!,print 103
!,end

Revision 33
Effective Date 01/06/
Page 1 of 3

CONTROLLED

TABLE OF CONTENTS
EMERGENCY PLAN IMPLEMENTATION PROCEDURE MANUAL

FORM NUMBER	TITLE	REVISION	EFFECTIVE DATE
EP-IP-001	Emergency Classification	1	6/28/83
EP-IP-002	Emergency Management Notification	2	9/15/83
EP-IP-003	Emergency Management Responsibilities	0	6/16/82
EP-IP-006	Search/Rescue/First Aid	0	6/16/82
EP-IP-007	Personnel Assembly and Accountability	2	7/19/83
EP-IP-008	Natural Occurrences	0	6/16/82
EP-IP-009	Emergency Off-Site Dose Calculations	2	10/14/83
EP-IP-010	In-Plant Emergency Monitoring	0	6/16/82
EP-IP-011	Security Contingency	1	12/12/83
EP-IP-012	On-site Emergency Monitoring	1	1/4/83
EP-IP-013	Off-site Emergency Monitoring Teams	2	9/08/83
EP-IP-014	Personnel and Vehicle Containment Surveys	1	2/22/83
EP-IP-015	Emergency Access	1	12/18/83
EP-IP-016	Damage Control	0	6/16/82
EP-IP-017	Toxic Material	0	6/16/82
EP-IP-018	Emergency Call-in and Communications	1	8/31/83
EP-IP-019	Management of Off-site Emergency Monitoring	1	9/08/83
EP-IP-021	Site Emergency Evacuation	2	3/18/83
EP-IP-022	Shift Turnover During an Emergency	0	12/28/83

FORM NUMBER	TITLE	REVISION	EFFECTIVE DATE
EP-IP-027	Activation of Restoration Organization	0	6/16/82
EP-IP-028	Downgrade and Termination	0	6/16/82
EP-IP-029	Activation of TSC	0	6/16/82
EP-IP-030	Activation and Functional Operation of Emergency Facility and Transfer of Control From the Technical Support Center	2	9/05/83
EP-IP-031	Public Information Emergency Procedures	0	6/16/82
EP-IP-032	General Office Activation	0	6/16/82
EP-IP-033	Dose Assessment and Protective Actions	0	6/28/82
EP-IP-034	Reactor Building Sample Station Emergency Sampling	3	01/06/84
EP-IP-035	Emergency Vent Monitor Sampling	2	12/28/83
EP-IP-038	Reconstruction and Accident Close out	0	6/16/82
EP-IP-041	Fire Emergencies	1	2/28/83
EP-IP-042	In-Plant and EOF Chemistry Lab. Emergency Preparation	2	01/06/84
EP-IP-043	Pass Small Volume Liquid Sample	3	12/28/83
EP-IP-044	Emergency Environmental Sampling	2	4/18/83
EP-IP-045	Pass 10-ML Gas Sample	3	12/28/83
EP-IP-046	Pass Iodine/Particulate Sample	3	12/28/83
EP-IP-047	Pass Large Liquid/Dissolved Gas Sample	3	12/28/83
EP-IP-048	Estimation of Core Damage During an Emergency	0	9/17/82
EP-IP-101	Inventory, Inspection, Operational Testing and Calibration of Emergency Equipment and Supplies	1	10/14/83

FORM NUMBER	TITLE	REVISION	EFFECTIVE DATE
EP-IP-102	Surveillance Testing of Emergency Communications Equipment	1	10/14/83
EP-IP-103	Review, Update, Control, and Distribution of the SSES Emergency Plan and Implementing Procedures	1	11/11/83

CONTROLLED

FORMS INDEX
EMERGENCY PLAN IMPLEMENTATION PROCEDURE MANUAL

PROCEDURE NO.	TITLE	REV.	EFFECT. DATE
EP-IP-002-1	Incident Form	1	1/20/83
EP-IP-002-2	Radiological Assessment Form	2	9/15/33
EP-IP-009-1	Data Sheet 2 Worksheet for Dose Calculation Recording	2	10/14/33
EP-IP-009-2	Overlay Calculation Worksheet	1	10/14/83
EP-IP-009-3	Population Dose Worksheet	0	10/14/83
EP-IP-004-4	Back Calculation Worksheet	0	10/14/83
EP-IP-012-1	On-site Monitoring Team Data Sheet	1	1/4/83
EP-IP-013-1	Off-site Monitoring Team Data Sheets	2	DELETED
EP-IP-013-2	Emergency Kit Inventory Kit	0	DELETED
EP-IP-013-3	Air Sample Data SHeeT	0	9/08/83
EP-IP-013-4	Radiation Survey and SRD Data	0	9/08/83
EP-IP-013-5	Radiation Emergency Offsite Monitoring Equipment Kit	0	9/08/83
EP-IP-019-1	Off-site Emergency Teams	0	6/16/82
EP-IP-019-2	Off-site Teams - Dose Readings	0	6/16/82
EP-IP-022-1	Nuclear Emergency Repsonse Organization Shift Turnover Checklist	0	12/28/83
EP-IP-034-1	Reactor Building Sample Station Emergency Sampling Data Sheet	1	01/06/84
EP-IP-035-1	Vent Monitor Samples Data Sheet	0	12/28/83
EP-IP-035-2	Vent Monitor Samples Data Sheet	1	12/28/83
EP-IP-043-1	Pass Small Volume Liquid Sample Data Sheet	2	12/28/8
EP-IP-044-1	Data Sheet	0	6/16/82

PROCEDURE NO.	TITLE	REV.	EFFECT. DATE
EP-IP-044-3	Personnel Exposure of Environmental Sample Collectors	0	1/21/83
EP-IP-045-1	Pass 10ML Gas Sample Data Sheet	1	12/28/83
EP-IP-046-1	Pass Iodine/Particulate Sample Data Sheet	1	12/28/83
EP-IP-047-1	Dissolved Gas Sample Data Sheet	2	12/28/83
EP-IP-101-1	Emergency Operations Facility Equipment (excluding HP equipment)	0	7/16/82
EP-IP-101-2	Radiation Emergency Environmental Sample Kit	1	10/14/83
EP-IP-101-3	General Office Nuclear Emergency Support Center Emergency Equipment and Supplies	0	7/16/82
EP-IP-101-4	General Office Engineering Support Center Emergency Equipment and Supplies	0	7/16/82
EP-IP-101-5	Berwick Hospital Radiation Emergency Equipment and Supplies	0	7/16/82
EP-IP-101-6	Geisinger Medical Center Radiation Emergency Equipment and Supplies	0	7/16/82
EP-IP-101-7	Health Physics Van Radiation Emergency Monitoring Equipment	0	7/16/82
EP-IP-101-8	Radiation Emergency Off-Site Monitoring Equipment Kit	1	10/14/83
EP-IP-101-9	Ambulance Emergency Equipment Kit	0	7/16/82
EP-IP-101-10	Control Room Equipment	0	7/16/82
EP-IP-101-11	Station Decontamination Area Equipment	0	7/16/82
EP-IP-101-12	Emergency operation Facility Decontamination Area and Health Physics Supplies	1	10/14/83
EP-IP-101-13	Technical Support Center Equipment	0	7/16/82

PROCEDURE NO.	TITLE	REV.	EFFECT. DATE
EP-IP-101-14	Emergency On-Site Search and Rescue First Aid Equipment	0	7/16/82
EP-IP-101-15	Damage Control Equipment Storage Box	0	7/16/82
EP-IP-102-1	Emergency Operations Facility Hotlines to State and Local Agencies	1	10/14/83
EP-IP-102-2	Emergency Operations Facility Hotlines to Regulatory Commission	1	10/14/83
EP-IP-102-3	Emergency Operations Facility Hotlines to PP&L Emergency Facilities	1	10/14/83
EP-IP-102-4	Control Room and Technical Support Center Hotlines to State and Local Agencies	1	10/14/83
EP-IP-102-5	Control Room and Technical Support Center Hotlines to the Nuclear Regulatory Commission	0	DELETED
EP-IP-102-6	Operations Support Center, Control Room and Technical Support Center Hotlines to PP&L Emergency Facilities	1	10/14/83
EP-IP-102-7	Emergency Radios	1	10/14/83
EP-IP-102-8	Offsite Agency Emergency Contact List	1	10/14/83
EP-IP-103-1	EP-IP Change Request	1	11/11/83
EP-IP-103-2	EP-IP-Change Request	0	11/11/83
EP-IP-103-3	EP-IP Change Request Log	0	11/11/83

PROCEDURE COVER SHEET

PENNSYLVANIA POWER & LIGHT CO. SUSQUEHANNA STEAM ELECTRIC STATION	
REACTOR BUILDING SAMPLE STATION EMERGENCY SAMPLING	EP-IP-034 Revision 3 Page 1 of 12

Effective Date 1-16-84 Expiration Date 1-16-86

Revised Expiration Date _____

PROCEDURE TYPE: PORC ✓, NON-PORC ____. Alternate Review ____

PORC MTG. NO. 83-265 (If applicable)

CONTROLLED

Prepared by Lenore K Vrunk Date 11-11-83

Reviewed by Raymond E. Doebler Date 11-12-83

Recommended: _____ Date 11/16/83
Section Head/Manager

_____ Date 1-5-84
Superintendent of Plant

TABLE OF CONTENTS

ATTACHMENTS

1.0 PURPOSE

The purpose of this procedure is to outline the steps that shall be followed while sampling potentially highly radioactive water from the Reactor Building chemistry sampling hood (Level 779') following an incident that could involve fuel degradation.

2.0 SCOPE

To provide the Chemistry Department with instructions and guidelines for obtaining and preparing for analysis a potentially highly radioactive sample from the Reactor Building chemistry sampling hood (Level 779') during Emergency Conditions.

3.0 REFERENCES

3.1 SSES Emergency Plan

3.2 EP-IP-010, In-Plant Emergency Monitoring

3.3 EP-IP-033, Dose Assessment and Protective Actions

3.4 EP-IP-042, Chemistry Lab Emergency Preparation

4.0 RESPONSIBILITIES

4.1 The EMERGENCY DIRECTOR or designated COORDINATOR is responsible for instructing, directing, and dispatching the CHEMISTRY SAMPLING TEAM.

4.2 The CHEMISTRY SAMPLING TEAM is responsible for obtaining potentially highly radioactive samples from the Reactor Building chemistry sampling hood (Level 779') in accordance with this procedure.

5.0 DEFINITIONS

SCBA - Self - Contained Breathing Apparatus

6.0 INSTRUCTIONS

6.1 The EMERGENCY DIRECTOR or designated COORDINATOR will follow instructions in Attachment A, Action Step-EMERGENCY DIRECTOR, OSC COORDINATOR, TSC COORDINATOR.

6.2 The CHEMISTY SAMPLING TEAM will follow instructions in Attachment B, Action Step-CHEMISTRY SAMPLING TEAM.

6.3 Chemistry Personnel will follow instructions in Attachment C, Sample Dilution and Analysis.

ACTION STEP
EMERGENCY DIRECTOR
OSC COORDINATOR
TSC COORDINATOR

CHECK

A.1.0 The EMERGENCY DIRECTOR or designated COORDINATOR will:

___ A.1.1 Direct the activities of the CHEMISTRY SAMPLING TEAM.

___ A.1.2 Brief TEAM on existing emergency and instruct personnel as to what samples are required.

___ A.1.3 Appoint a TEAM LEADER.

NOTE: CONSIDER SPECIAL REQUIREMENTS FOR MINIMIZING INTERNAL AND EXTERNAL EXPOSURE PER EP-IP-033, "DOSE ASSESSMENT AND PROTECTION ACTION".

___ A.1.4 Instruct the RADIO COMMUNICATOR in TSC (if TSC is activated) to assign code name to TEAM and to maintain communications with TEAM LEADER.

___ A.1.5 Coordinate with the RADIATION PROTECTION COORDINATOR respiratory protective devices and protective clothing requirements needed for this sampling function. Obtain latest survey results from Reactor Building level 779' including reading from ARM-11 (if available).

___ A.1.6 Assign additional SAMPLING PERSONNEL to assist or relieve TEAM as circumstances dictate.

___ A.1.7 Advise the EMERGENCY DIRECTOR immediately of any conditions or survey results that may be of assistance in evaluating the Emergency Condition.

___ A.1.8 Inform the EMERGENCY DIRECTOR of the CHEMISTRY SAMPLING TEAM results.

ACTION STEP
CHEMISTRY SAMPLING TEAM

CHECK

B.1.0 The CHEMISTRY SAMPLING TEAM will:

NOTE: All Unit 2 valve numbers are shown in parentheses after the Unit 1 numbers.

____ B.1.1 Upon notification of an EMERGENCY, report immediately where instructed for briefing and assignment.

____ B.1.2 Obtain from the COORDINATOR:

a. Specific sample requested.

b. Anticipated area radiation readings including the reading of ARM-11 in the sampling room.

c. Special instructions including respiratory protection requirements, protective clothing requirements, and radiation detection instrument selection.

____ B.1.3 Ensure the chemistry laboratory is prepared per EP-IP-042, as necessary.

____ B.1.4 Assemble or locate the following equipment:

a. Respiratory protective devices and protective clothing specified by COORDINATOR.

b. Hi-range dosimetry and extremity dosimetry.

c. Survey meter

d. Sampling bottles

e. Surgeons gloves

f. Plastic bags

g. Stopwatch

___ B.1.5 Perform instrument checks on survey meter.

___ B.1.6 Request Operations to check open the sample trip valves, HV-1F019 and HV-1F020 (HV-2F019 and HV-2F020).

___ B.1.7 Don protective clothing and respiratory protective device as specified by the COORDINATOR.

___ B.1.8 Assure that TLD and SRD are worn.

___ B.1.9 Ensure survey meter is operational and on highest range before leaving chemistry laboratory.

___ B.1.10 Proceed to sampling station and while enroute continuouly monitor radiation levels and the status of CAM's and ARM's.

a. If general area radiation levels exceed 1,000 mrem/hr. at any time during this procedure, retreat to a low background area and notify the COORDINATOR.

b. If your total quarterly whole-body exposure approaches 2,500 mrem, terminate the mission and notify the COORDINATOR.

___ B.1.11 Upon arriving at the sample room, proceed to the SOUTHWEST door and determine radiation levels in the general area of the door and also obtain contact readings of the door.

a. If general area and contact readings are > 1,000 mrem/hr., retreat to a low background area and notify the COORDINATOR.

b. If general area and contact readings are < 1,000 mrem/hr., open the sampling room door and proceed into the room while continuously monitoring radiation levels.

NOTE: THE WORK AREA SHALL BE CONTINUOUSLY MONITORED BEFORE, DURING, AND AFTER THE SAMPLE COLLECTION. IF RADIATION LEVELS EXCEED 1,000 mrem/hr. AT ANY TIME DURING THIS PROCEDURE, SHUT THE SAMPLE VALVE, RETREAT TO A LOW BACKGROUND AREA AND NOTIFY THE COORDINATOR.

___ B.1.12 If hood ventilation is not functioning properly, retreat and notify the COORDINATOR.

___ B.1.13 Open the valve for the appropriate sample and flush for thirty (30) seconds.

___ B.1.14 Collect up to approximately 100 ml of sample while monitoring to assure the contact dose rate does not exceed 5000 mrem/hr. Minimize the time in close proximity to the sample. Use remote handling devices where appropriate.

___ B.1.15 Shut the sample valve and cap sample bottle.

___ B.1.16 Place the sample bottle in a plastic bag and obtain contact dose rate. Notify COORDINATOR of sample volume and contact dose rate.

___ B.1.17 Record: Sample Time, Sample Date, and Contact Dose Rate.

___ B.1.18 If dose rate exceeds 100 mrem/hr. place the sample in a lead cask. The cask will be stored in the sample station.

___ B.1.19 Remove the cask from the sample room and take contact readings.

a. If contact readings are > 1,000 mrem/hr., notify the COORDINATOR.

b. If contact readings are < 1,000 mrem/hr., transport sample back to chemistry laboratory for dilution and notify the COORDINATOR that sampling is completed.

SAMPLE DILUTION AND ANALYSIS

CHECK

C.1.0 Chemistry Personnel will:

____ C.1.1 Place the sample behind the lead brick shield in the fume hood in the Sample Prep Room upon returning from the Sample Station.

____ C.1.2 Pipette 10 ml of the sample into a numbered liquid sample vial.

____ C.1.3 Obtain an approximate contact dose rate for the sample.

____ C.1.4 Using the dose rate from Step C.1.3 and the following table as a guide, determine the approximate number and type of dilutions which will give a 10 ml sample with a contact dose rate in the range of 0.05 to 0.5 mrem/hr.

Sample Vial Dose Rate (mrem/hr.)	Dilution (ml)
0-0.5	count as is
0.5-5	1 to 10
5-50	0.1 to 10
50-500	0.1 to 10 and 1 to 10
500-5000	0.1 to 10 (2X)
5000-50,000	0.1 to 10 (2X) and 1 to 10
50,000-500,000	0.1 to 10 (3X)

____ C.1.5 Based on the number and type of dilutions determined above, fill labeled liquid vials with diluent (0.01 N nitric acid) as follows:

a. For 1 to 10 dilution use 9 ml of diluent

b. For 0.1 to 10 dilution use 9.9 ml of diluent

____ C.1.6 Make all dilutions by pipetting 0.1 ml or 1 ml aliquots of sample directly into the appropriate prefilled liquid vial to give a final volume of 10 ml.

___ C.1.7 Cap and identify all vials.

___ C.1.8 Record the number and types of dilutions.

___ C.1.9 When a diluted sample reads less than 0.5 mrem/hr., wrap in clean plastic film and place in a clean plastic bag.

___ C.1.10 Take the sample to the Low Level Radiochemistry Lab, remove from bag and wrap in a second piece of clean plastic film.

___ C.1.11 Take sample to Counting Room for analysis.

___ C.1.12 Perform a quantitative isotopic analysis on the sample, decay correcting to the time of sampling.

___ C.1.13 Record: count date, time, geometry, and activity of those isotopes listed on the Data Sheet, Attachment D to this procedure.

___ C.1.14 As soon as Attachment D is completed, relay all data to the COORDINATOR.

___ C.1.15 Repeat Action Steps - C.1.2-C.1.10 to provide samples for boron, chloride, and pf analyses.

a. Reference CH-CC-043, "Analytical Procedures for DR/EL-? Portable Lab," to perform boron analysis.

b. Reference CH-CC-010, "Chloride - Silver Nitrate Turbidimetric Method", to perform chloride analysis.

c. Obtain a cursory determination of the pH of the sample.

___ C.1.16 Complete boron, chloride, and pH analyses and record all results on Attachment A to CH-GI-031, "High Purity Water Analyses Worksheet".

___ C.1.17 Notify the Coordinator of the results of the boron, chloride and pH analyses.

C.1.18 Place the original sample plus all dilutions in a lead brick storage cave in the Sample Prep Room.

REACTOR BUILDING SAMPLE STATION
EMERGENCY SAMPLING
DATA SHEET

Ref. Step
B.1.2a SAMPLE SOURCE_____

TEAM MEMBERS_____

B.1.19 SAMPLE TIME_____ SAMPLE DATE_____

B.1.19 CONTACT DOSE RATE ON SAMPLE_____

C.1.0

SAMPLE	ORIGINAL	A	B	C	D	E	F
SAMPLE #							
DILUTION FACTOR	1						
DOSE RATE							

C.1.13 COUNT DATE/TIME _____/_____ COUNT BY_____

GEOMETRY_____

ISOTOPE	ACTIVITY uCi/ml
131 I	
137 Cs	

Dose Equiv. I-131 _____uCi/gm

PROCEDURE COVER SHEET

PENNSYLVANIA POWER & LIGHT CO.
SUSQUEHANNA STEAM ELECTRIC STATION

IN-PLANT AND EOF CHEMISTRY LAB EMERGENCY PREPARATION

EP-IP-042
Revision 2
Page 1 of 9

Effective Date 1-16-84 Expiration Date 1-16-86

Revised Expiration Date _____

PROCEDURE TYPE: PORC ✓, NON-PORC ____, Alternate Review ____

PORC MTG. NO. 83-265 (If applicable)

CONTROLLED

Prepared by J. L. Hoyo Date 12-21-83

Reviewed by Raymond G. Doehler Date 12-22-83

Recommended: T. Darling Date 12/28/83
Section Head/Manager

H. Keiser Date 1-5-84
Superintendent of Plant

TABLE OF CONTENTS

ATTACHMENTS

1.0 PURPOSE

The purpose of this procedure is to outline the steps to set-up the in-plant and EOF chemistry laboratory to handle potentially highly radioactive samples.

2.0 SCOPE

To provide the Chemistry Department with guidelines for preparing the SSES chemistry laboratories for receipt of potentially highly radioactive samples during Emergency Conditions.

3.0 REFERENCES

General Electric Post Accident Sample Station Manual

4.0 RESPONSIBILITIES

The CHEMISTRY SAMPLING TEAM is responsible for preparing the chemistry laboratories for the receipt of potentially highly radioactive samples in accordance with this procedure.

5.0 DEFINITIONS

None

6.0 INSTRUCTIONS

The CHEMISTRY SAMPLING TEAM will follow instructions in Attachment A, Action Step-CHEMISTRY SAMPLING TEAM.

ACTION STEP
CHEMISTRY SAMPLING TEAM - IN PLANT

A.1.0 The In-Plant CHEMISTRY SAMPLING TEAM will:

A.1.1 After briefing and assignment, report back to the in-plant chemistry laboratory.

NOTE: The In-Plant Chemistry Laboratory shall be monitored at all times during set-up and sample analysis. The EOF Chemistry Laboratory will be activated as the alternate analysis facility if:

(1) Radiation levels exceed 500mR/hr in any part of the In-Plant Lab except the immediate area of the sample location, or

(2) Background radiation levels are such that they would interfere with a gamma analysis, or

(3) Laboratory power is lost.

For EOF chemistry laboratory activation, refer to Attachments C and D to this procedure. The EOF Laboratory will be activated if any one of the above conditions are met.

A.1.2 Obtain the following equipment in the in-plant chemistry laboratory:

A.1.2.1 Step-off pads.

A.1.2.2 Kraft paper.

A.1.2.3 Tape.

A.1.2.4 Booties and Surgeons gloves.

A.1.2.5 RM-14/HP-210 or equivalent.

A.1.2.6 Lead Bricks.

A.1.2.7 Receptacles for used protective clothing.

A.1.3 A step-off pad shall be taped down at the location specified in Attachment B.

A.1.4 Kraft paper shall be taped down to cover the entire floor of the Sample Preparation Room and as shown in Attachment B.

A.1.5 Receptacles to hold used protective clothing shall be placed at each step-off pad.

A.1.6 Surgical gloves and booties shall be available at the frisker located at the north door entrance to the chemistry laboratory.

A.1.7 A shield of lead bricks shall be constructed in the Fume Hood of the Sample Preparation Room.

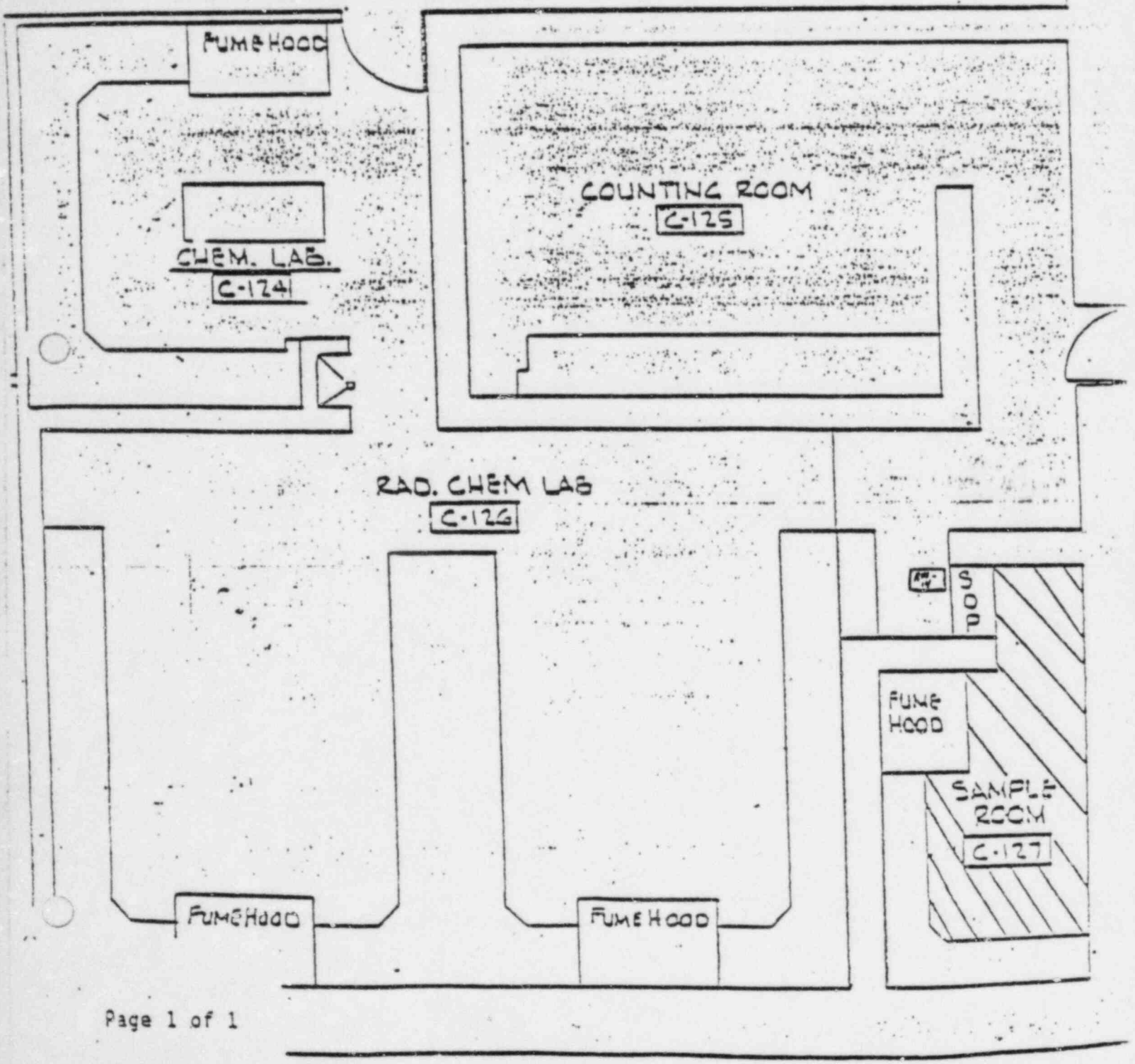
A.1.8 All personnel and samples that are contaminated or potentially contaminated shall enter the chemistry laboratory through the NORTH door only.

A.1.9 Before beginning any sample preparation, the appropriate supplies (gloves, dilution bottles, syringe, labels, etc) shall be assembled in the applicable Fume Hood.

A.1.10 Emergency sample log and event log shall be initiated.

- STEP OFF PAD

- KRAFT PAPER



ACTION STEP
CHEMISTRY SAMPLING TEAM - EOF

C.1.0 The EOF CHEMISTRY SAMPLING TEAM will:

C.1.1 After briefing and assignment, report to the EOF chemistry laboratory.

NOTE: The EOF chemistry laboratory shall be monitored at all times during set-up and analysis.

C.1.2 Obtain the following equipment in the EOF chemistry laboratory:

C.1.2.1 Step-off pads.

C.1.2.2 Kraft paper.

C.1.2.3 Tape.

C.1.2.4 Booties and Surgeons gloves.

C.1.2.5 RM-14/HP-210 or equivalent.

C.1.2.6 Lead Bricks.

C.1.2.7 Receptacles for used protective clothing.

C.1.3 A step-off pad shall be taped down at the location specified in Attachment D.

C.1.4 Kraft paper shall be taped down to cover the entire floor of the Sample Preparation Room and as shown in Attachment D.

C.1.5 Receptacles to hold used protective clothing shall be placed at each step-off pad.

C.1.6 Surgical gloves and booties shall be available at the frisker located at the west door entrance to the chemistry lab at the EOF.

C.1.7 A shield of lead bricks shall be constructed in the Fume Hood of the Sample Preparation Room.

C.1.8 The sample(s) will be received from a plant team who is responsible for delivering them in a safe and expeditious manner.

C.1.9 Before beginning any sample preparation, the appropriate supplies (gloves, dilution bottles, syringe, labels, etc) shall be assembled in the applicable Fume Hood.

C.1.10 Emergency sample log and event log shall be initiated.

EOF CHEMISTRY LABORATORY