

Attachment No. 1

Containment Shielding and Radiation Survey
North Anna Unit 1
March 14, 1978

8109010181 810813
PDR ADOCK 05000339
P PDR

COPY

RECEIVED RECORDS ROOM

1002

JUN 27 1978

9A

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VIRGINIA ELECTRIC AND POWER COMPANY

1 -SU- 8
Revision No.: 1
Date: 12-19-77

STARTUP TEST PROCEDURE FOR NORTH ANNA POWER STATION UNIT # 1
TITLE: CONTAINMENT SHIELDING AND RADIATION SURVEY

Prepared By: Dennis G. McLain Date: 12-15-77

Engineering Recommended Approval: [Signature] Date: 12-15-77

STATION NUCLEAR SAFETY AND OPERATING COMMITTEE APPROVAL OF PROCEDURE:

Chairman's Signature: [Signature] Date: 12-19-77

All personnel conducting actual testing in accordance with this procedure will verify by their signature that they have read it in its entirety prior to commencing any testing:

[Signature] 5/14/78
[Signature] 5/14/78
[Signature] 5/14/78
[Signature]

TEST RESULTS REVIEWED BY ENGINEERING: [Signature] Date: 6-21-78

TEST RESULTS APPROVED BY STATION NUCLEAR SAFETY AND OPERATING COMMITTEE:

Chairman's Signature: [Signature] Date: 6-26-78

Comments: Problem of high radiation levels in the containment is recognized and is being pursued as a future design change. Data collected per approved deviation to procedure.

SAFETY RELATED

DISCREPANCIES (List by number): None

8

RESOLUTION OF DISCREPANCIES (List by number corresponding to above): None

9

CRITIQUE: LSU-8 (100%) was completed on 5/14/75.

10

The data obtained reflects earlier findings of high
vibration levels on the operators' desks. Additional data
obtained during the test is included for future
reference.

11	<p>① 0910 BEGAN PREPARATIONS FOR INITIAL ENTRY INTO RX CONT #1 FOR 1-54-8 RADIOLOGICAL SURVEY. <i>CJRB 5/14/79</i></p>
<p>② 0930 RESPONSE TESTED SURVEY METERS AND BRIEFED SURVEY TEAM MEMBERS SHOWERS AND BARNES ON THE AREAS AND LOCATIONS TO BE MONITORED AND TECHNIQUES TO BE EMPLOYED TO MINIMIZE AND EQUALLY/DISTRIBUTE THE EXPECTED PERSONNEL EXPOSURE <i>CJRB 5/14/79</i></p>	
<p>③ 1010 INITIATED CONTAINMENT ENTRY CHECK SHEET AND INFORMED SHIFT SUPERVISOR OF IMPENDING TEST <i>CJRB 5/14/79</i></p>	
<p>④ 1023 PERFORMED RX CONT ENTRY <i>CJRB 5/14/79</i></p>	
<p>⑤ 1023-1210 PERFORMED SELECTED POINT RADIOLOGICAL SURVEY AS PER 1-54-8. <i>CJRB 5/14/79</i></p>	
<p><i>5/14/79</i> ⑥ 1415 COMPLETED RADIOLOGICAL SURVEY OF THE OUTSIDE RX CONT #1 AREAS INCLUDING THE EQUIPMENT PLATFORM AND PERSONNEL LOCK AREAS <i>AHS</i></p>	
<p><i>5/14/79</i> ⑦ 1700 COMPLETED TRANSCRIBING SURVEY RESULTS FROM THE WORKSHEETS TO ATTACHMENT 6.2 <i>AHS</i></p>	
<p><i>5/14/79</i> ⑧ 1750 COMPLETED CALIBRATION RECHECK USED TO PERFORM 1-54-8 <i>AHS</i></p>	
<p><i>5/14/79</i> ⑨ 1800 INFORMED SHIFT SUPERVISOR TEST COMPLETED <i>AHS</i></p>	

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION
UNIT 1

CONTAINMENT SHIELDING AND RADIATION SURVEY

REFERENCES:

1. Vepco Startup Procedure 1-SU-1
2. FSAR Table 14.1-2, II.2; III.12
3. Power Station Health Physics Radiation Protection Manual

1.0 Purpose

- 1.1 To measure the dose rate levels at pre-selected locations inside and outside the containment due to neutron and gamma radiation and to verify the effectiveness of the plant shielding at prior to criticality, hot zero power, 30%, 50%, 75%, and 100% conditions.

Initials

2.0 Initial Conditions

AMB

2.1 Immediately prior to the performance of this test, the Test Engineer has reviewed the latest revisions of the applicable references in order to improve his familiarity of this procedure of the test. (i.e. Changes to the system, equipment or component since the procedure was approved will not affect its testing.)

CPB

2.2 Verify that all test equipment to be used in the performance of this test is operational and in calibration, and record on the attached TEST EQUIPMENT DATA SHEET.

CPB

2.3 Notify the Shift Supervisor on duty of the impending test and coordinate its performance through him.

CPB

2.4 The survey instruments response and battery condition shall be checked at the beginning and end of the survey.

CPB

2.5 The plant is at the power level prescribed by Reference 1 (97 %) and has been in steady state conditions at this power level for at least 2 hours prior to the survey.

CPB

2.6 Survey teams will consist of a minimum of two personnel, ~~of which one must be a member of the Health Physics Department.~~

CPB

2.7 Prior to performing the survey, the survey teams have reviewed the areas and locations to be surveyed.

CPB

2.8 Air samples shall be obtained prior to the survey and analyzed for radioactive contamination levels.

CPB

2.9 A Radiation Work Permit has been issued (if applicable).

CPB

2.10 The guidelines contained in Reference 3 shall be followed during the survey.

Initials

3.0 Precautions

CRB

3.1 Care shall be exercised at all times during the survey to minimize dose received by the surveyors. Whenever possible exposure to radiation shall be divided between the members of each survey team so that dose received by each member will be nearly the same.

CRB

3.2 Prior to entering any area the survey meters will be read while the surveyors are still shielded behind existing barriers.

CRB

3.3 The plant should remain a steady state conditions throughout the performance of the survey. If a change in plant power level is required, the survey team must be notified prior to the change.

Initials

4.0 Instructions

CB

4.1 Utilizing Attachment 6.2 take neutron and gamma readings at the
Rev #1
com ~~specified~~ locations *specified by health physics personnel.*

CB

4.2 All readings are taken at waist level unless otherwise noted.
General area survey locations (designated by a) will be
taken by scanning over 360 degrees and logging the maximum
reading obtained. Contact area locations (designated by a
) will be taken at the single point designated.

AHS

4.3 All readings obtained will be logged on the enclosed survey maps
(Attachment 6.2) adjacent to the numbered symbol described in
step 4.2 in mr/hr for gamma and in mrem/hr for neutron.

AHS

4.4 At the completion of the survey enter the data obtained on the
survey data sheets.

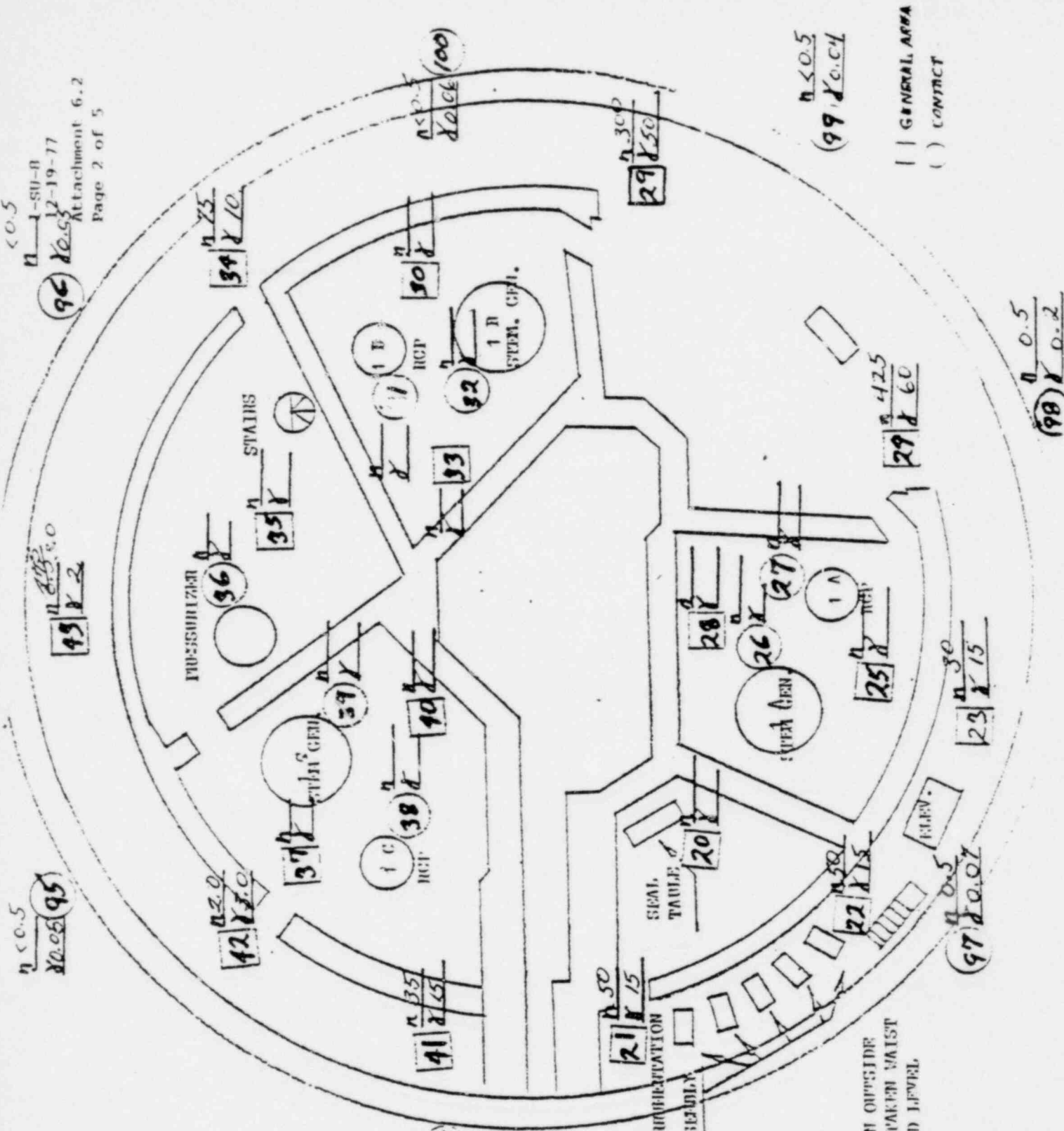
AHS

4.5 Recheck the calibration of the survey instruments used and
record on Attachment 6.1.

AHS

4.6 Inform the Shift Supervisor that the radiation survey at this
power level is complete.

Completed By: *D. M. X*
AH Stafford
Date: *5/14/78*



SHEET No 1
 COMPARTMENT
 E.L. 262' 10"

n < 0.5
 X 0.05 (94)

INCORP. DEBRIDEMENT
 & DRIVE ASSEMBLY

SURVEY POINTS ON OPPOSITE
 OF COMPARTMENT TAKEN VIA ST
 HIGH FLOOR GROUND LEVEL

| | GENERAL AREA
 () CONTACT

n < 0.5
 (99) X 0.04

n < 0.5
 (98) X 0.2

n < 0.5
 X 0.15

n < 0.5
 X 0.01

n < 0.5
 X 0.60

n < 0.5
 X 0.50

n < 0.5
 X 0.06 (100)

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.15

n < 0.5
 X 0.15

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.10

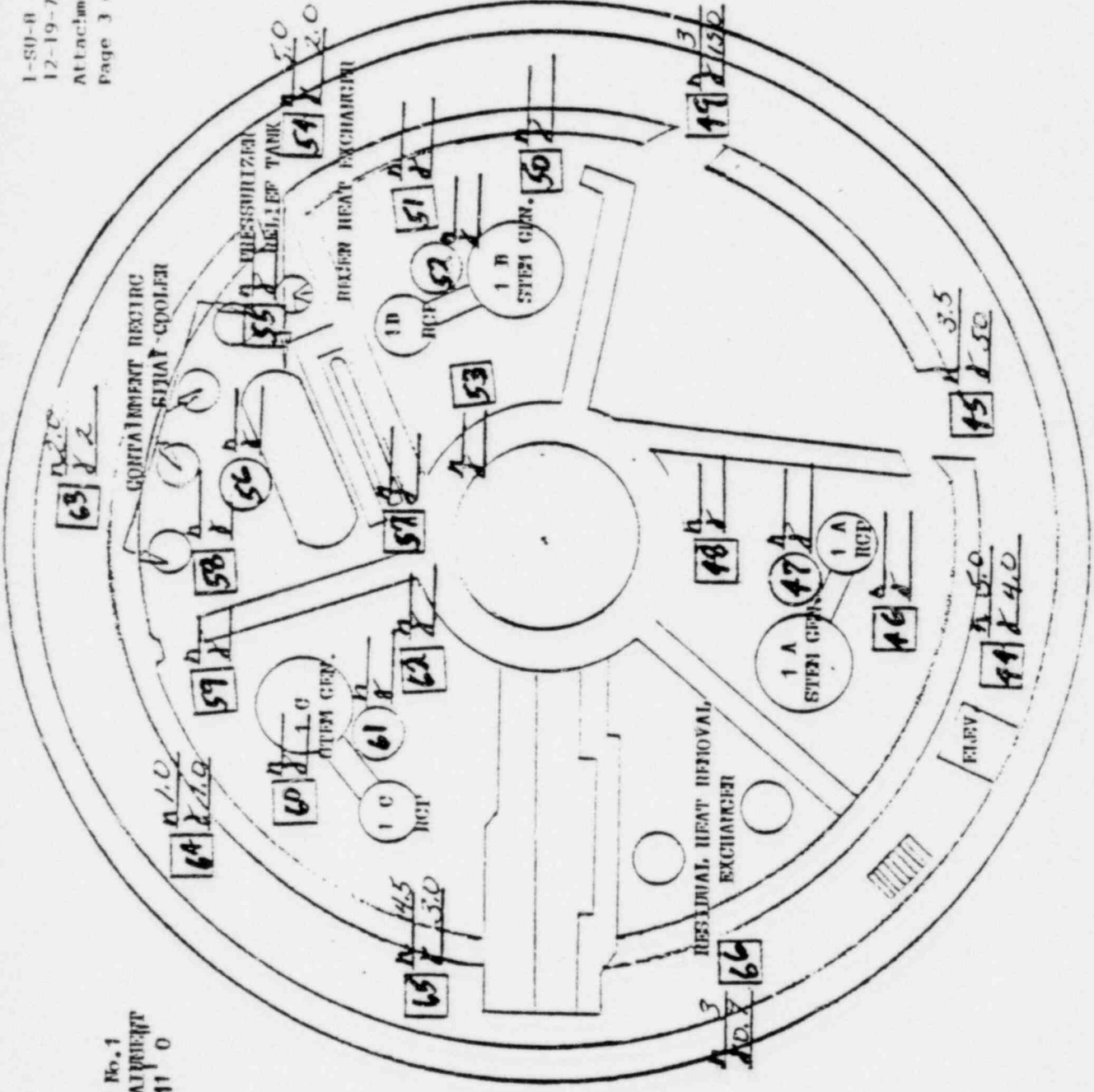
n < 0.5
 X 0.10

n < 0.5
 X 0.10

n < 0.5
 X 0.05 (95)

n < 0.5
 X 0.05 (96)

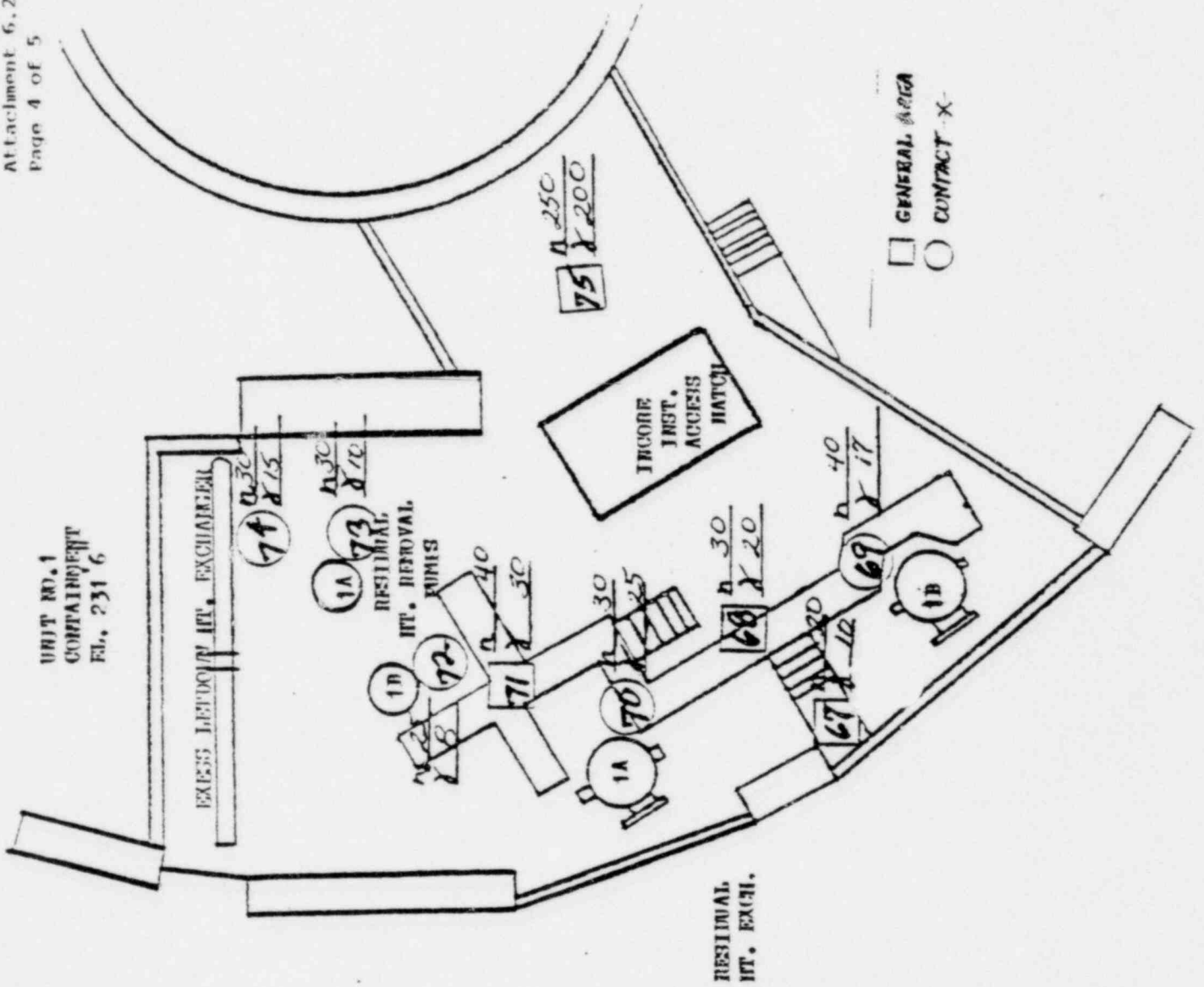
UNIT No. 1
 COMPARTMENT
 EL. 241 0

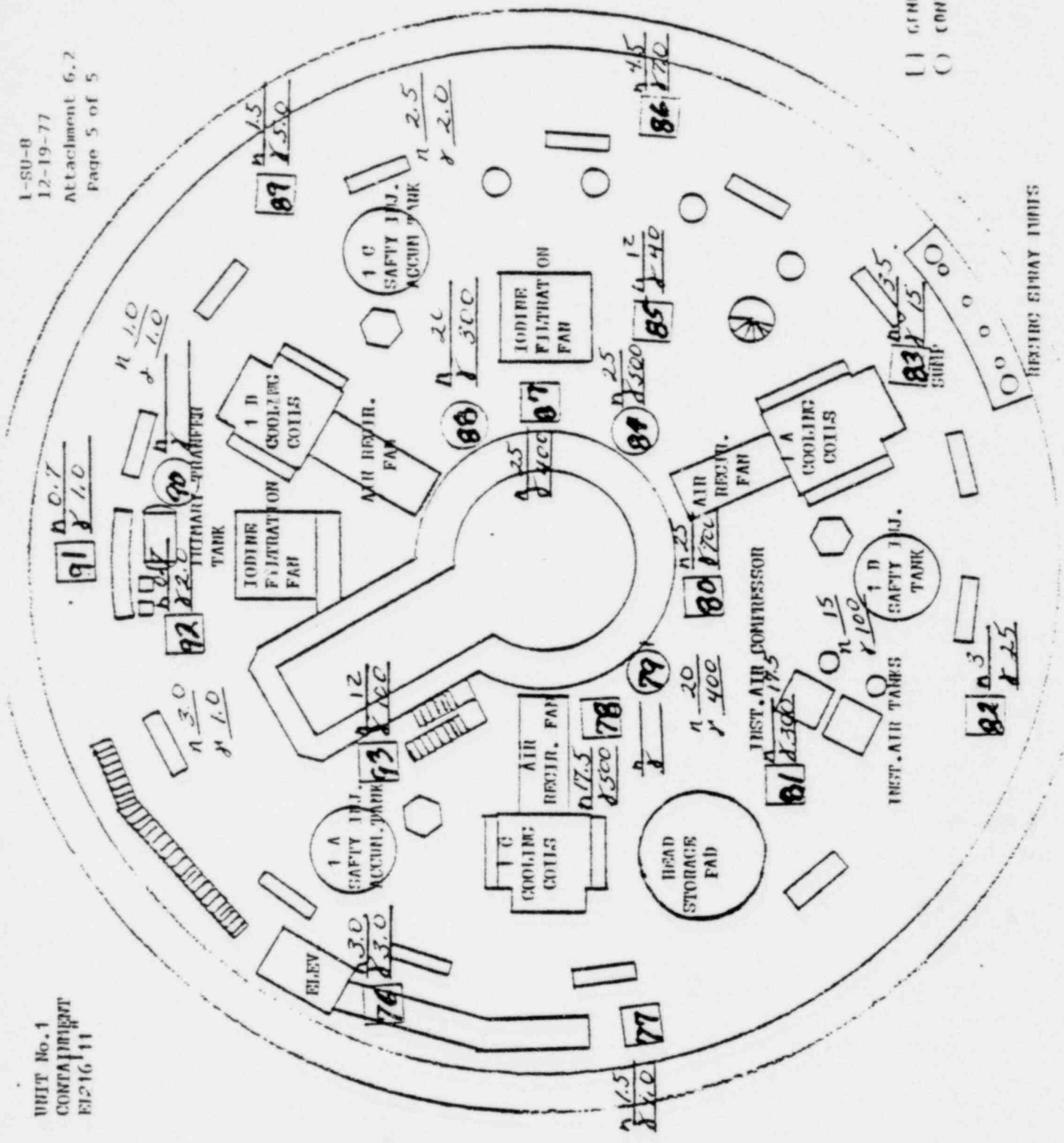


□ GENERAL AREA
 ○ CONTACT

0711000000

UNIT NO. 1
COMPARTMENT
EL. 231.6





|| GENERAL ARE.
○ CONTACT -X

RETRIC SHAY TUBES

SURVEY INSTRUMENT CALIBRATION

INSTRUMENT: R PNR-4 SERIAL #: 3457

CALIBRATION METHOD: HP-3.3.3.3

RESPONSE CHECKED: YES NO SOURCE USED: Am-241/Be SERIAL #: AMN.24

INSTRUMENT CALIBRATED FOR: CPM mR/hr mRem/hr

DATE	x .01		x .1		4 CPM		40 mRem/hr		400 mRem/hr		4000 mRem/hr		NEXT CAL. DUE	SIGNATURE
	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED		
05/14/78	N/A		N/A		4		40		435		4000		7-12-78	F.A. Clarke

REMARKS WITH DATE: 5/14/78 CAL. CHECK IN ACCORDANCE WITH 1-50-E F.A. Clarke
RESPONSE 1000 mREM WITH CONTACT ON SOURCE F.A. Clarke

SURVEY INSTRUMENT CALIBRATION

INSTRUMENT: E 520 SERIAL #: 868/HP177 - # 208

CALIBRATION METHOD: Scale x.01 Mini Pulser, scale x.01 x 1.0 Cs-137 10 mCi source

Sec # Cs 365, scale x 10 x 100, use 1.2 Cs-137 source in High Range Cal. Facility

RESPONSE CHECKED: YES NO SOURCE USED: Cs-137 SERIAL #: Cs 365/547

INSTRUMENT CALIBRATED FOR: CPM mR/hr mRem/hr 1500

DATE	x .01		x .1		x 1		x 10		x 100		x 1000		NEXT CAL. DUE	SIGNATURE
	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED	INIT.	ADJUSTED		
05/14/78	200	NP	1900	NP	16	NP	145	NP	1400	NP			6/7/78	R. R. du
2														
3														
4														
5														
6														
7														
8														
9														
10														

REMARKS WITH DATE: 5/14/78 CAL. CHECK IN ACCORDANCE WITH 1-50-B R.R. du

SURVEY INSTRUMENT CALIBRATION

INSTRUMENT; 6112 TELETECTOR SERIAL #: 5845

CALIBRATION METHOD: HP-3.3.3.8

RESPONSE CHECKED: YES NO SOURCE USED: Cs-137, I.R.C. SERIAL #: 365/547

DATE	INSTRUMENT CALIBRATED FOR:				mR/hr		mRem/hr		NEXT CAL. DUE	SIGNATURE			
	x INIT. ADJUSTED	x INIT. ADJUSTED	x INIT. ADJUSTED	x INIT. ADJUSTED	x INIT. ADJUSTED	x INIT. ADJUSTED	x INIT. ADJUSTED	x INIT. ADJUSTED					
1 5/4/78	1.5	NA	30	NA	1.5	NA	30	NA	750	50	NA	4/6/78	R.R. De...
2													
3													
4													
5													
6													
7													
8													
9													
10													

REMARKS WITH DATE: 5/14/78 CAL CHECK IN ACCORDANCE WITH 1-50-8 R.R. De...

PROCEDURE DEVIATION
NORTH ANNA POWER STATION
VIRGINIA ELECTRIC AND POWER COMPANY

DATE: 5/11/78	PROCEDURE NO.: 1-54-8	UNIT NO.: 1
IS PERMANENT CHANGE REQUIRED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REPORTED BY: D. H. McLean	DATE: 5/11/78	
SHIFT SUPERVISOR'S SIGNATURE: [Signature]	DATE: 5/11/78	
COGNIZANT SUPERVISOR'S SIGNATURE: E. R. [Signature]	DATE: 5-11-78	

DESCRIPTION OF DEVIATION:

STEP NO.	DEVIATION
1) 4.1	Change to "Utilizing Attachment C.2 Take neutron and gamma readings at the locations specified by health physics personnel"
2) 2.6	Change to "Survey team will consist of a minimum of two personnel"

REASON FOR DEVIATION:

1. Due to high radiation levels in containment surveys will only be done in areas deemed acceptable by H.P.
2. Due to high exposure of H.P. personnel it may be necessary to use operating staff personnel.

REVIEWED BY STATION NUCLEAR SAFETY AND OPERATING COMMITTEE:

CHAIRMAN'S SIGNATURE: [Signature] DATE: 5/16/78

RECOMMENDATION: Approved

APPROVED BY STATION MANAGER: [Signature] DATE: 5/16/78