VIRGINIA POWER
SURRY POWER STATION
EMERGENCY PLAN IMPLEMENTING PROCEDURE

NUMBER	PROCEDURE TITLE	REVISION
EPIP-4.23	POST ACCIDENT SAMPLING OF REACTOR COOLANT (With 1 Attachment)	05 PAGE 1 of 21

PURPOSE

1. To collect a post accident sample of reactor coolant from Unit 1 OR Unit 2 using the Sentry High Radiation Sampling System or the backup Post Accident Sample System.

USER

Chemistry Team Leader, Chemistry Team Member, and Inplant Monitoring Team.

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: 09-23-83
REV. 03	PAGE(S): Pages 1 of 16 through 16 of 16	DATE: 12-08-83
REV. 04	PAGE(S): Pages 1 of 20 through 20 of 20	DATE: 02-16-84
REV. 05	PAGE(S): Pages 1 of 19 through 19 of 19	DATE: SEP 2 3 1986
REV.	PAGE(S):	DATE:

APPROVAL RECOMMENDED	SNSOC REVIEW	DATE
John D. Costello	Harry L. Miller	SEP 2 3 1986
QC REVIEW	**STATION MANAGER APPROVAL**	**DATE**
Joel L. Kelly	R F Saunders	9-23-86

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

1. INITIATE PROCEDURE:

   a) Initiated By: _____

      Date: _____

      Time: _____

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

2. DETERMINE SAMPLE SYSTEM TO BE USED:

   a) Determine whether Sentry HRSS or back-up system to be used

      AND

      Continue with this instruction

3. ISSUE RWP:

   a) Issue RWP for system being used

      a) IF issued, GO TO Step 4

   b) Ensure RWP considers each of the following:

      1) High and low range dosimetry

      2) Wrist, head and ankle TLDs

      3) Full waterproof PCs

      4) Continuous HP monitoring with 0-1000 R/hr meter

      5) Self-contained breathing apparatus

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

4. DESIGNATE SAMPLING PARTY:

   a) 2 Chemistry Team members

   AND

   b) 1 Monitoring Team member

5. 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

      5) HP monitoring

   d) Review cautions

      1) High radiation levels

      2) High sample activity level

      3) High pressure sample

      4) High temperature sample

      5) Open valves slowly

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

6. NOTIFICATIONS:

   a) When sampling party is being dispatched, notify

      1) Station Emergency Manager

      2) Radiological Assessment Director

      3) Shift Supervisor

7. DISPATCH SAMPLE PARTY:

   a) Have sample party dress out IAW RWP.

   b) Dispatch sample party.

8. PROCEED WITH SAMPLING:

   a) IF HRSS system used, continue with instructions — a) GO TO Step 16.

   b) Give sample party a copy of this procedure and OP-12.2

NOTE: The following steps are performed by the sample party to draw a sample. The sample will actually be taken by performing the applicable steps of OP-12.2, Post Accident High Radiation Sampling System.

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

9. PERFORM IN OP-12.2 HRSS STARTUP SECTIONS:

_____ a) 5.1.1

_____ b) 5.1.2

NOTE: After step 5.2.10.2 notify HP Tech that Reactor Coolant is flowing through panel.

10. PERFORM IN OP-12.2 POST ACCIDENT INITIAL PURGE SECTION:

_____ a) 5.2

11. SAMPLING:

_____ a. For chemical analysis (pH, boron, O_2) perform Section 5.3

_____ b. For stripped gas sample and H_2 analysis perform section 5.4

_____ c. For diluted RCS sample perform section 5.5

12. SAMPLE PREPARATION:

a. For stripped gas sample label with time of sample, date and volume (0.024:15 cc) and place sample in clean poly bag

[Step 12 continuedon next page]

12. SAMPLE PREPARATION: [continued]

b. For diluted RCS sample

1) Roll cask in front of hood located in sample area. This cask contains a 0.024:24 ml sample (1:1000).

2) Remove auxiliary shield and dilution hole shield

3) Place Aliquoter into position and remove 1 ml of sample

4) Dilute to 1000 mls in a volumetric flask, then pour into marinelli breaker

5) Label sample with date, time of sample, and final dilution of 0.001:1000 (1.0 E-6 mls)

6) Place in clean poly bag

13. TRANSPORT SAMPLE:

a) Perform survey on sample bag

b) Label bag with following information:

1) "Unit _____"

2) "Volume _____ mls"

3) "Time _____:_____:_____

[Step 13 continued on next page]

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

13. TRANSPORT SAMPLE: [continued]

    c) Hold bag away from body

    d) Transport to count room using preplanned routes

14. SAMPLE ANALYSIS:

    a) Initiate EPIP-4.26, High Level Activity Sample Analysis

15. SENTRY HRSS SAMPLE ISOLATION AND PANEL FLUSHING:

    a) Perform in OP-12.2 appropriate steps of section 5.6

    AND

    GO TO Step 41

16. OBTAIN REQUIRED EQUIPMENT FOR BACK-UP SYSTEM:

    a) 2 adjustable wrenches

    b) Extension wrench

    c) Come-A-Long or equivalent

    d) 5 gallon poly bottle

    e) 10 ft. of 3/4" tygon tubing

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
17.	OBTAIN SAMPLE ROOM RAD LEVEL:	
	a) Obtain RM-RMS-156, "Sample Area Monitor", Radiation Level	
	b) Evaluate with Radiological Assessment Director need for emergency radiation limits	
	1) IF required, request initiation of EPIP-5.06, Emergency Radiation Exposure Authorization AND EPIP-4.04, Emergency Personnel Radiation Exposure	1) GO TO Step 18.
18.	PROCEED TO PRIMARY SAMPLE ROOM:	
	a) Monitor radiation levels	
	b) Follow preplanned routes	
	c) Leave rope at Aux. Bldg. entry Door.	
19.	VERIFY SAMPLE COLLECTION CYLINDER CONNECTED:	
	a) Cylinder - IN SHIELDED PIG	a) Place in PIG
	b) Quick Disconnect - CONNECTED	b) Connect quick disconnect

[Step 19 continued on next page]

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
19.	VERIFY SAMPLE COLLECTION CYLINDER CONNECTED: [continued]	
	c) Vent valve 1-SS-237 - CLOSED	c) Close valve 1-SS-237
	d) Vent plug on tank 2 - REMOVED	d) Remove plug
20.	VERIFY DILUTION WATER - TK3:	
	a) Insure dilution water checklist on wall is updated	a) Updated, drain sampling tank AND Add 835 ml of DI water through funnel AND GO TO STEP 15
21.	VERIFY NITROGEN BOTTLE PRESSURE:	
	a) Open isolation valve 1-SS-241 on Nitrogen Bottle	
	b) Verify Nitrogen Bottle pressure GREATER THAN 200 psig	b) Leave area AND initiate Nitrogen Bottle replacement AND GO TO step 21a

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

22. VERIFY VALVE LINE UP:

a) Ensure following valves - CLOSED

____ 1-SS-229	____ 1-SS-238	____ 1-SS-242
____ 1-SS-230	____ 1-SS-239	____ 1-SS-236 valve "K"
____ 1-SS-233	____ 1-SS-240	____ 1-SS-236 valve "L"
____ 1-SS-236	____ 1-SS-241	

b) Ensure following valve - OPEN

____ 1-SS-231

23. VENT AND DRAIN HOLD TANK -TK1:

a) Remove vent plug on TK1

b) Ensure following valves - CLOSED

____ 1-SS-234

____ 1-SS-235

c) Attach tygon tubing to 1-SS-234

AND

Attach opposite end to 5 gallon poly bottle

d) Ensure following valves - OPEN

____ 1-SS-234
____ 1-SS-235

e) Drain until flow to 5 gallon poly bottle stops

e) IF no flow detected, GO TO Step 24

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

24. ISOLATE HOLDING TANK:

a) Ensure following valves - CLOSED

____ 1-SS-235

____ 1-SS-234

25. DETERMINE UNIT TO BE SAMPLED:

a) IF UNIT 1 to be sampled, continue with this instruction

a) GO TO Step 27

26. SAMPLE UNIT 1:

a) Ensure control room valves - CLOSED

____ TV-SS-106A

____ TV-SS-106B

b) Ensure following valve CLOSED

____ 1-SS-228

c) Ensure UNIT 1 sample line trip valve (solenoid valve back of sample room) - OPEN

____ HCV-SS-101D

d) Ensure following valve - OPEN

____ 1-SS-233

[Step 26 continued on next page]

26. SAMPLE UNIT 1: [continued]

e) Ensure 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 gauge PI-SS-200

g) Carefully open following valve

____ 1-SS-229

AND

AT 20 psig on PI-SS-200 ensure following valve - CLOSED

____ 1-SS-229

h) Ensure following valve - CLOSED

____ 1-SS-233

[Step 26 continued on next page]

26. SAMPLE UNIT 1: [continued]

i) Ensure following valves - OPEN

____ 1-SS-236 valve "I"

____ 1-SS-236 valve "J"

j) Observe sample pressure gauge PI-SS-200

k) Cycle following valve

____ 1-SS-229

AND

AT 100 psig on PI-SS-200 ensure following valve - CLOSED

____ 1-SS-229

AND

GO TO Step 28

NOTE: The following step is for sampling UNIT 2

27. SAMPLE UNIT 2:

a) Ensure control room valves - CLOSED

____ TV-SS-206A

____ TV-SS-206B

b) Ensure following valve - CLOSED

____ 2-SS-240

c) Ensure UNIT 2 sample line trip valve (solenoid valve - back of sample room) - OPEN

____ HCV-SS-201D

d) Ensure following valve - OPEN

____ 1-SS-233

e) Ensure control room trip valves - OPEN

____ TV-SS-206A

____ TV-SS-206B

[Step 27 continued on next page]

27. SAMPLE UNIT 2: [continued]

* *

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

* *

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

g) Carefully open following valve

____ 1-SS-230

AND

AT 20 psig on PI-SS-200 ensure following valve - CLOSED

____ 1-SS-230

h) Ensure following valve - CLOSED

____ 1-SS-233

i) Ensure following valves - OPEN

____ 1-SS-236 valve "I"

____ 1-SS-236 valve "J"

j) Observe sample pressure gauge PI-SS-200

[Step 27 continued on next page]

27. SAMPLE UNIT 2: [continued]

k) Cycle following valve

____ 1-SS-230

AND

AT 100 psig on PI-SS-200
ensure following valve - CLOSED

____ 1-SS-230

28. ISOLATE CALIBRATED SAMPLE:

a) Ensure following valves - CLOSED

____ 1-SS-236 valve "I"

____ 1-SS-236 valve "J"

b) Ensure following valves - OPEN

____ 1-SS-236 valve "K"

____ 1-SS-236 valve "L"

c) Verify valve 1-SS-238 - OPEN
until pressure on sample
bottle is approx. 50 psig

AND

Wait approx. one minute
to complete transfer

d) Open 1-SS-241 until pressure
on regulator is approx. 50 psig

[Step 28 continued on next page]

28. ISOLATE CALIBRATED SAMPLE:
[continued]

e) Ensure following valves - CLOSED

____ 1-SS-238

____ 1-SS-236 valve "K"

____ 1-SS-236 valve "L"

29. DISCONNECT SAMPLE CYLINDER:

a) Use adjustable wrench or extension wrench if HP determines it is necessary

b) Disconnect quick disconnect

c) Lower lid onto sample pig

30. SURVEY SAMPLE PIG:

a) Survey sample pig to determine rad levels and hot spot locations

31. TRANSPORT PIG:

a) Unlock wheel brakes

b) Use preplanned exit route

c) Avoid hot spots on pig

d) Roll sample pig to Aux. Bldg. exit door

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

* *

CAUTION: The sample pig is extremely heavy and may present a hazard if allowed to roll down the ramp unrestrained. Use caution in lowering.

* *

32. LOWER PIG DOWN RAMP:

a) Use come-a-long or equivalent to lower sample pig down ramp

33. TRANSPORT PIG TO HOT LAB:

a) Roll pig to Chemistry Hood in HRSS Room

b) Position in Front of Hood.

34. RECORD SAMPLE DATE/TIME

a) Date_____

b) Time_____

35. HAVE SAMPLE TRIP VALVES SHUT:

a) Notify Shift Supervisor that sampling completed

b) IF sampling Unit 1, have Control Room shut TV-SS-106A AND TV-SS-106B

a) IF sampling Unit 2, have Control Room shut TV-SS-206A AND TV-SS-206B

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

36. NOTIFICATIONS:

a) Notify following that sampling completed

1) Chemistry Team Leader

2) Radiation Protection Supervisor

3) Station Emergency Manager

37. VERIFY RWP:

a) Request initiation of RWP to dilute sample

b) Dress out IAW RWP

c) Observe precautions and limitations noted in RWP

38. VENT SAMPLE BOMB:

a) Raise lid covering sample bomb to highest position

b) Ensure suction through HRSS Hood

c) Attach vent hose to HRSS Hood

d) Attach vent hose to sample bomb

e) Open sample bomb valve to vent pressure to hood

f) Remove vent hose from sample bomb

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
39.	REMOVE SAMPLE FROM SAMPLE BOMB:	
	a) Attach approx. 6" micro-bore tubing to syringe needle	
	b) Carefully insert tubing into sample bomb and withdraw 1 ml of sample	
	c) Expel 1 ml sample into marinelli beaker and mix well with 999 mls DI water	
40.	SAMPLE ANALYSIS:	
	a) Label sample beaker as to: PASS sample, date, time of sample, final dilution, actual mls sample used	
	b) Place samples into a poly bag and survey	
	c) Transport diluted sample to HP Count Room for analysis	
	d) IF sample to hot to count, consider initiation of EPIP-4.26, High Activity Sample Analysis, upon termination of this procedure.	d) Analyze with normal HP Procedures

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STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

41. TERMINATE EPIP-4.23:

a) COMPLETED BY: _____

TIME: _____

BY: _____

b) Forward completed EPIP-4.23, forms and other applicable records to Emergency Technical Director

END