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Document No.: CP 3804L	Writer: Provencher Initiator Lebruto	Rev. No. 002	Minor Rev. 02

Title: PASS Containment Air Sample

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☐ Revision ☒ Minor Revision ☐ Cleanup Revision ☐ Biennial Review
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Associated ARs

Reviews		Print	Sign	Date	Department
	☐				
Emergency Planning	☒	TOM RIEBLE		12-18-08	EPD
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	☐				
WC 9 Att 3 Req. ☐ Yes ☒ No	☒	Dave Provencher		12/16/08	NPO
Licensing Basis / RCD (50.59/72.48 Screen Req. ☐ Yes ☒ No)	☒	Dave Provencher		12/16/08	NPO
Tech Independent	☒	Bob McDonald		12/17/08	CHEMISTRY

Validation	☒ None	☐ Field - Use MP-05-DC-SAP01-004	☐ Simulated Performance - Use MP-05-DC-SAP01-004	☐ Table Top and Walk-through	☐ Comparison
(minimum of two)	Print	Sign	Date	Dept	
Coordinator					
Member					

Training: ☒ None ☐ Nuclear Training ☐ Briefing ☐ Familiarization

☒ SQR Review and Approval
Approval ☒ Disapproval ☐
(1) SQR [signature] for 12-22-08 Sign/Date
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12.22.8 P

☐ FSRC Review and Approval
N/A
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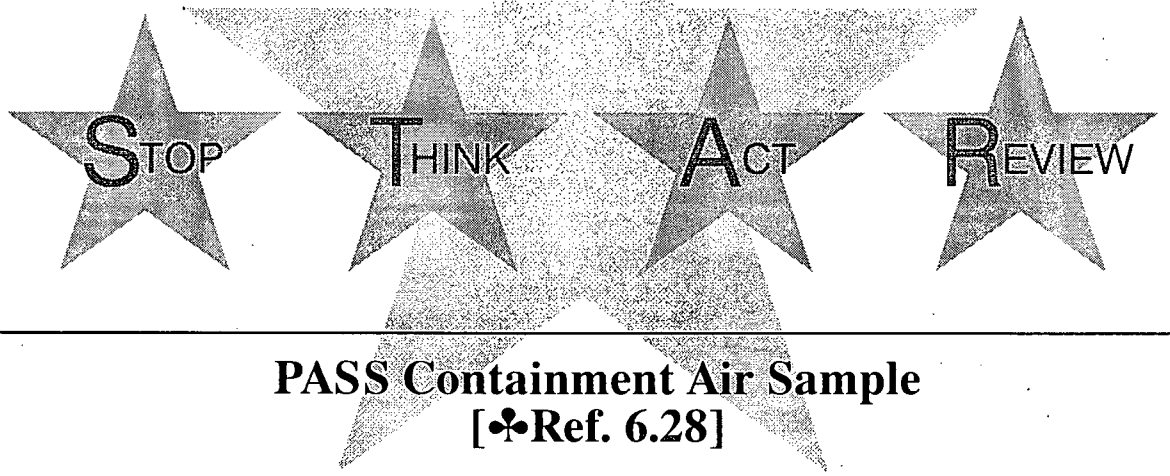


PASS Containment Air Sample [✣Ref. 6.28]

CP 3804L

Rev. 002–02

NOTE

A review by the Emergency Planning Department is required whenever this procedure is revised or whenever changes are made to this procedure which impact the ability to collect and analyze a PASS sample.

Approval Date: 12/22/08

Effective Date: 12/30/08

Level of Use
Continuous

Millstone Unit 3
Chemistry Procedure

PASS Containment Air Sample

TABLE OF CONTENTS

1. PURPOSE

1.1 Objective

Provide instructions for operation of the Unit 3 containment air post accident sample system for containment air sample acquisition when high radioactivity levels, may preclude the normal (conventional) sampling method.

This procedure satisfies regulatory commitment B18443−01 to maintain contingency plans for obtaining and analyzing highly radioactive samples of the containment atmosphere. ②

This procedure was developed using the reactor technical manual for the containment air PASS (Ref.6.2) and other documents identified herein.

1.2 Discussion

If conditions arise that will not allow Sections 4.1 through 4.4 to be completed, the procedure user will be directed to Section 4.8, "Restoration from PASS Sample Acquisition," to return the system to normal.

Attachment 4 contains a simplified drawing of the containment air post accident sample system.

1.3 Applicability

This procedure is applicable when in−plant radioactivity levels are too high to permit containment air sampling via the normal (conventional) method. ②

1.4 Frequency

As required during periods of elevated in−plant levels. ②

2. PREREQUISITES

2.1 General

___/___ 2.1.1 Heat tracing panel 3HTS−PNLA3 (OP 3352) has been energized for at least 1/2 hour.

___/___ 2.1.2 To prevent condensation and iodine plate−out in the sample lines, verify containment temperature is less than or equal to 170°F. ②

___/___ 2.1.3 Key has been obtained to unlock the following:

Train A	Train B
3SSP*V51	3SSP*V52
3SSP*V59	3SSP*V60
3HCS*V2	3HCS*V9
3HCS*V3	3HCS*V10
3HCS*V6	3HCS*V13

___/___ 2.1.4 Health Physics has been notified that a containment air PASS sample will be taken.

___/___ 2.1.5 Health Physics has evaluated need for RWP.

___/___ 2.1.6 Lab ventilation is operating.

___/___ 2.1.7 Lead brick shielding has been placed in lab ventilation hood.

___/___ 2.1.8 Computer radioisotopic analysis system in operation and calibrated.

___/___ 2.1.9 Gas chromatograph has been set up and calibrated, or calibration has been initiated for PASS containment air sample analysis if desired.

___/___ 2.1.10 Proper operation of sample syringes in PASS suitcase has been verified.

___/___ 2.1.11 13 cc gas vial has been stoppered and evacuated. ② |

___/___ 2.1.12 One train of SLCRS in operation.

2.1.13 Manager of Radiological Dose Assessment (MRDA) or the Assistant Manager of Radiological Dose Assessment (AMRDA) has requested a containment air sample to include the following:

Check Requested Analysis	Sample Equipment Needed
❑ Gas isotopic	"GAS ISOTOPIC" syringe, stoppered and evacuated 13 cc gas vial ②
❑ Gas composition	"GAS COMP" syringe

Check Sample Point

❑ Hydrogen Recombiner Train A

❑ Hydrogen Recombiner Train B

2.1.14 Containment Air PASS Team has completed pre-job brief as follows:

- Manager of Operational Support Center (MOSC) – designates, assembles, and briefs the Containment Air PASS Team for implementation of this procedure
- Operational Support Center Assistant Radiological Protection Supervisor (OSC ARPS) with the concurrence of the Manager of Radiological Consequence Assessment (MRCA) – specifies the radiological controls required for implementation of this procedure

2.2 **Documents**

2.2.1 CP 2803/3803P, "Operation and Calibration for Perkin-Elmer Autosystem XL Gas Chromatograph"

2.2.2 C CP 803.6, "Gamma Spectroscopy Counting System Maintenance and Operation" ②

2.2.3 CP 3804K Attachment, "PASS Sample Equipment Inventory"

2.2.4 PI-AA-200, "Corrective Action"

2.2.5 RP16, "Trouble Reporting"

2.2.6 RWP for PASS sample collection.

2.2.7 Gas sample isotopic printout

2.3 **Personnel**

2.3.1 Assistant Director, Technical Support (ADTS)

2.3.2 Manager of Radiological Dose Assessment (MRDA) or Assistant Manager of Radiological Dose Assessment (AMRDA)

2.3.3 Manager of Operational Support Center (MOSC)

2.3.4 Operational Support Center Assistant Radiological Protection Supervisor (OSC ARPS)

2.3.5 Manager of Control Room Operations (MCRO)

2.3.6 Manager of Radiological Consequence Assessment (MRCA)

2.3.7 Containment Air PASS Team consisting of the following personnel:

- At least two Chemistry Technicians
- At least one Health Physics Technician

2.4 Tools and Consumables

2.4.1 Located in Unit 3 Chemistry Lab

- 13 cc gas vial
- 13 cc gas vial stopper
- 24 Lead bricks
- PASS transport cart
- Syringe transfer container
- 250 µl syringe labeled "GAS ISOTOPIC"
- 2.0 ml syringe labeled "GAS COMP"
- Key to 3SSP–PNL2 (Issued to U3 Chemistry personnel)
- Key to the following valves:

Train A	Train B
3SSP*V51	3SSP*V52
3SSP*V59	3SSP*V60
3HCS*V2	3HCS*V9
3HCS*V3	3HCS*V10
3HCS*V6	3HCS*V13

- Watch

2.4.2 Located in PASS Cabinet in H_2 Recombiner Building

- Spare syringe needles
- 3SSP–SAS2 septums
- 1/2″ socket wrench
- Phone headset
- Scribe
- Tweezers
- Septum insertion tool
- Calculator
- Damper operating tool
- Flat–tipped screwdriver
- Valve wrench

2.5 Responsibilities

2.5.1 The ADTS shall make the decision to obtain a sample using PASS.

2.5.2 The Manager of Operational Support Center designates, assembles and briefs the PASS team.

2.5.3 The Manager of Radiological Consequence Assessment specifies PASS team radiological controls.

2.5.4 The Operational Support Center Assistant Radiological Protection Supervisor assigns HP technicians and briefs the PASS team on radiological conditions.

2.5.5 The Manager of Radiological Dose Assessment or the Assistant Manager of Radiological Dose Assessment specify PASS team sampling and analysis requirements.

2.6 **Definitions**

2.6.1 SLCRS – supplementary leak collection and release system

2.6.2 CR – Condition Report

3. PRECAUTIONS

3.1 The inside of 3SSP–SAS2, containment air sample module, is potentially contaminated. Proper Health Physics practices and RWP requirements must be followed to prevent the spread of contamination.

3.2 Nitrogen pressures >100 psig can damage the tubing in 3SSP–PNL2.

4. INSTRUCTIONS

4.1 **Preparation for PASS Sample Acquisition**

4.1.1 PERFORM the following and INITIAL CP 3804L−001:

_____ • VERIFY "General Prerequisites" have been completed

_____ • REVIEW Section 3, "Precautions"

_____ 4.1.2 IF during performance of Sections 4.1 through 4.8 any operational problems are encountered, RECORD noted problems on CP 3804L−001.

_____ 4.1.3 IF during performance of Sections 4.1 through 4.4, operational problems are encountered that will *not* allow sampling to be completed, Go To Section 4.8, "Restoration from PASS Sample Acquisition."

_____ 4.1.4 PROCEED to containment air sample module with the following:

- Stoppered and evacuated 14.4 cc gas vial
- Key to 3SSP−PNL2 (Issued to U3 Chemistry personnel)
- Key to the following valves:

Train A	Train B
3SSP*V51	3SSP*V52
3SSP*V59	3SSP*V60
3HCS*V2	3HCS*V9
3HCS*V3	3HCS*V10
3HCS*V6	3HCS*V13

- Watch
- CP 3804L−001 and CP 3804L−002
- Syringe transfer container

_____ 4.1.5 UNLOCK 3SSP−PNL2, containment air sample remote panel.

_____ 4.1.6 Refer To Attachment 1 and CHECK system alignment.

4.1.7 NOTIFY MCRO of the following:

_____ a. 3HVR*DMP60 will be opened

b. IF in operating Modes 1–4, Enter LCO 3.6.6.2 for 3HVR*DMP60 [Ref. 6.1]

c. PERFORM one of the following:

1) IF hydrogen recombiner train A was selected in step 2.1.13, NOTIFY MCRO that the following valves will be opened if not already open:

- 3HCS*V2, recombiner 1A supply outer isolation
- 3HCS*V3, recombiner 1A supply inner isolation
- 3HCS*V6, recombiner RBNR–1A return isolation

2) IF hydrogen recombiner train B was selected in step 2.1.13, NOTIFY MCRO that the following valves will be opened if not already open:

- 3HCS*V9, recombiner 1B supply outer isolation
- 3HCS*V10, recombiner 1B supply inner isolation
- 3HCS*V13, recombiner RBNR–1B return isolation

d. IF in operating Modes 1–4, Track Tech Spec surveillance requirements of 4.6.1.1.a for the valves opened in step 4.1.7 c.

NOTE

Constant communications with the control room are required when 3HCS*V2, 3HCS*V3, 3HCS*V6, 3HCS*V9, 3HCS*V10, or 3HCS*V13 are opened in Modes 1–4.

4.1.8 IF in operating Modes 1–4, DON phone headset and ESTABLISH communications with Control Room.

4.1.9 PERFORM the following:

a. Using damper operating tool, OPEN 3HVR*DMP60, 3SSP–SAS1/SAS2 exhaust isolation damper [Ref. 6.1]

b. OPEN 3HVR–DMP1301, 3SSP–SAS2 exhaust damper [Ref. 6.1].

4.1.10 PERFORM the following at 3SSP−PNL2, containment air sample remote panel:

_____ a. ZERO timer.

_____ b. PUSH and HOLD "POWER ON" button for 1 to 2 seconds to energize remote operating module and RECORD time:

_____

NOTE

A lit fuse indicator light indicates the fuse is blown.

_____ c. VERIFY line fuses and blower fuse indicator lights are *not* lit.

_____ d. OPEN 3SSP−V53, nitrogen supply to containment air sample PNL2.

NOTE

3SSP−PCV82 may require periodic adjustment to maintain 45−50 psig outlet pressure.

CAUTION

Nitrogen pressures >100 psig can damage the tubing in 3SSP−PNL2.

_____ e. ADJUST 3SSP−PCV82, nitrogen pressure regulator, to 45−50 psig.

ALARA

The inside of 3SSP−SAS2, containment air sample module, is potentially contaminated. Proper Health Physics practices and RWP requirements must be followed to prevent the spread of contamination.

_____ 4.1.11 At 3SSP−SAS2, containment air sample module, CHECK exhaust fan is running.

4.1.12 IF exhaust fan is *not* running, PERFORM the following at 3SSP−PNL2, containment air sample remote panel:

_____ a. PUSH "POWER ON" button to de−energize panel.

_____ b. PUSH and HOLD "POWER ON" button for 1 to 2 seconds to energize remote operating module and RECORD time:

_____

_____ c. At 3SSP−SAS2, containment air sample module, CHECK exhaust fan is running.

_____ d. IF exhaust fan is *not* running, NOTIFY MOSC.

NOTE

If hydrogen recombiner train A is running, the following valves will already be open:

- 3HCS*V2, recombiner 1A supply outer isolation
- 3HCS*V3, recombiner 1A supply inner isolation
- 3HCS*V6, recombiner RBNR–1A return isolation

CAUTION

It is imperative *not* to push in on the hand wheel when operating the following valves unless SM/US permission is obtained. This engages the clutch override and could result in damage to the valve.

Train A			Train B		
3HCS*V2	3HCS*V6	3SSP*V59	3HCS*V9	3HCS*V13	3SSP*V60
3HCS*V3	3SSP*V51		3HCS*V10	3SSP*V52	

4.1.13 IF hydrogen recombiner train A was selected in step 2.1.13, UNLOCK and OPEN the following valves:

_____ • 3HCS*V2, recombiner 1A supply outer isolation

_____ • 3HCS*V3, recombiner 1A supply inner isolation

_____ • 3HCS*V6, recombiner RBNR–1A return isolation

_____ • 3SSP*V51, containment air sample return cross–connect

_____ • 3SSP*V59, containment air sample supply cross–connect

CAUTION

It is imperative *not* to push in on the hand wheel when operating the following valves unless SM/US permission is obtained. This engages the clutch override and could result in damage to the valve.

Train A			Train B		
3HCS*V2	3HCS*V6	3SSP*V59	3HCS*V9	3HCS*V13	3SSP*V60
3HCS*V3	3SSP*V51		3HCS*V10	3SSP*V52	

NOTE

If hydrogen recombiner train B is running, the following valves will already be open:

- 3HCS*V9, recombiner 1B supply outer isolation
- 3HCS*V10, recombiner 1B supply inner isolation
- 3HCS*V13, recombiner RBNR–1B return isolation

4.1.14 IF hydrogen recombiner train B was selected in step 2.1.13, UNLOCK and OPEN the following valves:

_____ • 3HCS*V9, recombiner 1B supply outer isolation

_____ • 3HCS*V10, recombiner 1B supply inner isolation

_____ • 3HCS*V13, recombiner RBNR–1B return isolation

_____ • 3SSP*V52, containment air sample return cross–connect

_____ • 3SSP*V60, containment air sample supply cross–connect

4.1.15 At 3SSP–PNL2, containment air sample remote panel, POSITION the following valves as indicated:

_____ a. 3SSP–V2037 to "OPEN."

_____ b. 3SSP–V2035 to "SAMPLE."

_____ c. 3SSP–V112 to "OFF."

_____ d. 3SSP–V2034 to "OFF."

ALARA

3SSP−PNL2, containment air sample remote panel, requires a 15 minute warm−up period. The time that the instrument was energized is recorded on Chem Form 3804L−1. The PASS Team Health Physics Technician will determine the best location to wait for the completion of the warm−up.

_____ 4.1.16 REQUEST Health Physics Technician determine most appropriate location to wait for completion of 15 minute warm−up of 3SSP−PNL2, containment air sample remote panel.

− End of Section 4.1 −

4.2 **Sample Acquisition**

_____ 4.2.1 Refer To step 4.1.10 b. or step 4.1.12 b. and VERIFY 15 minute warm–up of 3SSP–PNL2, containment air sample remote panel, is complete.

_____ 4.2.2 Refer To CP 3804L–001 and MARK box corresponding to hydrogen recombiner train being sampled.

_____ 4.2.3 At 3SSP–PNL2, containment air sample remote panel, POSITION 3SSP–V112 to "SAMPLE INFLUENT."

4.2.4 At 3SSP*PNL3, post accident sample panel, PERFORM the following:

_____ a. ROTATE "AIR SAMPLE PUMP P4 SPEED CONTROL" knob fully clockwise.

_____ b. PUSH "AIR SAMPLE PUMP P4" start button to start 3SSP–P4

_____ 4.2.5 RECORD time purge started: _____

_____ 4.2.6 At 3SSP–PNL2, containment air sample remote panel, RECORD flow rate: _____ lpm

_____ 4.2.7 PERFORM the following calculation to determine purge time in minutes.

Purge time = 220 / purge flow rate in lpm

Purge time = 220 / _____ lpm = _____ minutes

4.2.8 <u>WHEN</u> purge time has passed, ISOLATE sample as follows:

_____ a. At 3SSP*PNL3, post accident sample panel, ADJUST 3SSP–P4 speed control to achieve a sample flow rate of 10 to 12 lpm indicated on 3SSP–PNL2, containment air sample remote panel.

_____ b. At 3SSP–PNL2, containment air sample remote panel, RECORD flow rate: _____ lpm

_____ c. POSITION 3SSP–V2037 to "CLOSE."

d. CHECK that flow rate is less than value recorded in step 4.2.8 b.

e. WAIT 1 minute.

f. POSITION 3SSP–V2035 to "BYPASS AND FLUSH."

g. Refer To CP 3804L–001 and RECORD sample date and time.

h. POSITION 3SSP–V112 to "OFF."

4.2.9 At 3SSP*PNL3, post accident sample panel, PUSH "AIR SAMPLE PUMP P4" stop button to stop 3SSP–P4.

– End of Section 4.2 –

4.3 System Flush Prior To Sample Retrieval

4.3.1 At 3SSP–PNL2, containment air sample remote panel, INITIATE nitrogen purge as follows:

a. POSITION the following valves as indicated:

_____ 1) 3SSP–V112 to "NITROGEN FLUSH."

_____ 2) 3SSP–V2037 to "OPEN."

_____ 3) 3SSP–V2034 to "ON."

_____ b. RECORD flow rate: _____ lpm

_____ c. WAIT 3 minutes.

_____ d. POSITION 3SSP–V2037 to "CLOSE."

_____ e. CHECK that flow rate is less than value recorded in step 4.3.1 b.

_____ f. WAIT 3 minutes.

g. POSITION the following valves as indicated:

_____ 1) 3SSP–V2034 to "OFF."

_____ 2) 3SSP–V112 to "OFF."

_____ 3) 3SSP–V2037 to "OPEN."

Health Physics Technician

4.3.2 Based on radiation reading in sample module room, DIRECT Chemistry Technicians to perform one of the following:

_____ • Go To step 4.3.1 and REPEAT flush

_____ • Go To Section 4.4 and retrieve samples

– End of Section 4.3 –

4.4 Retrieval of Containment Air Samples

_____ 4.4.1. At 3SSP−SAS2, containment air sample module, OPEN cabinet door.

4.4.2 IF gas isotopic sample was requested in step 2.1.13, PERFORM the following:

_____ a. VERIFY needle is screwed fully into 250 µl syringe labeled "GAS ISOTOPIC."

NOTE

3SSP−V2036 is open when handle is inline with needle guide.

_____ b. OPEN 3SSP−V2036, containment air sample module internal bypass valve.

_____ c. INSERT syringe into needle guide until syringe nut is engaged.

ALARA

1. Do **not** unscrew syringe body more than 2 turns counterclockwise. Excessive turns will disengage needle from syringe.
2. Steps 4.4.2 d. through g. should be performed rapidly to minimize exposure.

_____ d. Rapidly DRAW 250 µl gas sample into syringe and TURN syringe body 2 turns counterclockwise to lock sample in syringe.

_____ e. REMOVE syringe from needle guide and INSERT needle into stoppered 13 cc gas vial. | ②

_____ f. HOLD syringe tip and TURN syringe body 2 turns clockwise to unlock syringe and INJECT contents of syringe into stoppered 13 cc gas vial. | ②

_____ g. PLACE syringe and gas vial into syringe transfer container and PLACE lid on syringe transfer container.

h. CLOSE 3SSP–V2036, containment air sample module internal bypass valve.

4.4.3 IF gas composition sample was requested in step 2.1.13, PERFORM the following:

a. VERIFY needle is screwed fully into 2.0 ml syringe labeled "GAS COMP."

b. OPEN 3SSP–V2036, containment air sample module internal bypass valve.

c. INSERT syringe into needle guide until syringe nut is engaged.

ALARA

1. Do *not* unscrew syringe body more than 2 turns counterclockwise. Excessive turns will disengage needle from syringe.
2. Steps 4.4.3 d. and e. should be performed rapidly to minimize exposure.

d. Rapidly DRAW 1 cc gas sample into syringe and TURN syringe body 2 turns counterclockwise to lock sample in syringe.

e. REMOVE syringe from needle guide and PLACE syringe into syringe transfer container and PLACE lid on syringe transfer container.

f. CLOSE 3SSP–V2036, containment air sample module internal bypass valve.

4.4.4 CLOSE cabinet door.

NOTE

If sufficient personnel are available, Sections 4.5 and 4.8 may be performed simultaneously.

4.4.5 WHEN all samples requested in step 2.1.13 have been retrieved, PERFORM the following:

_____ • TRANSPORT samples to laboratory and Go To Section 4.5, "Sample Analysis"

_____ • Go To Section 4.8, "Restoration from PASS Sample Acquisition"

– End of Section 4.4 –

4.5 Sample Analysis

Health Physics Technician

4.5.1 DETERMINE handling requirements as follows:

_____ a. OPEN transport container cover and MEASURE dose rate.

_____ b. IF dose rate is greater than or equal to 1 rem/hr, NOTIFY OSC ARPS and REQUEST instructions for handling.

_____ c. IF dose rate is less than 1 rem/hr, DIRECT Chemistry Technicians to handle samples as normal radioactive samples and to minimize radiation exposure when performing required analyses.

Chemistry Technician

4.5.2 PERFORM PASS sample analysis as follows:

- Refer To the following Sections as applicable and PERFORM analysis:
  - Section 4.6, "Gas Isotopic Analysis"
  - Section 4.7, "Gas Composition Analysis"

_____ 4.5.3 WHEN analyses are complete, REPORT results to MRDA or AMRDA.

_____ 4.5.4 Refer To CP 3804L–001 and SIGN and DATE "Performed By" section.

_____ 4.5.5 IF copies of results are requested, FAX or SEND copies of the following to requesting individuals:

- Attachment 2
- CP 3804L–001

_____ 4.5.6 IF Section 4.8, "Restoration from PASS Sample Acquisition," has *not* been completed, Go To Section 4.8 and COMPLETE PASS system restoration.

– End of Section 4.5 –

4.6 Gas Isotopic Analysis

_____ 4.6.1 PLACE 2.5 cm shelf in detector to be used for gas isotopic analysis.

4.6.2 DETERMINE gas isotopic activity as follows:

_____ a. Using the following information, Refer To C CP 803.6, "Gamma Spectroscopy Counting System Maintenance and Operation," and ANALYZE sample: ②

- Open cave
- Applicable geometry for shelf being used
- Five minute count time
- General library
- Sample volume of 0.250 cc
- Sample date and time as recorded on CP 3804L–001

b. IF dead time is greater than or equal to 20%, PERFORM the following:

_____ 1) ABORT count.

_____ 2) REPLACE shelf with next higher shelf.

_____ 3) Go To step 4.6.2.

_____ c. STORE gas vial in shielded location.

d. DETERMINE background as follows:

1) Using the following information, Refer To C CP 803.6, "Gamma Spectroscopy Counting System Maintenance and Operation," and PERFORM background count on detector that was used for gas isotopic analysis. ②

- Open cave
- Applicable geometry for shelf that was used
- Five minute count time
- General library
- Sample volume of 0.250 cc

2) RECORD all identified isotopes and their associated background activity levels in μCi/cc on Attachment 2.

e. Refer To Attachment 2 and CALCULATE gas activity as follows:

1) Refer To gas isotopic printout and RECORD all identified isotopes and their associated activity levels in μCi/cc.

2) For each isotope listed, SUBTRACT background activity from printout activity and RECORD as isotope activity in μCi/cc.

3) ADD isotope activities and RECORD as gas activity in μCi/cc.

4) Refer To CP 3804L−001 and RECORD gas activity in μCi/cc in "Sample Data" table.

4.6.3 PLACE empty "GAS ISOTOPIC" syringe in shielded location.

– End of Section 4.6 –

4.7 Gas Composition Analysis

NOTE

The "GAS COMP" results are for information only and are not used in any sample calculations.

_____ 4.7.1 Refer To CP 2803/3803P, "Operation and Calibration for Perkin–Elmer Autosystem XL Gas Chromatograph," and ANALYZE 2.0 ml syringe labeled "GAS COMP" for the following: ②

- % hydrogen
- % oxygen
- % nitrogen

_____ 4.7.2 PLACE empty "GAS COMP" syringe in shielded location.

_____ 4.7.3 WHEN analysis is complete, Refer To CP 3804L–001 and RECORD gas composition results in % in "Sample Data" table.

– End of Section 4.7 –

4.8 Restoration from PASS Sample Acquisition

NOTE

Entry into Section 4.8 may occur at any time during performance of Sections 4.1 through 4.4. Some steps in Section 4.8 may already be completed depending on the entry point.

4.8.1 IF sample flow was achieved at any time during PASS sample, FLUSH PASS system as follows:

_____ a. IF Section 4.3, "System Flush," has *not* been performed, PERFORM Section 4.3.

_____ b. At 3SSP–PNL2, containment air sample remote panel, POSITION 3SSP–V2035 to "SAMPLE."

c. INITIATE nitrogen purge as follows:

_____ 1) POSITION 3SSP–V112 to "NITROGEN FLUSH."

_____ 2) POSITION 3SSP–V2037 to "OPEN."

_____ 3) POSITION 3SSP–V2034 to "ON."

_____ d. RECORD flow rate: _____ lpm

_____ e. WAIT 3 minutes.

_____ f. POSITION 3SSP–V2037 to "CLOSE."

_____ g. CHECK that flow rate is less than value recorded in step 4.8.1 d.

_____ h. WAIT 3 minutes.

4.8.2 POSITION the following valves as indicated:

_____ a. 3SSP–V2034 to "OFF."

_____ b. 3SSP–V112 to "OFF."

_____ c. 3SSP–V2037 to "OPEN."

4.8.3 Refer To CP 3804L−002 and VERIFY or INITIAL valve lineup for valves at 3SSP−PNL2.

4.8.4 CLOSE 3SSP−V53, nitrogen supply to containment air sample PNL2.

4.8.5 PUSH "POWER ON" button to de−energize panel.

4.8.6 CLOSE and LOCK panel door.

4.8.7 PERFORM the following:

a. CLOSE 3HVR−DMP1301, 3SSP−SAS2 exhaust damper [Ref. 6.1].

b. Using damper operating tool, CLOSE 3HVR*DMP60, 3SSP−SAS1/SAS2 exhaust isolation damper [Ref. 6.1]

CAUTION

It is imperative *not* to push in on the hand wheel when operating the following valves unless SM/US permission is obtained. This engages the clutch override and could result in damage to the valve.

Train A			Train B		
3HCS*V2	3HCS*V6	3SSP*V59	3HCS*V9	3HCS*V13	3SSP*V60
3HCS*V3	3SSP*V51		3HCS*V10	3SSP*V52	

c. IF hydrogen recombiner train A was selected in step 2.1.13, PERFORM the following:

1) CLOSE and LOCK the following valves

- 3SSP*V51, containment air sample return cross−connect
- 3SSP*V59, containment air sample supply cross−connect

2) IF train A hydrogen recombiner is *not* running, CLOSE and LOCK the following valves:

- 3HCS*V2, recombiner 1A supply outer isolation
- 3HCS*V3, recombiner 1A supply inner isolation
- 3HCS*V6, recombiner RBNR−1A return isolation

CAUTION

It is imperative *not* to push in on the hand wheel when operating the following valves unless SM/US permission is obtained. This engages the clutch override and could result in damage to the valve.

Train A			Train B		
3HCS*V2	3HCS*V6	3SSP*V59	3HCS*V9	3HCS*V13	3SSP*V60
3HCS*V3	3SSP*V51		3HCS*V10	3SSP*V52	

_____ d. IF hydrogen recombiner train B was selected in step 2.1.13, PERFORM the following:

1) CLOSE and LOCK the following valves

_____ • 3SSP*V52, containment air sample return cross−connect

_____ • 3SSP*V60, containment air sample supply cross−connect

2) IF train B hydrogen recombiner is *not* running, CLOSE and LOCK the following valves:

_____ • 3HCS*V9, recombiner 1B supply outer isolation

_____ • 3HCS*V10, recombiner 1B supply inner isolation

_____ • 3HCS*V13, recombiner RBNR−1B return isolation

_____ 4.8.8 Refer To CP 3804L−002 and VERIFY remainder of valve lineup.

_____ 4.8.9 Refer To CP 3804L−002 and PERFORM independent verification of system lineup.

NOTE

When this step is completed, constant communications with the control room in Modes 1−4 is no longer required.

4.8.10 NOTIFY MCRO of the following:

- IF closed in step 4.8.7 c.2), the following valves are closed and locked:
  - 3HCS*V2, recombiner 1A supply outer isolation,
  - 3HCS*V3, recombiner 1A supply inner isolation
  - 3HCS*V6, recombiner RBNR−1A return isolation
- IF closed in step 4.8.7 d.2), the following valves are closed and locked:
  - 3HCS*V9, recombiner 1B supply outer isolation
  - 3HCS*V10, recombiner 1B supply inner isolation
  - 3HCS*V13, recombiner RBNR−1B return isolation
- IF in operating Modes 1−4, NOTIFY MCRO that tracking requirements of Tech Spec surveillance 4.6.1.1.a are no longer required for valves that were reported closed and locked
- 3HVR*DMP60 is closed
- IF in operating Modes 1−4, REQUEST MCRO exit LCO 3.6.6.2 for 3HVR*DMP60 [Ref. 6.1].
- PASS system is secured.
- IF in operating Modes 1−4, REQUEST permission to secure constant communications with control room

4.8.11 RETURN valve key.

4.8.12 SUBMIT completed CP 3804L−002 to Chemistry Supervision for review.

4.8.13 IF operational difficulties were encountered, PERFORM one or both of the following:

- Refer To RP16, "Trouble Reporting," and INITIATE trouble report for applicable equipment and RECORD TR number on CP 3804L–001

- Refer To PI–AA–200, "Corrective Action," and INITIATE CR and RECORD CR number on CP 3804L–001 ②

4.8.14 RECORD number of needle punctures for the containment air septum in PASS log.

ALARA

Step 4.8.15 may not be performed due to the radiation levels in the hydrogen recombiner building.

4.8.15 OBTAIN permission from MOSC and PERFORM the following:

- IF containment air septum has been punctured 10 times or more since its last replacement, Refer To Attachment 3 and REPLACE septum

- Refer To CP 3804K Attachment, "PASS Sample Equipment Inventory," and INVENTORY PASS sampling equipment and LOCK PASS cabinet door handle

4.8.16 SIGN and DATE "Performed By" block on CP 3804L–001.

4.8.17 SUBMIT the following completed documents to Chemistry Supervision.

- CP 3804L–001

- CP 3804K Attachment, "PASS Sample Equipment Inventory"

Chemistry Supervision

4.8.18 SUBMIT copy of reviewed CP 3804L–001 and applicable CR's to system engineer.

– End of Section 4.8 –

5. REVIEW AND SIGNOFF

5.1 The review and signoff for this procedure is located in the following attachments and forms:

- Attachment 2
- Attachment 3
- CP 3804L−001
- CP 3804L−002

6. REFERENCES

6.1 PIR 3−93−021, "SLCRS Boundary Breach"

6.2 Technical Manual for Containment Air Post Accident Sample System," General Dynamics Corporation, Electric Boat Division, Reactor Plant Services

6.3 Installation,Operating, and Maintenance Instructions Model MB−151 Post Accident Air Sample Compressor

6.4 Regulatory Guide 1.97

6.5 Post Accident Sample System Component Instruction Literature

6.6 INPO Good Practice CT−707, "Post−Accident Sampling Preparedness"

6.7 NUREG 0737

6.8 Millstone DWG. No 12179−EM−155A

6.9 Millstone DWG. No 12179−EM−115A

6.10 Millstone DWG. No 12179−CP−402001

6.11 Millstone DWG. No 12179−CP−402002

6.12 Millstone DWG. No 12179−CP−402003

6.13 Millstone DWG. No 12179−CP−402004

6.14 Millstone DWG. No 12179−CP−402006

6.15 Millstone DWG. No 12179−CP−402009

6.16 Millstone DWG. No 12179−CP−4020014

6.17 Millstone DWG. No 12179−CP−4020015

6.18 Millstone DWG. No 12179−CP−4020053

6.19 Millstone DWG. No 12179−CP−4020054

6.20 Millstone DWG. No 12179−CP−4020056

6.21 Millstone DWG. No 12179−CP−402700

6.22 Correspondence B11121, "Millstone Nuclear Power Station, Unit No. 3, Response to Chemical Engineering Branch DSER Open Item," dated April 9, 1984, from Northeast Utilities to the NRC

6.23 Correspondence B11177, "Millstone Nuclear Power Station, Unit No. 3, Response to Chemical Engineering Branch DSER Open Item," dated May 10, 1984, from Northeast Utilities to the NRC

6.24 NUREG−1031, "Safety Evaluation report related to the operation of Millstone Nuclear Power Station, Unit No. 3," dated August 2, 1984.

6.25 DCR M3−98034, "Setpoint Change to 3GSN−PCV106, 3SSP−PCV80, and 3SSP−PCV82"

6.26 DCN DM3−00−0638−98, "Setpoint Change to 3GSN−PCV106, 3SSP−PCV80, and 3SSP−PCV82"

6.27 Engineering Calculation 3SSP−01632−I−3 |

6.28 NRC, B18443 Dated July 31, 2001. | ①

7. SUMMARY OF CHANGES

Summary of Changes Rev. 002−02

7.1 Added prerequisite for the verification of containment temperature being at or below 170°F.

7.2 Removed Note statement on cover page that required document to be reviewed by Nuclear Fuels Safety Analysis.

7.3 Removed references to Technical Specifications and E−Plan in Objective Section and added regulatory commitment B18443−01.

7.4 Removed references to SERO and SERO activation throughout the document.

7.5 Changed volume of gas vial from 14.4 cc to 13 cc.

7.6 Updated Documents Section and references to superseded and cancelled documents throughout.

Summary of Changes Rev. 002−01

7.7 Editorial Correction; Added Reference 6.28 NRC commitment letter. B18443. AR #01005693−01.

Summary of Changes Rev. 002−00

7.8 Added simplified drawing of containment air PASS system.

7.9 Added flat−tipped screwdriver and valve wrench to tools and consumables.

7.10 Deleted "(Obtained from MCRO)" from valve key description.

7.11 Changed basis for 45−50 psig on 3SSP−PCV82 to Engineering Calculation 3SSP−01632−I−3.

7.12 Added caution associated with remotely operated valves that have clutches.

7.13 Added numerous signoffs to substeps.

7.14 Added initial system alignment check and deleted associated steps in body of procedure.

7.15 Deleted step to remove counting shelf when counting background.

7.16 Changed steps to allow hydrogen recombiner isolations to remain open if hydrogen recombiner is running.

7.17 Added steps to generate TR and/or CR when operational difficulties are encountered.

7.18 Added bullet to request permission from SM/US prior to securing constant communications.

7.19 Added requirement to obtain permission from MOSC to changeout septum and inventory PASS equipment. Added alara above step.

7.20 Changed septum changeout frequency to every 10 punctures.

7.21 Added containment air equipment to CP 3804K (Att), "PASS Sample Equipment Inventory," and deleted inventory list from this procedure. Added requirement to lock PASS cabinet door handle when inventory is completed.

7.22 Added step to submit PASS inventory to Chemistry Supervision.

7.23 Added step to submit copy of reviewed chemistry form CP 3804L–001 and applicable CR's to system engineer.

7.24 A note was added to the cover page of this procedure to ensure a review is performed by the Radiological Engineering Services whenever modifications to this procedure are made that may impact dose limit time and motion study calculations. This is in response to AR 99005798–06.

Attachment 1
Initial System Alignment Check

(Sheet 1 of 1)

Component ID	Description	Position	Performed	
			Initial	Date
3SSP–PNL2				
3SSP–V2027	Containment air remote module N2 supply isolation valve	OP		
3SSP–V2029	Containment air remote module N2 storage tank isolation valve	CL		
3SSP–V2030	Containment air remote module N2 storage tank vent valve	CL		
3SSP–PCV82	Nitrogen pressure regulator	Backed Off		
Outside "A" Recombiner Cubicle				
		Observe caution sign at 3SSP–V46		
3SSP–V46	Air sample pump P4 inlet isolation valve	OP		
Post Accident Sample Module Room				
3SSP–V2036	Containment air sample module internal bypass valve	CL		
3SSP–V188	3–way divert valve to iodine filter FLT1	BYP		
3SSP–V189	Iodine filter FLT1 outlet isolation valve	CL		
3SSP–V191	Iodine filter FLT1 inlet isolation valve	CL		

Attachment 2
Containment Air Gas Activity Worksheet

(Sheet 1 of 1)

Printout Activity – *Background* = *Isotope Activity*

Isotope	Printout Activity (2–place accuracy) (µCi/cc)	Background (µCi/cc)	Isotope Activity (2–place accuracy) (µCi/cc)

NOTE: Gas Activity = summation of all isotope activities.

Gas Activity (2–place accuracy) (µCi/cc)

Prepared by: _____ Date: _____

SUBMIT completed attachment to Chemistry Supervision.

Attachment 3
3SSP–SAS2 Septum Replacement

(Sheet 1 of 1)

NOTE

The required tools and consumables can be found in the PASS cabinet located in the H_2 recombiner building.

_____ 1. DON protective clothing as directed by Health Physics.

_____ 2. Using 1/2″ socket, UNSCREW and REMOVE needle guide.

_____ 3. IF old septum did *not* come out with septum holder, REMOVE old septum using scribe or tweezers.

_____ 4. Using tweezers and septum insertion tool, INSTALL new septum.

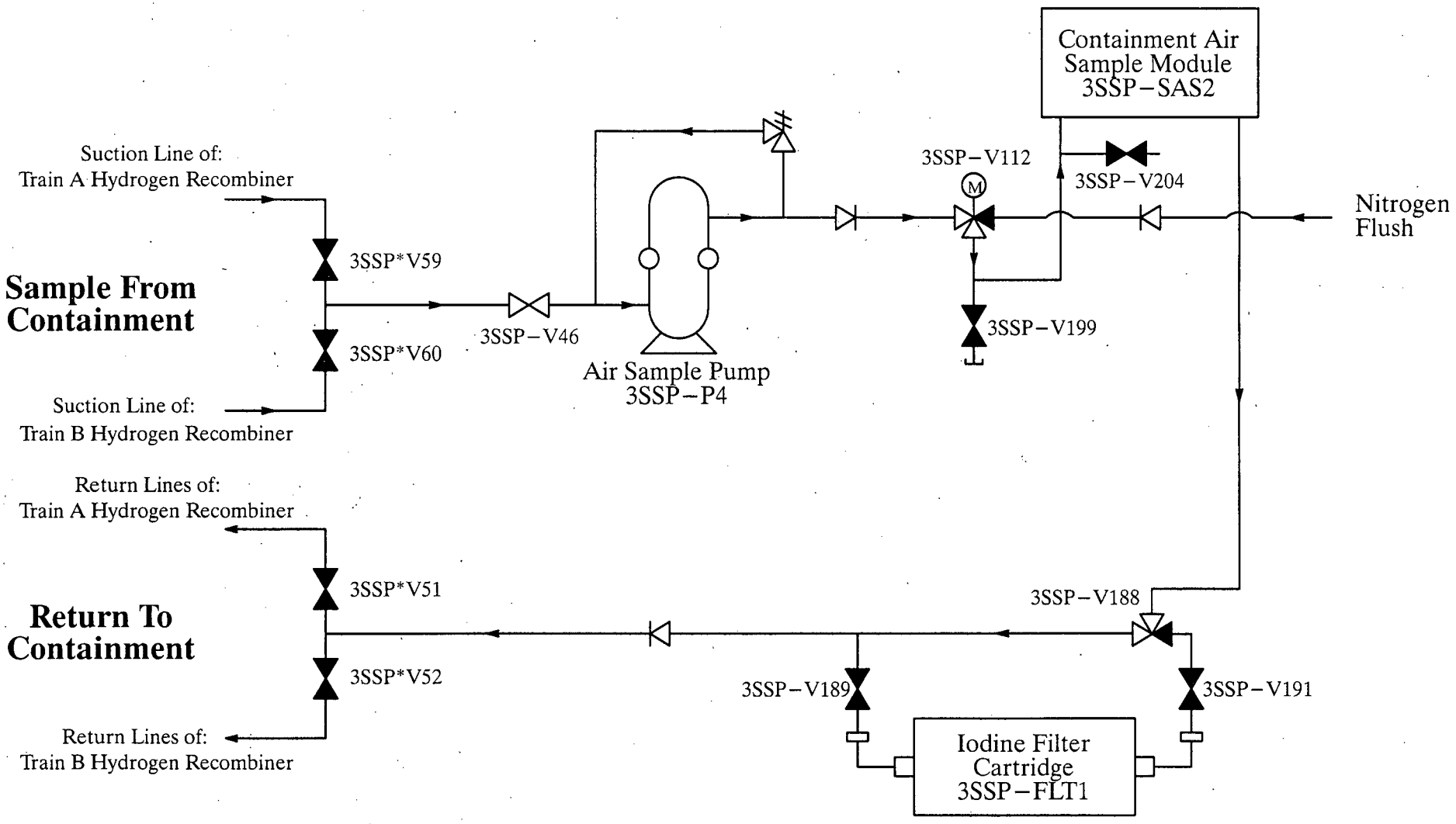
_____ 5. Using 1/2″ socket wrench, INSTALL needle guide.

_____ 6. RECORD septum replacement in PASS log.

Replaced by: _____ Date: _____

SUBMIT completed attachment to Chemistry Supervision.

Attachment 4
Containment Air PASS Simplified Drawing
(Sheet 1 of 1)



Level of Use
Continuous

STOP THINK ACT REVIEW