VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION
UNIT 2

POST ACCIDENT CONTAINMENT ATMOSPHERIC SAMPLING SYSTEM

References

1. D.C. 80-S12
2. 1-ST-24
3. 2-OP-63.2

REV. _____ PAGE _____ DATE _____ APPROVED _____

NOT A CONTROLLED
DOCUMENT
JUL
NOR NECESSARILY THE
LATEST REVISION

RECOMMEND APPROVAL: Sanford L. Harvey

APPROVED BY: Sanford L. Harvey
CHAIRMAN STATION NUCLEAR SAFETY
AND OPERATING COMMITTEE

DATE: 07-11-80

SAFETY RELATED

8007170189

Initials

1.0 Purpose

1.1 To provide a post-accident containment atmospheric sample.

2.0 Initial Conditions

_____ 2.1 The containment is at sub-atmospheric pressure.

_____ 2.2 A graduated syringe with a needle approximately 7 inches is available to obtain a sample of about 1 cc.

3.0 Precautions and Limitations

_____ 3.1 Extremely high radiation levels are expected in the vicinity of the containment penetrations, where some of the manual isolation valves are located. Precautions should be taken to avoid excessive radiation exposures to personnel.

_____ 3.2 Radiation levels on contact with the sample syringe may be as high as 5 Rem/hr. A small container (tool box, etc) should be used to transport the sample.

_____ 3.3 Health Physics will generate a special radiation work permit to obtain and analyze the coolant sample based upon current radiological conditions and anticipated radiological hazards. Consider use of special dosimetry; e.g. extremities, head, etc.

_____ 3.4 Health Physics will provide continuous dose control coverage while obtaining and analyzing the reactor containment sample.

_____ 3.5 Individuals shall not exceed 2.5 rem <u>whole-body</u> and/or 15 rem <u>extremity</u> exposure for the current quarter in the performance of this procedure.

_____ 3.6 Reactor containment samples will be obtained and transported in the appropriate shielded cask.

Initials

4.0 Procedure

_____ 4.1 Line up the hydrogen analyzer (HC-200) to sample the Unit 2 containment atmosphere in accordance with 2-OP-63.2.

_____ 4.2 Close or check closed, 2-HC-T-1 (This valve is located on the south wall in the drumming area).

_____ 4.3 Open valves 2-HC-T-2 and 2-HC-T-3 (located on the south wall in the drumming area).

_____ 4.4 Close 2-HC-T-4 (located behind the Unit 2 hydrogen analyzer.

_____ 4.5 For proper dilution, the sample volume (at temp & press.) must be determined. This assures analyzing a 1 cc sample at 75°F and 1 atmosphere pressure. Refer to nomogram (Attachment 6.1):

_____ 4.5.1 Read containment ambient pressure and convert to atmosphere's.

_____ 4.5.2 Read containment ambient temperature and convert to °K.

_____ 4.5.3 Connect these points on the nomogram, and read on sample volume line, the equivalent sample volume which results in a 1CC sample at 75°F and 1 atmosphere.

_____ 4.6 After a sufficient time has elapsed to purge the sample line with containment air collect the sample as follows:

_____ 4.6.1 Open valve 2-HC-T-1 (located on the south wall in the drumming area).

_____ 4.6.2 Using a graduated syringe with approximately a 7 in. needle, insert the needle through the syringe cap.

_____ 4.6.3 Obtain the proper sample volume as determined in step 4.5.

_____ 4.6.4 Remove needle and close valve 2-HC-T-1.

Initials

4.0 Procedure

_____ 4.7 Remove syringe, with 1CC sample, to laboratory for dilution and analysis using existing equipment.

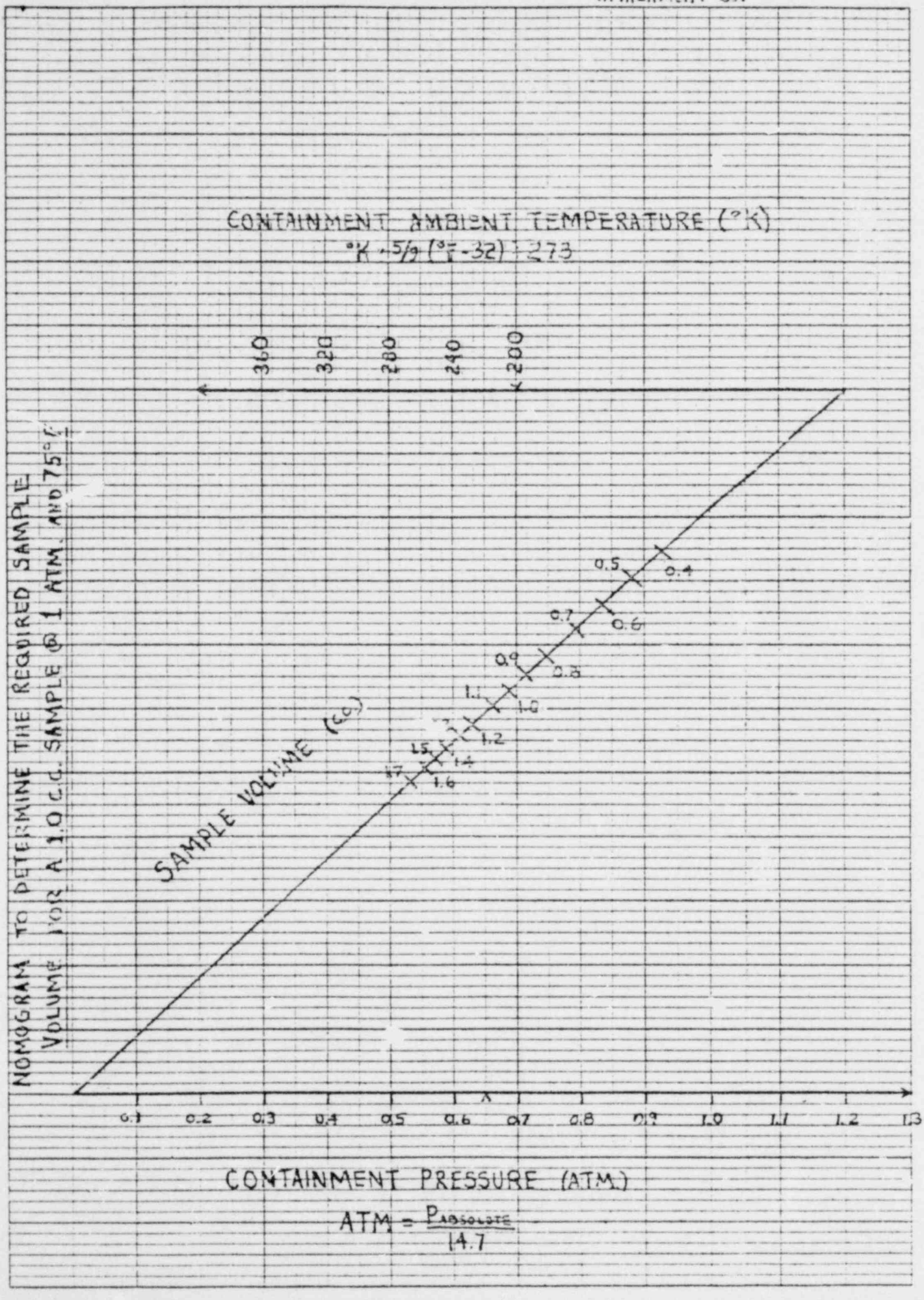
NOTE: Radiation levels on contact with the sample syringe may be as high as 5 Rem/hr. Therefore the sample should be placed in a small container (tool box etc.) to provide some distance and shielding during transport of the sample to the lab.

_____ 4.8 Remove the hydrogen analyzer (HC-200) from service as per 2-OP-63.2.

_____ 4.9 Open 2-HC-T-4 and close 2-HC-T-2 and 2-HC-T-3.

Completed By: _____

Date: _____


NOMOGRAM TO DETERMINE THE REQUIRED SAMPLE VOLUME FOR A 1.0 C.C. SAMPLE @ 1 ATM. AND 75°F
CONTAINMENT AMBIENT TEMPERATURE (°K)
°K = 5/9 (°F - 32) + 273
360
320
280
240
200
SAMPLE VOLUME (c.c.)
0.5
0.4
0.7
0.6
0.9
0.8
1.1
1.0
1.2
1.5
1.4
1.7
1.6
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
CONTAINMENT PRESSURE (ATM.)
ATM = P ABSOLUTE / 14.7

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