

# CONTROLLED

## TEMPORARY CHANGE APPROVAL FORM

OKV ~~10/15/83~~ ~~3/23/83~~ ~~3/23/83~~ ~~3/23/83~~

Temporary Chg. No. 83-411  
Temporary Change Page 1 of 1

- A. Procedure No. EP-IP-142, Rev. 21 <sup>OKV</sup> 3/23/83  
Title Chemistry Lab Emergency Preparation
- B. Requested Change PAGE 4 OF 6 - ADD THE FOLLOWING BETWEEN 4.1.1 & 4.1.2:  
NOTE: THE CHEMISTRY LABORATORY SHALL BE MONITORED AT ALL TIMES DURING SET-UP AND SAMPLE ANALYSIS. THE ECF OF CHEMISTRY LABORATORY WILL BE ACTIVATED AS THE ALTERNATE ANALYSIS FACILITY IF: (1) LABORATORY RADIATION LEVELS EXCEED 200 mR/HOUR OR (2) LABORATORY POWER IS LOST. IN ADDITION, WITH A GAMMA ANALYSIS, THE ECF WILL BE ACTIVATED FOR COUNTING OF SAMPLES.
- C. Reason For Change THE BACKGROUND RADIATION LEVELS ARE SUCH THAT THEY WOULD INTERFERE WITH A GAMMA ANALYSIS; THE ECF WILL BE ACTIVATED FOR COUNTING OF SAMPLES.

NRC APPENDIX B ITEM 50-387/82-12-51

Does this change alter the intent of the procedure? Yes  No

Does this change identify an unreviewed safety question? Yes  No

(See Reverse side of this page for procedure non-intent change and unreviewed safety question. If "yes" to either question, do not issue change without PORC review/Supt. approval, section 6.11.3)

D. Recommended for permanent status Yes  No

E. Expiration Date N/A [ "N/A" for permanent status. 45-60 days for temporary status ]

F. Initiator [Signature] Title Chem. Assistant Date 3-22-83

G. Temporary Change Authorization

[Signature] 1 3/22/83 [Signature] 3/22/83  
Shift Supervision Date Management Member Date

H. Temporary Change Approval  
Approved as written for permanent status Yes  No

PORC Chairman/Section Head / Date (As Applicable) PORC Review (If Applicable) Mtg. No. / Date

Superintendent of Plant / Date

# CONTROLLED

## TEMPORARY CHANGE APPROVAL FORM

Temporary Chg. No. 83-414  
Temporary Change Page 1 of 67

A. Procedure No. EP-IP-243, Rev. 0  
Title PASS Small Volume Liquid Sample

B. Requested Change

Replace current pages 7 through 10 with attached pages 7, 8, 8A, 9, and 10.

Replace ~~14~~ current page 14 with attached page 14.

C. Reason For Change

To clarify the method of obtaining coolant samples from the PASS.

Does this change alter the intent of the procedure? Yes  No

Does this change identify an unreviewed safety question? Yes  No

(See Reverse side of this page for procedure non-intent change and unreviewed safety question. If "yes" to either question, do not issue change without PCRC review/Sunt. approval, section 6.11.3)

D. Recommended for permanent status Yes  No

E. Expiration Date N/A ["N/A" for permanent status. 45-60 days for temporary status]

F. Initiator Lance Vuck Title Sr. Chemist Date 3/23/83

G. Temporary Change Authorization

DM Smith / 3-27-83  
Shift Supervision Date

RC Michael R. Boring / 3/23/83  
Management Member Date

H. Temporary Change Approval

Approved as written for permanent status Yes  No

\_\_\_\_\_  
PORC Chairman/Section Head Date  
(As Applicable)

\_\_\_\_\_  
PORC Review (If Applicable) Mtg. No. Date

\_\_\_\_\_  
Superintendent of Plant Date

- \_\_\_\_\_ B.1.13 Open the sample station vent damper (on right hand side at top of sample box).
- \_\_\_\_\_ B.1.14 Check demineralized water tank level. If less than 50%, fill tank. To fill, close valve 1-23-242 and open valves ~~1-23-251~~, 1-23-258 and 1-23-239. After filling, close valves ~~1-23-251~~, 1-23-258 and 1-23-239 and open 1-23-242.
- \_\_\_\_\_ B.1.15 *Open valve on nitrogen supply tank*  
 Open nitrogen supply valves 1-23-242 and 1-23-249. Set regulator on nitrogen cylinder to 100 PSIG. Check open the two regulator discharge valves.
- \_\_\_\_\_ B.1.16 Check that the demineralized water tank is pressurized to 100 PSIG (Check open RV-PI-12363).
- \_\_\_\_\_ B.1.17 Open valve from demineralized water tank to sample system (1-23-244).
- \_\_\_\_\_ B.1.18 Go to isolation valve control panel 1C1240.
  - \_\_\_\_\_ B.1.18.1 Turn "All Close" switch HS12371 to "ON" position.
  - \_\_\_\_\_ B.1.18.2 Open liquid return line to wetwell (HS12364).
  - \_\_\_\_\_ ~~B.1.18.3 Open desired sample isolation valves (see list below)
 
    - \_\_\_\_\_ a. Jet pump  $\Delta P$  line - reactor water (HS12374).
    - \_\_\_\_\_ b. RHR pump A & C discharge (HS12360).
    - \_\_\_\_\_ c. RHR pump B & D discharge (HS12362).~~
- \_\_\_\_\_ B.1.19 Go to Sample Station Control Panel and adjust PCV-627 for a 15 PSI reading on the adjacent gauge.
- \_\_\_\_\_ B.1.20 Turn all control panel switches off.
- \_\_\_\_\_ B.1.21 Using the key, turn the control panel power selector switch to "A".

- B.1.22 Turn the Liquid/Gas selector switch to Liquid.
- B.1.23 Turn Flush System Switch HC-628-1 counterclockwise to position 6. ~~Observe approximately 1 gpm flow per FI-664.~~ Turn HC-626 to RHR on bypass. Adjust
- B.1.24 Turn HC-628-1 to off. PCV-627 to obtain approximately HC-626 and
- B.1.25 Drain the collector tank, trap, and sump by turning switch HC-715-1 clockwise thru its eight positions. — Pause approximately 5 seconds at each position.

B.1.26 If an RHR sample is required go to step B.1.27. For a jet pump sample proceed as follows.

B.1.26.1 Repeat step B.1.23

B.1.26.2 Close PCV-627

B.1.26.3 Turn HC-628-1 and HC-626 to off.

B.1.26.4 Notify the control room that you are going to open isolation valves to the jet pump line and the excess flow check valve may trip.

NOTE: Keep in constant communication with the control room until you have established flow thru the sample station in the following steps

B.1.26.5 Go to isolation valve control panel and open jet pump  $\Delta P$  line isolation valve HS12374.

B.1.26.6 If excess flow check valve trips ask operator to reset.

— B.1.26.7 Turn the liquid sample selector switch HC-626 to position 1 (jet pump bypass)

B.1.26.8 If excess flow check valve trips, have operations reset it.

B.1.26.9 Go to step B.1.23

B.1.27 For an RHR sample

B.1.27.1 Open the desired sample isolation valve on panel IC104 D

a) RHR pump A&C discharge (HS123)

b) RHR pump B&D discharge (HS123)

B.1.27.2 At the sample station control panel, turn the liquid sample source selector switch HC-626 to position 5.

B.1.28

~~B.1.27~~

Flush sample line in bypass mode as follows:

B.1.<sup>28</sup>~~27~~.1 Adjust PCV-627 to give 1 gpm flow indication on FI664.

B.1.<sup>28</sup>~~27~~.2 Continue flush as indicated below:

<u>Sample</u>	<u>Minutes to Flush</u>
---------------	-------------------------

Jet Pump	5 minutes
----------	-----------

RHR*	6 minutes
------	-----------

B.1.<sup>28</sup>~~27~~.3 Record the flow and flush time on the data sheet.

\*For suppression pool samples, the RHR system should be running in suppression pool cooling mode for at least thirty (30) minutes before a sample is drawn.

B.1.<sup>29</sup>~~28~~

While the bypass line is being flushed perform the following steps:

B.1.<sup>29</sup>~~28~~.1 Put the small volume cask into the cask positioner.

- B.1.~~28~~<sup>29</sup>.2 Remove the stopper and carrying handle from the small volume cask.
- B.1.~~28~~<sup>29</sup>.3 Put numbered sample bottle into the cask.
- B.1.~~28~~<sup>29</sup>.4 Slide out the lead shielding drawer on right hand side of sample cabinet to expose the sampling needles.
- B.1.~~28~~<sup>29</sup>.5 Check the condition of the needles using a mirror. If needles are bent or missing, install new needles.
- B.1.~~28~~<sup>29</sup>.6 Swing the cask into position under the sample station and lock in position.
- B.1.~~28~~<sup>29</sup>.7 Raise the sample bottle onto the needles.

NOTE: GREEN LIGHT OPPOSITE HC 616-1 ON CONTROL PANEL WILL LIGHT WHEN SAMPLE BOTTLE IS CORRECTLY POSITIONED ON NEEDLES.

- B.1.~~29~~<sup>30</sup> After the bypass line flush is completed, turn switch HC-626 to position 2 for Jet Pump sample or position 4 for an RHR sample.
- B.1.~~30~~<sup>31</sup> Adjust PCV-627 to obtain a flow of 0.3 gpm as indicated on FI 664.
- B.1.~~31~~<sup>32</sup> Flush the sample line to the sampling valve for 5 minutes, recording flow per FI 664 and time on Data Sheet.
- B.1.~~32~~<sup>33</sup> Record the following on the Attachment E; PASS Small Volume Liquid/Sample Data Sheet. Pressure per PI-661, Temperature per TI-660, Conductivity per CI-663 and Radiation per RI-665.
- B.1.~~33~~<sup>34</sup> Turn switch HC-616-1 to the "take sample" position. Record sample time.
- ~~B.1.34 Verify that flow per FI-664 is zero.~~

- \_\_\_\_\_ B.1.35 Fill the hypodermic syringe with 10cc of demin. water.
- \_\_\_\_\_ B.1.36 Connect the syringe to the line on the front of the sample station. Open the two manual valves and inject water into the line.
- \_\_\_\_\_ B.1.37 Close the syringe and Luer-Lok valves.
- \_\_\_\_\_ B.1.38 Remove the syringe and fill it with air.
- \_\_\_\_\_ B.1.39 Re-attach the syringe, open the Luer-Lok valves, and inject the air.
- \_\_\_\_\_ B.1.40 Close the Luer-Lok valves and remove the syringe.
- \_\_\_\_\_ B.1.41 Turn switches HC-616-1 ~~and HC-616-2~~ to the off position.
- \_\_\_\_\_ B.1.42 Turn switch HC-616-1 to the "FLUSH" position. Flush for two (2) minutes and/or until RI-669 reaches a minimum.
- \_\_\_\_\_ B.1.43 When the flush is finished, turn switch HC-616-1 <sup>and HC-616-2</sup> to off.
- \_\_\_\_\_ B.1.44 Lower sample vial, close lead shield door on right of sample cabinet. Record dose rate on cask. Lower cask, install plug and remove cask.
- \_\_\_\_\_ B.1.45 If additional liquid samples are to be taken return to Step ~~B.1.26~~ ~~and after opening the desired isolation valves skip to Step B.1.26.~~
- \_\_\_\_\_ B.1.46 If all sampling is completed, drain collector, trap and sumo by turning switch HC-715-1 clockwise through its eight positions. Pause approximately five (5) seconds at each position.
- \_\_\_\_\_ B.1.47 Secure the sample station and valve control panel IC104D. Notify the Control Room of this operation.
- \_\_\_\_\_ B.1.48 Return to the chemistry laboratory with the sample and notify the COORDINATOR.

TCN 83-414  
Page 7 of 7.

Attachment E  
EP-IP-043  
Revision 0  
Page 14 of 14

PASS SMALL VOLUME LIQUID SAMPLE  
DATA SHEET

Ref. Step  
B.1.2.1

SAMPLE SOURCE \_\_\_\_\_

TEAM MEMBERS \_\_\_\_\_

<sup>28</sup>  
B.1.3

FLUSH FLOW \_\_\_\_\_ gpm FI 664 \_\_\_\_\_ TIME

<sup>32</sup>  
B.1.3

FLUSH FLOW \_\_\_\_\_ gpm FI 664 \_\_\_\_\_ TIME

<sup>23</sup>  
B.1.3

PRESSURE \_\_\_\_\_ psig PI-661 TEMP \_\_\_\_\_ °F TI-660

<sup>34</sup>  
B.1.3

CONDUCTIVITY \_\_\_\_\_ umho/cm CI-663 RAD LEVEL \_\_\_\_\_ R/hr RI-665

B.1.3

SAMPLE TIME \_\_\_\_\_ SAMPLE DATE \_\_\_\_\_

B.1.44

DOSE RATE ON CASK \_\_\_\_\_

1.0

SAMPLE	ORIGINAL	A	B	C	D	E	F
SAMPLE #							

DILUTION FACTOR 1 to 10

DOSE RATE

C.1.14 COUNT DATE/TIME \_\_\_\_\_ / \_\_\_\_\_ COUNT BY \_\_\_\_\_

GOMETRY \_\_\_\_\_

ISOTOPE <sup>131</sup>I ACTIVITY uCi/ml

Dose Equiv. I-131 \_\_\_\_\_ uCi/gm

137 Cs



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## TEMPORARY CHANGE APPROVAL FORM

Temporary Chg. No. 83-412  
Temporary Change Page 1 of 2

A. Procedure No. EP-IP-045, Rev. 1 <sup>dkv</sup> 3/23/83  
Title PASS 10ml GAS SAMPLE

B. Requested Change ADD TO B.1.6: ... and open RHR Heat Exchanger Vent Val  
to Suppression Pool (HVIF103A).

CHANGE B.1.7. TO READ: Request Operations to open the following Containm.  
GAS Analyzer Isolation Valves: SV15734A, SV15736A, and any of the foll  
valves depending on desired samples: (CONTINUED ON ATTACHED SHEE

C. Reason For Change

PROCEDURAL CHANGES TO CURRENTLY ACTION ST

Does this change alter the intent of the procedure? Yes  No   
Does this change identify an unreviewed safety question? Yes  No   
(See Reverse side of this page for procedure non-intent change and unreviewed safety question. If "yes" to either question, do not issue change without PORC review/Supt. approval, section 6.11.3)

D. Recommended for permanent status Yes  No

E. Expiration Date N/A [ "N/A" for permanent status.  
45-60 days for temporary status ]

F. Initiator R. Debler Title Chemistry Supervisor Date 3-22-83

G. Temporary Change Authorization

R. Debler / 3/22/83 RCO Michael R. Boring / 3/22/83  
Shift Supervision Date Management Member Date

H. Temporary Change Approval

Approved as written for permanent status Yes  No

\_\_\_\_\_  
PORC Chairman/Section Head Date  
(As Applicable)

\_\_\_\_\_  
PORC Review (If Applicable) Mtg. No. Date

\_\_\_\_\_  
Superintendent of Plant Date

CONTINUED TCN OF EP-IP-045 REV. 0.

DELETE FROM B.1.14 : ..... 1-23-251, ..... 1-23-251, .....

CHANGE B.1.15 TO READ : Open nitrogen cylinder supply valve.  
Set regulator on nitrogen cylinder to 100 PSIG.  
Check open the two regulator discharge valves.  
Open nitrogen supply valves 1-23-242 and 1-23-24

CHANGE B.1.23 TO READ : Turn Flush System Switch HC-628-1 counterclockwise to Position 6. Turn HC-626 to "RHR on By Pass" (Position 5). Adjust PCV-627 to obtain approximate 1 gpm flow per FI-664.

CORRECT TYPO IN C.1.3 UNDER "Sample Vial Dose Rate (mr/hr)":

.....

.....

8-120

CHANGE B.1.24 TO READ : TURN HC-628-1 and HC-626-1 to off.

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## TEMPORARY CHANGE APPROVAL FORM

Temporary Chg. No. 83-409  
Temporary Change Page 1 of 2

- A. Procedure No. EP-IP-046, Rev. ~~01~~ <sup>dkv</sup> 3/22/83  
Title PASS IODINE/PARTICULATE SAMPLE
- B. Requested Change Add to B.1.6: ..... and open RHR Heat Exchanger Vent Valve to Suppression Pool (HVIF103A).  
CHANGE B.1.7. TO READ: Request Operations to open the following Containment Gas Analyzer Isolation Valves: SV15734A, SV15736A, and any of the following valves depending on desired samples:
- C. Reason For Change PROCEDURAL CHANGES TO CARRY ACTION STEP (CONTINUED ON ATTACHED SHEET)

Does this change alter the intent of the procedure? Yes  No   
Does this change identify an unreviewed safety question? Yes  No   
(See Reverse side of this page for procedure non-intent change and unreviewed safety question. If "yes" to either question, do not issue change without PORC review/Supt. approval, section 6.11.3)

D. Recommended for permanent status Yes  No

E. Expiration Date 1/7/84

"N/A" for permanent status.  
45-60 days for temporary status

F. Initiator R. Duesler

Title Chem Supervisor Date 3-22-83

G. Temporary Change Authorization

R. Hill / 3/22/83  
Shift Supervision Date

Pro Michael R. Buring / 3/22/83  
Management Member Date

H. Temporary Change Approval

Approved as written for permanent status Yes  No

\_\_\_\_\_  
PORC Chairman/Section Head Date  
(As Applicable)

\_\_\_\_\_  
PORC Review (If Applicable) Mtg. No. Date

\_\_\_\_\_  
Superintendent of Plant Date

CONTINUED TCN OF EP-IP-046 REV. 0.

DELETE FROM B.1.14: ..... 1-23-251, .... 1-23-251, .....

CHANGE B.1.15 TO READ: Open nitrogen cylinder supply valve.  
Set regulator on nitrogen cylinder to 100 PSIG.  
Check open the two regulator discharge valves.  
Open nitrogen supply valves 1-23-242 and 1-23-249

CHANGE B.1.23 TO READ: Turn Flush System Switch HC-628-1 counterclockwise to Position 6. Turn HC-626 to "RHR on Bypass" (Position 5). Adjust PCV-627 to obtain approximate 1 gpm flow per FI-664.

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CHANGE B.1.24 TO READ: Turn HC-628-1 and HC-626-1 to off.

---

CHANGE B.1.28 BY DELETING: ..... "10 ML Gas Sample Switch" (HC-705 to ....  
AND REPLACE WITH: ..... Iodine/Particulate Sample Switch (HC-712) to ...

CORRECT TYPO IN B.1.32: ..... RI-704.....

CORRECT TYPO IN B.1.32.4: ..... RI-704.....

CORRECT TYPO IN B.1.32.5: ..... RI-704.....

CORRECT TYPO IN B.1.41: ..... IC104D.....

# CONTROLLED

## TEMPORARY CHANGE APPROVAL FORM

Temporary Chg. No. 83-415  
Temporary Change Page 1 of 10

A. Procedure No. EP-IP-047, Rev. 1 <sup>XKV</sup> 3/23/83  
Title PASS Large Liquid Densified Gas Sample

B. Requested Change

Replace current pages 7 through 12 with attached pages 7, 8, 8B, 9, 10, 11, and 12.

Replace current p. 16 with attached p. 16

C. Reason For Change

To clarify the method of obtaining coolant samples from the PASS.

Does this change alter the intent of the procedure? Yes  No   
Does this change identify an unreviewed safety question? Yes  No   
(See Reverse side of this page for procedure non-intent change and unreviewed safety question. If "yes" to either question, do not issue change without PORC review/Supt. approval, section 5.11.3)

D. Recommended for permanent status Yes  No

E. Expiration Date N/A

"N/A" for permanent status.  
45-60 days for temporary status

F. Initiator L.K. Vuk

Title Dr. Chemist Date 3/23/83

G. Temporary Change Authorization

DMH 13-23-83  
Shift Supervision Date

Michael R. Boring 13/23/83  
Management Member Date

H. Temporary Change Approval

Approved as written for permanent status Yes  No

\_\_\_\_\_  
PORC Chairman/Section Head Date  
(As Applicable)

\_\_\_\_\_  
PORC Review (If Applicable) Mtg. No. Date

\_\_\_\_\_  
Superintendent of Plant Date

B.1.14 Check demineralized water tank level. If less than 50%, fill tank. To fill, close valve 1-23-242 and open valves ~~1-23-251~~, 1-23-258 and 1-23-239. After filling close valves ~~1-23-251~~, 1-23-258 and 1-23-239 and open 1-23-242.

B.1.15 *open valve on Nitrogen Supply Valve*  
 Open nitrogen supply valves, 1-23-242 and 1-23-249. Set regulator on nitrogen cylinder to 100 psig. Check open the two regulator discharge valves.

B.1.16 Check that the demineralized water tank is pressurized to 100 PSIG. Check open RV-PI-12168.

B.1.17 Open valve from demineralized water tank to sample system (1-23-244).

B.1.18 Go to isolation valve control panel (1C1040)

B.1.18.1 Turn "All Close" switch HS 12371 to "ON" position

B.1.18.2 Open liquid return line to wetwell (HS 12364)

B.1.18.3 Open gas return line to suppression pool (HS 12361)

B.1.18.4 Open desired sample isolation valves (see list of valves below)

a. Jet pump  $\Delta P$  line (reactor water)-HS12374.

b. RHR pump A & C discharge-HS12360.

c. RHR pump B & D discharge-HS12362.

B.1.19 If dissolved gas sample is required, open tracer gas tank valve and two supply valves. Set regulator on cylinder to give approximately 5 psig.

B.1.20 Go to Sample Station Control Panel. Adjust PCV-627 to get a 15 psi reading on the adjacent gauge.

- \_\_\_\_\_ B.1.21 Turn all control panel switches off.
- \_\_\_\_\_ B.1.22 Using the key, turn the control panel power selector switch to "A".
- \_\_\_\_\_ B.1.23 Turn the Liquid/Gas selector switch to Liquid.
- \_\_\_\_\_ B.1.24 Turn Flush System Switch HC-628-1 counterclockwise to position 6. *Observe approximately 1 gpm flow per FI-654.*
- \_\_\_\_\_ B.1.25 Turn HC-628-1 to off. *Turn HC-626 to RHR ON (BYPASS). Adjust PCV-627 to obtain approximately 1 gpm flow.*
- \_\_\_\_\_ B.1.26 Drain the collector tank, trap and sum by turning switch HC-715-1 clockwise thru its eight positions. Pause approximately 5 seconds at each position.

B.1.27 *If an RHR sample is required go to step B.1.28. For a jet pump sample proceed as follows.*

B.1.27.1 *Repeat step B.1.24*

B.1.27.2 *Close PCV-627*

B.1.27.3 *Turn HC-628-1 and HC-626 to off.*

B.1.27.4 *Notify the control room that you are going to open isolation valves to the jet pump line and the excess flow check valve may trip.*

NOTE: *Keep in constant communication with the control room until you have established flow thru the sample station in the following steps.*

B.1.27.5 *Go to isolation valve control panel and open jet pump LP line isolation valve HS12374.*

B.1.27.6 *If excess flow check valve trips ask operator to reset.*

===== B.1.27.7 *Turn the liquid sample selector switch HC-626 to position 1 (jet pump bypass).*

B.1.27.8 *If excess flow check valve trips, have operator reset it.*

B.1.27.9 *Go to step B.1.29*

B.1.28 For an RHR sample

B.1.28.1 Open the desired sample isolation valve on panel IC104 D

a) RHR pump A&C discharge (HS1236)

b) RHR pump B&D discharge (HS1236)

B.1.28.2 At the sample station control panel, turn the liquid sample source selector switch HC-626 to position 5.

see attached

~~29~~  
B.1.29

Turn the liquid sample source selector switch HC-626 to position 1 for a sample from the Jet Pump line or to position 5 for a sample from the RHR.

~~30~~  
B.1.30

Adjust PCV-627 to give 1 gpm flow indication on FI 664.

~~30~~  
31  
B.1.31

Flush for minimum times indicated below:

<u>Sample</u>	<u>Minutes to Flush</u>
Jet Pump	<u>5</u>
RHR*	<u>6</u>

Record flow from FI-664 and flush duration.

\*For suppression pool samples, the RHR system should be running in suppression pool cooling mode for at least 30 minutes before sampling.



- B.1.<sup>32</sup>~~30~~ If liquid sample is required perform following steps while bypass line is being flushed:
- B.1.<sup>32</sup>~~30~~.1 Slide out the lead shielding drawer on right side of sample cabinet to expose the sampling needles.
- B.1.<sup>32</sup>~~30~~.2 Inspect the needles with a mirror and flashlight. If needles are missing or bent, install new needles.
- B.1.<sup>32</sup>~~30~~.3 Remove the stopper from large volume cask.
- B.1.<sup>32</sup>~~30~~.4 Put a numbered sample bottle into the cask.
- B.1.<sup>32</sup>~~30~~.5 With the cask in the fully lowered position, roll the cask into position under the sample station.
- B.1.<sup>32</sup>~~30~~.6 Use the hydraulic pump on the cask to start raising the cask into the bottom opening of the sample station. Stop pumping when the top cask ring is inside and the large volume cask is just touching the bottom of the sample station.
- B.1.<sup>32</sup>~~30~~.7 Push down on the plunger on the cask to raise the sample bottle out of the cask and onto the needles. ~~Verify that the "Bottle In" lights opposite HC-601 on the control panel change from red to green.~~

B.1.<sup>33</sup>~~31~~ If a dissolved gas sample is required, place an off-gas vial into the gas vial positioner, slide the positioner into the gas port and lock it into place. Observe that the gas bottle status light changes from red to green.

B.1.<sup>34</sup>~~32~~ After the bypass line flush is completed, turn switch HC-626 to position 2 for Jet Pump sample or position 4 for RHR sample.

NOTE: GREEN LIGHT OPPOSITE HC-601 WILL LIGHT WHEN SAMPLE BOTTLE IS CORRECTLY POSITIONED ON NEEDLES.

- \_\_\_\_\_ B.1.<sup>35</sup>~~33~~ Adjust PCV-627 to obtain a flow of 0.3 gpm as indicated on FI-664.
- \_\_\_\_\_ B.1.<sup>36</sup>~~34~~ Flush the sample line to the sampling valve for 5 minutes, recording flow per FI 664 and time.
- \_\_\_\_\_ B.1.<sup>37</sup>~~35~~ Record pressure per PI-661, temperature per TI-660, Conductivity per CI-663 and Radiation per RI-665.
- \_\_\_\_\_ B.1.<sup>38</sup>~~36~~ Turn the Dissolved Gas and Liquid Sample System switch HC-601 to position 1 for 2-3 seconds and observe that P-701 starts and valve CV-622 rotates.
- \_\_\_\_\_ B.1.<sup>39</sup>~~37~~ Turn switch HC-601 to position 2 for 2-3 seconds, observe that P-601 starts.
- \_\_\_\_\_ B.1.<sup>40</sup>~~38~~ Turn switch HC-601 to position 3 to isolate the sample and start the dissolved gas separation. Leave in this position for approximately 10 seconds. Record sample time.
- \_\_\_\_\_ B.1.<sup>41</sup>~~39~~ If dissolved gas sample is required perform the following:
- \_\_\_\_\_ B.1.<sup>41</sup>~~39~~.1 Turn HC-601 to position 4 to inject tracer gas into valve CV-615. Leave in this position for approximately 10 seconds. Record the tracer gas supply system pressure at the regulator.
- \_\_\_\_\_ B.1.<sup>41</sup>~~39~~.2 Turn HC-601 to position 5 to put the tracer gas into the loop.
- \_\_\_\_\_ B.1.<sup>41</sup>~~39~~.3 Read the initial pressure of the dissolved gas sample bottle at this time from PI-662 and record as P<sub>0</sub> on the DATA SHEET.
- \_\_\_\_\_ B.1.<sup>42</sup>~~40~~ Turn HC-601 to position 6 and within 5 seconds turn to position 7.
- \_\_\_\_\_ B.1.<sup>43</sup>~~41~~ Leave HC-601 in position 7 for approximately 10 seconds. Read pressure from PI-662 and record as P<sub>1</sub> on Attachment D, "Dissolved Gas Sample Data Sheet".

\_\_\_\_\_ B.1.<sup>44</sup>~~42~~ Turn HC-601 to position 8. Within 5 seconds turn to position 9.

\_\_\_\_\_ B.1.<sup>45</sup>~~43~~ Read pressure on PI-662 and record as P2.

\_\_\_\_\_ B.1.<sup>46</sup>~~44~~ Complete this step if a dissolved gas sample is required: Turn switch HC-652 to "Gas Sample" and hold it there while watching PI-662. After at least 10 seconds, and when PI-662 is very steady release HC-652. Turn HC-652 again to "Gas Sample" to verify the equalized pressure. Record the steady PI-662 pressure as P3.

\_\_\_\_\_ B.1.<sup>47</sup>~~45~~ When a dissolved gas sample is not desired rotate switch HC-652 counterclockwise to the "Relieve Pressure" position and hold until pressure on PI-662 equalizes.

\_\_\_\_\_ B.1.<sup>48</sup>~~46~~ If a large volume liquid sample is desired turn HC-601 to position 10. Push and hold HC-629-1 for at least 10 seconds. Then turn HC-601 to off.

\_\_\_\_\_ B.1.<sup>49</sup>~~47~~ If a liquid sample was not desired, turn the switch HC-601 to the OFF position very quickly.

\_\_\_\_\_ B.1.<sup>50</sup>~~48~~ Lower the liquid sample bottle into the large cask by pulling up on the plunger handle. Do not turn plunger handle as twisting the bottle while it is on the needles will bend the needles.

\_\_\_\_\_ B.1.<sup>51</sup>~~49~~ Lower the cask on the cart by relieving the hydraulic oil pressure with the small petcock handle on the hydraulic cylinder.

\_\_\_\_\_ B.1.<sup>52</sup>~~50~~ Slide the lead shield drawer back into the enclosure to cover the opening for the needles.

\_\_\_\_\_ B.1.<sup>53</sup>~~51~~ Roll the cask out from under the sample station and quickly put the lead plug into the top of the cask. Do not lean over the top of the cask where there will be a column of radiation before the plug is inserted.

\_\_\_\_\_ B.1.<sup>54</sup>~~52~~ Carefully and slowly roll the cask away from the sample station.

Contact HPC Co-ordinator in the TSC for disposition and storage of the cask until ~~transfer~~ for off-site arrangements

- \_\_\_\_\_ B.1.~~55~~<sup>55</sup> Remove the Gas vial positioner from the sample enclosure and quickly insert the sample bottle into the gas vial cask.
- \_\_\_\_\_ B.1.~~56~~<sup>56</sup> Put the gas vial positioner back into the port in the sample station.
- \_\_\_\_\_ B.1.~~57~~<sup>57</sup> Turn the flush system switch HC-628-1 to position 2 to flush with demineralized water. Observe that there is flow per FI-664.
- \_\_\_\_\_ B.1.~~58~~<sup>58</sup> After RI-665 shows radiation has decreased significantly turn switch HC-628-1 to position 3 to flush the V-610 loop. Watch RI-665.
- \_\_\_\_\_ B.1.~~59~~<sup>59</sup> When the radiation reaches a minimum turn switch HC-628-1 to position 4 and flush the P-601 loop. Watch RI-665.
- \_\_\_\_\_ B.1.~~60~~<sup>60</sup> When the radiation reaches a minimum turn switch HC-628-1 to position 5 and flush valve CV-615. Watch RI-665. The valve volume is so small a change in RI-665 may not be observable.
- \_\_\_\_\_ B.1.~~61~~<sup>61</sup> Turn switch HC-628-1 to position 6 and flush the piping station. Flush for 5 minutes.
- \_\_\_\_\_ B.1.~~62~~<sup>62</sup> Turn switch HC-628-1 to position 7 for another flush of the CV-622 loop. Watch RI-665.
- \_\_\_\_\_ B.1.~~63~~<sup>63</sup> If RI-665 did not indicate an acceptable radiation level at any step of the operation, go back and repeat steps B.1.55 thru B.1.60.
- \_\_\_\_\_ B.1.~~64~~<sup>64</sup> If all sampling is completed, turn <sup>HC-626 and</sup> HC-628-1 to "off", drain the collector tank V-715, trap T-717 and the sump by turning switch HC-715-1 clockwise through its eight positions. Pause approximately five (5) seconds at each position.
- \_\_\_\_\_ B.1.~~65~~<sup>65</sup> Secure the sample station and valve control panel 1C104D. Notify the Control Room of this operation.
- \_\_\_\_\_ B.1.~~66~~<sup>66</sup> Return to the chemistry laboratory with the gas sample and notify the COORDINATOR.

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<sup>67</sup>  
B.I.~~66~~

Make appropriate arrangements for off-site shipment  
of large volume cask.

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Attachment D  
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DISSOLVED GAS SAMPLE  
 DATA SHEET

Ref. Step

- B.1.2.1 SAMPLE SOURCE \_\_\_\_\_
- B.1.2.2 TEAM MEMBERS \_\_\_\_\_
- B.1.2.3 ~~31~~ Flush flow \_\_\_\_\_ gpm (FI-664) Flush duration \_\_\_\_\_ minutes
- B.1.2.36 ~~36~~ Flush flow \_\_\_\_\_ gpm (FI-664) Flush duration \_\_\_\_\_ minutes
- B.1.2.37 ~~37~~ Pressure \_\_\_\_\_ PSIG (PI-661) Temperature \_\_\_\_\_ °F (TI-660)
- B.1.2.40 ~~40~~ Conductivity \_\_\_\_\_ umho/cm (CI-663) Radiation \_\_\_\_\_ mR/hr (RI-665)
- B.1.2.38 ~~38~~ Sample date/time \_\_\_\_\_ / \_\_\_\_\_
- B.1.2.41 ~~41~~ Tracer gas supply system pressure \_\_\_\_\_ (Regulator) Po \_\_\_\_\_ PSIA (PI-662)
- B.1.2.43 ~~43~~ P1 \_\_\_\_\_ PSIA (PI-662)
- B.1.2.45 ~~45~~ P2 \_\_\_\_\_ PSIA (PI-662)
- B.1.2.46 ~~46~~ P3 \_\_\_\_\_ PSIA (PI-662)

C.1.6	Sample	Original	Dil. 1	Dil. 2	Dil. 3	Dil. 4	Dil. 5	Dil. 6
	Vial ID							
	Dil. factor	1	15.7	246	3870	6.1E4	9.5E5	1.6E7
	Dose Rate (mrem/hr)							

C.1.11 Count date/time \_\_\_\_\_ / \_\_\_\_\_ Counted by \_\_\_\_\_  
 Geometry \_\_\_\_\_

Isotope	Activity* (uCi/cc) at sample time	
Kr-85	_____	*Not corrected for pressure
Kr-85m	_____	
Kr-87	_____	
Kr-88	_____	
Xe-133	_____	
Xe-135	_____	
	_____	
	_____	
	_____	

C.1.12 GC analysis date/time \_\_\_\_\_ / \_\_\_\_\_ By \_\_\_\_\_

H \_\_\_\_\_ %  
 O \_\_\_\_\_ %  
 N \_\_\_\_\_ %