November 15, 1983

IMPLEMENTING PROCEDURES TO THE VY EMERGENCY PLAN

Change #21

- INSTRUCTIONS -

1. Under the tab "TABLE OF CONTENTS" remove the existing table of contents and replace it with the attached dated November 15, 1983.

2. Under the tab "CONTACT LIST" remove the existing list and replace it with the attached list dated October 1983. (IF APPLICABLE)

3. Under the tab "POST ACCIDENT SAMPLING" incorporate DI #83-29 to O.P. 3530.

4. Under the tab "EMERGENCY EQUIPMENT CHECK" remove the contents and insert the procedure O.P. 3506, Rev. 16.

5. Insert the attached RECORD OF CHANGE SHEET in the front of your manual.

VERMONT YANKEE EMERGENCY PLAN
IMPLEMENTING PROCEDURES

TABLE OF CONTENTS

November 15, 1983

MEMORANDUM

TO Plant Procedure Manual Holders — Vernon (COMPANY OR LOCATION) — August 9, 1983

FROM B. N. Leach — Vernon (COMPANY OR LOCATION) — FILE 6.1.5

SUBJECT Change to Plant Procedure Manual

Chem & HP DEPARTMENT INSTRUCTION 83-29

Concurring Individual: [signature] Date: 8/9/83

SRO Concurring: [signature] Date: 8/9/83

Second SRO Concurring: _____ Date: _____

Chemistry and Health Physics Supervisor or Plant Health Physicist:

[signature] Date: 8/9/83

This instruction becomes effective on the date that a Second Senior Licensed Operator signs above, unless a Health Physics procedure is involved, in which case this instruction becomes effective on the date that a Senior Licensed Operator and the Chemistry and Health Physics Supervisor or the Plant Health Physicist signs above.

Instruction Cancelled: Rev. 5 of OP 3530

Scope of Instruction: Replace entire procedure with the attached revised procedure.

Reason for Change: Corrective Update

RM/cjm

Reviewed _____ PORC Secretary Approved [signature] Plant Manager 9/4/83

A.P. 0832, Figure 1
Rev. 7

Dept. Supv.		Proc. No.	O.P. 3530
PORC		Rev. No.	4
Plant Mgr.		Issue Date	12/31/82
Mgr. of Ops.		Review Date	12/31/84

DF 33-27

POST ACCIDENT SAMPLING

Purpose:

To outline the special procedures necessary to handle samples during post accident conditions.

Discussion:

During post accident conditions, system samples may be very radioactive. Because of the high radiation levels, these samples require special handling. This procedure will outline that special handling.

Table of Contents

In addition to the above procedures, conductivity readings of the reactor vessel water may be useful during an accident. Readings can be obtained in the Control Room up to 10 μmho/cm, if exceeded, conductivity readings may be taken at a later date at the discretion of the Chemistry and Health Physics Supervisor.

VYOPF 3530.03, Sample Accountability Form shall be utilized from the onset of emergency sampling and analysis to control the location of all emergency samples.

The following figures and forms are attached:

Figure 1	Liquid Post Accident Sampler
Figure 2	Flow Diagram - Liquid Post Accident Sampler
Figure 3	Emergency Off-Site Dose Rate Nomogram
VYOPF 3530.01	Post Accident Data/Analysis
VYOPF 3530.02	Primary Containment Data/Analysis
VYOPF 3530.03	Sample Accountability Form
Appendix A	List of Equipment

References:

A. Tech. Specs.

1. None

B. Admin. Limits

1. None

C. Other

1. None

Precautions:

1. A portable dose rate meter should always be used during post accident sampling.

2. Respiratory protection should be worn during sampling.

3. Personnel involved in sampling and analysis should wear extremity dosimetry.

4. During sampling, communications should be maintained using either a portable radio or a Gai-tronics.

5. Dose commitment limits have been established and should be adhered to for all Post Accident Sampling. Consult with the OSC Coordinator for specific instructions.

Prerequisites:

1. None

Procedure:

I. Stack Iodine Particulate and Gas Sampling

A. If dose rates permit, the samples will be taken the same as the iodine and particulate samples in O.P. 2611 except as specified below, otherwise proceed to Section I.B.

1. No background determination will be made during post accident sampling.

2. A dose rate will be determined on the filter holder prior to removal of the cartridge. A dose commitment will be established for this sample prior to the sample being removed. The dose rate will be used to determine that the dose commitment will not be exceeded. If it appears from the dose rate survey that the dose commitment will be exceeded, the sample should not be taken until the need for the sample is re-evaluated.

3. A vehicle will be used to transport the sample from the stack to the point of analysis to maximize the distance between the sample and the person doing the sampling and to minimize the transport time. A shield should be used to minimize the exposure rate during transportation (e.g., concrete blocks or lead blankets etc., in car trunk).

4. If the plant lab and counting room are accessible, the sample will be taken to the Chem. Lab and placed in a hood.

5. The noble gasses should be purged from the charcoal cartridge prior to counting using plant air or bottled air or nitrogen. A purge rate and duration should be utilized to approximately equal the sample time and flow.

6. Both the air sample cartridge and the particulate filter shall be wrapped prior to counting to prevent detector contamination.

7. The air sample cartridges and particulate filter will be counted using O.P. 2611 methods.

8. If the Chem. Lab and counting room are not accessible, the charcoal cartridge can be purged as in Step 5 above and counted using an RM-14 as in O.P. 3010, a SAM-2 as outlined below, or transported to an off-site multichannel analyzer for analysis. The particulate filter can be counted this way also but need not be purged prior to counting.

9. Report all results to the OSC Coordinator.

NOTE: Report release rate in Ci/sec.

B. High Dose Rate Post Accident Iodine/Particulate Sampling using a Silver Zeolite Cartridge

NOTE: A dose commitment will be established prior to sample being drawn.

1. Notify Control Room of intent to sample.

2. Obtain lead shielded pig for transportation, a loaded filter holder, evacuated 14 ml vial and air sample envelope. Shield pig is in room (west of stack base).

3. Obtain vehicle and and portable radio, then proceed to stack base.

4. Open inlet (SRS-23) and outlet (SRS-24) valves.

5. Insure bypass valve (SRS-25) is closed.

6. Note time and start pump by turning switch on.

7. Adjust flow through rotometer to 65mm which equals 100 cc/min.

CAUTION: Dose rates will increase when flow is established. Do not exceed established dose commitment. If it

appears that dose commitment will be exceeded, notify OSC Coordinator for further instructions.

8. Run pump for 10 minutes; then disengage inlet quick disconnect and run pump for 15-30 sec. to purge gases from holder. (Sampling times may vary due to radionuclide concentrations) Record information on Air Sampler envelope (VYOPF 4533.01).

9. Disengage outlet, quick disconnects and remove filter holder. Secure pump and close valves SRS-23 and SRS-24.

NOTE: Dose rates on filter holder may be high, use tongs to remove filter holder to minimize exposure to extremities.

10. Place filter holder assembly into lead shield pig and place pig in back of vehicle.

11. Install a fresh filter holder assembly onto panel.

12. Return to lab and count silver zeolite cartridge and particulate filter using O.P. 2611 methods or O.P. 3530 Section VI methods, as applicable.

13. Report results to the OSC Coordinator (release rate in Ci/sec).

C. Gas Sampling

1. Perform Steps 1-3 as outlined in A. above.

2. Close inlet (SRS-23) and outlet (SRS-24) valves.

3. Open bypass (SRS-25) valve.

4. Start pumps, wait for line to purge ~30 sec.

5. Place evacuated vial (14ml gas bottle) on top of hypodermic needle.

NOTE: Vials can be evacuated in lab prior to sampling or by using hand vacuum pump.

6. Turn 3-way sample valve so flow is available to sample vial. (Be Careful!)

7. Turn 3-way sample valve so flow is secured to sample vial, then secure pump.

8. Close bypass valve (SRS-25).

NOTE: A gas sample can be obtained while drawing an iodine sample, however, the flow rate should be checked.

9. Remove vial and place into a lead pig using tongs.

10. Place pig in back of vehicle and return to lab for analysis.

11. If the dead time on the MCA is >50% when counting the gas vial. Perform serial dilutions until dead time is <50%.

II. Reactor Coolant Sampling and Analysis

A. The following procedure assumes the Reactor Building is accessible, otherwise proceed to Section II.B.

1. A dose commitment will be established for this sample prior to it being taken. Dose rates will be monitored during sampling and if it appears the dose commitment will be exceeded, the sampling will be terminated until further evaluation.

2. Samples can be obtained from one of three points depending on what systems are in service. All sample points are at the Reactor Building sample sink. The sample points are:

a. Reactor Cleanup Inlet
b. Reactor Recirc Loop A
c. RHR System

NOTE: If the sample is to be taken from Reactor Recirc Loop A, the operators will have to open FCV-39 and FCV-40 prior to sampling. If the sample is to be taken from the RHR System, the operators will have to open V10-198A or B prior to sampling. All other sample valves are on the sample panel.

3. Sample lines must be flushed prior to sampling to insure a representative sample is taken. If the sample lines have not been running, they must be flushed for 10 minutes at a rate of about 500 ml/minute prior to obtaining the sample.

NOTE: Expect that radiation levels will increase at the sample sink during the sample flushing and sampling. Do not stay at the sample sink to wait for the sample lines to flush. Seek a low radiation area in which to wait.

4. After the sample line is flushed, if a dissolved oxygen analysis is to be run, use a chemet and run the analysis at the sample panel. Obtain about a 50 ml sample for further analysis in the Chem Lab, then secure the sample point.

5. Place the sample bottle in a large plastic bag and maintain the greatest distance possible between you and the sample. Proceed promptly to the Chemistry Lab.

6. Once at the Chem Lab, place the sample behind a shield.

7. If a chloride analysis is to be run, use O.P. 0630, except use a 1 ml sample volume instead of a 100 ml sample volume and multiply the calculated result by 100 for the answer.

8. If a pH analysis is to be run on the sample, insert the probe into the sample bottle while the bottle is still behind the shield and read the pH.

9. If an isotopic analysis is to be run, perform several dilutions on one milliliter of the sample until standard counting techniques can be used.

10. If a boron analysis is to be run, use O.P. 0630, starting with Step g of the "Calibration and Standardization of 0.02N NaOH" Section under the mannitol potentiometric method. Use a sample volume of 1 milliliter.

11. Report all results to the OSC Coordinator.

B. Liquid Post Accident Sampling

NOTE: Obtain portable radio from Security prior to sampling.

NOTE: A dose commitment will be established by the OSC Coordinator for this sample prior to the start of sampling. If it appears dose commitment will be exceeded, leave area and contact OSC Coordinator for further instructions.

1. Prerequisites for Sample Panel Set-Up

a. Obtain form VYOPF 3530.01 and complete as required.

b. Argon bottle is >500 psi.

c. All valves are in the closed position.

d. Valves PAS-17, PAS-18, and PAS-27 (3-way valves) are positioned to the left.

e. Liquid and gas septums are in place. Septum ports are in the STOP position. Ports are in STOP position when green plastic is touching the ports.

f. Fill the dilution water funnel with the required volume (up to 900 ml) of demineralized water. CAUTION: Do not exceed 900 ml. Place graduated cylinder under PAS-112 and open PAS-110 to obtain demin water. Close PAS-110.

2. Sample Panel Operation Instruction

a. Evacuate cylinders B and C and gas septum.

1) Start vacuum pump SW-5.
2) Open Valves PAS-13, PAS-12, PAS-14, and PAS-15.
3) Run vacuum pump until approximately 0 psia reads on PI-2.
4) Close Valves PAS-13, PAS-12, and PAS-14.
5) Stop vacuum pump SW-5.
6) Check PI-2 to ensure no leaks.

NOTE: To obtain sample from HP Heater, follow instructions below. To obtain sample from reactor vessel, to to Section 2.

b. Obtaining a sample in cylinder A.

1) Sample supply from high pressure feed water heater (open valves).

a) Open purge valves. Turn on SW-4.

b) Open Valves PAS-1, PAS-5, PAS-6, and PAS-8 on panel.

c) Throttle Valve PAS-7 on panel to initiate flow, monitor pressure on PI-1.

NOTE: Keep pressure high to avoid flashing the sample. Watch dose rates.

d) Allow system flow for several minutes to ensure a representative sample.

e) Close Valves PAS-6 and PAS-5 to isolate sample cylinder A, then turn off SW-4 and close valve PAS-1 and PAS-8.

f) Fill bath tank with approximately 6 liters of demin cooling water via the bath water funnel. Place graduated cylinder under PAS-112 and open PAS-110 to obtain demin water. Close PAS-110.

g) Maintain bath water at approximately room temperature.

2) Sample supply from sensing line taps N2C or N2G (reactor vessel).

a) Open Inboard Sample Valves: SW-1 ON.

b) Open Outboard Sample Valves: SW-2 ON.

c) Open Purge Valves: SW-4 ON.

d) Open Valve PAS-2 (for N2C) or Valve PAS-3 for (N2G) and Valves PAS-5, PAS-6, and PAS-8 on panel.

e) Throttle Valve PAS-7 to 900 psi on panel to initial flow, monitor pressure on PI-1.

NOTE: Keep pressure high to avoid flashing the sample. Watch dose rates.

f) Allow system flow for several mnutes to ensure a representative sample.

g) Close Valves PAS-6 and PAS-5 to isolate sample cylinder A, then turn off SW-2, SW-1, SW-4, and close valves PAS-2 or PAS-3 and PAS-8.

h) Fill bath tank with cooling water via bath water funnel. Place cylinder under PAS-112 and open PAS-110 to obtain demin water. Close PAS-110.

i) Maintain bath water at approximately room temperature.

c. Gas-strip the liquid sample.

1) Open Valves PAS-10 and PAS-11 and observe pressure change on PI-2. Record pressure reading on form VYOPF 3530.01. If pressure is >14.7 psi perform Step 2A; if pressure is <14.7 psi perform Step 2B.

2) Perform a, or b below:

a) If high concentrations of noble gas is assumed present, or if PI-2 shows a positive pressure >14.7 psi.

i. Open Valve PAS-16 and crack open Valve PAS-26 to <u>very slowly</u> purge argon gas through the liquid sample.

ii. Bring PI-2 to approximately 64 psia, close Valves PAS-16 and PAS-26. Record reading on form VYOPF 3530.01.

iii. Re-expand cylinder A and B into cylinder C by opening Valve PAS-12. This will ensure good mixing of the internal volumes and will return the system to approximately one atmosphere, (14.7 psia).

NOTE: If the system is not at 14.7 psia, then open valves PAS-16 and 26 and, add argon until 14.7 psia is achieved. Close valves PAS-26 and PAS-16.

b) If noble gas concentration is not significant or PI-2 remains in vacuum <14.7 psi.

i. Open Valve PAS-16 and crack open Valve PAS-26 to very slowly purge argon gas through the sample.

ii. Bring PI-2 up to one atmosphere (14.7 psia). Record readings on VYOPF 3530.01.

iii. Close Valves PAS-26 and PAS-16.

3) Open Valve PAS-14 and extract three 1 ml gas samples with a syringe at the gas septum. Inject samples into three separate 14 ml vials. Record volumes on VYOPF 3530.01 III.A.

4) Close Valves PAS-14, PAS-12, PAS-15, PAS-11, and PAS-110.

5) Return to lab with gas sample and analyze for H_2 and O_2 using the Fisher Gas Partitioner.

d. Fill grab sample assembly.

1) Open Valves PAS-16, PAS-19, PAS-20, and PAS-6. This will allow the liquid sample in cylinder A to fill the grab sample assembly without pushing the entire volume of cylinder A out of the panel.

2) Allow approximately $\frac{1}{2}$ minute for level in the loop to equalize.

3) Position the grab sample assembly Valves 17 and 18 to the right. This traps apprroximately $\frac{1}{2}$ ml sample between Valves 17 and 18. This also will align the path from the dilution funnel to cylinder D (mixing cylinder).

4) Close Valves PAS-6, PAS-7, PAS-16, PAS-19 and PAS-20.

e. Dilute sample and remove for analysis.

1) Open Valves PAS-21 and PAS-24 and allow a measured amount of dilution water to gravity drain through the grab sample assembly then into cylinder D. Record volume of dilution water on form VYOPF 3530.01 II.2. Takes approximately 3 minutes.

2) Allow the dilution water funnel to completely drain.

3) Close Valve PAS-24.

4) Crack open Valve PAS-25 which will blow argon gas into the line and push all the water into cylinder D.

5) Allow the argon gas to bubble through cylinder D to mix the water.

6) Close Valve PAS-21 and pressurize cylinder D with argon to approximately 5 psig on PI-3.

7) Close Valve PAS-25.

8) Open Purge Valves: SW-4 ON.

9) Open Valves PAS-8, PAS-22, PAS-20, and PAS-23. This will allow the diluted sample to flow from cylinder D, through the liquid septum. Observe sample flow at liquid septum/sightglass.

NOTE: If you can't see the inside edge of tygon tubing, then it has water in it.

10) Close Valve PAS-23 to stop sample flow.

11) Open Valve PAS-21 to release any remaining argon overpressure on PI-3.

12) Extract a liquid sample with a syringe (<5ml) or open valve PAS-35 for larger volumes.

NOTE: When using liquid sample valves, use tongs to hold container.

13) Place sample in lead shielding and transport to the lab for analysis.

f. Flush system.

NOTE: Prior to flushing the panel, insure that all analyses have been completed (see II.B.2.g).

1) Close Valves PAS-22 and PAS-21.

2) Crack open Valve PAS-25 and repressurize cylinder D to approximately 10 psig on PI-3, close Valve PAS-25.

3) Open Valves PAS-22 and PAS-23 to push the remaining volume out of cylinder D.

4) Close Valves PAS-22 and PAS-23 once no more flow is observed at the sightglass. Repeat Steps 2, 3, 4 until no more liquid remains in cylinder D.

5) Refill the dilution water funnel.

6) Open Valves PAS-24 and PAS-21.

7) Allow the flush water in the funnel to gravity drain into cylinder D.

8) Close Valves PAS-24 and PAS-21.

9) Crack open Valve PAS-25 and pressurize cylinder D to 10 psig on PI-3.

10) Close Valve PAS-25.

11) Open Valve PAS-23 and PAS-22 to allow cylinder D to drain. Repeat Steps 9 through 11 as necessary to assure that no liquid remains in cylinder D.

12) Close Valves PAS-22 and PAS-23.

13) Position grab sample Valves PAS-17 and PAS-18 to the left.

14) Open outboard Sample Valves: SW-2 ON and flush Valves SW-3 ON.

15) Close Valves PAS-112 and PAS-20.

16) Open Valves PAS-110, PAS-111, PAS-2, PAS-3, PAS-5, PAS-6, and PAS-7.

17) After several minutes, close Valves PAS-2, PAS-3, and PAS-111. Then turn off SW-3 and SW-2.

18) Open Valves PAS-4, PAS-16, PAS-19 and PAS-20.

19) Close Valve PAS-16 after 1 minute.

20) After several minutes, close Valves PAS-4, PAS-5, PAS-6, and PAS-7.

21) Purge argon through PAS-26 to blow water out of the grab sample assembly (PAS-17 and PAS-18) via Valves PAS-19, PAS-20, and PAS-8.

22) Close Valves PAS-26, PAS-19, PAS-20, and PAS-8.

23) Turn off SW-4.

24) Change liquid septum port as necessary.

25) Open Valves PAS-11, PAS-12, PAS-13, PAS-14 and PAS-15.

26) SW-5 ON to start vacuum pump to evacuate cylinder B and C.

27) Remove gas septum port and allow air to enter the evacuated systems for 1 minute as vacuum pump is running.

28) SW-5 OFF to stop vacuum pump.

29) Insert new gas septum port as necessary.

30) Close Valves PAS-11, PAS-12, PAS-13, PAS-14, and PAS-15.

31) Open Valve PAS-27 to allow bath water to gravity drain.

32) Close PAS-110 and open PAS-112.

g. Chemical analysis

NOTE: Keep samples in or behind lead shielding when performing analyses.

1) Gas samples

a) Hydrogen concentration

i. Inject 1 ml of H_2 gas standard (~25%) into the Fisher-Hamilton Gas Partitioner (D.P. 2630) and record peak on chart recorder. Repeat several times.

ii. Using shielded syringe, inject 1 ml of gas obtained in Section II.B.2.c.3 into gas partitioner and record results on chart recorder.

iii. Using a ratio known H_2 gas concentration to peak height vs. unknown H_2 gas concentration to peak height, solve for unknown H_2 concentration. Record results on VYOPF 3530.01 III A.1.c.

iv. Complete form VYOPF 3530.01, Section III.A.1.

b) Oxygen concentration

NOTE: The Fisher-Hamilton Gas Partitioner is normally set up for hydrogen analysis, when performing oxygen analyses the carrier gas and cell current must be changed (O.P. 2630).

i. Inject 1 ml of a O_2 gas standard (~5%) into the Fisher-Hamilton Gas Partitioner and record the peak height on the chart recorder. Repeat several times.

ii. Using a shielded syringe, inject 1 ml of gas obtained in Section II.B.2.c into gas partitioner and record peak height on chart recorder.

iii. Using a ratio of known O_2 concentration to peak height vs. unknown O_2 gas concentration to peak height, solve for unknown O_2 concentration. Record results on VYOPF 3530.01 III A.2.c.

iv. Complete form VYOPF 3530.01, Section III.A.2.

NOTE: If performing both the H_2 and O_2 analyses at the same time, the factors will be the same.

c) Isotopic analysis

i. Obtain 1 ml of sample from gas vial (Sect. II.B.2.c.3)) and inject into a evacuated 14 ml vial. Record on VYOPF 3530.01 Section III.3.b.

ii. Complete form VYOPF 3530.01, Section III.A.3.

iii. Count gas vial using steps outlined in Section VI.

2) Liquid samples

NOTE: Record the amount of dilution water added to the sample.

a) Chloride analysis

i. Using the Dionex Ion Chromatograph, initiate a calibration curve for Cl^- using the concentrator column. Use 10 ml. of 25 ppb chloride standard for calibration. Repeat several times.

ii. Using shielded syringe, obtain 10 ml of sample from liquid sample septum and inject into Ion Chromatograph and record results.

iii. Complete form VYOPF 3530.01, Section III.B.1.

b) Boron analysis

i. Peak in the Plasma Spectrometer for Boron and establish calibration curve (O.P. 2630).

ii. Using a shielded syringe, obtain 5 ml of sample from liquid septum and aspirate into plasma. Record on VYOPF 3530.01 Section III.B.2.a.

iii. Complete form VYOPF 3530.01, Section III.B.2.

c) Isotopic analysis

i. Using a shielded syringe, obtain 1 ml of sample and inject into a known geometry container. Record on VYOPF 3530.01 Section III.B.3.a.

ii. Count liquid sample using steps outlined in Section VI.

iii. Complete form VYOPF 3530.01, Section III.8.3.

3) Report all results to the OSC Coordinator.

III. Primary Containment Sampling

A. A dose commitment will be established by the OSC Coordinator for this sample prior to the start of sampling. If it appears the dose commitment will be exceeded, leave area and contact OSC Coordinator for further instructions.

B. Evacuate two 40cc sample bombs and place them into their lead shield pigs. Gray pig for purge sample, yellow pig for sample to be analyzed.

C. Contact Operations prior to sampling to insure that either SAH V6-5A or SAH V6-5B located in the Control Room are on. Also verify that suction is lined up to containment.

D. Place the Gray No. 1 shield pig on the sample jack and raise the shield up until the sampling bomb has connected to the sampling quick disconnect.

CAUTION: Watch dose rate increase in Step E.

E. Open VG-37 and VG-38. Close VG-36, allow line to purge for 5 minutes (leave area while purging).

F. Open Valve VG-39 and VG-40 for 5 seconds.

G. Close VG-39 and VG-40, lower the sample shield pig 2 inches and remove sample bomb from the quick disconnect and drop it into the shield. Lower the shield and replace the cover. Place the shield aside as this is only a sample line purge.

H. Place the Yellow No. 2 sample shield onto the jack and repeat Step D.

I. Open Valves VG-39 and VG-40 for 5 seconds to take sample.

J. Close VG-39 and VG-40 and remove sample bomb and shield as in Step G.

K. Open VG-36, close VG-37 and VG-38.

L. Take sample shield and sample to the Chemistry lab. Complete form VYOPF 3530.02.

M. Notify Operations sampling done.

N. Using a shielded syringe, take 0.5 cc of the sample gas via the sample hole in the bottom of the sample shield and transfer it

into an evacuated off-gas vial. (Other volumes and dilutions may be used depending on the activity of the sample.)

O. Count the sample on the MCA.

P. If H_2 or O_2 analyses are required, use the Fisher-Hamilton Paritioner per D.P. 2630. Take sample from sample cylinder. DO NOT DILUTE. Record on VYOPF 3530.02 numbers 2 and 3.

Q. Report all results to the OSC Coordinator.

IV. In-Plant Air Sampling and Analysis with MCA Inoperable

A. If it is necessary to do in-plant air sampling with the MCA out of service, accurate iodine results can be achieved using the normal low volume air samplers, then analyzing the samples as follows.

B. Remove the air sampler to an area of low airborne activity and run the sampler for one minute to purge the noble gasses from the charcoal cartridge.

C. Wrap the charcoal cartridge to protect the detector from contamination and count it as follows:

SAM II Operational Procedure:

1. Instrument Preparation:

a. Check instrument, power cord, and detector cable for damage.

b. Connect detector cable and detector, plug cable into front of instrument labled "DETECTOR."

NOTE: Allow $1\frac{1}{2}$ to 2 hours warmup time, if instrument has been "OFF". Instru ment should be energized at all times.

c. Place detector into an appropriate shield.

d. Check that front instrument controls are set as indicated on the calibration sticker located on the top of the instrument.

2. Operational Check:

a. Set TIMED - STOP - MAN. switch to MAN. Unit should begin to count.

b. Set TIMED - STOP - MAN switch to TIMED.

c. Set COUNT TIME IN MINUTES switches to 1 and X1.

d. Obtain SAM II check source, place detector directly on top of source.

e. Press Reset - Start switch.

f. After a 1 minute count, the instrument should indicate the number of counts within the range labled on top of the instrument.

3. Sample Counting:

a. With instrument settings remaining as above, perform a background count.

b. Place sample on detector and count.

c. Calculate the iodine-131 concentration as follows:

$$I^{131}\ \mu Ci/cc = \frac{\text{Sample counts (cpm)} - \text{Bkg counts (cpm)}}{(E)(Vs)\ (2.22 \times 10^6)}$$

Where: cpm = count rate from SAM-2
E = counting efficiency (instrument top)
Vs = sample volume in cc
2.22×10^6 = cpm/µCi conversion

D. Use of Silver Zeolite Sampler Cartridges

1. If I^{131} concentration calculated in Step C.3 above is greater than or equal to 1 x 10^{-6} µci/cc I^{131}, then resample and verify results using silver zeolite cartridge (except omit purge step outlined in Step B).

2. Report results to OSC Coordinator and record results in log-book.

V. Noble gas release rate determination with Stack Gas Monitors Off-Scale

A. If the stack gas monitors are off scale, the release rate can be determined using the Victoreen High Range Monitor (on stack) and the attached Nomogram (Figure 3).

B. Read the dose rate on the Victoreen High Range Monitor in mR/hr. Located in Control Room.

C. Determine the time since reactor shutdown and stack flow rate (fpm). Located in Control Room.

D. Using these valves, read the release rate from the Nomogram (Figure 3).

E. Report results to the SS/PED or OSC Coordinator.

VI. Counting Techniques for Highly Radioactive Samples

NOTE: If sample size or dilutions can be used to permit a sample to be counted by conventional techniques, this should be done. If this is not possible, the following techniques can be used:

A. Use of the MCA at extended distances.

1. Remove the shield top from the 10% GeLi detector.

2. Suspend the sample above the detector at a distance that will give a dead time of <50% (must be >1 ft.).

3. Measure the distance from the sample to the top of the detector.

4. Count the sample and calculate the activity using a 2" filter paper geometry for efficiencies.

5. Calculate the sample activity as follows:

$$\mu Ci/ml = (X)\ (d^2)\ (100)$$

where: X = µCi/ml calculated in 4. above
d = distance in ft measured in 3. above
100 = correction factor.

B. Use of portable instruments.

NOTE: If neither conventional methods or those in VI.A above can be used, a portable gamma survey meter can be used to determine sample activities.

1. If the MCA is available, it can be used to give a qualitative measure of major isotopes. If it is not available, an assumption must be made based on what is known about the sample at the time.

2. Measure the radiation level of the sample at 1 meter.

3. Calculate the sample activity as follows:

$$\mu Ci/ml = \frac{(R/hr\ @\ 1\ meter)\ (10^6)}{(T)\ (V)}$$

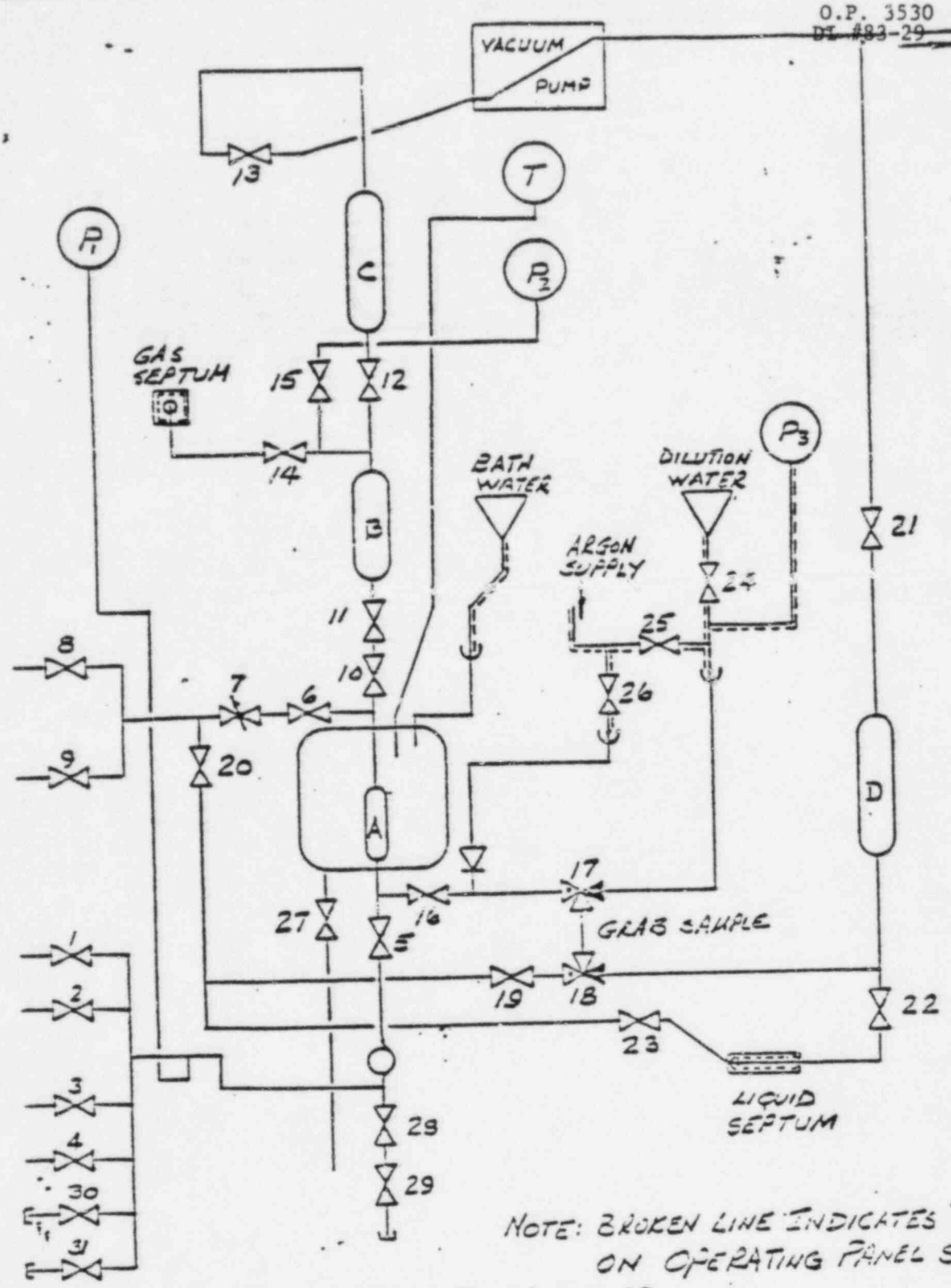
where: 10^6 = µCi/Ci
V = sample volume (milliliters)
T = R/hr @ 1 meter/Ci

Values for T (R/hr @ 1 meter/Ci)

Time	Degassed Liquid*	Containment Air**
1 hr	0.60	0.41
4 hr	0.43	0.28
8 hr	0.35	0.22
12 hr	0.31	0.18
24 hr	0.26	0.14

*Assumed mix of 0% of core noble gas inventory, 50% of core halogen inventory and 1% of core solids inventory. For convenience, the mix ratio is expressed as 00/50/1 (% NOBLE GAS/% HALOGENS/% SOLIDS)

**Assumed mix of 100/50/1.



NOTE: BROKEN LINE INDICATES TUBING ON OPERATING PANEL SIDE

POST ACCIDENT SAMPLER

FIG. 1

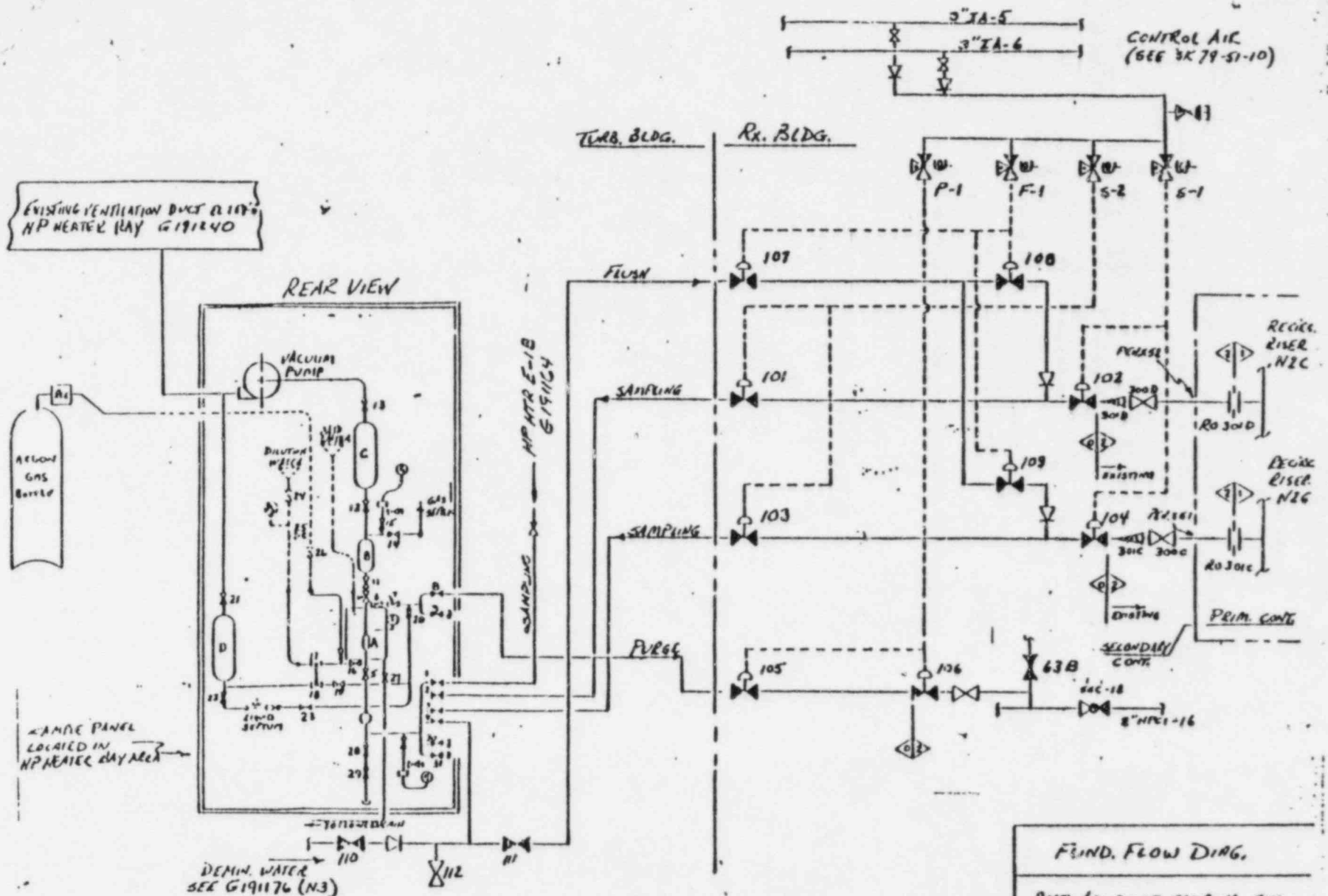
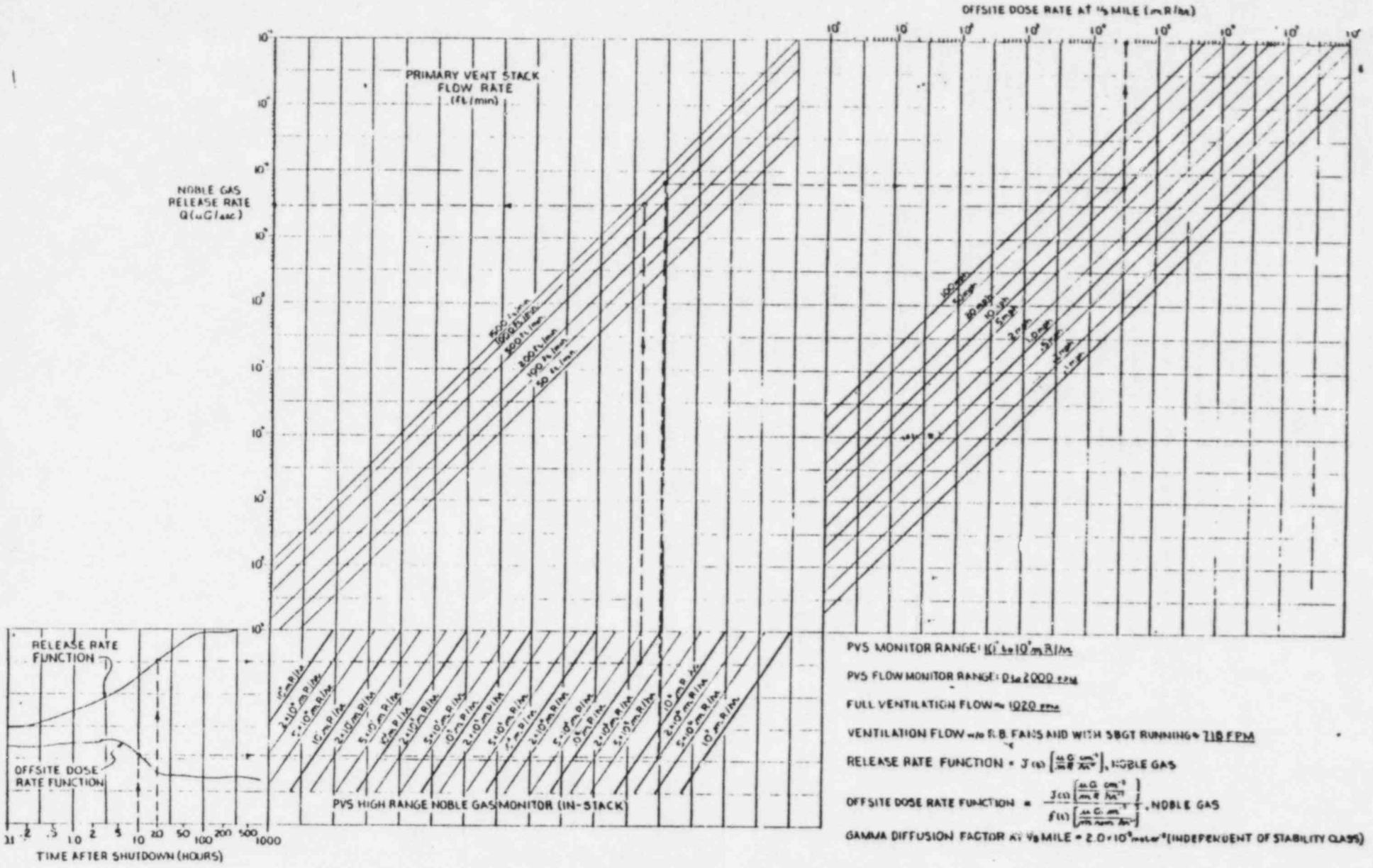

3"IA-5
3"IA-6
CONTROL AIR
(SEE 3K 79-51-10)
TURB. BLDG.
RX. BLDG.
P-1
F-1
S-2
S-1
EXISTING VENTILATION DUCT IN NP HEATER BAY G191240
REAR VIEW
VACUUM PUMP
ARGON GAS BOTTLE
FLUSH
SAMPLING
PURGE
NP HTR E-1B G191174
107
108
101
102
103
104
105
106
109
63B
RECIRC. RISER N2C
RECIRC RISER N2B
PRIM. CONT.
SECONDARY CONT.
RO 30ID
RO 30IC
8"HPCI-16
SAMPLE PANEL LOCATED IN NP HEATER BAY AREA
DEMIN. WATER SEE G191176 (N3)
110
111
112
81
FLUID FLOW DIAG.
POST ACCIDENT SAMPLING SYS.

FIG 2.

VERMONT YANKEE
EMERGENCY OFFSITE DOSE RATE NOMOGRAM

O.P. 3530
DI #83-29



PVS MONITOR RANGE: 10^{1} to 10^{7} mR/hr

PVS FLOW MONITOR RANGE: 0 to 2000 FPM

FULL VENTILATION FLOW ≈ 1020 FPM

VENTILATION FLOW w/o R.B. FANS AND WITH SBGT RUNNING ≈ 718 FPM

RELEASE RATE FUNCTION = $J(t)\left[\frac{\mu Ci}{mR}\frac{cm^3}{hr^3}\right]$, NOBLE GAS

OFFSITE DOSE RATE FUNCTION = $\frac{J(t)\left[\frac{\mu Ci}{mR}\frac{cm^3}{hr^3}\right]}{f(t)\left[\frac{\mu Ci}{cm^3}\frac{cm^3}{hr}\right]}$ T, NOBLE GAS

GAMMA DIFFUSION FACTOR AT ½ MILE = $2.0\times10^{5}\ meter^{2}$ (INDEPENDENT OF STABILITY CLASS)

FIGURE 3

REACTOR COOLANT

POST ACCIDENT SAMPLING DATA/ANALYSIS

Sample Taken on _____ (Date), at _____ (Time), by _____ (Initials).

I. Correction Factor for Gas Samples when Diluting with Argon

A. When cylinder A is vented to Cylinder 'B' and pressure on PI-2 is >14.7 psi.

1. Record initial pressure on PI-2 when 'A' vented to 'B' (II.B.2.c.1) Pi _____ psi
2. Add Argon to bring pressure in cylinder 'B' to 64 psi (PI-2)(II.B.2.c.2.a.ii) Pf _____ psi
3. Vent cylinder 'B' into cylinder 'C' - pressure reading should be ~14.7 psi. If not, add Argon and bring pressure to 14.7 psi (PI-2)
4. Calculated correction factor (CF)

$$CF = \frac{1300cc}{\frac{Pi}{Pf}\ 300cc}$$

CF _____

5. Go to Section III.A and complete form.

B. When cylinder 'A' is vented to cylinder 'B' and pressure on PI-2 is <14.7 psi.

1. Record initial pressure on PI-2 (II.B.2.c.1) Pi _____ psi
2. Add Argon to bring pressure in cylinder 'B' (II.B.2.c.2)b)ii) to 14.7 psi (PI-2) Pf _____ psi
3. Calculate correction factor (CF)

$$CF = \frac{Pf}{Pi}$$

CF _____

4. Go to Section III.A and complete form.

II. Liquid Sample

1. Volume of dilution water (II.B.2.e.1) Vi _____ ml
2. Dilution factor DF = $\frac{Vi}{0.5ml}$ DF _____

NOTE: If activity is still too high, further dilutions are required.

III. Post Accident Sampling Analysis

A. Gas Sample Analysis

1. Hydrogen Concentration

a. Volume from II.B.2.c.3. _____ ml

b. CF = volume from a. above divided into volume of 14 ml vial.

$$CF = \frac{14\ ml}{a}$$

_____ CF

c. Record H_2 concentration obtained. _____

d. Record gas correction factor from VYOPF 3530.01 IA #4 or IB #3. _____ CF

e. H_2 concentration = bxcxd from above _____ H_2

f. Attach chromatograph form

_____ Initials

2. Oxygen Concentration

a. Volume from II.B.2.c.3. _____ ml

b. CF = volume from a. above divided into volume of 14 ml vial.

$$CF = \frac{14\ ml}{a}$$

_____ CF

c. Record O_2 concentration obtained. _____

d. Record gas correction factor from VYOPF 3530.01 IA #4 or IB #3. _____ CF

e. O_2 concentration = bxcxd from above _____ O_2

f. Attach chromatograph form

_____ Initials

3. Isotopic Analysis

a. Volume from II.B.2.c.3. _____ ml

b. Record gas correction factor from VYOPF 3530.01 IA #4 or IB #3. _____ CF

c. Volume for isotopic = a x b. This will give activity in the coolant. _____ ml

d. Attach isotopic printout to form.

_____ Initials

B. Liquid Sample Analysis

1. Chloride Analysis

a. Concentrator column installed in load port.

_____ Initials

b. Vol. of 25 ppb Cl standard injected _____ ml

c. Vol. of unknown sample injected (same as in b. above) _____ ml

d. Dilution factor from VYOPF 3530.01, Sec. II.e _____ DF

e. Corrected Cl concentration

Cl concentration from Ion Chromatograph X DF

[ ] ppb

f. Attach chromatograph to form. _____ Initial

2. Boron Analysis

a. Volume from Sect. II.B.2.e.12. _____ ml
b. Dilution factor from VYOPF 3530.01 Sect. II.2 _____
c. Concentration from plasma jet. _____ ppm
d. DF x Boron concentration from c above. _____ ppm

3. Isotopic Analysis

a. Volume from Sect. II.B.2.e.12. _____ ml
b. Dilution factor from VYOPF 3530.01 Sect. II.2. _____ DF
c. Corrected Volume = DF x Volume from a above.
This is volume to be used when isotopic is run. _____ ml

PRIMARY CONTAINMENT DATA/ANALYSIS

Sample Taken on _____ (Date), at _____ (Time), by _____ (Initials).

1. Isotopic Analysis

   a) Using shielded syringe to take 0.5cc of sample from sample bomb, and inject into an evacuated 14 ml vial.

      Initials _____ 0.5cc _____ V_1

   NOTE: If activity still too high, go to Step B.

   b) Using shielded syringe take 0.5cc of sample from V_1 and inject into an evacuated 14 ml vial.

      Initials _____ $V_2 = \frac{0.5cc}{28\ DF}$ 0.0179cc _____ V_2

      NOTE: The above sample volumes are only good for volumes listed. Using volumes V_2, the computer printout will reflect activity of sample bomb.

   c) Attach isotopic printout to form. Initials _____

2. Hydrogen Concentration

   a) Results from Sec. III.P _____

   b) Attach chromatograph to form. _____ %

      _____ Initials

3. Oxygen Concentration

   a) Results from Sec. III.P _____

   b) Attach chromatograph to form _____ %

      _____ Initial

SAMPLE ACCOUNTABILITY LOG

Date	Time	Sample Identification	Type	Date	Time	Initials	Location	Date	Time	Initials

VYOPF 3530.03
DI #83-29

APPENDIX A

I. Post-Accident Sampling Kit (in Chem. Lab)

A. Liquid Sampling

1. 6-syringes
2. 1-syringe shield
3. 12-offgas vials w/stoppers
4. 12-2 dram vials
5. 1-500 ml graduated cylinder
6. 1-vacuum guage w/needle
7. 20-spare septum stoppers
8. 6-spare needles
9. High range dosimeters (3)

B. Containment Sampling

1. 6-syringes
2. 1-syringe shield
3. 3-sample bombs w/stoppers
4. 6-spare vial stoppers
5. 12-offgas vials w/stoppers
6. 2-male quick connects
7. 1-vacuum guage w/needle
8. High range dosimeters (3)

C. Stack Sampling

1. 3-plastic syringes
2. 3-Inline cartridge holders
3. 1-box glass fiber filter paper
4. 20-silver zeolite cartridges
5. 12-offgas vials w/stoppers
6. 1-vacuum pump w/needle
7. 12-air sample envelopes
8. 6-spare needles
9. 1-shield for syringe
10. High range dosimeters (3)

II. Miscellaneous Lead Shields (to be used in Post-Accident Sampling)

A. Two lead pigs w/handles (located in IOG Building at Stack Base)

B. Two shields for Containment Sample Bombs

C. One lead brick w/cutouts for liquid samples

D. One lead shield for syringes

Dept. Supv.		Proc. No.	O.P. 3506
PORC		Rev. No.	16
Plant Mgr.		Issue Date	8/8/83
Mgr. of Ops.		Review Date	8/8/85

EMERGENCY EQUIPMENT READINESS CHECK

Purpose:

To insure that emergency radiological and communication equipment is periodically inventoried and maintained in an operable condition by assigned plant personnel.

Discussion:

Monthly, the Operations Department will conduct a test of certain emergency communications equipment as outlined in this procedure. Monthly, and subsequent to each usage, a Chemistry and Health Physics Technician will be assigned the following:

1. Physical inventory of Emergency Kit contents as listed on VYOPF 3506.02.

NOTE: Corrective actions taken in response to deficiencies noted must be initialed and dated.

2. Rotation of survey instruments normally used in the plant with instruments in the Emergency Kits to assure that emergency equipment has been recently calibrated and is fully operable.

3. Check of the operability of equipment (e.g., flashlights, dosimeter charger, survey meters, etc.) and recharging or changing of their batteries as necessary.

4. Verification that the keys to the off-site Emergency Operations Facilities and Town Hall are in their proper location at the outer gatehouse.

The assigned Chem/HP Technician shall report the status of all emergency equipment to the Emergency Plan Coordinator by completing and submitting an Emergency Equipment Checklist (VYOPF 3506.02) monthly. The Emergency Plan Coordinator will inspect the emergency equipment maintained at Brattleboro Memorial Hospital and report his findings on VYOPF 3506.03 semi-annually. Enter under remarks column any replacement parts (i.e., batteries, pencils, missing equipment, etc.).

The following forms are attached:

VYOPF 3506.01	Control Room Emergency Communications Checklist
VYOPF 3506.02	Emergency Equipment Checklist
VYOPF 3506.03	Brattleboro Memorial Hospital Emergency Equipment Inventory

References:

A. Tech. Spec.

1. None

B. Admin. Limits

1. The Control Room Emergency Communications Checklist (VYOPF 3506.01) will be completed monthly.

2. The Emergency Equipment Check List (VYOPF 3506.02) will be conducted monthly and subsequent to each use.

3. The Brattleboro Memorial Hospital Emergency Equipment Inventory (VYOPF 3506.03) will be conducted semi-annually and subsequent to each use.

C. Other

1. Appropriate Operating Manuals for Emergency Kit Equipment listed on VYOPF 3506.02 and on VYOPF 3506.03.

Precautions:

1. The lack of proper equipment at the time of an emergency can delay regaining control of the situation, thereby compounding its adverse effects. Therefore, all equipment must be as stated in this procedure.

Prerequisites:

1. Apparatus required:

a. Fresh batteries for equipment as required.

b. Recently calibrated and operable survey meters in accordance with D.P. 4540.

Procedure:

A. Control Room Emergency Communications Check (Operations) (Use VYOPF 3506.01)

1. Monthly, the Operations Department will test the Nuclear Alert System by contacting each of the three states (Vermont, New Hampshire, Massachusetts) using the following procedure:

a. Lift handset and keypunch number 111.

NOTE: This number initiates a group call to all three State Police agencies. However, no audible ringing is present at the transmit station. The station receiver will continue to ring until it is answered even if the transmit station is recradled.

b. As each State Police agency answers, advise of the test of the Nuclear Alert System and record the successful test on VYOPF 3506.01, Section A.

c. If any part of the system fails to operate, notify the Communications Dept., NEES, Westboro, MA (ext 2460) (Off hours and weekends contact REMVEC and advise them of the situation).

2. Monthly, the Operations Department will test the Unusual Event, Alert, Site Area and General Emergency Alarms using the following procedure:

a. To test the Alert Alarm (used for Unusual Event and Alert emergencies):

1) Turn the Page System Volume Increase Switch to the ALERT position.

2) Make the following announcement by picking up the Gai-Tronics handset and depressing the page button and speaking into the receiver:

"The following is a test of the Emergency Alert Alarm, please disregard." Repeat the announcement.

3) Turn the Alarm switch to the ON position for three seconds and then return the switch to the OFF position.

4) Make the following announcement over the page system:

"Test of the Emergency Alert Alarm is complete. Regard all further alarms."

5) Turn the Page System Volume Increase Switch to the OFF position.

b. To test the Evacuation Alarm (used for Site Area and General emergencies):

1) Turn the Page System Volume Increase Switch to the EVACUATION position.

2) Make the following announcement by picking up the Gai-Tronics handset and depressing the page button, and speaking into the receiver:

"The following is a test of the Emergency Evacuation Alarm. Please Disregard." Repeat the announcement.

3) Turn the Alarm switch to the ON position for three seconds and then return the switch to the OFF position.

4) Make the following announcement over the page system:

"Test of the Emergency Evacuation Alarm is complete. Regard all further alarms."

5) Turn the Page System Volumne Increase Switch to the OFF position.

c. Contact the Auxiliary Operators and verify that they heard the alarm announcements and alarm signals. Complete VYOPF 3506.01, Section B.

3. Monthly, the Operations Department will test the Southwest Fire Mutual Aid and Tri-State Fire Mutual Aid radio (Deskon II) by contacting the Keene and Greenfield dispatchers as follows:

a. Press the TRANSMIT bar for sending. Release for receiving.

b. Speaking into the microphone say, "KCE-579 (Keene), this is KCP-596, Remote 2."

c. When answered, say: "This is a radio check. How do you read?"

d. When answered, say: "Thank you. KCP-596, Remote 2 clear."

e. Repeat Steps a. through d. with KCE-358 (Greenfield).

f. Complete VYOPF 3506.01, Section C and return to the Shift Supervisor.

g. Notify the Instrument and Control Supervisor if there is a fault with either mutual aid radios communications system.

B. Emergency Equipment Check (Use VYOPF 3506.02)

1. Obtain a copy of VYOPF 3506.02 and contact the Emergency Plan Coordinator or his alternate for any special instructions.

2. Proceed to the outer gate and obtain the keys to the Governor Hunt House, Vernon Town Hall, and Brattleboro Offices of VYNPC at Ferry Road.

3. Proceed to the Governor Hunt House and note that the keys are tagged correctly.

4. Inventory the emergency kit contents against those items listed on VYOPF 3506.02 and test, charge, or replace equipment as required. Inspect respiratory protective equip VYAPF 0505.02. Test communications as required in VYOPF 3506.02

NOTE: After a complete inventory of the kits, a seal may be attached. If the seal is not broken, the kit need not be reinventoried on subsequent routine checks. Only those items indicated for each kit have to be inspected and a new seal attached where applicable. Seals should be dated and initialed.

5. Return equipment to the kits and lock the storage room door.

6. Lock the Governor Hunt House, as appropriate, and proceed to the Vernon Town Hall.

7. Note that the keys are tagged properly for the Town Hall and the Emergency Kit Storage Room.

8. Inventory the Emergency Kit contents against equipment and material listed on VYOPF 3506.02 and test, charge, or replace equipment as required.

9. Return equipment to the kit and lock the storage room.

10. Lock the Vernon Town Hall access door upon leaving.

11. Proceed to the Brattleboro Offices of VYNPC at Ferry Road and ensure that the keys are tagged properly for this location.

12. Inventory Emergency kit contents against material listed on VYOPF 3506.02. Replace material as required.

13. Return equipment to kit and secure office building, as appropriate, upon leaving.

14. At the Inner Gatehouse, inventory those items listed on VYOPF 3506.02.

15. At the Main Control Room, inventory those items listed on VYOPF 3506.02.

16. At Technical Support Center Communications Room, inventory those items listed on VYOPF 3506.02.

17. In the Chem Lab, inventory those items listed in VYOPF 3506.02.

18. At the stack base, inventory those items listed in VYOPF 3506.02.

19. Submit the completed VYOPF 3506.02 form to the Emergency Plan Coordinator who will review it, take appropriate action on exceptions noted, and file it in the Chemistry and Health Physics files.

C. Brattleboro Memorial Hospital Emergency Equipment Inventory (use VYOPF 3506.03).

1. Obtain a freshly calibrated PIC-6A, 6 TLD's and a PRM-4 (or RM-14) (survey to ensure a clean instrument).

2. Proceed to the B.M.H. Emergency Wing.

3. Inventory the emergency kits contents against those items listed on VYOPF 3506.03 and replace the instruments listed in Step A. Replace batteries in charger for self-reading dosimeters.

4. Return equipment to the kits and secure.

5. Submit the completed VYOPF 3506.03 to the Chemistry and Health Physics Supervisor who will review it and file it in the Chemistry and Health Physics files.

Final Conditions:

1. All equipment is complete and in operable condition.

2. All documentation retained in accordance with A.P. 0834.

Date_____

Time_____

CONTROL ROOM MONTHLY EMERGENCY COMMUNICATIONS CHECK

A. Nuclear Alert System

a. Successful Test with Vermont Yes___ No____ Initials_____

b. Successful Test with New Hampshire Yes___ No____ Initials_____

c. Successful Test with Massachusetts Yes___ No____ Initials_____

d. Communications Dept., NEES (ext. 2460), Westboro, Mass. informed of the following discrepancies: (Note: weekends and off-hours, contact REMVEC and advise them of the problem.)

_____

_____

_____

B. Emergency Alert and Evacuation Alarms

a. Emergency Alert Alarm Tested and Heard By Auxiliary Operators_____
Initials

b. Evacuation Alarm Tested and Heard by Auxiliary Operators_____
Initials

c. Notify I/C Department of following discrepancies:

_____

_____

C. Southwest Fire Mutal Aid and Tri-State Mutual Aid Radio Tests

a. Successful test with Keene Dispatcher Yes_____ No_____

b. Successful test with Greenfield Dispatcher Yes_____ No_____

Discrepancies Noted:_____

_____

_____

Completed By_____

Reviewed By_____
Shift Supervisor

Reviewed By_____
Operations Supervisor

Approved By_____
E-Plan Coordinator

Forward to Chemistry and Health Physics Department for filing.

EMERGENCY EQUIPMENT CHECKLIST

Date_____

Items:	Initials	Remarks
I. Outer Gate Guardhouse		
(A) Keys to Emergency Centers Obtained	_____	_____
(B) Keys Tagged Properly	_____	_____
(C) Keys Returned	_____	_____
(D) Inspect respirators (6) (as per A.P. 0505)	_____	_____
1. Charcoal and Particulate Filters (6)	_____	exp. date _____
2. Tear Gas Filters (6)	_____	exp. date _____
II. Governor Hunt House		
(A) EOF Coordinators Kit #1:	Sealed Unsealed (Circle one)	
If unsealed, inventory the following:	(If sealed, inventory items 6a, 7a, 17a and 19a.)	
1. Emergency Plan	_____	_____
2. Emergency Plan Implementing Procedures	_____	_____
3. V.Y. Fire Protection Plan	_____	_____
4. EOF Coordinator's clipboard	_____	_____
a. Implementing Procedure checklists		
1) O.P. 3501 (Alert)	_____	_____
2) O.P. 3502 (Site Area)	_____	_____
3) O.P. 3503 (General)	_____	_____
4) O.P. 3504 (Comm.)	_____	_____
b. Paper pad	_____	_____
c. Logsheets (VYOPF 3504.01)	_____	_____
5. Rad Assistant Looseleaf Manual		

Items:		Initials	Remarks
	a. O.P. 3513, Initial Eval		
	b. Met Data VYOPF 3513.01		
	c. Off-site doses VYOPF 3513.02		
	d. Site data dose proj. VYOPF 3513.03		
	e. Field data dose proj. VYOPF 3513.04		
	f. O.P. 3511, Off-site Protective Action Recommendations		
	g. Public Protective Action Recommendation Worksheet VYOPF 3511.01		
	h. Rad Health Handbook		
6.	Personnel Monitoring Team Clipboard		
	a. Current Gate List		
	b. Paper pad		
	c. Logbook		
7.	Manpower and Planning Clipboard		
	a. Emergency Assistance Personnel List		
	b. Paper pad		
8.	Pencils (Approx. 12)		
9.	Wax marking pencils (approx. 4)		
10.	Felt-tip pens (Approx. 4)		
11.	Envelopes (Approx. 25)		
12.	Poly sample bottles (Approx. 3)		
13.	Assorted sample containers		
14.	Check source		

Items:		Initials	Remarks
15.	Air sample filters (1 box)	_____	_____
16.	Air sample charcoal cartridges (approx. 6)	_____	_____
17.	High range dosimeters (24) (0-100R, 0-5R)	_____	_____
	a. Calibration up to date	_____	(calib. due date) _____
18.	Sliderule	_____	_____
19.	Potassium iodide solution (1 bottle)	_____	_____
	a. Check expiration date	_____	(exp. date) _____
20.	TI-59 Calculator, Printer and 20 program cards in booklet holder	_____	_____
21.	Title Tags	_____	_____
(B)	Battery-Operated Equipment (EOF Coordinator's Kit #2)		
1.	PRM-4A (or RM-14) (1)	_____	_____
	a. Battery check OK	_____	_____
	b. Calibration up-to-date	_____	(calib. due date) _____
2.	RM-14 with 210 probe (1)	_____	_____
	a. Battery check OK	_____	_____
	b. Calibration up-to-date	_____	(calib. due date) _____
3.	PIC-6A (1)	_____	_____
	a. Battery check OK	_____	_____
	b. Calibration up to date	_____	(calib. due date) _____
4.	Dosimeter charger	_____	_____
	a. Operational check OK	_____	_____
5.	Bullhorn	_____	_____
	a. Operational check OK	_____	_____
6.	Flashlights (Approx. 12)	_____	_____

BRATTLEBORO MEMORIAL HOSPITAL
EMERGENCY EQUIPMENT INVENTORY

Date_____

Directions: Initial inventoried items and note comments in the right hand column.

Initials	Item	Quantity	Comments
	ORTHOPEDIC ROOM CABINET(Room #1)		
	1. Skin Decontamination		
_____	a. Sponge-holding forceps	1	
_____	b. Turco Decon Soap (bottles)	2	
_____	c. Clorox (bottle)	1	
_____	d. Potassium Permanganate Solution	1	
	2. Miscellaneous Materials		
_____	a. Nivea Cream (jar)	1	
_____	b. Nail Clippers	1 Pkg.	
_____	c. Scissors (heavy duty HARE)	1 Pr.	
_____	d. New Form/Patient Radiation and Medical Status Record Sheets		
_____	e. Tags, with wire		
_____	f. Notebook		
_____	g. Pencils		
_____	h. Envelopes (for storage of nose swabs)		
_____	i. Skin Smears (NUCON pads w/envelopes)		
_____	j. Plastic bags (assorted sizes)		
	3. Instruments and Dosimetry		
_____	a. Gamma Dose Rate Survey Instrument PIC-6A or equivalent	1	VY #_____ (Note 1)
_____	b. Beta/Gamma Monitor, RM-14 w/probe (HP210)	1 Set	VY #_____ (Note 1)
_____	c. Self-reading pocket dosimeters 0-1R	6	(Note 1)
_____	d. Thermoluminescent dosimeters (body type)	10	

Items:	Initials	Remarks
a. Operational check OK (change batteries if weak)	_____	_____
b. Spare batteries (approx. 8)	_____	_____
7. Lo-Vol Air Sampler	_____	_____
(C) Respiratory Protection Kit		
1. Inspect respirators (12) as per A.P. 0505.	_____	_____
2. Check expiration date on filter canisters	_____	(exp. date) _____
3. VYAPF 0505.02 completed and submitted for review	_____	_____
(D) Miscellaneous Items		
1. Assignment Tag Board	_____	_____
2. Area map/dispersion "wheel"	_____	_____
3. Status Board	_____	_____
4. a. Test all telephones at the EOF/RC for operability.		
b. Test communications with New York State Radiological Control Agency by dialing 1-518-473-3393. Advise of the test and record name of NY State Official contacted. _____ (NY State Official)		
c. Test NRC ENS (red phone) by lifting the receiver and waiting for an answer from the NRC Operations Center. State your name, location (VYNPC in Vernon, VT) and location (EOF/RC). State that you are testing the NRC ENS from this location. Request the name of NRC staff member. Record time and name below (phones at two locations).		
1) Communications Area		

Initials	Item	Quantity	Comments
_____	e. Ring dosimeters	10	
_____	f. Charger for Self-reading dosimeters	1	Battery Check_____
	4. Procedures		
_____	a. Control Copy #15, Brigham and Women's Hospital Procedures for Radioactively Contaminated Patients		
_____	b. Brattleboro Memorial Hospital Emergency Procedures		
_____	5. Lead container for high activity samples	1	
	OBSERVATION ROOM CABINET		
_____	1. Decontamination Table Top with stretcher and side panels	1	
_____	2. Five gallon carbuoys	2	
	UTILITY ROOM - Yellow 30 gal. Drum		
	1. Equipment and Supplies		
_____	a. Plastic Sheets (4-5 mils)		
_____	b. Krylon Floor Covering		
_____	c. Masking tape (2 inch)		
_____	d. Apron (plastic)	10	
_____	e. Shoecovers	6 Pr.	
_____	f. Poly bags (large)	20	
_____	g. Poly pail	1	
_____	h. Signs "Caution - Radiation Area"	4	
_____	i. Signs "Caution - Radioactive Material"	4	
_____	j. Stickers "Contaminated Material"	10	
_____	k. Barrier tape	1 roll	
_____	l. Disposable clothing kit	12 sets	
_____	m. Suits (plastic)	5	
_____	n. Tongs	1 pr.	

Initials	Item	Quantity	Comments
_____	o. Step-off pads		

Note 1: These instruments will be rotated every six months for calibration.

Performed by_____

Approved by_____
Chem. and HP Supervisor

Items:	Initials	Remarks

NRC Staff Member Time

2) NRC Responders Office (2nd Floor)

NRC Staff Member Time

5. Check State of Vermont telephone system located in the States Representative's Room at the EOF/RC , by dialing 32 (between the hours of 0800-1600, Monday thru Friday).

a. Vermont Civil Defense will answer if operable.

Name of Vt. CD Official _____ _____

b. If no answer, call Vermont Civil Defense (802-828-2163) and report system inoperable.

Name of Vt. CD Official _____ _____

(D) Site Boundary Team Kit If unsealed, inventory all of the following: (If sealed, inventory items 5a and 10a, b, and c.)

1. Site Boundary clipboard _____ _____

a. Implementing procedure checklist (O.P. 3510) (approx. 5 copies) _____ _____

b. Paper pad _____ _____

2. Coveralls (2) _____ _____

3. a. Filter paper, air sample (1 box) _____ _____

b. Parafilm _____ _____

4. a. Charcoal filter cartridges (approx. 6) _____ _____

b. Silver zeolite Cartirdges (approximately 10) _____ _____

Items:	Initials	Remarks
5. High range dosimeters (2)	_____	_____
a. Calibration up to date	_____	(calib. due date)
6. Pencils (approx. 4)	_____	_____
7. Air sample envelopes (approx. 5)	_____	_____
8. Check source	_____	_____
9. Stop watch	_____	_____
10. Air Sampler		
a. Operational check	_____	_____
b. Left with fresh filter paper and cartridge in holders.	_____	_____
c. Battery (discharge/re-charge monthly)	_____	(charge date)
(E) Two seabags each containing: If unsealed, inventory all of the following:	Sealed (Circle one)	Unsealed
1. Coveralls (10)	_____	_____
2. Hoods (10)	_____	_____
3. Plastic boots (10 prs)	_____	_____
4. Rubber boots (10 prs)	_____	_____
5. Rubber gloves (12 prs)	_____	_____
6. Cloth gloves (2 bundles)	_____	_____
7. Masking tape	_____	_____

(F) Off-Site Emergency Kits	Kit 1 (Hunt)	Kit 2 (Hunt)	Kit 3 (Town Hall)
	(If sealed, inventory items 9a and b, 18a and b, 19a and b, 20a and b)		
If unsealed, inventory all of the following:			
1. Off-Site Team Clipboard	_____	_____	_____
a. Implementing procedure checklist (O.P. 3510) (Approx. 5 copies each)	_____	_____	_____

Items:	Initials		Remarks
b. Paper pad	____	____	____
2. Coveralls (2)	____	____	____
3. Poly bottles (3)	____	____	____
4. Poly bags (3)	____	____	____
5. Smear paper (1 box)	____	____	____
6. a. Filter paper, air sample (1 box)	____	____	____
b. Parafilm	____	____	____
7. a. Activated charcoal filter cartridges (Approx. 6)	____	____	____
b. Silver zeolite cartridges (approximately 10)	____	____	____
8. Radiation tape and signs	____	____	____
9. High range dosimeters (2)	____	____	____
a. Calibration up to date (note calib. due date)	____	____	____
b. Dosimeter charger - operational check	____	____	____
10. Pencils (approx. 4)	____	____	____
11. Marking pencils (approx. 2)	____	____	____
12. Felt tip pen (approx. 2)	____	____	____
13. Air Sample Envelopes (approx. 25)	____	____	____
14. Check source	____	____	____
15. Screwdriver	____	____	____
16. Stopwatch	____	____	____
17. Keys to Envir. Stations	____	____	____
18. Air Sampler			
a. Operational Check	____	____	____
b. Left with fresh filter paper and cartridge in holders.	____	____	____

Items:	Initials		Remarks
19. RM-14 w/210 probe			
a. Battery check OK	_____	_____	_____
b. Calibration up to date (note calib. due date)	_____	_____	_____
20. PIC-6A			
a. Battery Check OK	_____	_____	_____
b. Calibration up to date (note calib. due date)	_____	_____	_____

(G) Decontamination barrel (located upstairs) containing:
If unsealed, inventory all of the following:

Sealed Unsealed (Circle one)

1. Towels (12)	_____	_____
2. Face cloths (12)	_____	_____
3. Decon soap (3)	_____	_____
4. Plastic bags (12)	_____	_____
5. Poly 6 ml x 6' x 100' (1 roll)	_____	_____
6. Paper towels (5 boxes)	_____	_____
7. Scissors (1 pr)	_____	_____
8. Blotter (3 - 10' sections)	_____	_____
9. Masking tape (5 rolls)	_____	_____
10. Cloth gloves (2 bundles)	_____	_____
11. Surgeons gloves (1 box)	_____	_____
12. Plastic basins (3)	_____	_____
13. Scrub brushes (12)	_____	_____
14. "Contaminated" tape (2 rolls)	_____	_____
15. R.P. 0520, Personnel Decontamination	_____	_____

(H) Radiological Coordinator's Kit
If unsealed, inventory all of the following: (If sealed, inventory 2a)

Items:	Initials	Remarks
1. Notebook containing	_____	_____
a. O.P. 3525 Checklist	_____	_____
2. Low range dosimeter (1)	_____	_____
a. Calibrate up to date	_____	(calib. due date)
3. Air sample filters (1 box)	_____	_____
4. Air sampler charcoal cartridges (approx. 6)	_____	_____
5. Environmental station cartridges (approx. 6)	_____	_____
6. Air sample envelopes (approx. 12)	_____	_____
7. Assorted sample containers		
a. Poly bottles (approx. 6)	_____	_____
b. Poly bags (approx. 12)	_____	_____
8. Paper pad	_____	_____
9. Pencils (approx. 4)	_____	_____
10. Small area map	_____	_____
11. Rad Health Handbook	_____	_____
(I) All equipment and materials returned to kits, the kits sealed, and storage area locked	_____	_____
III. Vernon Town Hall		
(A) Emergency Equipment		
1. Telephone Check operability of phone	_____	_____
2. Area map	_____	_____
3. Flashlight (2)	_____	Batteries OK?
(B) Decontamination Barrel Containing: If unsealed, inventory all of the following:	Sealed Unsealed (Circle one)	

Items:	Initials	Remarks
1. Towels (12)		
2. Face cloths (12)		
3. Decon soap (3)		
4. Plastic bags (12)		
5. Poly 6 ml x 6' x 100' (1 roll)		
6. Paper towels (5 boxes)		
7. Scissors (1 pr)		
8. Blotter (3 - 10' sections)		
9. Masking tape (5 rolls)		
10. Cloth gloves (2 bundles)		
11. Surgeons gloves (1 box)		
12. Plastic basins (3)		
13. Scrub brushes (12)		
14. "Contaminated" tape (2 rolls)		
15. R.P. 0520, Personnel Decomtamination		
(C) Off-Site Emergency Kit #3 (Refer to checklist, Section II (E) Page 5 of this form)		
(D) All equipment and materials returned to the kits, the kits sealed, and the storage area locked		
IV. Inner Gatehouse		
(A) General Equipment		
1. RM-14 with HP 210 probe (This can be standby unit for portal monitor)		
a. Battery check OK		
b. Calibration up to date		
2. Inspect respirators (6) as per A.P. 0505 (located in CAS)		
a. Charcoal/Particulate		(exp. date)

Items:	Initials	Remarks
b. Tear Gas Canisters	_____	(exp. date) _____
c. VYAPF 0505.02 completed and submitted for review	_____	_____
(B) Security Site Boundary Team Kit		
1. PIC-6A	_____	_____
a. Battery check OK	_____	_____
b. Calibration up-to-date	_____	_____
2. Air sampler	_____	_____
3. Stopwatch	_____	_____
4. Filter papers (1 box)	_____	_____
5. a. Charcoal cartridges (approx. 6)	_____	_____
b. Silver zeolite cartridges (approx. 10)	_____	_____
6. Air Sample Envelopes(approx. 6)	_____	_____
7. O.P. 3510	_____	_____
8. High Range Dosimeters(2)	_____	(exp. date) _____
9. Check source	_____	_____
10. Air sampler battery (discharge and recharge monthly)	_____	(charge date) _____
V. Main Control Room		
(A) General Equipment		
1. Area Map/Dispersion "wheel"	_____	_____
2. Boundary Dose Nomogram	_____	_____
3. Emergency Logbook	_____	_____
4. Emergency Plan	_____	_____
5. Emergency Plan Implementing Procedures	_____	_____
6. V.Y. Fire Protection Plan	_____	_____

Items:	Initials	Remarks
7. Inspect respirators, (4) (as per A.P. 0505)	_____	_____
a. Check expiration date on filter	_____	(exp. date) _____
b. VYAPF 0505.02 completed and submitted for review	_____	_____
8. Air sampler	_____	_____
9. Air Sample Envelopes(approx. 6)	_____	_____
10. Filter papers (1 box)	_____	_____
11. High range dosimeters (5)	_____	_____
a. Calibration up to date	_____	(calib. due date) _____
12. Potassium iodide (KI) solution (1 bottle)	_____	_____
a. Check expiration date	_____	(exp. date) _____
13. TI-59 Calculator, Printer and 20 cards in booklet holder	_____	_____
(B) Inspect Bio-Pacs (6) (as per A.P. 0505)	_____	_____
1. VYAPF 0505.02 completed and submitted for review	_____	_____
(C) Check PIC-6 calibration	_____	(calib. due date) _____
VI. Technical Support Center		
(A) (Note: Items 10, 11, and 12 are located in the Engineering Support Department Office. All others are located in the TSC Communications Center.)		
1. Dose rate meter (PIC-6A or equiv.)	_____	(calib. due date) _____
2. RM-14 with HP 210 probe	_____	(calib. due date) _____
3. Air sampler, low volume, with charcoal cartirdge	_____	_____
4. Air sample envelopes (approx 6)	_____	_____
5. Charcoal filter cartridges (approx 6)	_____	_____

Items:	Initials	Remarks
6. Filter paper, air sample (1 box)	_____	_____
7. High range dosimeter (4)	_____	(calib. due date) _____
8. Inspect respirators (4) (as per A.P. 0505)	_____	_____
a. Charcoal and particulate filters	_____	(exp. date) _____
b. VYAPF 0505.02 completed and submitted for review	_____	_____
9. Potassium iodide (KI) solution (1 bottle)	_____	_____
a. Check expiration date	_____	(exp. date) _____
10. Emergency Plan	_____	_____
11. Emergency Implementing Procedures	_____	_____
12. V.Y. Fire Protection Plan	_____	_____
13. Smear Papers (1 box)	_____	_____
14. NRC Emergency Notification System Red Phone test	_____	_____
a. TSC Communications Room	_____	NRC Stf. Mbr. _____ Time _____
b. NRC Responders Office	_____	NRC Stf. Mbr. _____ Time _____
15. Title Tags	_____	_____

VII. Post-Accident Sampling Kit (in Chem Lab) (Sealed - Yes/No)

(A) Liquid Sampling

1. 6 - Syringes	_____	_____
2. 1 - syringe shield	_____	_____
3. 12 - offgas vials w/stoppers	_____	_____
4. 12 - 2 dram vials	_____	_____
5. 1 - 500 ml graduated cylinder	_____	_____
6. 1 - vacuum gauge w/needle	_____	_____

Items:	Initials	Remarks
7. 20 - spare septum stoppers	_____	_____
8. 6 - spare needles	_____	_____
9. High range dosimeters (3)	_____	calib. due date
(B) Containment Sampling		
1. 6 - syringes	_____	_____
2. 1 - syringe shield	_____	_____
3. 3 - sample bombs w/stoppers	_____	_____
4. 6 - spare vial stoppers	_____	_____
5. 12 - offgas vials w/stoppers	_____	_____
6. 2 - male quick connects	_____	_____
7. 1 - vacuum guage w/needle	_____	_____
8. 1 5 cc syringe	_____	_____
9. High range dosimeters (3)	_____	calib. due date
(C) Stack Sampling		
1. 3 - plastic syringes	_____	_____
2. 3 - inline cartridge holders	_____	_____
3. 1 - box glass fiber filt. paper	_____	_____
4. 15 - silver zeolite cartridges	_____	_____
5. 12 - offgas vials w/stoppers	_____	_____
6. 1 - vacuum pump w/needle	_____	_____
7. 12 - air sample envelopes	_____	_____
8. 6 - spare needles	_____	_____
9. 1 - shield for syringe	_____	_____
10. High range dosimeters (3)	_____	calib. due date
VIII. Miscellaneous Lead Shields (to be used in Post-Accident Sampling)		
(A) Two lead pigs w/handles (located in IOG Building at Stack Base)	_____	_____

Items:	Initials	Remarks
(B) Two shields for containment sample bombs	_____	_____
(C) One lead brick w/cutouts for liquid samples	_____	_____
(D) One lead shield for syringes	_____	_____
IX. Alternate EOF/RC (Ferry Road, Brattleboro VYNPC Corp. Office)		
(A) Keys tagged properly		
1. Key obtained from Gate 1 Security and functional	_____	_____
2. Return key to Gate 1 Security	_____	_____
(B) Status Boards		
1. Available for use	_____	_____
2. Returned to storage	_____	_____
(C) Equipment		
1. Flashlights (2)	_____	_____
2. Batteries (approx. 6)	_____	_____

Performed by_____

Approved by_____
Emergency Plan Coordinator

	FILE LEVEL		EUT	OL	CP
50-003	P	Indian Point 1	(CENY)	3/26/83	
50-010	P	Dresden 1	(CEIL)	5/4/56	
50-029	P	Yankee Rowe	(YAE)	1/9/60	
50-133	P	Humbolt Bay	(PGE)	8/28/62	Shutdown
50-155	P	Big Rock Point	(CPC)	8/30/62	
50-171	W	Peach Bottom 1	(PECO)	10/31/74	Shutdown
50-206	P	San Onofre 1	(SCE)	3/27/67	
50-213	P	CT Yankee (Haddam Neck)	(CYAP)	6/30/67	
50-219	P	Oyster Creek	(JCPL)	4/9/69	
50-220	P	Nine Mile Point	(NMP)	8/22/69	
50-237	P	Dresden 2	(CEIL)	7/10/66	
50-244	P	R.E. Ginna	(RGE)	9/19/69	
50-245	P	Millstone 1	(NEUT)	10/7/70	
50-247	P	Indian Point 2	(CENY)	10/19/71	
50-249	P	Dresden 3	(CEIL)	10/14/66	
50-250	P	Turkey Point 3	(FPL)	7/19/72	
50-251	P	Turkey Point 4	(FPL)	4/10/73	
50-254	P	Quad Cities 1	(CEIL)	2/15/67	
50-255	P	Palisades	(CPC)	3/24/71	
50-259	P	Browns Ferry 1	(TVA)	6/26/73	
50-260	P	Browns Ferry 2	(TVA)	6/28/74	
50-261	P	Robinson 2	(CPL)	7/31/70	
50-263	P	Monticello	(NSP)	9/8/70	
50-265	P	Quad Cities 2	(CEIL)	2/15/67	
50-266	P	Point Beach 1	(WIEP)	10/5/70	
50-267	P	Ft. St. Vrain	(PSC)	12/21/73	
50-269	P	Oconee 1	(DPC)	2/6/73	
50-270	P	Oconee 2	(DPC)	10/6/73	
50-271	P	Vermont Yankee	(VYNP)	2/28/73	
50-272	P	Salem 1	(PSEG)	4/6/77	
50-275	P	Diablo Canyon 1	(PGE)	9/22/81	

	FILE LEVEL		EUT	OL	CP
50-327	P	Sequoyah 1	(TVA)	3/29/80	
50-328	P	Sequoyah 2	(TVA)	6/25/81	
50-329	A	Midland 1	(CPC)		12/15/72
50-330	A	Midland 2	(CPC)		12/15/72
50-331	P	Duane Arnold	(IELP)	2/22/74	
50-333	P	Fitzpatrick	(PASN)	10/17/74	
50-334	P	Beaver Valley 1	(DL)	1/30/76	
50-335	P	St. Lucie 1	(FPL)	2/1/76	
50-336	P	Millstone 2	(NEUT)	8/1/75	
50-338	P	North Anna 1	(VEPC)	11/26/77	
50-339	P	North Anna 2	(VEPC)	11/4/80	
50-341	A	Fermi 2	(DE)		9/26/72
50-344	P	Trojan	(POGE)	11/21/75	
50-346	P	Davis Besse 1	(TOED)	4/22/77	
50-348	P	Farley 1	(ALPR)	6/25/77	
50-352	A	Limerick	(PECO)		6/19/74
50-353	A	Limerick 2	(PECO)		6/19/74
50-354	A	Hope Creek 1	(PSEG)		11/4/74
50-355	A	Hope Creek 2	(PSEG)Canceled	12/23/81	
50-358	A	Zimmer 1	(CGEC)		10/27/72
50-361	P	San Onofre 2	(SCE)	2/16/82	
50-362	P	San Onofre 3	(SCE)	11/15/82	
50-364	P	Farley 2	(ALPR)	10/23/80	
50-367	A	Bailly	(NIPS)	Canceled	
50-368	P	Hatch 2	(GAP)	6/13/78	
50-369	P	McGuire 1	(DPC)	10/23/81	
50-370	A	McGuire 2	(DPC)		2/28/73
50-373	P	LaSalle County 1	(CEIL)	4/17/82	
50-374	A	LaSalle County 2	(CEIL)		9/10/73
50-376	A	North Coast 1	(PRWRA)	Canceled	
50-382	A	Waterford 3	(LAPL)		11/14/74
50-387	P	Susquehanna 1	(PPL)	7/17/82	
50-388	A	Susquehanna 2	(PPL)		11/02/73

	FILE LEVEL		EUT	OL	CP
50-446	A	Commanche Peak 2	(TUGC)		12/19/74
50-448	A	Douglas Point 1	(PEP)	Canceled	
50-449	A	Douglas Point 2	(PEP)	Canceled	
50-450	A	Summit 1	(DMPL)	Canceled	
50-451	A	Summit 2	(DMPL)	Canceled	
50-452	A	Greenwood 2	(DE)	Canceled	
50-453	A	Greenwood 3	(DE)	Canceled	
50-454	A	Byron 1	(CEIL)		12/31/75
50-455	A	Byron 2	(CEIL)		12/31/75
50-456	A	Braidwood 1	(CEIL)		12/31/75
50-457	A	Braidwood 2	(CEIL)		12/31/75
50-458	A	River Bend 1	(GSU)		3/25/77
50-459	A	River Bend 2	(GSU)		3/25/77
50-460	A	WPPSS 1	(WPPS)	Deferred	
50-461	A	Clinton 1	(ILPR)		2/24/76
50-462	A	Clinton 2	(ILPR)Canceled	10/14/83	
50-463	A	Fulton 1	(PECO)	Canceled	
50-464	A	Fulton 2	(PECO)	Canceled	
50-466	A	Allens Creek 1	(HLP)	Canceled	
50-467	A	Allens Creek 2	(HLP)	Canceled	
50-471	A	Pilgrim 2	(BECO)	Canceled	
50-477	A	Atlantic 1	(PSEG)	Canceled	
50-478	A	Atlantic 2	(PSEG)	Canceled	
50-482	A	Wolf Creek	(KCPL)		5/17/77
50-483	A	Callaway 2	(UNE)		4/16/76
50-484	A	Tyrone 1	(NSP)	Canceled	
50-485	A	Sterling 1	(RGE)	Canceled	
50-486	A	Callaway 2	(UNE)	Canceled	
50-487	A	Tyrone 2	(NSP)	Canceled	
50-488	A	Perkins 1	(DPC)	Withdrawn	
50-489	A	Perkins 2	(DPC)	Withdrawn	
50-490	A	Perkins 3	(DPC)	Withdrawn	

	FILE LEVEL		EUT	OL	CP
50-525	A	Barton 2	(ALPR)	Canceled	
50-526	A	Barton 3	(ALPR)	Canceled	
50-527	A	Barton 4	(ALPR)	Canceled	
50-528	A	Palo Verde 1	(AZPS)		5/25/76
50-529	A	Palo Verde 2	(AZPS)		5/25/76
50-530	A	Palo Verde 3	(AZPS)		5/25/76
50-537	A	Clinch River	(DOE)		
50-546	A	Marble Hill 1	(PSIN)		4/4/78
50-547	A	Marble Hill 2	(PSIN)		4/4/78
50-548	A	Ft. Calhoun 2	(OPPD)	Canceled	
50-549	A	Green County	(PASN)	Canceled	
50-553	A	Phipps Bend 1	(TVA)	Canceled	
50-554	A	Phipps Bend 2	(TVA)	Canceled	
50-556	A	Black Fox 1	(PSOK)	Canceled	
50-557	A	Black Fox 2	(PSOK)	Canceled	
50-566	A	Yellow Creek 1	(TVA) Withdrawn 6/22/83		
50-567	A	Yellow Creek 2	(TVA) Withdrawn 6/22/83		
50-568	A	New England 1	(NENP)	Canceled	
50-569	A	New England 2	(NENP)	Canceled	
50-580	A	Erie 1	(OEC)	Canceled	
50-581	A	Erie 2	(OEC)	Canceled	
50-582	A	Sundesert 1	(SDGE)	Canceled	
50-583	A	Sundesert	(SDGE)	Canceled	
50-586	A	Perryman	(BGE)	Canceled	
50-592	A	Palo Verde 4	(AZPS)	Canceled	
50-593	A	Palo Verde 5	(AZPS)	Canceled	
50-596	A	New Haven 1	(NYSEG)	Canceled	
50-597	A	New Haven 2	(NYSEG)	Canceled	
50-599	A	Carroll County 1	(CEIL)	Canceled	
50-600	A	Carroll County 2	(CEIL)	Canceled	