | | PAGE 1 of 15 |

PURPOSE

To provide guidance for Offsite Monitoring Teams in obtaining equipment, tracking the plume, taking samples and transmitting data.

ENTRY CONDITIONS

Entry from EPIP-4.02, RADIATION PROTECTION SUPERVISOR CONTROLLING PROCEDURE.

Approvals on File

Effective Date 03/24/03

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
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| | | |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

____ 1 INITIATE PROCEDURE:

• By: _____

Date: _____

Time: _____

CAUTION: Emergency Kits #1 and #2 have 120 Volt air samplers and friskers with AC power cords. The vehicle assigned to the team with one of these kits has to be equipped with an inverter or equipment substitutions must be made prior to the team's departure from the HP area. Emergency Kit #3 has a 12 Volt battery clamp air sampler.

NOTE: • Offsite Monitoring Teams consist of 2 individuals, one being an HP Technician.

- Emergency Kits #1, #2 and #3 are located in the Facilities and Support Building. Instruments are stored separately in the HP Emergency Response Storage area.

____ 2 GET BRIEFING FROM RPS:

| | |
|-----------------------|--|
| Logistics: | <input type="checkbox"/> Staging area <input type="checkbox"/> Monitoring equipment required <input type="checkbox"/> Monitoring locations <input type="checkbox"/> Meteorological conditions <input type="checkbox"/> Samples or surveys required <input type="checkbox"/> Anticipated radiation levels <input type="checkbox"/> Where to report survey data (TSC, LEOF or CEOF) <input type="checkbox"/> Arrangements for return of samples to station for analysis |
| Radiation Protection: | <input type="checkbox"/> Protective clothing <input type="checkbox"/> Dosimetry <input type="checkbox"/> Respiratory protection <input type="checkbox"/> Potassium Iodide (KI) |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 <hr/> PAGE 3 of 15 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| | <p>*****</p> <p><u>CAUTION:</u> Specific authorization is required before ingesting KI.</p> <p>*****</p> | |
| 3 | SEND COMPLETED ATTACHMENT 2, RADIOPROTECTIVE DRUG DOSAGE, SIDE EFFECTS AND MEDICAL STATEMENT TO RAD | |
| 4 | GET DOSIMETRY: <ul style="list-style-type: none"> DAD - ON <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> SRD - ZEROED | |
| 5 | GET EQUIPMENT FROM HP EMERGENCY RESPONSE STORAGE: <ul style="list-style-type: none"> a) Get instruments specified during briefing (e.g., portable monitoring device, air sampler) b) Get respirators c) Check equipment: <ul style="list-style-type: none"> Battery check Calibration sticker Response check d) Record instrument data on Attachment 1, OFFSITE MONITORING DATA SHEET | |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 <hr/> PAGE 4 of 15 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
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____ 6 RECORD TEAM DATA ON ATTACHMENT 1:

- Team identification number
- Team Leader and Member names

____ 7 GET VEHICLE (duplicate keys to vehicles are located in Supv. HP Operations office key locker)

NOTE: Radio contact should be with the TSC until the LEOF (or CEOF) is activated.

____ 8 INITIATE RADIO COMMUNICATIONS:

- a) Depress mode key on radio until EP1 appears on the display
- b) Establish radio contact with appropriate emergency center (TSC, LEOF or CEOF)
- c) Ask for telephone number in case of radio failure
- d) Notify emergency center radio operator of the following:
 - Current location
 - Designated monitoring location

NOTE: Three offsite monitoring emergency kits are stored in the Facilities and Support Building.

____ 9 GET EMERGENCY KIT

| | | |
|-----------|--------------------|----------|
| NUMBER | PROCEDURE TITLE | REVISION |
| EPIP-4.16 | OFFSITE MONITORING | 16 |
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| | | 5 of 15 |

| | | |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

NOTE: • The Health Physics Monitoring Map identifies monitoring locations. Copies of the map are available in the Emergency Kit, HP Office, TSC and LEOF.

- Pre-selected Monitoring Point H-1.9 may not be accessible by vehicle.

10 GO TO DESIGNATED STAGING AREA OR MONITORING LOCATION (Refer to HP Monitoring Map for directions as needed)

NOTE: Dosimetry (SRDs/DADs) should be periodically checked while performing monitoring activities.

11 RECORD DOSIMETER READING IN MONITORING DATA SECTION OF ATTACHMENT 1

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: Completed samples should be placed in clean containers (e.g., plastic bags), kept for future laboratory analysis, and labeled with the following information (1) Team identification number, (2) Name, (3) Location, (4) Date, (5) Time, (6) Volume (if applicable).

12 CHECK ANY OF THE FOLLOWING
SAMPLING ACTIVITIES - REQUIRED:

IF directed to return to station,
THEN GO TO Step 21.

- Track plume:
GO TO Step 13
- Sample noble gas:
GO TO Step 14
- Sample particulate and iodine:
GO TO Step 15
- Determine air sample activity:
GO TO Step 16
- Surface soil sample:
GO TO Step 18
- Vegetation sample:
GO TO Step 19
- Surface water sample:
GO TO Step 20

IF NO immediate action required,
THEN wait in low background area
for further instructions
(periodically check with command
facility).

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
| | | PAGE 7 of 15 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|--|
| 13 | FIND PLUME: <ol style="list-style-type: none"> Get portable survey instrument from emergency kit Open beta shield Hold survey meter out of vehicle window Go through plume in a crosswind direction Check readings while traversing plume until maximum point (plume centerline) is located Record open window readings on Attachment 1 Close beta shield Record closed shield readings on Attachment 1 Record dosimetry reading on Attachment 1 Notify emergency center of the following: <ul style="list-style-type: none"> Dosimetry reading Monitoring readings Monitoring location Check if additional monitoring is required | <ol style="list-style-type: none"> IF NO readings above background are observed, <u>THEN</u> do the following: <ol style="list-style-type: none"> Ask appropriate emergency center where to relocate. RETURN TO Step 13.b. IF NO additional actions required, <u>THEN</u> go to a low background area outside the plume and wait for further instructions (periodically check with command facility). |
| | 1) RETURN TO Step 11 | |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 14 | <p>TAKE NOBLE GAS SAMPLE:</p> <ul style="list-style-type: none"> a) Get 100 cc gas chamber from emergency kit b) Go to plume centerline or sample location specified c) Take off top of gas chamber d) Wave gas chamber in air e) Make sure petcocks are closed f) Put top of chamber back on g) Put chamber in labeled plastic bag h) Record location on Attachment 1 i) Notify emergency center of status j) Check if additional monitoring is required k) RETURN TO Step 11 | <ul style="list-style-type: none"> j) <u>IF</u> NO additional actions required, <u>THEN</u> go to a low background area outside the plume and wait for further instructions (periodically check with command facility). |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|--|--|---|
| <p>*****</p> <p>CAUTION: Vehicle should be turned off if/when connecting or disconnecting air sampler cables. Do not touch engine or hoses as they may be hot.</p> <p>*****</p> | | |
| 15 | <p>TAKE PARTICULATE AND IODINE SAMPLE:</p> <ul style="list-style-type: none"> a) Ask emergency facility to determine sample volume required b) Get air sampler c) Insert particulate filter and silver zeolite cartridge into sampler d) Check if high humidity conditions exist e) Keep sample away from moisture f) Notify emergency center of weather conditions g) Get air sample: <ul style="list-style-type: none"> 1) Turn on air sampler 2) Get volume specified by emergency facility (minimum 2.5 ft³ air sample) h) Remove iodine cartridge and particulate filter from sampler i) Put iodine cartridge and particulate filter into separate, labeled plastic bags j) Record sample parameters in Air Sample Data section of Attachment 1: <ul style="list-style-type: none"> • Sample ID • Date • Time • Location • Volume k) Check if determination of I-131 activity required | <p>d) GO TO Step 15.g.</p> <p>k) RETURN TO Step 11.</p> |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
| | | PAGE 10 of 15 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|---|
| 16 | <p>DETERMINE AIR SAMPLE ACTIVITY:</p> <p>a) Go to a low background area</p> <p>b) Turn on frisker</p> <p>c) Get a background count rate (cpm)</p> <p>d) Put on a clean pair of gloves</p> <p>e) Take silver zeolite cartridge from plastic bag</p> <p>f) Hold influent side of silver zeolite cartridge 1/4 inch from detector for at least 30 seconds to get a good count</p> <p>g) Check gross counts - ON SCALE</p> <p>h) Calculate net count rate:</p> <p style="padding-left: 40px;">GROSS (cpm) - BACKGROUND (cpm) = NET (cpm)</p> | <p>b) IF frisker <u>NOT</u> operable, <u>THEN</u> GO TO Step 17.</p> <p>g) Do the following:</p> <p>1) Ask command facility which of the following actions is preferred:</p> <ul style="list-style-type: none"> • Taking another sample of smaller volume • Measuring readings and converting results using an R0-2 meter. <p>2) IF another sample required, <u>THEN</u> RETURN TO Step 15.</p> <p><u>IF</u> converting R0-2 readings, <u>THEN</u> GO TO Step 17.</p> |

(STEP 16 CONTINUED ON NEXT PAGE)

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 PAGE 11 of 15 |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

16 DETERMINE AIR SAMPLE ACTIVITY: (Continued)

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

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

- j) Calculate activity:

$$\text{NET (cpm)} \times \text{Conversion Factor} = \text{ACTIVITY } (\mu\text{Ci/ml})$$

- k) Calculate Thyroid CDE dose rate:

$$\text{ACTIVITY } (\mu\text{Ci/ml}) \times 1.57 \text{ E+9} = \text{Thy CDE, mrem/hr}$$

- l) Put sample in labeled plastic bag

- m) Record results in Air Sample section of Attachment 1

- n) RETURN TO Step 11

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| 17 | <p>CONVERT RO-2 MEASUREMENTS TO CPM:</p> <p>a) Take background reading (mR/hr)</p> <p>b) Record results on Attachment 1</p> <p>c) Hold influent side of silver zeolite cartridge about 1/4 inch from detector for at least 30 seconds to get a good reading</p> <p>d) Determine gross mR/hr</p> <p>e) Record results on Attachment 1</p> <p>f) Calculate net mR/hr:</p> <p style="padding-left: 40px;">Gross mR/hr - Background mR/hr = Net mR/hr</p> <p>g) Record results on Attachment 1</p> <p>h) Change mR/hr to approximate CPM:</p> <p style="padding-left: 40px;">Net mR/hr x 10,000 = Net CPM</p> <p>i) Record results on Attachment 1 (Use appropriate units)</p> <p>j) RETURN TO Step 16.i</p> | |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 PAGE 13 of 15 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 18 | <p>GET SURFACE SOIL SAMPLE:</p> <ul style="list-style-type: none"> a) Go to location specified by the emergency center b) Find an area to sample for surface deposition that is flat and open (away from buildings, trees and vegetation) c) Find an approximate 1 ft² area to take sample d) Take top 1/4 to 1/2 inch layer of soil e) Put soil sample in labeled plastic bag f) Notify emergency center of status g) Check if additional monitoring is required h) RETURN TO Step 11 | <ul style="list-style-type: none"> g) <u>IF</u> NO additional actions required, <u>THEN</u> go to a low background area outside the plume and wait for further instructions (periodically check with command facility). |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 PAGE 14 of 15 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|--|
| 19 | <p>GET VEGETATION SAMPLE:</p> <ul style="list-style-type: none"> a) Locate vegetation to yield a sample representative of surface deposition (e.g., healthy grass, crops) b) Collect about 4 pounds of vegetation c) Put sample in a labeled container d) Notify command facility of your location e) Check if additional sampling - REQUIRED f) RETURN TO Step 11 | <ul style="list-style-type: none"> e) IF additional sampling <u>NOT</u> required, <u>THEN</u> go to a low background area and wait for further instructions (periodically check with command facility). |

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| NUMBER EPIP-4.16 | PROCEDURE TITLE OFFSITE MONITORING | REVISION 16 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---|---|-----------------------|
| <p>____ 20 GET SURFACE WATER SAMPLE:</p> <p style="margin-left: 40px;">a) Locate body of water to yield a sample representative of surface deposition (e.g., lake, pond, puddle)</p> <p style="margin-left: 40px;">b) Collect about 1 gallon of surface water in a labeled container (preferably plastic)</p> <p style="margin-left: 40px;">c) Notify command facility of your location</p> <p style="margin-left: 40px;">d) Check if additional sampling - REQUIRED</p> <p style="margin-left: 40px;">e) RETURN TO Step 11</p> <p>____ 21 TAKE SAMPLE(S) TO COUNT ROOM FOR ANALYSIS (or designated alternate facility as appropriate)</p> <p>____ 22 TERMINATE EPIP-4.16:</p> <ul style="list-style-type: none"> • Give completed EPIP-4.16. forms and other applicable records to the Radiation Protection Supervisor • Completed by: _____ <li style="margin-left: 40px;">Date: _____ <li style="margin-left: 40px;">Time: _____ | <p style="margin-left: 40px;">d) <u>IF</u> additional sampling <u>NOT</u> required, <u>THEN</u> go to a low background area and wait for further instructions (periodically check with command facility).</p> | |

-END-

| | | |
|------------|---|----------|
| NUMBER | ATTACHMENT TITLE OFFSITE MONITORING DATA SHEET | REVISION |
| EPIP-4.16 | | 16 |
| ATTACHMENT | | PAGE |
| 1 | | 1 of 2 |

TEAM IDENTIFICATION No.: _____

NAME(s): _____;

INSTRUMENT DATA:

| INSTRUMENT | MODEL No. | SERIAL No. |
|------------|-----------|------------|
| | | |
| | | |
| | | |

MONITORING DATA:

| LOCATION | DATE / TIME | DAD/SRD READING | WINDOW OPEN mR/hr | WINDOW CLOSED mR/hr |
|----------|-------------|--------------------|----------------------|------------------------|
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ADDITIONAL REMARKS: _____

AIR SAMPLE DATA: NEXT PAGE

| | | |
|------------|---|----------|
| NUMBER | ATTACHMENT TITLE OFFSITE MONITORING DATA SHEET | REVISION |
| EPIP-4.16 | | 16 |
| ATTACHMENT | | PAGE |
| 1 | | 2 of 2 |

AIR SAMPLE DATA:

| | | |
|---|-----------------------|------------------------|
| AIR SAMPLE ID.: | | |
| DATE / TIME: | | LOCATION: |
| GROSS CPM: | BACKGROUND (BKG) CPM: | NET CPM (GROSS - BKG): |
| AIR SAMPLE VOLUME (ft ³): | | |
| ACTIVITY, μ Ci/ml = NET CPM x Conversion Factor (3.33 E-10 \div # ft ³) | | |
| THYROID CDE, mrem/hr = Activity, μ Ci/ml x 1.57E+9 | | |

| | | |
|---|-----------------------|------------------------|
| AIR SAMPLE ID.: | | |
| DATE / TIME: | | LOCATION: |
| GROSS CPM: | BACKGROUND (BKG) CPM: | NET CPM (GROSS - BKG): |
| AIR SAMPLE VOLUME (ft ³): | | |
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| THYROID CDE, mrem/hr = Activity, μ Ci/ml x 1.57E+9 | | |

| | | |
|---|-----------------------|------------------------|
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| DATE / TIME: | | LOCATION: |
| GROSS CPM: | BACKGROUND (BKG) CPM: | NET CPM (GROSS - BKG): |
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| ACTIVITY, μ Ci/ml = NET CPM x Conversion Factor (3.33 E-10 \div # ft ³) | | |
| THYROID CDE, mrem/hr = Activity, μ Ci/ml x 1.57E+9 | | |

VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

LEVEL 2 DISTRIBUTION
This Document Should Be Verified
And Annotated to A Controlled Source
As Required to Perform Work

| | | |
|---------------------|---|-----------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL (With 2 Attachments) | REVISION 10 |
| | | PAGE 1 of 23 |

PURPOSE

To provide instructions for execution of the MIDAS Class A Model.

ENTRY CONDITIONS

Any one of the following:

1. Entry from EPIP-4.01, RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE.
2. Entry from EPIP-4.03, DOSE ASSESSMENT TEAM CONTROLLING PROCEDURE.
3. Direction by the Radiological Assessment Director or Radiological Assessment Coordinator.

Approvals on File

Effective Date 03/24/03

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
- MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
- RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
- RELEASE OPTION SELECTION (CONFIRM, RESET)
- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
- Release Point 2: Process Vent
- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
- b) Use the "mouse" to position cross-hairs at desired location on screen.
- c) Click the "mouse" after cross-hairs are properly positioned.

NOTE: Copying may take over two minutes. Using the CONTROL key with D COPY/S COPY key will produce light text on black background (reverse image), which may improve resolution of maps/isopleths.

2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|---|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 <hr/> PAGE 2 of 23 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| | <p>NOTE:</p> <ul style="list-style-type: none"> • Dose assessments should be performed within 15 minutes after a radiological release. MIDAS may underestimate the effects of a release which begins or ends during the current 15-minute period. • An abnormal run is one in which a red bar containing messages that meteorological or radiation monitor data is missing appears on the screen. • Pressing the DIALOG key causes the terminal to display three lines of text and allows the operator to read system messages during a run. • Attachment 2, Design Basis Accident Technical Overview, provides assumptions and default values used in the MIDAS code and EPIPs. <p>____ 1 INITIATE PROCEDURE:</p> <p>a) By: _____ Date: _____ Time: _____</p> <p>b) Press START/STOP button (the top button near the lower right front of terminal)</p> <p>c) Ensure STOP/START button stays in the engaged position</p> <p>d) Press LOCK key on the keyboard</p> <p>e) Verify LOCK and TEK indicating lights - ON</p> <p>f) Verify MIDAS in one of the following locations being used:</p> <ul style="list-style-type: none"> • Surry HP Office • Surry TSC • Surry LEOF <p>g) Verify - INITIAL MIDAS RUN</p> | <p>e) Do the following:</p> <p>1) Notify RAD/RAC MIDAS - terminal malfunctioning.</p> <p>2) Initiate Attachment 1.</p> <p>f) <u>IF</u> in CEOF, <u>THEN</u> ensure "Black Box" ABC switch positioned to "B" for Surry.</p> <p>g) GO TO Step 5.</p> |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

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 - RELEASE OPTION SELECTION (CONFIRM, RESET)
 - DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
 - RELEASE TIMING SELECTION (CONFIRM, RESET)
 - WEATHER SELECTION (CONFIRM, RESET)
 - MORE REPORTS SELECTION (CONFIRM, EXIT)
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- c) Click the "mouse" after cross-hairs are properly positioned.

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|---|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 3 of 23 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---------|---|---|
| _____ 2 | DO INITIAL ASSESSMENT: | |
| | a) Press RETURN | |
| | b) Verify USERNAME displayed | b) <u>IF</u> "Local>" appears, <u>THEN</u> type C SMIDAS and RETURN TO Step 2.a. |
| | | <u>IF</u> message "Local-715 or Local-013" appears, <u>THEN</u> do the following: |
| | | 1) Press CTRL K keys. |
| | | 2) <u>WHEN</u> "Local>" appears, <u>THEN</u> type C NMIDAS. |
| | | 3) Wait for USERNAME to appear. |
| | | 4) <u>IF</u> USERNAME appears, <u>THEN</u> do the following: |
| | | a) GO TO Step 2.c. |
| | | b) Continue using manually entered monitor and met data. |
| | | <u>IF</u> USERNAME does <u>NOT</u> appear, <u>THEN</u> do dose assessment using manual EPIPs. |
| | c) Type MIDAS | |
| | d) Press RETURN | |
| | e) Verify MIDAS in one of the following locations being used: | e) <u>IF</u> in CEOF, <u>THEN</u> do the following: |
| | <ul style="list-style-type: none"> • Surry HP Office | 1) Type SU (Surry Site ID). |
| | <ul style="list-style-type: none"> • Surry TSC | |
| | <ul style="list-style-type: none"> • Surry LEOF | 2) Press RETURN. |
| | (STEP 2 CONTINUED ON NEXT PAGE) | |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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2. SCREEN PRINT CRITERIA

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IF terminal malfunctions, THEN have dose projections made from another terminal.

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| | | |
|----------------------------|--|---|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 4 of 23 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---|--------------------------|---|
| 2 DO INITIAL ASSESSMENT: (Continued) f) <u>WHEN</u> the following prompt appears ENTER: [S1] SURRY 1 [S2] SURRY 2 [R1] SURRY 1 TREND [R2] SURRY 2 TREND [EX] EXIT <u>THEN</u> type appropriate unit (S1 or S2) g) Press RETURN h) <u>WHEN</u> the following prompt appears [XX] FUNCTION <u>OR</u> TASK CODE [XXX] FUNCTION <u>AND</u> TASK CODE [FM] FUNCTION MENU [CTRL-Z] EXIT <u>THEN</u> type TS (touch screen) i) Press RETURN j) Verify MIDAS connected to Surry VAX k) Check if quick assessment desired l) Touch REAL TIME QUICK DOSE PROJECTIONS on the -ACCIDENT RUN MENU SELECTION screen m) Touch CONFIRM | | j) <u>IF</u> MIDAS is connected to North Anna VAX (i.e., connection made using C NMIDAS), <u>THEN</u> GO TO Step 7. k) GO TO Step 5. |

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- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

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| | | |
|---------------------|---|-----------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
| | | PAGE 5 of 23 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|-----------------------|
| | <p>NOTE:</p> <ul style="list-style-type: none"> • Meteorological (MET) parameters with good values are backlit in gray with their value under the parameter name. • Rate of rainfall (inches per 15 minutes) may be obtained from the Weather Center (Innsbrook, 8-730-3025). Zero (0) may be entered if data is not available. However, using zero during periods of rainfall may yield unrepresentative results. • The Stability Class letter designator (A-G) should be used in lieu of a Delta T numerical value. This is preferred because numerical values must be entered in °F, but station monitoring systems display the parameter in °C. Temperature may be converted from °C to °F using the following formula: $^{\circ}\text{F} = (^{\circ}\text{C} \times 1.8) + 32$. • EPIP-4.10, Determination of X/Q, contains instructions for getting meteorological information, e.g. inches rainfall, when on-site measurements unavailable. | |
| 3 | <p>ENTER METEOROLOGICAL DATA:</p> <p>a) Check gray boxes - APPEAR a) GO TO Step 3.f.</p> <p>b) Touch RAIN box</p> <p>c) Put in rate of rainfall (inches per 15 minutes)</p> <p>d) Touch CONFIRM</p> <p>e) GO TO Step 3.j</p> <p>f) Do one of the following:</p> <ul style="list-style-type: none"> • Use LAST MET and touch each box to activate parameter <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • Touch box for each MET parameter to be entered and put in value using the NUM pad <p>g) Verify the entered value appears under the parameter name (STEP 3 CONTINUED ON NEXT PAGE) g) Enter parameter value again.</p> | |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

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| | | |
|---------------------|---|-----------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

3 ENTER METEOROLOGICAL DATA: (Continued)

h) Ensure values for each of the following parameters are entered (touch the appropriate box and enter the value using the NUM pad as needed):

- Delta temperature [enter letter of Stability Class (A-G) in Delta T field]:

| DELTA T (°C) | SIGMA THETA (°) | STABILITY CLASS |
|----------------|-----------------|-------------------|
| ≤ -0.67 | ≥ 22.5 | A (most unstable) |
| -0.66 to -0.60 | 22.4 to 17.5 | B |
| -0.59 to -0.53 | 17.4 to 12.5 | C |
| -0.52 to -0.18 | 12.4 to 7.5 | D |
| -0.17 to +0.53 | 7.4 to 3.8 | E |
| +0.54 to +1.41 | 3.7 to 2.1 | F |
| > +1.41 | < 2.1 | G (most stable) |

- Upper and lower wind speed (mph)
 - Lower wind direction (degrees)
 - Ambient temperature (°F)
 - Rain (inches per 15 minutes)
- i) Touch CONFIRM after all MET parameters are correctly entered

(STEP 3 CONTINUED ON NEXT PAGE)

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3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|---|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 <hr/> PAGE 7 of 23 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|---------------------------------|--|---|
| 3 | ENTER METEOROLOGICAL DATA: (Continued) | |
| | j) Verify run proceeds into calculation mode | j) <u>IF</u> Red Warning message appears (i.e., rad monitor data invalid), <u>THEN</u> do the following: 1) Touch EXIT. 2) RETURN TO Step 2.j. |
| 4 | GET REPORTS: | |
| | a) Check if SPECIAL REPORT appears following calculation routine | a) <u>IF</u> DATA RESULT SCREEN appears, <u>THEN</u> touch CONTINUE multiple times to step through data results and calculation routine until the SPECIAL REPORT appears. |
| | b) Make a print of SPECIAL REPORT (touch "D COPY/S COPY") | |
| | c) Touch CONTINUE | |
| | d) <u>WHEN</u> page 1 of the RADIOLOGICAL STATUS REPORT appears, <u>THEN</u> press "D COPY/S COPY" | |
| | e) Touch CONTINUE | |
| | f) <u>WHEN</u> page 2 of the RADIOLOGICAL STATUS REPORT appears, <u>THEN</u> press "D COPY/S COPY" | |
| | g) Touch MORE REPORTS | |
| | h) Wait for MORE REPORTS SELECTION screen to appear | |
| | i) Touch box for MET, RAD, X/Q, DOSE SUMMARY report | |
| (STEP 4 CONTINUED ON NEXT PAGE) | | |

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- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

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2. SCREEN PRINT CRITERIA

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| | | |
|----------------------------|--|---|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 <hr/> PAGE 8 of 23 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|---|
| 4 | GET REPORTS: (Continued) j) Touch CONFIRM <p>*****</p> <p>CAUTION: The Quick Dose option uses available valid automatic inputs to calculate a dose projection without identifying invalid inputs to the user. Therefore, if current radiation monitor or flow readings for the release pathway are recognized as invalid, the Quick Dose result will exclude these parameters and may yield an invalid (nonconservative) estimate.</p> <p>*****</p> | <p>k) <u>IF</u> MET, RAD, X/Q, DOSE SUMMARY report indicates Quick Dose results are suspect, e.g., release path excluded from dose calculation, <u>THEN</u> do the following:</p> <p>1) Record note on RADIOLOGICAL STATUS REPORT indicating it appears to be based on incomplete inputs and is not to be used.</p> <p>2) Do one of the following:</p> <ul style="list-style-type: none"> • <u>IF</u> MIDAS dose projections to be continued using operator input, <u>THEN</u> GO TO Step 6. <p style="text-align: center;"><u>OR</u></p> <ul style="list-style-type: none"> • <u>IF</u> hand-calculations to be used for evaluation of release consequences, <u>THEN</u> initiate EPIP-4.08, INITIAL OFFSITE RELEASE ASSESSMENT. |
| 1) | Touch CONTINUE (STEP 4 CONTINUED ON NEXT PAGE) | |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
- MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
- RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
- RELEASE OPTION SELECTION (CONFIRM, RESET)
- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
- Release Point 2: Process Vent
- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
- b) Use the "mouse" to position cross-hairs at desired location on screen.
- c) Click the "mouse" after cross-hairs are properly positioned.

NOTE: Copying may take over two minutes. Using the CONTROL key with D COPY/S COPY key will produce light text on black background (reverse image), which may improve resolution of maps/isopleths.

2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|---|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 9 of 23 |
|----------------------------|--|---|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|--|
| | <p>4 GET REPORTS: (Continued)</p> <p>m) Touch EXIT TO MORE REPORTS</p> <p>n) Touch REPORTS</p> <p>o) Check with RAD/RAC about need for the following specific reports (to support State assessments):</p> <ul style="list-style-type: none"> • DOSE/DOSE RATE PLOTS • Additional SPECIAL REPORT • Additional RADIOLOGICAL STATUS REPORT <p>p) Touch box for desired report</p> <p>q) Touch CONFIRM</p> <p>r) Check if REPORT PARAMETER SELECTION screen appears</p> <p>s) Set projection time on REPORT PARAMETER SELECTION SCREEN:</p> <ol style="list-style-type: none"> 1) Touch PROJ. TIME box to scroll to duration specified by RAD/RAC (Use 2-hour default duration if no duration specified) 2) Touch CONFIRM <p>t) GO TO Step 15</p> | <p>o) <u>WHEN</u> NO additional reports are needed, <u>THEN</u> do the following:</p> <ol style="list-style-type: none"> 1) Touch EXIT twice to return to the ACCIDENT RUN MENU SELECTION SCREEN. 2) GO TO Step 16. <p>r) GO TO Step 15.</p> |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
- MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
- RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
- RELEASE OPTION SELECTION (CONFIRM, RESET)
- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
- Release Point 2: Process Vent
- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

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- c) Click the "mouse" after cross-hairs are properly positioned.

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|---------------------|---|------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: CHRRMS (Unit 1: RMS-127/128, Unit 2: RMS-227/228) readings may be used to select MIDAS LOCA accident type.

| HOURS AFTER LOCA | CONTAINMENT HIGH RANGE RADIATION MONITOR READING (R/hr) | | |
|----------------------------------|--|---------------|-------------|
| 0 | $\geq 1.3E+4$ | $\geq 4.5E+2$ | ≥ 1.54 |
| 1 | $\geq 5.0E+3$ | $\geq 1.8E+2$ | ≥ 1.3 |
| 2 | $\geq 3.7E+3$ | $\geq 1.4E+2$ | ≥ 1.2 |
| 4 | $\geq 2.8E+3$ | $\geq 8.6E+1$ | ≥ 1.0 |
| MIDAS ACCIDENT TYPE SELECTION | LOCA MELT | LOCA GAP | LOCA PC |

5 DO ENHANCED DOSE ASSESSMENT WITH
DEFAULT DATA:

a) Verify MIDAS system default
data to be used (i.e., real
time meteorological and
radiation monitor data, and
default accident isotope mix)

a) GO TO Step 7.

b) Touch REAL TIME ENHANCED DOSE
PROJECTIONS

c) Touch CONFIRM

(STEP 5 CONTINUED ON NEXT PAGE)

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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- RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
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- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
- Release Point 2: Process Vent
- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

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- c) Click the "mouse" after cross-hairs are properly positioned.

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 <hr/> PAGE 11 of 23 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| 5 | DO ENHANCED DOSE ASSESSMENT WITH DEFAULT DATA: (Continued) d) <u>WHEN</u> DBA ACCIDENT TYPE <u>SELECTION</u> screen appears, <u>THEN</u> touch the selection box for the accident type as specified by RAD/RAC: <ul style="list-style-type: none"> • MSLB (Main Steam Line Break) • SGTR (Steam Generator Tube Rupture) • FUEL HANDLING (in Fuel Building only) • WGTR (Waste Gas Decay Tank Rupture) • LOCA - PC (PRI COOL) • LOCA - GAP • LOCA - MELT • LOCKED ROTOR e) Touch CONFIRM f) RETURN TO Step 3 | |
| 6 | RETURN TO ACCIDENT RUN MENU SELECTION SCREEN: a) Touch CONTINUE b) Touch EXIT TO MORE REPORTS c) Touch MORE REPORTS d) Touch EXIT twice to return to the ACCIDENT RUN MENU SELECTION screen | |

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

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- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 <hr/> PAGE 12 of 23 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|---|
| | <p>*****</p> <p>CAUTION: Only use monitor values from 1-RM-VG-110 or 1-RM-GW-102 if 1-RM-VG-131-1 or 1-RM-GW-130-1 are unavailable. Values for 1-RM-VG-110 and 1-RM-GW-102 <u>must</u> be corrected due to <u>vacuum</u> in the detector chamber by the following equation:</p> <p style="text-align: center;">Corrected CPM = Indicated CPM X [30 ÷ (30 - inches Hg)]</p> <p>*****</p> <p>NOTE:</p> <ul style="list-style-type: none"> • Each input screen will appear with preselected values backlit in white. Changes are made by pressing the appropriate box and using the touch screen keypad in the upper right quadrant on the screen. Keypad entries are entered by touching EN on the keypad. Times between midnight and 0100 must be entered as 2400 through 2459 using the previous date. • Use of bad radiation monitor or source term data (equal to zero) during a previous run will require selection of a new (different) release option. <p>7 USE REAL TIME ALL SCREEN DOSE PROJECTIONS TO DO ENHANCED DOSE ASSESSMENT WITH OPTIONAL OPERATOR INPUT DATA:</p> <p>a) Verify user input is desired for Release Date/Time, Release Option, Monitor Data or Sample Data</p> <p>b) Touch REAL TIME ALL SCREEN DOSE PROJECTIONS</p> <p>c) Touch CONFIRM</p> <p>d) <u>WHEN</u> MISCELLANEOUS PARAMETERS screen appears, <u>THEN</u> verify default choices are to be used</p> <p>e) Touch CONFIRM</p> | <p>a) RETURN TO Step 5.</p> <p>d) Adjust choices on the MISCELLANEOUS PARAMETERS screen per RAD/RAC instructions</p> <p style="text-align: center;"><u>OR</u></p> <p>Touch MANUAL if manual input of weather data is desired.</p> |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

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3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|-------------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

- NOTE:**
- Run type is preset to PROJECTED (FORECAST) DOSE.
 - PROJECTION TIME (HOURS) is preset to 1, 2, 4 and 8.

8 INPUT DATE AND TIME INFORMATION:

a) WHEN RUN MODE AND INTEGRATION TIME SELECTION screen appears, THEN verify current date/time to be used

a) IF current date/time NOT to be used, THEN do the following:

- 1) Touch START DATE OF INTEGRATION and then use the touch screen NUM pad to enter date in the format: MO/DY/YR HR:MN. (MIDAS will provide "/" marks between the pairs of digits for month, day and year, and a colon between the pairs of digits for hours and minutes.)
- 2) Touch EN when entry is complete.

b) Touch CONFIRM

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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3. TERMINAL MALFUNCTION RESPONSE CRITERIA

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| | | |
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| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: If rad data was bad or the source term data was equal to zero in a previous run, a new release option must be selected different from the one previously selected.

9 SELECT RELEASE (SOURCE TERM) OPTION:

- a) Use RELEASE OPTION SELECTION screen
- b) Select one of the following release options:

| RELEASE OPTIONS | SELECTION AND TRANSITION STEPS |
|--|--|
| Radiation monitor data is available for manual entry and/or predictive dose assessment is desired based on a potential release | 1) Touch MANUAL ENTRY OF EACH MONITOR READING 2) Touch CONFIRM 3) GO TO Step 10 |
| Radiation monitor data is available from file | 1) Touch MONITOR DATA FROM V & F FILE 2) Touch CONFIRM 3) GO TO Step 12 |
| Isotopic release rates are available for manual entry and/or predictive dose assessment is desired based on a potential release | 1) Touch MANUAL ENTRY OF ISOTOPE RELEASE RATE 2) Touch CONFIRM 3) GO TO Step 11 |
| Isotopic concentrations and flow rates of each release path are known, and/or predictive dose assessment is desired based on a potential release | 1) Touch MANUAL ENTRY OF ISOTOPE CONCENTRATION 2) Touch CONFIRM 3) GO TO Step 11 |
| Design Basis Assident Default (DBA) | 1) Touch DEFAULT DBA ACCIDENT 2) Touch CONFIRM 3) GO TO Step 12 |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
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- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
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1. TERMINAL INTERFACE CRITERIA

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|---------------------|---|------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
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| | | |
|------|--------------------------|-----------------------|
| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--------------------------|-----------------------|

- CAUTION:**
- Double counting will occur if more than one monitor in each release pathway is entered.
 - Default flow rates will automatically be used if flow rates are not entered and may result in overconservative dose projections. Consideration should be given to obtaining actual flow rates whenever possible, e.g., from ERFCS, Operations staff, Control Room.

- NOTE:**
- Monitor readings may be obtained from ERFCS Group Review screens if RMS data is not available to MIDAS.
 - Monitor readings from RM-VG-123 (Vent Vent High Range) or RM-GW-122 (Process Vent High Range) may be obtained from Operations if Kaman monitors (RM-VG-131 or RM-GW-130) or Victoreen monitors (RM-VG-110 or RM-GW-102) are offscale or out of service.
 - CHRRMS (Unit 1: RMS-127/128, Unit 2: RMS-227/228) readings may be used to select MIDAS LOCA accident type.

| HOURS AFTER LOCA | CONTAINMENT HIGH RANGE RADIATION MONITOR READING (R/hr) | | |
|----------------------------------|--|---------------|-------------|
| 0 | $\geq 1.3E+4$ | $\geq 4.5E+2$ | ≥ 1.54 |
| 1 | $\geq 5.0E+3$ | $\geq 1.8E+2$ | ≥ 1.3 |
| 2 | $\geq 3.7E+3$ | $\geq 1.4E+2$ | ≥ 1.2 |
| 4 | $\geq 2.8E+3$ | $\geq 8.6E+1$ | ≥ 1.0 |
| MIDAS ACCIDENT TYPE SELECTION | LOCA MELT | LOCA GAP | LOCA PC |

____ 10 ENTER MONITOR DATA MANUALLY:

(STEP 10 CONTINUED ON NEXT PAGE)

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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3. TERMINAL MALFUNCTION RESPONSE CRITERIA

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| | | |
|----------------------------|--|-------------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
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| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| | <p>10 ENTER MONITOR DATA MANUALLY: (Continued)</p> <p>a) <u>WHEN</u> DBA ACCIDENT TYPE SELECTION screen appears, <u>THEN</u> touch the selection box for the accident type as specified by RAD/RAC:</p> <ul style="list-style-type: none"> • MSLB (Main Steam Line Break) • SGTR (Steam Generator Tube Rupture) • FUEL HANDLING (in Fuel Building only) • WGTR (Waste Gas Decay Tank Rupture) • LOCA - PC (PRI COOL) • LOCA - GAP • LOCA - MELT • LOCKED ROTOR <p>b) Touch CONFIRM</p> <p>c) <u>WHEN</u> RADIATION MONITOR READINGS screen appears, <u>THEN</u> do the following:</p> <ol style="list-style-type: none"> 1) Touch the box for each monitor to be entered (one at a time) 2) Enter radiation and flow values for each monitor using EN on the NUM pad (Enter monitor and flow rate values by making two entries on the NUM pad separated by a comma; e.g., 1E6,25000 for cpm,flow rate) 3) <u>WHEN</u> entry for one monitor is complete, <u>THEN</u> repeat Step 10.c.1 through 10.c.2 until all monitor data is entered <p>(STEP 10 CONTINUED ON NEXT PAGE)</p> | |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
 - MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
 - RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
 - RELEASE OPTION SELECTION (CONFIRM, RESET)
 - DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
 - RELEASE TIMING SELECTION (CONFIRM, RESET)
 - WEATHER SELECTION (CONFIRM, RESET)
 - MORE REPORTS SELECTION (CONFIRM, EXIT)
- Surry release points are assigned as follows:
- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
 - Release Point 2: Process Vent
 - Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
- b) Use the "mouse" to position cross-hairs at desired location on screen.
- c) Click the "mouse" after cross-hairs are properly positioned.

NOTE: Copying may take over two minutes. Using the CONTROL key with D COPY/S COPY key will produce light text on black background (reverse image), which may improve resolution of maps/isopleths.

2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|-------------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
| | | PAGE 17 of 23 |

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|---|
| 10 | ENTER MONITOR DATA MANUALLY: (Continued) d) <u>WHEN</u> all entries have been made, <u>THEN</u> touch CONFIRM e) GO TO Step 13 | |
| | <u>NOTE:</u> • An input is required for each active release point. • Zero is an acceptable input for radiation level or flow. | |
| 11 | ENTER STATION INVENTORY OR SAMPLE DATA: a) Check if isotopic release RATE is to be used b) Select each isotope <u>AND</u> Enter release rates (for, each selection) using the NUM pad c) Touch CONFIRM after all data has been correctly entered d) GO TO Step 13 | a) <u>IF</u> isotopic CONCENTRATION is to be entered, <u>THEN</u> do the following: 1) Select each isotope. 2) Enter concentration using the NUM pad. 3) Enter flow rate in bottom box of center column. 4) GO TO Step 11.c c) <u>IF</u> a data entry error was made, <u>THEN</u> re-enter the correct data using the NUM pad and touch CONFIRM when complete. |

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
 - MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
 - RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
 - RELEASE OPTION SELECTION (CONFIRM, RESET)
 - DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
 - RELEASE TIMING SELECTION (CONFIRM, RESET)
 - WEATHER SELECTION (CONFIRM, RESET)
 - MORE REPORTS SELECTION (CONFIRM, EXIT)
- Surry release points are assigned as follows:
- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
 - Release Point 2: Process Vent
 - Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

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IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
- b) Use the "mouse" to position cross-hairs at desired location on screen.
- c) Click the "mouse" after cross-hairs are properly positioned.

NOTE: Copying may take over two minutes. Using the CONTROL key with D COPY/S COPY key will produce light text on black background (reverse image), which may improve resolution of maps/isopleths.

2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|---------------------|---|------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 |
| | | PAGE 18 of 23 |

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

- NOTE:**
- The UNKNOWN MIX option may not appear on all DBA ACCIDENT TYPE SELECTION screens.
 - CHRRMS (Unit 1: RMS-127/128, Unit 2: RMS-227/228) readings may be used to select MIDAS LOCA accident type.

| HOURS AFTER LOCA | CONTAINMENT HIGH RANGE RADIATION MONITOR READING (R/hr) | | |
|----------------------------------|--|---------------|-------------|
| 0 | $\geq 1.3E+4$ | $\geq 4.5E+2$ | ≥ 1.54 |
| 1 | $\geq 5.0E+3$ | $\geq 1.8E+2$ | ≥ 1.3 |
| 2 | $\geq 3.7E+3$ | $\geq 1.4E+2$ | ≥ 1.2 |
| 4 | $\geq 2.8E+3$ | $\geq 8.6E+1$ | ≥ 1.0 |
| MIDAS ACCIDENT TYPE SELECTION | LOCA MELT | LOCA GAP | LOCA PC |

12 ENTER ACCIDENT TYPE:

- a) Verify DBA ACCIDENT TYPE SELECTION screen appears

b) Select accident type as specified by RAD/RAC:

 - MSLB (Main Steam Line Break)
 - SGTR (Steam Generator Tube Rupture)
 - FUEL HANDLING (in Fuel Building only)
 - WGTR (Waste Gas Decay Tank Rupture)
 - LOCA - PC (PRI COOL)
 - LOCA - GAP
 - LOCA - MELT
 - LOCKED ROTOR

c) Touch CONFIRM

a) IF accident type screen does NOT appear, THEN GO TO Step 13.

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
 - MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
 - RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
 - RELEASE OPTION SELECTION (CONFIRM, RESET)
 - DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
 - RELEASE TIMING SELECTION (CONFIRM, RESET)
 - WEATHER SELECTION (CONFIRM, RESET)
 - MORE REPORTS SELECTION (CONFIRM, EXIT)
- Surry release points are assigned as follows:
- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
 - Release Point 2: Process Vent
 - Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
- b) Use the "mouse" to position cross-hairs at desired location on screen.
- c) Click the "mouse" after cross-hairs are properly positioned.

NOTE: Copying may take over two minutes. Using the CONTROL key with D COPY/S COPY key will produce light text on black background (reverse image), which may improve resolution of maps/isopleths.

2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 19 of 23 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|--|
| 13 | ENTER RELEASE TIMING SELECTION: | |
| | a) Verify NO "abnormal run" occurred | a) IF recovering from an "abnormal run", THEN GO TO Step 14.e. |
| | b) Check if trip occurred GREATER THAN 15 minutes ago | b) IF time of trip is unknown or within the past 15 minutes, THEN GO TO Step 13.d. |
| | c) Touch TRIP DATE box on the RELEASE TIMING SELECTION screen and enter date and time of trip using the NUM pad | |
| | d) Check if time of start of release since trip is known | d) GO TO Step 13.g. |
| | e) Touch RELEASE START MINS SINCE TRIP box | |
| | f) Enter number of minutes using the NUM pad | |
| | g) Check if 120 minute release duration is to be used | g) IF release duration is known, THEN do the following: |
| | | 1) Touch DURATION box. |
| | | 2) Enter number of minutes using the NUM pad. |
| | | 3) GO TO Step 13.i. |
| | h) Touch DURATION box and enter 120 minutes using the NUM pad | |
| | i) Touch CONFIRM | |
| | j) Verify run is proceeding into calculation mode and data result screen appears | j) IF meteorological data is not available and the manual entry screen appears, THEN RETURN TO Step 3. |
| | | IF error warning messages appear, THEN touch EXIT and RETURN TO Step 2.j. |
| | k) RETURN TO Step 4 | |

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

- ACCIDENT RUN MENU SELECTION (CONFIRM, EXIT, RESET)
- MISCELLANEOUS PARAMETERS (CONFIRM, RESET)
- RUN TYPE AND TIME SELECTION (CONFIRM, RESET)
- RELEASE OPTION SELECTION (CONFIRM, RESET)
- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

- Release Point 1: Containment and Vent Vent (The expressed flow (EX VEL) for Release Point 1 is "0.00E+00" based on no containment release.)
- Release Point 2: Process Vent
- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
- b) Use the "mouse" to position cross-hairs at desired location on screen.
- c) Click the "mouse" after cross-hairs are properly positioned.

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 20 of 23 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|---|
| 14 | <p>RESTART PROCEDURE FOR ABNORMAL RUN:</p> <p>a) Touch REAL TIME ALL SCREENS DOSE PROJECTIONS box on ACCIDENT RUN MENU SELECTION screen</p> <p>b) Touch CONFIRM</p> <p>c) <u>WHEN</u> the next screen requesting run type and time selection information appears, <u>THEN</u> touch CONFIRM without making any changes</p> <p>d) Refer to Step 9 to select a new release option</p> <p>e) Wait for RELEASE TIMING SELECTION screen to appear</p> <p>f) Touch CONFIRM without making any changes</p> <p>g) Verify that the run proceeds into the calculation mode</p> <p>h) RETURN TO Step 4</p> | <p>g) <u>IF</u> meteorological data <u>NOT</u> available and the manual entry WEATHER SELECTION screen appears, <u>THEN</u> RETURN TO Step 3.</p> |

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

• Surry release points are assigned as follows:

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- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

IF touch screen feature activated, THEN use touch screen to make entries.

IF a "mouse" is connected to the terminal, THEN do the following when instructed to touch the screen during performance of this procedure:

- a) Do not touch the screen when prompted to do so by the procedure.
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- c) Click the "mouse" after cross-hairs are properly positioned.

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 21 of 23 |
|----------------------------|--|--|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

- NOTE:**
- Displays may be graphic or tabular, depending on what was selected in the MORE REPORTS menu. Map features allow the user to put on or take off map overlays using function keys.
 - Instructions at the bottom of all graphic and tabular plume menus provide directions on how to move within them.
 - Graphic displays of plumes should not be used to determine emergency classifications. Instead, use the printed Special Report information.
 - Point of Interest allows the user to select specific points to determine X/Q, dose or dose rate values through the location of the terminal cursor. The cursor is moved using the "joy disk" to any location and then the space bar is toggled to display values.

15 EVALUATE DISPLAYS:

a) Set map scale:

1) Do one of the following:

- Use default distance (miles)

OR

- Touch MAP SCALE box and enter miles of interest using NUM pad

2) Touch CONFIRM

b) Check use of MAP FEATURES - DESIRED:

b) IF use of map features is NOT desired, THEN GO TO Step 15.c.

1) Touch MAP FEATURES

2) Select (highlight) desired options on screen menu

3) Touch CONFIRM

(STEP 15 CONTINUED ON NEXT PAGE)

CONTINUOUS ACTION PAGE FOR EPIP-4.30

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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 - RELEASE OPTION SELECTION (CONFIRM, RESET)
 - DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
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1. TERMINAL INTERFACE CRITERIA

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2. SCREEN PRINT CRITERIA

WHEN individual screen print desired, THEN press "D COPY/S COPY" key while screen is displayed.

3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|---------------------|---|------------------------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 22 of 23 |
|---------------------|---|------------------------------------|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------|--|---|
| 15 | EVALUATE DISPLAYS: (Continued) | |
| | c) Check enlargement of selected area of display - DESIRED: | c) <u>IF</u> use of SELECT AREA feature is <u>NOT</u> desired, <u>THEN</u> GO TO Step 15.d. |
| | 1) Touch SELECT AREA | |
| | 2) Touch screen at two points bounding the desired area | |
| | 3) Touch RESTORE when use of this function is complete | |
| | d) Check use of POINT OF INTEREST feature - DESIRED: | d) <u>IF</u> POINT OF INTEREST feature is <u>NOT</u> desired, <u>THEN</u> GO TO Step 15.e. |
| | 1) Touch POINT OF INTEREST, move cursor to desired location using "joy disk", and toggle the space bar (Place mouse cross-hairs at desired point and click) | |
| | 2) <u>WHEN</u> POINT OF INTEREST function complete, <u>THEN</u> move cursor to bottom right-hand corner of the plot and press the space bar (Place mouse cross-hairs at bottom right corner of plot and click) | |
| | e) Touch CONTINUE | |
| | f) Touch MORE REPORTS | |
| | g) RETURN TO Step 4.h | |
| _____ 16 | CHECK IF MIDAS OPERATIONS CAN BE TERMINATED: | RETURN TO Step 5. |
| | • Event - TERMINATED | |
| | • RAD/RAC directs termination of MIDAS operation | |

NOTE: • MIDAS screen selection boxes include: RESET, CONFIRM and EXIT. RESET clears data entered before initiating a run or returns to previous screen. CONFIRM is selected to continue model processing when all information on screen is correct. EXIT exits the modeling process. Selection touch screens are as follows:

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- RELEASE OPTION SELECTION (CONFIRM, RESET)
- DBA ACCIDENT TYPE SELECTION (CONFIRM, RESET)
- RELEASE TIMING SELECTION (CONFIRM, RESET)
- WEATHER SELECTION (CONFIRM, RESET)
- MORE REPORTS SELECTION (CONFIRM, EXIT)

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- Release Point 3: Main Steam Safety Valves and AFWPT

1. TERMINAL INTERFACE CRITERIA

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3. TERMINAL MALFUNCTION RESPONSE CRITERIA

IF terminal malfunctions, THEN have dose projections made from another terminal.

4. TERMINAL LOCK-UP RESPONSE CRITERIA

IF terminal lock-up occurs, THEN refer to Attachment 1 for response actions.

| | | |
|---------------------|---|------------------------------------|
| NUMBER EPIP-4.30 | PROCEDURE TITLE USE OF MIDAS CLASS A MODEL | REVISION 10 PAGE 23 of 23 |
|---------------------|---|------------------------------------|

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

____ 17 DISENGAGE SYSTEM:

- a) Touch EXIT twice on the
ACCIDENT RUN MENU SELECTION
screen
- b) Press "CTRL" and "Z" keys
simultaneously
- c) WHEN "Local>" appears, THEN
type L0
- d) Press RETURN
- e) Ensure "LOGGED OFF" message
appears on screen
- f) Press START/STOP button (the
top button near the lower right
front of terminal)
- g) Ensure START/STOP button -
DISENGAGED

____ 18 TERMINATE EPIP-4.30:

- Give completed EPIP-4.30, forms
and other applicable records to
the Radiological Assessment
Director/Coordinator
- By: _____
- Date: _____
- Time: _____

-END-

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|------------------------------|----------|
| EPIP-4.30 | RESPONSE TO TERMINAL LOCK-UP | 10 |
| ATTACHMENT | | PAGE |
| 1 | | 1 of 1 |

Perform the following actions, in sequence, to recover from terminal or system lock-up. The user may return to the procedure upon recovery (i.e., it is not necessary to complete the entire sequence if operation is restored).

- 1. Enter the letter "E" AND press RETURN.
IF system accepts commands, THEN RETURN TO procedure.
- 2. Enter "CTRL Q".
IF system accepts commands, THEN RETURN TO procedure.
- 3. Enter "CTRL Y".
IF system accepts commands, THEN RETURN TO procedure.
- 4. Press "RESET" on terminal (located at bottom right of terminal screen).
IF system accepts commands, THEN RETURN TO procedure.
- 5. Enter "CTRL Y".
IF system accepts commands, THEN RETURN TO procedure.
- 6. Turn terminal power OFF and back ON again.
IF system accepts commands, THEN RETURN TO procedure.
- 7. Enter "CTRL Y".
IF system accepts commands, THEN RETURN TO procedure.

NOTE: The HP and CEOF terminals are normally connected to Server "A".
TSC and LEOF terminals are normally connected to Server "B".

- 8. Reset the MIDAS terminal servers as follows:
 - a) Have all users exit MIDAS.
 - b) Have the power cord for the affected terminal unplugged from the MIDAS terminal server (located in TSC Computer Room MIDAS Cabinet).
 - c) Plug the power cord back in to the MIDAS terminal server.
 - d) Wait for approximately 2 minutes while the server loads files from MIDAS and restarts operation. MIDAS will be out of service on at least two terminals during this time.
 - e) IF system accepts commands, THEN RETURN TO procedure.
- 9. Connect to backup (alternate) MIDAS system:
 - a) Reset terminal by turning terminal power OFF and then back ON again.
 - b) Press CTRL K keys.
 - c) WHEN the "Local>" prompt appears, THEN type "C NMIDAS". Make sure to put a space between "C" and "NMIDAS".
 - d) Return to procedure Step 2 and continue procedure using manually entered monitor and meteorological data.
- 10. Notify the MIDAS System Manager or Code Administrator, and the RAD or RAC.

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|--|----------|
| EPIP-4.30 | DESIGN BASIS ACCIDENT TECHNICAL OVERVIEW | 10 |
| ATTACHMENT | | PAGE |
| 2 | | 1 of 3 |

1. MAIN STEAM LINE BREAK:

- Release duration: 1 hour, with all activity released in first 1/2 hour.
- Release from faulted line: $2.15E+5$ lb-mass/hr.
- Release from unaffected steam lines: 0 - 2 hours = 38,924 lb-mass/hr per line; 2 - 8 hours = 41,296 lb-mass/hr per line.
- Primary and secondary side activity: Technical Specification limits at onset of event.
- Primary to secondary leak rate: Technical Specification limit, 500 gpd in affected generator, and 1440 gpd (1 gpm) total for all 3 steam generators.
- Iodine partition factors: Faulted S/G = 1; Intact S/Gs = 0.10.
- Condenser is assumed unavailable and the following release points apply: Broken steam line, intact steam line relief valves, and AFWPT.
- Activity released from broken steam line is distributed among the other 3 remaining release paths: 2 intact reliefs and AFWPT.
- Concurrent Iodine spike is 4 hours in duration.
- 10% of total activity is released via AFWPT. Steam flow to AFWPT: 40.5 lbs/hr per horsepower. Rated power = 710 horsepower. AFWPT total steam flow = 28,755 lbs/hr.

2. STEAM GENERATOR TUBE RUPTURE:

- Release duration: 1 hour.
- Tubes in the affected steam generator are uncovered at 5 minutes from event initiation, and remain uncovered for 10 minutes.
- Iodine Partition Factor: 1.0 in affected steam generator; 0.01 in unaffected generators.
- The affected steam generator is assumed isolated within 30 minutes.
- Primary and secondary side activity: Technical Specification limits at onset of event.
- Primary to secondary leak rate: Technical Specification limit, 500 gpd in affected generator, and 1440 gpd (1 gpm) total for all 3 steam generators.
- Primary coolant release to affected steam generator: 108,381 lbs (0 - 30 minutes).
- Steam release from affected steam generator: 107,395 lbs from 0 - 30 minutes, or $2.15E+5$ lb-mass/hr.
- Steam release from intact steam generators: 0 - 2 hours = 38,924 lb-mass/hr per generator; 2 - 8 hours = 41,296 lb-mass/hr per generator.
- Condenser is assumed unavailable and the following release points apply: faulted generator relief valves, intact steam line relief valves, AFWPT. If condenser is available, release points are as follows: steam line relief valves (3), AFWPT, Vent Vent 1, and Air Ejector. The Unit 1 Air Ejector vents through Vent Vent 1. The Unit 2 Air Ejector vents via an independent stack.
- All activity released is distributed among the 3 main steam reliefs and AFWPT.
- Concurrent Iodine spike is 4 hours in duration.
- 10% of total activity is released via AFWPT. Steam flow to AFWPT: 40.5 lbs/hr per horsepower. Rated power = 710 horsepower. AFWPT total steam flow = 28,755 lbs/hr.

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3. FUEL HANDLING ACCIDENT (in Fuel Building):

- Release duration assumed for 1 hour.
- Fuel Pool effective Iodine partition factor of 100.
- Release is through the charcoal filtration system. The filters through which the fuel building is exhausted are assumed to be 95% efficient for all species of Iodine.
- Fuel is not moved until 100 hours post shutdown (= decay time).

4. WASTE GAS DECAY TANK RUPTURE:

- Release duration assumed for 15 minutes.
- Entire contents of tank released (25,000 Ci D.E. Xe-133).
- 1/2 of release occurs via Process Vent.
- 1/2 of release occurs via Vent Vent.

5. LOSS OF COOLANT ACCIDENT - MELT:

- Release duration: 2 hours.
- Release paths: Containment (Containment leakage) and Vent Vent 2 (ECCS leakage).
- Containment airborne source term: 100% core Noble Gases, 25% core Iodines.
- Spray removal: 10 hr⁻¹ for elemental Iodine.
- Containment leak rate: 0.1% per day, 0 to 1 hour (1.3 cfm).
- ECCS leakage: 0 gpm, 0 to 5 min.: 964 cc/hour 5 min. to 20 min.: 4800 cc/hr 20 min to 30 days.
- Iodine released in building atmosphere from ECCS leakage: 10%.
- Filter efficiency for safeguards exhaust: 90% elemental Iodine.

6. LOSS OF COOLANT ACCIDENT - PC:

- RCS concentration assumed at Technical Specification limits.
- Safeguards filter efficiency: 90% Elemental Iodine.
- Release duration: 2 hours.

7. LOSS OF COOLANT ACCIDENT - GAP:

- 3% core Noble Gases and 2% core Iodines assumed in gap.
- Safeguards filter efficiency: 90% Elemental Iodine.
- Release duration: 2 hours.

8. LOCKED ROTOR:

- Fuel cladding failure is assumed at 5%.
- Total release duration: 8 hours.
- Iodine Partition Factor of 100 is assumed for the condenser.
- Steam flow to AFWPT = 40.5 lbs/hr per horsepower. Rated power = 710 horsepower. AFWPT steam flow = 28,755 lbs/hr.
- Release duration: 2 hours.

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9. MISCELLANEOUS GENERAL ASSUMPTIONS:

- Vent Vent: Auxiliary Building, Air Ejector(s), Safeguards (filtered), Fuel Building (filtered), Containment Purge (filtered), Waste Gas Decay Tank area.
- Process Vent: Waste Gas Decay Tanks, Containment Vacuum.
- Containment leakage: MIDAS uses the higher of the two CHRRMS monitors to calculate the release.
- Air Ejector Monitors: MIDAS adds the Air Ejector release to the associated vent vent release.
- Main Steam and AFWPT: MIDAS adds the flows from each "open" and "status unknown" valve to calculate the total flow for a particular steam line. MIDAS sums the releases from all three steam lines and AFWPT to calculate the total release.
- For Vent Vents and Process Vents, MIDAS uses the highest radiation monitor indication on the affected pathway to calculate dose projections.
- For "Quick Dose" defaults: Unidentified mix, ground level, all release points active, and noble gas and iodine.
- SPS MIDAS FLOW RATES:

| PATHWAY | FLOW RATES |
|----------------------|--|
| VENT VENT STACK 2: | Flow as indicated by FT-VS-116 (for VG-110, VG-131) ERFCS unknown/bad data: 0 scfm MIDAS default: 1.72 E+5 scfm |
| PROCESS VENT: | Flow indicated by FT-GW-100 (for GW-130, GW-102) ERFCS unknown/bad data: 0 scfm MIDAS default flow: 300 scfm |
| AIR EJECTOR: | TV-SV-103 (-203) open: 25 scfm TV-SV-103 (-203) closed: 0 scfm TV-SV-103 (-203) ERFCS unknown/bad data: 25 scfm MIDAS default: 25 scfm |
| CONTAINMENT: | Containment pressure < 14.7 psia: 0 scfm Containment pressure > 14.7 psia: 1.3 scfm ERFCS unknown/bad data: 0 scfm MIDAS default: 1.30 scfm |
| MAIN STEAM: | The flow for all valves associated with a specific line are summed to determine the release rate associated with the radiation monitor for that pathway. |
| SAFETY VALVES: | Valve open or ERFCS unknown/bad data: 838,739 lb-mass/hr Valve closed: 0 |
| ATMOSPHERIC RELIEFS: | Valve open or ERFCS unknown/bad data: 370,618 lb-mass/hr Valve closed: 0 |
| MIDAS DEFAULT TOTAL: | 3.73 E+6 lbs-mass/hr per steam line |
| AFWPT: | Flow indicated by FT-MS-100 (-200) ERFCS unknown/bad data: 0 MIDAS default: 3.7 E+5 lb-mass/hr |

VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

LEVEL 2 DISTRIBUTION
This Document Should Be Verified
And Annotated to A Controlled Source
As Required to Perform Work

| | | |
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PURPOSE

Provide guidance to the Field Team Radio Operator (FTR0) 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 03/24/03

| | | |
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| NUMBER EPIP-4.34 | PROCEDURE TITLE FIELD TEAM RADIO OPERATOR INSTRUCTIONS | REVISION 5 PAGE 2 of 10 |
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| | | |
|------|--------------------------|-----------------------|
| 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

e) Meteorological forecast (if available)

____ 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 25.

| | | |
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STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

NOTE: • A minimum of 2 Offsite Monitoring Teams shall be dispatched (i.e., sent into the field) at a Site Area Emergency or higher emergency class.

- The first available monitoring team should be used for near-site monitoring, i.e., within the Exclusion Area outside the Protected Area. 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.

| | | |
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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

| EXPOSURE LIMITS (established by RAD/RAC) | |
|---|---|
| Rem TEDE | <ul style="list-style-type: none"> Maximum limit, without SEM's authorization for emergency exposure, is 5 Rem TEDE. DDE dose rate is adjusted by accident-specific TEDE/DDE ratio to derive TEDE dose rate. |
| Rem Thyroid CDE | <ul style="list-style-type: none"> Threshold for recommending administration of radioprotective drugs is 25 Rem Thyroid CDE. Thyroid CDE dose is the accumulated dose based on air sample result(s) and plume exposure time(s). |

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|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|---|-----------------------|
| 8 | ESTABLISH RADIO CONTACT: <ul style="list-style-type: none"> 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 | |
| 9 | UPDATE MONITORING TEAM: <ul style="list-style-type: none"> • Emergency classification • Event status • Meteorological conditions/forecast • Offsite protective actions (e.g., implementation of offsite evacuation, siren activations) | |

| | | |
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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.

10 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 11.

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)

| | | |
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|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|------|--|--|
| 11 | <p>DETERMINE SAMPLE MEDIUM TO BE COLLECTED AND NOTIFY TEAM ACCORDINGLY:</p> <ul style="list-style-type: none"> • Particulate and iodine • Gas • Soil • Snow or ice | |
| 12 | CHECK IF AIR SAMPLE - REQUIRED | <p>IF air sample <u>NOT</u> required, <u>THEN</u> GO TO Step 17.</p> |
| | <p>NOTE: Air sample volume should be at least 2.5 cubic feet.</p> | |
| 13 | HAVE TEAM GET AIR SAMPLE | |
| 14 | <p>CHECK WITH DOSE ASSESSMENT TEAM LEADER TO DETERMINE IF COUNT ROOM ANALYSIS OF INITIAL CONFIRMATORY SAMPLE IS REQUIRED</p> | GO TO Step 17. |
| 15 | <p>HAVE INITIAL CONFIRMATORY SAMPLE DELIVERED TO SECURITY</p> | |
| 16 | <p>ASK DOSE ASSESSMENT TEAM LEADER TO COORDINATE THE FOLLOWING:</p> <ul style="list-style-type: none"> a) Transport of sample to Count Room b) Count Room analysis of sample c) Determination of TEDE/DDE Ratio | |

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.34 | PROCEDURE TITLE FIELD TEAM RADIO OPERATOR INSTRUCTIONS | REVISION 5 PAGE 8 of 10 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|----------|---|-----------------------|
| _____ 17 | CALCULATE ESTIMATED TEDE DOSE USING ATTACHMENT 2, DETERMINATION OF TEDE/DDE RATIO | |
| _____ 18 | CALCULATE THYROID CDE DOSE RATES USING ATTACHMENT 3, DETERMINATION OF THYROID OFFSITE DOSE RATE FROM SAMPLE ANALYSIS | |
| _____ 19 | RECORD THE FOLLOWING ON ATTACHMENT 4, OFFSITE MONITORING TEAM INFORMATION: <ul style="list-style-type: none"> a) Monitoring Data <ul style="list-style-type: none"> • 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 | |

| | | |
|----------------------------|--|--|
| NUMBER EPIP-4.34 | PROCEDURE TITLE FIELD TEAM RADIO OPERATOR INSTRUCTIONS | REVISION 5 PAGE 9 of 10 |
|----------------------------|--|--|

| STEP | ACTION/EXPECTED RESPONSE | RESPONSE NOT OBTAINED |
|-----------|--|----------------------------|
| <p>20</p> | <p>CONTINUE PLUME TRACKING:</p> <ul style="list-style-type: none"> a) Get dose rates and location at plume centerline b) Check if unexpected readings occur c) Have team travel downwind until plume is located d) Review Attachment 1, FACTORS CONTROLLING THE AREA AFFECTED BY A RELEASE, concerning plume width | <p>b) GO TO Step 20.d.</p> |
| <p>21</p> | <p>CHECK WITH DOSE ASSESSMENT TEAM LEADER TO DETERMINE IF FIXED ENVIRONMENTAL SAMPLES AND TLDs ARE TO BE COLLECTED</p> | <p>GO TO Step 23.</p> |
| <p>22</p> | <p>HAVE TEAMS COLLECT SAMPLES</p> | |

NOTE: Unexpected readings may result from plume rise, looping or cloud meander.

20 CONTINUE PLUME TRACKING:

a) Get dose rates and location at plume centerline

b) Check if unexpected readings occur

b) GO TO Step 20.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

21 CHECK WITH DOSE ASSESSMENT TEAM LEADER TO DETERMINE IF FIXED ENVIRONMENTAL SAMPLES AND TLDs ARE TO BE COLLECTED

GO TO Step 23.

22 HAVE TEAMS COLLECT SAMPLES

| | | |
|----------------------------|--|---|
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| | | |
|------|--------------------------|-----------------------|
| 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.

_____ 23 CHECK IF INGESTION EXPOSURE PATHWAY SAMPLING IS REQUIRED: GO TO Step 24.

- a) Have teams prepare for additional sampling
- b) Ask team to get samples specified by Dose Assessment Team Leader:
 - Milk
 - Water
 - Crops/Vegetation

_____ 24 CHECK IF CONTINUED MONITORING IS REQUIRED: GO TO Step 25.

- a) Consult with Dose Assessment Team Leader
- b) RETURN TO Step 9

_____ 25 TERMINATE EPIP-4.34:

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

-END-

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|--|----------|
| EPIP-4.34 | FACTORS CONTROLLING THE AREA AFFECTED BY A RELEASE | 5 |
| ATTACHMENT | | PAGE |
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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 |

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|---------------------------------|----------|
| EPIP-4.34 | DETERMINATION OF TEDE/DDE RATIO | 5 |
| ATTACHMENT | | PAGE |
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NOTE: TEDE = DDE + CEDE, when applied to emergency worker dose.

- __1. Use Ratio TEDE/DDE from actual effluent pathway sample results when available (derived from Count Room analysis of effluent sample and derivation of ratio using EPIP-4.09, SOURCE TERM ASSESSMENT).

IF sample results NOT available, THEN use Ratio TEDE/DDE from MIDAS report.

IF MIDAS results NOT available, THEN 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.

- __2. Determine estimated TEDE dose:

$$\left[\begin{array}{l} \text{DDE dose} \\ \text{from DAD or SRD} \end{array} \right] \times \text{Ratio } \frac{\text{TEDE}}{\text{DDE}} = \text{TEDE dose}$$

- __3. IF TEDE dose greater than exposure limit, THEN notify RAD/RAC.

- __4. Record resulting estimated TEDE dose on Attachment 4

- __5. Determine DDE limit:

$$\left[\frac{\text{Remaining dose, rem from Attachment 4} - \text{Estimated TEDE, rem from Step 2 above}}{\text{Ratio TEDE/DDE}} \right] = \text{DDE limit, rem}$$

| NUMBER | ATTACHMENT TITLE | REVISION |
|------------|--|----------|
| EPIP-4.34 | DETERMINATION OF THYROID OFFSITE DOSE RATE FROM SAMPLE ANALYSIS | 5 |
| ATTACHMENT | | PAGE |
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__1. DETERMINE EQUIVALENT I-131 ACTIVITY FROM AIR SAMPLE ANALYSIS:

a) Check if sample data given in counts per minute (cpm). IF data given in $\mu\text{Ci/ml}$, 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:

$$\text{Net mR/hr} \times 10,000 = \text{Net CPM}$$

3) GO TO Step 1.d.

b) Get data from monitoring team(s):

• Background cpm: _____

• Gross (sample) cpm: _____

c) Calculate NET counts per minute:

$$\text{Gross cpm} - \text{Background cpm} = \text{NET cpm}$$

d) Calculate Conversion factor (CF) for sample volume collected:

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

e) Calculate activity:

$$\text{NET cpm} \times \text{CF} = \text{Activity, } \mu\text{Ci/ml}$$

__2. Calculate Thyroid CDE dose rate using the following calculation:

$$\text{Activity, } \mu\text{Ci/ml} \times 1.57 \text{ E+9} = \text{Thyroid CDE, mrem/hr}$$

__3. Calculate estimated Thyroid CDE dose using the following calculation:

$$\begin{array}{ccccc} \text{Thyroid CDE Dose Rate} & \times & \text{Exposure} & = & \text{Thyroid CDE Dose} \\ (\text{mrem/hr}) & & (\text{hours}) & & (\text{mrem}) \end{array}$$

NOTE: Thyroid CDE dose is accumulated dose based on sample result(s) and plume exposure time(s).

__4. IF Thyroid CDE dose greater than exposure limit, THEN notify RAD/RAC.

__5. Record results on Attachment 4.

| | | |
|---------------------|---|----------------|
| NUMBER EPIP-4.34 | ATTACHMENT TITLE OFFSITE MONITORING TEAM INFORMATION | REVISION 5 |
| ATTACHMENT 4 | | PAGE 1 of 2 |

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, $\mu\text{Ci}/\text{ml}$ ** = | |
| THYROID CDE, mrem/hr = Activity, $\mu\text{Ci}/\text{ml}$ x $1.57\text{E}+9$ = | | |
| 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, $\mu\text{Ci}/\text{ml}$ ** = | |
| THYROID CDE, mrem/hr = Activity, $\mu\text{Ci}/\text{ml}$ x $1.57\text{E}+9$ = | | |
| REMARKS: | | |

** Determine using Attachment 3.

| | | |
|------------|---|----------|
| NUMBER | ATTACHMENT TITLE OFFSITE MONITORING TEAM INFORMATION | REVISION |
| EPIP-4.34 | | 5 |
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FIELD TEAM RADIO OPERATOR LOG

DATE/TIME:

COMMENTS:
