

Date Entered: May 10, 2002

TO: USNRC/WASHINGTON
JMCKNIGHT Copy Number: 145

TRANSMITTAL NUMBER: 216849

PROCEDURE NUMBER: EI-7.0

TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE
RATES

TRANSMITTAL: LISTED BELOW ARE NEW/REVISED PROCEDURES WHICH MUST BE
IMMEDIATELY INSERTED INTO OR DISCARDED FROM YOUR PROCEDURE
MANUAL.

Action Required	Section or Description
REMOVE AND DESTROY	EI-7.0, R/6, ENTIRE PROCEDURE
REPLACE WITH	EI-7.0, R/7, ENTIRE PROCEDURE

*SIGN, DATE, AND RETURN THE ACKNOWLEDGEMENT FORM WITHIN 10 DAYS TO THE PALISADES
PLANT DOCUMENT CONTROL.*

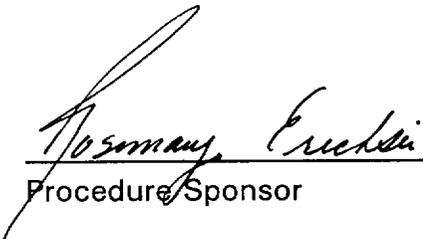
SIGNATURE OR INITIALS

DATE

A045

PALISADES NUCLEAR PLANT
EMERGENCY IMPLEMENTING PROCEDURE

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**


_____, 5/8/02
Procedure Sponsor Date

JWMcElrath, 3/20/02

Technical Reviewer Date

TEShewmaker, 3/27/02

User Reviewer Date

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

Table of Contents

1.0	<u>PERSONNEL RESPONSIBILITY</u>	1
2.0	<u>PURPOSE</u>	1
3.0	<u>REFERENCES</u>	1
3.1	SOURCE DOCUMENTS	1
3.2	REFERENCE DOCUMENTS	2
4.0	<u>INITIAL CONDITIONS AND/OR REQUIREMENTS</u>	2
4.1	PRELIMINARY INDICATORS	3
4.2	PRELIMINARY DOSE RATE SURVEYS	4
5.0	<u>PROCEDURE</u>	5
5.1	PRIMARY COOLANT SYSTEM SAMPLE LINE RECIRCULATION FOR FAILED FUEL CLASSIFICATION	5
5.2	SUBSEQUENT POST ACCIDENT SAMPLING	8
6.0	<u>ATTACHMENTS AND RECORDS</u>	9
6.1	ATTACHMENTS	9
6.2	RECORDS	9
7.0	<u>SPECIAL REVIEWS</u>	10

ATTACHMENTS

Attachment 1, "Jumpering CV-1910 and CV-1911 for PCS Sample or Sample Line Flush"

Attachment 2, "Primary Coolant System Sample Line Flush and PCS Sampling"

Attachment 3, "NSSS Sample Panel Piping Dose Rates"

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

USER ALERT

REFERENCE USE PROCEDURE

Refer to the procedure periodically to confirm that all procedure segments of an activity will be or are being performed. Where required, sign appropriate sign-off blanks to certify that all segments are complete.

1.0 PERSONNEL RESPONSIBILITY

The Operations Support Group Leader shall implement this procedure. The Technical Support Center (TSC) Chemistry Support Team and the Operations Support Center (OSC) Chemistry Supervisor shall provide support. In the absence of the Operations Support Group Leader, the Site Emergency Director shall delegate this responsibility.

2.0 PURPOSE

To determine if fuel failure is less than or greater than 5% through the use of Primary Coolant System (PCS) sample line dose rate correlations.

To specify PCS sampling requirements if fuel failure is less than 5% and a sample has been requested. NOTE: If fuel failure is greater than 5%, PCS sampling will not be performed.

3.0 REFERENCES

3.1 SOURCE DOCUMENTS

3.1.1 Reg Guide 1.97

3.1.2 EA-JBB-01-04, "Failed Fuel Rates on NSSS Piping"

3.1.3 Palisades Site Emergency Plan, Section 7, "Emergency Facilities and Equipment"

3.1.4 Combustion Engineering Report, "Technical Justification for the Elimination of the Post-Accident Sampling System from the Plant Design and Licensing Basis for CEQG Utilities," CE NPSD-1157, Revision 1

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

3.2 REFERENCE DOCUMENTS

- 3.2.1 Emergency Implementing Procedure EI-1, "Emergency Classification and Actions"
- 3.2.2 Emergency Implementing Procedure EI-7.10, "Post Accident Sampling, Radioactive Gaseous Effluent Monitoring"
- 3.2.3 Palisades Administrative Procedure 9.31, "Temporary Modification Control"
- 3.2.4 Emergency Implementing Procedure EI-11, "Determination of Extent of Core Damage"
- 3.2.5 Palisades Administrative Procedure 1.15, "Performance of Job Briefings"
- 3.2.6 System Operating Procedure SOP-16, "Component Cooling Water System"
- 3.2.7 Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision"

4.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

This procedure shall be implemented as a result of Emergency Implementing Procedure EI-1, "Emergency Classification and Actions."

The Site Emergency Director (SED) reviews the above procedure to categorize the emergency into one of the Site Emergency Plan Classifications and to determine the required actions.

NOTE: At Primary Coolant System pressures of <150 psi, CV-1903, PCS hot leg sample valve, may not be capable of opening. This procedure should be performed at PCS pressures > 150 psi. If PCS pressure is <150 psi, this procedure should not be performed.

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

4.1 PRELIMINARY INDICATORS

If any of the following Plant conditions are present, it is possible that clad failure has occurred. The Palisades Plant Computer (PPC) can be used to find many of the following monitor readings.

- a. Off Gas Monitor (RIA-0631) high radiation indication or alarm.
- b. Charging Pump Entrance Monitor (RIA-2301) high radiation indication or alarm.
- c. Waste Gas Monitor (RIA-1113) high radiation indication or alarm.
- d. Containment High Range Monitors (RA-2321/-2322) high radiation alarm.
- e. Containment Isolation Monitors (RIA-1805, 1806, 1807, and 1808) high radiation indication.
- f. Containment Radiation Monitor (RA-2315) high radiation indication.
- g. Containment Noble Gas Monitor (RIA-1817) high radiation alarm.
- h. Containment Hydrogen Monitors indicate high concentration.
- i. Core Exit Thermocouples indicate high temperature.
- j. Primary Coolant System analysis indicates high activity.
- k. Abnormally high radiation levels in vicinity of letdown line, NSSS panel, etc.
- l. Containment Building Sump Level increasing level indication.

High radiation indications on radiation monitors should be discussed with Health Physics personnel. Emergency Implementing Procedure EI-11, "Determination of Extent of Core Damage," may be useable in determining core damage using containment radiation monitor readings.

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

4.2 **PRELIMINARY DOSE RATE SURVEYS**

4.2.1 OSC Chemistry Supervisor requests OSC Health Physics (HP) Supervisor for performance of dose rates and/or air sample surveys of the following areas:

- a. NSSS Sample Panel Room
- b. Hall to Chemistry Hot Lab
- c. Chemistry Hot Lab
- d. Count Room
- e. Chemistry Grey Lab

4.2.2 OSC HP Supervisor shall ensure:

- a. Stay times are computed for ALL individuals required to work in High Radiation areas as surveyed in Step 4.3.1.
- b. HP coverage at sample panel and in labs is commensurate with dose rates and may include:
 1. Monitoring dose rates at and around sample panel during all sample acquisition activities.
 2. Continuous air sampling at sample panel and in labs during sample analysis.
- c. Dosimetry requirements and anti-contamination clothing requirements shall be dictated by the OSC Health Physics Supervisor.

Emergency Implementing Procedure EI-2.1, "Site Emergency Director," contains guidance on Dose Limits and provides for a dose limit of 5 Rem/hr. The Health Physics Supervisor will determine the dose rate and decide if sampling should be performed.

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

5.0 **PROCEDURE**

USER ALERT

REFERENCE USE PROCEDURE

Refer to the procedure periodically to confirm that all procedure segments of an activity will be or are being performed. Where required, sign appropriate sign-off blanks to certify that all segments are complete.

5.1 **PRIMARY COOLANT SYSTEM SAMPLE LINE RECIRCULATION FOR
FAILED FUEL CLASSIFICATION**

- 5.1.1 Perform a pre-job brief in accordance with Palisades Administrative Procedure 1.15, "Performance of Job Briefings."

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

5.1.5 Use the "NSSS Sample Panel Piping Dose Rates" graph in Attachment 3 to determine fuel failure. Fuel Failure should be defined as < 1%, 1-5%, or > 5%.

Fuel Failure _____ %

Determined By _____
Signature

5.1.6

IF	THEN
Fuel failure > 5%	Report results to the Operation Support Group Leader. Refer to EI-1, "Emergency Classification and Actions," Section Fission Product Barriers/Fuel Damage. EI-1, "Emergency Classification and Actions," does not discriminate between 1-5% and > 5%.
	Ensure CV-1910 and CV-1911 are closed. A PCS sample will not be obtained.
Fuel failure ≤ 5%	Report results to the Operation Support Group Leader. Refer to EI-1, "Emergency Classification and Actions," Section Fission Product Barriers/Fuel Damage.
	If PCS sample will not be required immediately, ensure CV-1910 and CV-1911 are closed. If PCS sample is required, go to Attachment 2, Step 3.9 ("Open Valve MV-V17...").

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

5.2 SUBSEQUENT POST ACCIDENT SAMPLING

Post accident sampling may be performed at the NSSS sample panel or in other areas of the plant using normal or evaluated sample points.

5.2.1 Perform a pre-job brief in accordance with Palisades Administrative Procedure 1.15, "Performance of Job Briefings."

5.2.2 Chemistry Supervision shall ensure pre-determined storage and disposal sites of used and unused portions of the sample are specified. Consider returning sample to the containment building if possible.

CAUTION

This sampling will result in transferring sample water from the reactor or containment sump to the VCT or Chemistry lab drain tank. This may result in increased dose rates in these areas.

5.2.3

IF	THEN
Containment Isolation Signal (CIS) is received	<ol style="list-style-type: none">1. Request I&C to jumper CV-1910 and CV-1911 per the directions found in Attachment 1. This Jumpering can only be performed if instrument air is available. I&C should verify availability before starting Jumpering.2. Request Operations to reopen CCW Valve CV-944A so that cooling is supplied to the sample coolers per System Operating Procedure SOP-16, "Component Cooling Water System." Inform Operations that PCS sample flow will be routed to the Volume Control Tank.
Containment Isolation Signal (CIS) is not received	Request Operations to open CV-1910 and CV-1911. Inform Operations that PCS sample flow will be routed to the Volume Control Tank.

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

- 5.2.4 Initiate PCS sampling in accordance with Attachment 2, Section 3.0, "PCS SAMPLE."
- a. Contingency sampling will be performed using appropriate Chemistry Operating Procedures as well as Chemistry Supervisory guidance.
- 5.2.5 Perform sample and analysis preparation in the Hot Lab Hood. Use sample shield in the Hot Lab as necessary.
- 5.2.6 Chemistry will perform analyses in accordance with the appropriate analytical procedures. Dilutions may be done to ensure sample dose rates are reduced.
- 5.2.7 Report results to OSC and TSC Chemistry Supervisors.

6.0 **ATTACHMENTS AND RECORDS**

6.1 **ATTACHMENTS**

- 6.1.1 Attachment 1, "Jumpering CV-1910 and CV-1911 for PCS Sample or Sample Line Flush"
- 6.1.2 Attachment 2, "Primary Coolant System Sample Line Flush and PCS Sampling"
- 6.1.3 Attachment 3, "NSSS Sample Panel Piping Dose Rates"

6.2 **RECORDS**

None

**TITLE: EMERGENCY POST ACCIDENT SAMPLING AND
DETERMINATION OF FUEL FAILURE USING DOSE RATES**

7.0 SPECIAL REVIEWS

The scope of this procedure does not include activities that require a 50.59 review per Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision." Therefore, changes to this procedure do not require a 50.59 review.

The scope of this procedure does include activities that require a PRC review per Palisades Administrative Procedure 10.41, "Procedure Initiation and Revision." Therefore, changes to this procedure do require a PRC review.

**JUMPERING CV-1910 AND CV-1911 FOR PCS SAMPLE
OR SAMPLE LINE FLUSH**

NOTE: This Attachment cannot be performed if instrument air is not available.

1.0 PURPOSE

This attachment describes the method to be used to jumper containment isolation valves CV-1910 and CV-1911 should they become closed during accident conditions (Containment Isolation). In order to sample the Primary Coolant System (PCS), CV-1910 and CV-1911 must be open.

2.0 REFERENCES

2.1 Palisades Administrative Procedure 9.31, "Temporary Modification Control"

3.0 INITIAL CONDITIONS AND/OR REQUIREMENTS

3.1 CV-1910 and CV-1911 are the containment isolation valves on the PCS chemistry sample lines. In the event of a containment isolation signal due to Containment High Pressure (CHP) and/or Containment High Radiation (CHR), CV-1910 and CV-1911 will close.

3.2 To obtain a sample of the PCS under accident conditions using the NSSS panel, it will be necessary to bypass the CHP and/or CHR relay contacts to open these valves.

4.0 PROCEDURE

4.1 I&C or Electrical Maintenance may obtain jumper set and #10 link nuts from Emergency Maintenance Kit 9 in the Operations Support Center (OSC).

4.2 Request Operations to place HS-1910 and HS-1911 in the open position (CV-1910 and CV-1911 should remain shut.) Advise Operations that while jumpers are being placed, they will lose valve indications. Valve indications will be restored after jumpers are in place.

4.3 Inside C-13 Panel

NOTE: Circuits involved labeled P1 are 125 VDC positive supply to valve position indication.

- a. Locate 13TV4-28 (P1) scheme S-21 (M201, Sheet 40) and open link.

**JUMPERING CV-1910 AND CV-1911 FOR PCS SAMPLE
OR SAMPLE LINE FLUSH**

Proc No EI-7.0
Attachment 1
Revision 7
Page 2 of 3

- b. Attach appropriate end of jumper to P1 side to link using #10 nut and link wrench.
- c. Locate 13TV6C-19 (91) scheme S-21 (M201, Sheet 113), string jumper so that it is out of the way so as not to be pulled apart, and attach other end of jumper using #10 nut and link wrench.
- d. Close link at 13TV4-28 (P1) scheme S-21 (opened in a). Verify position indication restored and CV-1910 still closed.
- e. Locate 13TV11-112 (P1) scheme S-22 (M201, Sheet 35) and open link.
- f. Attach appropriate end of jumper to P1 side of link using #10 nut and link wrench.
- g. Locate 13TV8C-24 (91) scheme S-22 (M201, Sheet 113), string jumper along floor under grating so it is out of the way and attach other end of the jumper using #10 nut and link wrench.
- h. Close link at 13TV11-112 (P1) scheme S-22 (opened in e). Verify position indication restored and CV-1911 still closed.

4.4 Inform Operations that jumpering operation is complete and to place HS-1910 and HS-1911 in the closed position. Returning either handswitch back to the open position will now cause valves to open.

WARNING

Once sampling valves are open, a potential exists for High Radiation Fields to be created at the NSSS Panel.

- 4.5 Request Operations to caution tag HS-1910 and HS-1911 indicating that CHP and CHR relay contacts are jumpered out for CV-1910 and CV-1911.
- 4.5.1 If the valves remain jumpered open for longer than one shift, then caution tags shall be required.

**JUMPERING CV-1910 AND CV-1911 FOR PCS SAMPLE
OR SAMPLE LINE FLUSH**

4.6 Removal of Jumpers

4.6.1 I&C or Electrical Maintenance obtain permission from Shift Supervisor to remove jumpers on CV-1910 and CV-1911.

4.6.2 Inside C-13 Panel

NOTE: Circuits involved labeled P1 are 125 VDC positive supply to valve position indication.

- a. Locate 13TV11-112 (P1) scheme S-22 and open link.
- b. Remove appropriate end of jumper using a link wrench.
- c. Locate 13TV8C-24 (91) scheme S-22 (M201, Sheet 113) and remove jumper using a link wrench.
- d. Locate 13TV11-112 (P1) scheme S-22 (M201, Sheet 35) and close link.
- e. Locate 13TV4-28 (P1) scheme S-21 and open link.
- f. Remove appropriate end of jumper using a link wrench.
- g. Locate 13TV6C-19 (91) scheme S-21 (M201, Sheet 113) and remove appropriate end of jumper using a link wrench.
- h. Locate 13TV4-28 (P1) scheme S-21 (M201, Sheet 40) and close link.

4.6.3 Inform Operations that removal of jumpers is complete.

**PRIMARY COOLANT SYSTEM SAMPLE
LINE FLUSH AND PCS SAMPLING**

1.0 PURPOSE

Establish the methods for the recirculation of the Primary Coolant System (PCS) Hot Leg through the NSSS Sampling Station(C-32) to the VCT during accident conditions.

2.0 PCS HOT LEG SAMPLE (SX-1023) LINE RECIRCULATION

2.1 Notify the Control Room Supervisor of the intent to open the PCS sample point.

2.2 At the EC-168 Control Panel:

2.2.1 Check or place HS-1912 (RC or LPSI selector switch) in the OFF position, to block flow to the EC-168 Control Panel.

2.2.2 Verify CV-1912 (Reactor Coolant Sample block valve) CLOSED (green indicator light).

2.2.3 Place SS-0210 and SS-0211 (selector switches for continuous sample) in the ON position.

2.2.4 Verify that temperature indicating switch TIS-1901 is in service. If the Green LED is ON (unit in Manual Mode), enable the alarm function by pushing A/M touch pad. This enters Auto Mode with Green LED off. The lower display will now show SP 0.0.

2.2.5

IF	THEN
HI-HI Sample Temp Alarm on C-168 panel exists.	Place HS-1919 to MANUAL, and proceed to Step 2.2.6.
HI-HI Sample Temp Alarm on C-168 panel does not exist.	Check that HS-1919 is in AUTO, and proceed to Step 2.2.6.

2.2.6 Place HS-1916 (Reactor Coolant sample flush switch) in the SAMPLE position.

2.2.7 Verify SV-1917 CLOSED (green indicator light)

2.2.8 Verify SV-1916 OPEN (red indicator light).

**PRIMARY COOLANT SYSTEM SAMPLE
 LINE FLUSH AND PCS SAMPLING**

2.2.9 Verify the following valves are CLOSED:

- a. MV-V37 (gas collection bomb vent)
- b. MV-V17 (primary coolant sample/flush switch)
- c. MV-V41 (gas collection bomb inlet)
- d. MV-V42 (gas collection bomb outlet)

2.2.10 Verify the following valves OPEN:

- a. MV-V38 (SX-2022 inlet to bomb isolation)
- b. MV-V39 (gas collection bomb bypass)
- c. MV-V40 (panel outlet from gas collection bomb)

2.2.11

IF	THEN
PCS pressure is < 2000 psig	Fully Open MV-PC606
PCS pressure is > 2000 psig	Go to Step 2.3.

2.3 At the C-32 panel, ensure the NSSS selector handswitch HS-1901 (NSSS panel C-32 sample selector switch) is in Position 3.

IF	THEN
HS-1901 is in Position 3.	No adjustment is necessary. Proceed to Step 2.4.
HS-1901 is not in Position 3.	Ensure air control switch CS-5057 in the OFF position. Place the selector handswitch HS-1901 to Position 3. Open the bottom of the C-32 panel and verify position of the solenoid valve as follows: Open discharge from SV-1909 by opening MV-PC163 (SV-1909 isolation). Close discharge from SV-1906 and SV-1908 by closing MV-PC161 (SV-1906 isolation) and MV-PC162 (SV-1908 isolation). Proceed to Step 2.4.

2.4 Place air control switch CS-5057 in the ON position.

**PRIMARY COOLANT SYSTEM SAMPLE
 LINE FLUSH AND PCS SAMPLING**

2.5 At the C-168 panel: Verify CV-1910, CV-1911 indicate open (red indicator light). Verify CV-1903 (primary coolant loop 2 hot leg sample point) indicates open.

2.6 Purge for 3 minutes.

IF	THEN
Dose rate at the NSSS panel is greater than 5 Rem/hr when sample flow is initiated.	SECURE sample flow by placing SV-1916 to OFF and CS-5057 to OFF. Report to OSC Chemistry Supervisor. Elevated dose rates will occur in the Auxiliary Building if sample flow dose rates exceed this value.
Dose rate at the NSSS panel is less than 5 Rem/hr when sample flow is initiated.	Continue to Step 2.7.

2.7

IF	THEN
HI-HI Temperature Alarm is Clear.	Place HS-1919 to AUTO, go to Step 2.8.
HI-HI Temperature Alarm is not Clear.	Verify MV-CC175, and MV-CC176 are open, and contact OSC Chemistry Supervisor.

2.8 At the C-32 panel, allow sample flow and discharge to the VCT for a minimum of 20 minutes.

2.9 Radiation Protection shall measure the dose rate on contact at the Failed Fuel Survey Point on the PCS sample line.

2.10 Place the C-32 panel air control switch CS-5057 in the OFF position.

2.11 At the C-168 panel, place HS-1916 (reactor coolant sample/flush switch) in the OFF position.

2.12 Notify the Control Room Supervisor that PCS flush is complete and that the following step will cause a "PASM Panel Trouble" alarm.

**PRIMARY COOLANT SYSTEM SAMPLE
LINE FLUSH AND PCS SAMPLING**

2.13 SS-0210 and SS-0211 (selector switches for continuous sample) in the OFF position.

2.14 To disable the alarm function for TIS-1901 perform the following:

- a. If the Green LED is not lit, push A/M touch pad to enter the Manual Mode (Green LED on).
- b. Push the down-arrow pad until output equals 0.0. The display will read OUT 0.0. The Red LED labeled AL1 will remain "ON" if sample temperature is $\geq 90^{\circ}$ F.

2.15 Return to Step 5.1.4 in the main body of the procedure.

3.0 PCS SAMPLE

3.1 Notify the Control Room Supervisor of the intent to sample the PCS.

3.2 At the EC-168 Control Panel:

3.2.1 Check or place HS-1912 (RC or LPSI selector switch) in the OFF position, to block flow to the EC-168 Control Panel.

3.2.2 Verify CV-1912 (Reactor Coolant Sample block valve) CLOSED (green indicator light).

3.2.3 Place SS-0210 and SS-0211 (selector switches for continuous sample) in the ON position.

3.2.4 Verify that temperature indicating switch TIS-1901 is in service. If the Green LED is ON (unit in Manual Mode), enable the alarm function by pushing A/M touch pad. This enters Auto Mode with Green LED off. The lower display will now show SP 0.0.

3.2.5

IF	THEN
HI-HI Sample Temp Alarm on C-168 panel exists.	Place HS-1919 to MANUAL, and proceed to Step 3.2.6.
HI-HI Sample Temp Alarm on C-168 panel does not exist.	Check that HS-1919 is in AUTO, and proceed to Step 3.2.6

**PRIMARY COOLANT SYSTEM SAMPLE
LINE FLUSH AND PCS SAMPLING**

- 3.2.6 Check or place HS-1916 (Reactor Coolant sample flush switch) in the SAMPLE position.
- 3.2.7 Verify SV-1917 CLOSED (green indicator light)
- 3.2.8 Verify SV-1916 OPEN (red indicator light).
- 3.2.9 Verify the following valves are CLOSED:
- a. MV-V37 (gas collection bomb vent)
 - b. MV-V17 (primary coolant sample/flush switch)
 - c. MV-V41 (gas collection bomb inlet)
 - d. MV-V42 (gas collection bomb outlet)
- 3.2.10 Verify the following valves OPEN:
- a. MV-V38 (SX-2022 inlet to bomb isolation)
 - b. MV-V39 (gas collection bomb bypass)
 - c. MV-V40 (panel outlet from gas collection bomb)
- 3.2.11

IF	THEN
PCS pressure is < 2000 psig	Fully Open MV-PC606
PCS pressure is > 2000 psig	Go to Step 3.3.

**PRIMARY COOLANT SYSTEM SAMPLE
LINE FLUSH AND PCS SAMPLING**

- 3.3 At the C-32 panel, ensure the NSSS selector handswitch HS-1901 (NSSS panel C-32 sample selector switch) is in Position 3.

IF	THEN
HS-1901 is in Position 3.	No adjustment is necessary. Proceed to Step 3.4.
HS-1901 is not in Position 3.	Ensure air control switch CS-5057 in the OFF position. Place the selector handswitch HS-1901 to Position 3. Open the bottom of the C-32 panel and verify position of the solenoid valve as follows: Open discharge from SV-1909 by opening MV-PC163 (SV-1909 isolation). Close discharge from SV-1906 and SV-1908 by closing MV-PC161 (SV-1906 isolation) and MV-PC162 (SV-1908 isolation). Proceed to Step 3.4.

- 3.4 Place air control switch CS-5057 in the ON position.
- 3.5 At the C-168 panel: Verify CV-1910, CV-1911 indicate open (red indicator light). Verify CV-1903 (primary coolant loop 2 hot leg sample point) indicates open.

**PRIMARY COOLANT SYSTEM SAMPLE
 LINE FLUSH AND PCS SAMPLING**

3.6 Purge for 3 minutes.

IF	THEN
Dose rate at the NSSS panel is greater than 5 Rem/hr when sample flow is initiated.	SECURE sample flow by placing SV-1916 to OFF and CS-5057 to OFF. Report to OSC Chemistry Supervisor. Elevated dose rates will occur in the Auxiliary Building if sample flow dose rates exceed this value.
Dose rate at the NSSS panel is less than 5 Rem/hr when sample flow is initiated.	Continue to Step 3.7.

3.7

IF	THEN
HI-HI Temperature Alarm is Clear.	Place HS-1919 to AUTO, go to Step 3.8.
HI-HI Temperature Alarm is not Clear.	Verify MV-CC175, and MV-CC176 are open, and contact OSC Chemistry Supervisor.

3.8 At the C-32 panel, allow sample flow and discharge to the VCT for a minimum of 20 minutes.

3.9 OPEN Valve MV-V17 (primary coolant sample/flush switch).

3.10 CLOSE Valve MV-V40 (panel outlet from gas collection bomb).

3.11 Flush sample line for 5 minutes.

NOTE: PCS sample volume collected depends on the analyses that will be performed. At the very least, boron and gamma spectroscopy analyses will be done.

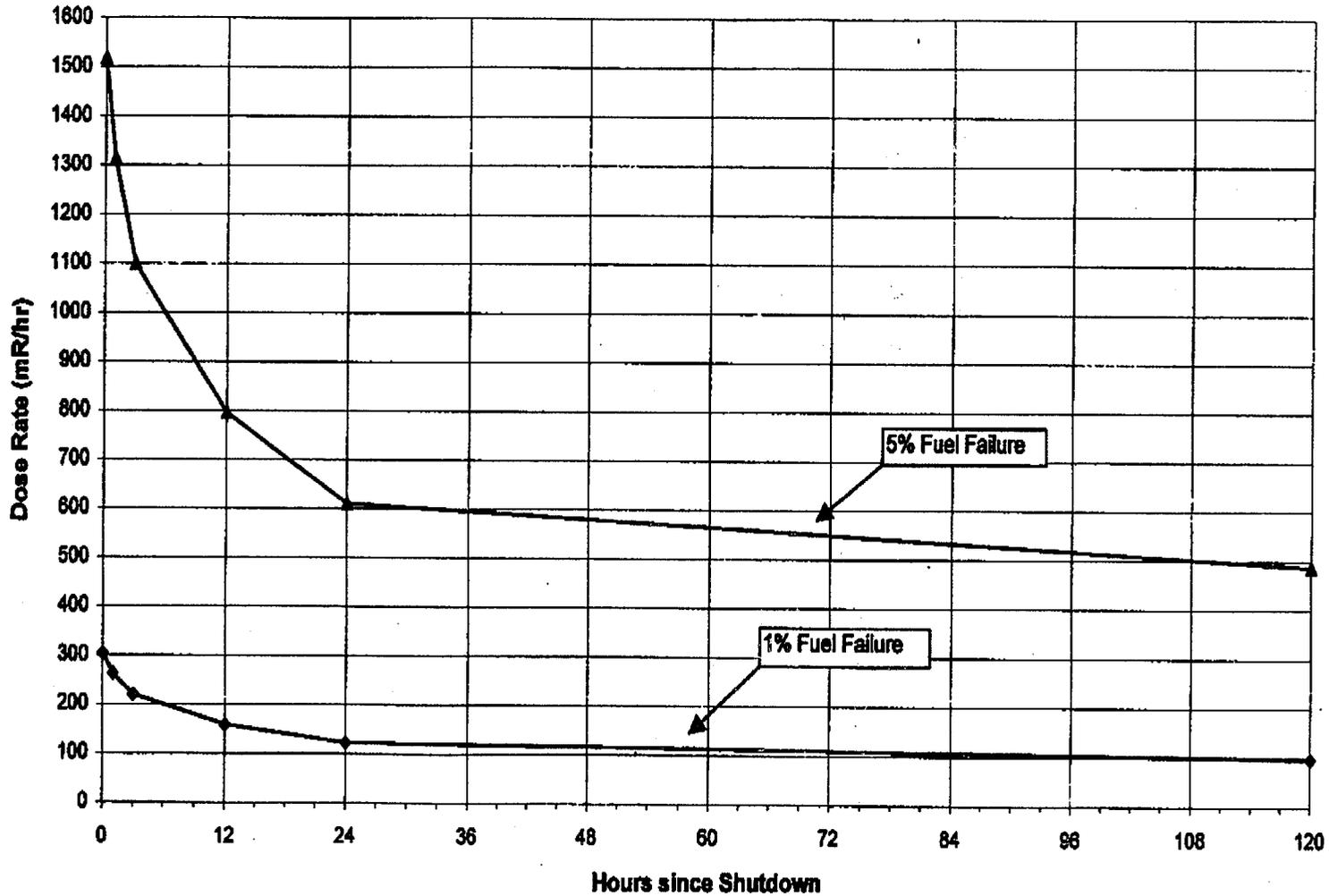
3.12 Obtain appropriate volume of PCS sample.

3.13 OPEN valve MV-V40 (panel outlet from gas collection bomb).

**PRIMARY COOLANT SYSTEM SAMPLE
LINE FLUSH AND PCS SAMPLING**

- 3.14 CLOSE Valve MV-V17 (primary coolant sample/flush switch).
- 3.15 Place the C-32 panel air control switch CS-5057 in the OFF position.
- 3.16 At the C-168 panel, place HS-1916 (reactor coolant sample/flush switch) in the OFF position.
- 3.17 Notify the Control Room Supervisor that PCS flush is complete and that the following step will cause a "PASM Panel Trouble" alarm.
- 3.18 Place SS-0210 and SS-0211 (selector switches for continuous sample) in the OFF position.
- 3.19 To disable the alarm function for TIS-1901 perform the following:
 - a. If the Green LED is not lit, push A/M touch pad to enter the Manual Mode (Green LED on).
 - b. Push the down-arrow pad until output equals 0.0. The display will read OUT 0.0. The Red LED labeled AL1 will remain "ON" if sample temperature is $\geq 90^{\circ}$ F.
- 3.20 Return to Step 5.2.5 in the main body of the procedure.

**NSSS Sample Panel Piping
Dose Rates vs Fuel Failure**



NSSS SAMPLE PANEL PIPING DOSE RATES