Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

July 9, 2003

L-2003-175
10 CFR 50 Appendix E

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Emergency Plan Implementing Procedure

In accordance with 10 CFR 50 Appendix E, enclosed is a copy of a revision to the procedure that implements the St. Lucie Plant Radiological Emergency Plan post-accident sampling process.

Number	Title	Revision	Implementation Date
COP-06.06	Guidelines For Collecting Post Accident Samples	3	July 2, 2003

COP-06.06 Revision 3 incorporated a procedure change request (PCR) to clarify the valve position sequence for the reactor coolant system hotleg sample procedure and adjusted the step number sequence. Please contact us if there are any questions regarding this procedure.

Very truly yours,

William Jefferson, Jr.
Vice President
St. Lucie Plant

WJ/tlt

Enclosure

A045

FPL

ST. LUCIE PLANT

CHEMISTRY OPERATING PROCEDURE

SAFETY RELATED

Procedure No.
COP-06.06
Current Revision No.
3
Effective Date
07/02/03

Title:

GUIDELINES FOR COLLECTING POST ACCIDENT SAMPLES

Responsible Department: **CHEMISTRY**

REVISION SUMMARY:

Revision 3 - Incorporated PCR 03-1443 for CR 03-1178 to add opened and closed were valves changed. (Robert Eavenson, 06/20/03)

Revision 2 – THIS PROCEDURE HAS BEEN COMPLETELY REWRITTEN. Satisfied two NRC commitments from PLA L-2000-131, which addressed the elimination of the requirement to maintain post accident sample systems. (Jeff Heinold, 07/19/01)

Revision 1 - Added limit in Step 3.1 to be more specific on high radiation samples and changed statement in 3.1 by removing "rates" so information says "dose to personnel will not exceed NRC limits." (J. H. Burgess, 06/17/99)

Revision	FRG Review Date	Approved By	Approval Date
0	10/13/98	R. G. West Plant General Manager	10/13/98
3	06/19/03	R. E. Rose Plant General Manager	06/20/03
		N/A Designated Approver	
		N/A Designated Approver (Minor Correction)	

S___OPS	
DATE	
DOCT	PROCEDURE
DOCN	COP-06.06
SYS	
COM	COMPLETED
ITM	3

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1.0 PURPOSE

1.1 To provide guidelines for the Chemistry Department to use for sample collection and operational concerns during plant emergencies.

1.2 To provide guidelines that identify possible areas of concerns for a long term surveillance program following a plant incident.

1.3 § To provide instructions for estimating RCS Dose Equivalent Iodine-131 (or DEQ I-131) activity using the Normal Primary Sample System in order to classify fuel damage events at the Alert level.

1.4 § To provide guidelines for the development of contingency plans for obtaining and analyzing highly radioactive samples of Reactor Coolant, Containment Sump and Containment Atmosphere.

2.0 REFERENCES

NOTE

One or more of the following symbols may be used in this procedure:

§ Indicates a Regulatory commitment made by Technical Specifications, Condition of License, Audit, LER, Bulletin, Operating Experience, License Renewal, etc. and shall NOT be revised without Facility Review Group review and Plant General Manager approval.

¶ Indicates a management directive, vendor recommendation, plant practice or other non-regulatory commitment that should NOT be revised without consultation with the plant staff.

Ψ Indicates a step that requires a sign off on an attachment.

2.1 Technical Specifications

- Section 3.4.8

2.2 Updated Final Safety Analysis Report (UFSAR)

- Unit 2, Section 9.3-2, Figures 9.3-3, 9.3-3A and 9.3-3B; Tables 9.3-3 and 9.3-4

2.3 Procedures

- EPIP-05, Activation and Operation of the Operational Support Center
- ADM-17.09, Invoking 10 CFR 50.54 (X)
- ADM-17.06, Independent Verification
- COP-01.08, Determination of the Average Beta Gamma Energy E-Bar of the Reactor Coolant
- COP-02.03, Determination of Gases
- COP-65.02, Effluent Grab Sampling
- 1-COP-06.03, Determination of Hydrogen Gas in Unit 1 Containment using Local Grab Sample
- 2-COP-06.04, Determination of Hydrogen Gas in Unit 2 Containment using Local Grab Sample
- 1-COP-02.01, Primary Systems Sampling
- 2-COP-02.02, Primary Systems Sampling
- EPIP-01, Classification of Emergencies
- EPIP-09, Off-Site Dose Calculations
- HP-201, Emergency Personnel Exposure Control
- HP-203, Personnel Access Control During Emergencies
- 2-NOP-26.01, Radiation Monitors

2.4 EBASCO P&ID 2998-G-078, Sheets 108, 109, 110, 120, 131, 132, 150 and 153

2.5 § Plant License Amendment L-2000-131, Relief from Technical Specification and NUREG - 0737 Requirements for Post Accident Sampling System. Approved amendments: Unit 1 #174, Unit 2 #114

2.6 ¶2 PSL-ENG-SEFJ-01-016, Engineering Evaluation E-Plan Classification Dose Rate in Sampling Room Correlated to Coolant Concentration of 275 uCi/ml DEQ I-131

2.7 Calculation No: PSL-BF-01-081, Determination of Dose Rates Corresponding to 275 uCi/ml of DEQ I-131 in the RCS Sampling Lines for St. Lucie Units 1 and 2

2.8 ¶1 CR 98-1212

2.9 ¶3 CR 03-1178, Unexpected Condition While Opening V5200, Primary Coolant System /R3

3.0 PREREQUISITES

3.1 Counting Room detectors must be operational for sample isotopic analysis. It may be necessary to move the counting equipment to an area suitable for operation (low background).

3.2 All Chemistry personnel that work from the OSC for sampling during reentry to the plant shall be respirator and SCBA qualified.

4.0 PRECAUTIONS / LIMITATIONS

4.1 NO samples will be taken for outside agencies without the concurrence of both the Emergency Coordinator and the Chemistry Supervisor.

4.2 The number of samples collected may vary from those described in this procedure based on manpower support from the OSC.

4.3 High Radiation Areas will be present when obtaining liquid or gaseous samples. Radiation survey instruments should be monitored frequently while purging and drawing samples.

4.4 Health Physics shall brief all teams making re-entry into the plant from the OSC. Dose extensions may be necessary prior to entry.

4.5 All samples shall be labeled with proper identification and results entered into the LIMS system.

4.6 If a Containment Isolation Signal (CIS) has actuated, Then sample valves must be reset and CIS override provided in order to obtain sample flow from the RCS or containment.

4.7 The containment radiation monitors sample line will be isolated following a CIS. The sample pump on the monitor should be stopped from the Control Room.

4.8 Steam Generator Blowdown sample valves will close after a CIS actuation. The sample valves may be reopened if necessary and samples collected inside the RAB at the blowdown sample panel to prevent the spread of contamination to the Cold Lab.

4.9 The flowpath of LPSI should be verified with the Control Room prior to sampling shutdown cooling.

4.10 It may be necessary to leave the area while a sample is purging in order to reduce exposure.

4.11 Containment air samples may be collected from the Post LOCA Hydrogen analyzers if a CIS has isolated the radiation monitor.

4.12 The Steam Generator Blowdown Building should be kept uncontaminated if possible after a tube rupture by leaving blowdown isolated or by blowing down to the discharge canal if release permit limits (ECL) are NOT exceeded.

4.13 If RCS DEQ I-131 is > 275 µCi/ml as estimated using the normal primary sample system (Appendix B or C), Then samples shall NOT be taken during the emergency phase of an accident.

4.14 ¶2 For Appendices B and C, if the configuration of the dose rate meter with respect to the sample lines changes (Accident Sample Survey Point), the dose rate value must be re-evaluated to verify its correlation to 275 µCi/ml DEQ I-131.

5.0 RECORDS REQUIRED

5.1 Normal entries on the Chemistry LIMS system. Results shall be maintained in the plant files in accordance with QI-17-PSL-1.

6.0 INSTRUCTIONS

6.1 The following considerations should be made based on the accident situation:

1. REFER to EPIP-05, Activation and Operation of the Operational Support Center, for checklist items to establish the OSC as operational.

2. ESTABLISH the plant status and ASSESS the operability of the process monitors.

3. CHECK **ALL** of the following effluent flowpaths to ascertain if an abnormal release is in progress:

   A. Plant Vent

   B. Fuel Handling Building

   C. ECCS Vent

   D. Air Ejector Exhaust

   E. Steam Line

   F. S/G Blowdown Building Vent

   G. S/G Liquid Blowdown

   H. Containment

4. If a CIS has occurred, Then STOP the sample pumps on the containment process monitor.

5. The TSC Chemistry Supervisor should determine if it is necessary to establish a remote counting lab or analysis lab.

6. DETERMINE which lab can be used for sample analysis.

7. MONITOR for noble gas concentration and radiation level in any lab area that is in use. Health Physics can provide friskers or air sampling equipment.

6.1 The following considerations should be made based on the accident situation: (continued)

8. DETERMINE RCS / containment sump isotopic activity per applicable appendix referenced on page 2.

   A. § REFER to Appendix F for further guidance for collecting high activity samples.

   B. PERFORM a boron analysis on a reactor coolant sample, if necessary.

   C. As soon as possible, NOTIFY the TSC Chemistry Supervisor of the reactor coolant / containment sump isotopic or dose rate correlation results.

9. The TSC Chemistry Supervisor may waiver the Tech. Spec. requirement for sampling of the RCS when the RCS DEQ is greater than 275 µCi/ml during accident conditions to limit personnel exposure if the requirements of ADM-17.09, Invoking 10 CFR 50.54 (X) are met.

10. If an effluent monitor is reading upscale, OBTAIN an effluent sample for particulate, iodine and gas, if possible. Effluent monitors include PV, FHB & ECCS. WRGM particulate and iodine samples are obtain in accordance with 2-NOP-26.01.

11. If the steam line monitor, air ejector monitor or steam generator blowdown monitors are reading upscale, the steam generators should be SAMPLED for primary to secondary leakage.

12. When conditions permit, CONSIDER sampling the following tanks for gross activity:

    Chemical Drain Tank

    Equipment Drain Tank

    Aerated Waste Storage Tank

    Spent Fuel Pool, if there is a fuel handling accident

    Main Condenser Hotwell, if primary to secondary leak has occurred

13. The Component Cooling Water System should be SAMPLED for isotopic analysis if the process monitors show an increase in count rate.

6.1 The following considerations should be made based on the accident situation: (continued)

14. AVOID getting sodium molybdate (CCW) in the waste ion exchangers to prevent depletion.

15. § Post LOCA (containment) hydrogen analyzers can be grab sampled if necessary for containment hydrogen and / or isotopic analysis. Refer to Appendix F for guidance for collecting high activity samples.

16. REFER to Appendix A for areas of concern for long term Post Accident surveillance.

END OF SECTION 6.1

APPENDIX A
GUIDELINES FOR AREAS OF CONCERN FOR LONG TERM POST ACCIDENT SURVEILLANCE
(Page 1 of 6)

The TSC Chemistry Supervisor will determine what tests and scheduling frequency will apply to each area of concern. The areas of concern are as follows:

- Containment Building
- Reactor Coolant (on Shutdown Cooling)
- Reactor Auxiliary Building CVCS Letdown System
- Gaseous Waste System
- Liquid Waste Systems
- Secondary Systems

1. Containment Building

   Major concerns are:

   A. Estimating the initial inventory of water injected, total inventory in the core and cavity sump including the chemical and nuclide composition.

   B. Tracking additions to the containment water volume.

   C. Tracking changes in the nuclide mixture of the water.

   D. Tracking atmospheric composition for percent gases and nuclide concentrations.

   E. Containment Sump, Quench Tank, Reactor Drain Tank composition.

   F. Containment purge or Hydrogen purge that could release hot gases.

   G. Containment penetrations that could allow water out or into containment.

APPENDIX A
GUIDELINES FOR AREAS OF CONCERN FOR LONG TERM POST ACCIDENT SURVEILLANCE
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1. Containment Building (continued)

   Actions to Consider:

   A. REVIEW the data from the initial post accident samples for tank levels. COMPARE this data to the logs prior to the incident.

   B. CALCULATE probable containment sump volume and boron concentration.

   C. COMPARE calculated data to actual grab sample results.

   D. CHANGES in valve lineups on lines that exit the containment building must be reviewed for dose concerns.

2. Reactor Coolant (on Shutdown Cooling)

   Major Concerns:

   A. Spread of contamination to associated systems.

   B. Any source of dilution water into shutdown cooling.

   C. Leaks in the shutdown cooling heat exchanger to Component Cooling Water system.

   D. An adequate makeup supply to shutdown cooling.

   E. Contents of the safeguard sumps.

   F. RAB liquid radwaste systems containing highly contaminated water.

   Actions to Consider:

   A. VERIFY there is NO boron dilution to the shutdown cooling system by grab sampling SDC and the makeup supply.

   B. VERIFY operation of the Component Cooling Water process monitors for SDC leak detection. USE grab samples to monitor the CCW activity, if necessary.

APPENDIX A
GUIDELINES FOR AREAS OF CONCERN FOR LONG TERM POST ACCIDENT SURVEILLANCE
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3. Reactor Auxiliary Building CVCS Letdown System

Major concerns are:

A. Water with high levels of contamination may be in the RAB.

B. The VCT may have a hydrogen cover gas with high noble gas activity.

C. Water in the letdown system may be at a lower boron concentration than the SDC system and act as a source of dilution water.

D. The CVCS ion exchangers may NOT be borated to the same concentration as the SDC system and will remove boron until an equilibrium is reached.

E. The gaseous waste system may contain high gas activity from tank vents or VCT purges.

Actions to Consider:

A. DETERMINE the isotopic content of the VCT gas by grab sampling.

B. CVCS ion exchangers may contain dose rates higher than shielding design.

C. MONITOR the Plant Vent process monitor for abnormal gaseous releases.

D. MONITOR any water movements through the RAB for high activity.

E. Holdup tanks should be sampled for high activity. The preconcentrator ion exchanger can be used for cleanup of HUTS prior to waste processing.

APPENDIX A
GUIDELINES FOR AREAS OF CONCERN FOR LONG TERM POST ACCIDENT SURVEILLANCE
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4. Gaseous Waste System

Major concerns are:

A. Gas decay tanks may be filled faster than usual. There may be less time available for decay of high activity.

B. Oxygen may be introduced into the gas decay tanks from improper valve lineups. Tanks should be monitored for explosive gas mixtures.

C. Nitrogen supply aligned to non-essential equipment may fill GDTs.

D. Improper valve lineups may release high activity gas or explosive gas mixtures into the RAB.

Actions to consider:

A. The Gas Analyzer should NOT be aligned to a highly radioactive GDT.

B. The Gas Analyzer should be operated on the Gas Surge Header.

C. The GDT pressures should be monitored closely.

D. VERIFY there are NO explosive gas mixtures formed by routine grab sampling.

APPENDIX A
GUIDELINES FOR AREAS OF CONCERN FOR LONG TERM POST ACCIDENT SURVEILLANCE
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5. Liquid Waste Systems

Major concerns are:

A. CONTROL the spread of highly contaminated water in the RAB.

B. MONITOR tank levels and sump levels that have auto starting pumps to control the spread of contamination.

C. MONITOR tank levels to avoid overflow of the system.

D. Chemical contaminants (i.e., sodium hydroxide, hydrazine or trisodium phosphate) will rapidly deplete the ion exchangers.

E. Avoid draining sections of piping that contain highly radioactive water.

Actions to consider:

A. ISOLATE, if possible, any source of highly radioactive water in the RAB waste system.

B. ESTABLISH controls of RAB water movements.

C. MONITOR tank levels on a more frequent basis.

D. VERIFY the waste ion exchangers are performing proper cleanup of waste water.

E. REQUEST that circulating water pumps be left in operation for adequate dilution flow for liquid releases.

F. CONSIDER having to process very large volumes of waste water (from S/G tube rupture).

APPENDIX A
GUIDELINES FOR AREAS OF CONCERN FOR LONG TERM POST ACCIDENT SURVEILLANCE
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6. Secondary Systems

Major concerns are:

A. Containing the spread of contamination.

B. Treatment of large volumes of contaminated water.

C. Restricted use of chemicals in the systems.

D. Blowdown system is a direct release path to the discharge canal.

E. Control of contaminated water in the condenser hotwell.

Actions to consider:

A. MONITOR the ponds by grab sampling for contamination.

B. Vacuum drag should be secured after a S/G tube rupture to avoid contamination of the other Unit.

C. The blowdown building resin trains may become contaminated and require proper handling for resin discharge.

D. RESTRICT the use of amerzine and hydrazine on the secondary side to avoid depletion of the ion exchangers used for waste processing of contaminated water.

END OF APPENDIX A

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM

§

1.0 PURPOSE

To provide instructions for estimating Unit 1 RCS Dose Equivalent Iodine-131 (or DEQ I-131) activity using the Normal Primary Sample System during an emergency.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) should be in operation and supplying cooling water to the sample heat exchangers.
2. Normal Primary Sample System must be operational.
3. Health Physics shall provide HP coverage during sample system recirculation / flush evolutions.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. If a CIS has occurred, the solenoid valves to sample the RCS (V5200 & V5203) can not be opened until the Control Room overrides the CIS signal and the valves are RESET.
4. DO NOT apply system pressure to the Hot Leg sample line without a sample vessel installed or disconnect fittings plugged.
5. ¶1 Solenoid valves for the Hot Leg sample line should be closed after sampling.

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
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3.0 PRECAUTIONS / LIMITATIONS (continued)

6. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

7. Sample line radiation measurements shall be taken "on contact" at the "Accident Sample Survey Point" using an RO-2 type radiation survey meter. Placing the survey meter "on contact" physically places its detector one (1) inch from the sample line.

8. ¶2 If the configuration of the dose rate meter with respect to the sample lines changes (Accident Sample Survey Point), the dose rate value must be re-evaluated to verify its correlation to 275 uCi/ml DEQ I-131.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
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5.0 INSTRUCTIONS INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix B Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix B Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose. _____
6. Discuss task objective. _____

5.2 Recirculating / Flushing RCS Hot Leg Sample Line

1. If RCS Hot Leg sample is already lined up to the VCT, Then PROCEED to Step 5.2.7. _____
2. If RCS Hot Leg sample is secured, Then ENSURE the following valves are CLOSED:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5138	Sample Sink RC Sample Isol	CLOSED	
V5103	RC Sample Vessel Inlet Isol	CLOSED	
V5104	RC Sample Vessel Outlet Isol	CLOSED	
V5102	RC Sample Vessel Assembly Inlet Isol	CLOSED	
V5105	RC Sample Vessel Assembly Outlet Isol	CLOSED	
V5106	RC Sample Vessel Assembly Bypass	CLOSED	
V5107	RC Sample Vessel Assembly Outlet Throttle	CLOSED	
V5200	1A Hot Leg Loop Sample Isol	CLOSED	
V5203	1A Hot Leg Loop Sample Isol	CLOSED	

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
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5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

3. To Recirculate / flush to the VCT, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5150	Purge To Flash Tank Isol	CLOSED	
V5152	Purge To VCT Isol	OPEN	

4. To Recirculate / flush to the Flash Tank, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5150	Purge To Flash Tank Isol	OPEN	
V5152	Purge To VCT Isol	CLOSED	

5. OPEN the following valves in the order listed: (Operated from the sample room)

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5200	1A Hot Leg Loop Sample Isol	OPEN	
V5203	1A Hot Leg Loop Sample Isol	OPEN	
V5106	RC Sample Vessel Assembly Bypass	OPEN	

CAUTION

- Dose rates will increase dramatically after RCS sample flow has been established (V5107 OPEN).
- Do not exceed 50 psi on PI-5550, "Sample Purge HDR Press" when throttling flow.

6. THROTTLE OPEN V5107, RC Sample Vessel Assembly Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

7. Go to an area with lower dose rates. _____

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
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5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

8. REQUEST HP to monitor sample room dose rates, as necessary. _____

9. ALLOW RCS to recirculate / flush for the amount of time it takes for at least 8 gallons to recirculate / flush (i.e. 10 minutes at 0.8 GPM). _____

NOTE

- Sample line radiation measurements shall be taken "on contact" using an RO-2 type radiation survey meter.
- Chemistry Technician shall show the HP Tech. where to place the RO-2 survey meter.

10. ¶2 REQUEST HP to MEASURE the dose rate on the sample line at the "Accident Sample Survey Point". _____

11. ¶2 RECORD the sample line (Accident Sample Survey Point) dose rate below. _____

Dose rate reading: _____

Dose Rate Reading	RCS DEQ I-131 Activity
< 1.2 R/hr	< 275 uCi/ml
1.2 R/hr	275 uCi/ml
> 1.2 R/hr	> 275 uCi/ml

12. CIRCLE the corresponding (estimated) RCS DEQ I-131 activity for the dose rate reading in the table above. (For example, if the dose rate reading is 1.0 R/hr, then the < 275 uCi/ml value should be circled.) _____

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
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5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

NOTE

- The RCS DEQ I-131 activity value is important decision-making information for the NPS / EC.
- This step can be initialed as complete if the NPS / EC is contacted directly or indirectly through the OSC Chemistry Supervisor. The expectation is that the NPS / EC receives this information as soon as possible.

13. As soon as possible, REPORT the estimated (circled) RCS DEQ I-131 activity to the NPS / EC. _____

14. If the dose rate reading is > 1.2 R/Hr, Then secure the sample lineup by going to Step 5.2.16. _____

15. If the dose rate reading is ≤ 1.2 R/Hr and a sample is requested by the EC, Then proceed to Appendix D. _____

APPENDIX B
ESTIMATING UNIT 1 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
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5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued)

NOTE
In accordance with ADM-17.06, the NPS or ANPS can waive the Independent Verification requirement if significant radiation exposure (exposure levels greater than 1000 mR/hr) is involved.

16. To secure the RCS Hot Leg sample lineup PERFORM the following valve lineup:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	PERF INITIAL	IV INITIAL
V5200	1A Hot Leg Loop Sample Isol	CLOSED		
V5203	1A Hot Leg Loop Sample Isol	CLOSED		
V5145	Isol Vlv For Demin Water To Smpl Sink	CLOSED		
V5138	Sample Sink RC Sample Isol	CLOSED		
V5102	RC Sample Vessel Assembly Inlet Isol	CLOSED		
V5105	RC Sample Vessel Assembly Outlet Isol	CLOSED		
V5150	Purge To Flash Tank Isol	CLOSED		
V5106	RC Sample Vessel Assembly Bypass	OPEN		
V5152	Purge To VCT Isol	OPEN		

Date / Time Lineup Secured ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(Independent Verifier)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX B

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 1 of 7)

§

1.0 PURPOSE

To provide instructions for estimating Unit 2 RCS Dose Equivalent Iodine-131 (or DEQ I-131) activity using the Normal Primary Sample System during an emergency.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) should be in operation and supplying cooling water to the sample heat exchangers.
2. Normal Primary Sample System must be operational.
3. Health Physics shall provide HP coverage during sample system recirculation / flush evolutions.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. If a CIS has occurred, the solenoid valves to sample the RCS (V5200 & V5203) can not be opened until the Control Room overrides the CIS signal and the valves are RESET.
4. DO NOT apply system pressure to the Hot Leg sample line without a sample vessel installed or disconnect fittings plugged.
5. ¶$_1$ Solenoid valves for the Hot Leg sample line should be closed after sampling.

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM

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3.0 PRECAUTIONS / LIMITATIONS (continued)

6. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

7. Sample line radiation measurements shall be taken "on contact" at the "Accident Sample Survey Point" using an RO-2 type radiation survey meter. Placing the survey meter "on contact" physically places its detector one (1) inch from the sample line.

8. ¶2 If the configuration of the dose rate meter with respect to the sample lines changes (Accident Sample Survey Point), the dose rate value must be re-evaluated to verify its correlation to 275 uCi/ml DEQ I-131.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 3 of 7)

5.0 INSTRUCTIONS INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix C Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix C Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose. _____
6. Discuss task objective. _____

5.2 Recirculating / Flushing RCS Hot Leg Sample Line

1. If RCS Hot Leg sample is already lined up to the VCT, Then PROCEED to Step 5.2.10. _____
2. If RCS Hot Leg sample is secured, Then ENSURE the following valves are CLOSED:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5138	Isol Vlv for Sample Sink RC Sample	CLOSED	
V5103	RC Sample Vessel Inlet	CLOSED	
V5104	RC Sample Vessel Outlet	CLOSED	
V5303	RC Sample Vessel Assembly Inlet	CLOSED	
V5305	RC Sample Vessel Assembly Outlet	CLOSED	
V5304	RC Sample Vessel Assembly Bypass	CLOSED	
V5107	RC Sample Vessel Assembly Outlet Throttle	CLOSED	
V5200	Hot Leg	CLOSED	
V5203	Hot Leg	CLOSED	

/R3

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 4 of 7)

5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

3. To Recirculate / flush to the VCT, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	CLOSED	
V5150	Sample Outlet Hdr Purge to VCT Isol	OPEN	

4. To Recirculate / flush to the Flash Tank, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	OPEN	
V5150	Sample Outlet Hdr Purge to VCT Isol	CLOSED	

5. NOTIFY the Unit 2 Control Room to reset the following valves:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5200	Hot Leg	CLOSED	
V5203	Hot Leg	CLOSED	

NOTE
V5200 may NOT open or indicate open until V5203 is opened.

6. ¶3 OPEN V5203, Primary Coolant Sample. _____ /R3

7. ¶3 OPEN V5200, Primary Coolant Sample. _____ /R3

8. OPEN V5304, RC Sample Vessel Assembly Bypass. _____ /R3

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 5 of 7)

5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

CAUTION

- Dose rates will increase dramatically after RCS sample flow has been established (V5107 OPEN).
- Do not exceed 50 psi on PI-5550, "Sample Purge HDR Press" when throttling flow.

9. THROTTLE OPEN V5107, RC Sample Vessel Assembly Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

10. Go to an area with lower dose rates. _____

11. REQUEST HP to monitor sample room dose rates, as necessary. _____

12. ALLOW RCS to recirculate / flush for the amount of time it takes for at least 8 gallons to recirculate / flush (i.e. 10 minutes at 0.8 GPM). _____

NOTE

- Sample line radiation measurements shall be taken "on contact" using an RO-2 type radiation survey meter.
- Chemistry Technician shall show the HP Tech. where to place the RO-2 survey meter.

13. ¶2 REQUEST HP to MEASURE the dose rate on the sample line at the "Accident Sample Survey Point". _____

14. ¶2 RECORD the sample line (Accident Sample Survey Point) dose rate below. _____

Dose rate reading: _____

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 6 of 7)

5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

Dose Rate Reading	RCS DEQ I-131 Activity
< 1.2 R/hr	< 275 uCi/ml
1.2 R/hr	275 uCi/ml
> 1.2 R/hr	> 275 uCi/ml

15. CIRCLE the corresponding (estimated) RCS DEQ I-131 activity for the dose rate reading in the table above. (For example, if the dose rate reading is 1.0 R/hr, then the < 275 uCi/ml value should be circled.) _____

NOTE

- This report provides important decision-making information to the NPS / EC.
- This step can be initialed as complete if the NPS / EC is contacted directly or indirectly through the OSC Chemistry Supervisor. The expectation is the NPS / EC receives this information as soon as possible.

16. As soon as possible, REPORT the estimated (circled) RCS DEQ I-131 activity to the NPS / EC. _____

17. If the dose rate reading is > 1.2 R/Hr, Then secure the sample lineup by going to Step 5.2.19. _____ /R3

18. If the dose rate reading is ≤ 1.2 R/Hr and a sample is requested by the EC, Then proceed to Appendix E. _____

NOTE

In accordance with ADM-17.06, the NPS or ANPS can waive the Independent Verification requirement if significant radiation exposure (exposure levels greater than 1000 mR/hr) is involved.

19. ¶3 CLOSE V5200, Hot Leg. ___/___ /R3
IV

APPENDIX C
ESTIMATING UNIT 2 RCS DOSE EQUIVALENT (DEQ) IODINE-131 ACTIVITY USING THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 7 of 7)

5.2 Recirculating / Flushing RCS Hot Leg Sample Line (continued) INITIAL

20. ¶3 CLOSE V5203, Hot Leg. ___/___ IV /R3

21. To secure the RCS Hot Leg sample lineup PERFORM the following valve lineup:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	PERF INITIAL	IV INITIAL
V5145	Isol Vlv for Demin Water to Smpl Sink	CLOSED		
V5138	Isol Vlv for Sample Sink RC Sample	CLOSED		
V5303	RC Sample Vessel Assembly Inlet	CLOSED		
V5305	RC Sample Vessel Assembly Outlet	CLOSED		
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	CLOSED		
V5304	RC Sample Vessel Assembly Bypass	OPEN		
V5150	Sample Outlet Hdr Purge to VCT Isol	OPEN		

/R3

Date / Time Lineup Secured ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(Independent Verifier)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX C

APPENDIX D
OBTAINING AN EMERGENCY UNIT 1 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 1 of 6)

§

1.0 PURPOSE

1.1 To provide instructions for obtaining an emergency Unit 1 RCS sample from the Normal Primary Sample System when Dose Equivalent Iodine-131 (or DEQ I-131) is ≤ 275 uCi/ml as determined per Appendix B.

1.2 To provide instructions for obtaining Unit 1 RCS sample from the Normal Primary Sample System during the recovery phase of an accident (post accident) in conjunction with Appendix F.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) shall be supplying cooling water to the sample heat exchangers.
2. Normal Primary Sample System must be operational.
3. The Primary Sample Fume Hood Ventilation must be operational. If fume hood ventilation is not operable, unacceptable levels of noble gases will be present in the sample sink and adjacent area.
4. Health Physics shall provide HP coverage during emergency RCS sampling evolutions in accordance with OSC procedures.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. If a CIS has occurred, the solenoid valves to sample the RCS (V5200 & V5203) can not be opened until the Control Room overrides the CIS signal and the valves are RESET.
4. DO NOT apply system pressure to the Hot Leg sample line without a sample vessel installed or disconnect fittings plugged.

APPENDIX D
OBTAINING AN EMERGENCY UNIT 1 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 2 of 6)

3.0 PRECAUTIONS / LIMITATIONS (continued)

5. ¶1 Solenoid valves for the Hot Leg sample line should be closed after sampling.

6. Minimize contact with reactor coolant samples.

7. Temperature of the samples should be less than 120 degrees F.

8. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

9. If Reactor Coolant System Dose Equivalent (DEQ) Iodine-131 (or DEQ-131) is > 275 uCi/ml as determined per Appendix B, Then samples shall NOT be taken during the emergency phase of an accident.

10. If using this appendix during the recovery phase, refer to Appendix F Section 4. "Post-Accident Liquid Sample Contingency Plan Guidelines" for additional guidelines, considerations and recommendations.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

2. Completed test results shall be maintained in the plant files.

APPENDIX D
OBTAINING AN EMERGENCY UNIT 1 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 3 of 6)

5.0 INSTRUCTIONS INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix D Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix D Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose, including the use of shielding. _____
6. Discuss task objective. _____

5.2 Making Preparations In The Lab

> **NOTE**
> One technique is to fill a 1000 ml volumetric flask to its calibrated mark, remove 1.0 ml, then add contents to a one (1) liter poly bottle.

1. Add 999 mls of demineralized water to a clean one (1) liter poly bottle. _____
2. Place a 1.0 ml pipetting device (such as Eppendorf) and the above sample bottle in the sample tray. _____

APPENDIX D
OBTAINING AN EMERGENCY UNIT 1 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 4 of 6)

5.0 INSTRUCTIONS (continued) INITIAL

5.3 Obtaining A Diluted RCS Hot Leg Sample

1. ENSURE Appendix B Steps 5.2.1 through 5.2.15 are complete. _____
2. PLACE a sample beaker under V5138, Sample Sink RC Sample Isol, and set the tygon tubing inside the beaker. _____
3. OPEN V5145, Isol Vlv For Demin Water To Smpl Sink, to begin rinsing the sink, which will reduce airborne radioactivity and minimize contamination. _____
4. Slowly OPEN V5138, Sample Sink RC Sample Isol, to begin flushing the beaker below. _____
5. After 30 seconds of flushing, CLOSE V5138, Sample Sink RC Sample Isol. _____
6. Note date and time of sample. _____

   Date: _____ Time: _____

NOTE
Waiting for three (3) minutes to pipette the sample after the sample valve is closed provides sufficient time for the fume hood ventilation system to remove noble gases, which reduces radiation exposure.

7. After three (3) minutes, perform the following:
   a. REQUEST HP to monitor for airborne particulate, Iodine and noble gas activity in the vicinity of the chemistry technician. _____
   b. PIPETTE 1.0 ml of sample from the sample beaker to the sample bottle with 999 mls of demineralized water. _____
8. Cap the sample bottle. _____
9. RINSE sample sink and sample bottle with Demin water. _____

APPENDIX D
OBTAINING AN EMERGENCY UNIT 1 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 5 of 6)

5.3 Obtaining A Diluted RCS Hot Leg Sample (continued) — INITIAL

10. CLOSE V5145, Isol Vlv for Demin Water to Smpl Sink. _____

11. Wipe off the sample bottle then PLACE into the sample tray. _____

12. Secure the RCS Hot Leg sample lineup in accordance with Appendix B. _____

13. TRANSPORT the sample to the lab. _____

5.4 Sample Isotopic Analysis

1. Transfer 16.0 mls of sample into a scintillation vial. _____

2. Count sample in accordance with plant procedures using 0.016 mls for counting volume. _____

3. CREATE a LIMS template for the sample. _____

LIMS number: _____

4. When preliminary report is printed, VERIFY all information is correct. _____

5. RUN the final report to obtain the total gross activity and DEQ. _____

APPENDIX D
OBTAINING AN EMERGENCY UNIT 1 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 6 of 6)

5.4 Sample Isotopic Analysis (continued) INITIAL

NOTE
Sample results may be necessary to evaluate emergency conditions and Emergency Plan Classification criteria.

6. As soon as possible, REPORT results to the (OSC) Chemistry Supervisor. _____

Date / Time Completed ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX D

APPENDIX E
OBTAINING AN EMERGENCY UNIT 2 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 1 of 5)

§

1.0 PURPOSE

1.1 To provide instructions for obtaining an emergency Unit 2 RCS sample from the Normal Primary Sample System when Dose Equivalent Iodine-131 (or DEQ I-131) is $\leq$ 275 uCi/ml as determined per Appendix C.

1.2 To provide instructions for obtaining Unit 2 RCS sample from the Normal Primary Sample System during the recovery phase of an accident (post accident) in conjunction with Appendix F.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) shall be supplying cooling water to the sample heat exchangers.
2. Normal Primary Sample System must be operational.
3. The Primary Sample Fume Hood Ventilation must be operational. If fume hood ventilation is not operable, unacceptable levels of noble gases will be present in the sample sink and adjacent area.
4. Health Physics shall provide HP coverage during emergency RCS sampling evolutions in accordance with OSC procedures.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. If a CIS has occurred, the solenoid valves to sample the RCS (V5200 & V5203) can not be opened until the Control Room overrides the CIS signal and the valves are RESET.
4. DO NOT apply system pressure to the Hot Leg ~~sample line~~ without a sample vessel installed or disconnect fittings plugged.

APPENDIX E
OBTAINING AN EMERGENCY UNIT 2 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 2 of 5)

3.0 PRECAUTIONS / LIMITATIONS (continued)

5. ¶1 Solenoid valves for the Hot Leg sample line should be closed after sampling.

6. Minimize contact with reactor coolant samples.

7. Temperature of the samples should be less than 120 degrees F.

8. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

9. If Reactor Coolant System Dose Equivalent (DEQ) Iodine-131 (or DEQ-131) is > 275 uCi/ml as determined per Appendix C, Then samples shall NOT be taken during the emergency phase of an accident.

10. If using this appendix during the recovery phase, refer to Appendix F Section 4, "Post-Accident Liquid Sample Contingency Plan Guidelines" for additional guidelines, considerations and recommendations.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

2. Completed test results shall be maintained in the plant files.

APPENDIX E
OBTAINING AN EMERGENCY UNIT 2 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 3 of 5)

5.0 INSTRUCTIONS INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix E Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix E Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose, including the use of shielding. _____
6. Discuss task objective. _____

5.2 Making Preparations In The Lab

> **NOTE**
> One technique is to fill a 1000 ml volumetric flask to its calibrated mark, remove 1.0 ml, then add contents to a one (1) liter poly bottle.

1. Add 999 mls of demineralized water to a clean one (1) liter poly bottle. _____
2. Place a 1.0 ml pipetting device (such as Eppendorf) and the above sample bottle in the sample tray. _____

5.3 Obtaining A Diluted RCS Hot Leg Sample

1. ENSURE Appendix C Steps 5.2.1 through 5.2.18 are complete. _____
2. PLACE a sample beaker under V5138, Isol Vlv for Sample Sink RC Sample, and set the tygon tubing inside the beaker. _____
3. OPEN V5145, Isol Vlv For Demin Water To Smpl Sink, to begin rinsing the sink, which will reduce airborne radioactivity and minimize contamination. _____

/R3

APPENDIX E
OBTAINING AN EMERGENCY UNIT 2 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 4 of 5)

5.3 Obtaining A Diluted RCS Hot Leg Sample (continued) INITIAL

4. Slowly OPEN V5138, Isol Vlv for Sample Sink RC Sample, to begin flushing the beaker below. _____

5. After 30 seconds of flushing, CLOSE V5138, Isol Vlv for Sample Sink RC Sample. _____

6. Note date and time of sample. _____

Date: _____ Time: _____

NOTE
Waiting for three (3) minutes to pipette the sample after the sample valve is closed provides sufficient time for the fume hood ventilation system to remove noble gases, which reduces radiation exposure.

7. After three (3) minutes, perform the following:

   a. REQUEST HP to monitor for airborne particulate, Iodine and noble gas activity in the vicinity of the chemistry technician. _____

   b. PIPETTE 1.0 ml of sample from the sample beaker to the sample bottle with 999 mls of demineralized water. _____

8. Cap the sample bottle. _____

9. RINSE sample sink and sample bottle with Demin water. _____

10. CLOSE V5145, Isol Vlv for Demin Water to Smpl Sink. _____

11. Wipe off the sample bottle then PLACE into the sample tray. _____

12. Secure the RCS Hot Leg sample lineup in accordance with Appendix C. _____

13. TRANSPORT the sample to the lab. _____

APPENDIX E
OBTAINING AN EMERGENCY UNIT 2 RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 5 of 5)

5.4 Sample Isotopic Analysis — INITIAL

1. Transfer 16.0 mls of sample into a scintillation vial. _____
2. Count sample in accordance with plant procedures using 0.016 mls for counting volume. _____
3. CREATE a LIMS template for the sample. _____

   LIMS number: _____
4. When preliminary report is printed, VERIFY all information is correct. _____
5. RUN the final report to obtain the total gross activity and DEQ. _____

CAUTION
Sample results may be necessary to evaluate emergency conditions and Emergency Plan Classification criteria.

6. As soon as possible, REPORT results to the (OSC) Chemistry Supervisor. _____

Date / Time Completed ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX E

APPENDIX F
CONTINGENCY PLAN FOR POST-ACCIDENT HIGH ACTIVITY SAMPLES
(Page 1 of 6)

§

1. Discussion

Per NRC Safety Evaluation and technical specification improvement announced in Federal Register, Vol. 65, No. 211, on October 31, 2000, as part of the Consolidated Line Item Improvement Process (CLIIP), NRC approved Industry / Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF-366, and FPL letters L-2000-131 and L-2001-047, St. Lucie Plant has developed contingency plans to obtain and analyze highly radioactive post-accident samples from the reactor coolant system, containment sump, and containment atmosphere. This appendix provides guidance for obtaining and analyzing such samples.

2. Applicability For Contingency Plan

This contingency plan should be used following a plant event where it is expected that significant core damage resulted. This event would likely have resulted in implementation of the St. Lucie Plant Radiological Emergency Plan (Emergency Plan). The contingency plan actions do not supercede any actions or activities performed in accordance with the Emergency Plan or plant procedures.

The decision to perform any steps in this appendix are at the discretion of the Emergency Coordinator, Recovery Manager, or manager responsible for plant specific activities.

There is no minimum time limit applicable to the performance of steps in this appendix. Considerations for the necessity to perform post-accident sampling, planning or resource procurement time, obtaining vendor support, and dose rate reductions from radioisotope decay may indefinitely postpone or cancel the decision to perform sampling.

Personnel emergency exposure guidelines should be reviewed prior to any decision to perform guidance per this appendix.

APPENDIX F
CONTINGENCY PLAN FOR POST-ACCIDENT HIGH ACTIVITY SAMPLES
(Page 2 of 6)

3. Considerations For The Performance Of Contingency Plan

The actual value to be gained from obtaining highly radioactive post-accident samples should be determined (or weighed) prior to initiating sample activities per this appendix. The following considerations should be reviewed and approved by the Emergency Coordinator, Recovery Manager, or manager responsible for plant specific activities prior to the initiation of sampling:

A. Consider alternate established means to obtain necessary information, such as core damage assessment emergency plan implementing procedure, dose rate correlation calculations, or similarity to historical event results (e.g. TMI).

B. Consider the timeliness of sample information in relation to the expected onset of recovery related activities. For instance, if RCS clean-up activities are not scheduled to start, or do not need to be started, for some time, then additional decay time for radioisotopes could be allowed before planned sampling.

C. Consider the information gained from performing other activities, such as how RCS clean up impacts CVCS filters and resin beds, post-accident containment entries, or verification of estimated core damage from other means. If scope or activities will not change significantly with or without sampling, then consider postponing sampling.

D. Consider the need or expectation to resample at a later time. If it is likely that later samples will also be taken, then consider postponing earlier sample to preserve personnel dose, resources, and equipment.

APPENDIX F
CONTINGENCY PLAN FOR POST-ACCIDENT HIGH ACTIVITY SAMPLES
(Page 3 of 6)

4. Post-Accident Liquid Sample Contingency Plan Guidelines

It is likely that a core damage accident will result in the initiation of Containment Spray, HPSI, SIT and LPSI. After the RWT level has decreased to a specified level, valves will re-align to recirculate the borated water in the containment sump through the core via LPSI pumps. After long-term recirculation, it can be assumed that the radioisotope concentrations in the RCS and Containment Sump will be approximately the same. In this scenario, an RCS Hot Leg sample taken from the Normal Primary Sample System will be representative of activity in the Containment Sump.

Sample locations to determine or estimate Containment Sump conditions in order of preference include RCS Hot Leg and LPSI pump discharge.

The following are guidelines / considerations / recommendations applicable to sampling RCS Hot Leg or LPSI pump discharge.

A. Prior to valve line up for the sample, estimate dose rate effects based on estimated core damage assessment or other means. Include affects on airborne dose rates from sample valve venting.

B. Move portable shield racks and shielding around sample area and associated piping in the sample room, if applicable. Consider additional shielding around sample collection container in sink, if appropriate. Refer to Appendix K, "Shielding Layout" for examples for positioning portable shield racks.

C. Review activities, both current and planned, for potentially affected areas in sample flowpath. Include impact on Volume Control Tank and Liquid Waste System for small addition(s) of highly radioactive liquid.

D. Coordinate sample reentry activities with HP, Operations, and other applicable departments. Ensure that extremity TLDs, emergency exposure authorizations, and contingency radiological plans are reviewed in detail with sample reentry team(s).

E. Consider sample mock-up practices on unaffected unit to improve sample activity efficiency and team response.

APPENDIX F
CONTINGENCY PLAN FOR POST-ACCIDENT HIGH ACTIVITY SAMPLES
(Page 4 of 6)

4. Post-Accident Liquid Sample Contingency Plan Guidelines (continued)

F. Determine dilution volumes, counting geometry, and analysis methodology. Compare to the instructions in Appendices D, E, G and H of this procedure and change, review, and approve as necessary in accordance with plant procedures.

G. Provide the shortest possible transfer time from sink to dilution container. Place dilution container with proper water dilution volume, and (sample pipette device) in sample room. Consider placing shielding around sample beaker and dilution container.

H. Consider obtaining and storing an undiluted sample (per Appendix I or J) for later analysis by FPL or other vendor / agency.

I. Store diluted samples behind shielding or in a lead storage locker whenever analyses are not in progress.

J. Determine if support or resources from Turkey Point are necessary or available.

K. Determine if additional vendor support is warranted. Procure vendor services in accordance with plant procedures. Use INPO member plant resources agreement, as appropriate, to expedite resource procurement.

L. Once all departments and reentry team(s) are prepared and briefed, initiate valve line up and sampling in accordance with Appendix D, E, G or H.

M. Following sampling and analysis, provide results to Emergency Coordinator, Recovery Manager and / or specific responsible manager.

APPENDIX F
CONTINGENCY PLAN FOR POST-ACCIDENT HIGH ACTIVITY SAMPLES
(Page 5 of 6)

5. Post Accident Containment Atmosphere Sampling Contingency Plan Guidelines

Containment (Post LOCA) Hydrogen Analyzers normally monitor containment atmospheric hydrogen during accident conditions. Containment noble gas and iodine activity correlations can be made using Containment High Range Radiation Monitors (CHRRMS) and guidance from EPIP-09, "Off-Site Dose Calculations". If unavailable, containment grab samples can be obtained.

Local grab samples for Hydrogen concentration and / or isotopic analysis can be obtained from the Containment Hydrogen Analyzers in accordance with 1-COP-06.03 & 2-COP-06.04. The Grab Sample Carts, with sample bombs, are shielded and considerations for high activity samples have been reviewed for this system.

Guidelines for obtaining grab samples from the Containment Hydrogen Analyzers.

A. Review 1-COP-06.03 [2-COP-06.04] for obtaining and analyzing a containment atmosphere sample.

B. Venting evolutions at the Local Grab Sample station and in the lab may cause applicable effluent monitor to go into an ALERT Alarm. Exercise caution to ensure a HIGH Alarm is NOT reached.

C. Determine if any changes to procedures should be made as a result of specific plant conditions, unexpected dose rates, etc. Perform procedure changes in accordance with plant procedures.

D. Coordinate sample reentry activities with HP, Operations, and other applicable departments. Ensure that extremity TLDs, emergency exposure authorizations, and contingency radiological plans are reviewed in detail with sample reentry team(s).

E. Consider sample mock-up practices on unaffected unit to improve sample activity efficiency and team response.

F. If analysis of an undiluted sample is not immediate, store sample in a area determined by HP until analysis is performed.

G. Determine if support or resources from Turkey Point are necessary or available.

APPENDIX F
CONTINGENCY PLAN FOR POST-ACCIDENT HIGH ACTIVITY SAMPLES
(Page 6 of 6)

5. Post Accident Containment Atmosphere Sampling Contingency Plan Guidelines (continued)

   H. Determine if additional vendor support is warranted. Procure vendor services in accordance with plant procedures. Use INPO member plant resources agreement, as appropriate, to expedite resource procurement.

   I. Once all departments and reentry team(s) are prepared and briefed, initiate valve line up and sampling in accordance with 1-COP-06.03 [2-COP-06.04].

   J. Following sampling and analysis, provide results to Emergency Coordinator, Recovery Manager and / or specific responsible manager.

END OF APPENDIX F

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 1 of 8)

§

1.0 PURPOSE

To provide instructions for obtaining a Unit 1 diluted Containment Sump sample (Low Pressure Safety Injection (LPSI) pump sample) during the recovery phase of an accident (post accident) in conjunction with Appendix F.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) shall be supplying cooling water to the sample heat exchangers.
2. Applicable portion of the Sample System must be operational.
3. The Primary Sample Fume Hood Ventilation must be operational. If fume hood ventilation is not operable, unacceptable levels of noble gases will be present in the sample sink and adjacent area.
4. Health Physics shall issue a specific RWP and provide HP coverage during recovery phase RCS sampling evolutions.
5. A running LPSI pump is recirculating borated water through the core.
6. No other sample lines are lined up to recirculate or flush to the VCT or Flash Tank.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. Minimize contact with reactor coolant or containment sump samples.
4. Temperature of the samples should be less than 120 degrees F.

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 2 of 8)

3.0 PRECAUTIONS / LIMITATIONS (continued)

5. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

6. This appendix may be used if either LPSI pump is running.

7. Refer to Appendix F Section 4, "Post-Accident Liquid Sample Contingency Plan Guidelines" for additional guidelines, considerations and recommendations.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

2. Completed test results shall be maintained in the plant files.

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 3 of 8)

5.0 INSTRUCTIONS INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix D Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix D Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose, including the use of shielding. _____
6. Discuss task objective. _____
7. Discuss specific RWP requirements. _____

5.2 Making Preparations In The Lab

> **NOTE**
> One technique is to fill a 1000 ml volumetric flask to its calibrated mark, remove 1.0 ml, then add contents to a one (1) liter poly bottle.

1. Add 999 mls of demineralized water to a clean one (1) liter poly bottle. _____
2. Place a 1.0 ml pipetting device (such as Eppendorf) and the above sample bottle in the sample tray. _____

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 4 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line — INITIAL

1. ENSURE the following valves are in their required positions:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5141	Sample Sink 1D Sample Isol	CLOSED	
V5128	1D Sample HX Outlet Sample Throttle	CLOSED	
V05017	1D Sample HX Outlet Sample Isol	OPEN	

2. To Recirculate / flush to the VCT, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5150	Purge To Flash Tank Isol	CLOSED	
V5152	Purge To VCT Isol	OPEN	

3. To Recirculate / flush to the Flash Tank, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5150	Purge To Flash Tank Isol	OPEN	
V5152	Purge To VCT Isol	CLOSED	

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 5 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line (continued) INITIAL

CAUTION

- Due to the possibility of high dose rates in the area, the following step should be performed as quickly as possible.
- Step 4 valves are located on the West wall of the area adjacent to the Pipe Penetration Room.
- V5127 should be the only valve requiring repositioning.
- Step 4 is only intended to be performed for the first LPSI sample. N/A this step for subsequent sampling evolutions.

4. ENSURE the following valves are in their required positions:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5161	1D Sample HX Inlet From SDC Suction Isol	CLOSED	
V5130	1D Sample HX Inlet From HPSI Pumps Mini Flow Isol	CLOSED	
V05010	1D Sample HX Inlet From SITS Isol	CLOSED	
V5127	1D Sample HX Inlet From 1A LPSI Pump Disch Isol	OPEN	

CAUTION

- Dose rates will increase dramatically after LPSI sample flow has been established (V5128 open).
- Do not exceed 50 psi on PI-5550, "Sample Purge HDR Press" when throttling flow.

5. THROTTLE OPEN V5128, 1D Sample HX Outlet Sample Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

6. Go to an area with lower dose rates. _____

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 6 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line (continued) INITIAL

7. REQUEST HP to monitor sample room dose rates, as necessary. _____

8. REQUEST HP perform general area radiation surveys at the designated flush location (VCT or Flash Tank) to monitor increase in dose rates. _____

9. ALLOW RCS to recirculate / flush for the amount of time it takes for at least 8 gallons to recirculate / flush (i.e. 10 minutes at 0.8 GPM). _____

10. PLACE a sample beaker under V5141, Sample Sink 1D Sample Isol, and set the tygon tubing inside the beaker. _____

11. OPEN V5145, Isol Vlv For Demin Water To Smpl Sink, to begin rinsing the sink, which will reduce airborne radioactivity and minimize contamination. _____

12. Slowly OPEN V5141, Sample Sink 1D Sample Isol, to begin flushing the beaker below. _____

13. After 30 seconds of flushing, CLOSE V5141, Sample Sink 1D Sample Isol. _____

14. Note date and time of sample. _____

Date: _____ Time: _____

NOTE
Waiting for three (3) minutes to pipette the sample after the sample valve is closed provides sufficient time for the fume hood ventilation system to remove noble gases, which reduces radiation exposure.

15. After three (3) minutes, perform the following:

a. REQUEST HP to monitor for airborne particulate, Iodine and noble gas activity in the vicinity of the chemistry technician. _____

b. PIPETTE 1.0 ml of sample from the sample beaker to the sample bottle with 999 mls of demineralized water. _____

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 7 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line (continued) INITIAL

16. Cap the sample bottle. _____

17. RINSE sample sink and sample bottle with Demin water. _____

18. CLOSE V5145, Isol Vlv for Demin Water to Smpl Sink. _____

19. Wipe off the sample bottle then PLACE into the sample tray. _____

NOTE

- V5127 is to be left OPEN for subsequent sampling and to minimize personnel radiation exposure.
- V5128 and V05017, normally open & throttled valves respectively, are CLOSED after sampling to provide two-valve isolation.
- In accordance with ADM-17.06, the NPS or ANPS can waive the Independent Verification requirement if significant radiation exposure (exposure levels greater than 1000 mR/hr) is involved.

20. To secure the LPSI sample lineup, PERFORM the following valve lineup:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	PERF INITIAL	IV INITIAL
V5141	Sample Sink 1D Sample Isol	CLOSED		
V05017	1D Sample HX Outlet Sample Isol	CLOSED		
V5128	1D Sample HX Outlet Sample Throttle	CLOSED		
V5150	Purge To Flash Tank Isol	CLOSED		
V5145	Isol Vlv for Demin Water to Smpl Sink	CLOSED		
V5152	Purge To VCT Isol	OPEN		

21. TRANSPORT the sample to the lab.

APPENDIX G
OBTAINING A UNIT 1 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 8 of 8)

5.4 Sample Isotopic Analysis INITIAL

1. Transfer 16.0 mls of sample into a scintillation vial. _____
2. Count sample in accordance with plant procedures using 0.016 mls for counting volume. _____
3. CREATE a LIMS template for the sample. _____

   LIMS number: _____
4. When preliminary report is printed, VERIFY all information is correct.
5. RUN the final report to obtain the total gross activity and DEQ.
6. As soon as possible, REPORT results to the Recovery Manager (RM).
7. Perform other analysis as directed by Chemistry Supervision.

Date / Time Lineup Secured ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(Independent Verifier)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX G

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 1 of 8)

§

1.0 PURPOSE

To provide instructions for obtaining a Unit 2 diluted Containment Sump sample (Low Pressure Safety Injection (LPSI) pump sample) during the recovery phase of an accident (post accident) in conjunction with Appendix F.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) shall be supplying cooling water to the sample heat exchangers.
2. Applicable portion of the Sample System must be operational.
3. The Primary Sample Fume Hood Ventilation must be operational. If fume hood ventilation is not operable, unacceptable levels of noble gases will be present in the sample sink and adjacent area.
4. Health Physics shall issue a specific RWP and provide HP coverage during recovery phase RCS sampling evolutions.
5. A running LPSI pump is recirculating borated water through the core.
6. No other sample lines are lined up to recirculate or flush to the VCT or Flash Tank.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. Minimize contact with reactor coolant or containment sump samples.
4. Temperature of the samples should be less than 120 degrees F.

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 2 of 8)

3.0 PRECAUTIONS / LIMITATIONS (continued)

5. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

6. This appendix may be used if either LPSI pump is running; however, the running LPSI pump must be known.

7. Refer to Appendix F Section 4, "Post-Accident Liquid Sample Contingency Plan Guidelines" for additional guidelines, considerations and recommendations.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

2. Completed test results shall be maintained in the plant files.

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 3 of 8)

5.0 INSTRUCTIONS INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix D Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix D Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose, including the use of shielding. _____
6. Discuss task objective. _____
7. Discuss specific RWP requirements. _____

5.2 Making Preparations In The Lab

> **NOTE**
> One technique is to fill a 1000 ml volumetric flask to its calibrated mark, remove 1.0 ml, then add contents to a one (1) liter poly bottle.

1. Add 999 mls of demineralized water to a clean one (1) liter poly bottle. _____
2. Place a 1.0 ml pipetting device (such as Eppendorf) and the above sample bottle in the sample tray. _____
3. Determine the running LPSI pump. _____

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 4 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line

1. ENSURE the following valves are in their required positions:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5164	2D Sample HX Inlet from 2B LPSI Pump Disch Isol	CLOSED	
V5161	2D Sample HX Inlet from SDC Suction Isol	CLOSED	
V5127	2D Sample HX Inlet from 2A LPSI Pump Disch Isol	CLOSED	
V5165	2D Sample HX Inlet from 2B HPSI / LPSI / Containment Spray Pumps	CLOSED	
V5185	2D Sample HX Inlet from 2A HPSI / LPSI / Containment Spray Pumps	CLOSED	
V5128	2D Sample HX Outlet Throttle	CLOSED	
V5141	Isol Vlv for Sample Sink 2D Sample HX Outlet Sample	CLOSED	

2. To Recirculate / flush to the VCT, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	CLOSED	
V5150	Sample Outlet Hdr Purge to VCT Isol	OPEN	

3. To Recirculate / flush to the Flash Tank, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	OPEN	
V5150	Sample Outlet Hdr Purge to VCT Isol	CLOSED	

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 5 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line (continued) INITIAL

4. To sample the 2A LPSI Pump, ENSURE the following valves are in their required positions:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5127	2D Sample HX Inlet from 2A LPSI Pump Disch Isol	OPEN	
V5164	2D Sample HX Inlet from 2B LPSI Pump Disch Isol	CLOSED	

5. To sample the 2B LPSI Pump, ENSURE the following valves are in their required positions:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5127	2D Sample HX Inlet from 2A LPSI Pump Disch Isol	CLOSED	
V5164	2D Sample HX Inlet from 2B LPSI Pump Disch Isol	OPEN	

CAUTION

- Dose rates will increase dramatically after LPSI sample flow has been established (V5128 open).
- Do not exceed 50 psi on PI-5550, "Sample Purge HDR Press" when throttling flow.

6. THROTTLE OPEN V5128, 2D Sample HX Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

7. Go to an area with lower dose rates. _____

8. REQUEST HP to monitor sample room dose rates, as necessary. _____

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 6 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line (continued) INITIAL

9. REQUEST HP perform general area radiation surveys at the designated flush location (VCT or Flash Tank) to monitor increase in dose rates. _____

10. ALLOW RCS to recirculate / flush for the amount of time it takes for at least 8 gallons to recirculate / flush (i.e. 10 minutes at 0.8 GPM). _____

11. PLACE a sample beaker under V5141, Isol Vlv for Sample Sink 2D Sample HX Outlet Sample, and set the tygon tubing inside the beaker. _____

12. OPEN V5145, Isol Vlv For Demin Water To Smpl Sink, to begin rinsing the sink, which will reduce airborne radioactivity and minimize contamination. _____

13. Slowly OPEN V5141, Isol Vlv for Sample Sink 2D Sample HX Outlet Sample, to begin flushing the beaker below. _____

14. After 30 seconds of flushing, CLOSE V5141, Isol Vlv for Sample Sink 2D Sample HX Outlet Sample. _____

15. Note date and time of sample. _____

Date: _____ Time: _____

NOTE
Waiting for three (3) minutes to pipette the sample after the sample valve is closed provides sufficient time for the fume hood ventilation system to remove noble gases, which reduces radiation exposure.

16. After three (3) minutes, perform the following:

a. REQUEST HP to monitor for airborne particulate, Iodine and noble gas activity in the vicinity of the chemistry technician. _____

b. PIPETTE 1.0 ml of sample from the sample beaker to the sample bottle with 999 mls of demineralized water. _____

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 7 of 8)

5.3 Recirculating / Flushing LPSI Pump Sample Line (continued) INITIAL

17. Cap the sample bottle. _____

18. RINSE sample sink and sample bottle with Demin water. _____

19. CLOSE V5145, Isol Vlv for Demin Water to Smpl Sink. _____

20. Wipe off the sample bottle then PLACE into the sample tray. _____

NOTE
In accordance with ADM-17.06, the NPS or ANPS can waive the Independent Verification requirement if significant radiation exposure (exposure levels greater than 1000 mR/hr) is involved.

21. To secure the LPSI sample lineup, PERFORM the following valve lineup:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	PERF INITIAL	IV INITIAL
V5127	2D Sample HX Inlet from 2A LPSI Pump Disch Isol	CLOSED		
V5164	2D Sample HX Inlet from 2B LPSI Pump Disch Isol	CLOSED		
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	CLOSED		
V5145	Isol Vlv for Demin Water to Smpl Sink	CLOSED		
V5141	Isol Vlv for Sample Sink 2D Sample HX Outlet Sample	CLOSED		
V5150	Sample Outlet Hdr Purge to VCT Isol	OPEN		

22. TRANSPORT the sample to the lab. _____

APPENDIX H
OBTAINING A UNIT 2 POST ACCIDENT DILUTED CONTAINMENT SUMP SAMPLE
(Page 8 of 8)

5.4 Sample Isotopic Analysis — INITIAL

1. Transfer 16.0 mls of sample into a scintillation vial. _____
2. Count sample in accordance with plant procedures using 0.016 mls for counting volume. _____
3. CREATE a LIMS template for the sample. _____

   LIMS number: _____
4. When preliminary report is printed, VERIFY all information is correct. _____
5. RUN the final report to obtain the total gross activity and DEQ. _____
6. As soon as possible, REPORT results to the Recovery Manager (RM). _____
7. Perform other analysis as directed by Chemistry Supervision. _____

Date / Time Lineup Secured ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(Independent Verifier)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX H

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 1 of 8)

1.0 PURPOSE

To provide instructions for obtaining a Unit 1 undiluted RCS sample from the Normal Primary Sample System during the recovery phase of an accident (post accident) in conjunction with Appendix F.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) shall be supplying cooling water to the sample heat exchangers.
2. Normal Primary Sample System must be operational.
3. The Primary Sample Fume Hood Ventilation must be operational. If fume hood ventilation is not operable, unacceptable levels of noble gases will be present in the sample sink and adjacent area.
4. Health Physics shall issue a specific RWP and provide HP coverage during recovery phase RCS sampling evolutions.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. If a CIS has occurred, the solenoid valves to sample the RCS (V5200 & V5203) can not be opened until the Control Room overrides the CIS signal and the valves are RESET.
4. DO NOT apply system pressure to the Hot Leg sample line without the Undiluted Sample Cask installed.
5. ¶1 Solenoid valves for the Hot Leg sample line should be closed after sampling.
6. Minimize contact with reactor coolant samples.
7. Temperature of the samples should be less than 120 degrees F.

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 2 of 8)

3.0 PRECAUTIONS / LIMITATIONS (continued)

8. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

9. Refer to Appendix F Section 4, "Post-Accident Liquid Sample Contingency Plan Guidelines" for additional guidelines, considerations and recommendations.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

2. Completed test results shall be maintained in the plant files.

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 3 of 8)

5.0 INSTRUCTIONS — INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix D Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix D Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose, including the use of shielding. _____
6. Discuss task objective. _____
7. Discuss specific RWP requirements. _____

5.2 Making Preparations

1. Move the Undiluted Sample Cask from the Unit 2 PASS Room to the Unit 1 Primary Sample Room. _____
2. Make necessary modifications to the Undiluted Sample Cask flexible sample lines to ensure they are long enough to reach inside the Primary Sample Room Fumehood. _____
3. Connect the Undiluted Sample Cask flexible sample lines to the Hot Leg sample line quick disconnect fittings. _____

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 4 of 8)

5.3 Obtaining An Undiluted RCS Hot Leg Sample — INITIAL

1. If RCS Hot Leg sample is already lined up to the VCT, Then PROCEED to Step 5.3.6. _____

2. If RCS Hot Leg sample is secured, Then ENSURE the following valves are CLOSED:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5138	Sample Sink RC Coolant Sample Isol	CLOSED	
V5102	RC Sample Vessel Assembly Inlet Isol	CLOSED	
V5105	RC Sample Vessel Assembly Outlet Isol	CLOSED	
V5106	RC Sample Vessel Assembly Bypass	CLOSED	
V5107	RC Sample Vessel Assembly Outlet Throttle	CLOSED	
V5200	1A Hot Leg Loop Sample Isol	CLOSED	
V5203	1A Hot Leg Loop Sample Isol	CLOSED	
V5778 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Inlet Isol	CLOSED	
V5779 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Outlet Isol	CLOSED	

3. To Recirculate / flush to the VCT, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5150	Purge To Flash Tank Isol	CLOSED	
V5152	Purge To VCT Isol	OPEN	

4. To Recirculate / flush to the Flash Tank, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5150	Purge To Flash Tank Isol	OPEN	
V5152	Purge To VCT Isol	CLOSED	

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 5 of 8)

5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

5. OPEN the following valves in the order listed: (Operated from the sample room)

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5200	1A Hot Leg Loop Sample Isol	OPEN	
V5203	1A Hot Leg Loop Sample Isol	OPEN	
V5106	RC Sample Vessel Assembly Bypass	OPEN	

CAUTION

- Dose rates will increase dramatically after RCS sample flow has been established (V5107 open).
- Do not exceed 50 psi on PI-5550, "Sample Purge HDR Press" when throttling flow.

6. THROTTLE OPEN V5107, RC Sample Vessel Assembly Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

7. OPEN the following valves on the Undiluted Sample Cask:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5778 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Inlet Isol	OPEN	
V5779 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Outlet Isol	OPEN	

8. Slowly OPEN V5105, RC Sample Vessel Assembly Outlet Isol. _____

9. OPEN V5102, RC Sample Vessel Assembly Inlet Isol. _____

10. CLOSE V5106, RC Sample Vessel Assembly Bypass. _____

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 6 of 8)

5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

11. ADJUST flow using V5107, RC Sample Vessel Assembly Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

12. Go to an area with lower dose rates. _____

13. REQUEST HP to monitor sample room dose rates, as necessary. _____

14. REQUEST HP to perform general area radiation surveys at the designated flush location (VCT or Flash Tank) to monitor increase in dose rates. _____

15. ALLOW RCS to recirculate / flush for the amount of time it takes for at least 12 gallons to recirculate / flush (i.e. 15 minutes at 0.8 GPM). _____

NOTE
This sample is only pressurized to VCT or Flash Tank pressure.

16. CLOSE the following valves in the order listed:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5200	1A Hot Leg Loop Sample Isol	CLOSE	
V5203	1A Hot Leg Loop Sample Isol	CLOSE	
V5778 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Inlet Isol	CLOSE	
V5779 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Outlet Isol	CLOSE	

17. Note date and time of sample. _____

Date: _____ Time: _____

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 7 of 8)

5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

18. OPEN V5145, Isol Vlv For Demin Water To Smpl Sink, to begin rinsing the sink, which will reduce airborne radioactivity and minimize contamination. _____

19. OPEN the following valves to allow system to depressurize:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5106	RC Sample Vessel Assembly Bypass	OPEN	
V5138	Sample Sink RC Coolant Sample Isol	OPEN	

20. When pressure is approximately zero on PI-5510, Pressure Indicator for RC Coolant Smpl Vessel Assy Inlet, Then CLOSE the following valves:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5102	RC Sample Vessel Assembly Inlet Isol	CLOSE	
V5105	RC Sample Vessel Assembly Outlet Isol	CLOSE	
V5138	Sample Sink RC Coolant Sample Isol	CLOSE	

21. Carefully disconnect the Undiluted Sample Cask and REPLACE with a normal RCS gas sample bomb. _____

22. RINSE sample sink with Demin water. _____

23. CLOSE V5145, Isol Vlv for Demin Water to Smpl Sink. _____

APPENDIX I
OBTAINING A UNIT 1 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

NOTE
In accordance with ADM-17.06, the NPS or ANPS can waive the Independent Verification requirement if significant radiation exposure (exposure levels greater than 1000 mR/hr) is involved.

24. To secure the RCS Hot Leg sample lineup PERFORM the following valve lineup:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	PERF INITIAL	IV INITIAL
V5200	1A Hot Leg Loop Sample Isol	CLOSED		
V5203	1A Hot Leg Loop Sample Isol	CLOSED		
V5145	Isol Vlv For Demin Water To Smpl Sink	CLOSED		
V5138	Sample Sink RC Sample Isol	CLOSED		
V5102	RC Sample Vessel Assembly Inlet Isol	CLOSED		
V5105	RC Sample Vessel Assembly Outlet Isol	CLOSED		
V5150	Purge To Flash Tank Isol	CLOSED		
V5106	RC Sample Vessel Assembly Bypass	OPEN		
V5152	Purge To VCT Isol	OPEN		

25. TRANSPORT the sample to the assigned storage location. _____

Date / Time Lineup Secured ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(Independent Verifier)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX I

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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1.0 PURPOSE

To provide instructions for obtaining a Unit 2 undiluted RCS sample from the Normal Primary Sample System during the recovery phase of an accident (post accident) in conjunction with Appendix F.

2.0 PREREQUISITES

1. Component Cooling Water (CCW) shall be supplying cooling water to the sample heat exchangers.
2. Normal Primary Sample System must be operational.
3. The Primary Sample Fume Hood Ventilation must be operational. If fume hood ventilation is not operable, unacceptable levels of noble gases will be present in the sample sink and adjacent area.
4. Health Physics shall issue a specific RWP and provide HP coverage during recovery phase RCS sampling evolutions.

3.0 PRECAUTIONS / LIMITATIONS

1. It is preferable to recirculate / flush samples back to the VCT. The Flash Tank is the second choice. The flow path shall be determined and discussed during the pre-job brief.
2. The Control Room must be notified prior to recirculating or flushing samples to the Flash Tank.
3. If a CIS has occurred, the solenoid valves to sample the RCS (V5200 & V5203) can not be opened until the Control Room overrides the CIS signal and the valves are RESET.
4. DO NOT apply system pressure to the Hot Leg sample line without the Undiluted Sample Cask installed.
5. ¶1 Solenoid valves for the Hot Leg sample line should be closed after sampling.
6. Minimize contact with reactor coolant samples.
7. Temperature of the samples should be less than 120 degrees F.

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 2 of 9)

3.0 PRECAUTIONS / LIMITATIONS (continued)

8. A Reader-Doer team should be used to minimize time and radiation exposure. This process includes:

- Reader reads the step.
- Reader and Doer shall use 3-way communication.
- Doer performs step.
- Reader observes step taken and initials for performing the step.

9. Refer to Appendix F Section 4, "Post-Accident Liquid Sample Contingency Plan Guidelines" for additional guidelines, considerations and recommendations.

4.0 RECORDS REQUIRED

1. A completed copy of this appendix shall be maintained in the plant files in accordance with QI-17-PSL-1, Quality Assurance Records.

2. Completed test results shall be maintained in the plant files.

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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5.0 INSTRUCTIONS — INITIAL

5.1 Pre Job Brief

1. Discuss with Health Physics the radiological controls for the task. _____
2. Discuss Chemistry personnel responsibilities. _____
3. Ensure that Appendix D Section 2.0, Prerequisites are complete. _____
4. Ensure that Appendix D Section 3.0, Precautions / Limitations has been reviewed. _____
5. Discuss methods to minimizing radiation dose, including the use of shielding. _____
6. Discuss task objective. _____
7. Discuss specific RWP requirements. _____

5.2 Making Preparations

1. Move the Undiluted Sample Cask from the Unit 2 PASS Room to the Unit 2 Primary Sample Room. _____
2. Make necessary modifications to the Undiluted Sample Cask flexible sample lines to ensure they are long enough to reach inside the Primary Sample Room Fumehood. _____
3. Connect the Undiluted Sample Cask flexible sample lines to the Hot Leg sample line quick disconnect fittings. _____

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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5.3 Obtaining An Undiluted RCS Hot Leg Sample — INITIAL

1. If RCS Hot Leg sample is already lined up to the VCT, Then PROCEED to Step 5.3.7. _____

2. If RCS Hot Leg sample is secured, Then ENSURE the following valves are CLOSED:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5138	Isol Vlv for Sample Sink RC Sample	CLOSED	
V5303	RC Sample Vessel Assembly Inlet	CLOSED	
V5305	RC Sample Vessel Assembly Outlet	CLOSED	
V5304	RC Sample Vessel Assembly Bypass	CLOSED	
V5107	RC Sample Vessel Assembly Outlet Throttle	CLOSED	
V5200	Hot Leg	CLOSED	
V5203	Hot Leg	CLOSED	
V5778 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Inlet Isol	CLOSED	
V5779 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Outlet Isol	CLOSED	

3. To Recirculate / flush to the VCT, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	CLOSED	
V5150	Sample Outlet Hdr Purge to VCT Isol	OPEN	

4. To Recirculate / flush to the Flash Tank, position the valves as follows:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	OPEN	
V5150	Sample Outlet Hdr Purge to VCT Isol	CLOSED	

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
(Page 5 of 9)

5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

NOTE
V5200 may NOT open or indicate open until V5203 is opened.

5. NOTIFY the Unit 2 Control Room to reset the following valves:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5200	Hot Leg	CLOSED	
V5203	Hot Leg	CLOSED	

6. OPEN the following valves:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5200	Hot Leg	OPEN	
V5203	Hot Leg	OPEN	
V5304	RC Sample Vessel Assembly Bypass	OPEN	

CAUTION
- Dose rates will increase dramatically after RCS sample flow has been established.
- Do not exceed 50 psi on PI-5550, "Sample Purge HDR Press" when throttling flow.

7. THROTTLE OPEN V5107, RC Sample Vessel Assembly Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

8. OPEN the following valves on the Undiluted Sample Cask:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5778 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Inlet Isol	OPEN	
V5779 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Outlet Isol	OPEN	

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) — INITIAL

9. Slowly OPEN V5305, RC Sample Vessel Assembly Outlet. _____

10. OPEN V5303, RC Sample Vessel Assembly Inlet. _____

11. CLOSE V5304, RC Sample Vessel Assembly Bypass. _____

12. ADJUST flow using V5107, RC Sample Vessel Assembly Outlet Throttle, to establish flowrate at 0.4 to 1.0 GPM as indicated on FI-5550, Purge / Sample To VCT or Flash Tank Flow. (0.8 GPM is preferred) _____

13. Go to an area with lower dose rates. _____

14. REQUEST HP to monitor sample room dose rates, as necessary. _____

15. REQUEST HP to perform general area radiation surveys at the designated flush location (VCT or Flash Tank) to monitor increase in dose rates. _____

16. ALLOW RCS to recirculate / flush for the amount of time it takes for at least 12 gallons to recirculate / flush (i.e. 15 minutes at 0.8 GPM). _____

NOTE
This sample is only pressurized to VCT or Flash Tank pressure.

17. CLOSE the following valves in the order listed:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5203	Hot Leg	CLOSE	
V5778 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Inlet Isol	CLOSE	
V5779 (on cart)	Grab Smpl Facil Undil Depressurized Liq Smpl Vessel Outlet Isol	CLOSE	

18. Note date and time of sample. _____

Date: _____ Time: _____

APPENDIX J
OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

19. OPEN V5145, Isol Vlv For Demin Water To Smpl Sink, to begin rinsing the sink, which will reduce airborne radioactivity and minimize contamination. _____

20. OPEN the following valves to allow system to depressurize:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5304	RC Sample Vessel Assembly Bypass	OPEN	
V5138	Isol Vlv for Sample Sink RC Sample	OPEN	

21. When pressure is approximately zero on PI-5510, Pressure Indicator for RC Sample Vessel Assembly Inlet, Then CLOSE the following valves:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	INITIAL
V5303	RC Sample Vessel Assembly Inlet	CLOSE	
V5305	RC Sample Vessel Assembly Outlet	CLOSE	
V5138	Isol Vlv for Sample Sink RC Sample	CLOSE	

22. Carefully disconnect the Undiluted Sample Cask and REPLACE with a normal RCS gas sample bomb. _____

23. RINSE sample sink with Demin water. _____

24. CLOSE V5145, Isol Vlv for Demin Water to Smpl Sink. _____

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OBTAINING A UNIT 2 POST ACCIDENT UNDILUTED RCS SAMPLE FROM THE NORMAL PRIMARY SAMPLE SYSTEM
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5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

NOTE
In accordance with ADM-17.06, the NPS or ANPS can waive the Independent Verification requirement if significant radiation exposure (exposure levels greater than 1000 mR/hr) is involved.

25. To secure the RCS Hot Leg sample lineup PERFORM the following valve lineup:

COMPONENT ID	COMPONENT AND / OR TAG DESCRIPTION	POSITION	PERF INITIAL	IV INITIAL
V5203	Hot Leg	CLOSED		
V5200	Hot Leg	CLOSED		
V5145	Isol Vlv for Demin Water to Smpl Sink	CLOSED		
V5138	Isol Vlv for Sample Sink RC Sample	CLOSED		
V5303	RC Sample Vessel Assembly Inlet	CLOSED		
V5305	RC Sample Vessel Assembly Outlet	CLOSED		
V5152	Sample Outlet Hdr Purge to Flash Tank Isol	CLOSED		
V5304	RC Sample Vessel Assembly Bypass	OPEN		
V5150	Sample Outlet Hdr Purge to VCT Isol	OPEN		

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5.3 Obtaining An Undiluted RCS Hot Leg Sample (continued) INITIAL

26. TRANSPORT the sample to the assigned storage location. _____

Date / Time Lineup Secured ____/____/____ _____

(Doer or Performed by)
Initials: _____ _____ _____
Signature Printed Name

(Reader if applicable)
Initials: _____ _____ _____
Signature Printed Name

(Independent Verifier)
Initials: _____ _____ _____
Signature Printed Name

(OSC) Chemistry Supervisor _____ _____
Signature Printed Name

Reviewed Date / Time ____/____/____ _____

END OF APPENDIX J

APPENDIX K
SHIELDING LAYOUT
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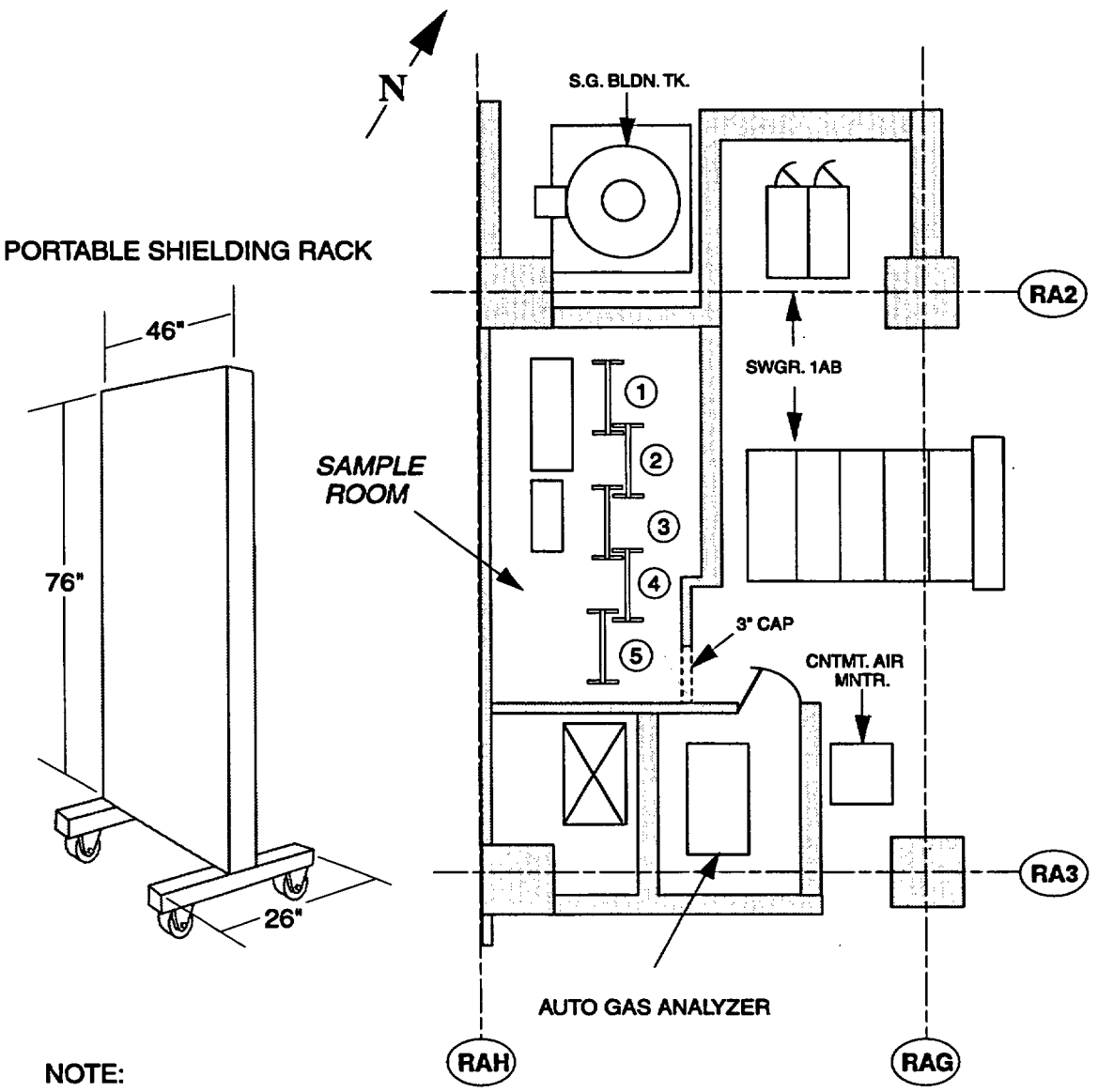
UNIT #1



NOTE:

1.) RACKS SHOULD BE INSTALLED STARTING AT SAMPLE SINK

2.) THERE IS A 3" INCH CAP AT THE ENTRANCE TO SAMPLE ROOM. SHIELDING MAY NEED TO BE ADDED TO RACKS INSIDE SAMPLE ROOM.

APPENDIX K
SHIELDING LAYOUT
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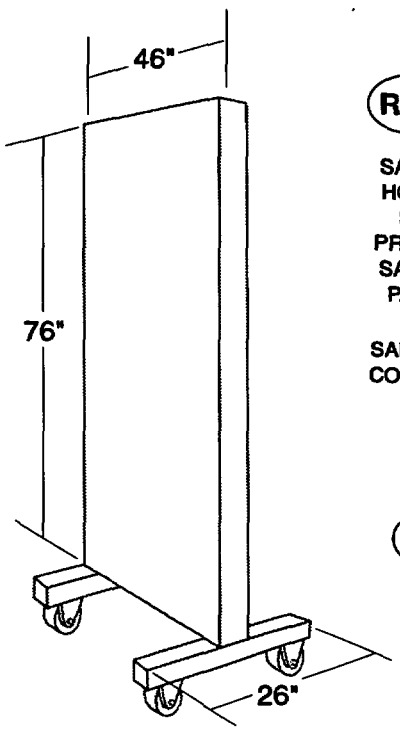
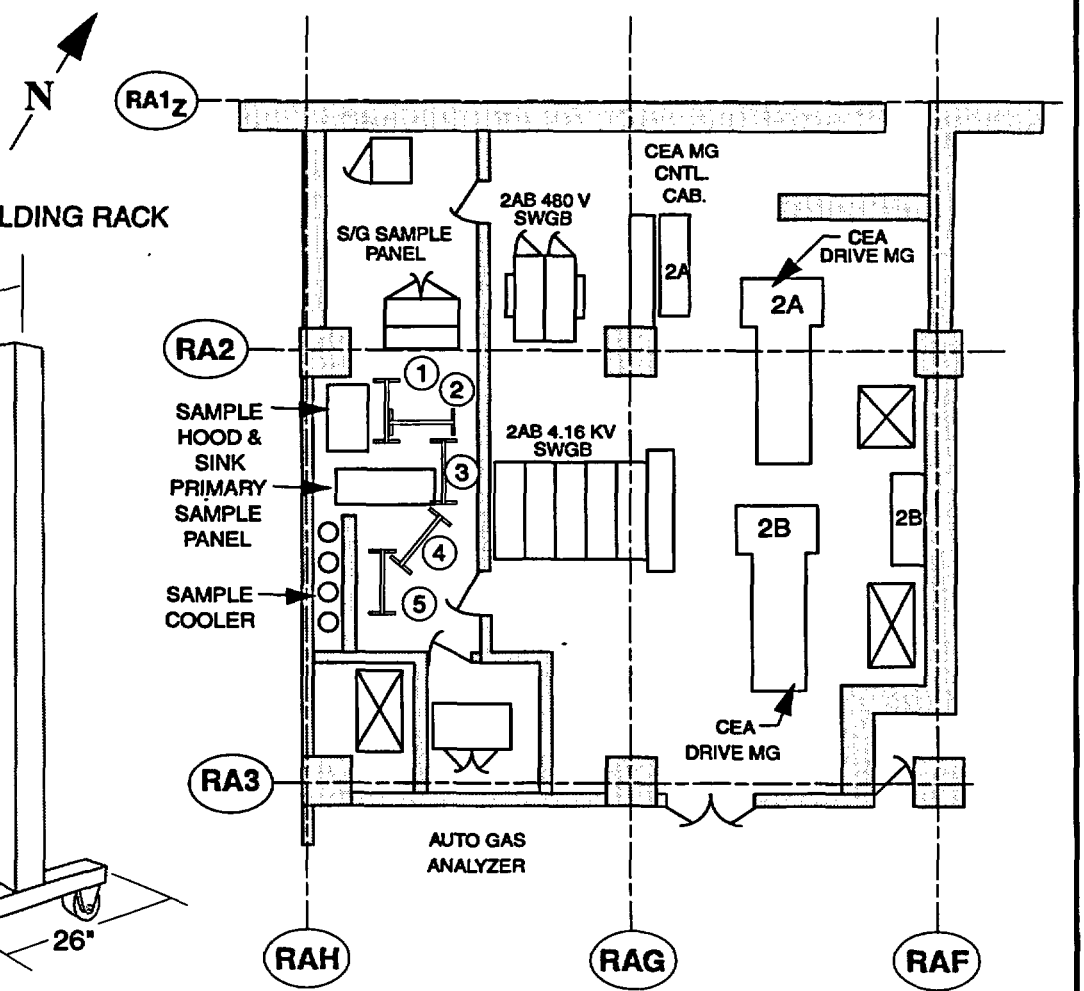
UNIT #2

PORTABLE SHIELDING RACK





NOTE:

1.) RACKS SHOULD BE INSTALLED STARTING AT SAMPLE SINK (TO FIT THRU NARROW SPACE AT SPACE AT VALVE PANEL)

2.) THERE IS A 3" INCH CAP AT THE ENTRANCE TO SAMPLE ROOM. SHIELDING MAY NEED TO BE ADDED TO RACKS INSIDE SAMPLE ROOM.

(P/CHEM/COP0606-F2-R0)