

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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.01	RADIOLOGICAL ASSESSMENT DIRECTOR CONTROLLING PROCEDURE (With 2 Attachment)	01
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PURPOSE

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

USER

Radiological Assessment Director or Senior Health Physics representative onsite.

ENTRY CONDITIONS

1. Activation by EPIP - 1.01

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): 1 of 31 through 31 of 31	DATE: SEP 23 1983
REV.	PAGE(S):	DATE:
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DATE

SEP 23 1983

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	<p>INITIATE PROCEDURE:</p> <p>a) BY: _____</p> <p>DATE: _____</p> <p>TIME: _____</p> <p>NOTE: During the initial stages of the emergency the Shift Supervisor may assume the position of Emergency Manager.</p>	
2.	<p>CHECK CONDITIONS:</p> <p>a) The Senior Health Physics individual onsite should report to the Control Room <u>IF</u> the TSC is <u>NOT</u> activated</p> <p>a) <u>IF</u> TSC is activated, report to the TSC.</p> <p>b) Request briefing with Emergency Manager to determine:</p> <p>1) Existing Plant Conditions</p> <p>2) Emergency Action Levels (EALs) exceeded</p> <p>3) Classification of emergency</p> <p>c) Assume the position of Radiological Assessment Director</p>	
3.	<p>INITIAL ASSESSMENT:</p> <p>a) <u>IF</u> an offsite release has occurred:</p> <p>a) If no actual <u>OR</u> potential offsite release has ment occurred <u>GO TO</u> Step 15.</p> <p>b) Request alternate on-shift technician to obtain, if possible, a sample of the effluent</p>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	VERIFY EMERGENCY LEVEL:	
	a) <u>IF</u> the event - UNUSUAL EVENT, continue with this instruction	a) <u>IF</u> the event is ALERT or GREATER, <u>GO TO</u> Step <u>6</u> .
5.	EVENT - UNUSUAL EVENT:	
	a) <u>IF</u> radiological release - continue	a) <u>IF</u> the event is <u>NOT</u> radio- logical release <u>GO TO</u> Step <u>15</u> .
	b) Initiate EPIP-4.08 <u>Initial</u> <u>Offsite Release Assessment</u> to assess percent Tech Spec Limit	
	<u>AND</u>	
	Return to Step <u>5.c</u>	
	c) Assess percent Tech Spec:	
	1) <u>IF</u> normal range monitors indicate LESS THAN 100% Tech Spec, inform Emergency Manager initial results indicate LESS THAN UNUSUAL EVENT	1) <u>IF</u> normal range monitors GREATER THAN <u>OR</u> EQUAL TO 100% Tech Spec, <u>GO TO</u> Step <u>5.e.2</u> .
	<u>AND</u>	
	<u>GO TO</u> Step <u>5.e</u>	
	2) <u>IF</u> normal range monitors are onscale and indicate GREATER THAN 100% Tech Spec, but LESS THAN 1000% Tech Spec	2) <u>IF</u> normal range monitors indicate GREATER THAN 1000% Tech Spec, <u>GO TO</u> Step <u>6</u> .
	<u>OR</u>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.	(CONTINUED)	
	Normal range monitors are offscale and indicate LESS THAN 1000% Tech Spec	
	3) Confirm classification of an UNUSUAL EVENT	
	d) Report percent Tech Specs and Site Boundary dose rate to the Emergency Manager	
	e) Obtain sample(s) of the effluent release path	e) IF sample CANNOT be obtained GO TO Step 16.
	f) Have sample(s) analyzed as per Health Physics procedure, H. P. 3.4.1.3	
	g) GO TO Step 16 for follow up assessment	
6.	EVENT - ALERT, SITE OR GENERAL:	
	a) IF the emergency is classified as an ALERT, SITE, OR GENERAL EMERGENCY	a) IF the event is NOT a radiological release, GO TO Step 16.
	AND	
	Radiological release has occurred OR may potentially occur, continue with this procedure	
7.	EVENT - CONDITION IV LIMITING FAULTS:	
	a) IF event - Limiting Fault Accident:	a) IF accident is NOT a Limiting Fault, GO TO Step 12.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7.	(CONTINUED)	
	1) LOCA - <u>GO TO Step 11</u>	
	<u>OR</u>	
	2) Steam Generator Tube Rupture - <u>GO TO Step 9</u>	
	<u>OR</u>	
	3) Main Steam Line Rupture - <u>GO TO Step 10</u>	
	<u>OR</u>	
	4) Fuel Handling Accident - <u>GO TO Step 8</u>	
8.	EVENT - FUEL HANDLING ACCIDENT:	
	a) <u>IF</u> event - Fuel Handling accident:	
	1) Recommend evacuation of Fuel Building	
	<u>AND/OR</u>	
	Affected containment Building	
	<u>AND</u>	
	2) Restrict access until radiological assessment can be made	
	b) Assign EPIP-4.06, <u>Personnel Monitoring and Decontamination</u> to monitor and decontaminate, as necessary, individuals evac- uated from accident area	b) <u>IF</u> individual found non- contaminated, continue with this instruction.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.	<p>(CONTINUED)</p> <p>c) Initiate EPIP-4.08, <u>Initial Offsite Release Assessment</u>, to assess offsite releases</p> <p style="text-align: center;"><u>AND</u></p> <p>Return to Step <u>8.d</u></p> <p>d) Report results of above step to Emergency Manager</p> <p>e) <u>GO TO</u> Step <u>13</u></p>	
9.	<p>EVENT - STEAM GENERATOR TUBE RUPTURE:</p> <p>a) <u>IF</u> event - Steam Generator Tube Rupture, request the following from Emergency Manager:</p> <ol style="list-style-type: none"> 1) Status of Air Ejector divert 2) Number of Steam Generator Relief Valves lifted, <p style="text-align: center;"><u>OR</u></p> <p>Valves which may potentially lift</p> <ol style="list-style-type: none"> 3) <u>IF</u> relief valves lifted, length of time valves remained open 4) Status of main steam supply to the Auxilary Feedwater Pump Turbine 5) Current Steam Generator Blowdown pathway 	<p>a) <u>IF</u> event is <u>NOT</u> Steam Generator Tube Rupture, <u>GO TO</u> Step <u>10</u>.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	(CONTINUED).	
	b) <u>IF</u> Air Ejector diverted to containment	b) <u>IF</u> Air Ejector did <u>NOT</u> divert to containment
	<u>AND</u>	<u>OR</u>
	Individuals are in affected containment:	<u>IF NO</u> individuals are in affected containment:
	1) Request immediate evacuation of containment	1) Continue with this instruction.
	c) <u>IF</u> main steam supply to Auxiliary Feedwater Pump Turbine has <u>NOT</u> been isolated:	c) <u>IF</u> main steam supply to AFWPT isolated, release from this pathway may be disregarded.
	1) Request Emergency Manager initiate isolation of main steam supply, of affected generator, to Auxiliary Feedwater Pump Turbine	1) <u>GO TO</u> Step 9.d.
	d) Request placement of operations personnel in Emergency Switchgear Room to report:	
	1) Initial readings	
	<u>AND</u>	
	2) Increase or decrease in Main Steam and AFWPT exhaust monitors	
	e) <u>Initiate EPIP 4.08, Initial Offsite Release Assessment:</u>	
	1) Determine offsite dose rate	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	(CONTINUED)	
	<u>AND</u>	
	2) <u>GO TO</u> Step 9.f of this instruction	
	f) Report results of the above step to Emergency Manager	
	g) Restrict access, until survey(s) confirm no radiological hazards:	
	1) Steam Generator Blowdown Cooler area	
	2) Steam Generator Blowdown Lines	
	3) Steam Generator relief valve area	
	4) Auxiliary Feedwater Pump Turbine exhaust area	
	5) Condensate Polishing Building	
	h) <u>IF</u> personnel are available consider initiation of EPIP-4.23, <u>Post Accident Sampling of Reactor Coolant</u> , to assess core damage	h) <u>IF</u> personnel are <u>NOT</u> available, consider sampling upon arrival of additional manpower
		<u>AND</u>
		Continue with this instruction.
	i) Consider sampling of Steam Generator Blowdown and Main Steams of affected unit	
	j) Potential liquid release pathway may occur through the Main Steam Safety Valve.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	(CONTINUED)	
	k) <u>GO TO</u> Step <u>13</u>	
10.	EVENT MAIN STEAM LINE RUPTURE:	
	a) <u>IF</u> Main Steam Line Rupture occurs, review station ventilation monitors	a) <u>IF</u> event is <u>NOT</u> a Main Steam Line Rupture, <u>GO TO</u> Step <u>11</u> .
	1) <u>IF</u> station monitors have indicated a release, initiate EPIP-4.08, <u>Initial Offsite Release Assessment</u>	1) <u>IF</u> station monitors <u>DO NOT</u> indicate a release, <u>GO TO</u> Step <u>10.b</u> .
	2) Assess offsite dose rate	
	3) Return to Step <u>10.b</u>	
	b) Report results to the Emergency Manager	
	c) <u>IF NO</u> initial release has occurred, source term may develop:	
	1) Inside containment	
	<u>OR</u>	
	2) From Main Steam Relief Valve Lift	
	d) Request following information from the Emergency Manager:	
	1) Location of Steam Break	
	2) Actual or potential lifting of Main Steam Safety Valves	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	(CONTINUED)	
	3) <u>IF</u> valves have lifted, length of time valve remained open	
	4) Status of Auxiliary Feed- water Pump Turbine (iso- lation)	4) <u>IF</u> Main Steam supply to the Auxiliary Feed- water Pump Turbine has been isolated, no release will occur through this pathway.
	5) Monitor Reading on Main Steam Monitors and AFWPT exhaust monitors	
	e) <u>IF</u> manpower is available:	e) <u>IF</u> manpower is <u>NOT</u> available continue with this procedure
	1) Consider initiation of EPIP-4.22, <u>Post Accident</u> <u>Sampling of Containment</u> <u>Air</u>	<u>AND</u> Consider initiation once manpower is available.
	<u>AND</u>	
	2) Initiation of EPIP-4.23, <u>Post Accident Sampling</u> <u>of Reactor Coolant</u>	
	f) <u>GO TO</u> Step <u>13</u>	
	<u>NOTE:</u> LOCA accident may not initially result in large release, but may produce a large source with a potential for release from the containment building.	
11.	EVENT - LOCA	
	a) <u>IF</u> event - LOCA:	a) <u>IF NOT</u> LOCA, <u>GO TO</u> Step <u>12.</u>
	1) Evacuate Auxiliary Building and Safeguards Building	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11.	(CONTINUED)	
	<p style="text-align: center;"><u>AND</u></p> <p>2) Restrict entry until survey(s) confirm no radiological hazards</p> <p>b) <u>IF</u> offsite release has occurred through monitored station ventilation, initiate EPIP 4.08, <u>Initial Offsite Release Assessment</u></p> <p style="text-align: center;"><u>AND</u></p> <p>1) Assess offsite release</p> <p style="text-align: center;"><u>AND</u></p> <p>2) Return to Step <u>11.c</u></p> <p>c) Report results of above step to Emergency Manager</p> <p>d) <u>IF</u> manpower is available, consider the following:</p> <p>1) EPIP-4.22, <u>Post Accident Sampling of Containment Air</u></p> <p style="text-align: center;"><u>AND</u></p>	<p>b) <u>IF</u> offsite release has occurred through unmonitored pathway</p> <p style="text-align: center;"><u>OR</u></p> <p>Release has not occurred, but may potentially occur:</p> <p>1) Assign an individual to initiate EPIP 4.03, <u>Dose Assessment Controlling Procedure</u></p> <p style="text-align: center;"><u>AND</u></p> <p>2) Assess actual or potential release from containment.</p> <p>d) <u>IF</u> manpower <u>NOT</u> available:</p> <p>1) Continue with this instruction.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11.	(continued)	
	2) Initiation of EPIP-4.23, <u>Post Accident Sampling of Reactor Coolant</u>	
	e) <u>GO TO</u> Step <u>13</u>	
12.	EVENT - RADIOLOGICAL RELEASE:	
	a) <u>IF</u> event - Radiological Release, continue with this instruction	a) <u>IF</u> event is <u>NOT</u> a Radio- logical Release, <u>GO TO</u> Step <u>15</u> .
	b) Initiate EPIP-4.08, <u>Initial Offsite Release Assessment:</u>	
	1) Assess offsite release	
	<u>AND</u>	
	2) Return to Step <u>12.c</u>	
	c) Report results of above step to Emergency Manager	
	d) Request the Emergency Manager place an in- dividual at monitor of interest	
	<u>AND</u>	
	Report increase or decrease in reading	
13.	VERIFY OFFSITE DOSE RATE:	
	a) <u>IF</u> results of offsite release assessment at the Site Boundary:	a) <u>IF</u> results of offsite release assessment at Site Boundary:

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13.	(continued)	
	1) GREATER THAN <u>OR</u> EQUAL TO 50 mR/hr Whole Body	1) LESS THAN 50 mR/hr Whole Body
	<u>OR</u>	<u>OR</u>
	GREATER THAN <u>OR</u> EQUAL TO 250 mR/hr Thyroid	LESS THAN 250 mR/hr Thyroid
	2) Continue with this instruction	2) <u>GO TO</u> Step <u>15</u> .
14.	PROTECTIVE MEASURES:	
	a) Obtain an estimate of duration of release (hours) from Emergency Manager	a) <u>IF</u> no estimate can be given, assume <u>3</u> hours.
	b) Use Site Boundary, 2, 5, and 10 mile Whole Body and Thyroid dose rates from:	b) <u>IF</u> 2, 5, and 10 mile dose rate were <u>NOT</u> calculated, use dose rate at the distances calculated.
	1) EPIP-4.08, <u>IF</u> initial assessment	1) <u>GO TO</u> Step <u>14.b.2</u> .
	<u>OR</u>	
	2) EPIP-4.03, <u>IF</u> follow- up assessment	
	c) Determine projected dose:	
	DURATION OF RELEASE x DOSE RATE = PROJECTED DOSE (hours) (mR/hr) (mR)	
	1) Repeat above calculation for all dose rates given in Step <u>14.b</u>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14.	(CONTINUED)	
	d) <u>IF</u> projected dose - GREATER THAN <u>OR</u> EQUAL TO 500 mR Whole Body <u>OR</u> GREATER THAN <u>OR</u> EQUAL TO 1000 Thyroid 1) Initiate EPIP-4.07, <u>Protective Measure</u> <u>AND</u> 2) Determine protective measures for distances, which projected dose equals or exceeds the above dose 3) Return to Step <u>14.e</u>	d) <u>IF</u> projected dose - LESS THAN 500 mR Whole Body <u>OR</u> LESS THAN 1000 mR Thyroid 1) Inform Emergency Man- ager <u>NO</u> protective measure required <u>AND</u> 2) <u>GO TO NOTE</u> prior to Step <u>15</u> .
	e) Recommend to the Emergency Manager: 1) Protective measures re- quired offsite <u>AND</u> 2) Distance protective measures required	e) <u>IF NO</u> protective measures required, <u>GO TO NOTE</u> prior to Step <u>15</u> .
	<u>NOTE:</u> First Aid considerations must be given priority over decontamination of individual.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15.	<p>EVENT - INJURED CONTAMINATED INDIVIDUAL:</p> <p>a) <u>IF</u> the event is an Injured Contaminated Individual,</p> <p style="text-align: center;"><u>AND</u></p> <p>Requires Offsite Medical Treatment:</p> <p>1) Initiate EPIP-4.20, <u>Health Physics Actions for Transportation of Contaminated Injured Individual</u></p> <p>2) Review personnel contamination survey(s) to confirm personnel contamination</p> <p>b) Insure clothing removal and/or onsite decontamination can <u>NOT</u> be used to remove contamination</p> <p>c) Insure a Health Physics individual is available to accompany the victim</p> <p>d) Recommend to Emergency Manager transportation of victim to MCV</p> <p>e) <u>IF</u> the event initiated only for contaminated injured individual requiring offsite medical treatment,</p> <p style="text-align: center;"><u>AND</u></p> <p><u>NO</u> other EALs exceeded:</p> <p>1) <u>GO TO</u> Step <u>30</u></p>	<p>a) <u>IF</u> the event is <u>NOT</u> an Injured Contaminated Individual, <u>GO TO</u> Step <u>16</u>.</p> <p>b) <u>IF</u> individual deconned, <u>GO TO</u> Step <u>15.e</u>.</p> <p>e) <u>IF</u> other EALs were exceeded <u>GO TO</u> Step <u>16</u>.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16.	FOLLOW-UP ASSESSMENT:	
	a) <u>IF TSC NOT</u> activated continue with this instruction	a) <u>IF TSC IS</u> activated <u>GO TO Step 18.</u>
	b) One member of Health Physics group should remain in the control room to assist the Emergency Manager	
	c) <u>IF</u> conditions require presence in another location:	c) Continue with this instruction.
	1) Inform Emergency Manager	
	<u>AND</u>	
	2) Report to Control Room immediately upon completion of task	
	d) <u>IF</u> a radiological release has occurred:	d) <u>IF NO</u> release has occurred:
	1) Continue with this instruction	1) <u>GO TO</u> Step <u>16.g.</u>
	e) Obtain samples of the effluent	e) <u>IF NO</u> samples can be obtained
	1) Analyze samples as per normal Health Physics procedure	1) Continue with this instruction
	<u>AND</u>	<u>AND</u>
	2) <u>IF</u> sample activity is high, assign EPIP-4.26, <u>High Level Activity Sample Analysis</u>	2) Use monitoring readings for follow-up assessment

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16.	(CONTINUED)	
	f) <u>IF</u> time allows:	f) <u>IF</u> time is <u>NOT</u> available,
	1) Initiate EPIP-4.03, <u>Dose Assessment Controlling Procedure</u>	1) <u>GO TO</u> Step <u>16.g</u>
	<u>AND</u>	<u>AND</u>
	2) Return to Step <u>16.g</u>	2) Return to Step <u>16.f</u> , when time becomes available
	g) Insure dose control individual is available to supply dosimetry	
	h) Provide H.P. coverage, as needed, for:	
	1) Damage Control Teams	
	<u>OR</u>	
	2) Access control	
	<u>OR</u>	
	3) Personnel monitoring	
	<u>OR</u>	
	4) Sample analysis	
	i) <u>IF</u> the emergency has terminated <u>GO TO</u> Step <u>30</u>	i) <u>IF</u> the emergency has <u>NOT</u> terminated <u>GO TO</u> Step <u>16.i</u>
	j) <u>IF</u> TSC <u>IS</u> manned, <u>GO TO</u> Step <u>17</u>	j) <u>IF</u> the TSC is <u>NOT</u> manned:
		1) Obtain latest dose rate
		2) Return to Step <u>13</u>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
16.	(CONTINUED)	<p><u>AND</u></p> <p>3) Repeat sampling and assessment, as necessary</p>
17.	<p>VERIFY RELIEF:</p> <p>a) When a more Senior Health Physics individual arrives onsite</p> <p><u>OR</u></p> <p><u>IF</u> relief is needed:</p> <p>1) Brief successor as to existing plant conditions</p> <p><u>AND</u></p> <p>2) Offsite release assessment</p> <p><u>AND</u></p> <p>3) H. P. actions currently underway</p> <p>b) Announce the change of position to the Emergency Manager</p>	<p>a) <u>IF</u> relief is <u>NOT</u> needed, <u>GO TO</u> Step <u>18</u>.</p>
18.	<p>ESTABLISH EMERGENCY ORGANIZATION:</p> <p>a) <u>IF</u> the H. P. emergency organization <u>NOT</u> activated, continue with this procedure</p>	<p>a) <u>IF</u> emergency organization <u>IS</u> activated, <u>GO TO</u> <u>NOTE</u> prior to Step <u>19</u>.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
18.	(CONTINUED)	
	b) <u>IF</u> manpower is available: 1) Establish the Dose Assessment Team <u>AND</u> 2) Assign EPIP-4.03, <u>Dose Assessment Controlling Procedure</u> c) Establish position of Radiation Protection Supervisor and assign EPIP-4.02, <u>Radiation Protection Supervisor Controlling</u>	b) <u>IF</u> manpower is <u>NOT</u> available, continue with this instruction, assigning EPIP-4.03, when manpower becomes available. c) <u>IF</u> manpower is <u>NOT</u> yet available, continue with instruction assigning EPIP-4.02 when manpower becomes available.
	<p><u>NOTE:</u> During a SITE of GENERAL emergency, a minimum of two monitoring teams should be dispatched for offsite monitoring.</p> <p><u>NOTE:</u> The function of plume tracking/offsite monitoring will be the responsibility of the Radiological Assessment Coordinator, upon activation of EOF.</p>	
19.	ASSESS NEED FOR OFFSITE MONITORING:	
	a) Evaluate need for offsite monitoring with Dose Assessment Team Leader b) <u>IF</u> EOF <u>NOT</u> activated: 1) Request Radiation Protection Supervisor to initiate EPIP-4.16, <u>Offsite Monitoring</u>	a) <u>IF</u> offsite monitoring <u>NOT</u> required, <u>GO TO</u> Step <u>22</u> . b) <u>IF</u> EOF activated, <u>GO TO</u> Step <u>22</u> .

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19.	(CONTINUED)	
	c) Evaluate need of protective measures for offsite teams	
	d) <u>IF</u> Whole Body exposure may exceed 10CFR20 quarterly limits:	d) <u>IF</u> Whole Body will <u>NOT</u> exceed 10CFR20 limits, <u>GO TO</u> Step <u>19.e</u> .
	1) Initiate EPIP-4.04, <u>Emergency Exposure Limits</u>	
	<u>AND</u>	
	2) Return to Step <u>19.e</u>	
	e) <u>IF</u> Thyroid exposure exceeds <u>10</u> REM (refer to Attachment 2):	e) <u>IF</u> Thyroid exposure will <u>NOT</u> exceed <u>10</u> REM, <u>GO TO</u> Step <u>19.f</u> .
	1) Initiate EPIP-5.07, <u>Administration of Radioprotective Drugs</u>	
	<u>AND</u>	
	Return to Step <u>19.f</u>	
	f) Inform Radiation Protection Supervisor:	
	1) Number of monitoring teams required	1) <u>IF</u> adequate manpower <u>NOT</u> available, <u>GO TO</u> Step <u>20</u> .
	<u>AND</u>	
	2) Protective clothing required	
	<u>AND</u>	
	3) Respiratory protection required	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19.	(CONTINUED)	
	g) Assist Dose Assessment Team in placement of offsite monitoring teams.	
20.	OFFSITE ASSESSMENT:	
	a) <u>IF</u> offsite releases occur:	a) <u>IF NO</u> offsite releases have occurred
	1) Request Emergency Manager place individual at monitor of interest	<u>OR</u>
	<u>AND</u>	<u>IF</u> there is <u>NO</u> potential for a release
	2) Report increase or decrease in monitor readings	1) <u>GO TO</u> Step <u>22</u> .
	b) The following information will be supplied periodically <u>OR</u> upon request:	
	1) Meteorological data	
	2) Radiation Monitor System data	
	3) Sample Analysis data	
	c) Upon receipt of above data:	c) <u>IF</u> no data received, <u>GO TO</u> Step <u>20.d</u> .
	1) Complete Attachment 1	
	2) Give Attachment 1 to the Dose Assessment Team	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20.	(CONTINUED)	
	d) Obtain latest offsite Release Assessment Data Sheet from Dose Assessment Team	d) <u>IF</u> data not available, <u>GO TO</u> Step <u>22</u> .
21.	VERIFY OFFSITE DOSE RATE:	
	a) <u>IF</u> Site Boundary dose rate:	a) <u>IF</u> Site Boundary dose rate:
	1) GREATER THAN <u>OR</u> EQUAL TO 50 mR/hr Whole Body	1) LESS THAN 50 mR/hr Whole Body
	<u>OR</u>	<u>OR</u>
	2) GREATER THAN <u>OR</u> EQUAL TO 250 mR/hr Thyroid	2) LESS THAN 250 mR/hr Thyroid
	b) Return to Step <u>14</u>	b) <u>GO TO</u> Step <u>22</u> .
22.	EOF ACTIVATION:	
	a) <u>IF</u> EOF activated, continue with this instruction	a) <u>IF</u> EOF <u>NOT</u> activated, <u>GO TO</u> Step <u>23</u> .
	b) Brief Radiological Assessment Coordinator:	
	1) Existing plant conditions	
	<u>AND</u>	
	2) Current offsite dose projections	
	<u>AND</u>	
	3) H.P. actions underway	
	c) Inform Dose Assessment Team Leader to brief Radiological Assessment Coordinator:	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22.	(CONTINUED)	
	1) Offsite dose assessment	
	<u>AND</u>	
	2) Status and location of off-site monitoring teams	
	d) Insure individual remains in radiological assessment area to transmit to EOF:	
	1) Meteorological data	
	<u>AND</u>	
	2) Monitor data	
	<u>AND</u>	
	3) Sample analysis data	
23.	ESTABLISH IN-PLANT MONITORING:	
	a) Brief Radiation Protection Supervisor as to existing plant conditions	
	b) Assist in selecting proper monitoring and sampling areas	b) <u>IF NO</u> monitoring is needed <u>GO TO</u> Step <u>23.e.</u>
	c) Instruct Radiation Protection Supervisor to initiate EPIP-4.14, <u>Inplant Monitoring</u>	
	<u>AND</u>	
	EPIP-4.15, <u>Onsite Monitoring</u> , as necessary	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23.	(CONTINUED)	
	d) Assist Radiation Protection Supervisor in:	
	1) Determining protective gear	
	2) Dosimetry	
	<u>AND</u>	
	3) Developing special precautions, as necessary, for implant and onsite monitoring teams.	
	e) Request from Radiation Protection Supervisor establishing initial and periodic monitoring of TSC and EOF	
	1) Based on survey data and plant conditions establish routine for surveys of the Emergency Centers	
	f) <u>IF</u> a radiological release has occurred	f) <u>GO TO</u> Step <u>23.g.</u>
	<u>AND</u>	
	A change in plume direction <u>OR</u> increase in release has taken place	
	1) Notify Radiation Protection Supervisor	
	<u>AND</u>	
	2) Request survey of emergency centers	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23.	(CONTINUED)	
	g) Based on survey data, direct the establishment of new control points:	
	1) Control spread of contamination	
	<u>AND/OR</u>	
	2) Limit exposure	
24.	ENTRANCE - ACCESS CONTROL AREA:	
	a) Entrance into access controlled areas should require an evaluation of radiological hazards prior to entrance	a) <u>IF</u> entrance is not required <u>GO TO</u> Step <u>25</u> .
	b) Assist Emergency Manager in obtaining Health Physics coverage, if necessary	
	c) Consult with the Radiation Protection Supervisor as to the entrance requirements	
	1) If necessary, request initiation of a Radiation Work Permit, as per the Health Physics Manual	
25.	RESPIRATORY PROTECTION:	
	a) Assess results of air sampling	
	b) Recommend evacuation of all non-essential personnel in areas that:	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25.	(continued)	
	1) High airborne activity is expected but not measured	1) <u>IF</u> Airborne contamination <u>NOT</u> suspected, <u>GO TO</u> Step <u>27</u> .
	2) Airborne activity is <u>GREATER THAN 0.25</u> times maximum permissible concentration.	2) <u>IF</u> activity is <u>LESS THAN OR EQUAL TO 0.25</u> maximum permissible concentration <u>GO TO</u> Step <u>27</u> .
	c) Assess need for respiratory protection, as per EPIP-4.05 <u>Respiratory Protection</u> and return to Step <u>26</u>	
26.	DETERMINE NEED FOR RADIOPROTECTIVE DRUGS:	
	a) Determine, from survey results, concentration of radiiodine (uCi/ml)	
	b) Determine actual or projected length of exposure time (hours)	
	c) <u>IF</u> respiratory protection was worn, determine protection factor:	c) <u>IF</u> respirator <u>NOT</u> worn, use protection factor of <u>1</u> .
	1) Refer to EPIP-4.05, <u>Respirator Protection</u> , Attachment 3, to determine protection factor	
	d) Determine actual concentration:	
	Step 2.a = _____ uCi/ml	
	Step 2.c = _____	

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STEP	ACTION/EXPECTED RESPONSE		RESPONSE NOT OBTAINED
26.	(CONTINUED)		
	e)	With data from Step <u>2.b</u> and Step <u>2.d</u> , use Attachment 2 to determine iodine dose commitment	
	f)	<u>IF</u> actual <u>OR</u> projected exposure will be GREATER THAN <u>OR</u> EQUAL TO <u>10</u> Rem Thyroid	f) <u>IF</u> Thyroid exposure is LESS THAN <u>10</u> Rem: 1) <u>GO TO</u> Step <u>27</u> .
	1)	Request approval from Emergency Manager to administer radio-protective drugs	
	g)	<u>IF</u> approval is granted:	
	1)	Initiate EPIP-5.07, <u>Administration of Radio-protective Drugs</u>	
	h)	Supply of tablets is located in H.P. Office Emergency Kit	h) Alternate supply located at North Anna Power Station
27.	ONSITE EVACUATION OF NON-ESSENTIAL PERSONNEL:		
	a)	Determine with Dose Assessment Team Leader, the projected or actual exposure, onsite, from release of radioactive material	
	b)	Determine direction of plume	
	c)	Determine from Emergency Manager duration of release	
	d)	<u>IF</u> actual or projected exposure onsite:	d) <u>IF</u> dose is LESS THAN evacuation limits

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27.	(CONTINUED)	
	1) GREATER THAN <u>OR</u> EQUAL TO <u>1</u> Rem Whole Body	<u>OR</u>
	<u>AND/OR</u>	<u>IF</u> plume is in the direction of the evacuation route:
	2) GREATER THAN <u>OR</u> EQUAL TO <u>5</u> Rem Thyroid	1) Consider sheltering of non-essential workers
	<u>AND</u>	<u>AND</u>
	3) Plume is <u>NOT</u> in the direction of the evacuation route, con- tinue with this instruction	2) <u>GO TO</u> Step <u>28</u> .
	e) Recommend evacuation of all non-essential personnel	
	f) Report recommendation to the Emergency Manager	
28.	ASSESS EXPOSURE TO EMERGENCY RADIATION WORKERS:	
	a) Prior to entry into a High Radiation areas, access possible exposure levels	
	b) <u>IF</u> Whole Body exposure exceeds 10CFR20 quarterly	b) <u>IF</u> entry into high radiation area will <u>NOT</u> exceed exposure limits:
	1) Initiate EPIP-4.04, <u>Emergency Exposure</u>	1) <u>GO TO</u> Step <u>29</u> .
	<u>AND</u>	
	2) Return to Step <u>29</u>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29.	DOSIMETRY FOR OFFSITE ASSISTANCE:	
	a) <u>IF</u> offsite assistance is required to mitigate emergency (fire and/or rescue squads)	a) <u>IF</u> offsite assistance is <u>NOT</u> required, <u>GO TO</u> Step <u>30</u> .
	1) Inform Radiation Protection Supervisor of arrival	
	2) Request dosimetry to be supplied at Security Building prior to entrance onsite	
30.	VERIFY EMERGENCY:	
	a) <u>IF</u> emergency condition still exists, continue with this instruction	a) <u>IF</u> Emergency Manager declares termination of emergency <u>GO TO</u> Step <u>31</u> .
	b) Return to Step <u>17</u> and direct repetition:	
	1) Survey(s)	
	<u>AND/OR</u>	
	2) Radiological sampling	
	<u>AND/OR</u>	
	3) Offsite dose assessment	
	c) Advise the Emergency Manager and the Radiation Protection Supervisor as to the increasing or decreasing trends of Emergency	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
31.	<p>EVENT TERMINATION:</p> <p>a) Termination of emergency declared by Emergency Manager</p> <p>1) Notify Radiation Protection Supervisor and Radiation Assessment Coordinator of termination of emergency</p> <p>2) Evaluate further use of monitoring team(s) for data collection</p> <p>b) Request review of recovery phase with the Emergency Manager and consider the following:</p> <p>1) Access control to outside contaminated areas</p> <p>2) Return to normal access control, areas throughout site</p> <p>3) Assistance for decontamination effort, Health Physics support personnel and radwaste packaging and disposal</p>	
32.	<p>ADMINISTRATION:</p> <p>a) Initiate replacement of procedure and/or emergency equipment if necessary</p> <p>b) Forward completed procedure(s), release calculations and survey results to the Emergency Manager</p>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
33.	TERMINATE EPIP-4.01:	
	a) COMPLETED BY: _____	
	DATE: _____	
	TIME: _____	
	END	

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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.09	SOURCE TERM ASSESSMENT (With 4 Attachments)	02
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<p>PURPOSE</p> <p>Provide guidance and data to Dose Assessment Team to more accurately predict offsite releases.</p>
<p>USER</p> <p>Dose Assessment Team Members.</p>
<p>ENTRY CONDITIONS</p> <p>Upon activation of EPIP-4.03, Dose Assessment Controlling Procedure.</p>

REVISION RECORD		
REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): 1, 3, 4, 5, 6, Att. 1 Page 1	DATE: 03-03-83
REV. 02	PAGE(S): 1 of 10 through 10 of 10 & Attachment 4	DATE: SEP 23 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

<p>APPROVAL RECOMMENDED</p> <p><i>JMC</i></p>	<p>APPROVED</p> <p><i>R. T. Saunders</i></p> <p>CHAIRMAN STATION NUCLEAR SAFETY AND OPERATING COMMITTEE</p>	<p>DATE</p> <p>SEP 23 1983</p>
<p>QC REVIEW</p> <p><i>Richard H. Hines</i></p>		

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.09	SOURCE TEAMS ASSESSMENT	02
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	INITIATE PROCEDURE:	
	a) BY: _____	
	DATE: _____	
	TIME: _____	
2.	SOURCE TERM ASSESSMENT:	
	a) Source term based on monitor readings should be used:	
	1) Initial assessment	
	<u>AND</u>	
	2) Establish trends	
	b) <u>IF</u> the source term is from monitor readings, sampling should be done to more accurately determine the source term	
	c) Source term will have units of Ci/sec	
	d) Source term may be obtained from any of the following, in order of preference:	d) <u>IF</u> source term from containment - <u>GO TO</u> Step <u>2.e.</u>
	1) Sample of effluent - <u>GO TO</u> Step <u>4</u>	1) <u>IF</u> sample of effluent <u>NOT</u> available, <u>GO TO</u> Step <u>2.d.2.</u>
	<u>OR</u>	<u>OR</u>
	2) Sample of Station Inventory <u>GO TO</u> Step <u>6</u>	2) <u>IF</u> sample of station inventory <u>NOT</u> available, <u>GO TO</u> Step <u>2.d.3.</u>
	<u>OR</u>	<u>OR</u>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
2.	(CONTINUED)	
	3) Station monitors <u>GO TO Step 3</u>	3) <u>IF</u> source term <u>NOT</u> thru the station monitors <u>GO TO Step 2.e.</u>
	e) <u>IF</u> event may produce releases from containment, source term may be obtained from any of the following, in order of preference	e) <u>IF</u> event is <u>NOT</u> a release from containment - <u>GO TO</u> Step <u>9</u> .
	1) Sample of Containment Air - <u>GO TO Step 8</u>	1) <u>IF</u> sample can <u>NOT</u> be obtained from contain- ment - <u>GO TO Step 2.e.2.</u>
	2) Containment High Range Monitor - <u>GO TO Step 7</u>	
3.	SOURCE TERM - STATION MONITORS:	
	a) Source term may be obtained from the following monitors:	a) <u>IF</u> release pathway is thru the main steam system, <u>GO TO Step 9</u> .
	1) Vent Vent VG-109	
	<u>OR</u>	
	2) Vent Vent (VG-131-2)	
	3) Process Vent GW-102	
	4) Process Vent (GW-130-2)	
	<u>OR</u>	
	5) Condensor Air Ejector SV-111, SV-211	
	b) <u>IF</u> more than one effluent pathways involved:	b) Continue with this instruc- tion
	1) Add results of all monitors for total release	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3.	(CONTINUED)	
	<p>c) <u>IF</u> source term is from vent vent (VG-109), Process Vent (GW 102) or Condensor Air Ejector, obtain cpm, above background, from the Radiological Assessment Director</p> <p>1) Log date, time, monitor number and the net cpm on Attachment 1</p> <p>d) <u>IF</u> Air Ejector <u>NOT</u> diverted to containment, continue with this instruction</p> <p>e) Obtain the flow rate (CFM) effluent pathway from Radiological Assessment Director</p> <p>1) Log on Attachment 1</p> <p>f) Obtain conversion factor for monitor of interest:</p> <p>1) VG-109: 1.19 E-11</p> <p>2) VG-131-2 : 4.72E-4</p> <p><u>OR</u></p> <p>3) GW-102: 1.19 E-10</p> <p>4) GW-130-2 : 472E-4</p> <p><u>OR</u></p> <p>5) SV-111,211:5.71 E-9</p>	<p>c) If source term is from vent vent (VG-131-2) or Process Vent (GW-130-2), obtain uCi/cc, for monitor of interest from Radiological Assessment Director.</p> <p>1) Log date, time, monitor of interest and uCi/cc on Attachment 1</p> <p>2) <u>GO TO</u> Step 3.d.</p> <p>d) <u>IF</u> Air Ejector <u>IS</u> diverted to containment, no release from this pathway will occur:</p> <p>1) <u>GO TO</u> Step 3.e.</p>

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3.	(CONTINUED)	
	g) Perform following calculations to obtain <u>Ci/sec</u> (XE-133 Equivalent):	
	$\text{cpm(or uCi/cc)} \times \text{CONVERSION FACTOR} \times \text{CFM} = \text{Ci/sec}$	
	1) Log results on Attachment 1	
	h) <u>GO TO Step 9</u>	
4.	SOURCE TERM - SAMPLE EFFLUENTS:	
	a) Request Radiation Protection Supervisor to initiate EPIP-4.24, <u>Gaseous Effluent Sampling During an Emergency</u> , to obtain a sample:	a) <u>IF</u> sampling not required, <u>GO TO Step 5.</u>
	1) Vent Vent	
	<u>OR</u>	
	2) Process Vent	
	<u>OR</u>	
	3) Condensor Air Ejector	
	b) <u>IF</u> more than one effluent pathway involved:	b) <u>GO TO Step 4.c.</u>
	1) Add results of all monitors for total release	
	c) Have sample analyzed as per normal count room procedures <u>OR</u> initiate EPIP-4.26, <u>High Level Activity Sample Analysis</u>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	(CONTINUED)	
	1) Log results of the analysis on Attachment 2 d) Perform calculations on Attachment 2 to obtain: 1) Equivalent activity I-131 <u>AND</u> Xe-133 (uCi/ml) e) Obtain flow rate: f) Calculate source term (Ci/sec): EQUIVALENT ACTIVITY x CFM x 4.72E-4 = Ci/sec	
5.	CORRECT SOURCE TERM FOR MAXIMUM RELEASE:	
	a) <u>IF</u> sample from Step 4 was a grab sample and is <u>NOT</u> obtained at maximum release, correct for maximum release rate: 1) Obtain the maximum monitor reading 2) Obtain monitor reading at time of sample 3) Obtain source term from Step 4 4) Perform following calcula- tion to obtain maximum release rate: <u>Monitor Maximum (cpm or uCi/cc)</u> x <u>Source</u> <u>Monitor Sample (cpm or uCi/cc)</u> Term = Maximum Ci/sec	a) <u>IF</u> sample was <u>NOT</u> a grab sample <u>OR IF</u> sample obtained at maximum release <u>GO TO</u> Step 9 1) <u>IF</u> monitor is offscale, <u>GO TO</u> Step 9.
	b) <u>GO TO</u> Step 9	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.	<p>SOURCE TERM - STATION INVENTORY:</p> <p>a) <u>IF</u> release originated from gas storage tank (ie. Waste Gas Decay Tank, Volume Control Tank, etc.):</p> <ol style="list-style-type: none"> 1) Request sampling the activity remaining in tank 2) Have sample analyzed by normal count room procedures <u>OR</u> initiate EPIP-4.26, <u>High Level Activity Sample Analysis</u> 3) Log activity on Attachment 2 <p>b) Perform calculations on Attachment 2 to obtain:</p> <ol style="list-style-type: none"> 1) Equivalent activity I-131 <u>AND</u> Xe-133 <p>c) Determine volume of release from the following equation:</p> $\text{VOLUME} = \frac{P_1 V_1 T_2}{T_1 P_2}$ <ol style="list-style-type: none"> 1) Obtain pressure prior to release from operations (P_1) 2) Obtain pressure after release from operations (P_2) 3) Obtain the design volume of the tank minus the water volume in the tank from operations 4) Obtain temperature prior to release from operations ($T_1 = ^\circ\text{F} + 459$) 	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.	(CONTINUED)	
	5) Obtain temperature after release from operations $(T_2 = ^\circ\text{F} + 459)$	
	d) Perform the following to determine source term:	
	$\frac{2.83\text{E-}2 \times \text{VOLUME (ft}^3\text{)} \times \text{EQUIVALENT ACTIVITY}}{\text{TIME OF RELEASE (seconds)}} = \text{Ci/sec}$	
7.	SOURCE TERM - CONTAINMENT HIGH RANGE MONITOR:	
	a) <u>IF</u> event - LOCA:	a) <u>IF</u> source term <u>NOT</u> from LOCA, <u>GO TO</u> Step <u>9</u> .
	1) Obtain the dose rate (mR/hr) of Containment High Range Monitor of affected unit, from Radiological Assessment Director	
	b) Obtain length of time (HOURS) after shutdown	
	c) Determine approximate extent of fuel damage using Attachment 3	
	1) Extrapolate, if necessary, to determine fuel damage	
	d) Use data from Step <u>7.b</u> , Step <u>7.c</u> and Attachment 4:	
	1) Determine equivalent curies I-131 and Xe-133	

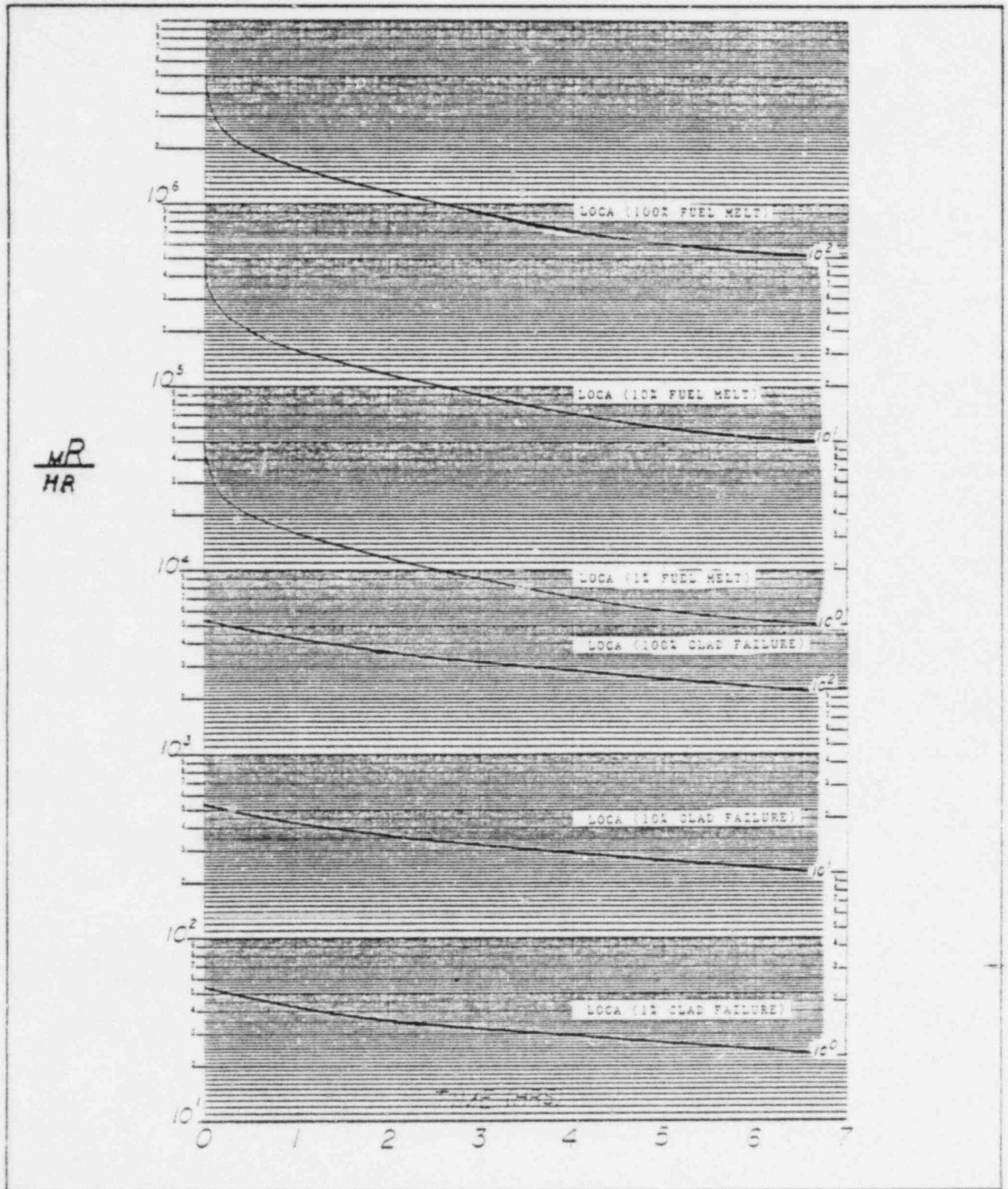
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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7.	(CONTINUED)	
	e) IF containment effluent flow rate unknown, determine potential release rate: Equivalent Curies x $3.39 \text{ E-8} = \text{Ci/sec}$	e) IF containment effluent flow rate known, determine potential release rate: Equivalent Curies x $9.29 \text{ E-9} = \text{Ci/sec}$
	f) <u>GO TO</u> Step <u>9</u>	
8.	SOURCE TERM - CONTAINMENT SAMPLE:	
	a) IF event - LOCA: 1) Request Radiation Protection Supervisor initiate EPIP-4.22, <u>Post Accident Sampling of Containment Air</u>	a) IF event <u>NOT</u> LOCA, <u>GO TO</u> Step <u>9</u> .
	b) Convert results of analysis to equivalent activity (uCi/mL) of I-131 and Xe-133, using Attachment 2	
	c) Determine potential release rate: EQUIVALENT ACTIVITY x $1.73 \text{ E-3} = \text{Ci/sec}$	
9.	RETURN TO CONTROLLING PROCEDURE:	
	a) Upon completion of this procedure, return to EPIP-4.03, <u>Dose Assessment Controlling Procedure</u>	

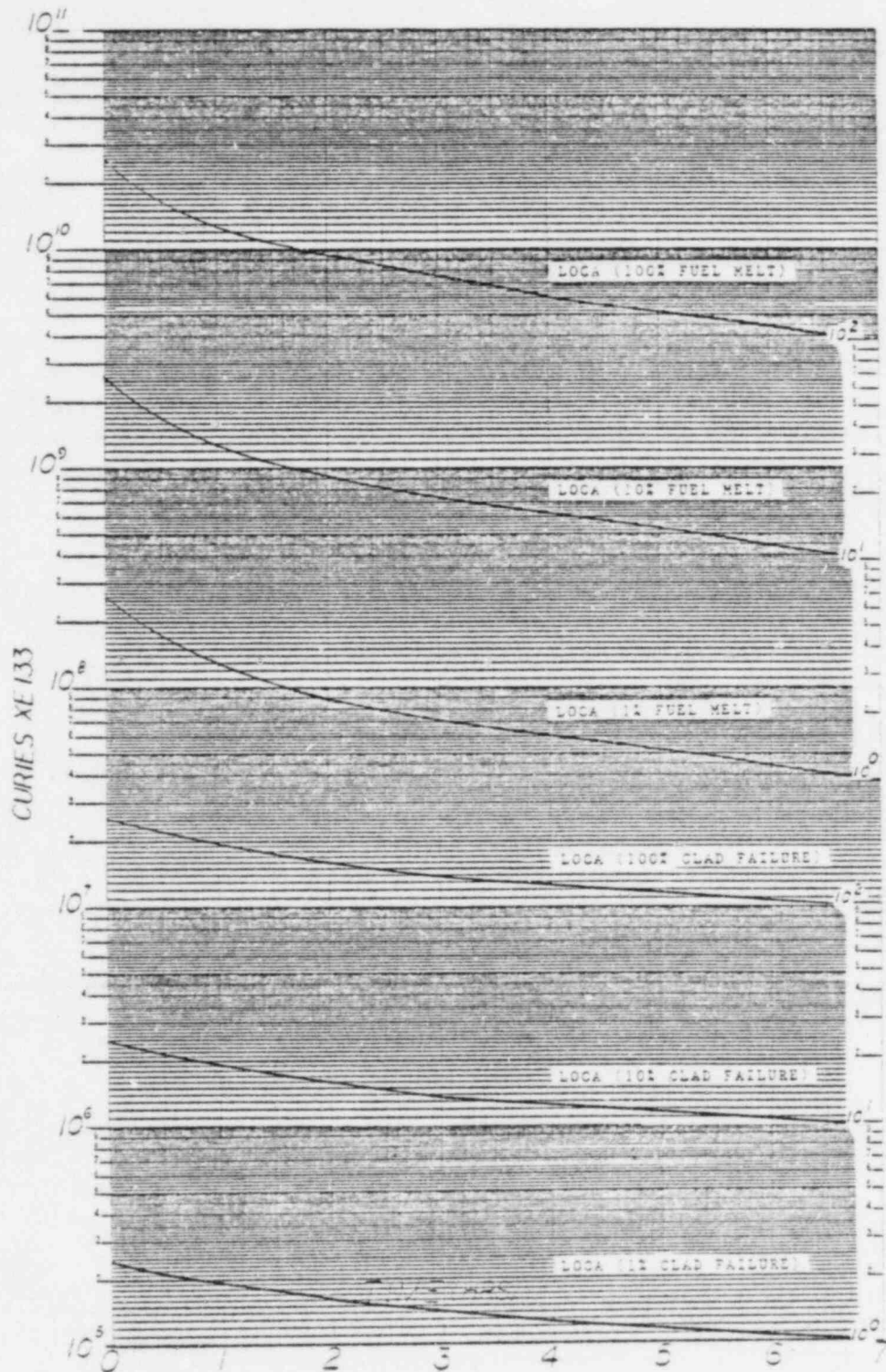
NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.09	SOURCE TEAMS ASSESSMENT	02
		PAGE
		10 of 10

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	TERMINATE EPIP-4.09:	
	a) Completed By: _____	
	Date: _____	
	Time: _____	
	END	

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.09	CONTAINMENT HIGH RANGE MONITOR (PERSONNEL HATCH)	02
ATTACHMENT		PAGE
4		1 of 3



NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.09	EQUIVALENT CURIES XE-133	02
ATTACHMENT		PAGE
4		2 of 3



NUMBER	ATTACHMENT TITLE	REVISION
EP-4.09	EQUIVALENT CURIES I-131 FOR LOCA ACCIDENT	02
ATTACHMENT 4		PAGE 3 of 3

NOTE: Within the first 8 hours following LOCA incident, IODINE decay is insignificant.

<u>EVENT</u>	<u>EQUIVALENT CURIES I-131</u>
LOCA (1% Clad Failure)	3.85 E+3
LOCA (10% Clad Failure)	3.85 E+4
LOCA (100% Clad Failure)	3.85 E+5
LOCA (1% Fuel Melt)	5.93 E+5
LOCA (10% Fuel Melt)	5.93 E+6
LOCA (100% Fuel Melt)	5.93 E+7

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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTIONS (With 2 Attachments)	02
		PAGE 1 of 8

PURPOSE

Provide guidance to the Dose Assessment Team to direct Offsite Monitoring Teams to:

- 1) Confirm radiological release
- 2) Track release
- 3) Determine radiological composition of release

USER

Dose Assessment Team Members.

ENTRY CONDITIONS

Any one of the following:

1. Release of radioactive materials with a SITE or GENERAL emergency condition and EOF is NOT activated.
2. Any other time which the Radiological Assessment Director deems it necessary.
3. Activation by another EPIP.

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): Page 1, 6, and 7	DATE: 02-24-83
REV. 02	PAGE(S): 1 of 8 through 8 of 8 and Attachment 2	DATE: SEP 23 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED

J.M. Cox
QC REVIEW
Richard H. Hines

APPROVED

At Saunders
CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

DATE

SEP 23 1983

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 2 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	INITIATE PROCEDURE:	
	a) BY: _____	
	DATE: _____	
	TIME: _____	
2.	ACTIVATION UPON SITE OR GENERAL EMERGENCY:	
	a) The procedure applicable upon radioactive release and declaration of SITE or GENERAL emergency	a) <u>IF EOF</u> is activated and moni- toring teams in the field:
	<u>OR</u>	
	Whenever Radiological Assess- ment Director deems necessary	1) Brief <u>Radiological</u> <u>Assessment Coordinator</u> as to the current location of the monitor- ing teams and data received
	<u>AND</u>	
	The <u>EOF</u> is <u>NOT</u> manned	2) Inform Monitoring Teams to receive instructions and report data to the Radiological Assessment Coordinator at the EOF.
		3) <u>GO TO</u> Step <u>13</u> .
3.	REVIEW PROJECTED DATA:	
	a) Review the projected release data	
	b) Obtain from the Radiological Assessment Director the current meteorological conditions:	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 3 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3.	(CONTINUED)	
	1) Wind speed 2) Wind direction 3) Stability class	
4.	ASSESS MONITORING NEEDS:	
	a) Initially only one monitoring team may be available b) Use first monitoring team to initially: <ul style="list-style-type: none"> 1) Confirm release 2) Confirm direction of plume 3) Determine radiological composition c) Minimum of two monitoring teams desirable: <ul style="list-style-type: none"> 1) Locate one team near site and the other team in preselected monitoring location in downwind sector 	
5.	ESTABLISH RADIO CONTACT:	
	a) <u>Initiate EPIP-4.19, Use of Radios for Health Physics Monitoring:</u> <ul style="list-style-type: none"> 1) Establish radio communication with team using radiophone 	a) <u>IF</u> radio communications <u>NOT</u> able to be established: <ul style="list-style-type: none"> 1) Request assistance from Radiological Assessment Director

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 4 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.	(CONTINUED)	
		<p><u>AND</u></p> <p>2) Dispatch teams, instructing them to use public telephone to relay results to the TSC</p>
	<p>b) Instruct team to report data to TSC, until instructed otherwise</p> <p>c) Give teams TSC telephone number</p>	
6.	ESTABLISH MONITORING LOCATION:	
	<p>a) Review Attachment 1 and 2 for preselected monitoring locations around station</p> <p>b) Place teams at preselected location in downwind sector</p> <p>1) Wind direction from Step <u>3</u> indicates direction wind is coming from</p> <p>c) Instruct teams to find plume centerline</p> <p><u>AND</u></p> <p>Report exact location once centering located</p>	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 5 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.	(CONTINUED) d) Monitoring can be identified using Attachment 1 1) Location are specified by use of Sector designation and distance (miles) (i.e. distance of <u>2</u> miles North of plant: A-2)	
7.	CONFIRMATION: a) Direct first monitoring team to the sector, near site, which is affected by plume b) Obtain the following data and/or samples, if appropriate 1) Exact location 2) Maximum dose rate (mR/hr) 3) Air sample - particulate, iodine and gas 4) Soil sample c) Have initial confirmatory samples returned to Security Building 1) Air sample should be immediately analyzed to determine Iodine/Noble Gas ratio	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 6 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7.	(CONTINUED)	
	d) <u>GO TO</u> Step 12 upon receipt of monitoring data	d) If monitoring data <u>NOT</u> available, continue.
	<p><u>NOTE:</u> Unexpected readings may result from plume rise, looping or cloud meander</p>	
8.	PLUME TRACKING:	
	a) Plume monitoring should continue, obtaining at a minimum, the dose rate at centerline of the plume	
	<u>AND</u>	
	Report exact location	
	b) <u>IF</u> unexpected reading occurs:	
	1) Have team travel downwind a distance until plume is located	
9.	FIXED ENVIRONMENTAL SAMPLERS AND TLD'S:	
	a) Fixed air samplers and TLD's provide good information on the TOTAL release. Collection of these samples may provide best information after termination of release	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 7 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	ADDITIONAL SAMPLING:	
	a) Additional sampling for chronic exposure pathways is not normally within the scope of initial response	
	b) Upon recovery phase of emergency, direct teams to obtain, as appropriate:	
	1) Milk	
	2) Water	
	3) Crop samples	
11.	CONTINUE MONITORING:	
	a) Continue Steps <u>7</u> thru <u>12</u> until:	
	1) EOF MANNED, <u>GO TO</u> Step <u>2</u>	
	OR	
	2) Release TERMINATED, <u>GO TO</u> Step <u>13</u>	
	OR	
	3) <u>IF</u> monitoring data becomes available, <u>GO TO</u> Step <u>12</u> .	
12.	ASSESS DATA:	
	a) <u>IF</u> monitoring data becomes available:	
	1) Initiate EPIP-4.13, <u>Offsite Release Assessment with Environmental Data</u>	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.12	OFFSITE ENVIRONMENTAL MONITORING INSTRUCTION	02
		PAGE 8 of 8

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13.	TERMINATE EPIP-4.12:	
	a) COMPLETED BY: _____	
	DATE: _____	
	TIME: _____	
	END	

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.12	PRESELECTED MONITORING LOCATIONS	02
ATTACHMENT		PAGE
2		1 of 3

LOCATION	SECTOR	DISTANCE (mi)	DESCRIPTION
1.	B-2		2 miles North on Route 650 at Hog Island Air Sampling Station.
2.	F-1.6		Low level circulating water pumps at beginning of intake canal.
3.	H-1.9		<u>1.9</u> miles South on Route 650, left at road to public boat landing. Monitoring point 1 mile, under Vepco power lines.
4.	J-2.0		2.0 miles South on Route 650; monitoring point at natural gas pipeline signs.
5.	K-2.1		Route 650 South, right on Route 617, right on Route 10, right on Route 634. Follow signs to Chippokes State Park, enter park and follow signs to historic section. Monitoring point at Chippokes Mansion.
6.	L-2.3		Route 650 South, right on Route 617, right on Route 10, right on Route 634. Follow signs to Chippokes State Park; enter park and follow signs to Historic section. Monitoring point located at intersection of road and College Run Creek.
7.	H-5.5		Rushmere Shores. South on Route 650, left on Route 628, left on Route 676. At bend in the road, bear right on Route 686, left on Route 2001 into Rushmere Shores.
8.	J-5		Route 650 South, left on Route 628. Monitoring point 1.2 miles from intersection of Routes 650 and 628. (Remote Assembly Area).

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.12	PRESELECTED MONITORING LOCATIONS	02
ATTACHMENT		PAGE
2		2 of 3

LOCATION	SECTOR DISTANCE (mi)	DESCRIPTION
9.	K-5	Route 650 South, right on Route 10. Monitoring point $\frac{1}{4}$ mile from intersection of Routes 10 and 650 at bend in road.
10.	L-5	Route 650 South, right on Route 617, right on Route 10, right on Route 633. Monitoring point $\frac{1}{2}$ North on Route 633.
11.	M-5	Route 650 South, right on Route 617, right on Route 10 for approximately 5 miles, right on Route 634. Monitoring point 1.3 miles from intersection of Routes 634 and 10. Alliance Air Sampling Station, intersection of Routes 634 and 662.
12.	N-4	From location 11, monitoring point 2 miles North on Route 662.
13.	P-5	Scotland Wharf. Surry side on James River Ferry on Route 31 North.
14.	Q-5	James River Ferry to Jamestown Route 31, right on Route 359. Follow signs to Colonial Parkway, left on Colonial Parkway. Monitoring location $1\frac{1}{2}$ mile on Colonial Parkway.
15.	R-5	James River Ferry to Jamestown side, Route 31 East, right on Route 682 "Neck of Land Road", left on Lake Powell Road, 1.3 miles to intersection of Routes 617 and 618.
16.	A-5	James River Ferry, Route 31 East, right on Route 359, follow signs to Colonial Parkway, left on Parkway. Monitoring point 6.5 miles, $\frac{1}{2}$ mile past Halfway Creek.

NUMBER	PRESELECTED MONITORING LOCATIONS	REVISION
EPIP-4.12		02
ATTACHMENT		PAGE
2		3 of 3

LOCATION	SECTOR DISTANCE (mi)	DESCRIPTION
17.	B-5	Take Colonial Parkway from Jamestown, 7 miles to Route 199 East, Route 60 East, 3 lights, right on Kingsmill Road. Monitoring location 1 mile from Route 60 and Kingsmill Road intersection.
18.	C-5	Take Colonial Parkway from Jamestown, 7 miles to 199 East, Route 60 East, 3½ miles to Ron Springs Road (road prior to Carter's Grove), right on Log Cabin Beach Road to sewage treatment plant.
19.	D-5	Take Colonial Parkway from Jamestown, 7 miles to 199 East, Route 60 East, past Carter's Grove to Badische Corporation, right 1 mile to Vepco Substation.
20.	E-5	Take Colonial Parkway from Jamestown, 7 miles to 199 East. Take Route 60 East to Fort Eustis. Right at Fort Eustis, right at Lee Blvd., right on Kerr Road. Monitoring point located at load dock.
21.	F-4.8	Take Colonial Parkway from Jamestown, 7 miles to 199 East. Take Route 60 East to Fort Eustis, right at Fort Eustis, right at Taylor Road, left on Harrison Road. Monitoring location 0.6 miles South from intersection of Harrison Road and Back River Road.

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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA (With 5 Attachments)	01
		PAGE 1 of 9

PURPOSE

Confirm onsite dose projections, using Environmental Monitoring data.

USER

Radiological Assessment Director or Members of Dose Assessment Team.

ENTRY CONDITIONS

Any of the following:

- 1) Activation by EPIP-4.03, Dose Assessment Controlling Procedure;
- OR
- 2) Activation by EPIP-4.12, Offsite Environmental Monitoring Instructions.

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): 1 of 9 thru 9 of 9; Att. 3 pg. 1; Att. 5	DATE: SEP 23 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED

APPROVED

DATE

QC REVIEW

CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

SEP 23 1983

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 2 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	INITIATE PROCEDURE:	
	a) Initiated By: _____	
	Date: _____	
	Time: _____	
2.	USE OF ENVIRONMENTAL DATA:	
	a) <u>IF</u> environmental data used to confirm dose projections:	a) <u>IF</u> environmental data to be used to determine Ci/sec release rate:
	1) <u>GO TO</u> Step <u>3</u>	1) <u>GO TO</u> Step <u>2.b</u>
	b) <u>IF</u> onsite release data from monitors and/or sample analysis <u>NOT</u> available:	b) <u>IF</u> onsite release data from monitors and/or sample analysis <u>IS</u> available:
	1) Use Environmental data to determine Source Term (Ci/sec)	1) Do <u>NOT</u> estimate Source Term from environmental data
	<u>AND</u>	<u>AND</u>
	2) <u>GO TO</u> Step <u>8</u>	2) <u>GO TO</u> Step <u>12.</u>
3.	CONFIRM DOSE PROJECTIONS:	
	a) Use offsite dose rate measurement to confirm projected dose rate	
	<u>OR</u>	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 3 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
3.	(CONTINUED)	
	Establish real time dose rate offsite	
	b) Insure measurements <u>OR</u> samples are taken at centerline of plume	
	c) Dose rate may be obtained from:	
	1) Direct Measurements	
	<u>OR</u>	
	2) Sample Analysis Data	
4.	DETERMINE WHOLE BODY DOSE FROM DIRECT RADIATION READINGS:	
	a) Obtain from monitoring team centerline dose rate	a) <u>IF</u> dose rates <u>NOT</u> from centerline:
		1) <u>GO TO</u> Step <u>6</u>
	b) Log date, time, location and dose rate on Attachment 1	
5.	DETERMINE THYROID OFFSITE DOSE RATE FROM SAMPLE ANALYSIS:	
	a) Determine centerline thyroid dose rate from air sample analysis	a) <u>IF</u> data from air sample is <u>NOT</u> yet available. <u>GO TO</u> Step <u>12</u>
		<u>OR</u>
		<u>IF</u> sample <u>NOT</u> from centerline, continue with this instruction

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE
		4 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
5.	(CONTINUED)	
	b) If sample analysis given in counts per minute: <ol style="list-style-type: none"> Obtain background count rate (cpm) and volume (ft³) from monitoring team(s) Determine the net counts per minute: $\text{SAMPLE (cpm)} - \text{BACKGROUND (cpm)} = \text{NET (cpm)}$ Determine from Attachment 5, the conversion factor vs. volume Determine activity: $\text{NET (cpm)} \times \text{Conversion Factor} = \text{Activity (}\mu\text{Ci/ml)}$ 	b) <u>IF</u> sample data is given in $\mu\text{Ci/ml}$: <ol style="list-style-type: none"> <u>GO TO</u> Step <u>5.c.</u>
	c) Determine Thyroid dose rate: $\text{ACTIVITY (}\mu\text{Ci/ml)} \times 1.85 \text{ E+9} = \text{MR/HR}$	
	d) <u>IF</u> sample taken at centerline: <ol style="list-style-type: none"> Log date, time, location and dose rate on Attachment 1 	d) <u>IF</u> sample taken off-centerline, <u>GO TO</u> Step <u>6</u>
6.	OFF-CENTERLINE DOSE RATES:	
	a) <u>IF</u> dose rates from Step <u>4</u> and Step <u>5</u> were taken off-centerline <ol style="list-style-type: none"> Initiate EPIP-4.10, <u>Determination of X/Q</u> 	a) <u>IF</u> dose rates from Step <u>4</u> and Step <u>5</u> are taken from centerline, <u>GO TO</u> Step <u>7</u> .

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 5 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6.	<p>(CONTINUED)</p> <p>2) Determine centerline X/Q perpendicular to sample location</p> <p>3) Determine X/Q of the sample location</p> <p style="text-align: center;"><u>AND</u></p> <p>4) Return to Step <u>6.b</u> of this procedure</p> <p>b) Determine centerline dose rate:</p> $\frac{X/Q \text{ (CENTERLINE)} \times \text{DOSE RATE (MR/HR)}}{X/Q \text{ (SAMPLE LOCATION)}} = \text{DOSE RATE (MR/HR) CENTERLINE}$ <p>c) Log date, time, location and dose rate on Attachment 1</p> <p>1) Note in the remarks column that the sample was taken off centerline</p>	
7.	<p>TRANSMIT DATA:</p> <p>a) Upon completion of Attachment <u>1</u>:</p> <p>1) Relay the Attachment to the Dose Assessment Team Leader.</p> <p style="text-align: center;"><u>AND</u></p> <p>2) <u>GO TO</u> Step <u>12</u></p>	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 6 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.	<p>DETERMINE SOURCE TERM: (Ci/sec)</p> <p>a) Use offsite data to determine the Source Term (Ci/sec) of the release</p> <p>b) Insure measurements or samples taken are from the centerline of the plume</p> <p>c) Source Term may be estimated by:</p> <p>1) Direct Measurements, <u>GO TO Step 9</u></p> <p style="text-align: center;"><u>OR</u></p> <p>2) Sample Analysis Data, <u>GO TO Step 10</u></p>	<p>a) If Source Term data is <u>NOT</u> required, <u>GO TO Step 12.</u></p> <p>b) If data is <u>NOT</u> from the centerline of the plume:</p> <p>1) <u>GO TO Step 6</u> to estimate centerline data</p> <p style="text-align: center;"><u>AND</u></p> <p>2) Return to Step <u>8.c.</u></p>
9.	<p>DETERMINE SOURCE TERM FROM DIRECT MEASUREMENTS:</p> <p>a) Obtain centerline dose rate measurements from Step <u>8</u></p> <p>1) Log location, time and dose rate on Attachment 2</p> <p style="text-align: center;"><u>AND</u></p> <p>2) Obtain the current wind speed and stability class</p>	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 7 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	(CONTINUED)	
	b) Determine the conversion factor:	
	1) <u>IF</u> measurements taken at preselected monitoring points, determine factor from Attachment 3	1) <u>IF</u> measurements are <u>NOT</u> at preselected monitoring points, determine from Attachment 4
	c) Determine source term: $MR/HR \times 2.38 \text{ E-5} \times \text{WIND SPEED} \times \text{CONVERSION FACTOR} = \text{Ci/sec}$	
	d) Log results on Attachment 2	
10.	DETERMINE SOURCE TERM FROM SAMPLE ANALYSIS:	
	a) Insure sample data is from centerline of the plume	a) If sample data is not from centerline of plume:
		1) <u>GO TO</u> Step <u>6</u> to estimate centerline data (use (uCi/ml) instead of data rate)
		<u>AND</u>
		2) Return to Step <u>10.b.</u>
	b) Obtain uCi/ml measurements at sample location:	b) <u>IF</u> sample data received in counts per minute:
	1) Log location, time, and activity on Attachment 2	1) <u>GO TO</u> Step <u>5</u>
	2) Obtain the current wind speed and stability class from Dose Assessment Team Leader	2) Determine activity (uCi/ml)
		3) Return to Step <u>10.b.</u>

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 8 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	(CONTINUED)	
	c) <u>IF</u> sample from preselected points, Obtain the conversion factor from Attachment 3,	c) <u>IF</u> sample not from preselected point, obtain conversion factor from Attachment 4.
	d) Determine the source term: ACTIVITY x WIND SPEED x CONVERSION FACTOR = Ci/sec	
	a) Upon completion of Attachment 2 1) Inform Dose Assessment Team Leader of results	
11.	TRANSMIT DATA:	
	a) Upon completion of Attachment 2 1) Inform Dose Assessment Team Leader of results	
12.	CONTINUED ASSESSMENT:	
	a) <u>IF</u> monitoring teams are to be relocated: 1) <u>GO TO</u> Step 14 to terminate this procedure	a) <u>IF</u> teams are to remain in the same location: 1) <u>GO TO</u> Step 12.b.
	<u>AND</u> 2) Initiate EPIP-4.12, <u>Offsite Monitoring Instruction</u>	
	b) <u>IF</u> EOF <u>NOT</u> activated <u>OR</u>	b) <u>IF</u> emergency has terminated <u>OR</u>

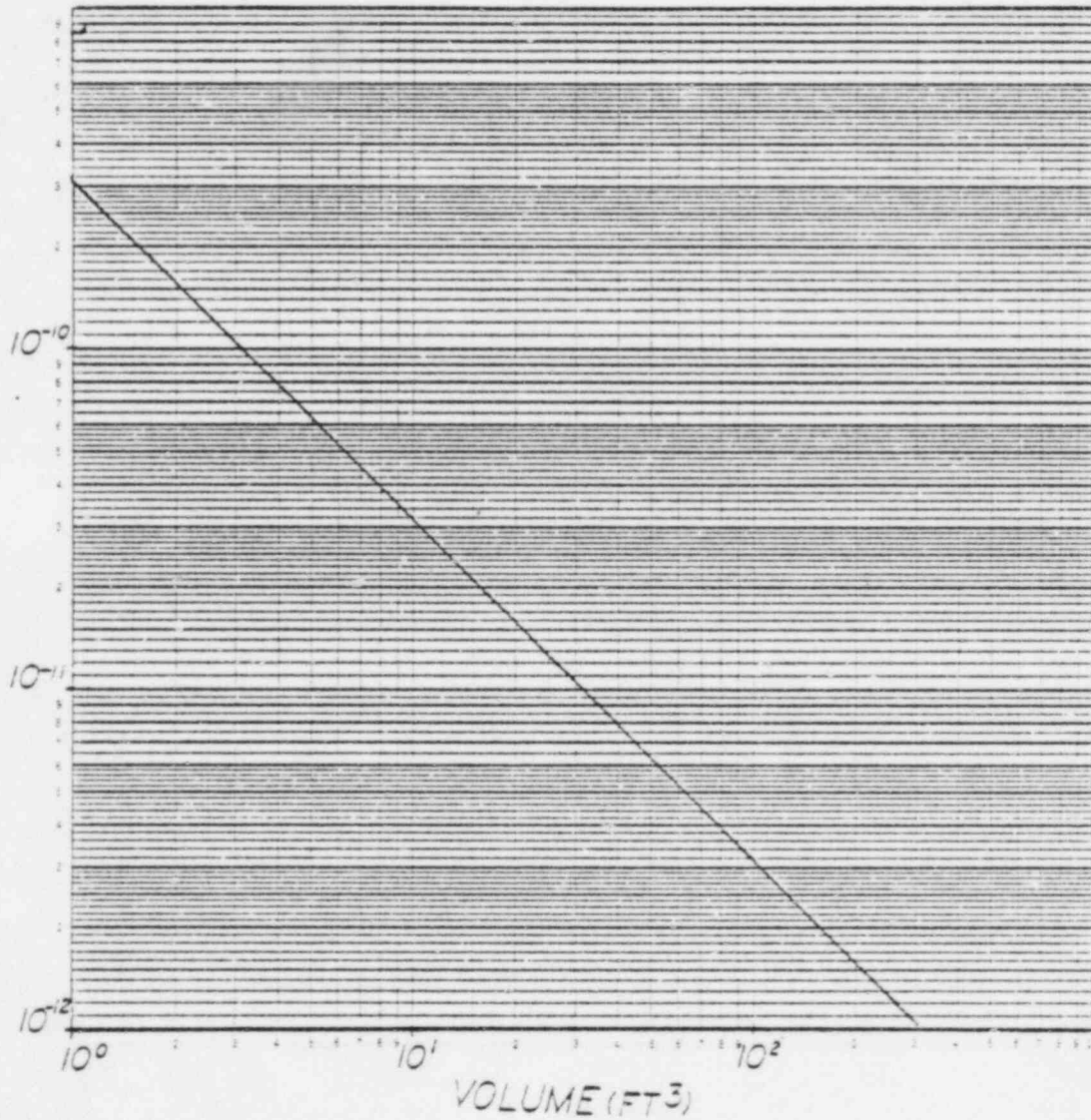
NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.13	OFFSITE RELEASE ASSESSMENT WITH ENVIRONMENTAL DATA	01
		PAGE 9 of 9

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12.	(CONTINUED)	
	<u>IF</u> release <u>NOT</u> terminated:	<u>IF</u> EOF activated:
	1) Return to Step <u>3</u> and repeat assessment when data received	1) <u>GO TO</u> Step <u>13</u> .
13.	ADMINISTRATION:	
	a) Return all procedures and Offsite data to the Radio- logical Assessment Director	
14.	TERMINATE EPIP-4.13:	
	a) COMPLETED BY: _____	
	DATE: _____	
	TIME: _____	
	END	

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.13	FACTORS FOR PRESELECTED MONITORING LOCATIONS	00
ATTACHMENT		PAGE
3		1 of 1

LOCA	SECT	DIST	STABILITY CLASS						
			A	B	C	D	E	F	G
1	B -	2	1.51E6	5.55E5	7.14E4	2.08E4	1.00E4	4.17E3	1.72E3
2	F -	1.6	1.26E6	3.08E5	5.13E4	1.50E4	6.90E3	3.17E3	1.35E3
3	H -	1.9	1.50E6	5.50E5	7.10E4	2.00E4	1.00E4	4.10E3	1.60E3
4	J -	2.0	1.51E6	5.55E5	7.14E4	2.08E4	1.00E4	4.17E3	1.72E3
5	K -	2.1	1.60E6	6.62E5	8.00E4	2.27E4	1.06E4	4.54E3	1.85E3
6	L -	2.3	1.70E6	1.32E6	1.27E5	3.45E4	1.51E4	6.66E3	2.56E3
7	H -	5.5	3.85E6	2.86E6	4.00E5	1.00E5	3.85E4	1.64E4	6.24E3
8	J -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
9	K -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
10	L -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
11	M -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
12	N -	4	2.86E6	2.13E6	2.38E5	5.88E4	2.50E4	1.07E4	4.00E3
13	P -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
14	Q -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
15	R -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
16	A -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
17	B -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
18	C -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
19	D -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
20	E -	5	3.45E6	2.63E6	3.45E5	8.33E4	3.45E4	1.43E4	5.26E3
21	F -	4.8	3.33E6	2.50E6	3.13E5	7.70E4	3.13E4	1.35E4	5.00E3

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.13	RM-14 CONVERSION FACTOR	01
ATTACHMENT		PAGE
5		1 of 1



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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.15	ONSITE MONITORING (With 3 Attachments)	02
		PAGE
		1 of 9

PURPOSE

Confirm initial offsite releases and provide surveys for personnel protection program onsite.

USER

Onsite Monitoring Team Member

ENTRY CONDITIONS

Any one of the following conditions:

1. ALERT, SITE or GENERAL emergency.
2. Activation by another EPIP.

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): 1, 3, 4, 5, 7, 8, Att. 2 p.1, Att. 3 p.1	DATE: 02-24-83
REV. 02	PAGE(S): Page 1 of 9 and Attachment 3 page 1 of 1	DATE: SEP 2 2 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED

QC REVIEW

APPROVED

DATE

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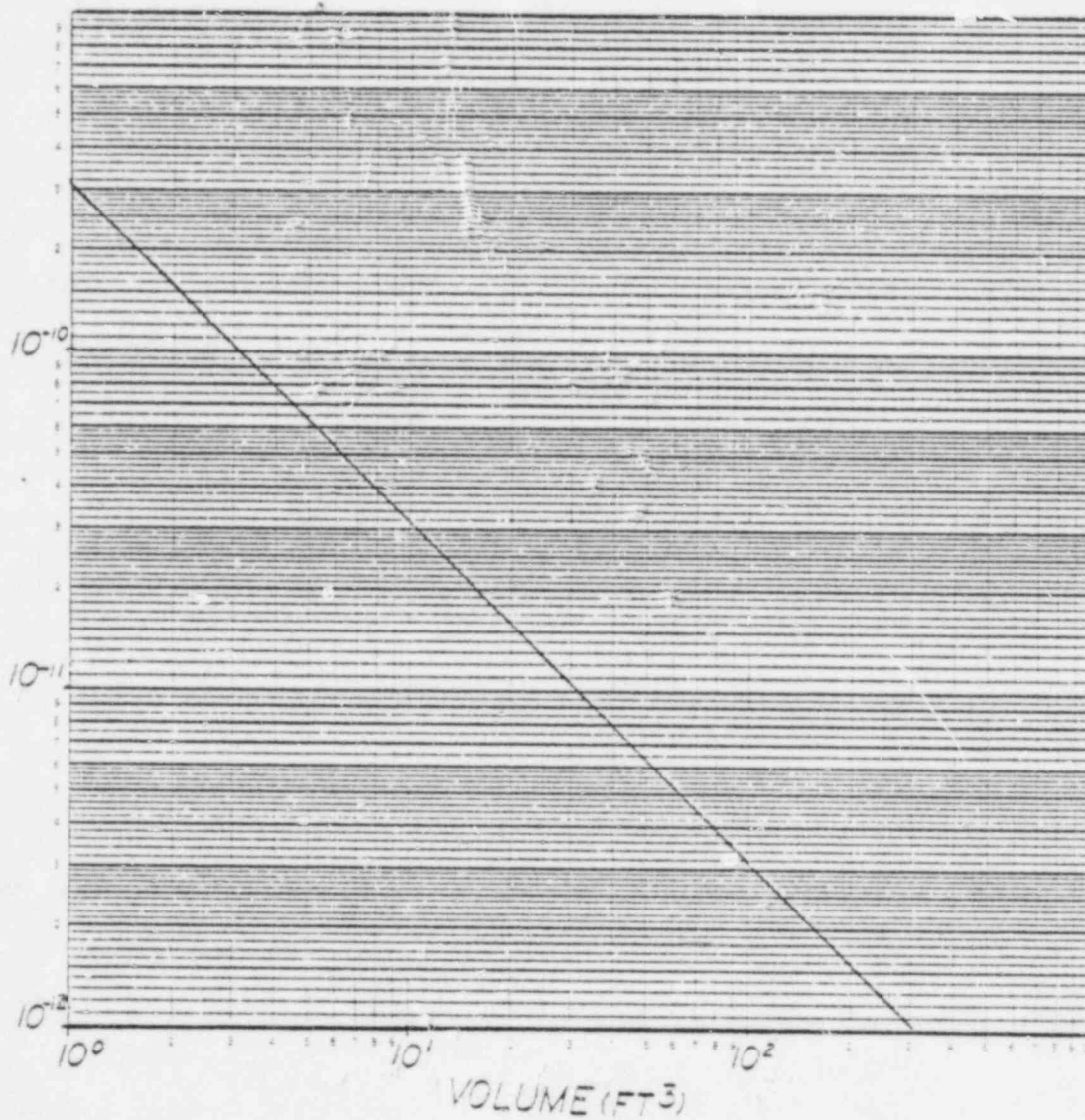
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SEP 2 3 1983

Richard Huaker

CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.15	RM-14 CONVERSION FACTOR	02
ATTACHMENT		PAGE
3		1 of 1



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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING (With 4 Attachments)	01
		PAGE 1 of 12

PURPOSE

Provide guidance for offsite monitoring teams in obtaining equipment, tracking plume, taking samples and transmitting data.

USER

Offsite Monitoring Team members.

ENTRY CONDITIONS

Initiation by EPIP-4.02, Radiation Protection Supervisor Controlling Procedure.

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE:07-29-82
REV. 01	PAGE(S): 1, 2, 3, 4, 7, 8, 9, Att. 4 p.1	DATE:02-24-83
REV. 02	PAGE(S): 1 of 12 thru 12 of 12; Att. 2; & Att. 4	DATE:SEP 23 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED

QC REVIEW

APPROVED

DATE

SEP 23 1983

CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		2 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1.	INITIATE PROCEDURE:	
	a) BY: _____	
	DATE: _____	
	TIME: _____	
2.	TEAM ASSIGNMENT:	
	a) Offsite monitoring team shall consist of two individuals:	
	1) Only one need be a H.P. technician	
3.	REQUEST BRIEFING:	
	a) Request briefing with the Radiation Protection Supervisor as to the following:	
	1) Required monitoring locations	1) <u>IF</u> no location <u>OR</u> survey requirements given, proceed to security building and await instructions.
	2) Samples and surveys required	
	3) Anticipated radiation levels	
	4) Protective clothing and dosimetry and/or respiratory gear required	
	b) Obtain information on who to report survey data to:	
	1) TSC	
	<u>OR</u>	
	2) EOF	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE 3 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	OBTAIN VEHICLE:	
	a) Health Physics truck will be used as primary transportation for Offsite Teams	a) Request assistance from Radiation Protection Supervisor or Radiological Assessment Director in obtaining vehicles.
	b) Insure vehicle has at least 1/4 tank of gas	
5.	OBTAIN MONITORING KIT:	
	a) Obtain a monitoring kit specified by Radiation Protection Supervisor	
	b) Obtain additional equipment from H.P. Office:	b) Additional equipment available at HP instrument repair shop.
	1) Battery powered air sampler	
	2) RM-14 with H.P. <u>210</u> probe	
	3) Package of silver zeolite cartridges and particulate filters	
6.	PERFORM INSTRUMENT CHECK:	
	a) Perform operability check:	
	1) Battery check	
	2) Current calibration sticker	
7.	PROCEED TO MONITORING LOCATION:	
	a) Obtain and don protective clothing, dosimetry, and respiratory gear as specified in Step <u>3</u>	a) <u>IF</u> no gear is specified, continue with this instruction.

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE 4 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
7.	(CONTINUED)	
	b) Use Attachment 1 and 2 to determine: <ul style="list-style-type: none"> 1) Initial location <li style="text-align: center;"><u>OR</u> 2) Location specified by personnel in TSC (EOF) 	
	c) Proceed to monitoring location specified in Step <u>3</u>	c) <u>IF</u> no monitoring location specified: <ul style="list-style-type: none"> 1) Report to Security Building <li style="text-align: center;"><u>AND</u> 2) Await further instructions.
8.	ESTABLISH RADIO CONTACT:	
	a) Initial radio communication will be with emergency response personnel in the TSC	
	b) <u>IF</u> EOF is activated, radio communication will be with EOF	
	c) Establish radio communication with the TSC or EOF by initiation of EPIP-4.19, <u>Use of Radios for Health Physics Monitoring</u> <ul style="list-style-type: none"> 1) To transmit: <p>"Mobile (Number of Vehicle) to TSC (HP-2) or EOF (HP-3). Our location is _____"</p> 	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		5 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.	(CONTINUED)	
	2) Request telephone number of emergency center and use in case of radio failure	
	<u>NOTE:</u> Survey reading should increase as you approach center of the plume, then decrease once past centerline.	
9.	PLUME TRACKING:	
	a) <u>IF</u> directed to locate plume:	a) <u>GO TO</u> Step <u>10</u> .
	1) Proceed to location specified by TSC or EOF	
	b) Obtain portable survey instrument from emergency kit:	
	1) Open beta window	
	c) Traverse the plume in a crosswind direction:	c) <u>IF NO</u> readings are observed, notify TSC (or EOF).
	1) Hold survey meter out of window	1) Request advice on relocation
	<u>AND</u>	<u>AND</u>
	2) Observe readings	2) Return to Step <u>9.c</u> .
	d) Traverse plume several times until maximum point (centerline of plume) is located	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		6 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9.	(CONTINUED)	
	e) Close beta window:	
	1) Observe readings	
	f) Log on Attachment 3:	
	1) mR/hr	
	2) Location	
	3) Date	
	4) Time	
	5) Instrument used and serial number	
	g) Inform TSC (or EOF) of monitor readings and location	
	h) Relocate to an area outside the plume:	h) <u>IF</u> further monitoring required, stay within the plume until complete.
	1) Await further instructions	
10.	NOBLE GAS SAMPLING:	
	a) <u>IF</u> noble gas sample requested, go to the centerline of plume	a) <u>IF</u> noble gas sample is <u>NOT</u> requested, <u>GO TO</u> Step <u>11</u> .
	<u>OR</u>	
	Location specified by TSC (or EOF)	
	b) Obtain a 100 cc gas bomb from emergency kit	b) <u>IF</u> gas chamber <u>NOT</u> available, request gas chambers be prepared and brought to the survey team.
	1) Remove top and wave chamber in air	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE 7 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
10.	(CONTINUED)	
	2) Ensure petcocks are closed and replace top	
	3) Place chamber in plastic bag and label with date, time and location	
	c) Log information in Step <u>10.b.3</u> on Attachment 3	
11.	PARTICULATE AND IODINE SAMPLE:	
	a) <u>IF</u> particulate and/or iodine sample required:	a) <u>IF</u> sample <u>NOT</u> required, <u>GO TO</u> Step <u>12</u> .
	1) Obtain battery powered air sampler	
	2) Load samples with particulate filter and silver zeolite cartridge	
	b) <u>IF</u> sample required during high humidity:	b) Continue with Step <u>11.c</u> .
	1) Shelter sample from moisture	
	2) Report weather conditions to TSC or EOF	
	<u>NOTE:</u> Sample volume should be lessened when sampling high activity airborne concentrations	
	c) Obtain an approximate <u>10</u> fc^3 air sample	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		8 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
11.	(CONTINUED)	
	1) Connect cables to vehicle battery terminal	
	2) Turn on air sampler	
	3) Disconnect cables after sample volume collected	
	4) Log sample volume on Attachment 3	
	d) Place iodine cartridge and particulate filter in a plastic bag and label:	
	1) Date	
	2) Time	
	3) Volume	
	4) Location	
	e) Log information in Step <u>11.d</u> on Attachment 3	
	<u>NOTE:</u> Air sample must have been taken using silver zeolite cartridge to use this method for analysis.	
12.	ACTIVITY DETERMINATION:	
	a) <u>IF</u> air sample analysis required:	
	1) Proceed to a low back-ground area	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		9 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12.	(CONTINUED)	
b)	Turn on RM-14 (frisker)	
	1) Obtain a background count rate (cpm)	
c)	Hold silver zeolite cartridge one-quarter inch from detector, with influent side of cartridge facing the detector	
d)	<u>IF</u> gross count rate on scale, continue	d) IF gross count rate off scale:
		1) Return to Step <u>11</u>
		<u>AND</u>
		2) Obtain a smaller sample volume
e)	Determine net count rate:	
	$\text{GROSS (cpm)} - \text{BACKGROUND (cpm)} = \text{NET (cpm)}$	
f)	Determine from Attachment <u>4</u> the conversion factor for specific sample volume.	
g)	Determine activity:	
	$\text{NET (cpm)} \times \text{Conversion Factor} = \text{ACTIVITY (uCi/ml)}$	
h)	Log on Attachment 3:	
	1) Date	
	2) Time	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		10 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12.	(CONTINUED)	
	3) Location	
	4) Activity	
	i) Place sample in poly bag and label:	
	1) Date	
	2) Time	
	3) Volume	
	4) Location	
13.	SOIL DEPOSITION:	
	a) IF soil sample <u>IS</u> requested:	a) IF soil sample <u>NOT</u> requested, <u>GO TO</u> Step 14.
	1) Obtain a sample by marking off an approximate one square foot area	
	2) Remove top 1/4 to 1/2 inch layer of soil	
	3) Place soil in a clean poly bag	
	b) Label sample with:	
	1) Date	
	2) Time	
	3) Location	
	c) Save sample for lab analysis	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.16	OFFSITE MONITORING	02
		PAGE
		11 of 12

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
14.	TRANSMIT DATA:	
	a) Transmit results of all surveys <u>OR</u> sample analysis to TSC (or EOF), as soon as possible	
15.	LABORATORY ANALYSIS OF SAMPLES:	
	a) All samples will be saved for future analysis at laboratory facilities	
	b) Bag all samples in a clean poly bag	
	c) Insure samples are properly labeled	
	d) Return all samples to the Security Building, as requested	
	<u>OR</u>	
	As time and location permit	
16.	CONTINUED SAMPLING:	
	a) <u>IF</u> TSC or EOF does <u>NOT</u> request return to station:	a) <u>IF</u> TSC or EOF requests return to station:
	1) Return to Step <u>9</u>	1) <u>GO TO</u> Step <u>17</u> .
	2) Repeat sampling and surveys as requested	
17.	ADMINISTRATIVE:	
	a) All procedures and forms used for offsite monitoring should be returned to the Radiological Assessment Director at TSC or the Radiological Assessment Coordinator at EOF	

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.16	PRESELECTED MONITORING LOCATIONS	02
ATTACHMENT		PAGE
2		1 of 3

LOCATION	SECTOR	DISTANCE (mi)	DESCRIPTION
1.	B-2		2 miles North on Route 650 at Hog Island Air Sampling Station.
2.	F-1.6		Low level circulating water pumps at beginning of intake canal.
3.	H-1.9		<u>1.9 miles South on Route 650, left at road to public boat landing.</u> Monitoring point 1 mile, under Vepco power lines.
4.	J-2.0		2.0 miles South on Route 650; monitoring point at natural gas pipeline signs.
5.	K-2.1		Route 650 South, right on Route 617, right on Route 10, right on Route 634. Follow signs to Chippokes State Park, enter park and follow signs to historic section. Monitoring point at Chippokes Mansion.
6.	L-2.3		Route 650 South, right on Route 617, right on Route 10, right on Route 634. Follow signs to Chippokes State Park; enter park and follow signs to Historic section. Monitoring point located at intersection of road and College Run Creek.
7.	H-5.5		Rushmere Shores. South on Route 650, left on Route 628, left on Route 676. At bend in the road, bear right on Route 686, left on Route 2001 into Rushmere Shores.
8.	J-5		Route 650 South, left on Route 628. Monitoring point 1.2 miles from intersection of Routes 650 and 628. (Remote Assembly Area).

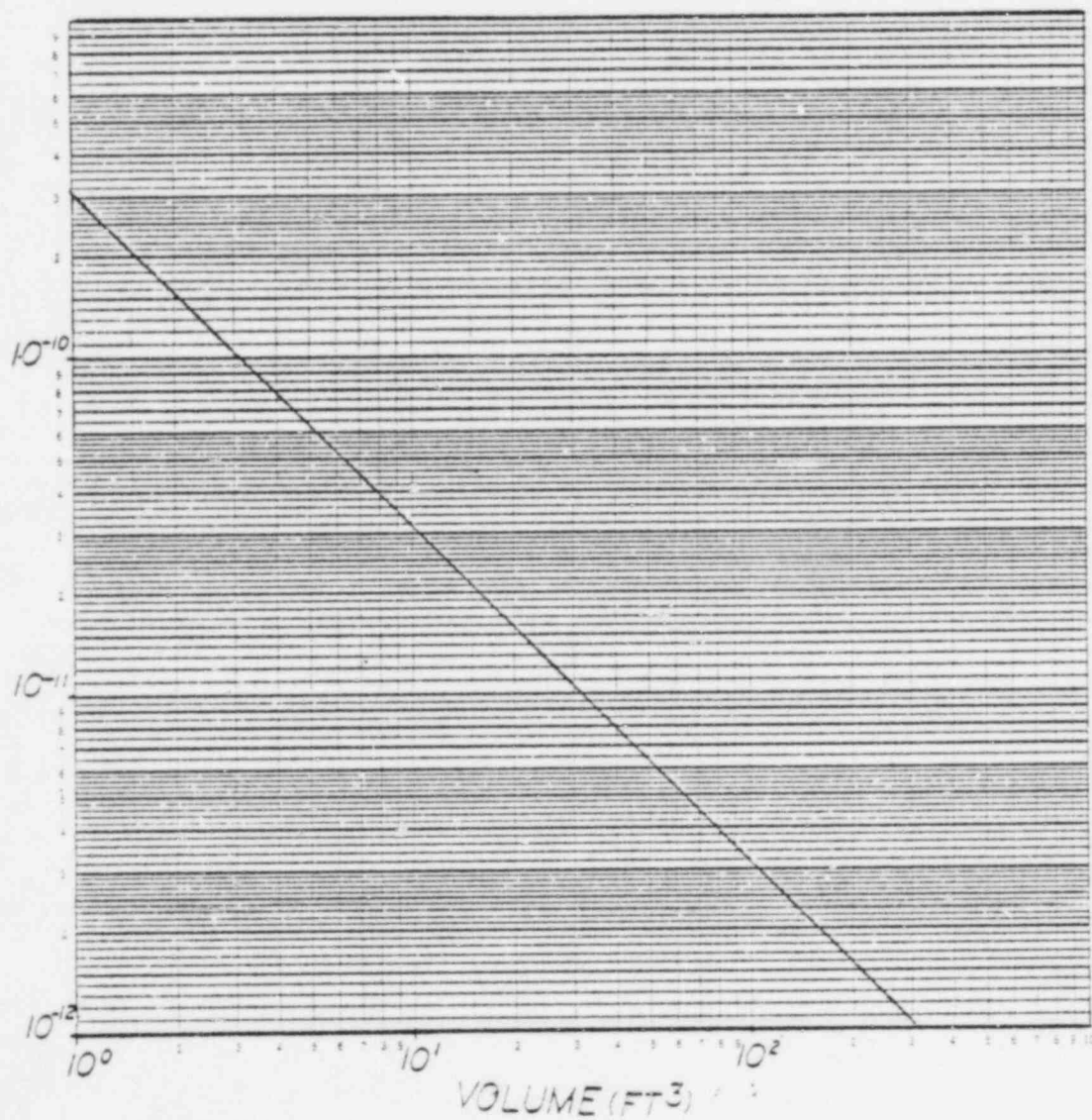
NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.16		02
ATTACHMENT		PAGE
2	PRESELECTED MONITORING LOCATIONS	2 of 3

LOCATION	SECTOR	DISTANCE (mi)	DESCRIPTION
9.	K-5		Route 650 South, right on Route 10. Monitoring point $\frac{1}{2}$ mile from intersection of Routes 10 and 650 at bend in road.
10.	L-5		Route 650 South, right on Route 617, right on Route 10, right on Route 633. Monitoring point $\frac{1}{2}$ North on Route 633.
11.	M-5		Route 650 South, right on Route 617, right on Route 10 for approximately 5 miles, right on Route 634. Monitoring point 1.3 miles from intersection of Routes 634 and 10. Alliance Air Sampling Station, intersection of Routes 634 and 662.
12.	N-4		From location 11, monitoring point 2 miles North on Route 662.
13.	P-5		Scotland Wharf. Surry side on James River Ferry on Route 31 North.
14.	Q-5		James River Ferry to Jamestown Route 31, right on Route 359. Follow signs to Colonial Parkway, left on Colonial Parkway. Monitoring location $1\frac{1}{2}$ mile on Colonial Parkway.
15.	R-5		James River Ferry to Jamestown side, Route 31 East, right on Route 682 "Neck of Land Road", left on Lake Powell Road, 1.3 miles to intersection of Routes 617 and 618.
16.	A-5		James River Ferry, Route 31 East, right on Route 359, follow signs to Colonial Parkway, left on Parkway. Monitoring point 6.5 miles, $\frac{1}{2}$ mile past Halfway Creek.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.16		02
ATTACHMENT		PAGE
2	PRESELECTED MONITORING LOCATIONS	3 of 3

LOCATION	SECTOR	DISTANCE (mi)	DESCRIPTION
17.	B-5		Take Colonial Parkway from Jamestown, 7 miles to Route 199 East, Route 60 East, 3 lights, right on Kingsmill Road. Monitoring location 1 mile from Route 60 and Kingsmill Road intersection.
18.	C-5		Take Colonial Parkway from Jamestown, 7 miles to 199 East, Route 60 East, 3½ miles to Ron Springs Road (road prior to Carter's Grove), right on Log Cabin Beach Road to sewage treatment plant.
19.	D-5		Take Colonial Parkway from Jamestown, 7 miles to 199 East, Route 60 East, past Carter's Grove to Badische Corporation, right 1 mile to Vepco Substation.
20.	E-5		Take Colonial Parkway from Jamestown, 7 miles to 199 East. Take Route 60 East to Fort Eustis. Right at Fort Eustis, right at Lee Blvd., right on Kerr Road. Monitoring point located at load dock.
21.	F-4.8		Take Colonial Parkway from Jamestown, 7 miles to 199 East. Take Route 60 East to Fort Eustis, right at Fort Eustis, right at Taylor Road, left on Harrison Road. Monitoring location 0.6 miles South from intersection of Harrison Road and Back River Road.

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.16		02
ATTACHMENT		PAGE
4	RM-14 CONVERSION FACTOR	1 of 1



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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.18	MONITORING OF EOF (With 4 Attachments)	02
		PAGE 1 of 8

PURPOSE

Provide Health Physics coverage for personnel manning the EOF.

USER

Member of Inplant Monitoring Team.

ENTRY CONDITIONS

Initiation of EPIP-4.02, Radiation Protection Supervisor Controlling Procedure;

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): 1,4,5,6,7,8, Att. 3 page 1, Att. 4 Page 1	DATE: 02-24-83
REV. 02	PAGE(S): Page 1 of 8 and Attachment 3	DATE: SEP 23 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED

A.M. Cox

APPROVED

Rt Saunders

DATE

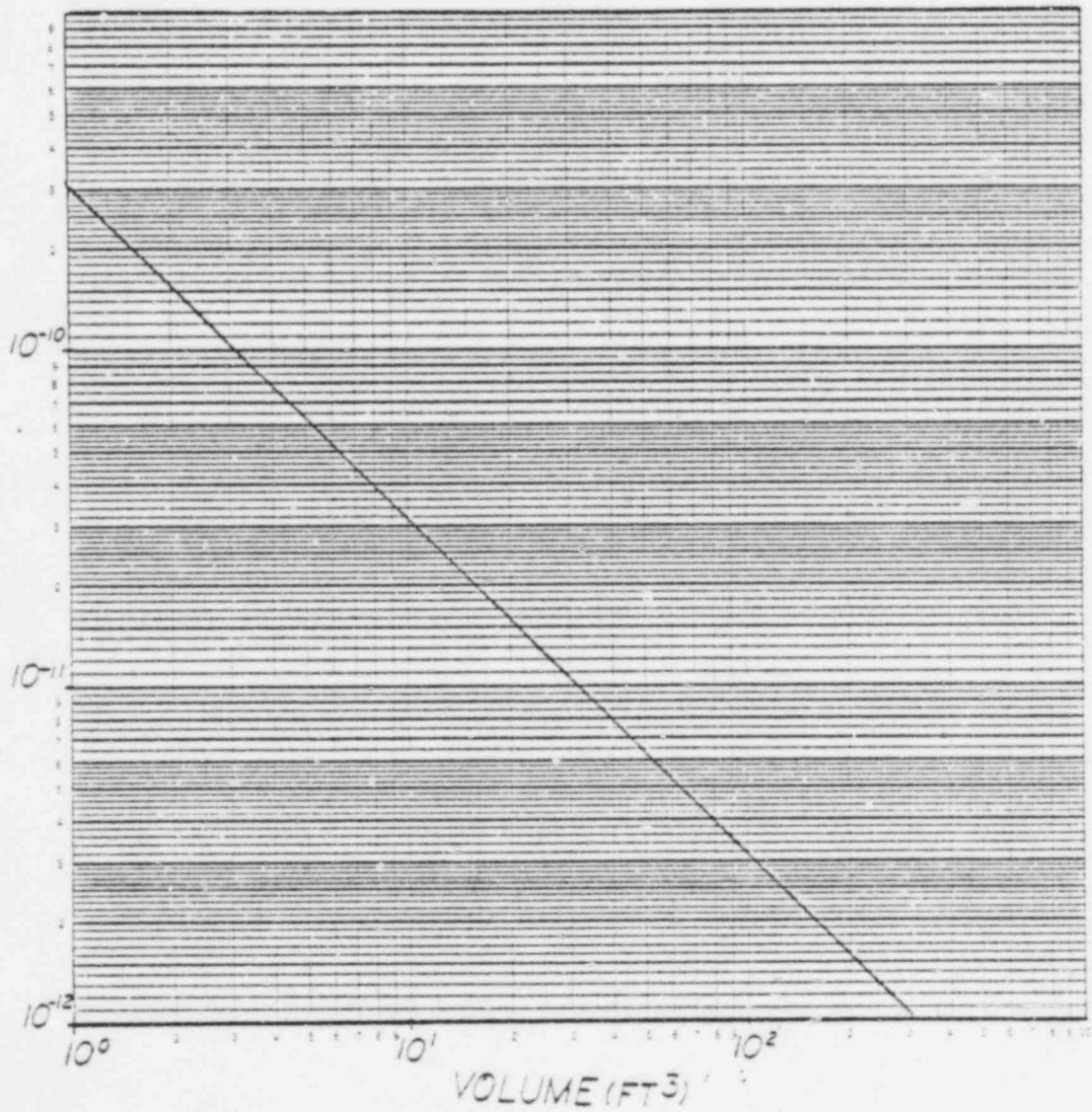
SEP 23 1983

QC REVIEW

Richard H. Hines

CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

NUMBER	ATTACHMENT TITLE	REVISION
EPIP-4.18	RM-14 CONVERSION FACTOR	02
ATTACHMENT		PAGE
3		1 of 1



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

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.23	POST ACCIDENT SAMPLING OF REACTOR COOLANT (With 1 Attachment)	02
		PAGE 1 of 14

PURPOSE

1. To collect a post accident sample of reactor coolant from the hot leg of Unit 1 OR Unit 2 Reactor Coolant Systems.

USER

Chemistry Team Leader AND Chemistry Team Member.

ENTRY CONDITIONS

1. Entry directed by Emergency Technical Director

OR
2. Entry directed by Station Emergency Manager

REVISION RECORD

REV. 00	PAGE(S): Entire Procedure	DATE: 07-29-82
REV. 01	PAGE(S): 1, 13, 14	DATE: 02-24-83
REV. 02	PAGE(S): Pages 1 of 14 through 14 of 14	DATE: SEP 23 1983
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED

J. M. Coe
QC REVIEW
J. L. Gentry

APPROVED

Rt Sand
CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

DATE

SEP 23 1983

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.23	POST ACCIDENT SAMPLING OF REACTOR COOLANT (With 1 Attachment)	02
		PAGE 2 of 14

STEP

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

1. INITIATE PROCEDURE:

a) By: _____

Date: _____

Time: _____

NOTE: Only one reactor coolant sample may be obtained from this system.

2. VERIFY STATION SYSTEMS:

a) Systems Operable

1) Station Service Electrical System per OP-262) Component Coolant System per OP-513) Compressed Air Service System per OP-464) Ventilation System per OP-215) Radiation Monitoring System per OP-56a) IF NOT operable, request operations assistance to insure system operability

3. DESIGNATE SAMPLING PARTY:

a) Chemistry team leaders

AND

b) Chemistry team members

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.23	POST ACCIDENT SAMPLING OF REACTOR COOLANT (With 1 Attachment)	02
		PAGE 3 of 14

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
4.	VERIFY RWP:	
	a) RWP issued	a) <u>IF NOT</u> issued, request initiation of RWP.
5.	OBTAIN REQUIRED EQUIPMENT:	
	a) <u>2</u> adjustable wrenches	
	b) Extension wrench	
	c) Come-A-Long or equivalent	
	d) <u>5</u> gallon poly bottle	
	e) 10 ft. of 3/4" tygon tubing	
6.	DRESS OUT:	
	a) Have sample party dress out IAW RWP	
7.	OBTAIN SAMPLE ROOM RAD LEVEL:	
	a) RM-RMS-156, "Sample Area Monitor"	
8.	BRIEF SAMPLING PARTY:	
	a) Review sampling procedure	
	b) Review entry and exit routes	
	c) Review RWP requirements	
	1) Stay times	
	2) Protective clothing	
	3) Dosimetry	
	4) Respiratory equipment	
	5) H.P. monitoring	

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.23	POST ACCIDENT SAMPLING OF REACTOR COOLANT (With 1 Attachment)	02
		PAGE 4 of 14

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
8.	(CONTINUED)	
	d) Review cautions	
	1) High radiation levels	
	2) High sample activity level	
	3) High pressure sample	
	4) High temperature sample	
	5) Open valves slowly	
9.	NOTIFICATIONS:	
	a) Notify Station Emergency Manager sampling party is being dispatched	
	<u>AND</u>	
	Notify Shift Supervisor sampling party is being dispatched	
10.	DISPATCH SAMPLE TEAM:	
	a) Insure sample party has a copy of this procedure	
	<u>NOTE:</u> Refer to attachment <u>1</u> for system arrangement	
11.	PROCEED TO PRIMARY SAMPLE ROOM:	
	a) Monitor radiation levels	
	b) Follow preplanned routes	
	c) Leave rope at Aux. Bldg. entry Door.	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12.	VERIFY SAMPLE COLLECTION CYLINDER CONNECTED:	
	a) Cylinder - IN SHIELDED "PIG"	a) <u>IF NOT</u> , place in "PIG"
	b) Quick Disconnect - CONNECTED	b) <u>IF NOT</u> , connect quick disconnect
	c) Vent valve 1-SS-237 - CLOSED	c) <u>IF NOT</u> , close valve 1-SS-237
	d) Vent plug on tank <u>2</u> - REMOVED	d) <u>IF NOT</u> , remove plug
13.	ENTER PRIMARY SAMPLE ROOM:	
	a) Observe radiation readings on RM-RMS-156 "Sample Room Monitor"	
14.	VERIFY DILUTION WATER - TK3:	
	a) Insure dilution water checklist on wall is updated	a) <u>IF NOT</u> updated, drain sampling tank
		<u>AND</u>
		Add 835 ml of DI water through funnel
		<u>AND</u>
		<u>GO TO STEP 15</u>
15.	VERIFY NITROGEN BOTTLE PRESSURE:	
	a) Open isolation valve 1-SS-241 on Nitrogen Bottle	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15.	(CONTINUED)	
	b) Verify Nitrogen Bottle pressure GREATER THAN <u>200</u> PSIG	b) <u>IF NOT</u> , leave area <u>AND</u> initiate Nitrogen Bottle replacement <u>AND</u> <u>GO TO</u> step 16
16.	VERIFY VALVE LINE UP:	
	a) Insure following valves - CLOSED	
	_____ 1-SS-229	
	_____ 1-SS-230	
	_____ 1-SS-233	
	_____ 1-SS-236	
	_____ 1-SS-238	
	_____ 1-SS-239	
	_____ 1-SS-240	
	_____ 1-SS-241	
	_____ 1-SS-242	
	_____ valve "K"	
	_____ valve "L"	
	b) Insure following valve - OPEN	
	_____ 1-SS-231	
17.	VENT AND DRAIN HOLDING TANK - TK1	
	a) Remove vent plug on TK1	
	b) Insure following valves - CLOSED	
	_____ 1-SS-234	
	_____ 1-SS-235	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17.	(CONTINUED)	
	c) Attach tygon tubing to 1-SS-234	
	<u>AND</u>	
	Attach opposite end to <u>5</u> gallon poly bottle	
	d) Insure following valves - OPEN	
	<u> </u> 1-SS-234	
	<u> </u> 1-SS-235	
	e) Drain until flow to <u>5</u> gallon poly bottle stops	e) <u>IF NO</u> flow detected <u>GO TO</u> Step <u>18</u>
18.	ISOLATE HOLDING TANK:	
	a) Insure following valves - CLOSED	
	<u> </u> 1-SS-235	
	<u> </u> 1-SS-234	
19.	DETERMINE UNIT TO BE SAMPLED:	
	a) <u>IF UNIT 1</u> to be sampled <u>GO TO NOTE</u> prior to Step <u>20</u>	a) <u>IF UNIT 2</u> to be sampled <u>GO TO NOTE</u> prior to Step <u>21</u>
	<u>NOTE:</u> Step <u>20</u> is for sampling Unit <u>1</u> .	
20.	SAMPLE UNIT <u>1</u> :	
	a) Insure control room valves - CLOSED	
	<u> </u> TV-SS-106A	
	<u> </u> TV-SS-106B	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20.	(CONTINUED)	
	b) Insure following valve CLOSED _____ 1-SS-228	
	c) Insure UNIT <u>1</u> sample line trip valve (solenoid valve back of sample room) - OPEN _____ HCV-SS-101D	
	d) Insure following valve - OPEN _____ 1-SS-233	
	e) Insure control room trip valves - OPEN _____ TV-SS-106A _____ TV-SS-106B	

	CAUTION: Flow of high activity reactor coolant will commence when next steps are performed.	

	f) Observe sample line pressure gage PI-SS-200	
	g) Carefully open following valve _____ 1-SS-229 _____ <u>AND</u> AT 20 PSIG on PI-SS-200 insure following valve - CLOSED _____ 1-SS-229	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
20.	(CONTINUED)	
	h) Insure following valve - CLOSED _____ 1-SS-233	
	i) Insure following valves - OPEN _____ 1-SS-236 valve "I" _____ 1-SS-236 valve "J"	
	j) Observe sample pressure gage PI-SS-200	
	k) Cycle following valve _____ 1-SS-229 <u>AND</u> <u>AT 100 PSIG on PI-SS-200</u> insure following valve - CLOSED _____ 1-SS-229 <u>AND</u> <u>GO TO Step 22</u>	
	<u>NOTE:</u> The following step is for sampling UNIT <u>2</u>	
21.	SAMPLE UNIT <u>2</u> :	
	a) Insure control room valves - CLOSED _____ TV-SS-206A _____ TV-SS-206B	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21.	(CONTINUED)	
	b) Insure following valve - CLOSED ___ 2-SS-240	
	c) Insure UNIT 2 sample line trip valve (solenoid valve - back of sample room) - OPEN ___ HCV-SS-201D	
	d) Insure following valve - OPEN ___ 1-SS-233	
	e) Insure control room trip valves - OPEN ___ TV-SS-206A ___ TV-SS-206B	

	CAUTION: Flow of high activity reactor coolant will commence when next steps are performed.	

	f) Observe sample line pressure gage PI-SS-200	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21.	(CONTINUED)	
	g) Carefully open following valve <div style="margin-left: 40px;">___ 1-SS-230</div> <div style="margin-left: 80px;"><u>AND</u></div> <div style="margin-left: 40px;"><u>AT 20</u> PSIG on PI-SS-200 insure following valve - CLOSED</div> <div style="margin-left: 40px;">___ 1-SS-230</div>	
	h) Insure following valve - CLOSED <div style="margin-left: 40px;">___ 1-SS-233</div>	
	i) Insure following valves - OPEN <div style="margin-left: 40px;">___ 1-SS-236 valve "I"</div> <div style="margin-left: 40px;">___ 1-SS-236 valve "J"</div>	
	j) Observe sample pressure gage PI-SS-200	
	k) Cycle following valve <div style="margin-left: 40px;">___ 1-SS-230</div> <div style="margin-left: 80px;"><u>AND</u></div> <div style="margin-left: 40px;"><u>AT 100</u> PSIG on PI-SS-200 insure following valve - CLOSED</div> <div style="margin-left: 40px;">___ 1-SS-230</div>	
22.	ISOLATE AND TRANSFER CALIBRATED SAMPLE:	
	a) Insure following valves - CLOSED <div style="margin-left: 40px;">___ 1-SS-236 valve "I"</div> <div style="margin-left: 40px;">___ 1-SS-236 valve "J"</div>	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
21.	(CONTINUED) g) Carefully open following valve ___ 1-SS-230 <u>AND</u> <u>AT 20</u> PSIG on PI-SS-200 insure following valve - CLOSED ___ 1-SS-230 h) Insure following valve - CLOSED ___ 1-SS-233 i) Insure following valves - OPEN ___ 1-SS-236 valve "I" ___ 1-SS-236 valve "J" j) Observe sample pressure gage PI-SS-200 k) Cycle following valve ___ 1-SS-230 <u>AND</u> <u>AT 100</u> PSIG on PI-SS-200 insure following valve - CLOSED ___ 1-SS-230	
22.	ISOLATE AND TRANSFER CALIBRATED SAMPLE: a) Insure following valves - CLOSED ___ 1-SS-236 valve "I" ___ 1-SS-236 valve "J"	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
22.	(CONTINUED)	
	b) Insure following valves - OPEN	
	_____ valve "K"	
	_____ valve "L"	
	_____ 1-SS-236	
	c) Verify valve 1-SS-238 - OPEN until pressure on sample bottle is appx. <u>50</u> PSIG	
	<u>AND</u>	
	Wait appx. one minute to complete transfer.	
	d) Insure following valves - CLOSED	
	_____ 1-SS-238	
	_____ valve "K" 1-SS-236	
	_____ valve "L" 1-SS-236	
23.	DISCONNECT SAMPLE CYLINDER:	
	a) Use adjustable wrench	
	b) Disconnect quick disconnect	
	c) Lower lid onto sample "pig"	
24.	SURVEY SAMPLE PIG:	
	a) Survey sample "pig" to determine rad levels and hot spot locations	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
25.	<p>TRANSPORT PIT:</p> <ul style="list-style-type: none"> a) Unlock wheel brakes b) Use preplanned exit route c) Avoid hot spots on pig d) Roll sample pig to Aux. Bldg. exit door <p>*****</p> <p><u>CAUTION:</u> The sample pig is extremely heavy and may present a hazard if allowed to roll down the ramp unrestrained. Use caution in lowering.</p> <p>*****</p>	
26.	<p>LOWER PIG DOWN RAMP:</p> <ul style="list-style-type: none"> a) Use come-a-long to lower sample pig down ramp 	
27.	<p>TRANSPORT PIG TO HOT LAB:</p> <ul style="list-style-type: none"> a) Roll pig to Chemistry Hot Lab b) Place shielded sample pig in corner by the A.A. 	
28.	<p>RECORD SAMPLE DATE/TIME</p> <ul style="list-style-type: none"> a) Date _____ b) Time _____ 	

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
29.	HAVE SAMPLE TRIP VALVES SHUT:	
	a) Notify Shift Supervisor that sampling completed	
	b) <u>IF</u> sampling Unit <u>1</u> , have Control Room shut TV-SS-106A <u>AND</u> TV-SS-106B	a) <u>IF</u> sampling Unit <u>2</u> , have Control Room shut TV-SS-206A <u>AND</u> TV-206B
30.	NOTIFICATIONS:	
	a) Notify following that sampling completed	
	1) Shift Supervisor	
	2) Station Emergency Manager	
31.	SAMPLE ANALYSIS:	
	a) Request initiation of RWP to dilute sample	
	b) Consider initiation of EPIP-4.26, <u>High activity Sample Analysis</u> , upon termination of procedure	
32.	TERMINATE EPIP-4.23:	
	a) COMPLETED BY: _____	
	TIME: _____	
	DATE: _____	
	b) Forward procedure to SNSOC for review	
	END	