

PROJECT ADMINISTRATION DATA SHEET

ORIGINAL



REVISION NO. _____

Project No. E-26-681*DATE: 8/31/81Project Director: Dr. John L. RussellSchool/~~Lab~~ Nuclear Engineering -Sponsor: Georgia Power CompanyType Agreement: Purchase Order No. PEHA-189 dated 8/6/81Award Period: From 8/6/81 To 3/31/83 (Performance) _____ (Reports) _____Sponsor Amount: \$640,071 (E-26-681) & \$1, 262,023 (A-3026) Contracted through: _____~~Cost Sharing~~ Total Sponsor Amount: Not to exceed \$1,902,094 GTRI/GITTitle: Plant Hatch Safety Parameter Display and Emergency Response Computer SystemsADMINISTRATIVE DATAOCA CONTACT William F. Brown x48201) Sponsor Technical Contact: J. R. Jordon, Georgia Power Company, 333 Piedmont Ave., Atlanta, GA 303412) Sponsor Admin./Contractual Contact: L. B. Dover, Georgia Power Company
P. O. Box 4545, Atlanta, GA 30332. (404) 526-6306Reports: See Deliverable Schedule Security Classification: N/ADefense Priority Rating: N/ARESTRICTIONSSee Attached N/A Supplemental Information Sheet for Additional Requirements

Travel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.

Equipment: Title vests with sponsorCOMMENTS: *Subproject is A-3026/J. A. Mahaffey/ECSL/CTADCOPIES TO:Administrative Coordinator
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Other: _____

PROJECT ADMINISTRATION DATA SHEET



ORIGINAL



REVISION NO. _____

Sub Project No. A-3026*DATE: 8/31/81Sub Project Director: Mr. James A. Mahaffey~~SC/3031~~/Lab ECSL/CTADSponsor: Georgia Power CompanyType Agreement: Purchase Order No. PEHA-189 dated 8/6/81Award Period: From 8/6/81 To 3/31/83 (Performance) _____ (Reports)Sponsor Amount: \$640,071 (E-26-681) & \$1, 262,023 (A-3026) Contracted through:~~Cost Sharing~~: Total Sponsor Amount: Not to exceed \$1,902,094 GTRI/~~ST~~Title: Plant Hatch Safety Parameter Display and Emergency Response Computer Systems

ADMINISTRATIVE DATA

OCA CONTACT William F. Brown x48201) Sponsor Technical Contact: J. R. Jordon, Georgia Power Company, 333 Piedmont Ave. Atlanta, GA 303412) Sponsor Admin./Contractual Contact: L. B. Dover, Georgia Power Company P. O. Box 4545, Atlanta, GA 30332Reports: See Deliverable Schedule Security Classification: N/ADefense Priority Rating: N/A

RESTRICTIONS

See Attached N/A Supplemental Information Sheet for Additional RequirementsTravel: Foreign travel must have prior approval - Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of \$500 or 125% of approved proposal budget category.Equipment: Title vests with sponsorCOMMENTS: *A-3026 is subproject under E-26-681/J. L. Russell/Nuclear Engineering

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Other: _____

SPONSORED PROJECT TERMINATION/CLOSEOUT SHEETDate August 8, 1985Project No. E-25-683 R5295-OA2
(FORMERLY E-26-681)School/~~XXX~~ MEIncludes Subproject No.(s) A-3026Project Director(s) Dr. Roger W. CarlsonGTRC ~~XXX~~Sponsor Georgia Power Company Atlanta, Georgia 30302Title Plant Hatch Safety Parameter Display and Emergency Response Computer SystemsEffective Completion Date: 8/1/85 (Performance) N/A (Reports)

Grant/Contract Closeout Actions Remaining:

☐ None☒ Final Invoice or Final Fiscal Report☐ Closing Documents☐ Final Report of Inventions☐ Govt. Property Inventory & Related Certificate☐ Classified Material Certificate☐ Other _____

Continues Project No. _____ Continued by Project No. _____

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APPLICATION			REVISIONS		
DRAWING ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVED

SPDS
 FUNCTIONAL TEST RESULTS
 FOR GEORGIA POWER COMPANY
 E. I. HATCH PLANT
 UNIT 1
 VOL. 1

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED TOLEANCES 3 PLACE DECIMALS ± .005 2 PLACE DECIMALS ± .02 1 PLACE DECIMAL ± .1 RADIUSES ± ANGLES ± 0° 30' MAX SURFACE ROUGHNESS 125 ALL MACHINED SURFACES UNLESS AS NOTED BREAK DIMENSIONS AND CORNERS TO MAX	CONTRACT NO. DWN ENGR. <i>[Signature]</i> 10/3/84 CH. <i>[Signature]</i> 10/3/84 PROD. APVD <i>[Signature]</i> APVD	 ENGINEERING EXPERIMENT STATION IN THE GEORGIA INSTITUTE OF TECHNOLOGY ATLANTA, GEORGIA FUNCTIONAL TEST RESULTS SPDS E. I. HATCH UNIT 1 <table style="width: 100%; border: none;"> <tr> <td style="border: 1px solid black; width: 15%;">SIZE A</td> <td style="border: 1px solid black; width: 35%;">CODE IDENT NO. 07101</td> <td style="border: 1px solid black; width: 50%;">DRAWING NO. 110-A3026-5213 VOL.1</td> </tr> <tr> <td style="border: none;">SCALE</td> <td style="border: none;">REV</td> <td style="border: none;">SHEET</td> </tr> </table>	SIZE A	CODE IDENT NO. 07101	DRAWING NO. 110-A3026-5213 VOL.1	SCALE	REV	SHEET
SIZE A	CODE IDENT NO. 07101	DRAWING NO. 110-A3026-5213 VOL.1						
SCALE	REV	SHEET						

SPDS

APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVED

SPDS/ERF
FUNCTIONAL TEST PROCEDURES
FOR GEORGIA POWER COMPANY
E.I. HATCH
UNIT 1 (VOL. 1)

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED TOLERANCES 3 PLACE DECIMALS $\pm .005$ 2 PLACE DECIMALS $\pm .02$ 1 PLACE DECIMAL $\pm .1$ ACTIONS $\pm$ ANGLES $\pm 0^\circ 30'$ MAX SURFACE ROUGHNESS 125/ ALL MACHINED SURFACES EXCEPT AS NOTED BREAK SHARP EDGES AND CORNERS .010 MAX FINISH	CONTRACT NO. A3026	GIES ENGINEERING EXPERIMENT STATION OF THE GEORGIA INSTITUTE OF TECHNOLOGY ATLANTA, GEORGIA			
	DWN <i>[Signature]</i> 8-8-84	FUNCTIONAL TEST PROCEDURES, SPDS/ERF			8/8/84
	ENCL <i>[Signature]</i> 8/8/84				8/8/84
	CHK <i>[Signature]</i> 8/8/84				8/8/84
	PRGD				8/8/84
APVD <i>[Signature]</i> 8/8/84	APVD	SIZE A	CODE IDENT NO. 07101	DRAWING NO. 114-A3026-5100-U	
FINISH	APVD	SCALE	REV	SHEET	

1. INTRODUCTION

PURPOSE:

The tests described in the following sections are intended to verify the correct functioning of the Unit 1 SPDS/ERF by duplicating the input provided to the Data Acquisition Process of this system.

REFERENCES:

1. SPDS/ERF Functional Specifications for Georgia Power Company E.I. Hatch Unit 1, Revision 4 (January 31, 1984).
2. Memo from: Lotfi Belblidia, GIT/NE
Memo to: Jeff Hopper, GIT/EES
Date: May 23, 1984
Identifier: Torus Water Temperature Averaging
3. Memo from: Lotfi Belblidia, GIT/NE
Memo to: Jim Mahaffey, GIT/EES
Date: June 20, 1984
Identifier: Amendments to Unit 2 SPDS/ERF Functional Specifications
4. Letter from: Gaffour A. Kosi, Bechtel
Letter to: J. R. Jordan, GPC
Date: June 1, 1984
Identifier: E. I. Hatch Nuclear Plant Units 1 & 2
Bechtel Job 6511-013/033-400300
PCIS Override Switch Inputs to ERF Computer
for DCR 80-157 Rev. 1
File: A29.3/A21.1/4250/A60.34/B-GP-12289
5. Memo from: Greg Stokes, Bechtel
Memo to: Jim Mahaffey, GIT/EES
Date: July 24, 1984
Identifier: Software Changes as a Result of Preliminary SPDS/ERF Functional Tests and Further Amendments to Rev. 4 of the Functional Specifications.

SCOPE:

The following sections have been arranged to exercise each of the input variables such that each of the displayed parameters is verified in a sequential manner. The order of the tests is important to the proper execution of the tests because many parameters provide input to the data reduction for other parameters. In these instances the correct operation of the parameters that are input to a calculation are verified prior to testing the results of that calculation to avoid repetition of tests.

The tests that are presented in the following sections have been selected to test the following properties of each of the parameters:

1. Range
2. Averaging and correction for calibration conditions
3. Out of range (high, low and difference)
4. Set points
5. Logic
6. Rate calculation

In addition, the tests are arranged to verify simultaneously the correct operation of the primary and diagnostic displays, followed by verification of the reproduction of the information on the trend and emergency displays. This results in the duplication of tests; however, the separation was desired for simplicity of the testing procedure.

The tests will also exercise the logic of the Primary and Secondary Containment Isolation system, and will demonstrate the proper functioning of special functions such as Log in/Log out and Data History. Verification of the various miscellaneous displays will also be conducted.

ACCEPTANCE CRITERIA:

A test will be considered to have failed if the response given by the SPDS/ERF does not agree with that specified by the procedures. This criterion is relaxed only when the test requires timing of the response. For such cases slight differences in times are acceptable to accommodate timing measurements inaccuracies. Also, the fact that the displays are updated at specific time intervals introduces time delays between input and response.

OVERVIEW OF THE PROCEDURES:

1. The SPDS/ERF test configuration is described in Figure 1.1. The test requires two test consoles, one for the SPDS and one for the ERF. SPDS and ERF must be tested simultaneously. Two copies of these procedures will be made available. The first one, to be marked SPDS, will be used to input data at the SPDS test entry console and to verify the response of the SPDS. The second copy, to be marked ERF, will be used to enter data of the ERF test entry console and to verify the response of the ERF.
2. Before starting the tests, the date on ARTS disk image file BETA_REV4.DIMG should be recorded. The date indicates when the software was last loaded in the ROLM computers. Since no changes in the software is allowed throughout the tests, this date should remain the same until completion of the tests. If retesting is required, the new date should be recorded.
3. Each test consists of a basic set of inputs followed by a series of changes to the input which are to be made sequentially. If restoring the basic set of input parameters is required before changing any of the parameters to be tested, the instructions for that test will so indicate.
4. Once the input is set for a test, the response of the SPDS and ERF is to be compared to the output that is indicated in the test instructions. A response is appropriate if the value and/or color shown on a display agrees with the value and/or color specified in this document.
5. If the response is correct, approval of the test is to be recorded by the representatives of the party conducting the test. An incorrect response will terminate the section of tests in which the failure has occurred, and will require filing a Variance Report (see Appendix A). A Variance Report must provide the date and time of failure, a description or an identification of the test being performed, and a description of the failure. Further, it must describe the desired results and give the name of the person responsible for entering the data and observing the response. A variance is resolved by correction of the problem, passing for retesting by GIT, GPC and Bechtel, and after a representative of each party has signed the Resolution of Variance Section in the Variance Report form. The extent of the retesting will have to be evaluated and be agreed upon by all parties involved.
6. Exceptions to the procedures can be written during the tests as long as the intent of the procedures is not changed and the exceptions are fully documented and attached.
7. When the entire test is completed satisfactorily, the signed and dated documents are to be turned over to Georgia Power Company.

8. The initial step in each series of tests is to enter a "standard" set of data into the computer memory which will serve as the reference for the perturbations to the data which will exercise the logic of the software. All of the signals are tabulated in Tables 1.1, 1.2 and 1.3 along with the numerical values to be used to form the standard set of data. This standard set of data is contained in file UNIT1_DEF.
9. Loading of the initialization file and changes to this file are done by responding to the following menu on the test entry consoles:

Enter choice:

- 1 = ERF analog
- 2 = ERF digital
- 3 = SPDS analog
- 4 = Save into a file
- 5 = Restore from a file
- 6 = Force ERF analog error
- 7 = Force SPDS analog error
- 8 = Force ERF digital
- 9 = Reset imposed error conditions
- 10 = Signal change enable
- 11 = Signal change disable
- 12 = Global change start
- 13 = Global change stop
- 14 = Function select
- 15 = Set all digital to one
- 16 = Resets all digital to zero
- 17 = Enable buffer data transfer
- 18 = Disable buffer data transfer

Enter command

Option 4 permits to save all the changes to the initialization file. Option 5 is used to load the initialization file (UNIT1_DEF). Options 6 through 9 are used to force ERF/SPDS not available rates. Options 10 through 14 are used to test the rate calculations.

If the choice is 1 (valid only at the ERF),

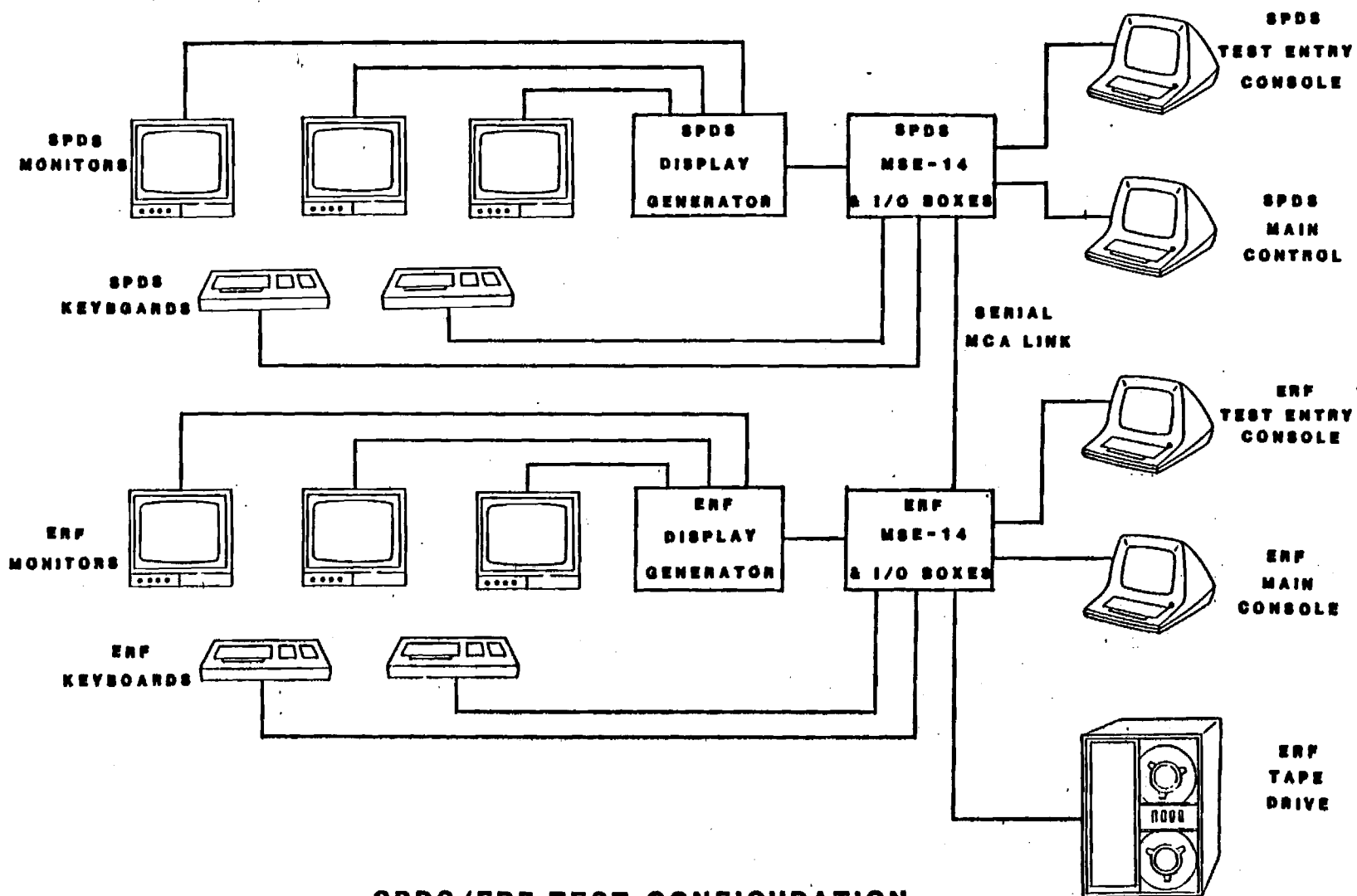
- a. Enter ERF channel number (0 - 127)
- b. Enter value of data (0-4095)

If the choice is 2 (valid only at the ERF),

- a. Enter the GIT number (Octal - 4 digits)
- b. Choose bit value (0 = false, 1 = true)

If the choice is 3 (valid only at the SPDS),

- a. Enter SPDS channel number (0 - 127)
- b. Enter value of data (0 - 4095)



**SPDS/ERF TEST CONFIGURATION
BLOCK DIAGRAM**

TABLE 1.1
SPDS ANALOG INPUT DATA

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
<u>REACTOR WATER LEVEL</u>			
QB21-LIS N685A	-317/-17	123	4095
QB21-LIS N685B	-317/-17	18	4095
QB21-LT N038A	-317/+60	66	3865
QB21-LT N0383	-317/+60	109	3865
QB21-LIS N691A	-150/+60	4	3629
QB21-LIS N691B	-150/+60	43	3629
QB21-LIS N691C	-150/+60	64	3682
QB21-LIS N691D	-150/+60	111	3682
QB21-LT N027	-17/+383	84	571
<u>REACTOR PRESSURE</u>			
QB21-PIS N690A	0/1500	80	2740
QB21-PIS N690D	0/1500	127	2740
<u>DRYWELL PRESSURE</u>			
QT48-PT N020A	- 5/+ 5	88	2162
QT48-PT N020B	- 5/+ 5	119	2162
QT48-PT N023A	-10/+90	96	421
QT48-PT N023B	-10/+90	79	421
QT48-PT N003A	0/250	87	0
QT48-PT N003B	0/250	120	0
<u>DRYWELL TEMPERATURE</u>			
QT47-TE N001A	0/500	71	959
QT47-TE N001B	0/500	0	971
QT47-TE N001L	0/500	17	932
QT47-TE N002	0/500	118	1008
QT47-TE N004	0/500	81	894
QT47-TE N006	0/500	76	0
QT47-TE N008	0/500	9	921
QT47-TE N009	0/500	65	1090
QT47-TE N001J	0/500	47	921
QT47-TE N001K	0/500	104	1134
QT47-TE N001M	0/500	62	932
QT47-TE N003	0/500	110	1018
QT47-TE N005	0/500	38	959
QT47-TE N007	0/500	126	942
QT47-TE N010	0/500	89	1008

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
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DRYWELL/TORUS H₂ CONCENTRATION

QP33-P601A	0/10 or 0/50	6	15
QP33-P601B	0/10 or 0/50	41	27

DRYWELL/TORUS O₂ CONCENTRATION

QP33-P601A	0/10 or 0/30	68	925
QP33-P601B	0/10 or 0/30	107	870

TORUS WATER LEVEL

QT48-LT N021A	133/163	95	1876
QT48-LT N021B	133/163	112	1876
QT48-LT N010A	0/300	72	2001
QT48-LT N010B	0/300	103	2001

TORUS PRESSURE

QT48-PT N008A	-10/+90	16	420
QT48-PT N008B	-10/+90	63	420

TORUS WATER TEMPERATURE

QT48-TE N301A	50/250	2	748
QT48-TE N302A	50/250	83	748
QT48-TE N303A	50/250	99	748
QT48-TE N304A	50/250	105	748
QT48-TE N305A	50/250	20	748
QT48-TE N306A	50/250	70	748
QT48-TE N307A	50/250	25	748
QT48-TE N308A	50/250	13	748
QT48-TE N309A	50/250	113	748
QT48-TE N310A	50/250	33	748
QT48-TE N311A	50/250	46	748
QT48-TE N009A	0/500	45	709
QT48-TE N009B	0/500	59	709
QT48-TE N009C	0/500	54	709
QT48-TE N009D	0/500	34	709

MAIN STACK RADIATION (Wide Range)

QD11-P007	$5 \times 10^{-3} / 1.0 \times 10^{-5}$	92	0
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REACTOR BUILDING VENT RADIATION (Wide Range)

Q2D11-P601	$5 \times 10^{-3} / 1.0 \times 10^{-5}$	7	0
QD11 -P601	$5 \times 10^{-3} / 1.0 \times 10^{-5}$	32	0

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
<u>RCIC SYSTEM FLOW</u>			
QE51-FT N003	0/500	51	0
<u>HPCI SYSTEM FLOW</u>			
QE41-FT N008	0/5000	42	0
<u>CORE SPRAY FLOW</u>			
QE21-FT N003A	0/7000	10	0
QE21-FT N003B	0/7000	37	0
<u>RHR SYSTEM FLOW</u>			
QE11-FT N015A	0/25,000	85	0
QE11-FT N015B	0/25,000	122	0
<u>RHR HEAT EXCHANGER OUTLET TEMPERATURE SHELL SIDE</u>			
QE11-TE N027A	0/400	21	0
QE11-TE N027B	0/400	58	0
<u>RHR SERVICE WATER FLOW</u>			
QE11-FT N007A	0/12,000	11	0
QE11-FT N007B	0/12,000	36	0
<u>SGTS FLOW TO MAIN STACK</u>			
QT46-SQRT K001	0/8,000	74	0
<u>DRYWELL RADIATION</u>			
QD11-RIS K621A	$10^0/10^7$	31	0
QD11-RIS K62 B	$10^0/10^7$	48	0

TABLE 1.2

ERF ANALOG INPUT DATA

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
<u>AVERAGE POWER RANGE MONITORS</u>			
QC51-RIS K605			
APRM A	0/125	30	3276
APRM B	0/125	111	3276
APRM C	0/125	49	3276
APRM D	0/125	82	3276
APRM E	0/125	64	3276
APRM F	0/125	125	3276
<u>SOURCE RANGE MONITORS</u>			
QC51-RIS K600A	$10^{-1}/10^6$	0	3718
QC51-RIS K600B	$10^{-1}/10^6$	17	3718
QC51-RIS K600C	$10^{-1}/10^6$	47	3718
QC51-RIS K600D	$10^{-1}/10^6$	62	3718
<u>RECIRCULATION PUMP FLOWS</u>			
QB31-SQRT K608A	0/70,000	10	2640
QB31-SQRT K606A	0/70,000	37	2640
<u>VESSEL FLANGE TEMPERATURE</u>			
QB21-TE N050A	0/600	117	1365
<u>CONDENSER PRESSURE</u>			
QN61-PT N001	0/15 psia	76	0
QN61-PT N002	0/15	99	0
<u>CONDENSATE STORAGE TANK LEVEL</u>			
QP11-LT N001	0/40	16	0
<u>MAIN FEEDWATER FLOW</u>			
QC32-SQRT K619A	$0/6 \times 10^{-6}$	15	3412
QC32-SQRT K619B	$0/6 \times 10^{-6}$	32	3412

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
<u>FEEDWATER TEMPERATURE</u>			
QB21-TT N602A	280/430	86	0
QB21-TT N602B	280/430	121	0
QB21-TT N602C	280/430	4	0
QB21-TT N602D	280/430	43	0
<u>MAIN STEAM LINE FLOW</u>			
QC32-FY K601A	$0/3 \times 10^{-6}$	70	0
QC32-FY K601B	$0/3 \times 10^{-6}$	105	0
QC32-FY K601C	$0/3 \times 10^{-6}$	83	0
QC32-FY K601D	$0/3 \times 10^{-6}$	124	0
<u>SLCS PRESSURE</u>			
QC41-PT N004	0/1800	87	0
<u>SLCS STORAGE TANK LEVEL</u>			
QC41-LT N001	0/100	79	0
<u>REACTOR BUILDING AREA RADIATION</u>			
QD21-RIS K601A (Ch. # 1)	$10^0/10^4$	31	0
QD21-RIS K601B (Ch. # 2)	$10^0/10^4$	48	0
QD21-RIS K601C (Ch. # 3)	$10^0/10^4$	91	0
QD21-RIS K601D (Ch. # 4)	$10^0/10^4$	1	0
QD21-RIS K601E (Ch. # 5)	$10^0/10^4$	13	0
QD21-RIS K601F (Ch. # 6)	$10^0/10^4$	34	0
QD21-RIS K601G (Ch. # 7)	$10^0/10^4$	19	0
QD21-RIS K601H (Ch. # 8)	$10^0/10^4$	60	0
QD21-RIS K601K (Ch. # 9)	$10^0/10^4$	118	0
QD21-RIS K602L (Ch. #10)	$10^0/10^4$	51	0
QD21-RIS K602M (Ch. #11)	$10^0/10^4$	116	0
QD21-RIS K602N (Ch. #12)	$10^0/10^4$	80	0
QD21-RIS K602P (Ch. #13)	$10^0/10^4$	127	0
QD21-RIS K602R (Ch. #14)	$10^0/10^4$	69	0
QD21-RIS K602S (Ch. #15)	$10^0/10^4$	106	0
QD21-RIS K602T (Ch. #16)	$10^0/10^4$	73	0
QD21-RIS K602U (Ch. #17)	$10^0/10^4$	102	0
QD21-RIS K602V (Ch. #18)	$10^0/10^4$	3	0
QD21-RIS K602W (Ch. #19)	$10^0/10^4$	44	0
QD21-RIS K602X (Ch. #20)	$10^0/10^4$	22	0
QD21-RIS K602Y (Ch. #21)	$10^0/10^4$	57	0

WGTB AREA RADIATION

<u>Sensor</u> <u>Tag Number</u>	<u>Scale</u>	<u>Channel</u> <u>Number</u>	<u>Default</u> <u>Value</u>
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TURBINE BUILDING AREA RADIATION

QD21-RIS K600A (Ch. #22)	$10^{-2}/10^2$	94	0
QD21-RIS K600B (Ch. #23)	$10^{-2}/10^2$	109	0
QD21-RIS K600C (Ch. #24)	$10^{-2}/10^2$	66	0
QD21-RIS K600D (Ch. #25)	$10^{-2}/10^2$	8	0
QD21-RIS K600E (Ch. #26)	$10^{-2}/10^2$	39	0
QD21-RIS K600Z (Ch. #27)	$10^{-0}/10^4$	113	0

RADWASTE BUILDING AREA RADIATIONUnit one:

QD21-RIS K601AA (Ch. #28)	$10^0/10^4$	24	0
QD21-RIS K601AB (Ch. #29)	$10^0/10^4$	55	0
QD21-RIS K611AC (Ch. #30)	$10^0/10^4$	6	0

OTHER

QD21-RIS K617 (Ch. #31)	$10^{-2}/10^{+2}$	9	0
QD21-RIS K615 (Ch. #32)	$10^{-2}/10^{+2}$	71	0
QD21-RIS K616 (Ch. #33)	$10^{-2}/10^{+2}$	104	0
QD21-RIS K613 (Ch. #34)	$10^{-2}/10^{+2}$	88	0
QD21-RIS K614 (Ch. #35)	$10^{-2}/10^{+2}$	119	0
QD21-RIS K610 (Ch. #36)	$10^{-2}/10^{+2}$	75	0
QD21-RIS K611 (Ch. #37)	$10^{-2}/10^{+2}$	100	0
QD21-RIS K612 (Ch. #38)	$10^{-2}/10^{+2}$	38	0

RADWASTE EFFLUENT RADIATION TO RIVER

Q11-RIS K604	$10^{-1}/10^6$	23	0
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PLANT SERVICE WATER EFFLUENT RADIATION TO RIVER

QD11-RIS K605	$10^{-1}/10^6$	56	0
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REACTOR BUILDING FILTER DISCHARGE RADIATION

QD11-RIS K608A	$10^{-2}/10^2$	65	0
QD11-RIS K608B	$10^{-2}/10^2$	110	0

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
<u>SGTS FILTER TRAIN RADIATION TO MAIN STACK</u>			
QD11-RIS K613	$10^{-2}/10^2$	120	0
<u>CARBON BED VAULT RADIATION (WGTE)</u>			
QD11-RIS K614	$10^0/10^6$	33	0
<u>REFUELING FLOOR FILTER DISCHARGE RADIATION</u>			
QD11-RIS K616A	$10^{-2}/10^2$	103	0
QD11-RIS K616B	$10^{-2}/10^2$	72	0
<u>TURBINE BUILDING FILTER DISCHARGE RADIATION</u>			
QD11-RIS K617A	$10^{-2}/10^2$	12	0
QD11-RIS K617B	$10^{-2}/10^2$	35	0
<u>RADWASTE BUILDING FILTER DISCHARGE RADIATION</u>			
QV41-RIS K002A	$10^{-2}/10^2$	84	0
QV41-RIS K002B	$10^{-2}/10^2$	123	0
<u>FLOOR DRAIN COLLECTOR TANK LEVEL</u>			
Q2G11-LT N035	0/100	101	0
<u>WASTE COLLECTOR TANK LEVEL</u>			
Q2G11-LT N020	0/100	92	0

<u>Sensor Tag Number</u>	<u>Scale</u>	<u>Channel Number</u>	<u>Default Value</u>
<u>WIND DIRECTION</u>			
QY33-POT N004 (100m)	0/540	52	0
QY33-POT N005 (60m)	0/540	27	0
QY33-POT N006 (10m)	0/540	5	0
QY33-POT N048 (23m)	0/540	42	0
<u>WIND SPEED</u>			
QY33-PT N001 (100m)	0/100	36	0
QY33-PT N002 (60m)	0/100	11	0
QY33-PT N003 (10m)	0/100	18	0
QY33-PT N047 (23m)	0/100	61	0
<u>WIND DIRECTION STANDARD DEVIATION</u>			
QY33-POQ N029 (100m)	0/100	40	0
QY33-POQ N030 (60m)	0/100	7	0
QY33-POQ N031 (10m)	0/100	59	0
QY33-POQ N055 (23m)	0/100	77	0
<u>AMBIENT TEMPERATURE</u>			
QY33-TE N013	- 30/120	26	0
QY33-TE N051 (back up)	--30/120	53	0
<u>DEW POINT TEMPERATURE</u>			
QY33-ME N020	- 30/120	2	0
<u>DIFFERENTIAL TEMPERATURE</u>			
QY33-TE N014 (60m)	- 10/ 10	68	0
QY33-TE N015 (100m)	- 10/ 10	81	0
QY33-TE N045 (45m)	- 10/ 10	21	0
<u>PRECIPITATION</u>			
QY33-ME N021	0/100	98	0
<u>MOTOR ASPIRATOR FLOW</u>			
QY33-FS N037 (10m)	0 or 10	45	0
QY33-FS N059 (10m - back up)	0 or 10	108	0
QY33-FS N036 (60m)	0 or 10	67	0
QY33-FS N035 (100m)	0 or 10	95	0
QY33-FS N058 (45m)	0 or 10	112	0

TABLE 1.3

ERF DIGITAL INPUT DATA

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>MAIN STEAM SRVs</u>		
QB21-PS N301A	0510	0
QB21-PS N301B	0511	0
QB21-PS N301C	0512	0
QB21-PS N301D	0513	0
QB21-PS N301E	0514	0
QB21-PS N301F	0515	0
QB21-PS N301G	0516	0
QB21-PS N301H	0517	0
QB21-PS N301J	0520	0
QB21-PS N301K	0521	0
QB21-PS N301L	0522	0
<u>PCIS GROUP 1 VALVES</u>		
QB21-MOV F016	0635	1
QB21-MOV F019	0431	1
QB21-AOV F022A	0560	1
	0561	0
QB21-AOV F022B	0562	1
	0563	0
QB21-AOV F022C	0564	1
	0565	0
QB21-ADV F022D	0566	1
	0567	0
QB21-ADV F028A	0570	1
	0571	0
QB21-ADV F028B	0572	1
	0573	0
QB21-ADV F028C	0574	1
	0575	0
QB21-ADV F028D	0576	1
	0577	0
QB31-ADV F019	0523	1
	0524	0
QB31-ADV F020	0474	1
	0475	0

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>PCIS GROUP 3 VALVES</u>		
QE41-MOV F002	0476	1
	0477	0
QE41-MOV F003	0420	1
<u>PCIS GROUP 4 VALVES</u>		
QE51-MOV F007	0500	1
	0501	0
QE51-MOV F008	0444	1
	0445	0
<u>PCIS GROUP 5 VALVES</u>		
QG31-MOV F001	0506	1
	0507	0
QG31-MOV F004	0440	1
	0441	0
<u>PCIS GROUP 2A VALVES</u>		
QE11-MOV F008	0434	1
	0435	0
QE11-MOV F009	0046	1
	0047	0
QE11-MOV F011A	0012	1
	0013	0
QE11-MOV F011B	0212	1
	0213	0
QE11-MOV F015A(*)	0064	1
	0065	0
QE11-MOV F015(*)	0230	1
	0231	0
QE11-MOV F016A	0060	1
	0061	0
QE11-MOV F016B	0256	1
	0257	0

(*) Not part of Group 2 isolation logic.

<u>Sensor</u> <u>Tag Number</u>	<u>GIT Number</u>	<u>Default</u> <u>Value</u>
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PCIS GROUP 2A VALVES (Cont.)

QE11-MOV F021A	0004	1
	0005	0
QE11-MOV F021B	0204	1
	0205	0
QE11-MOV F022	0050	1
	0051	0
QE11-MOV F023	0432	1
	0433	0
QE11-MOV F024A	0006	1
	0007	0
QE11-MOV F024B	0206	1
	0207	0
QE11-MOV F026A	0054	1
	0055	0
QE11-MOV F026B	0244	1
	0245	0
QE11-MOV F027A	0010	1
	0011	0
QE11-MOV F027B	0210	1
	0211	0
QE11-MOV F028A	0052	1
	0053	0
QE11-MOV F028B	0254	1
	0255	0
QE11-MOV F040	0525	1
QE11-MOV F049	0430	1
QE11-ADV F050A (*)	0062	1
	0063	0
QE11-ADV F050B (*)	0226	1
	0227	0
QE11-SV F079A	0526	1
QE11-SV F079B	0527	1
QE11-SV F080A	0741	1
QE11-SV F080B	0742	1
QE11-ADV F122A	0112	1
QE11-ADV F122B	0677	1

PCIS GROUP 2B VALVES

QE21-MOV F015A	0631	1
	0632	0
QE21-MOV F015B	0710	1
	0711	0
QE41-MOV F104	0113	1
	0114	0
QE41-MOV F111	0714	1
	0715	0

(*) Not part of Group 2 isolation logic

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>PCIS GROUP 2B VALVES (Cont.)</u>		
QE51-MOV F104	0115	1
	0116	0
QE51-MOV F105	0743	1
	0744	0
QG11-AOV F003	0103	1
QG11-AOV F004	0745	1
QG11-AOV F019	0104	1
QG11-AOV F020	0746	1
QG51-AOV F011	0105	1
QG51-AOV F012	0334	1
QG51-AOV F013	0502	1
	0503	0
QG51-AOV F021	0504	1
	0505	0

<u>PCIS GROUP 2C VALVES</u>		
QT48-AOV F103	0667	1
QT48-AOV F104	0670	1
QT48-SV F118A	0627	1
QT48-SV F118B	0630	1
QT48-AOV F307	0623	1
QT48-AOV F308	0673	1
QT48-AOV F309	0624	1
QT48-AOV F318	0626	1
QT48-AOV F319	0625	1
QT48-AOV F320	0676	1
QT48-AOV F324	0675	1
QT48-AOV F326	0674	1
QT48-AOV F332A	0134	1
	0135	0
QT48-AOV F332B	0316	1
	0317	0
QT48-AOV F333A	0136	1
	0137	0
QT48-AOV F333B	0320	1
	0321	0
QT48-AOV F334A	0130	1
	0131	0
QT48-AOV F334B	0312	1
	0313	0
QT48-AOV F335A	0132	1
	0133	0
QT48-AOV F335B	0314	1
	0315	0
QT48-SV F338	0671	1
QT48-SV F339	0621	1
QT48-AOV F340	0672	1
QT48-AOV F341	0622	1

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>PCIS GROUP 2D VALVES</u>		
QP33-AOV F002	0642	1
	0643	0
QP33-AOV F003	0644	1
	0645	0
QP33-AOV F004	0646	1
	0647	0
QP33-SV F005	0736	1
	0737	0
QP33-SV F006	0650	1
	0651	0
QP33-AOV F007	0652	1
	0653	0
QP33-AOV F010	0322	1
	0323	0
QP33-AOV F011	0324	1
	0325	0
QP33-AOV F012	0326	1
	0327	0
QP33-SV F013	0756	1
	0757	0
QP33-AOV F014	0330	1
	0331	0
QP33-AOV F015	0332	1
	0333	0
QP33-AOV F016	0633	0
	0634	1
QP33-AOV F017	0712	0
	0713	1
<u>PCIS GROUP 2E VALVES</u>		
QB21-SV F111	0140	1
	0141	0
QB11-SV F112	0142	1
	0143	0
QD11-SV F050	0636	1
	0637	0
QD11-SV F051	0640	1
	0641	0
QD11-SV F052	0720	1
	0721	0
QD11-AOV F053	0722	1
	0723	0
QE41-SV F121	0144	1
	0145	0
QE41-SV F122	0110	1
	0111	0

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>PCIS GROUP 2E VALVES (Cont.)</u>		
QP70-AOV F002	0106	1
	0107	0
QP70-AOV F003	0310	1
	0311	0
<u>SECONDARY ISOLATION VALVES AND FANS</u>		
QT41-AOV F003A	0604	1
QT41-AOV F003B	0664	1
QT41-AOV F011A	0600	1
QT41-AOV F011B	0660	1
QT41-AOV F023A	0605	1
QT41-AOV F023B	0665	1
QT41-AOV F032A	0603	0
QT41-AOV F032B	0663	0
QT41-AOV F040A	0606	0
QT41-AOV F040B	0666	0
QT41-AOV F043A	0601	1
QT41-AOV F043B	0661	1
QT41-AOV F044A	0602	1
QT41-AOV F044B	0662	1
QT46-C001A	0617	0
	0620	1
	1147	0
	1150	0
	1151	0
QT46-C001B	0724	0
	0725	1
	1152	0
	1153	0
	1154	0
QT46-AOV F001A	0607	0
	0610	1
QT46-AOV F001B	0726	0
	0727	1
QT46-AOV F002A	0611	0
	0612	1
QT46-AOV F002B	0730	0
	0731	1
QT46-AOV F003A	0613	1
	0614	0
QT46-AOV F003B	0732	1
	0733	0
QT46-AOV F004A	0615	1
	0616	0
QT46-AOV F004B	0734	1
	0735	0

<u>Sensor</u> <u>Tag Number</u>	<u>GIT Number</u>	<u>Default</u> <u>Value</u>
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SECONDARY ISOLATION VALVES AND FANS

QT41-AOV F003A	0530	1
QT41-AOV F003B	0544	1
QT41-AOV F011A	0531	1
QT41-AOV F011B	0545	1
QT41-AOV F023A	0542	1
QT41-AOV F023B	0546	1
QT41-AOV F044A	0533	1
QT41-AOV F044B	0547	1
QT46-D001A	0542	0
	0543	1
	1155	0
	1156	0
	1157	0
QT46-D001B	0335	0
	0336	1
	1160	0
	1161	0
	1162	0
QT46-AOV F001A	0534	0
	0535	1
QT46-AOV F001B	0340	0
	0341	1
QT46-AOV F002A	0536	0
	0537	1
QT46-AOV F002B	0342	0
	0343	1
QT46-AOV F003A	0540	0
	0541	1
QT46-AOV F003B	0276	0
	0277	1

VALVE STATUS (MISC.)

QB31-MOV F023A	0550	1
	0551	0
QB31-MOV F023B	0350	1
	0351	0
QB31-MOV F031A	0000	1
	0001	0
QB31-MOV F031B	0200	1
	0201	0
QC11-MOV F003	0470	1
	0471	0
QC11-MOV F005	0472	1
	0473	0

<u>Sensor</u> <u>Tag Number</u>	<u>GIT Number</u>	<u>Default</u> <u>Value</u>
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VALVE STATUS (MISC.) (Cont.)

QC41-SQB F004A	0356	1
QC41-SQB F004B	0357	1
QE11-MOV F003A	0040	1
	0041	0
QE11-MOV F003B	0250	1
	0251	0
QE11-MOV F004A	0026	1
	0027	0
QE11-MOV F004B	0234	1
	0235	0
QE11-MOV F004C	0030	1
	0031	0
QE11-MOV F004D	0236	1
	0237	0
QE11-MOV F006A	0032	1
	0033	0
QE11-MOV F006B	0240	1
	0241	0
QE11-MOV F006C	0034	1
	0035	0
QE11-MOV F006D	0242	1
	0243	0
QE11-MOV F017A	0020	1
	0021	0
QE11-MOV F017B	0232	1
	0233	0
QE11-MOV F047A	0036	1
	0037	0
QE11-MOV F047B	0246	1
	0247	0
QE11-MOV F048A	0056	1
	0057	0
QE11-MOV F048B	0252	1
	0253	0
QE11-MOV F065A	0022	1
	0023	0
QE11-MOV F065B	0222	1
	0223	0
QE11-MOV F065C	0024	1
	0025	0
QE11-MOV F065D	0224	1
	0225	0

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>VALVE STATUS (MISC.) (Cont.)</u>		
QE11-MOV F068A	0042	1
	0043	0
QE11-MOV F068B	0220	1
	0221	0
QE11-MOV F073A	0002	1
	0003	0
QE11-MOV F073B	0216	1
	0217	0
QE11-MOV F075A	0044	1
	0045	0
QE11-MOV F075B	0202	1
	0203	0
QE11-MOV F091A	0014	1
	0015	0
QE11-MOV F091B	0214	1
	0215	0
QE11-MOV F119A	0100	1
	0101	0
QE11-MOV F119B	0274	1
	0275	0
QE11-MOV F140A	0016	1
	0017	0
QE11-MOV F140B	0260	1
	0261	0
QE21-MOV F001A	0072	1
	0073	0
QE21-MOV F001B	0272	1
	0273	0
QE21-MOV F004A	0076	1
	0077	0
QE21-MOV F004B	0262	1
	0263	0
QE21-MOV F005A	0074	1
	0075	0
QE21-MOV F005B	0270	1
	0271	0
QE21-MOV F006A	0066	1
	0067	0
QE21-MOV F006B	0264	1
	0265	0
QE21-MOV F019A	0070	1
	0071	0
QE21-MOV F019B	0266	1
	0267	0
QE21-MOV F037A	0102	1
QE21-MOV F037B	0740	1

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>VALVE STATUS (MISC.) (Cont.)</u>		
QE41-TURB. CONT. VLV.	0424	1
	0425	0
QE41-TURB. STOP VLV.	0426	1
	0427	0
QE41-MOV F001	0416	1
	0417	0
QE41-MOV F004	0410	1
	0411	0
QE41-MOV F006	0400	1
	0401	0
QE41-MOV F007	0412	1
	0413	0
QE41-MOV F008	0402	1
	0403	0
QE41-MOV F011	0406	1
	0407	0
QE41-MOV F012	0436	1
	0437	0
QE41-MOV F041	0404	1
	0405	0
QE41-MOV F042	0414	1
	0415	0
QE41-AOV F051	0422	1
	0423	0
QE51-GOV. VLV.	0464	1
	0465	0
QE51-TRIP & TROTTL	0466	1
	0467	0
QE51-AOV F003	0462	1
	0463	0
QE51-MOV F010	0446	1
	0447	0
QE51-MOV F012	0450	1
	0451	0
QE51-MOV F013	0452	1
	0453	0
QE51-MOV F019	0656	1
	0657	0
QE51-MOV F022	0442	1
	0443	0
QE51-MOV F029	0456	1
	0457	0
QE51-MOV F031	0460	1
	0461	0

<u>Sensor</u> <u>Tag Number</u>	<u>GIT Number</u>	<u>Default</u> <u>Value</u>
<u>VALVE STATUS (MISC.) (Cont.)</u>		
QE51-MOV F045	0454	1
	0455	0
QE31-MOV F034	0154	1
	0155	0
Q2E31-MOV F035	0156	1
	0157	0
Q2E31-MOV F042	0552	1
	0553	0
QP41-MOV F049	0300	1
	0301	0
QP41-MOV F050	0302	1
	0303	0
QP42-MOV F051	0304	1
	0305	0
QP42-MCV F052	0306	1
	0307	0
QP70-SV F004	0654	1
	0655	0
QP70-SV F005	0716	1
	0717	0
QT48-AOV F113	0120	1
	1121	0
QT48-AOV F114	0122	1
	0123	0
QT48-AOV F115	0124	1
	0125	0
QT48-AOV F116	0126	1
	0127	0
QT48-AOV F310	0750	1
	0751	0
QT48-AOV F311	0752	1
	0753	0
QT48-AOV F321	0700	1
	0701	0
QT48-AOV F322	0702	1
	0703	0
QT48-AOV F325	0704	1
	0705	0
QT48-AOV F327	0706	1
	0707	0

<u>Sensor</u> <u>Tag Number</u>	<u>GIT Number</u>	<u>Default</u> <u>Value</u>
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PUMP STATUS (MISC.)

QB31-C001A	1500	1
	1501	0
QB31-C001B	1502	1
	1503	0
QT48-AOV F116	0142	1
	0143	0
QT48-AOV F310	0750	1
	0751	0
QT48-AOV F311	0752	1
	0753	0
QT48-AOV F321	0700	1
	0701	0
QT48-AOV F322	0702	1
	0703	0
QT48-AOV F325	0704	1
	0705	0
QT48-AOV F327	0706	1
	0707	0

PUMP STATUS (MISC.)

QB31-C001A	1500	1
	1501	0
QB31-C001B	1502	1
	1503	0
QC11-C001A	1400	0
	1401	1
QC11-C001B	1402	0
	1403	1
QC41-C001A	0352	0
	0353	1
QC41-C001B	0354	0
	0355	1
QE11-C001A	1410	0
	1411	1
QE11-C001B	1412	0
	1413	1
QE11-C001C	1414	0
	1415	1
QE11-C001D	1416	0
	1417	1
QE11-C002A	1420	0
	1421	1
QE11-C002B	1422	0
	1423	1

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>PUMP STATUS (MISC.)</u>		
QE11-C002C	1424	0
	1425	1
QE11-C002D	1426	0
	1427	1
QE21-C001A	1404	0
	1405	1
QE21-C001B	1406	0
	1407	1
Q2G31-C001A	0150	1
	0151	0
Q2G31-C001B	0152	1
	0153	0
QN21-C001A	1504	1
	1505	0
QN21-C001B	1506	1
	1507	0
QN21-C001C	1510	1
	1511	0
QN21-C002A	1512	0
	1513	1
QN21-C002B	1514	0
	1515	1
QN21-C002C	1516	0
	1517	1
QN21-C005A	0360	1
	0362	0
QN21-C005B	0364	1
	0366	0
QP41-C001A	1430	1
	1431	0
QP41-C001B	1432	1
	1433	0
QP41-C001C	1434	1
	1435	0
QP41-C001D	1436	1
	1437	0
QP42-C001A	1320	1
	1321	0
QP42-C001B	1322	1
	1323	0
QP42-C001C	1324	1
	1325	0

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>RELAY STATUS (MISC.)</u>		
QC11A-K4A	0754	0
QC11A-K4B	0755	0
QB21C-K5AA	1145	1
QB21C-K5BB	1146	1
QB21C-K6A	1000	0
QB21C-K6B	1001	0
QB21C-K7A	1002	0
QB21C-K7B	1003	0
QE21A-K341A	1130	0
QE21A-K341B	1136	0
QE21A-K342A	1131	0
QE21A-K342B	1137	0
QE21A-K371A	1132	0
QE21A-K371B	1140	0
QE21A-K372A	1133	0
QE21A-K372B	1141	0
QE21A-K610A	1134	0
QE21A-K610B	1142	0
QE21A-K614A	1135	0
QE21A-K614B	1143	0
QC71A-K14A	1004	0
QC71A-K14B	1021	0
QC71A-K14C	1005	0
QC71A-K14D	1022	0
QC71A-K14E	1006	0
QC71A-K14F	1023	0
QC71A-K14G	1007	0
QC71A-K14H	1024	0
QC71A-K15A	1010	0
QC71A-K15B	1025	0
QC71A-K15C	1011	0
QC71A-K15D	1026	0
QC71A-S1	1050	0
	1051	0
	1052	0
	1053	1
QA71B-K7A	1012	0
QA71B-K7B	1027	0
QA71B-K7C	1013	0
QA71B-K7D	1030	0
QA71B-K5A	1014	0
QA71B-K5B	1031	0
QA71B-K5C	1015	0
QA71B-K5D	1032	0
QA71B-K6A	1016	0
QA71B-K6B	1033	0
QA71B-K6C	1017	0
QA71B-K6D	1034	0
QE11A-K9A	1036	0

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
<u>RELAY STATUS (MISC.)</u>		
QE11A-K9B	1040	0
QE11A-K73A	1037	0
QE11A-K73B	1041	0
QE21A-K5A	1042	0
QE21A-K5B	1045	0
QE21A-K6A	1043	0
QE21A-K6B	1046	0
QE21A-K10A	1044	0
QE21A-K10B	1047	0
QE41A-K15	1054	0
QE41A-K34	1055	0
QE41A-K44	1056	0
QE41A-K48	1057	0
QE51A-K16	1061	0
QE51A-K33	1062	0
QA71B-K26	1060	0
QA71B-K27	1063	0
QD11-K80 (QC51A-Z2A)	1070	0
QD11-K80 (QC51A-Z2B)	1071	0
QD11-K80 (QC51A-Z2C)	1072	0
QD11-K80 (QC51A-Z2D)	1073	0
Q2A71B-K5A	1170	0
Q2A71B-K5B	1174	0
Q2A71B-K5C	1171	0
Q2A71B-K5D	1175	0
Q2C71A-K307A	1172	0
Q2C71A-K307B	1173	0
Q2C71A-K307C	1176	0
Q2C71A-K307D	1177	0
QC51C-K7A	1100	1
QC51C-K7B	1101	1
QC51C-K7C	1102	1
QC51C-K7D	1103	1
QC51C-K9A	1104	0
QC51C-K9B	1105	0
QC51C-K9C	1106	0
QC51C-K9D	1107	0

<u>Sensor Tag Number</u>	<u>GIT Number</u>	<u>Default Value</u>
------------------------------	-------------------	--------------------------

RELAY STATUS (MISC.)

QD11-KZ12C	1064	0
QD11-KZ12D	1065	0
QD11-KN020A	1066	0
QD11-KN020B	1067	0
QD11-KZ12A	1144	0
QP33B-K15A	1115	1
QP33B-K15B	1123	1

OVERRIDE PERMISSIVE

QE11A-K58A	0344	0
QE11A-K59A	0346	0
QP33B-S17	1112	1
	1113	0
QP33B-SOR1	0146	0
QT48-S5AA	0167	1
QT48-S5AB	0166	1
QT48-S6AA	0163	1
QT48-S6AB	0162	1
QT48-S7AA	0165	1
QT48-S7AB	0164	1
QT48-S8AA	0161	1
QT48-S8AB	0160	1
QE11A-K58B	0345	0
QE11A-K59B	0347	0
QP33B-S16	1110	1
	1111	0
QP33D-SOR2	0147	0
QT48-S5BA	0377	1
QT48-S5BB	0376	1
QT48-S6BA	0373	1
QT48-S6BB	0372	1
QT48-S7BA	0375	1
QT48-S7BB	0374	1
QT48-S8BA	0371	1
QT48-S8BB	0370	1

2. KEYBOARD RESPONSE TEST

A. PURPOSE

The purpose of this test is to verify the proper operation of the keyboards, and to demonstrate that the SPDS and ERF respond to the user's requests as specified.

B. INPUTS

2 OTI-120M keyboards

2 Ramtek 9000 keyboards

C. OUTPUTS: (See Attached Figures)

5 Menus

1 Primary Display

11 Trend Displays (60 minutes)

11 Trend Displays (6 minutes)

22 Diagnostic Displays

13 Miscellaneous Displays

11 Emergency Displays

12 Log In/Log Out Displays

6 Maintenance Displays

D. PROCEDURE NOTES:

1. Four keyboards are to be tested. The SPDS keyboards may be tested concurrently with the ERF keyboards.
2. A menu display is a mimic of the cursor and numeric keyboards (see Figure 2.1 for the keyboard layout). The location of the title of a display on a menu determines which key on the cursor or numeric keypads must be used to call up that display on a CRT monitor.
3. The status lights show which CRT the keyboard controls and which display level is active on that CRT. The status light of each function key should light up whenever the function key is depressed.
4. When verifying the displays against the figures provided in this section, the test should consist only in checking that the correct display appears when it is called.

- 5 CRT-0 refers to the monitor on the left when facing the console. CRT-1 refers to the middle monitor. CRT-2 refers to the monitor on the right.
6. Begin testing by depressing the CRT-0 function key. Then select the appropriate menu, and check the display on CRT-0 against associated figure.
7. Call each sub-display until all displays on the menu are checked. For the displays that use more than one page, verify that the SPACE BAR performs as expected. Verify also that the RETURN and ESC keys function as indicated by the display instructions when these instructions appear on the display.
8. Depress all remaining keys on the cursor and numeric keypads and check for no response other than beeping sound.
9. Check that the numeric keys on the alphanumeric keypad perform the same function as the keys on the numeric keypad. Check also that depressing the ESC key will bring the menu back on the CRT.
10. After completing the above procedure on CRT-0, repeat for CRT-1, then CRT-2.
11. This entire process will be carried out for the primary, trend, emergency, diagnostic, miscellaneous, log in/log out, and maintenance functions.
12. Perform the procedures in Section D for both the SPDS and the ERF.
13. Sign off the test on the figures or as indicated in the text.

E. TEST PROCEDURES:

1. Call Primary Menu (PRI) (Figure 2. 2)
Call Primary Display (Figure 2. 3)

Depress all remaining keys on the cursor and numeric pads, and check for no response.

2. Repeat procedure #1 for CRT-1.
3. Repeat procedure #1 for CRT-2.

4. Call Trend Menu (TRENDS) (Figure 2. 4)

From Cursor Pad:

- | | |
|---|---------------|
| call 60-minute Core Trend | (Figure 2. 5) |
| call 60-minute Neutron Trend | (Figure 2. 6) |
| call 60-minute Drywell Trend | (Figure 2. 7) |
| call 60-minute Torus Trend | (Figure 2. 8) |
| call 60-minute H ₂ /O ₂ Trend | (Figure 2. 9) |
| call 60-minute Effluent Trend | (Figure 2.10) |
| call 60-minute RPV Level Trend | (Figure 2.11) |
| call 60-minute Pressure/Temperature Trend | (Figure 2.12) |
| call 60-minute Torus Level Trend | (Figure 2.13) |

call 60 minute Torus Temperature Trend	(Figure 2.14)
call 60-minute Torus Pressure Trend	(Figure 2.15)

From Numeric Key pad:

call 6-minute Core Trend	(Figure 2.16)
call 6-minute Neutron Trend	(Figure 2.17)
call 6-minute Drywell Trend	(Figure 2.18)
call 6-minute Torus Trend	(Figure 2.19)
call 6-minute H ₂ /O ₂ Trend	(Figure 2.20)
call 6-minute Effluent Trend	(Figure 2.21)
call 6-minute RPV Level Trend	(Figure 2.22)
call 6-minute Pressure/Temperature Trend	(Figure 2.23)
call 6-minute Torus Level Trend	(Figure 2.24)
call 6-minute Torus Temperature Trend	(Figure 2.25)
call 6-minute Torus Pressure Trend	(Figure 2.26)

Depress all remaining keys on the cursor and numeric pads, and check for no response.

5. Repeat procedure #4 for CRT-1.
6. Repeat procedure #4 for CRT-2.
7. Call Emergency Menu (EMER) (Figure 2.27)

From Cursor Pad:

call RPV Saturation Limit	(Figure 2.28)
call Torus Temperature Limit	(Figure 2.29)
call Torus Heat Capacity Limit	(Figure 2.30)
call RPV Level vs. RPV Pressure	(Figure 2.31)
call Containment Pressure Limit	(Figure 2.32)
call Torus Load Limit	(Figure 2.33)
call Pressure Suppression Limit	(Figure 2.34)
call RPV Level Vs. Time	(Figure 2.35)
call Drywell Spray Limit I	(Figure 2.36)
call Drywell Spray Limit IIA	(Figure 2.37)
call Core Uncovery Time	(Figure 2.38)

Depress all remaining keys on the alphanumeric, cursor and numeric pads, and check for no response.

8. Repeat procedure #7 for CRT-1.
9. Repeat procedure #7 for CRT-2.
10. Call Diagnostic Menu (DIAG) (Figure 2.39)

From Cursor Pad:

call RPV Water Level Diagnostic	(Figure 2.40)
call RPV Pressure Diagnostic	(Figure 2.41)

call Primary Coolant Systems	(Figure 2.42)
call Emergency Systems Diagnostic	(Figure 2.43)
call APRM Diagnostic	(Figure 2.44)
call SRM Diagnostic	(Figure 2.45)
call Drywell Pressure Diagnostic	(Figure 2.46)
call Drywell Temperature	(Figure 2.47)
call Drywell/Torus H ₂ /O ₂ Diagnostic	(Figure 2.48)
call Torus Water Level Diagnostic	(Figure 2.49)
call Torus Pressure Diagnostic	(Figure 2.50)
call Torus Temperature Diagnostic	(Figure 2.51)

From Numeric Keypad:

call PCIS Groups 1, 3, 4, 5 Diagnostic	(Figure 2.52)
call PCIS Group 2A Diagnostic	(Figure 2.53)
call PCIS Group 2B Diagnostic	(Figure 2.54)
call PCIS Group 2C Diagnostic	(Figure 2.55)
call PCIS Group 2D Diagnostic	(Figure 2.56)
call PCIS Group 2E Diagnostic	(Figure 2.57)
call Main Stack Effluent Diagnostic	(Figure 2.58)
call Vent Effluent Diagnostic	(Figure 2.59)
call Isolation Trip Signals	(Figure 2.60)
call Secondary Isolation Diagnostic	(Figure 2.61)

Depress all remaining keys on the cursor and numeric pads, and check for no response.

11. Repeat procedure #10 for CRT-1.
12. Repeat procedure #10 for CRT-2.
13. Call Miscellaneous Menu (MISC) (Figure 2.62)

From Cursor Keypad:

call Area Radiation Monitors	(Figure 2.63)
call Miscellaneous Radiation Monitors	(Figure 2.64)
call Vessel/Flange Temperature Trend	(Figure 2.65)
call Meteorological Data	(Figure 2.66)

From Numeric Keypad:

call Valve Status (B31-C41)	(Figure 2.67)
call Valve Status (E11)	(Figure 2.68)
call Valve Status (E21-E41)	(Figure 2.69)
call Valve Status (E51-T48)	(Figure 2.70)
call Pump Status	(Figure 2.71)
call Relay Status (CR, ADS,...)	(Figure 2.72)
call Relay Status (PCIS)	(Figure 2.73)
call Relay Status (SEC, SRM)	(Figure 2.74)
call Set Points	(Figure 2.75)

Depress all remaining keys on the cursor and numeric pads, and check for no response.

14. Repeat procedure #13 for CRT-1.
15. Repeat procedure #13 for CRT-2.
16. Call the Log in/Log out menu (LOG) (Figure 2.76)

From Cursor Pad:

call RPV Water Level	(Figure 2.77)
call RPV Pressure	(Figure 2.78)
call APRM	(Figure 2.79)
call SRM	(Figure 2.80)
call Drywell Pressure	(Figure 2.81)
call Drywell Temperature	(Figure 2.82)
call Drywell/Torus H2/O2	(Figure 2.83)
call Torus Water Level	(Figure 2.84)
call Torus Pressure	(Figure 2.85)
call Torus Temperature	(Figure 2.86)

From Numeric Pad:

call Main Stack Effluent	(Figure 2.87)
call Vent Effluent HNP 1 & 2	(Figure 2.88)

Depress the keyboard key that corresponds to the letter in front of each instrument twice. Note the change of the background color of that instrument from black to red to black again.

17. Repeat procedure #16 for CRT-1.
18. Repeat procedure # 16 for CRT-2.
19. Call Maintenance Menu (MAINT) (Figure 2.89)

From Cursor Pad, call Set Date and Time Display (Figure 2.90). Follow instructions on the screen to change date, time and unit number. Verify that change appears on other displays.

From Numeric pad, call Grid Pattern	(Figure 2.91)
call Dot Pattern	(Figure 2.92)
call Color Squares	(Figure 2.93)
call Error History	(Figure 2.94)
call Color Chart	(Figure 2.95)

Depress all remaining keys on the alphanumeric, cursor and numeric pads, and check for no response.

20. Load a blank tape in the tape drive and ready the tape drive.

APPROVAL:

21. Depress CONTROL key and START HIST function key. The associated status light should light and tape transport should become operational if the mounted tape is blank and tape transport is on line.

APPROVAL: AD 8-8-84

22. Depress CONTROL and CANCEL HIST keys. The associated status light should light and tape should rewind and stop. After tape stops, both status lights associated with the START HIST and CANCEL HIST function keys should go off.

APPROVAL: AD 8-8-84

23. Depress CONTROL and START HIST. The associated status light should light and tape transport should become operational.

APPROVAL: AD 8-8-84

24. Depress CONTROL and STOP HIST. The associated status light should light and tape should rewind and stop. After tape stops, both START HIST and STOP HIST light should go off.

APPROVAL: AD 8-8-84

25. Depress CONTROL AND START HIST. Nothing should happen because, unlike the CANCEL HIST function, STOP HIST does not erase the tape header.

APPROVAL: AD 8-8-84

26. Depress STOP HIST. Unload the tape.

APPROVAL: AD 8-8-84

27. Depress CONTROL key and FREEZE CRT2 Key. The associated status light should light and the clock on the CRT-2 display should stop running.

APPROVAL: AD 8-8-84

28. Depress the RECORD lever on the hardcopy unit to obtain a copy of the frozen display.

APPROVAL: AD 8-8-84

29. Depress CONTROL and FREEZE CRT2 again. The associated status light should go off and the clock on the CRT-2 display should resume running.

APPROVAL: AB-8-84

30. Depress CONTROL and FREEZE CRT2 again. The associated status light should light and the clock on the CRT-2 display should stop running. Check that the display unfreezes automatically if left unattended for more than 20 seconds.

APPROVAL: AB-8-84

31. Check keyboard mode control switches (only on the Ramtek keyboard): changing position of TTY Mode or line switches should have no effect on display.

APPROVAL: AB-8-84

*to 8-8-84
CONTROL key and
Variance #3*

32. Turn the power ON/OFF switch (only on the Ramtek keyboard) to OFF and then back ON. Depress the ATTN key (last function key on the right) and check that the status lights are restored to their original state, i.e., before the power was turned off.

APPROVAL: AB-8-84

33. Repeat steps 1 through 32 above using the second keyboard.

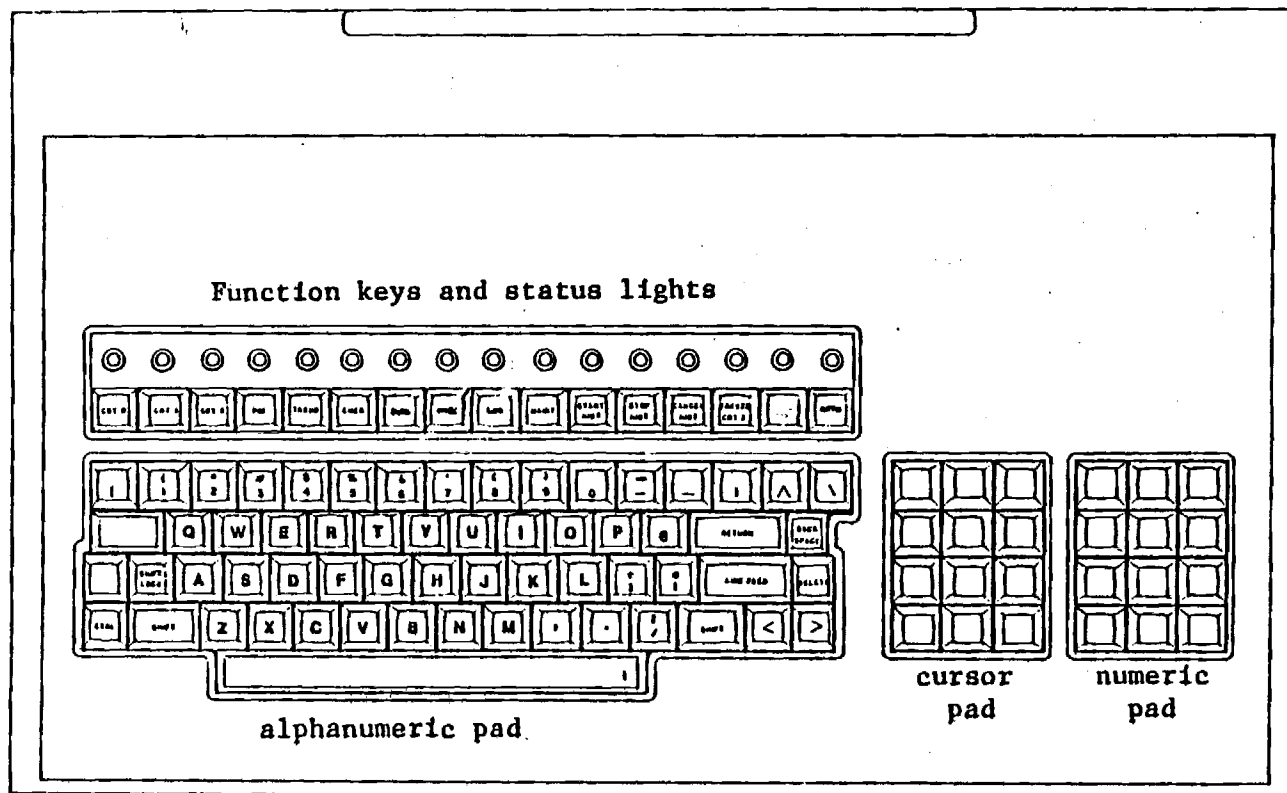


Figure 2.1

HNP-1

COT
8/ 2/84 14:43:37

PRIMARY

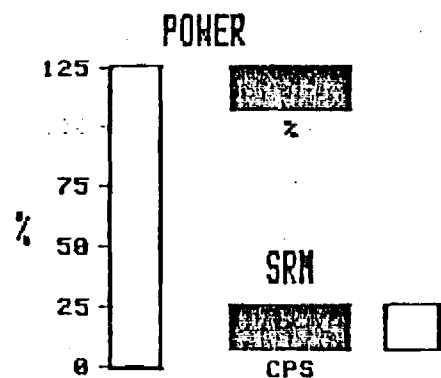
PRIMARY		

FIGURE 2.2

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Keyboard 2	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

HNP-1

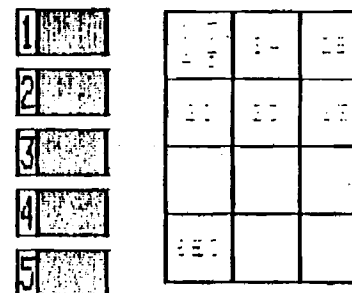
CDT
8/ 2/84 14:44:37



VENT

HNP 1 JCI/cc
HNP 2 JCI/cc
STACK JCI/cc

ISOLATION
PRIMARY



SECONDARY

HNP 1
HNP 2

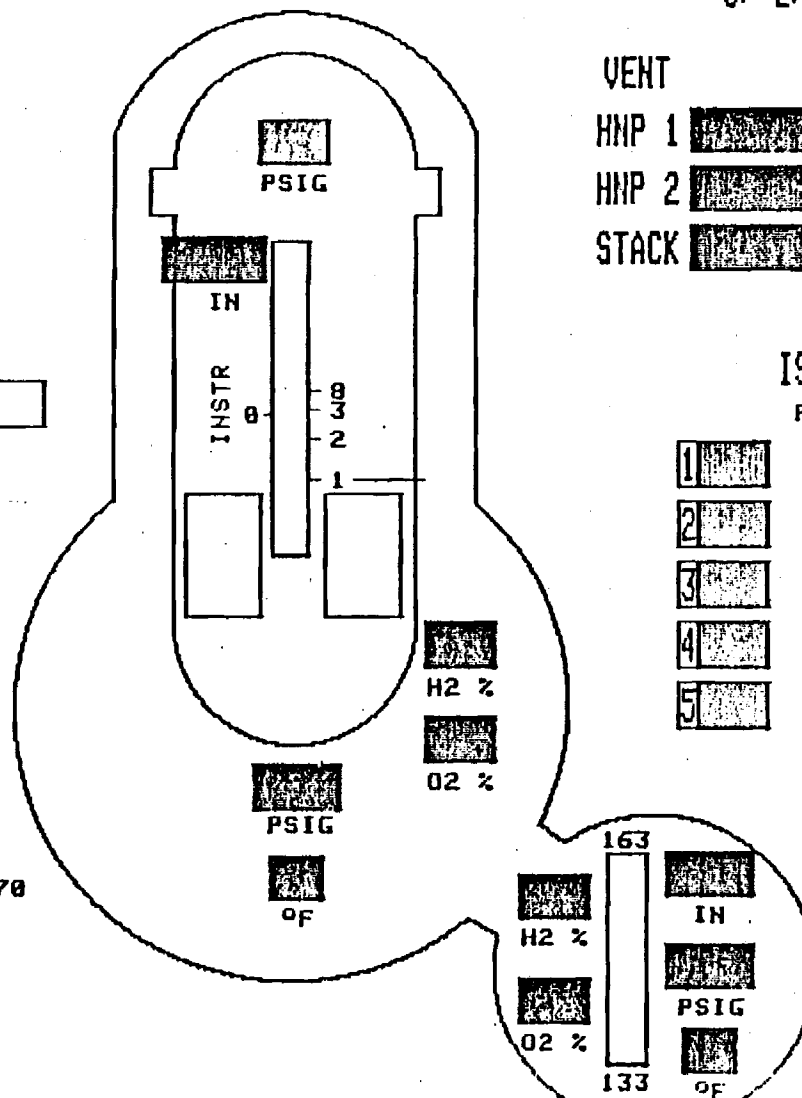
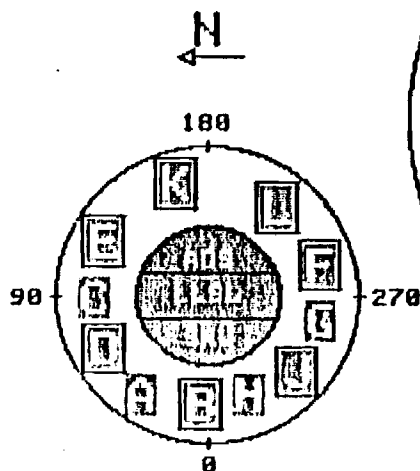


FIGURE 2.3

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>hnp-1</i>	<i>hnp-1</i>	<i>hnp-1</i>
Keyboard 2	<i>hnp-1</i>	<i>hnp-1</i>	<i>hnp-1</i>

HNP-1

COT
8/ 2/84 14:49:32

TREND

CORE	NEUTRON	DRYWELL
TORUS	HYDROGEN OXYGEN	EFFLUENT
RPU LEVEL	RPU PRESSURE TEMP	TORUS LEVEL
TORUS TEMP	TORUS PRESSURE	

60 MINUTE TRENDS

CORE	NEUTRON	DRYWELL
TORUS	HYDROGEN OXYGEN	EFFLUENT
RPU LEVEL	RPU PRESSURE TEMP	TORUS LEVEL
TORUS TEMP	TORUS PRESSURE	

6 MINUTE TRENDS

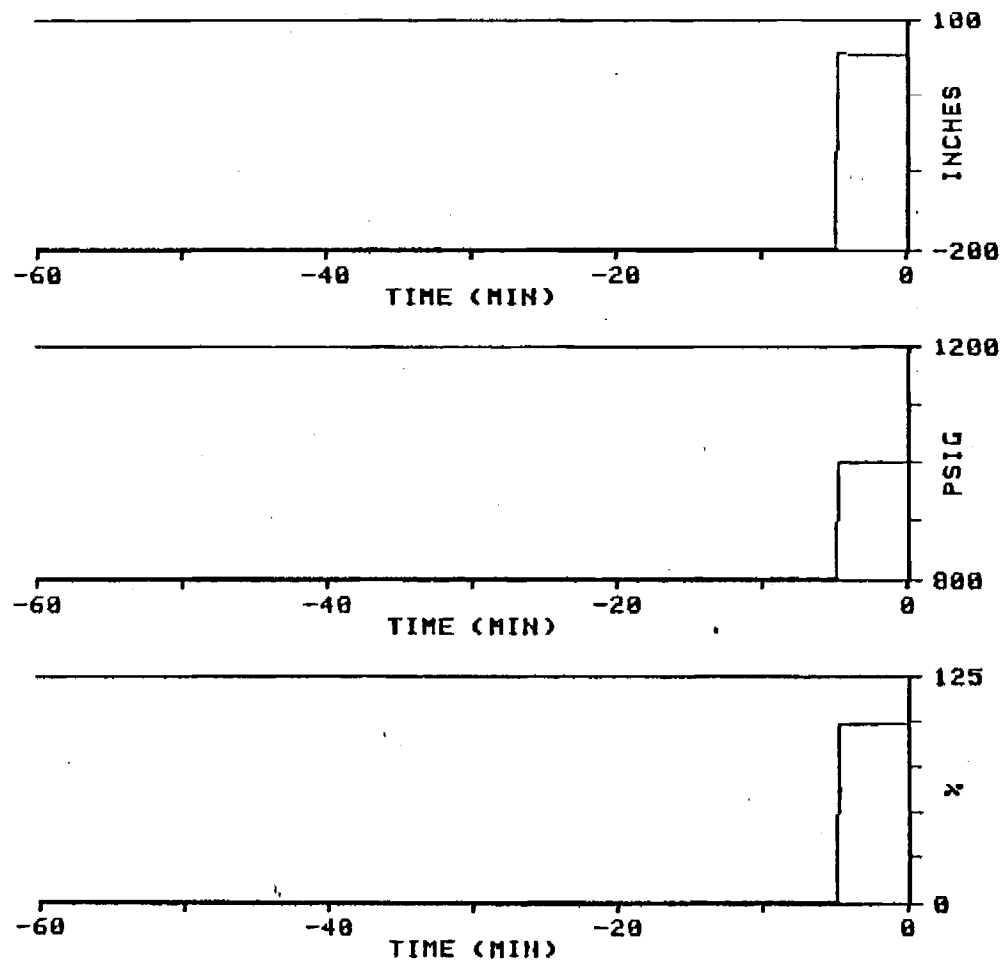
FIGURE 2.4

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1000</i>	<i>1000</i>	<i>1000</i>
Keyboard 2	<i>1000</i>	<i>1000</i>	<i>1000</i>

HNP-1

COT
8/ 2/84 14:49:00

CORE TRENDS



54.5

LEVEL

0.00

RATE

1000.0

PRESSURE

0.00

RATE

100.0

4FRM

0.00

RATE

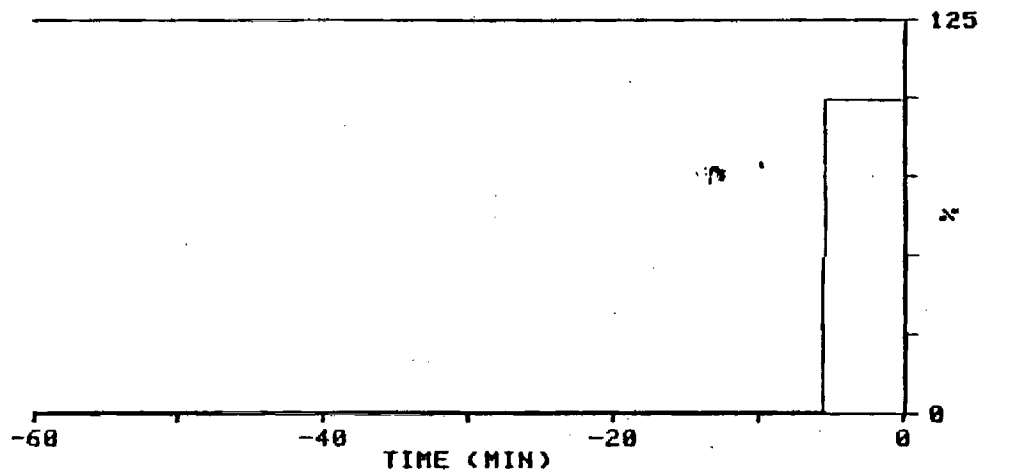
FIGURE 2.5

	CRT-0	CRT-1	CRT-2
Keyboard 1	1000.0	1000.0	1000.0
Keyboard 2	B/E	1000.0	B/E

HNP-1

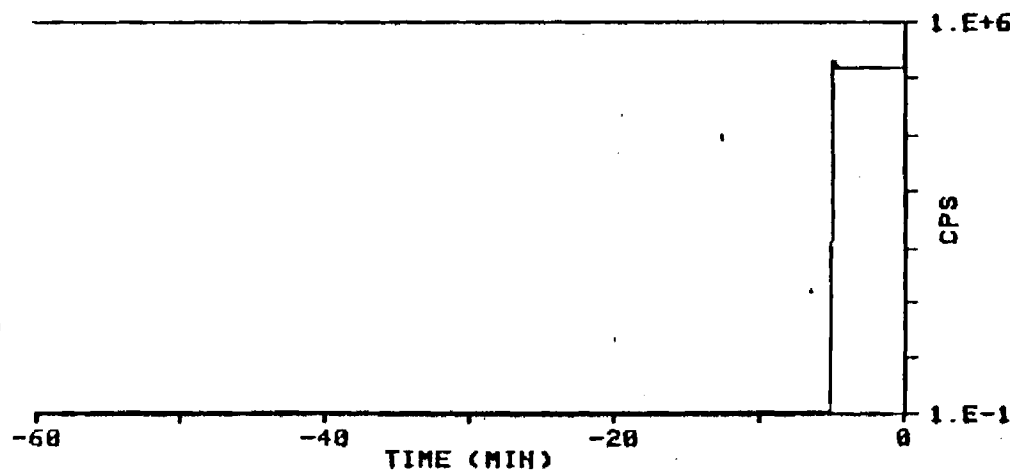
COT
8/ 2/84 14:49:50

NEUTRON TRENDS



100.0
APRM

100.0
RATE



100.0
SRM

100.0
PERIOD

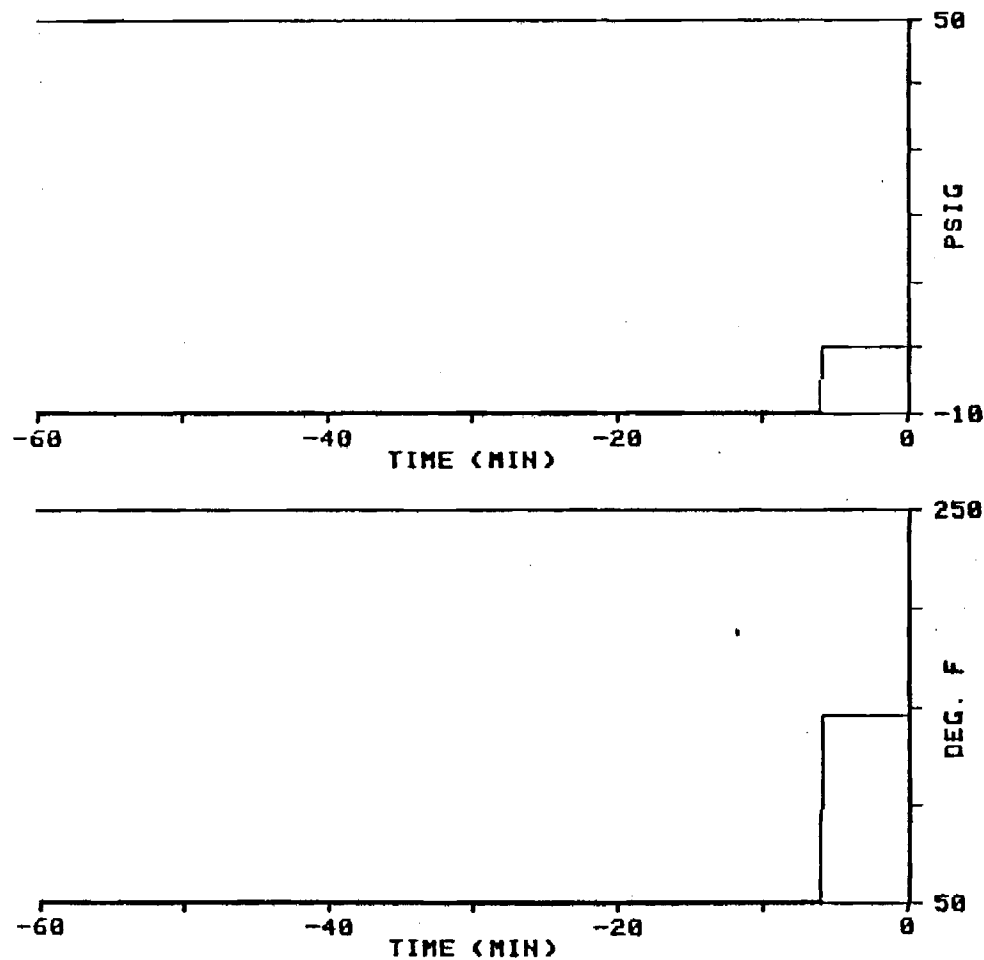
100.0

FIGURE 2.6

	CRT-0	CRT-1	CRT-2
Keyboard 1	100.0	100.0	100.0
Keyboard 2	b/c	100.0	b/c

HNP-1

DRYWELL TRENDS



CDT
8/ 2/84 14:50:20


PRESSURE


RATE


TEMP


RATE

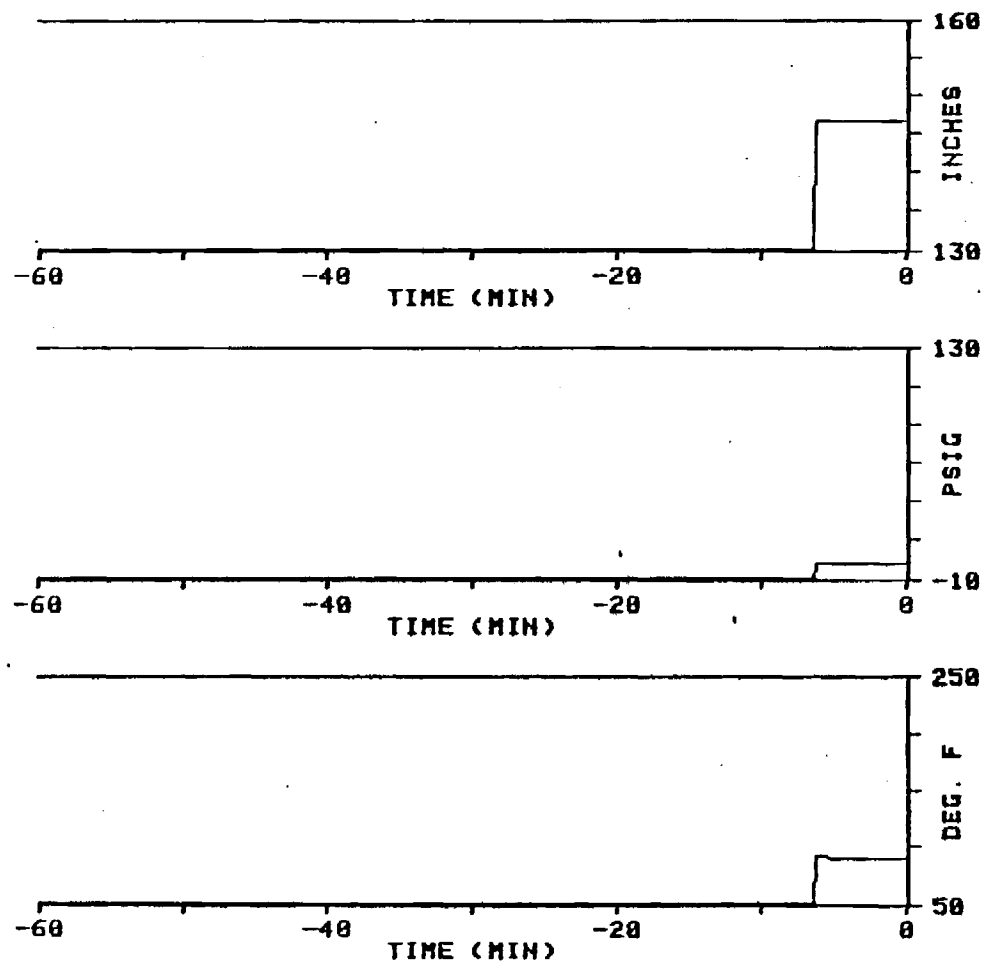
FIGURE 2.7

	CRT-0	CRT-1	CRT-2
Keyboard 1	0.000	0.000	0.000
Keyboard 2	0.000	0.000	0.000

HNP-1

COT
8/ 2/84 14:58:40

TORUS TRENDS



LEVEL

RATE

PRESSURE

RATE

TEMP

RATE

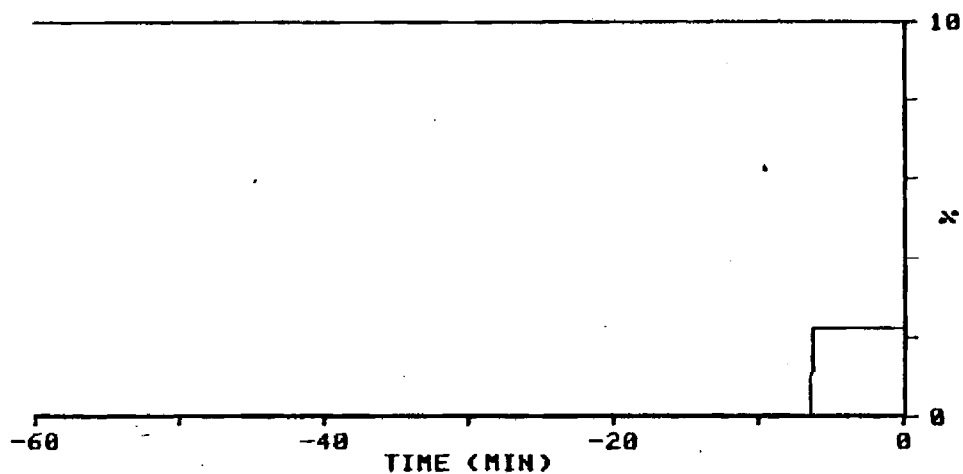
FIGURE 2.8

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>
Keyboard 2	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>

HNP-1

COT
8/ 2/84 14:51:10

H2 AND O2 TRENDS



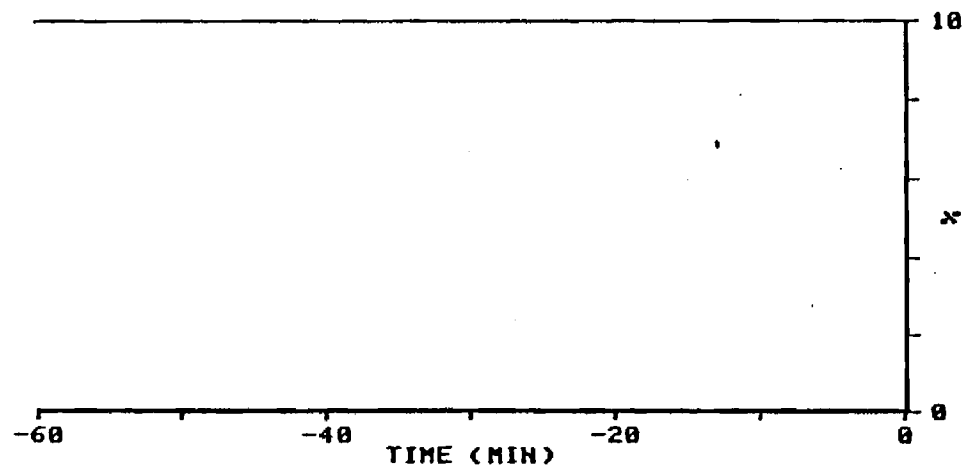
TORUS

H2

RATE

O2

RATE



DRYWELL

H2

RATE

O2

RATE

FIGURE 2.9

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Keyboard 2	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

HNP-1

COT
8/ 2/84 14:51:40

EFFLUENT TRENDS

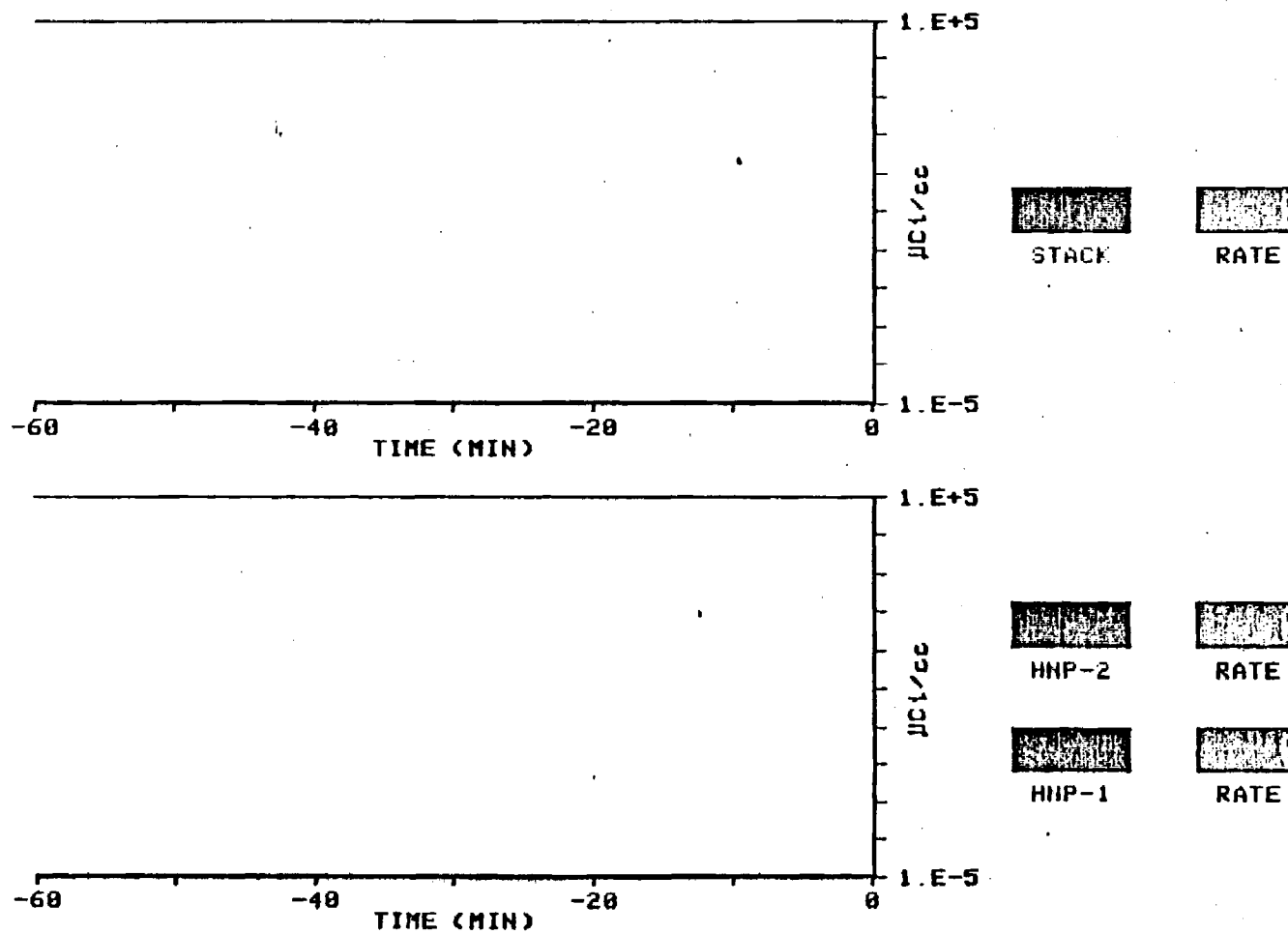


FIGURE 2.10

	CRT-0	CRT-1	CRT-2
Keyboard 1	B001	1.E-05	1.E-05
Keyboard 2	B/E	1.E-05	B/E

HNP-1

CDT
8/ 2/84 14:52:10

RPV WATER LEVEL

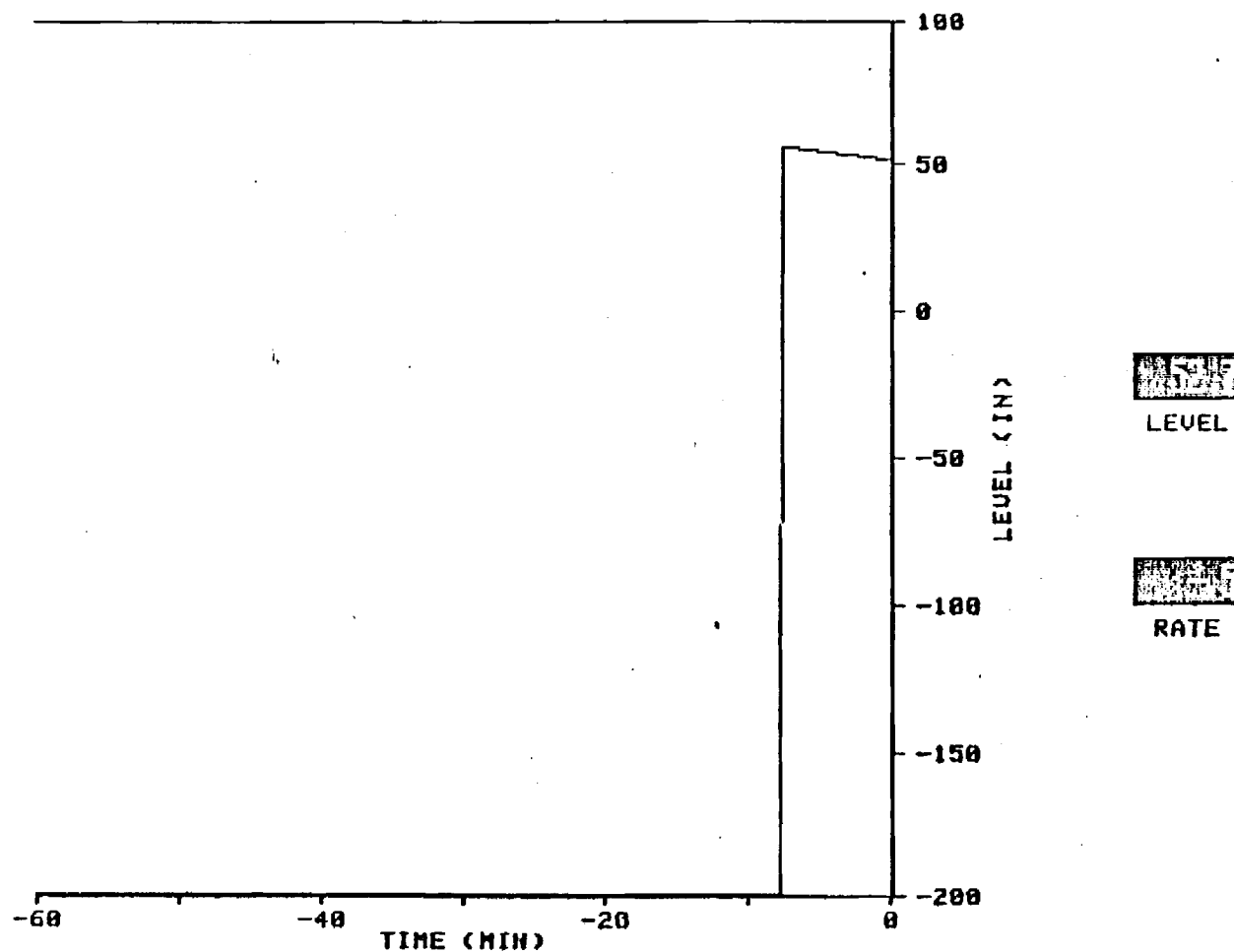


FIGURE 2.11

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Handwritten signature</i>	<i>Handwritten signature</i>	<i>Handwritten signature</i>
Keyboard 2	<i>Handwritten signature</i>	<i>Handwritten signature</i>	<i>Handwritten signature</i>

HNP-1

CDT
8/ 2/84 14:52:30

RPV PRESS & SAT TEMP

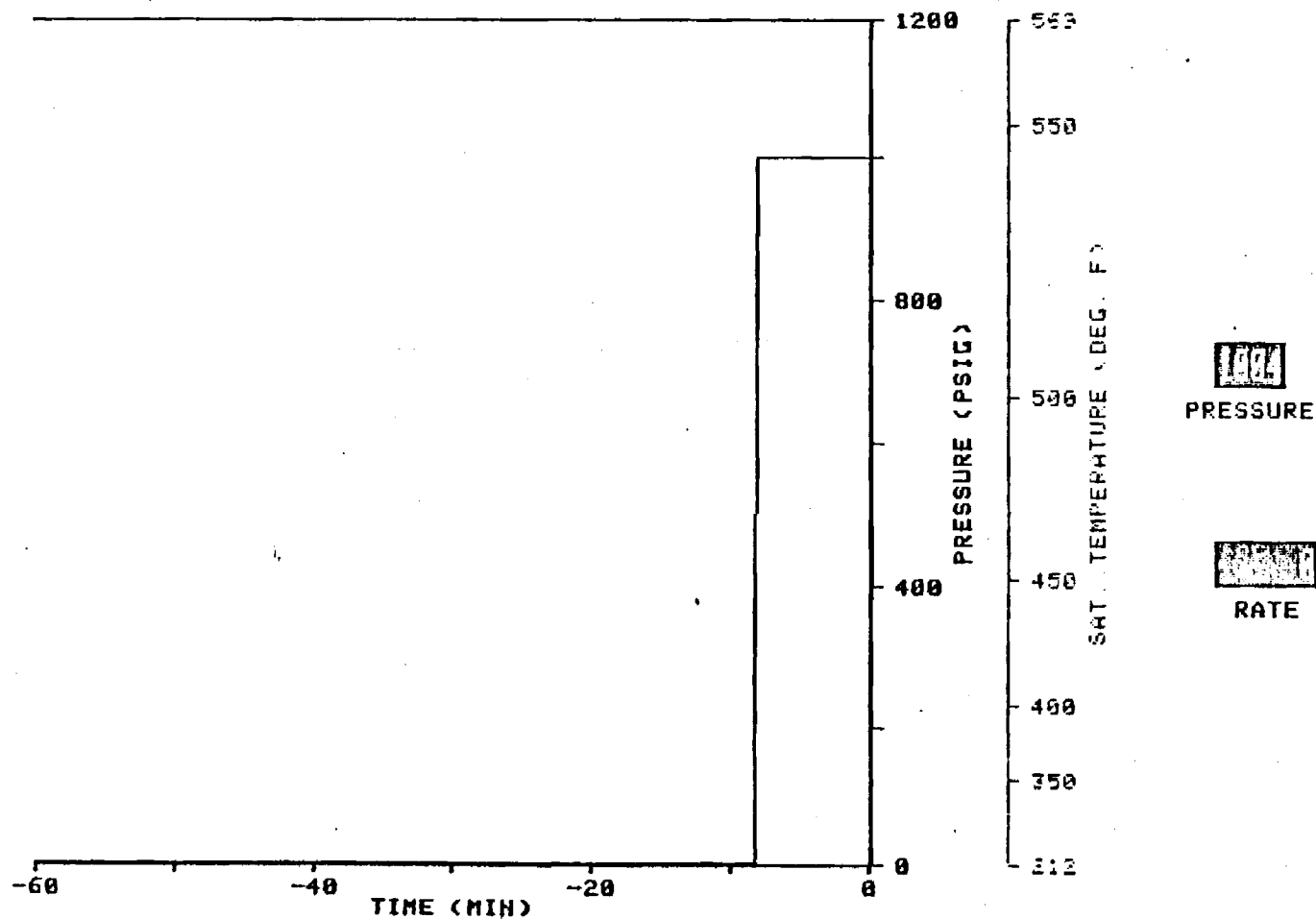


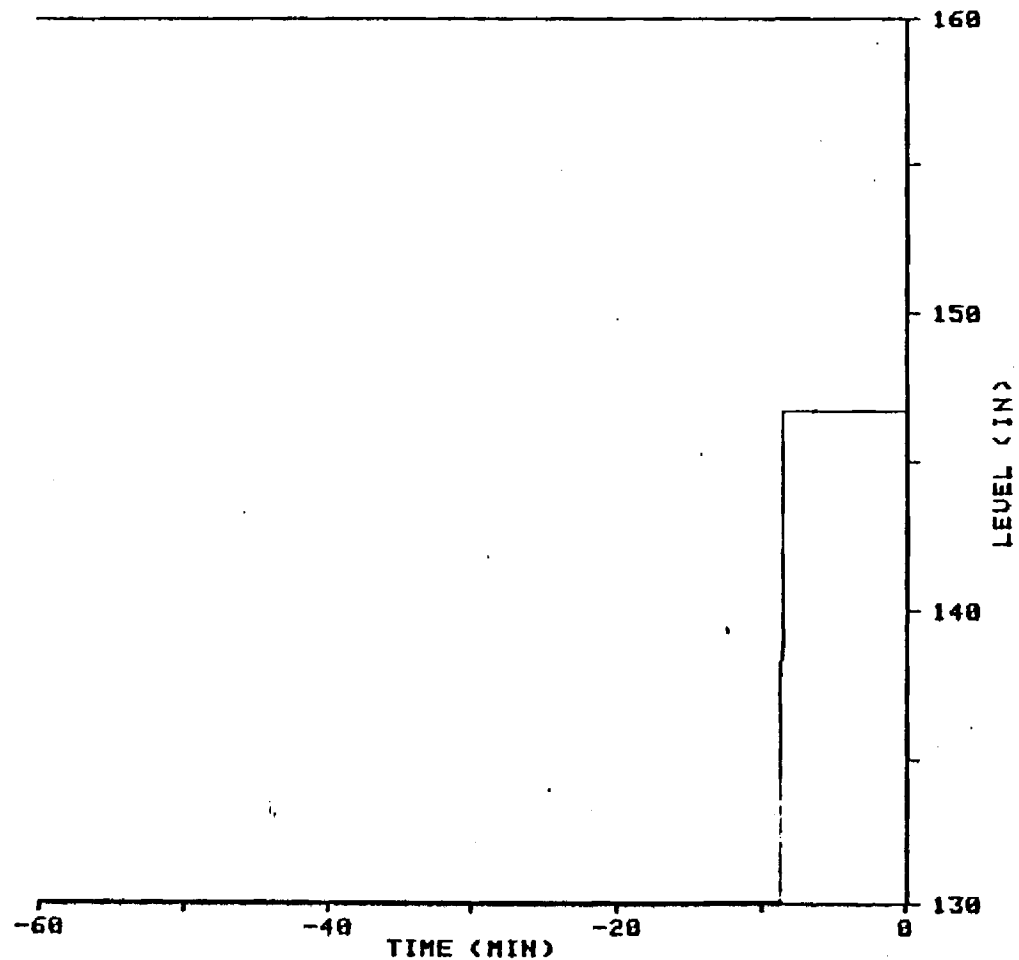
FIGURE 2.12

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1000/1000</i>	<i>1000/1000</i>	<i>1000/1000</i>
Keyboard 2	<i>1000</i>	<i>1000</i>	<i>1000</i>

HNP-1

CDT
8/ 2/84 14:53:00

TORUS WATER LEVEL



LEVEL

RATE

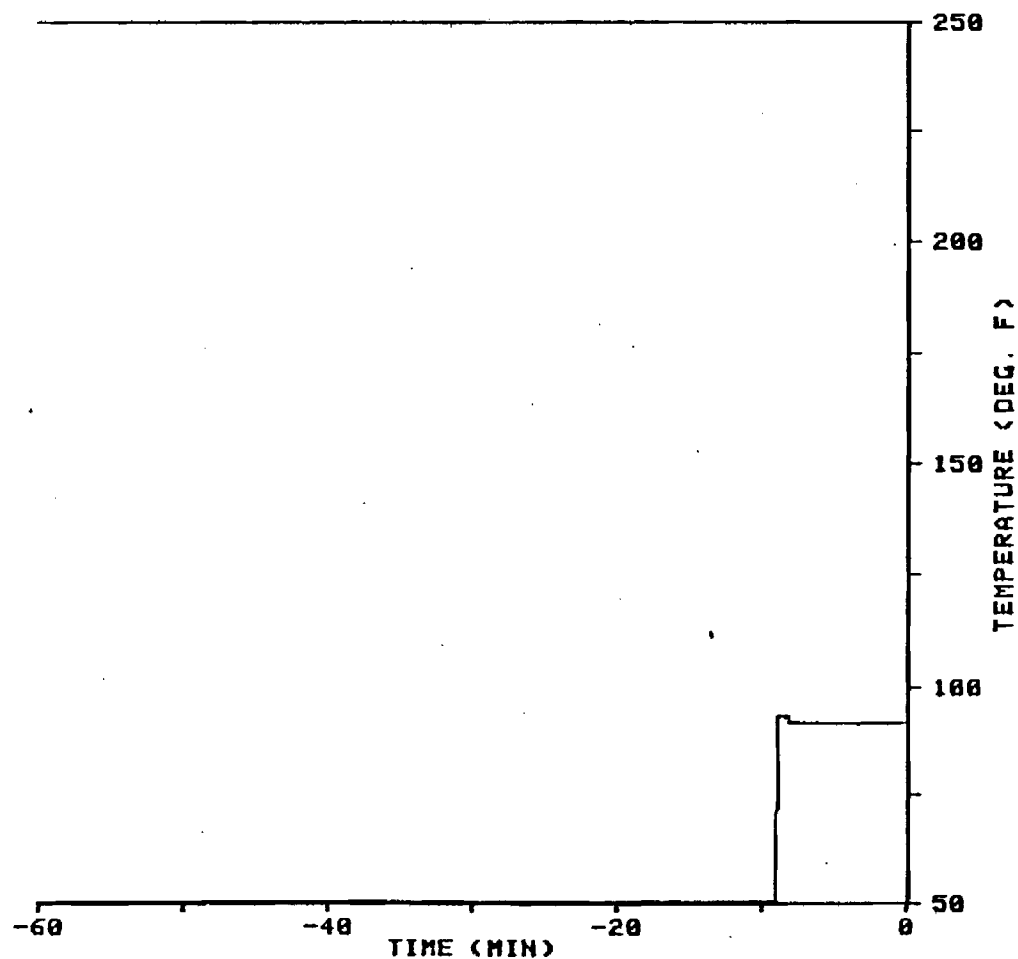
FIGURE 2.13

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Keyboard 2	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

HNP-1

CDT
8/ 2/84 14:53:30

TORUS TEMPERATURE



TEMPERATURE

RATE

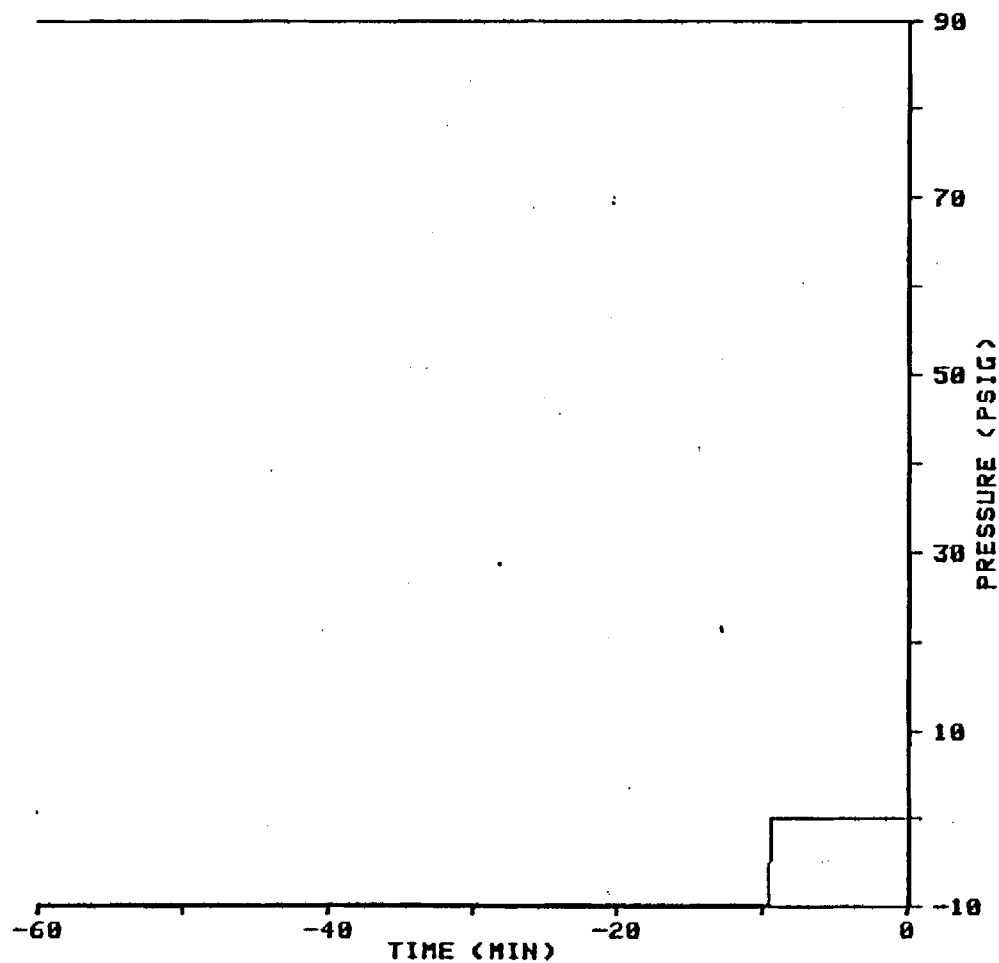
FIGURE 2.14

	CRT-0	CRT-1	CRT-2
Keyboard 1	1000	1000	1000
Keyboard 2	1000	1000	1000

HNP-1

CDT
8/ 2/84 14:53:50

TORUS PRESSURE




PRESSURE


RATE

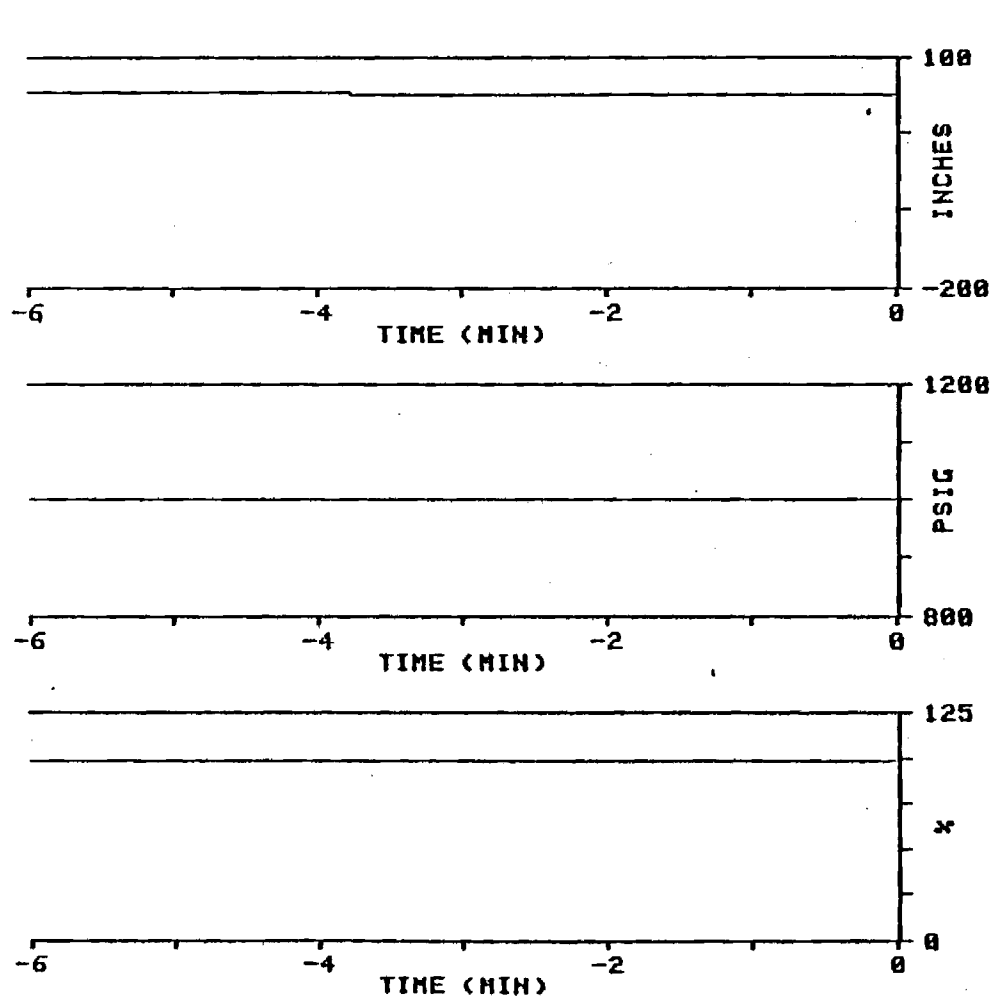
FIGURE 2.15

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>10.00/10.00/10.00</i>	<i>10.00/10.00/10.00</i>	<i>10.00/10.00/10.00</i>
Keyboard 2	<i>ONE</i>	<i>10.00/10.00/10.00</i>	<i>ONE</i>

HNP-1

COT
8/ 2/84 14:54:20

CORE TRENDS




 LEVEL  RATE
 PRESSURE  RATE
 APRM  RATE

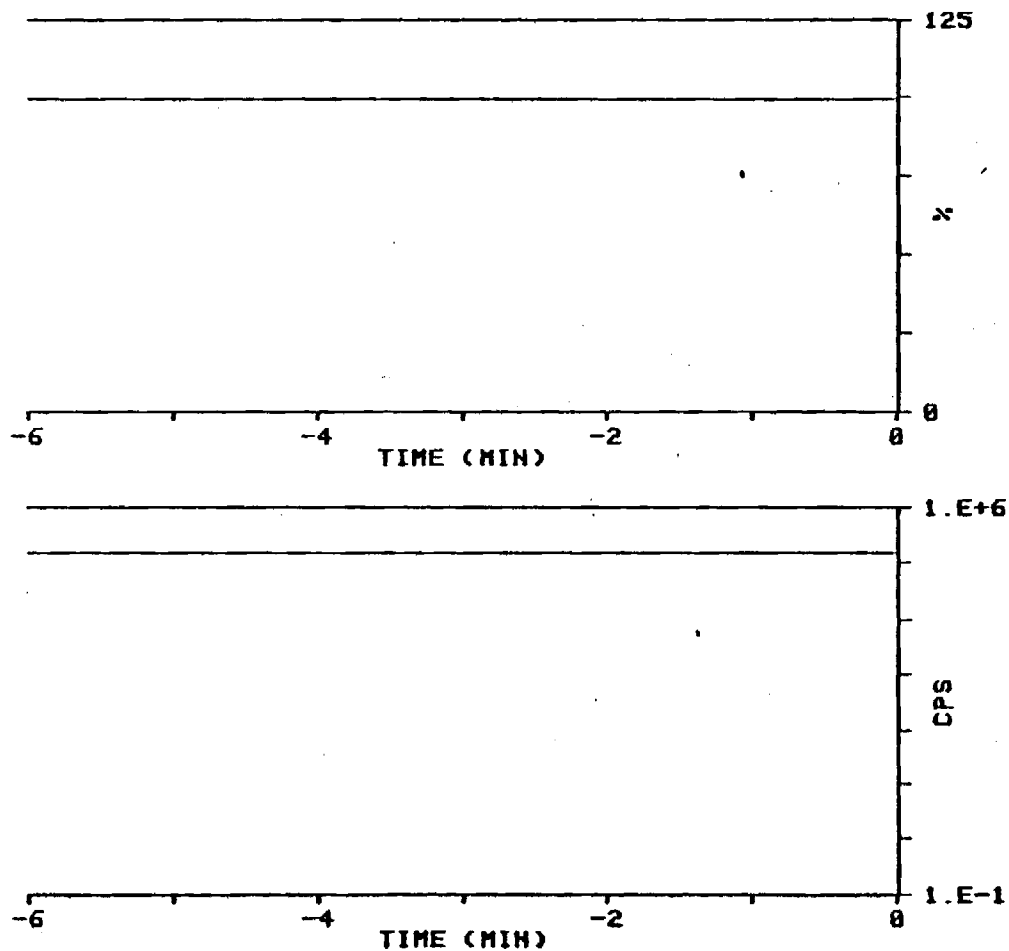
FIGURE 2.16

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Keyboard 2	<i>RIC</i>	<i>[Signature]</i>	<i>[Signature]</i>

HNP-1

CDT
8/ 2/84 14:54:36

NEUTRON TRENDS



100.1
APRM

100.1
RATE

100.1
SRM

100.1
PERIOD

100.1

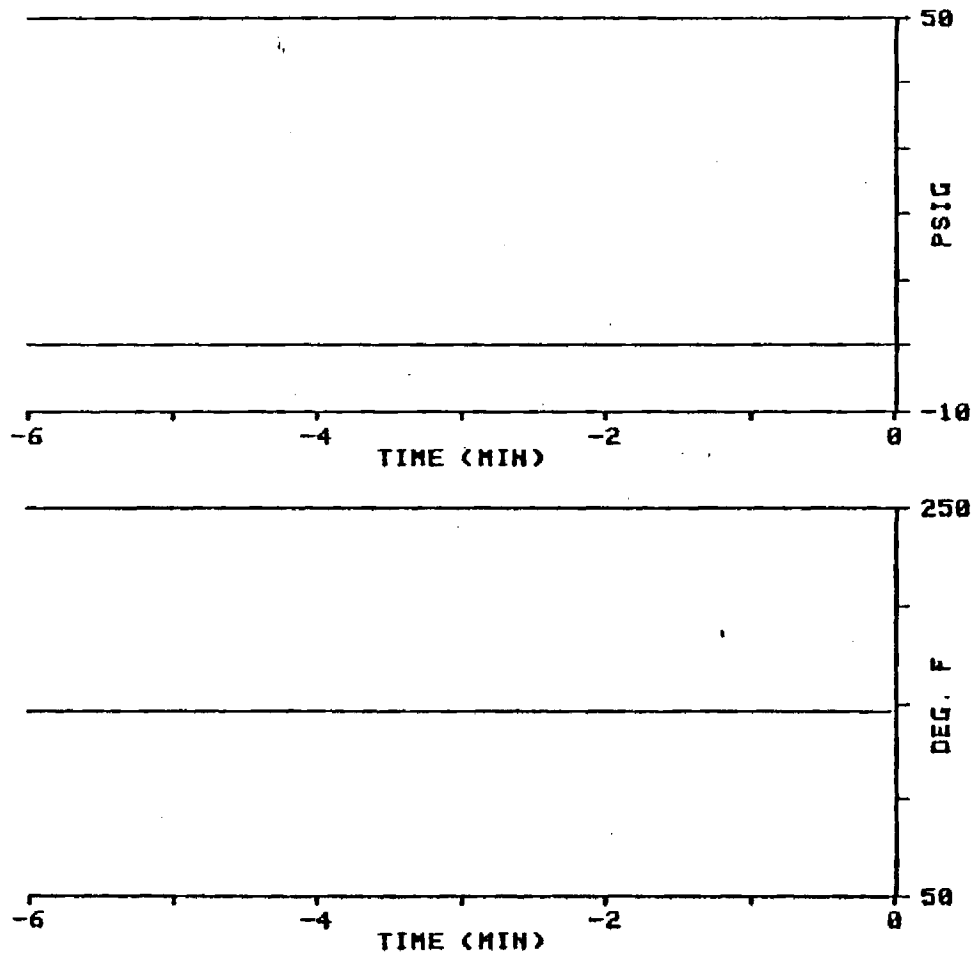
FIGURE 2.17

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

HNP-1

COT
8/ 2/84 14:55:22

DRYWELL TRENDS




PRESSURE


RATE


TEMP


RATE

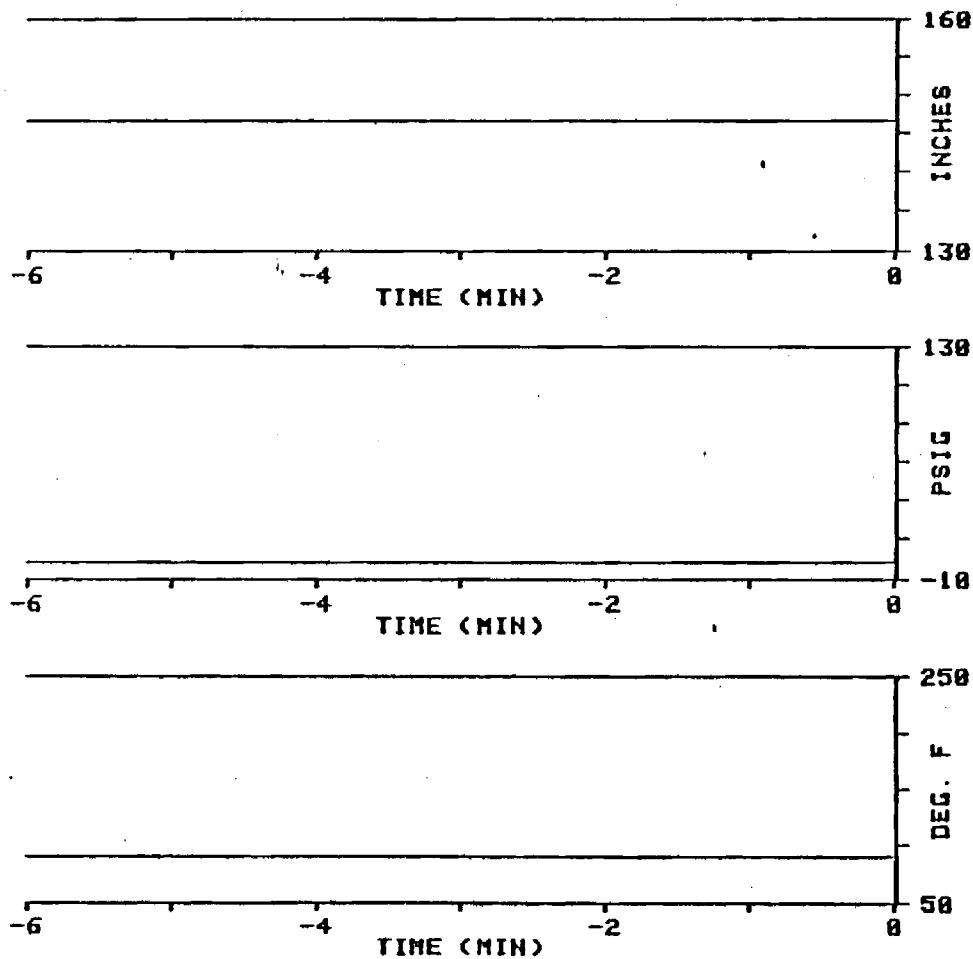
FIGURE 2.18

	CRT-0	CRT-1	CRT-2
Keyboard 1	DOOR	DOOR	DOOR
Keyboard 2	RTE	RTE	RTE

HNP-1

TORUS TRENDS

CDT
8/ 2/84 14:55:38



TP		L

14.00
LEVEL

0.00
RATE

0.00
PRESSURE

0.00
RATE

0.00
TEMP

0.00
RATE

FIGURE 2.19

	CRT-0	CRT-1	CRT-2
Keyboard 1	14.00	0.00	0.00
Keyboard 2	0.00	0.00	0.00

HNP-1

CDT
8/ 2/84 14:55:58

H2 AND O2 TRENDS

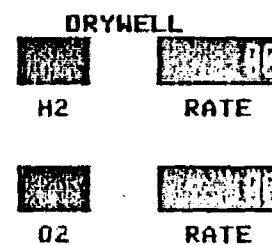
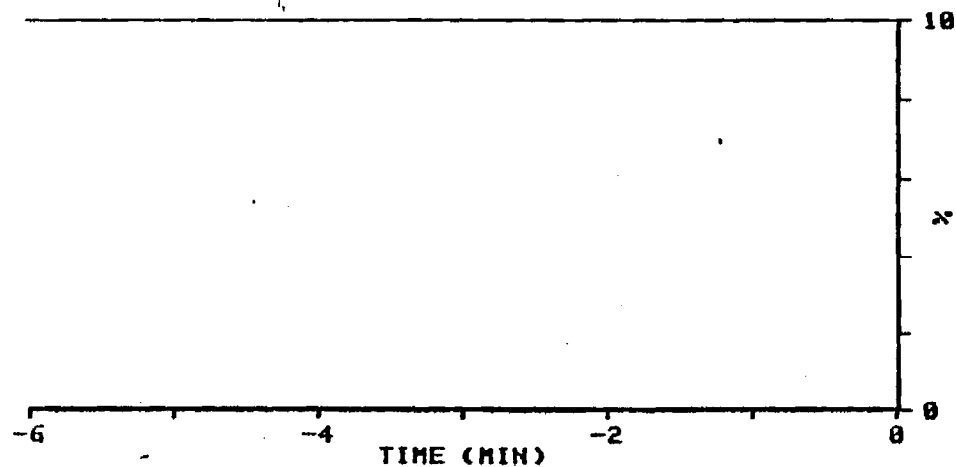
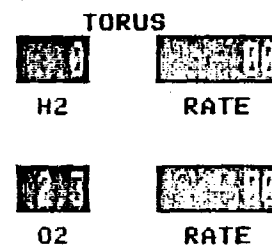
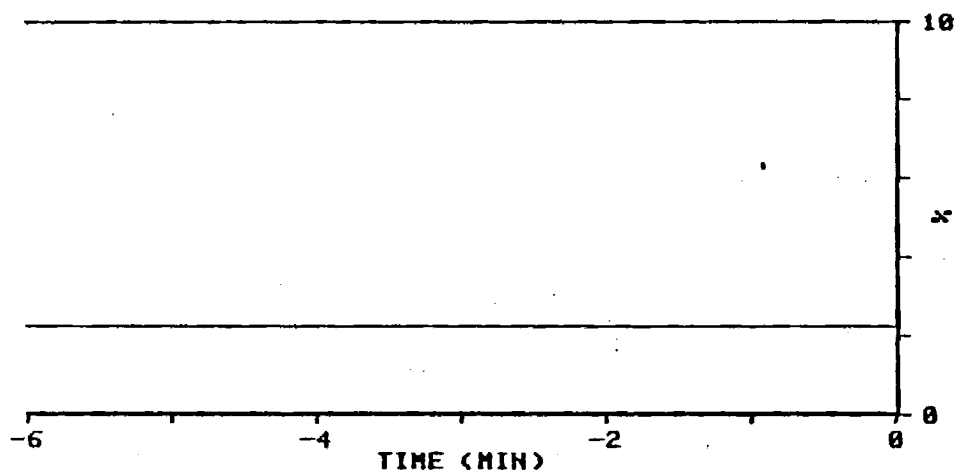


FIGURE 2.20

	CRT-0	CRT-1	CRT-2
Keyboard 1	RECEIVED	RECEIVED	RECEIVED
Keyboard 2	RECEIVED	RECEIVED	RECEIVED

HNP-1

CDT
8/ 2/84 14:56:14

EFFLUENT TRENDS

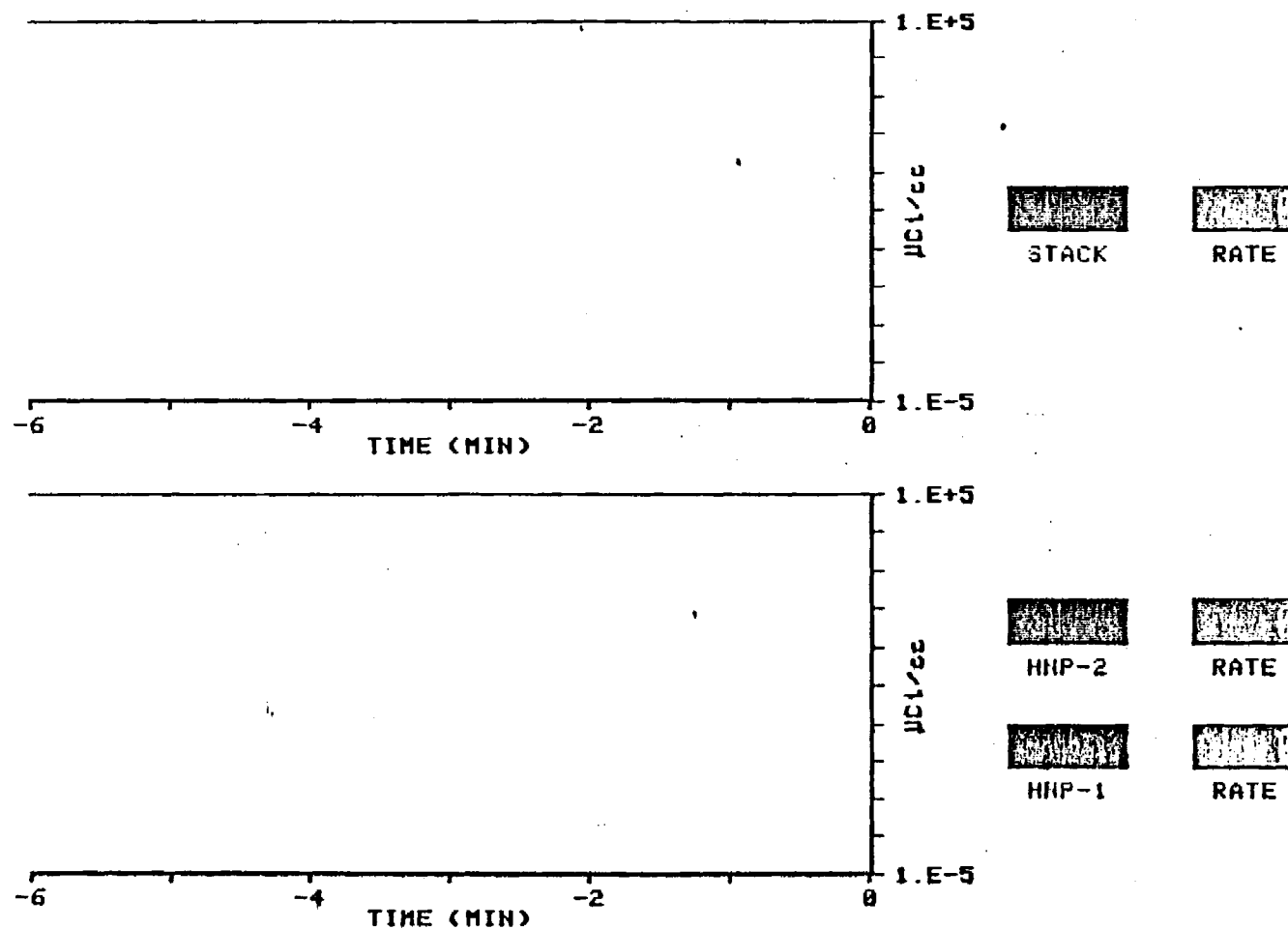


FIGURE 2.21

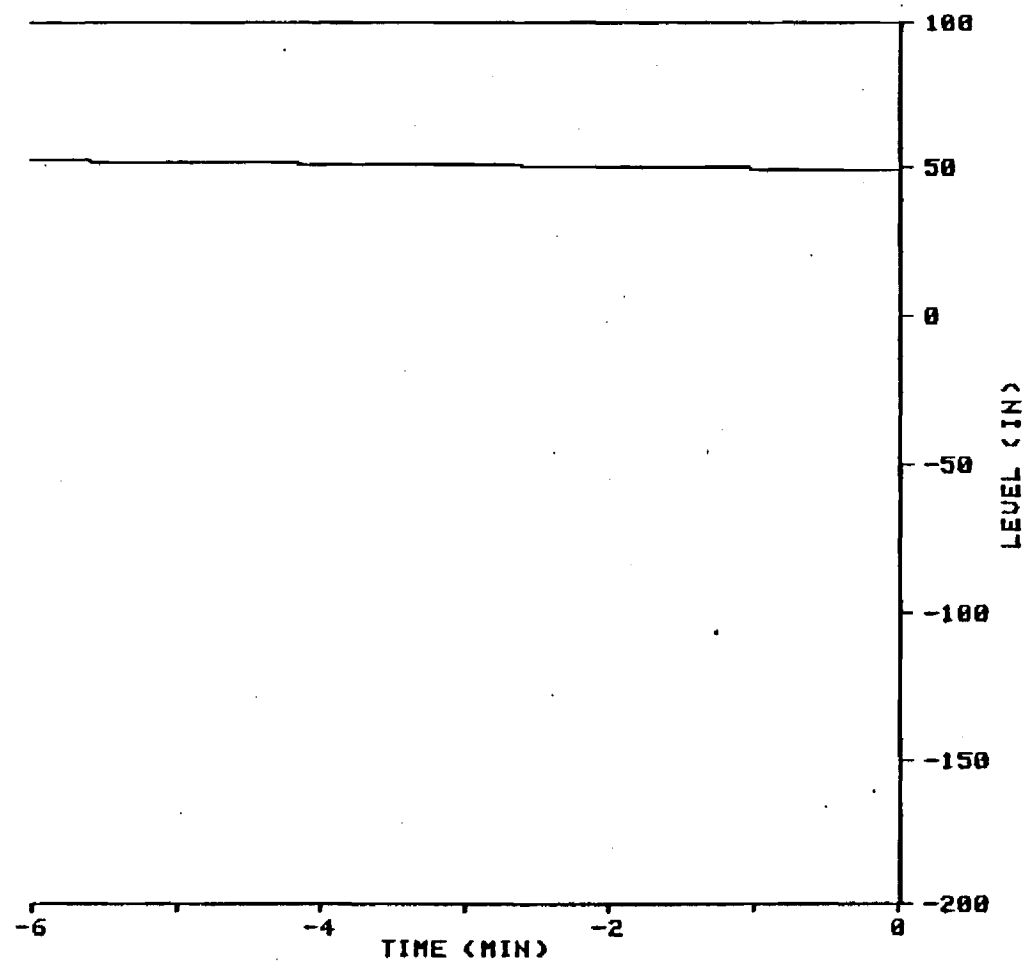
	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Leary</i>	<i>Leary</i>	<i>Leary</i>
" " " "	<i>RAE</i>	<i>RAE</i>	<i>RAE</i>

HNP-1

CDT

8/ 2/84 14:57:04

RPV WATER LEVEL



150.0

LEVEL

0.000

RATE

FIGURE 2.22

	CRT-0	CRT-1	CRT-2
Keyboard 1	150.0	150.0	150.0
Keyboard 2	150.0	R/E	R/E

HNP-1

CDT
8/ 2/84 14:57:20

RPU PRESS & SAT TEMP

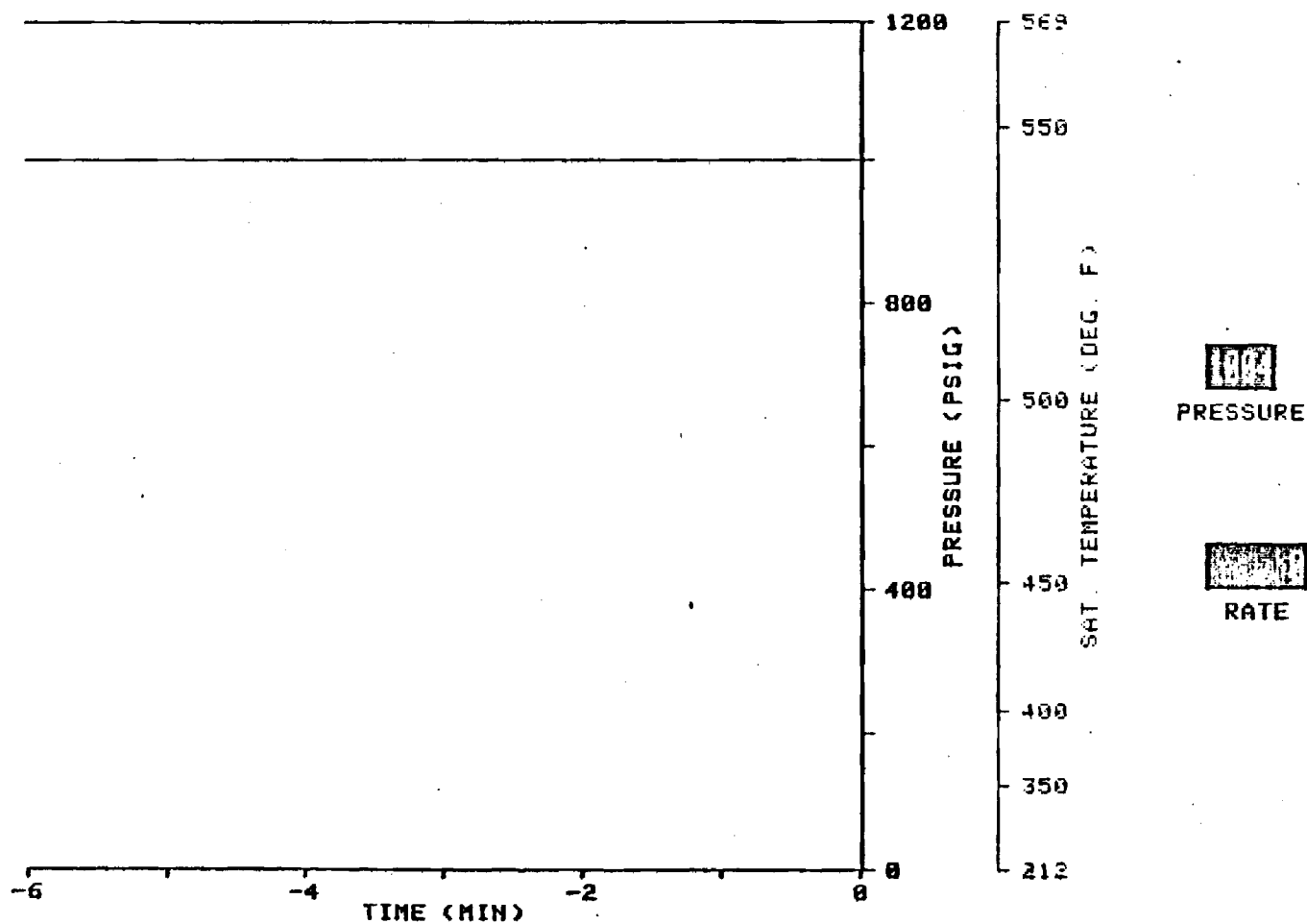


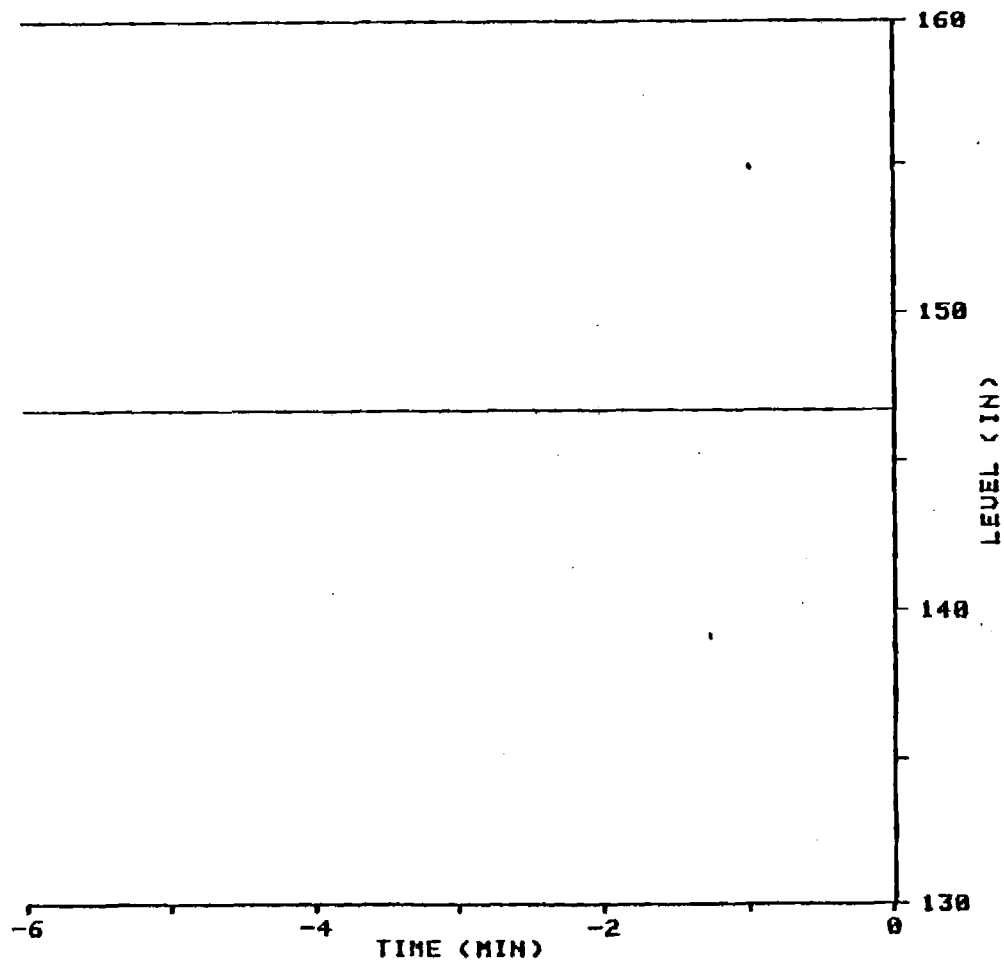
FIGURE 2.23

	CRT-0	CRT-1	CRT-2
Keyboard 1	DOOR	DOOR	DOOR
Keyboard 2	ARE	ARE	ARE

HNP-1

CDT
8/ 2/84 14:57:38

TORUS WATER LEVEL



145.7

LEVEL

158.4

RATE

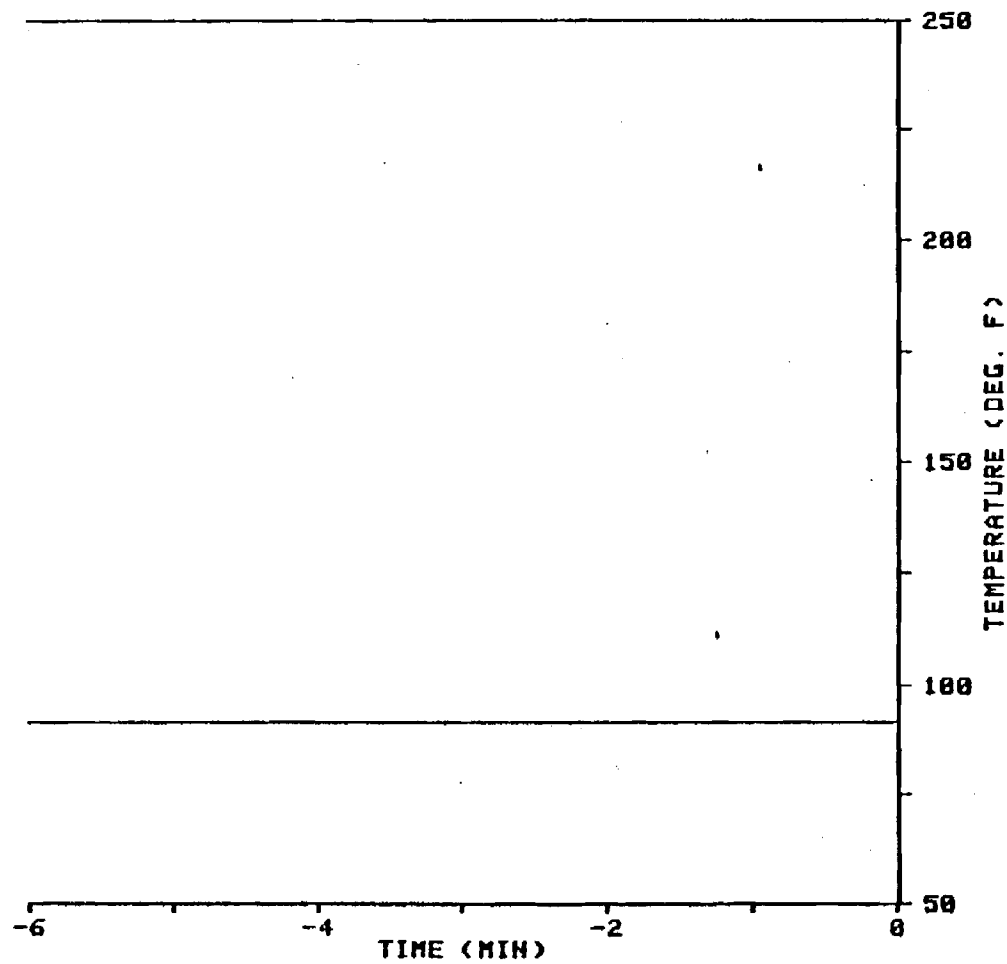
FIGURE 2.24

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Level</i>	<i>Level</i>	<i>Level</i>
Keyboard 2	<i>RAE</i>	<i>RAE</i>	<i>RAE</i>

HNP-1

COT
8/ 2/84 14:57:58

TORUS TEMPERATURE



TEMPERATURE

RATE

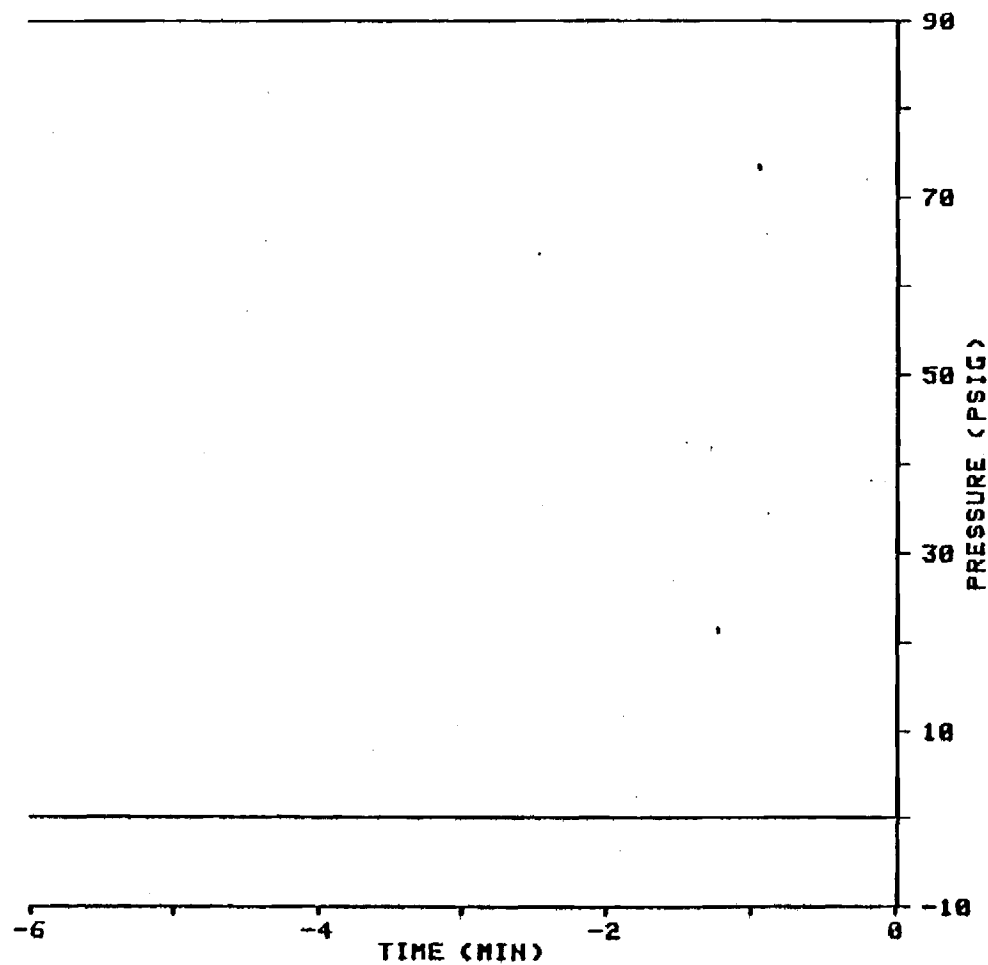
FIGURE 2.25

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Keyboard 2	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

HNP-1

COT
8/ 2/84 14:58:12

TORUS PRESSURE




PRESSURE


RATE

FIGURE 2.26

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Done</i>	<i>Done</i>	<i>Done</i>
Keyboard 2	<i>OK</i>	<i>OK</i>	<i>OK</i>

HNP-1

CDT
8/ 2/84 14:59:11

EMERGENCY

RPU SATURATION LIMIT	TORUS TEMPERATURE LIMIT	TORUS HEAT CAPACITY LIMIT
RPU LEVEL VS RPU PRESS	CONTAIN PRESSURE LIMIT	TORUS LOAD LIMIT
PRESSURE SUPPRESS LIMIT	RPU LEVEL VS TIME	DRYWELL SPRAY LIMIT I
DRYWELL SPRAY LIMIT II A	CORE UNCOVERY TIME	

FIGURE 2.27

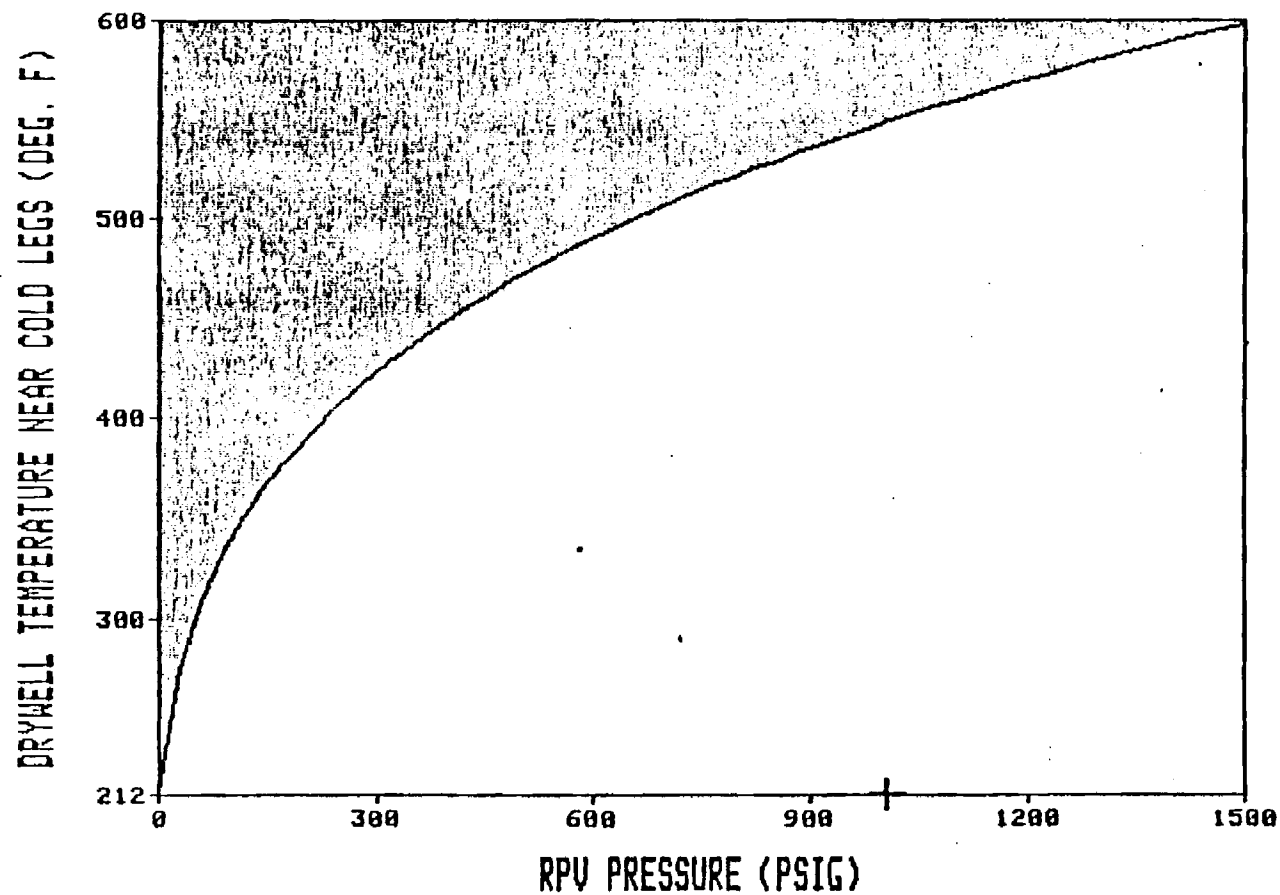
	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1000</i>	<i>1000</i>	<i>1000</i>
Keyboard 2	<i>R/E</i>	<i>R/E</i>	<i>R/E 8-8-84</i>

HNP-1

CDT
8/ 2/84 14:59:24

148

RPV SATURATION LIMIT



148

FIGURE 2.28

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>DEGR</i>	<i>DEGR</i>	<i>DEGR</i>
Keyboard 2	<i>A/E</i>	<i>A/E</i>	<i>A/E R-R</i>

MAP-1

COT
8/ 2/84 15:09:42

TORUS HEAT CAPACITY TEMPERATURE LIMIT

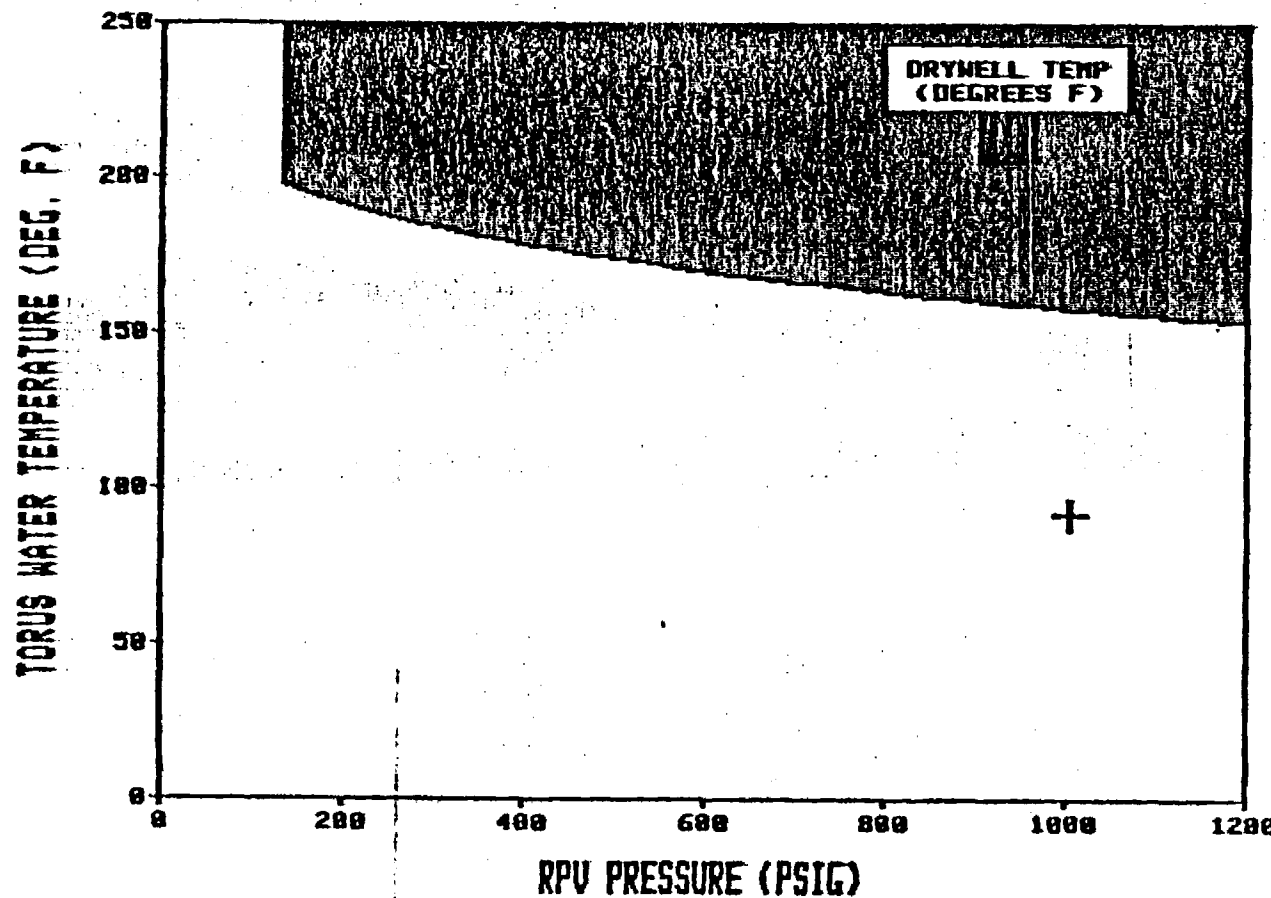


FIGURE 2.29

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1000</i>	<i>1000</i>	<i>1000</i>
Keyboard 2	<i>ME</i>	<i>ME</i>	<i>ME 8-8-84</i>

HP-1

CDT
8/ 2/84 15:09:56

122

TORUS HEAT CAPACITY LIMIT

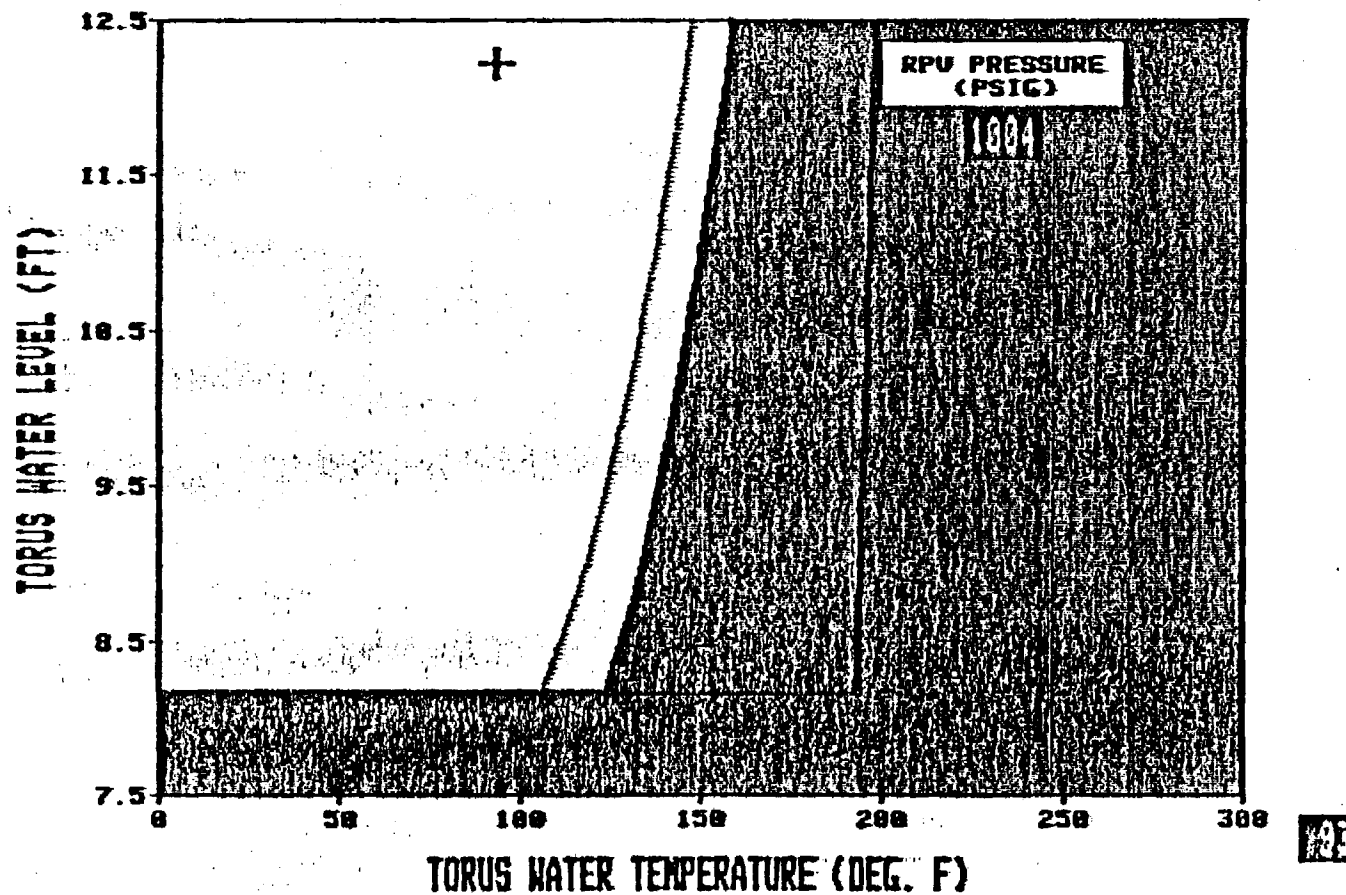


FIGURE 2.30

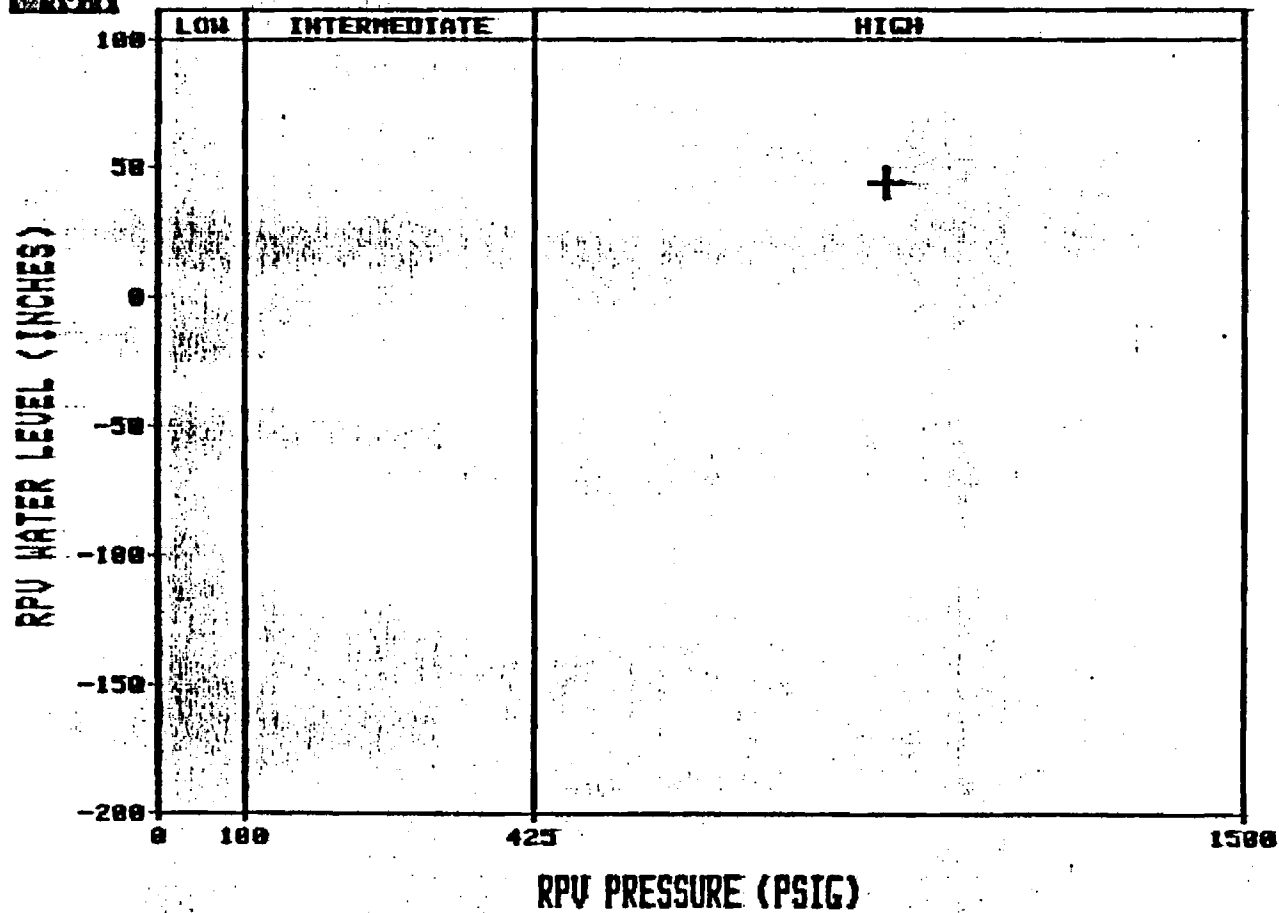
	CRT-0	CRT-1	CRT-2
Keyboard 1	1004	1004	1004
	011	012	013 000

HNP-1

CDT
8/ 2/84 15:18:18

RPV LEVEL VS. RPV PRESSURE

15.1



1004

FIGURE 2.31

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
	<i>ME</i>	<i>AL</i>	<i>ME R.C.</i>

HM-1

CDT
8/ 2/84 15:18:24

PRIMARY CONTAINMENT PRESSURE LIMIT

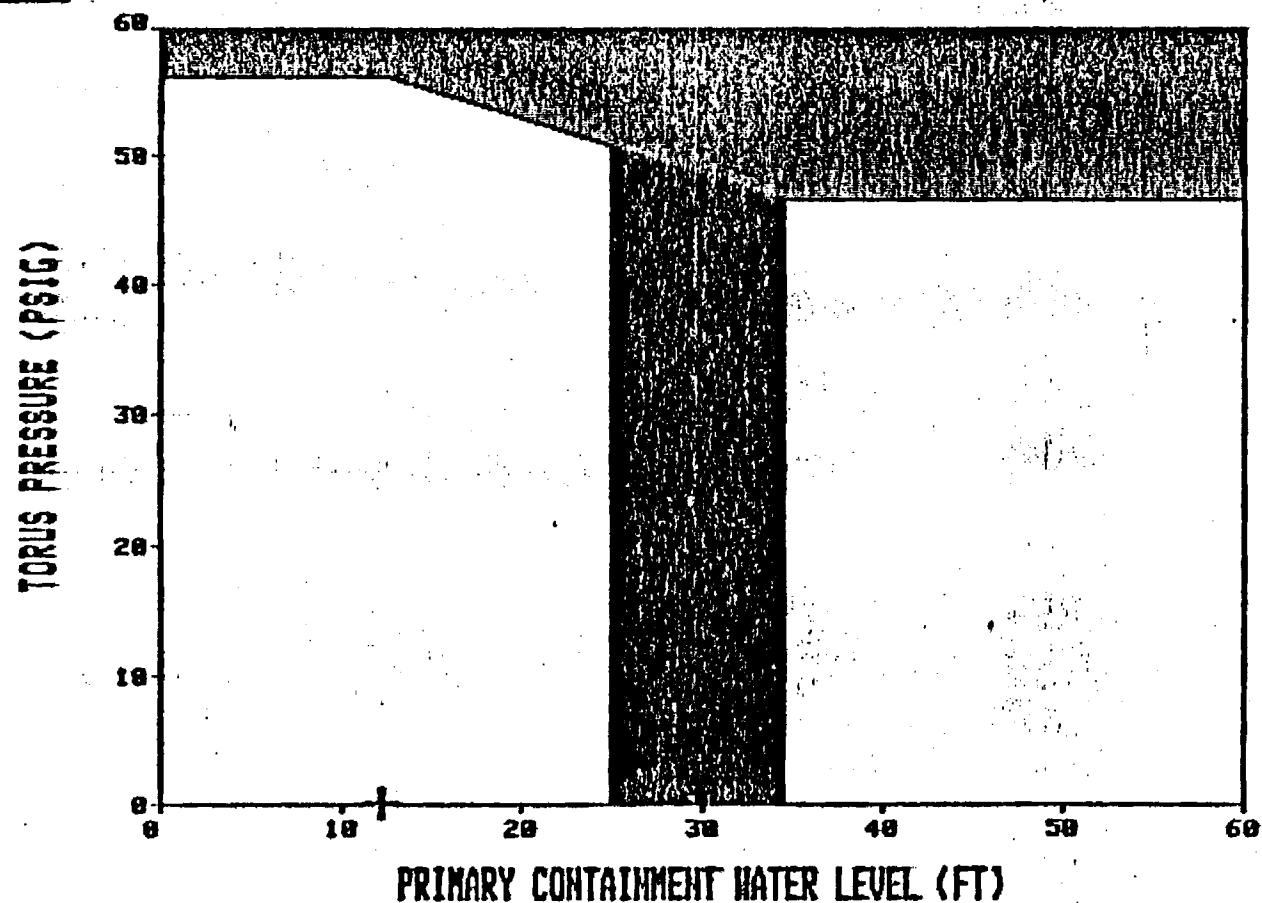


FIGURE 2.32

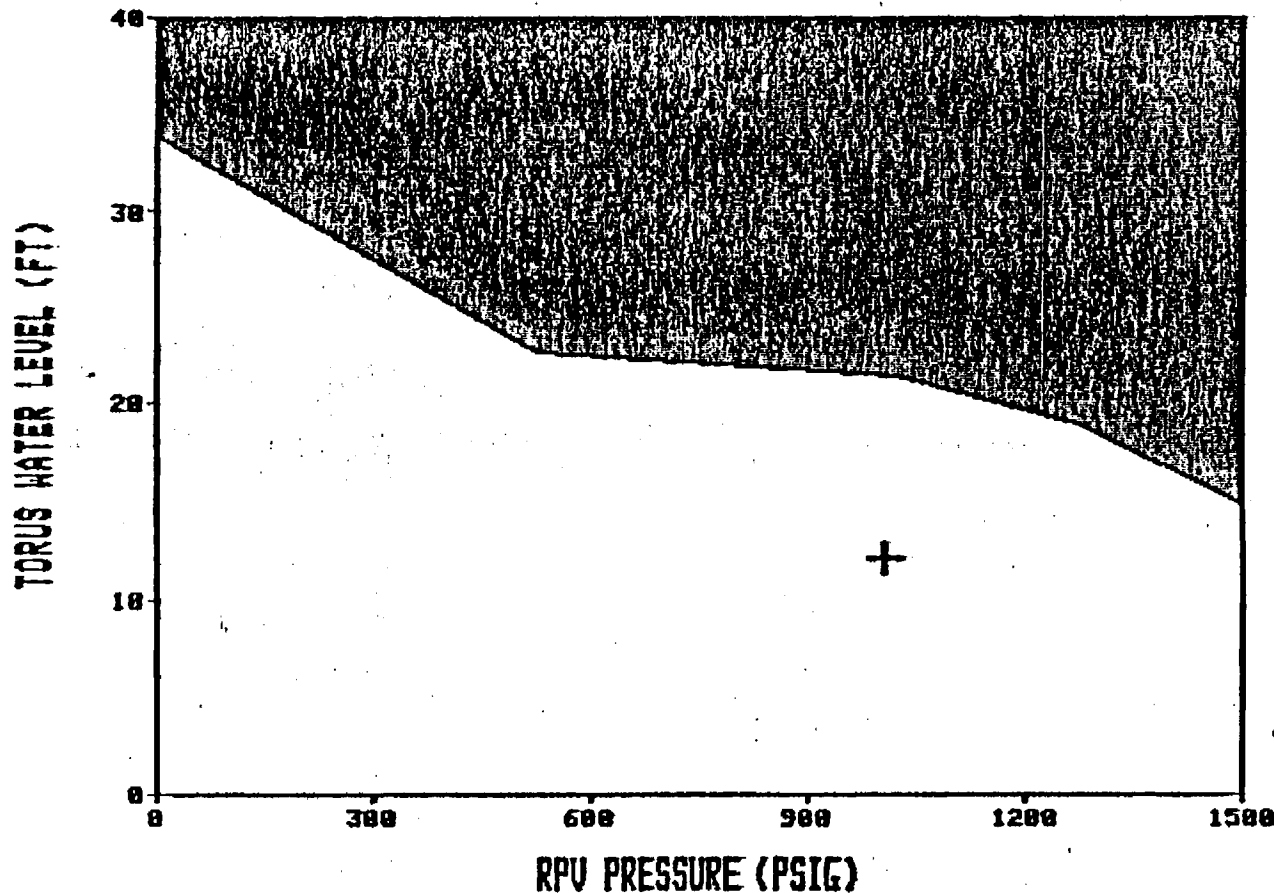
	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>2000</i>	<i>2000</i>	<i>2000</i>
Keyboard 2	<i>AP</i>	<i>AP</i>	<i>AP</i>

HP-1

CDT
8/ 2/84 15:10:38

01042

TORUS LOAD LIMIT



1004

FIGURE 2.33

	CRT-0	CRT-1	CRT-2
Keyboard 1	1000	1000	1000
Keyboard 2	ME	AK	180 8-8-86

HP-1

COT
8/ 2/84 15:18:54

PRESSURE SUPPRESSION LIMIT

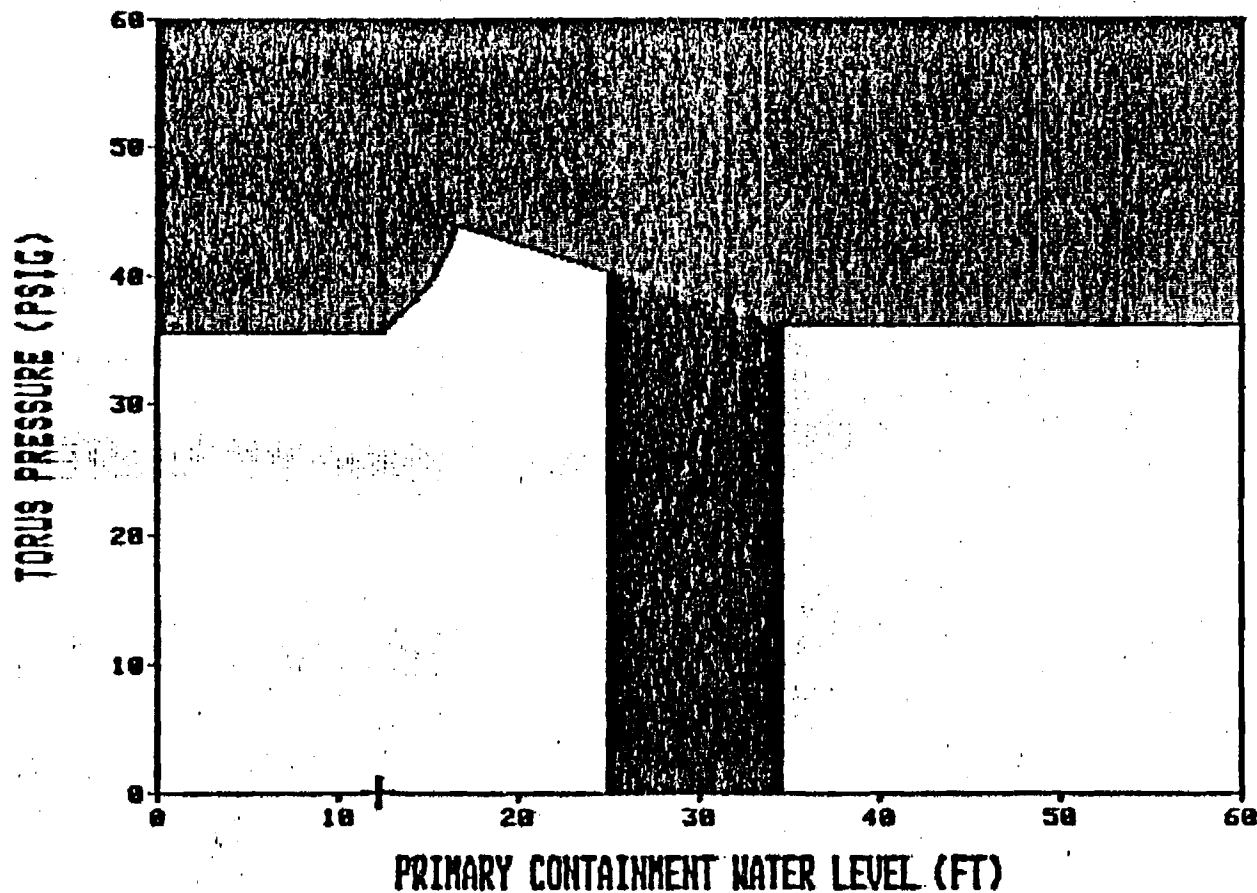


FIGURE 2.34

	CRT-0	CRT-1	CRT-2
Keyboard 1	4500/2000/8000	4500/2000/8000	4500/2000/8000
Keyboard 2	R10 RAC	RAC	RAC 8-0-0

IMP-1

COT
8/ 2/84 15:11:22

11117

RPU LEVEL VS. TIME

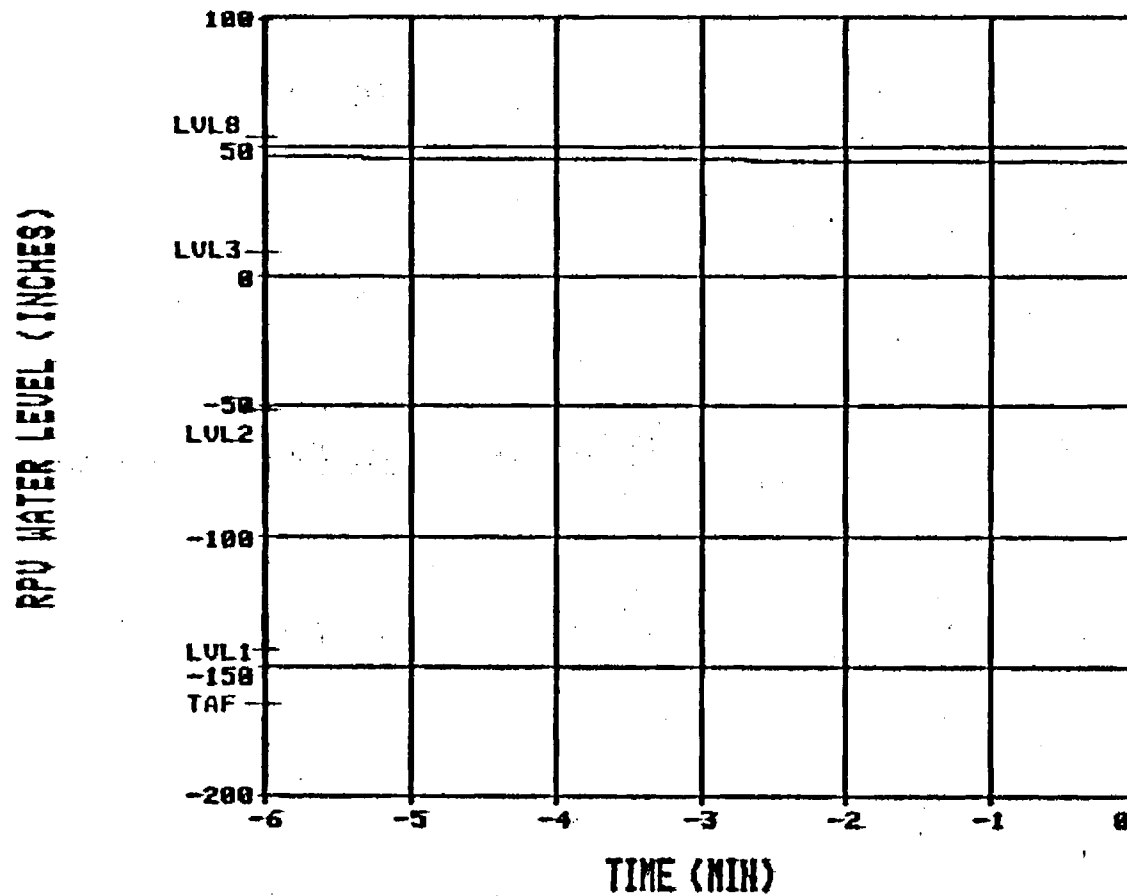


FIGURE 2.35

	CRT-0	CRT-1	CRT-2
Keyboard 1.	<i>AB-884</i>	<i>AB-884</i>	<i>AB-884</i>
Keyboard 2	<i>ABE</i>	<i>ABE</i>	<i>ABE 884</i>

HWP-1

COT
8/ 2/84 15:11:38

DRYWELL SPRAY LIMIT (I)

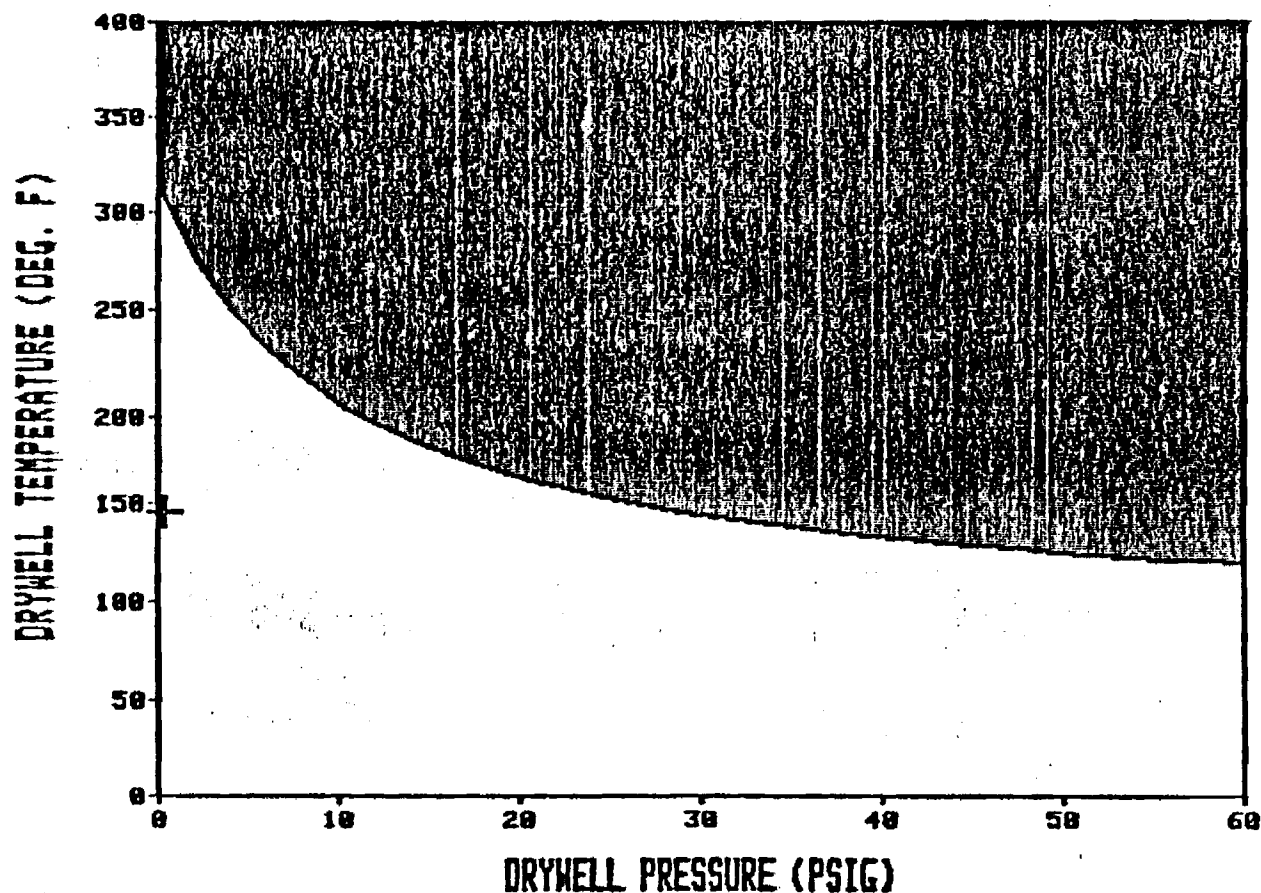


FIGURE 2.36

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>20-0-0-0</i>	<i>20-0-0-0</i>	<i>20-0-0-0</i>
Keyboard 2	<i>010</i>	<i>000</i>	<i>010 00-0-0</i>

RFP-1

COT

8/ 2/84 15:11:52

97

DRYWELL SPRAY LIMIT (IIA)

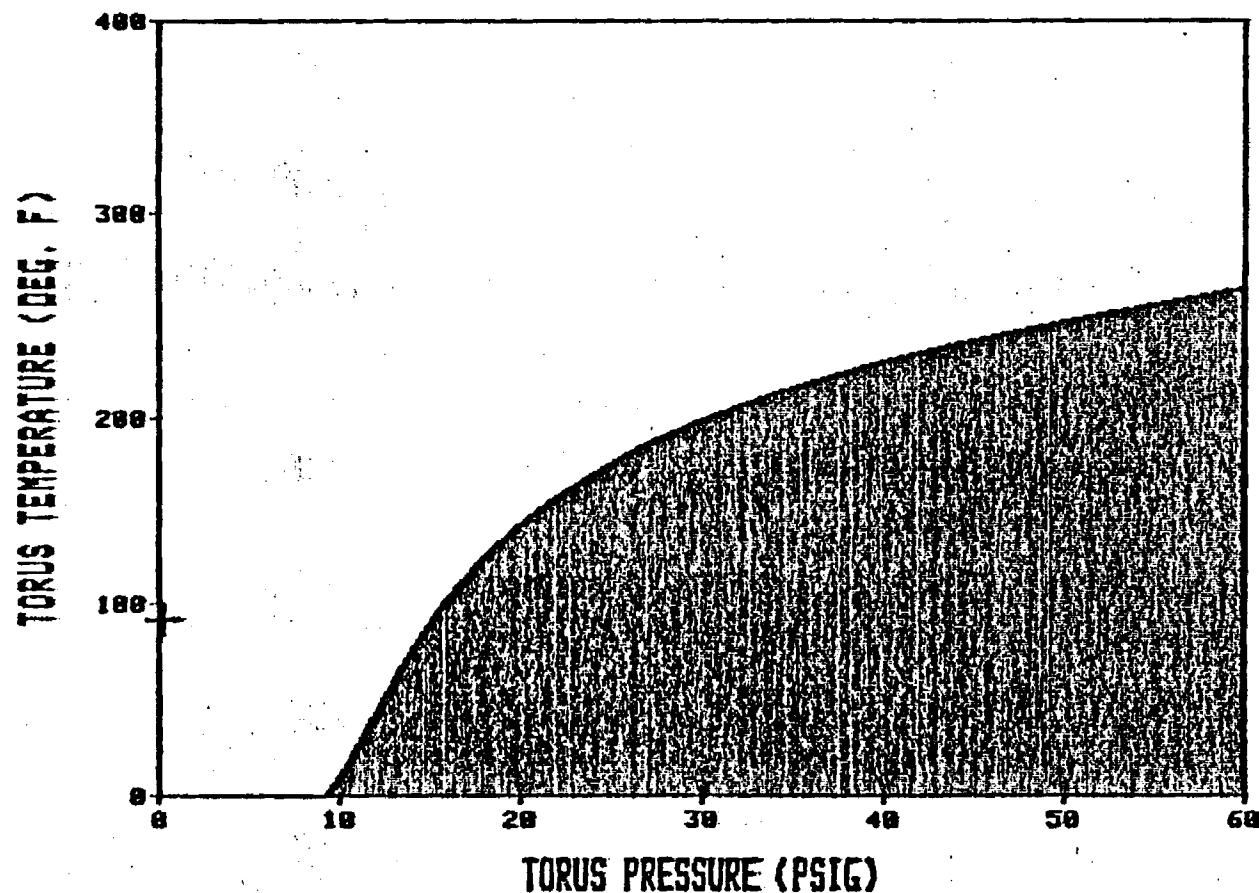


FIGURE 2.37

	CRT-0	CRT-1	CRT-2
Keyboard 1	LOOY	LOOY	LOOY
Keyboard 2	AE	BAE	BAE 8-8-80

HNP-1

COT
8/ 2/84 15:12:08

MAXIMUM ACCEPTABLE CORE UNCOVERY TIME

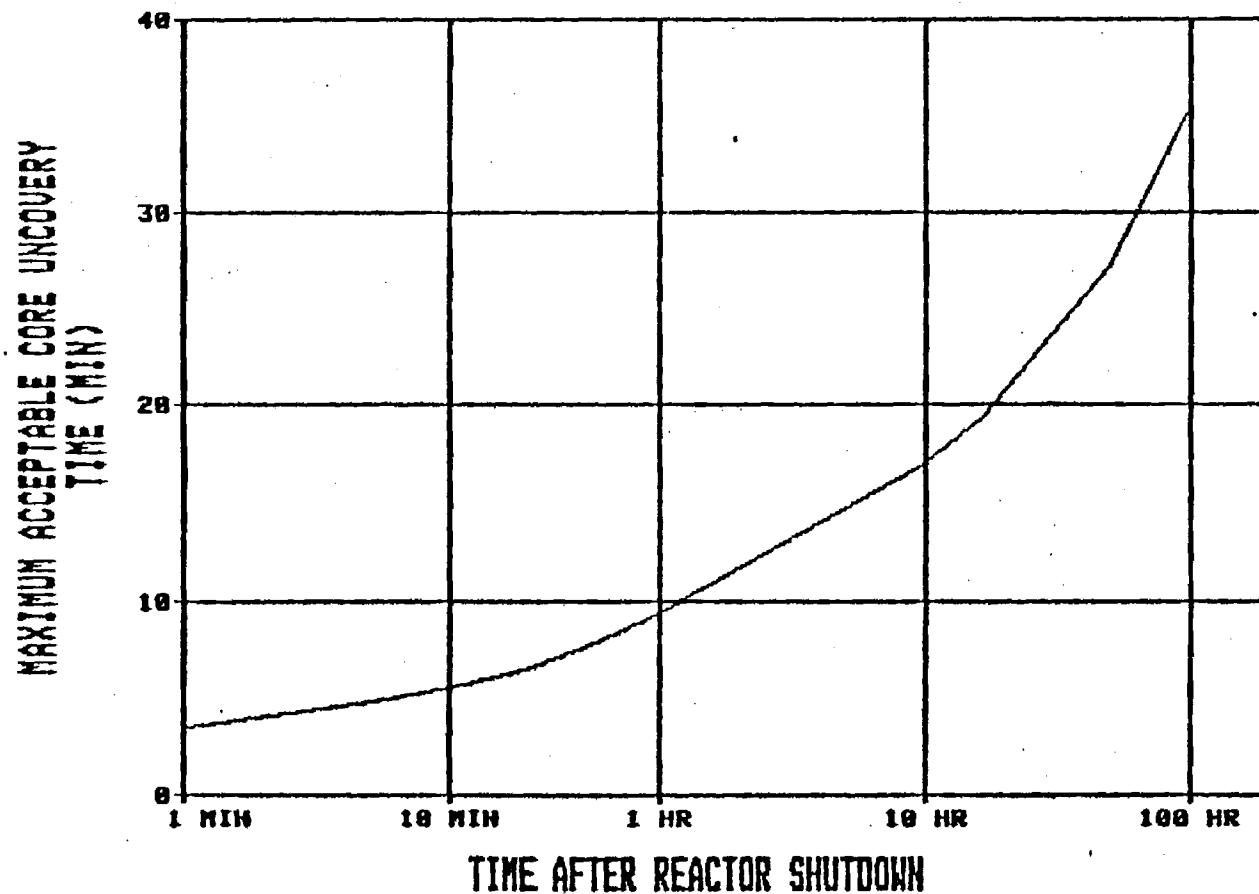


FIGURE 2.38

	CRT-0	CRT-1	CRT-2
Keyboard 1	40.00	40.00	40.00
Keyboard 2	40.00	40.00	40.00

HNP-1

CDT
8/ 2/84 15:13:05

DIAGNOSTIC

RPU WATER LEVEL	RPU PRESSURE	PRIMARY COOLANT SYSTEMS
EMERGENCY SYSTEMS	APRM	SRM
DRYWELL PRESSURE	DRYWELL TEMP	DRYWELL/ TORUS H2 O2
TORUS WATER LEVEL	TORUS PRESSURE	TORUS TEMP

PCIS GROUPS 1,3,4,5	PCIS GROUP 2A	PCIS GROUP 2B
PCIS GROUP 2C	PCIS GROUP 2D	PCIS GROUP 2E
MAIN STACK EFFLUENT	VENT EFFLUENT HNP- 1 & 2	ISOLATION TRIP SIGNALS
SECONDARY ISOLATION		

FIGURE 2.39

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>15:13:05</i>	<i>15:13:05</i>	<i>15:13:05</i>
Keyboard 2	<i>15:13:05</i>	<i>15:13:05</i>	<i>15:13:05</i>

HWP-1

RPU WATER LEVEL DIAGNOSTIC

COT
8/ 2/84 15:13:18

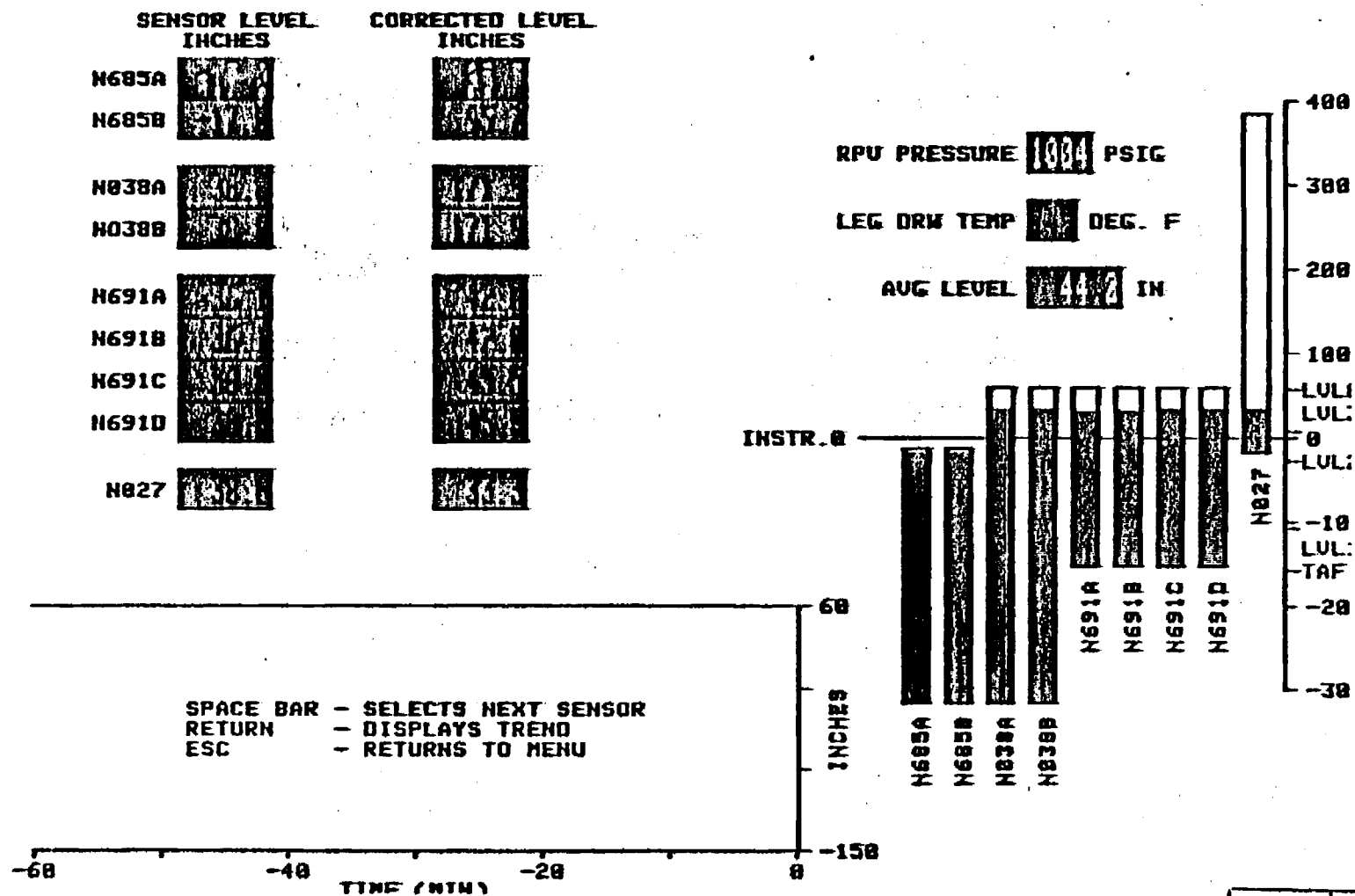


FIGURE 2.40

	CRT-0	CRT-1	CRT-2
Keyboard 1	LOAN	LOAN	LOAN
Keyboard 2	AN	AN	AN 8-8-84

HNP-1

COT
8/ 2/84 15:13:30

RPV PRESSURE DIAGNOSTIC

H698A **1800**

AUG PRESSURE **1000** PSIG

H698D **1000**

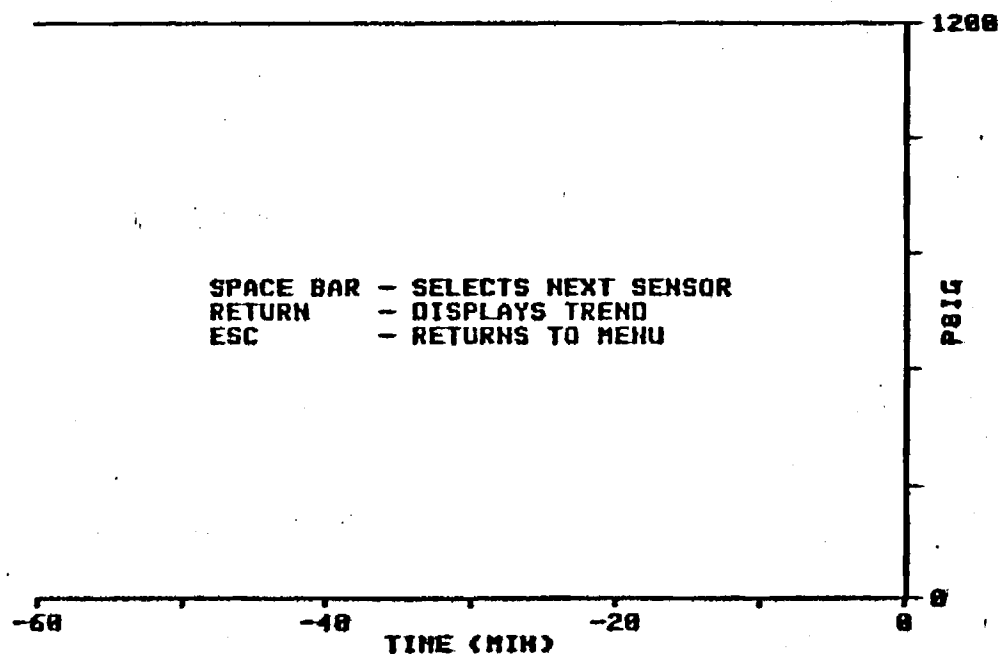


FIGURE 2.41

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1000</i>	<i>1000</i>	<i>1000</i>
Keyboard 2	<i>RIP</i>	<i>RIP</i>	<i>RIP 8-8-8</i>

HNP-1

COT
8/ 2/84 15:13:42

PRIMARY COOLANT SYSTEMS

CONDENSER TURBINE END PRESSURE	.0 PSIA
CONDENSER GENERATOR END PRESSURE	.0 PSIA
CONDENSATE STORAGE TANK LEVEL	.0 FT
MAIN FEEDWATER A FLOW	5.00E 06 LBS/HR
MAIN FEEDWATER B FLOW	5.00E 06 LBS/HR
FEEDWATER A TEMP	280. DEG. F
FEEDWATER B TEMP	280. DEG. F
FEEDWATER A TEMP	280. DEG. F
FEEDWATER B TEMP	280. DEG. F
RECIRCULATION PUMP A FLOW	4.51E 04 GPM
RECIRCULATION PUMP B FLOW	4.51E 04 GPM
VESSEL FLANGE TEMPERATURE	231. DEG. F

FIGURE 2.42

	CRT-0	CRT-1	CRT-2
Keyboard 1	AE 8-8-84	AE 8-8-84	AE 8-8-84
Keyboard 2	AE	AE	AE 8-8-84

HNP-1

COT
8/ 2/84 15:13:54

EMERGENCY SYSTEMS

STANDBY LIQUID CONTROL SYSTEM (SLCS)
DISCHARGE PRESSURE
TANK LEVEL

.0 PSIG
.0 2

HIGH PRESSURE COOLANT INJECTION (HPCI)
FLOW

0.00E 00 GPM

REACTOR CORE ISOLATION COOLING (RCIC)
FLOW

0.00E 00 GPM

CORE SPRAY SYSTEM (CS)
A FLOW
B FLOW

0.00E 00 GPM
0.00E 00 GPM

RESIDUAL HEAT REMOVAL SYSTEM (RHR)
A FLOW
A OUTLET TEMPERATURE SHELL SIDE
A SERVICE WATER FLOW

0.00E 00 GPM
0. DEG. F
0.00E 00 GPM

B FLOW
B OUTLET TEMPERATURE SHELL SIDE
B SERVICE WATER FLOW

0.00E 00 GPM
0. DEG. F
0.00E 00 GPM

FIGURE 2.43

	CRT-0	CRT-1	CRT-2
Keyboard 1	8-8-84	8-8-84	8-8-84
Keyboard 2	8-8-84	8-8-84	8-8-84

HIP-1

COT
8/ 2/84 15:14:00

APRM DIAGNOSTIC

APRM (K685)

RECIRCULATION FLOW

K685A



K685B



K685C

K685D

K685E

K685F

K688A



K686A

AUG APRM 11.1 2

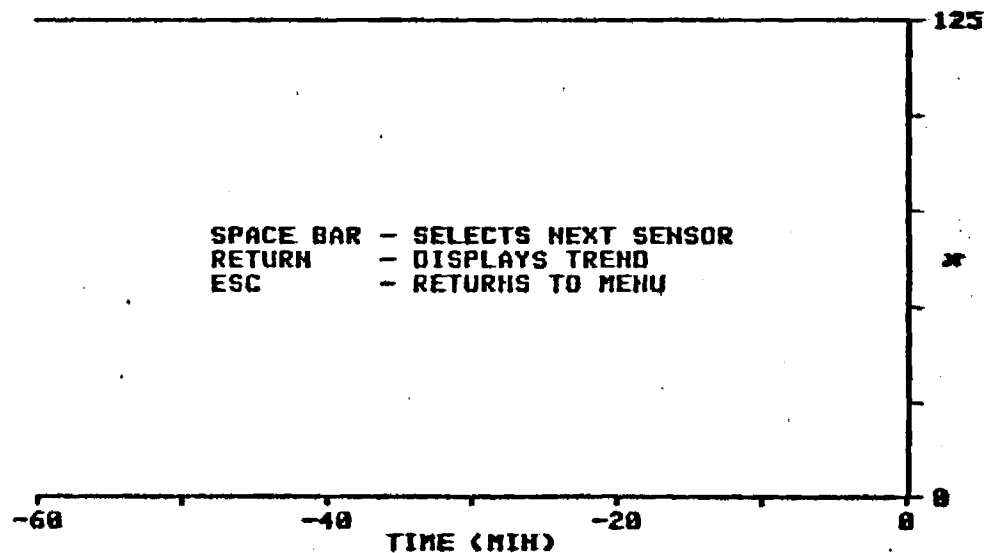


FIGURE 2.44

	CRT-0	CRT-1	CRT-2
Keyboard 1	11.1	11.1	11.1
Keyboard 2	11.1	11.1	11.1 8-8-84

HMP-1

COT
8/ 2/84 15:14:28

SRM DIAGNOSTIC

K688A 11:02:31 OUT

K688B 11:02:31 OUT

K688C 11:02:31 OUT

K688D 11:02:31 OUT

AUG SRM 11:02:31 CPS

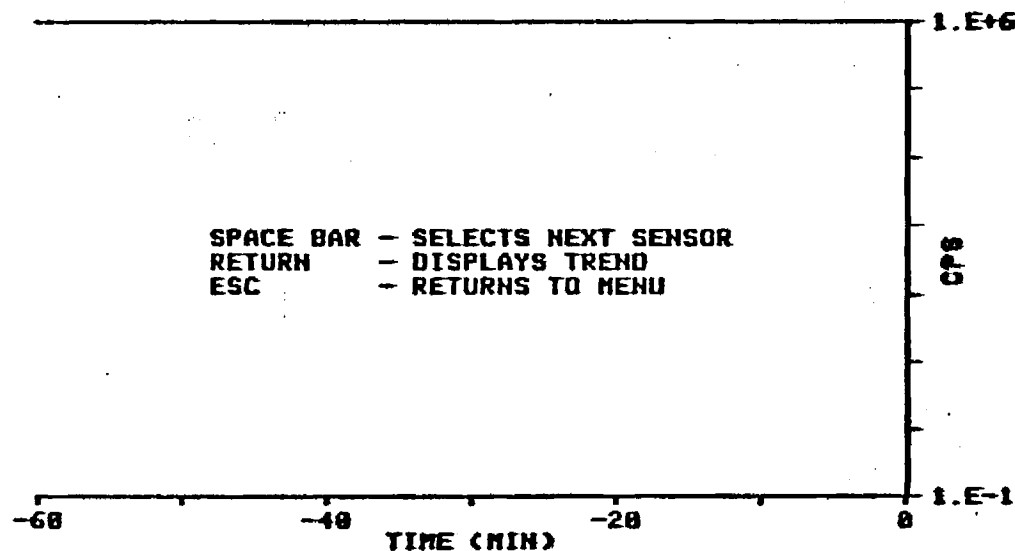


FIGURE 2.45

	CRT-0	CRT-1	CRT-2
Keyboard 1	11:02:31	11:02:31	11:02:31
Keyboard 2	11:02:31	11:02:31	11:02:31

HNP-1

COT
8/ 2/84 15:14:38

DRYWELL PRESSURE DIAGNOSTIC

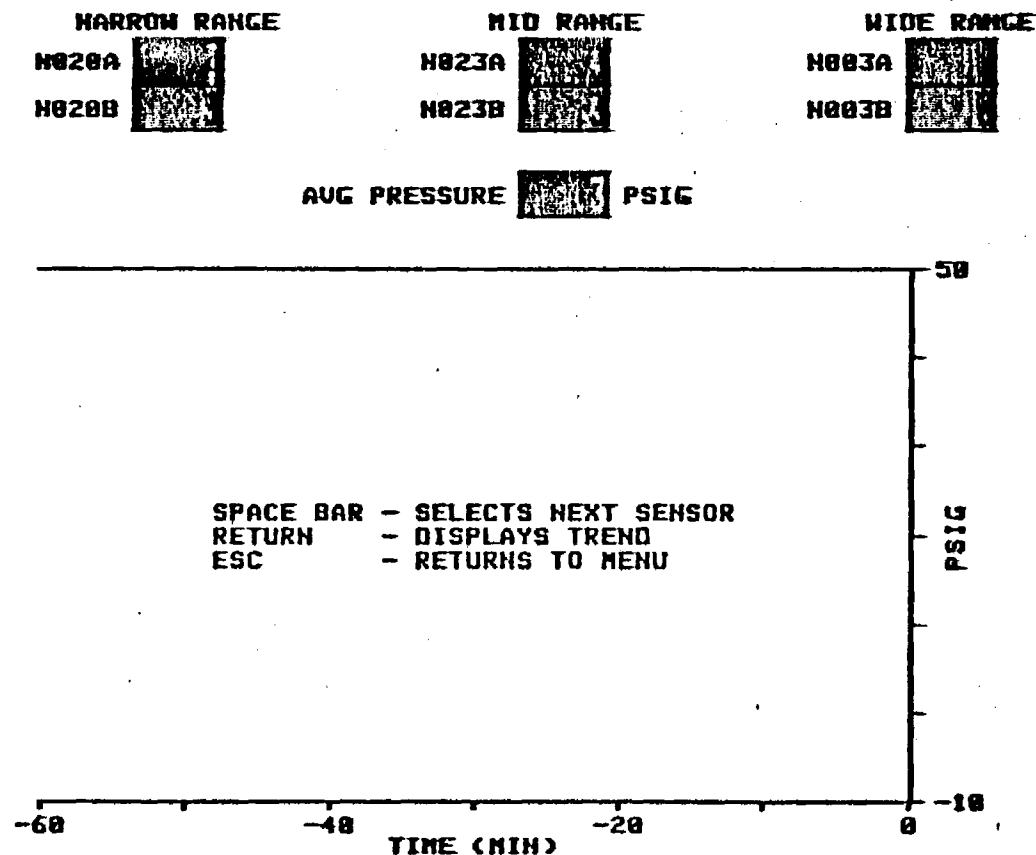


FIGURE 2.46

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>H000</i>	<i>H000</i>	<i>H000</i>
Keyboard 2	<i>B/E</i>	<i>B/E</i>	<i>B/E 8-8-87</i>

HMP-1

CDT
8/ 2/84 15:14:58

DRYNELL TEMPERATURE DIAGNOSTIC

AUG TEMP  DEG. F

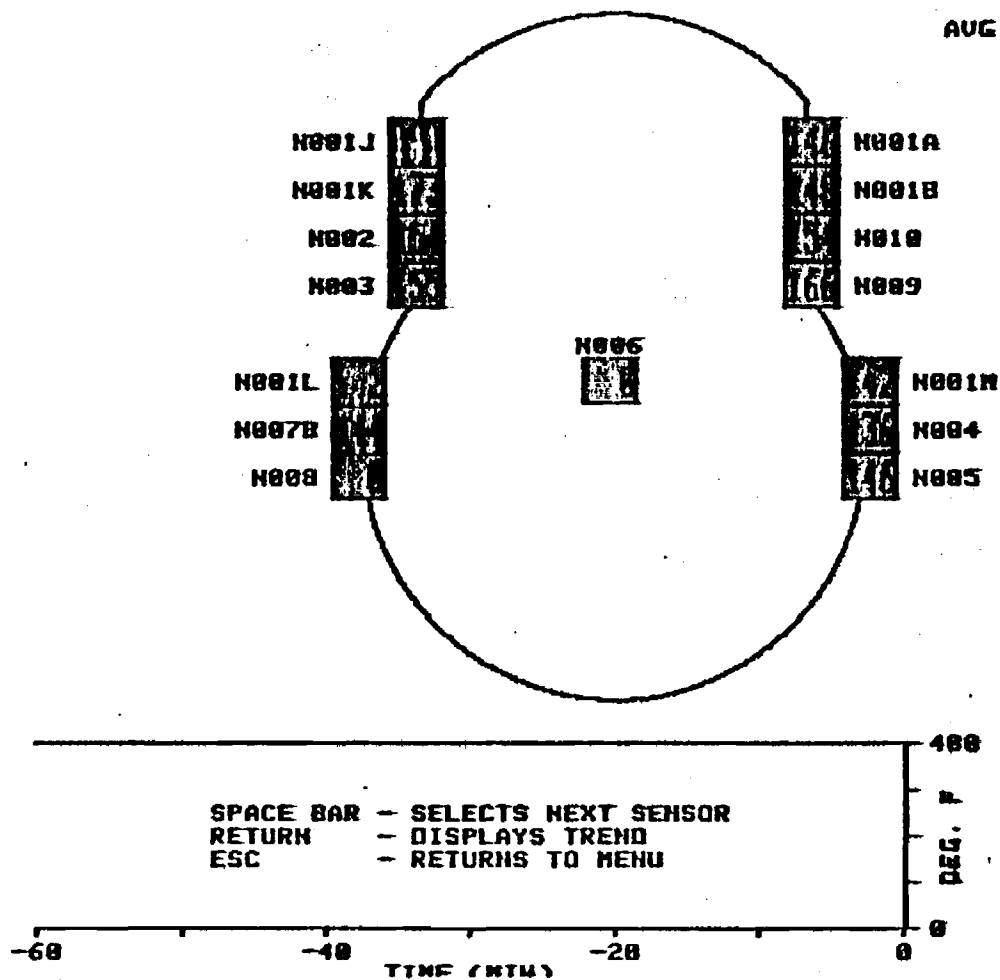


FIGURE 2.47

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>DECE</i>	<i>DECE</i>	<i>DECE</i>
Keyboard 2	<i>BAE</i>	<i>BE</i>	<i>AE 8-8-84</i>

HNP-1

DRYWELL/TORUS H2/O2 CONCENTRATION DIAGNOSTIC

COT
8/ 2/84 15:15:00

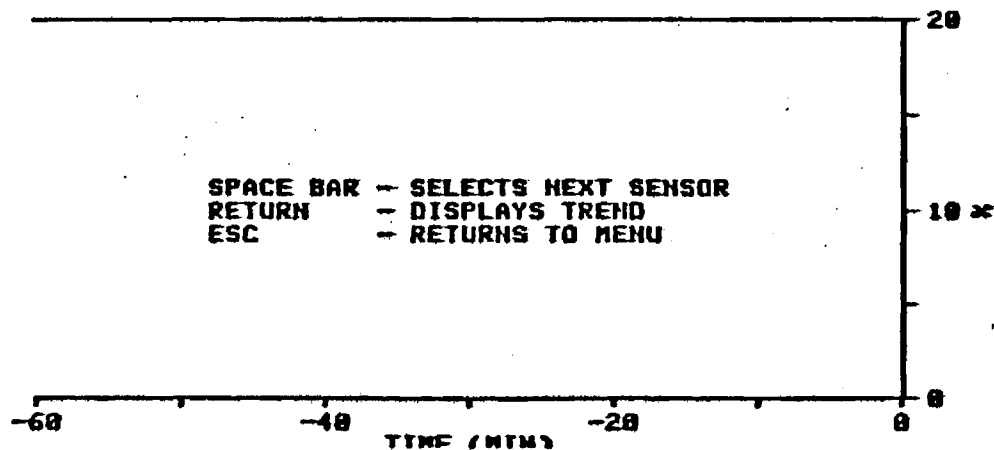
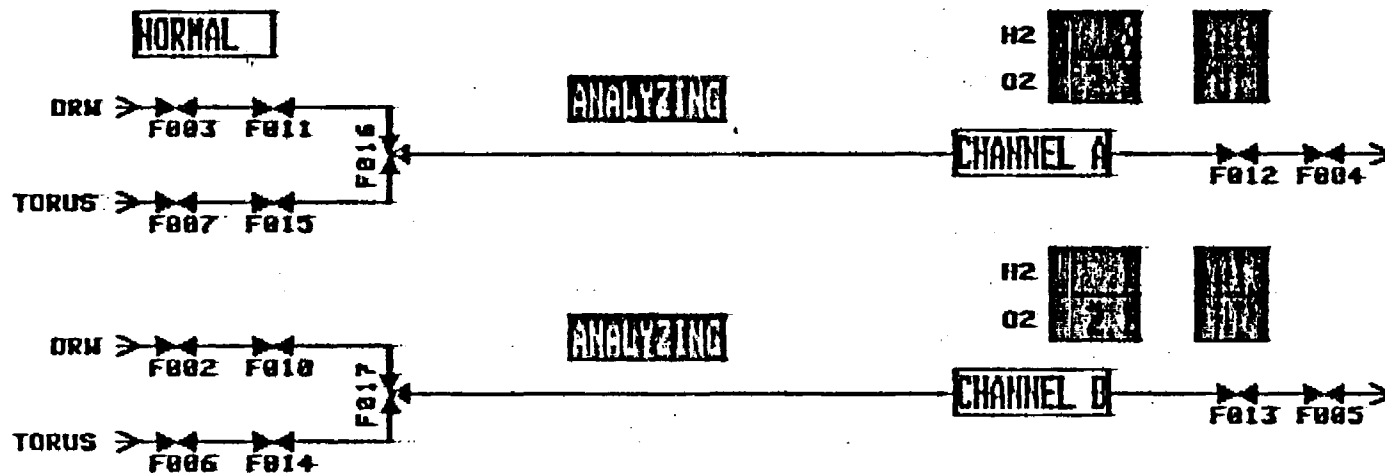


FIGURE 2.48

	CRT-0	CRT-1	CRT-2
Keyboard 1	2008	2008	2008
	110	110	110

HWP-1

COT
8/ 2/84 15:15:28

TORUS LEVEL DIAGNOSTIC

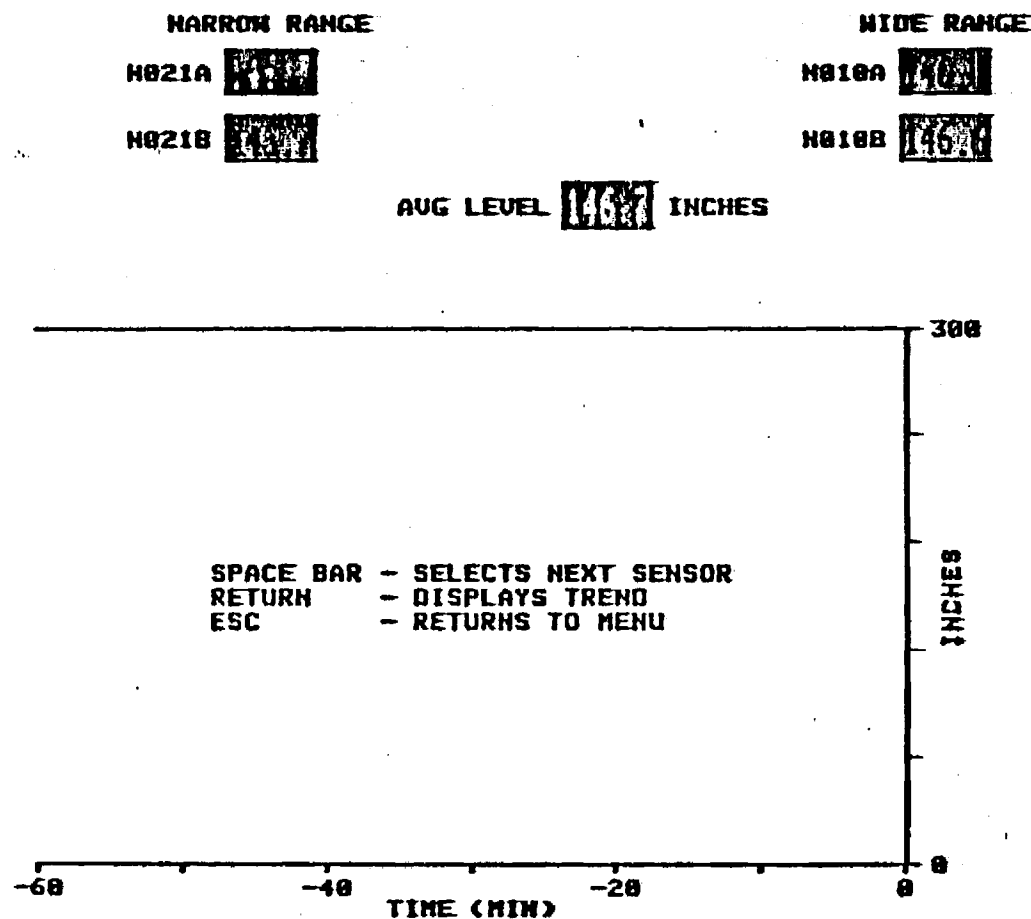


FIGURE 2.49

	CRT-0	CRT-1	CRT-2
Keyboard 1	146.7	146.7	146.7
" 1 1 2	146.7	146.7	146.7

HP-1

COT
8/ 2/84 15:15:30

TORUS PRESSURE DIAGNOSTIC

H088A

AUG PRESSURE PSIG

H088B

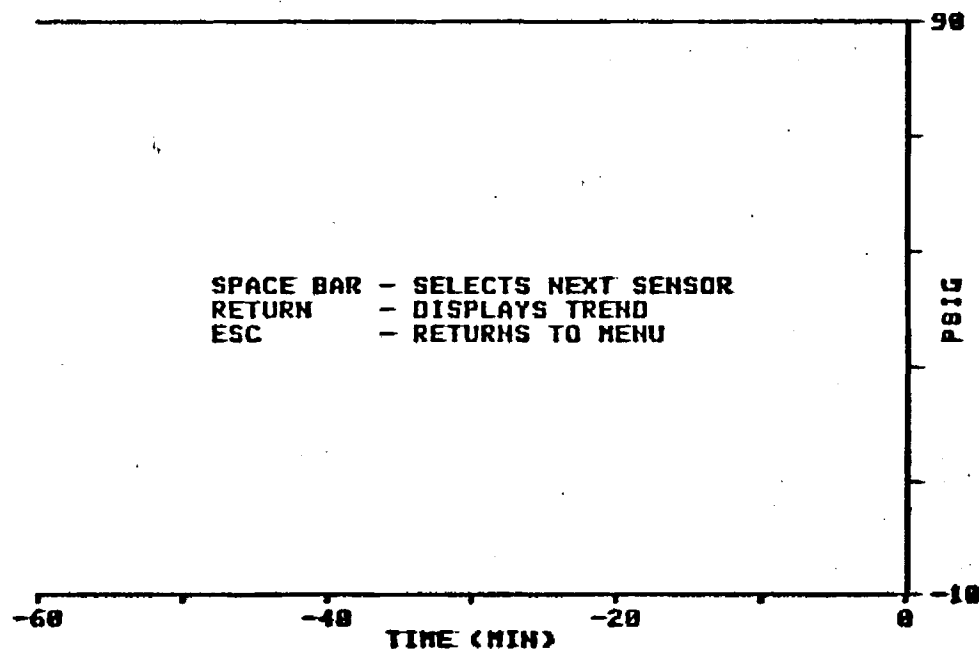


FIGURE 2.50

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>debris</i>	<i>debris</i>	<i>8-8-84</i>
Keyboard 2	<i>B/L</i>	<i>B/E</i>	<i>B/E 8-5-84</i>

HNP-1

COT
8/ 2/84 15:17:00

TORUS WATER TEMPERATURE DIAGNOSTIC



AUG TEMP **143** DEG. F

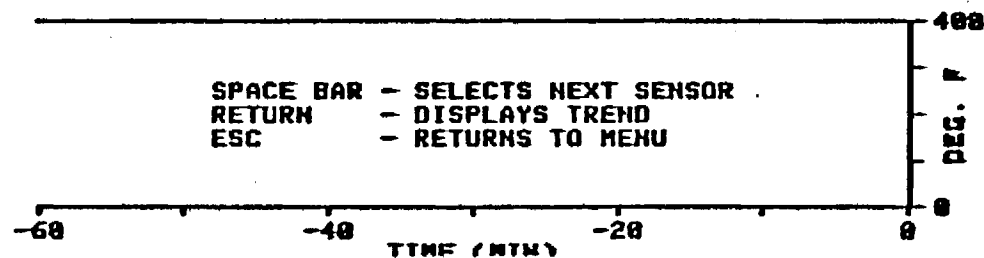
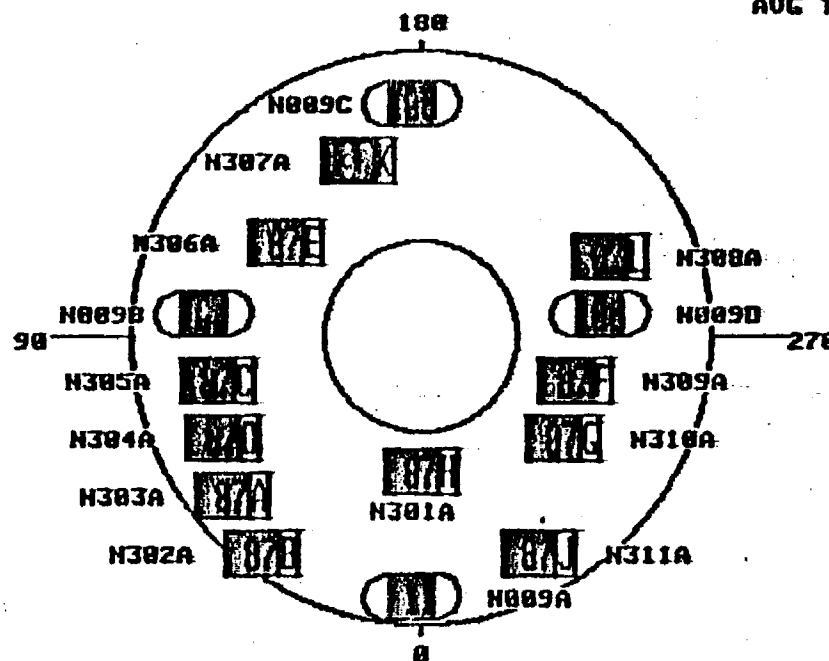


FIGURE 2.51

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1000</i>	<i>1000</i>	<i>1000</i>
Keyboard 2	<i>B/E</i>	<i>B/E</i>	<i>B/E 8-8-84</i>

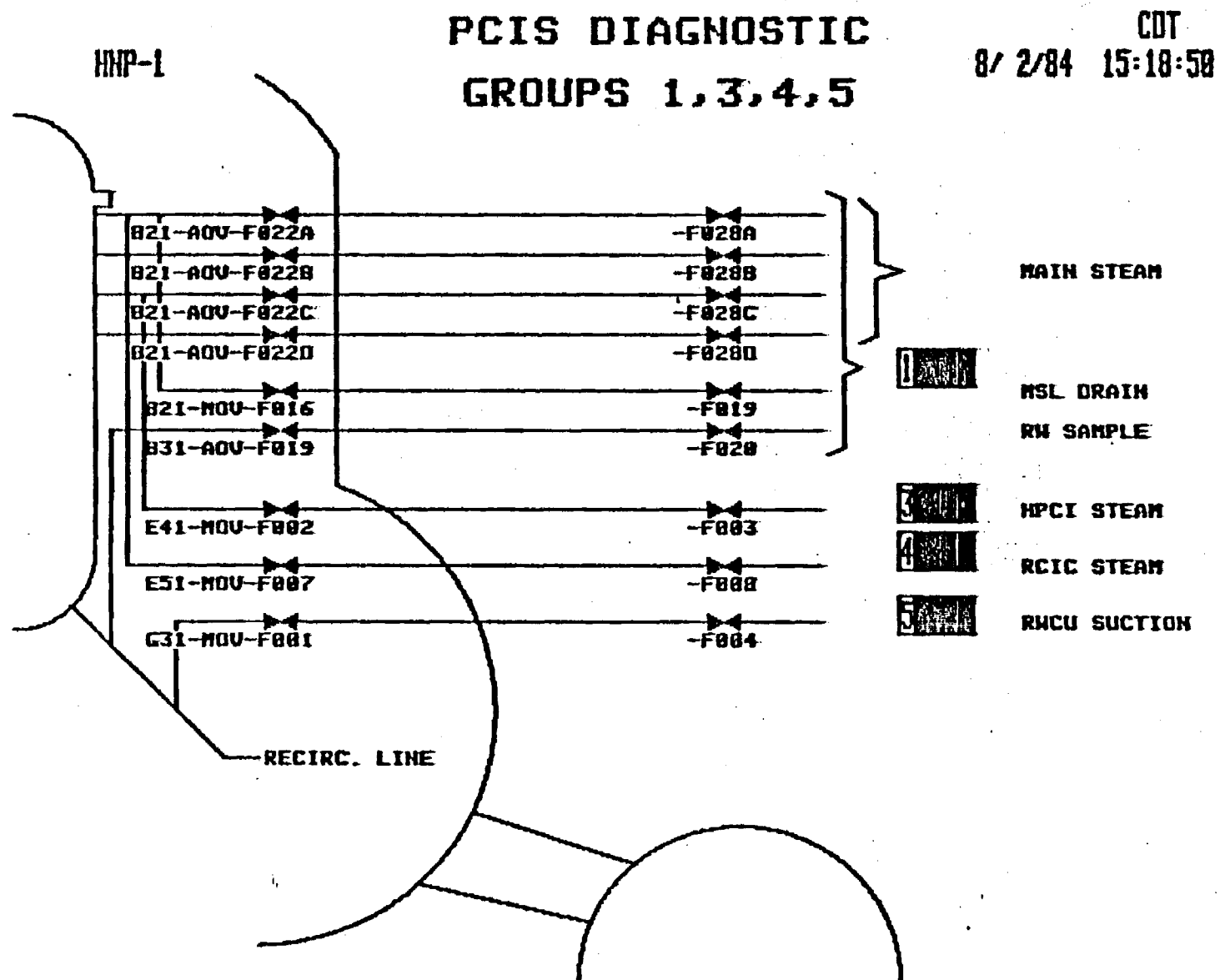


FIGURE 2.52

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>PCIS</i>	<i>PCIS</i>	<i>PCIS</i>
Keyboard 2	<i>PCIS</i>	<i>PCIS</i>	<i>PCIS</i>

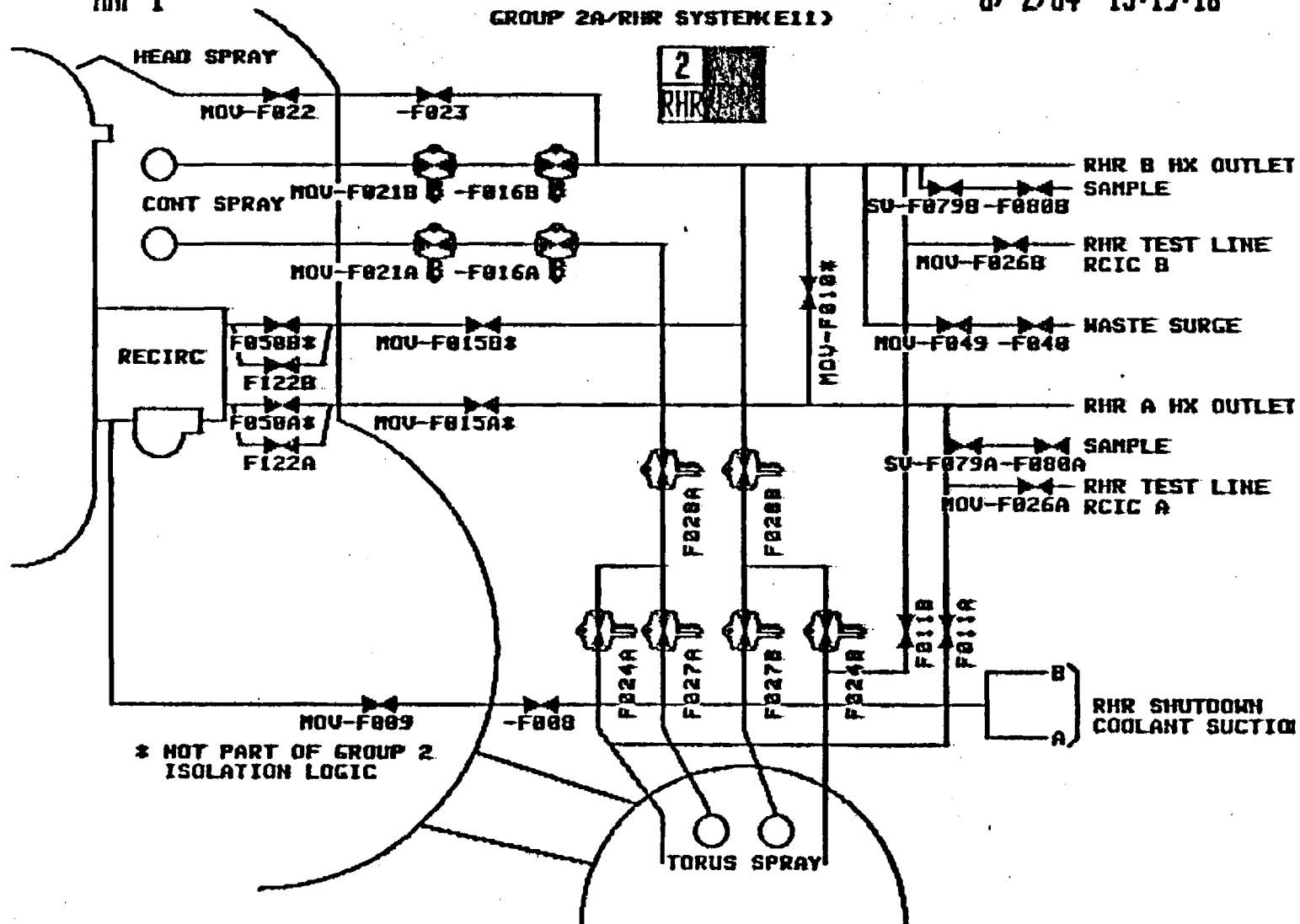
HNP-1

PCIS DIAGNOSTIC

GROUP 2A/RHR SYSTEM(E11)

CDT

8/ 2/84 15:19:10



* NOT PART OF GROUP 2
ISOLATION LOGIC

TORUS SPRAY

RHR SHUTDOWN
COOLANT SUCTION

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>0000</i>	<i>0000</i>	<i>0000</i>

FIGURE 2 53

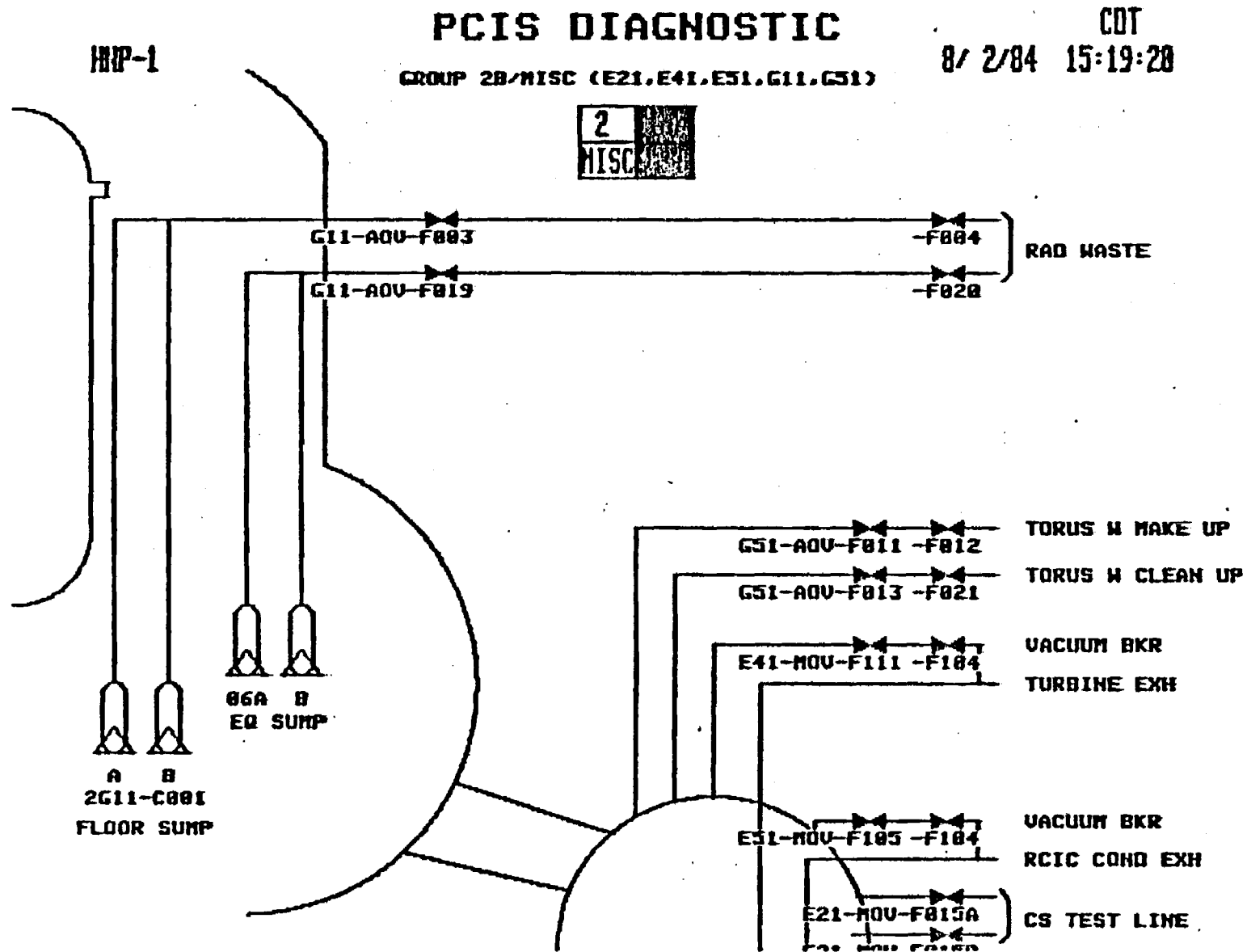


FIGURE 2.54

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Do not</i>	<i>Do not</i>	<i>Do not</i>

HNP-1

PCIS DIAGNOSTIC

GROUP 2C/H2 SYSTEM (KT48)

COT
8/ 2/84 15:19:32

2
H2

SEC

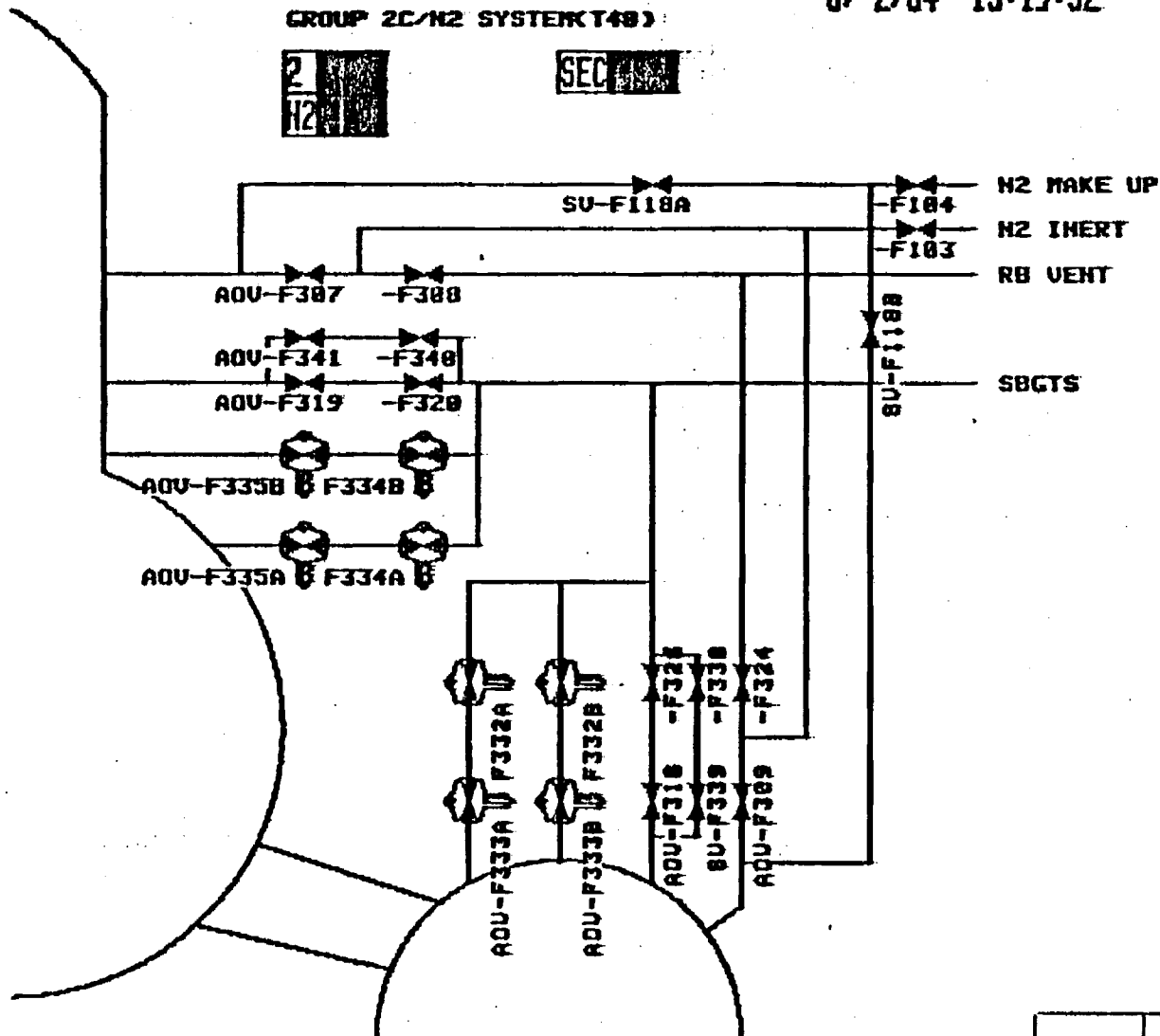


FIGURE 2.55

	CRT-0	CRT-1	CRT-2
Keyboard 1	DOOR	DOOR	DOOR
Keyboard 2	BLE	BLE	BLE 88-84

HWP-1

PCIS DIAGNOSTIC

GROUP 20/H2-02 SYSTEM(P33)

CDT

8/ 2/84 15:19:58

2
H2-02

SEC

NORMAL

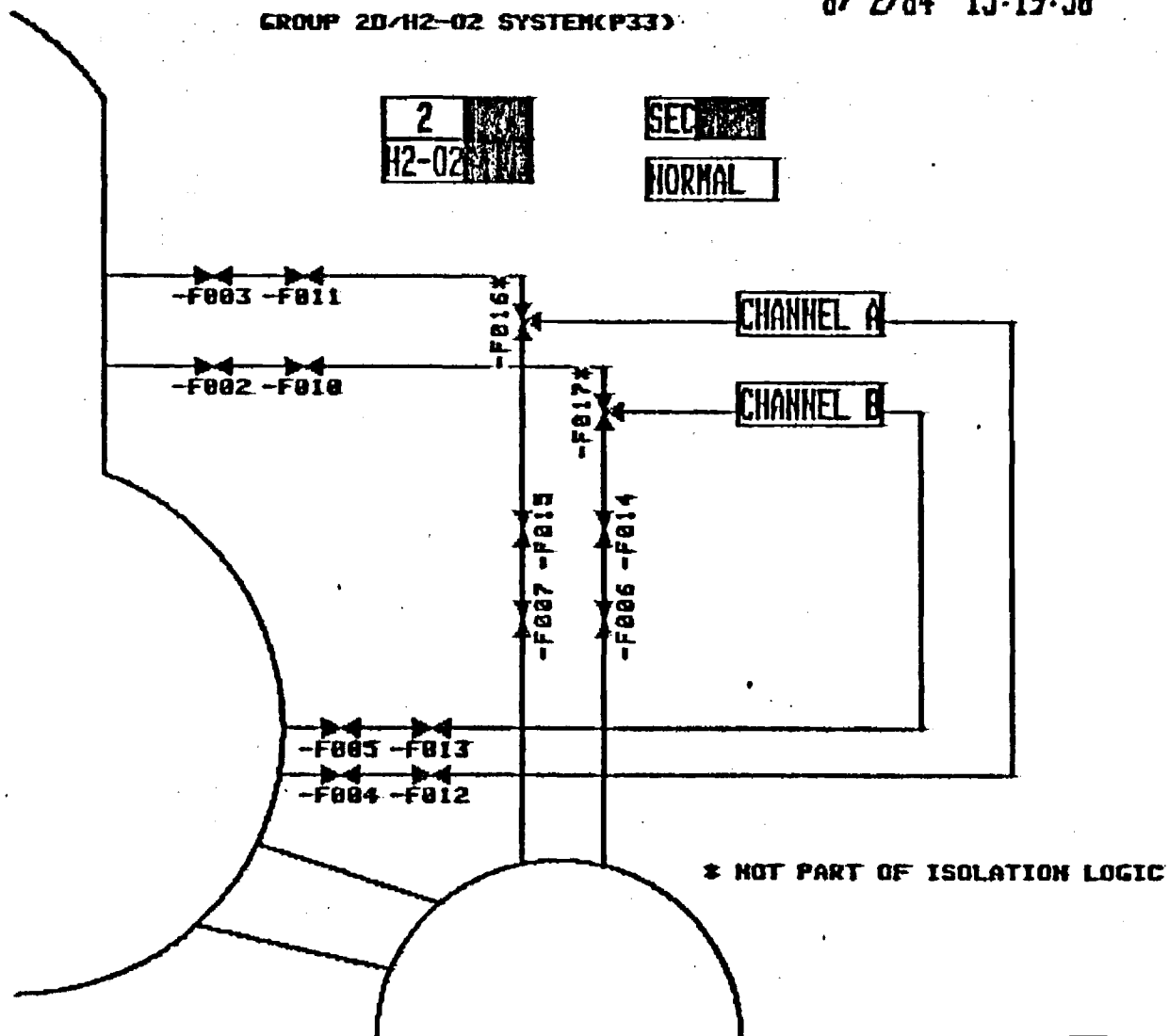


FIGURE 2.56

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Handwritten signature</i>	<i>Handwritten signature</i>	<i>Handwritten signature</i>
Keyboard 2	<i>Handwritten signature</i>	<i>Handwritten signature</i>	<i>Handwritten signature</i>

GROUP 2E/NISC (B21,D11,E41,P70)

8/ 2/84 15:20:00

2
HISC

SEC

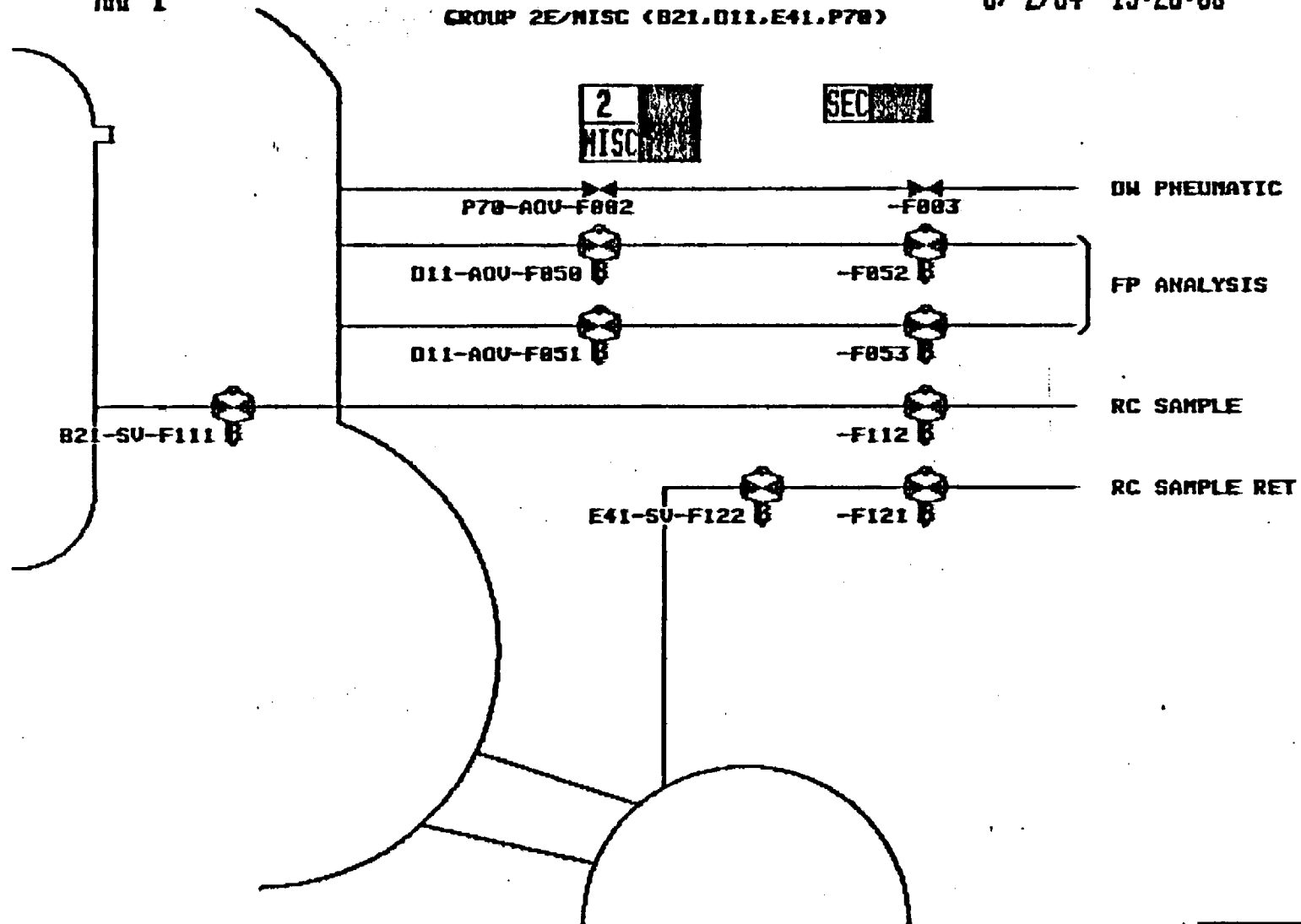


FIGURE 2.57

	CRT-0	CRT-1	CRT-2
Keyboard 1	1000	1000	1000
Keyboard 2	RA	RA	RA 8-8-80

HWP-1

COT
8/ 2/84 15:20:10

STACK EFFLUENT DIAGNOSTIC

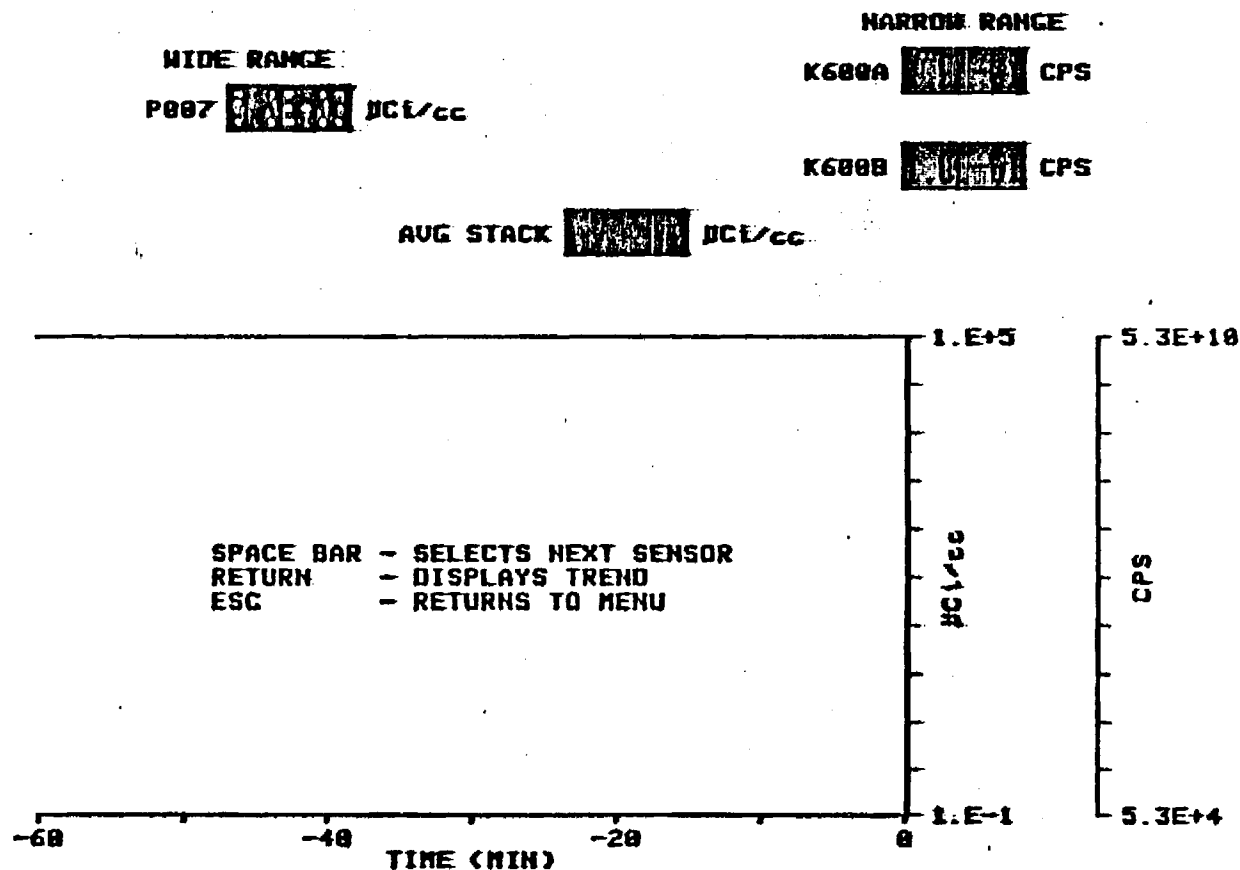


FIGURE 2.58

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>DECA</i>	<i>DECA</i>	<i>DECA</i>
Keyboard 2	<i>AP</i>	<i>AP</i>	<i>AP EX-11</i>

HNP-1

COT

8/ 2/84 15:20:20

REACTOR BUILDING VENTS EFFLUENT DIAGNOSTIC

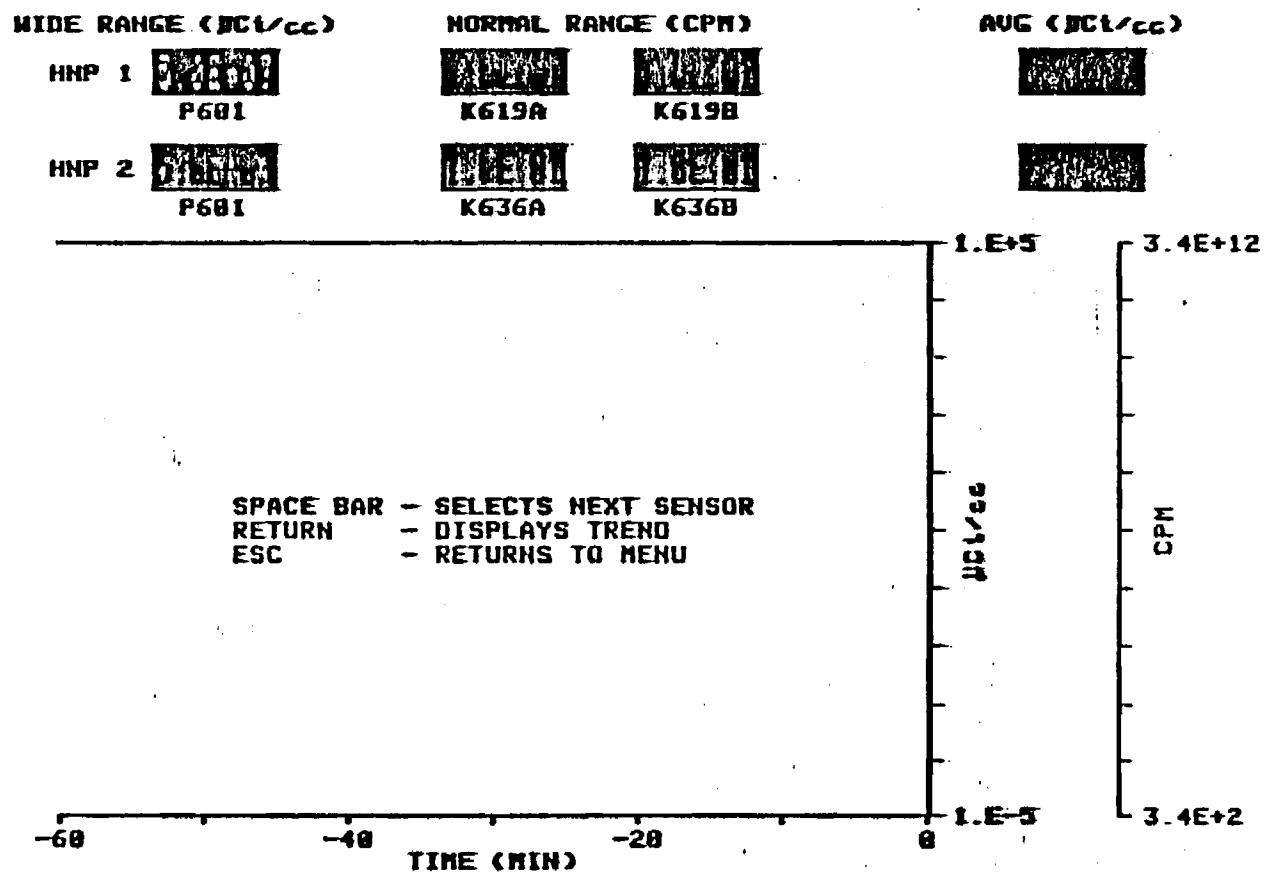


FIGURE 2.59

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>6/2/84</i>	<i>15:20</i>	<i>15:20:20</i>
Keyboard 2	<i>6/2</i>	<i>15:20</i>	<i>8-8-84</i>

HNP-1

COT
8/ 2/84 15:28:38

ISOLATION TRIP SIGNALS

PCIS GROUP 1

- REACTOR WATER LEVEL LOW LOW (LEVEL1)
- MAIN STEAM LINE RADIATION HIGH
- MAIN STEAM LINE FLOW HIGH
- MAIN STEAM LINE TUNNEL TEMPERATURE HIGH
- TURBINE BUILDING TEMPERATURE AT STEAM LINES HIGH
- MAIN STEAM LINE PRESSURE LOW
- CONDENSER VACUUM LOW

2.66

ESC
SEL TO RETURN
TO MENU

NEXT PAGE

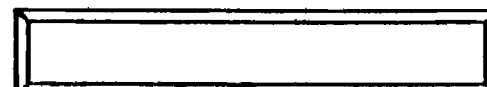


FIGURE 2.60

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>dece</i>	<i>dece</i>	<i>dece</i>
	<i>216</i>	<i>216</i>	<i>216 1-8-81</i>

SECONDARY ISOLATION DIAGNOSTIC

HNP-1

CDT
8/ 2/84 15:20:46

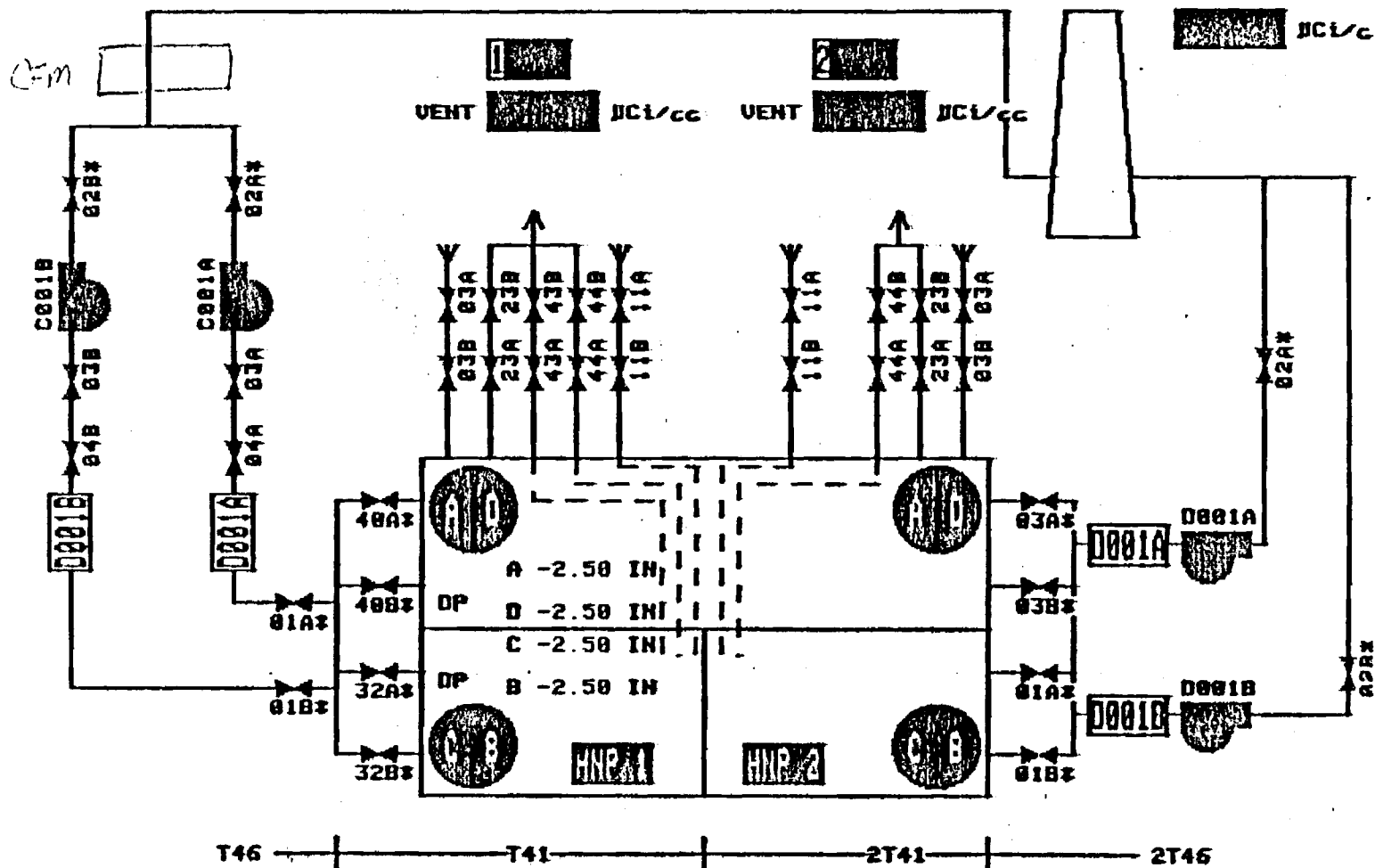


FIGURE 2.61

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>
	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>	<i>[Handwritten signature]</i>

HNP-1

CDT
8/ 2/84 15:22:26

MISCELLANEOUS

AREA RADIATION MONITORS		MISC RADIATION MONITORS
VESSEL/ FLANGE , 60 MIN TREND		MET DATA

VALVE STATUS (B31-C41)	VALVE STATUS (E11)	VALVE STATUS (E21-E41)
VALVE STATUS (E51-T48)		
PUMP STATUS		RELAY STAT CR, ADS, M, LLSL, SCR
RELAY STATUS (PCIS)	RELAY STAT (SEC ISO , (SRM)	SET POINTS

FIGURE 2.62

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>Handwritten</i>	<i>Handwritten</i>	<i>Handwritten</i>
Keyboard 2	<i>Handwritten</i>	<i>Handwritten</i>	<i>Handwritten</i>

HNP-1

CDT
8/ 2/84 15:22:38

AREA RADIATION

REACTOR BUILDING :	1	REACTOR HEAD LAYDOWN AREA	1.0E 00	MR/HR
	2	REFUELING FLOOR STAIRWAY	1.0E 00	MR/HR
	3	SPENT FUEL POOL DENTH EQUIPMENT	1.0E 00	MR/HR
	4	REFUELING FLOOR	1.0E 00	MR/HR
	5	DRYWELL SHIELD PLUG	1.0E 00	MR/HR
	6	TIP AREA	1.0E 00	MR/HR
	7	130' NE WORKING AREA	1.0E 00	MR/HR
	8	130' SW WORKING AREA	1.0E 00	MR/HR
	9	150' WORKING AREA	1.0E 00	MR/HR
	10	DECONT PUMP AND EQUIPMENT ROOM	1.0E 00	MR/HR
	11	SPENT FUEL POOL & NEW FUEL STORAGE	1.0E 00	MR/HR
	12	SOUTH CRD HYDRAULIC UNITS	1.0E 00	MR/HR
	13	NE CORE SPRAY AND RHR AREA	1.0E 00	MR/HR
	14	SE CORE SPRAY AND RHR AREA	1.0E 00	MR/HR
	15	EQUIPMENT ACCESS AIRLOCK	1.0E 00	MR/HR
	16	HPCI TURBINE AREA	1.0E 00	MR/HR
	17	TIP (CORE) PROBE DRIVES AREA	1.0E 00	MR/HR
	18	RCIC EQUIPMENT AREA SW	1.0E 00	MR/HR
	19	CRD PUMP ROOM NW	1.0E 00	MR/HR
	20	203' WORKING AREA NW	1.0E 00	MR/HR
	21	SE CORE SPRAY & RHR AREA	1.0E 00	MR/HR

2.70

ESC
SEL TO RETURN
TO MENU

NEXT PAGE

FIGURE 2.63

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1.0E 00</i>	<i>1.0E 00</i>	<i>1.0E 00</i>
	<i>0.1E 00</i>	<i>0.1E 00</i>	<i>0.1E 00</i>

HNP-1

CDT

8/ 2/84 15:22:54

MISCELLANEOUS RADIATION MONITORS

RADIATION

DRYWELL AREA A

1.0E 00 R/HR

DRYWELL AREA B

1.0E 00 R/HR

RADWASTE EFFLUENT TO RIVER

1.0E-01 CPS

PLANT SERVICE WATER EFFLUENT TO RIVER

1.0E-01 CPS

REACTOR BUILDING FILTER A DISCHARGE

1.0E-02 MR/HR

REACTOR BUILDING FILTER B DISCHARGE

1.0E-02 MR/HR

SGTS FILTER TRAIN TO MAIN STACK

0.0E 00 MR/HR

CARBON BED VAULT (WGTB)

1.0E 00 MR/HR

REFUELING FLOOR FILTER A DISCHARGE

1.0E-02 MR/HR

REFUELING FLOOR FILTER B DISCHARGE

1.0E-02 MR/HR

TURBINE BUILDING FILTER A DISCHARGE

1.0E-02 MR/HR

TURBINE BUILDING FILTER B DISCHARGE

1.0E-02 MR/HR

RADWASTE BUILDING FILTER A DISCHARGE

1.0E-02 MR/HR

RADWASTE BUILDING FILTER B DISCHARGE

1.0E-02 MR/HR

FLOOR DRAIN COLLECTOR TANK LEVEL

0 2

WASTE COLLECTOR TANK LEVEL

0 2

2.71

FIGURE 2.64

	CRT-0	CRT-1	CRT-2
Keyboard 1	1.0E-02	1.0E-02	1.0E-02
Keyboard 2	1.0E-02	1.0E-02	1.0E-02

HNP-1

COT
8/ 2/84 15:23:28

METEOROLOGICAL DATA

WIND	(DIRECTION FROM)	STD-DEV	SPEED
10 M ELEVATION	0 DEG	0 DEG	0 MPH
60 M ELEVATION	0 DEG	0 DEG	0 MPH
100 M ELEVATION	0 DEG	0 DEG	0 MPH
23 M ELEVATION - BACKUP	0 DEG	0 DEG	0 MPH

TEMPERATURE

10 M ELEVATION AMBIENT	-30 DEG F	NO FLOW
10 M ELEVATION AMBIENT - BACKUP	-30 DEG F	NO FLOW
10 M DEWPOINT	-30 DEG F	
10 M - 60 M DIFFERENTIAL	-10 DEG F	NO FLOW
10 M - 100 M DIFFERENTIAL	-10 DEG F	NO FLOW
10 M - 45 M DIFFERENTIAL - BACKUP	-10 DEG F	NO FLOW

PRECIPITATION

.00 INCHES SINCE MIDNIGHT

FIGURE 2.65

	CRT-0	CRT-1	CRT-2
Keyboard 1	0.00	0.00	0.00
Keyboard 2	0.00	0.00	0.00

IMP-1

CDT
8/ 2/84 15:24:18

VALUES STATUS

MPL NUMBER	STATUS	NAME
B31-MOV F023A	OPEN	REACTOR RECIRCULATION PUMP A SUCTION VALVE
B31-MOV F023B	OPEN	REACTOR RECIRCULATION PUMP B SUCTION VALVE
B31-MOV F031A	OPEN	REACTOR RECIRCULATION PUMP A DISCHARGE VALVE
B31-MOV F031B	OPEN	REACTOR RECIRCULATION PUMP B DISCHARGE VALVE
C11-MOV F003	OPEN	DRIVE HEADER PRESSURE CONTROL VALVE
C11-MOV F005	OPEN	RETURN TO VESSEL FLOW CONTROL VALVE
C41-SQB F004A	OPEN	STANDBY LIQUID CONTROL SYSTEM SQUIB VALVE
C41-SQB F004B	OPEN	STANDBY LIQUID CONTROL SYSTEM SQUIB VALVE

FIGURE 2.66

	CRT-0	CRT-1	CRT-2
Keyboard 1	OPEN	OPEN	OPEN
Keyboard 2	OPEN	OPEN	OPEN

HNP-1

COT

8/ 2/84 15:24:30

VALUES STATUS

MPL NUMBER	STATUS	NAME
E11-MOV F003A	CLOSED	RHR HEAT EXCHANGER SHELL SIDE DISCHARGE ISOLATION VALVE
E11-MOV F003B	CLOSED	RHR HEAT EXCHANGER SHELL SIDE DISCHARGE ISOLATION VALVE
E11-MOV F004A	CLOSED	RHR SYSTEM TORUS SUCTION ISOLATION VALVE
E11-MOV F004B	CLOSED	RHR HEAT EXCHANGER SHELL SIDE DISCHARGE ISOLATION VALVE
E11-MOV F004C	CLOSED	RHR HEAT EXCHANGER SHELL SIDE DISCHARGE ISOLATION VALVE
E11-MOV F004D	CLOSED	RHR HEAT EXCHANGER SHELL SIDE DISCHARGE ISOLATION VALVE
E11-MOV F006A	CLOSED	SHUTDOWN COOLING RHR PUMPS SUCTION CROSS TIE VALVE
E11-MOV F006B	CLOSED	SHUTDOWN COOLING RHR PUMPS SUCTION CROSS TIE VALVE
E11-MOV F006C	CLOSED	SHUTDOWN COOLING RHR PUMPS SUCTION CROSS TIE VALVE
E11-MOV F006D	CLOSED	SHUTDOWN COOLING RHR PUMPS SUCTION CROSS TIE VALVE
E11-MOV F017A	CLOSED	RHR LPCI INJECTION OUTBOARD VALVE
E11-MOV F017B	CLOSED	RHR LPCI INJECTION OUTBOARD VALVE
E11-MOV F047A	CLOSED	RHR HEAT EXCHANGER SHELL SIDE INLET ISOLATION VALVE
E11-MOV F047B	CLOSED	RHR HEAT EXCHANGER SHELL SIDE INLET ISOLATION VALVE
E11-MOV F048A	CLOSED	RHR HEAT EXCHANGER SHELL SIDE BYPASS VALVE
E11-MOV F048B	CLOSED	RHR HEAT EXCHANGER SHELL SIDE BYPASS VALVE

2.74

TO RETURN
TO MENU

NEXT PAGE

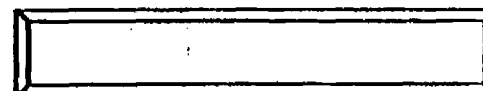


FIGURE 2.67

	CRT-0	CRT-1	CRT-2
Keyboard 1	1/5/84	1/5/84	1/5/84
	1/5	1/5	1/5/84

HMP-1

CDT

8/ 2/84 15:24:44

VALVES STATUS

MPL NUMBER	STATUS	NAME
E21-MOV F001A	CLOSED	CORE SPRAY SYSTEM TORUS ISOLATION VALVE (CORE SPRAY PUMP SUCTION)
E21-MOV F001B	CLOSED	CORE SPRAY SYSTEM TORUS ISOLATION VALVE (CORE SPRAY PUMP SUCTION)
E21-MOV F004A	CLOSED	CORE SPRAY PUMP OUTLET ISOLATION VALVE
E21-MOV F004B	CLOSED	CORE SPRAY PUMP OUTLET ISOLATION VALVE
E21-MOV F005A	CLOSED	CORE SPRAY SYSTEM CONTAINMENT ISOLATION VALVE (CORE SPRAY PUMP DISCHARGE)
E21-MOV F005B	CLOSED	CORE SPRAY SYSTEM CONTAINMENT ISOLATION VALVE (CORE SPRAY PUMP DISCHARGE)
E21-AOV F006A	< 150	CORE SPRAY SYSTEM VESSEL SPRAY CHECK VALVE
E21-AOV F006B	< 150	CORE SPRAY SYSTEM VESSEL SPRAY CHECK VALVE
E21-AOV F019A	CLOSED	CORE SPRAY SYSTEM TORUS ISOLATION VALVE (CORE SPRAY PUMP SUCTION)
E21-AOV F019B	CLOSED	CORE SPRAY SYSTEM TORUS ISOLATION VALVE (CORE SPRAY PUMP SUCTION)
E21-AOV F037A	CLOSED	CORE SPRAY PUMP VESSEL SPRAY CHECK VALVE DISCH BYPASS VALVE
E21-AOV F037B	CLOSED	CORE SPRAY PUMP VESSEL SPRAY CHECK VALVE DISCH BYPASS VALVE
E41-TURB CONT	CLOSED	HPCI PUMP TURBINE CONTROL VALVE
E41-TURB STOP	CLOSED	HPCI PUMP TURBINE STOP VALVE
E41-MOV F001	CLOSED	STEAM SUPPLY TO HPCI TURBINE ISOLATION VALVE
E41-MOV F004	CLOSED	CONDENSATE STORAGE TANK TO HPCI PUMP SUCTION ISOLATION
E41-MOV F006	CLOSED	HPCI SYSTEM CONTAINMENT ISOLATION VALVE(HPCI PUMP DISCHARGE)
E41-MOV F007	CLOSED	HPCI SYSTEM CONTAINMENT ISOLATION VALVE(HPCI PUMP DISCHARGE)
E41-MOV F008	CLOSED	HPCI SYSTEM TEST ISOLATION VALVE
E41-MOV F011	CLOSED	CONDENSATE STORAGE TANK TEST ISOLATION VALVE
E41-MOV F012	CLOSED	HPCI PUMP MINIMUM FLOW LINE ISOLATION VALVE
E41-MOV F041	CLOSED	TORUS WATER TO HPCI PUMP SUCTION ISOLATION VALVE
E41-MOV F042	CLOSED	HPCI SYSTEM TORUS ISOLATION VALVE (HPCI PUMP SUCTION)
E41-MOV F051	CLOSED	HPCI SYSTEM TORUS ISOLATION VALVE (HPCI PUMP SUCTION)

FIGURE 2.68

	CRT-0	CRT-1	CRT-2
Keyboard 1	10000	10000	10000
Keyboard 2	10000	10000	10000

HNP-1

CDT

8/ 2/84 15:25:36

VALUES STATUS

MPL NUMBER	STATUS	NAME
E51-GOV VLV	CLOSED	RCIC TURBINE GOVERNING VALVE
E51-TRP & THR	CLOSED	RCIC TURBINE TRIP THROTTLE VALVE
E51-AOV F003	CLOSED	RCIC SYSTEM TORUS SUCTION ISOLATION VALVE
E51-MOV F010	CLOSED	RCIC PUMP SUCTION FROM CONDENSATE STORAGE TANK ISOL VALVE
E51-MOV F012	CLOSED	RCIC PUMP DISCHARGE ISOLATION VALVE
E51-MOV F013	CLOSED	RCIC PUMP INJECTION ISOLATION VALVE
E51-MOV F019	CLOSED	RCIC PUMP MINIMUM FLOW LINE ISOLATION VALVE
E51-MOV F022	CLOSED	RCIC TEST ISOLATION VALVE
E51-MOV F029	CLOSED	RCIC PUMP TORUS SUCTION ISOLATION VALVE
E51-MOV F031	CLOSED	RCIC SYSTEM TORUS ISOLATION VALVE (RCIC PUMP SUCTION)
E51-MOV F045	CLOSED	RCIC TURBINE STEAM SUPPLY INLET ISOLATION VALVE
G31-MOV F034	CLOSED	RMCU REJECT TO MAIN CONDENSER ISOLATION VALVE
G31-MOV F035	CLOSED	RMCU REJECT TO WASTE COLLECTOR & SURGE TANK ISOLATION VALVE
G31-MOV F042	OPEN	RMCU RETURN ISOLATION VALVE
P41-MOV F049	CLOSED	DRYWELL COOLERS SERVICE WATER CONT OUTLET ISOL VALVE
P41-MOV F050	CLOSED	DRYWELL COOLERS SERVICE WATER CONT OUTLET ISOL VALVE
P42-MOV F051	OPEN	RBCCW CONTAINMENT INLET ISOLATION VALVE
P42-MOV F052	OPEN	RBCCW CONTAINMENT OUTLET ISOLATION VALVE
P70-SV F004	OPEN	DRYWELL PNEU. SYS. CONTAINMENT INLET INBOARD ISOL. VALVE
P70-SV F005	OPEN	DRYWELL PNEU. SYS. CONTAINMENT INLET OUTBOARD ISOL. VALVE
P70-SV F066	CLOSED	DRYWELL PNEU. SYS. CONTAINMENT INLET INBOARD ISOL. VALVE
P70-SV F067	CLOSED	DRYWELL PNEU. SYS. CONTAINMENT INLET OUTBOARD ISOL. VALVE
T48-AOV F113	OPEN	DRYWELL NITROGEN MAKEUP ISOLATION VALVE
T48-AOV F114	OPEN	DRYWELL NITROGEN MAKEUP ISOLATION VALVE
T48-AOV F115	OPEN	TORUS NITROGEN MAKEUP ISOLATION VALVE
T48-AOV F116	OPEN	TORUS NITROGEN MAKEUP ISOLATION VALVE
T48-AOV F310	OPEN	TORUS TO REACTOR BUILDING VACUUM BREAKER ISOLATION VALVE
T48-AOV F311	OPEN	TORUS TO REACTOR BUILDING VACUUM BREAKER ISOLATION VALVE
T48-AOV F321	OPEN	DRYWELL NITROGEN MAKEUP INLET ISOLATION VALVE
T48-AOV F322	OPEN	TORUS NITROGEN MAKEUP INLET ISOLATION VALVE
T48-AOV F325	OPEN	TORUS NITROGEN MAKEUP ISOLATION VALVE
T48-AOV F327	OPEN	TORUS NITROGEN MAKEUP ISOLATION VALVE

FIGURE 2.69

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Handwritten]</i>	<i>[Handwritten]</i>	<i>[Handwritten]</i>
Keyboard 2	<i>[Handwritten]</i>	<i>[Handwritten]</i>	<i>[Handwritten]</i>

HNP-1

COT

8/ 2/84 15:25:52

PUMP STATUS

MPL NUMBER	STATUS	NAME
B31-C001A	ON	REACTOR RECIRCULATION PUMP
B31-C001B	ON	REACTOR RECIRCULATION PUMP
C11-C001A	OFF	CONTROL ROD DRIVE PUMP
C11-C001B	OFF	CONTROL ROD DRIVE PUMP
C41-C001A	OFF	STANDBY LIQUID CONTROL PUMP
C41-C001B	OFF	STANDBY LIQUID CONTROL PUMP
E11-C001A	OFF	RHR SERVICE WATER PUMP
E11-C001B	OFF	RHR SERVICE WATER PUMP
E11-C001C	OFF	RHR SERVICE WATER PUMP
E11-C001D	OFF	RHR SERVICE WATER PUMP
E11-C002A	OFF	RHR PUMP
E11-C002B	OFF	RHR PUMP
E11-C002C	OFF	RHR PUMP
E11-C002D	OFF	RHR PUMP
E21-C001A	OFF	CORE SPRAY PUMP
E21-C001B	OFF	CORE SPRAY PUMP
G31-C001A	ON	REACTOR WATER CLEAN-UP PUMP
G31-C001B	ON	REACTOR WATER CLEAN-UP PUMP
H21-C001A	ON	CONDENSATE PUMP
H21-C001B	ON	CONDENSATE PUMP
H21-C001C	ON	CONDENSATE PUMP
H21-C002A	OFF	CONDENSATE BOOSTER PUMP
H21-C002B	OFF	CONDENSATE BOOSTER PUMP
H21-C002C	OFF	CONDENSATE BOOSTER PUMP
N21-C005A	ON	FEEDWATER PUMP
N21-C005B	ON	FEEDWATER PUMP
P41-C001A	ON	PLANT SERVICE WATER PUMP
P41-C001B	ON	PLANT SERVICE WATER PUMP
P41-C001C	ON	PLANT SERVICE WATER PUMP
P41-C001D	ON	PLANT SERVICE WATER PUMP
P42-C001A	ON	REACTOR BUILDING CLOSED COOLING WATER PUMP
P42-C001B	ON	REACTOR BUILDING CLOSED COOLING WATER PUMP
P42-C001C	ON	REACTOR BUILDING CLOSED COOLING WATER PUMP

FIGURE 2.70

	CRT-0	CRT-1	CRT-2
Keyboard 1	4:00	4:00	4:00
Keyboard 2	4:00	4:00	4:00

HNP-1

CDT
8/ 2/84 15:26:04

RELAY STATUS

MPL NUMBER	STATUS	NAME
C11A-K4A	DE-ENER	CONTROL RODS ALL IN STATUS (ENER)
C11A-K4B	DE-ENER	CONTROL RODS ALL IN STATUS (ENER)
B21C-K5AA	ENER	ADS ARMED (ENER)
B21C-K5AB	ENER	ADS ARMED (ENER)
B21C-K6A	DE-ENER	ADS INITIATED (ENER)
B21C-K6B	DE-ENER	ADS INITIATED (ENER)
B21C-K7A	DE-ENER	ADS INITIATED (ENER)
B21C-K7B	DE-ENER	ADS INITIATED (ENER)
E21A-K341A	DE-ENER	LLSL INITIATED (ENER)
E21A-K341B	DE-ENER	LLSL INITIATED (ENER)
E21A-K342A	DE-ENER	LLSL INITIATED (ENER)
E21A-K342B	DE-ENER	LLSL INITIATED (ENER)
E21A-K371A	DE-ENER	LLSL INITIATED (ENER)
E21A-K371B	DE-ENER	LLSL INITIATED (ENER)
E21A-K372A	DE-ENER	LLSL INITIATED (ENER)
E21A-K372B	DE-ENER	LLSL INITIATED (ENER)
E21A-K610A	DE-ENER	LLSL ARMED (ENER)
E21A-K610B	DE-ENER	LLSL ARMED (ENER)
E21A-K614A	DE-ENER	LLSL ARMED (ENER)
E21A-K614B	DE-ENER	LLSL ARMED (ENER)
C71A-K14A	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14B	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14C	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14D	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14E	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14F	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14G	ENER	SCRAM DEMAND (DE-ENER)
C71A-K14H	ENER	SCRAM DEMAND (DE-ENER)
C71A-K15A	ENER	MANUAL SCRAM DEMAND (DE-ENER)
C71A-K15B	ENER	MANUAL SCRAM DEMAND (DE-ENER)
C71A-K15C	ENER	MANUAL SCRAM DEMAND (DE-ENER)
C71A-K15D	ENER	MANUAL SCRAM DEMAND (DE-ENER)
C71A-S1		REACTOR MODE SWITCH (SHUTDOWN)
C71A-S1		REACTOR MODE SWITCH (REFUEL)
C71A-S1		REACTOR MODE SWITCH (START/HOT STANDBY)
C71A-S1		REACTOR MODE SWITCH (RUN)

FIGURE 2.71

	CRT-0	CRT-1	CRT-2
Keyboard 1	4.6.08	4.6.09	4.6.07

HNP-1

COT
8/ 2/84 15:26:18

RELAY STATUS

MPL NUMBER	STATUS	NAME
A71B-K7A	ENER	PCIS AUTOMATIC ISOLATION GROUP 1 INITIATED (DE-ENER)
A71B-K7B	ENER	PCIS AUTOMATIC ISOLATION GROUP 1 INITIATED (DE-ENER)
A71B-K7C	ENER	PCIS AUTOMATIC ISOLATION GROUP 1 INITIATED (DE-ENER)
A71B-K7D	ENER	PCIS AUTOMATIC ISOLATION GROUP 1 INITIATED (DE-ENER)
A71B-K5A	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K5B	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K5C	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K5D	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K6A	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K6B	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K6C	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
A71B-K6D	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
E11A-K9A	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E11A-K9B	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E11A-K73A	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E11A-K73B	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E21A-K5A	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E21A-K5B	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E21A-K6A	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
E21A-K6B	ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (DE-ENER)
E21A-K10A	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E21A-K10B	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 2 INITIATED (ENER)
E41A-K15	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 3 INITIATED (ENER)
E41A-K34	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 3 INITIATED (ENER)
E41A-K44	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 3 INITIATED (ENER)
E41A-K48	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 3 INITIATED (ENER)
E51A-K16	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 4 INITIATED (ENER)
E51A-K33	DE-ENER	PCIS AUTOMATIC ISOLATION GROUP 4 INITIATED (ENER)
A71B-K26	ENER	PCIS AUTOMATIC ISOLATION GROUP 5 INITIATED (DE-ENER)
A71B-K27	ENER	PCIS AUTOMATIC ISOLATION GROUP 5 INITIATED (DE-ENER)

FIGURE 2.72

	CRT-0	CRT-1	CRT-2
Keyboard 1	1.00000000	1.00000000	1.00000000
Keyboard 2	1.00000000	1.00000000	1.00000000

2.80

COT

8/ 2/84 15:26:34

RPL NUMBER	STATUS	NAME
D11-K88 (C51A-Z2A)	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
D11-K88 (C51A-Z2B)	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
D11-K88 (C51A-Z2C)	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
D11-K88 (C51A-Z2D)	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
C71A-K387A	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
C71A-K387B	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
C71A-K387C	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
C71A-K387D	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 1 (DE-ENER)
2A71B-K5A	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2A71B-K5B	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2A71B-K5C	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2A71B-K5D	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2C71A-K387A	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2C71A-K387B	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2C71A-K387C	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)
2C71A-K387D	ENER	SECONDARY CONTAINMENT AUTOMATIC ISOLATION GROUP INITIATED - UNIT 2 (DE-ENER)

ESC TO RETURN
SEL TO MENU

NEXT PAGE

FIGURE 2.73

	CRT-0	CRT-1	CRT-2
Keyboard 1	12/00/00	12/00/00	12/00/00

HNP-1

CDT

8/ 2/84 15:26:50

SET POINTS

REACTOR WATER LEVEL	
LEVEL 1	-144.80 INCHES
LEVEL 2	- 52.30 INCHES
LEVEL 3	9.10 INCHES
LEVEL 8	53.80 INCHES
LEVEL HIGH	53.80 INCHES
LEVEL LOW	9.14 INCHES
HEAT TRANSFER TIME CONSTANT	25 MINUTES
REACTOR PRESSURE	
OVER PRESSURE	1038.40 PSIG
APRM	
SCRAM TRIP (FLOW ABOVE 96.5%)	115
SCRAM TRIP (MODE SWITCH NOT RUN)	13
SRM	
CONVERSION SRM IN	0.8 % PER CPS
CONVERSION SRM OUT	0.8 % PER CPS
DRYWELL PRESSURE	
OVER PRESSURE	1.73 PSIG
DRYWELL TEMPERATURE	
OVER TEMPERATURE	135 DEG F
DRYWELL/TORUS HYDROGEN CONCENTRATIONS	
HIGH CONCENTRATION	2.5 %
DRYWELL/TORUS OXYGEN CONCENTRATIONS	
HIGH CONCENTRATION	3.5 %
TORUS WATER LEVEL	
LEVEL HIGH	150.0 INCHES
LEVEL LOW	146.0 INCHES
TORUS PRESSURE	
OVER PRESSURE	1.5 PSIG
TORUS WATER TEMPERATURE	
OVER TEMPERATURE	95 DEG F
MAIN STACK RADIATION	
CONVERSION	1.882 E-6 μ Ci/cc PER CPS
REACTOR BUILDING VENT RADIATION	
CONVERSION	2.9 E-8 μ Ci/cc PER CPM

FIGURE 2.74

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>1.882 E-6</i>	<i>2.9 E-8</i>	<i>1.882 E-6</i>
Keyboard 2	<i>1.882 E-6</i>	<i>2.9 E-8</i>	<i>1.882 E-6</i>

HNP-1

COT
8/ 2/84 15:28:03

LOGIN - LOGOUT

RPU WATER LEVEL	RPU PRESSURE	
	APRM	SRM
DRYWELL PRESSURE	DRYWELL TEMP	DRYWELL/ TORUS H2 O2
TORUS WATER LEVEL	TORUS PRESSURE	TORUS TEMP

MAIN STACK EFFLUENT	VENT EFFLUENT HNP- 1 & 2	

FIGURE 2.75

	CRT-0	CRT-1	CRT-2
Keyboard 1	4.0 8.0 4.0 8.0	4.0 8.0	4.0 8.0
Keyboard 2	1.0	1.0	1.0 5.0

HNP-1

CDT
8/ 2/84 15:28:14

REACTOR WATER LEVEL

REFERENCE CALIBRATION	TAG NUMBER	INCHES
A. COLD REFERENCE	2B21-LIS N685A	-17.0
B. COLD REFERENCE	2B21-LIS N685B	-17.0
C. COLD REFERENCE	2B21-LT N838A	38.8
D. COLD REFERENCE	2B21-LT N838B	38.8
E. HOT REFERENCE	2B21-LIS N691A	36.1
F. HOT REFERENCE	2B21-LIS N691B	36.1
G. HOT REFERENCE	2B21-LIS N691C	38.8
H. HOT REFERENCE	2B21-LIS N691D	38.8
I. COLD REFERENCE	2B21-LT N827	38.8

TO RETURN
TO MENULOGGED IN **BRADSHAW**

	CRT-0	CRT-1	CRT-2
Keyboard 1	15.0	15.0	15.0

FIGURE 2.76

HNP-1

COT
8/ 2/84 15:28:28

REACTOR PRESSURE

SENSOR	TAG NUMBER	PSIG
A. REACTOR PRESSURE	2B21-PIS H690A	1004
B. REACTOR PRESSURE	2B21-PIS H690D	1004

2.84

ESC TO RETURN
SEL TO MENU

LOGGED IN **XXXXXXXXXX**

	CRT-0	CRT-1	CRT-2
Keyboard 1	1004	1004	1004

FIGURE 2.77

HNP-1

CDT

8/ 2/84 15:28:44

AVERAGE POWER RANGE MONITOR

INSTRUMENT	TAG NUMBER	Z POWER
A. AVERAGE POWER RANGE MONITOR	2C51-RIS K605	100
B. AVERAGE POWER RANGE MONITOR	2C51-RIS K605	100
C. AVERAGE POWER RANGE MONITOR	2C51-RIS K605	100
D. AVERAGE POWER RANGE MONITOR	2C51-RIS K605	100
E. AVERAGE POWER RANGE MONITOR	2C51-RIS K605	100
F. AVERAGE POWER RANGE MONITOR	2C51-RIS K605	100
		<u>GPM</u>
G. RECIRCULATION PUMP A FLOW	2B31-SQRT K608A	45128
H. RECIRCULATION PUMP B FLOW	2B31-SQRT K606A	45128



TO RETURN
TO MENU

LOGGED IN **XXXXXXXXXX**

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>45128</i>	<i>45128</i>	<i>45128</i>
Keyboard 2			

FIGURE 2.78

HMP-1

COT
8/ 2/84 15:28:58

SOURCE RANGE MONITOR

SENSOR	TAG NUMBER	CPS
A. SOURCE RANGE LOG COUNT RATE	2C51-RIS K600A	1.0E-01
B. SOURCE RANGE LOG COUNT RATE	2C51-RIS K600B	2.3E 05
C. SOURCE RANGE LOG COUNT RATE	2C51-RIS K600C	2.3E 05
D. SOURCE RANGE LOG COUNT RATE	2C51-RIS K600D	2.3E 05


 TO RETURN
 TO MENU

LOGGED IN 

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>785</i>	<i>4.04</i>	<i>6.00</i>

FIGURE 2.79

HWP-1

COT
8/ 2/84 15:29:22

DRYWELL PRESSURE

SENSOR	TAG NUMBER	PSIG
A. NARROW RANGE DRYWELL PRESSURE	2T48-PT H028A	.3
B. NARROW RANGE DRYWELL PRESSURE	2T48-PT H020B	.3
C. MID RANGE DRYWELL PRESSURE	2T48-PT H023A	.3
D. MID RANGE DRYWELL PRESSURE	2T48-PT H023B	.3
E. WIDE RANGE DRYWELL PRESSURE	2T48-PT H003A	.0
F. WIDE RANGE DRYWELL PRESSURE	2T48-PT H003B	.0



TO RETURN
TO MENU

LOGGED IN **XXXXXXXXXX**

FIGURE 2.80

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>
Keyboard 2			

HNP-1

CDT
8/ 2/84 15:29:34

DRYWELL TEMPERATURE

TEMPERATURE ELEMENT NEAR	TAG NUMBER	DEG F
A. DOME AREA	2T47-TE H001A	146
B. COOLERS B008A & B	2T47-TE H001B	148
C. COOLERS B008A & B	2T47-TE H001L	142
D. TOP SAC - SHIELD AREA	2T47-TE H002	154
E. COOLERS B008A & B	2T47-TE H004	136
F. CONTROL ROD DRIVE AREA	2T47-TE H006	8
G. COOLERS B009A & B	2T47-TE H008	141
H. MID LEVEL AREA	2T47-TE H009	166
I. COOLERS B009A & B	2T47-TE H001J	141
J. DOME AREA	2T47-TE H001K	173
K. COOLERS B009A & B	2T47-TE H001M	142
L. MID LEVEL AREA	2T47-TE H003	155
M. LOWER LEVEL AREA	2T47-TE H005	146
N. LOWER LEVEL AREA	2T47-TE H007	144
O. TOP SAC - SHIELD AREA	2T47-TE H010	154

TO RETURN
TO MENULOGGED IN **TOP SECRET**

	CRT-0	CRT-1	CRT-2
Keyboard 1	15:29:34	15:29:34	15:29:34
Keyboard 2			

FIGURE 2.81

HMP-1

COT
8/ 2/84 15:29:48

DRYWELL/TORUS H2-O2 CONCENTRATION

SENSOR	TAG NUMBER	z
A. DRYWELL/TORUS H2 CONCENTRATION	2P33-P601A	.0
B. DRYWELL/TORUS H2 CONCENTRATION	2P33-P601B	.1
C. DRYWELL/TORUS O2 CONCENTRATION	2P33-P601A	2.3
D. DRYWELL/TORUS O2 CONCENTRATION	2P33-P601B	2.1

2.89



TO RETURN
TO MENU

LOGGED IN ~~XXXXXXXXXX~~

FIGURE 2.82

	CRT-0	CRT-1	CRT-2
Keyboard 1	4.543	4.543	4.543

HMP-1

COT
8/ 2/84 15:39:02

TORUS WATER LEVEL

SENSOR	TAG NUMBER	INCHES
A. NARROW RANGE TORUS WATER LEVEL	2T48-LT H021A	146.7
B. NARROW RANGE TORUS WATER LEVEL	2T48-LT H021B	146.7
C. WIDE RANGE TORUS WATER LEVEL	2T48-LT H010A	146.6
D. WIDE RANGE TORUS WATER LEVEL	2T48-LT H010B	146.6



LOGGED IN ~~XXXXXXXXXX~~

FIGURE 2.83

	CRT-0	CRT-1	CRT-2
Keyboard 1	146.7	146.7	146.6

HNP-1

CDT
8/ 2/84 15:30:16

TORUS PRESSURE

SENSOR	TAG NUMBER	PSIG
A. MID RANGE TORUS PRESSURE	2T48-PT H888A	0
B. MID RANGE TORUS PRESSURE	2T48-PT H888B	0

ESC TO RETURN
SEL TO MENU

LOGGED IN **XXXXXXXXXX**

FIGURE 2.84

	CRT-0	CRT-1	CRT-2
Keyboard 1	1100	1100	1100

HNP-1

COT
8/ 2/84 15:30:30

TORUS WATER TEMPERATURE

TEMPERATURE
ELEMENT
NEAR SRV

SENSOR TAG

DEG F

A.	F013M	2T48-TE N301A	87
B.	F013G	2T48-TE N302A	87
C.	F013C	2T48-TE N303A	87
D.	F013D	2T48-TE N304A	87
E.	F013H	2T48-TE N305A	87
F.	F013A	2T48-TE N306A	87
G.	F013B	2T48-TE N307A	87
H.	F013E	2T48-TE N308A	87
I.	F013F	2T48-TE N309A	87
J.	F013K	2T48-TE N310A	87
K.	F013L	2T48-TE N311A	87
L.	F013A	2T48-TE N009A	11
M.	F013L	2T48-TE N009C	108
N.	F013C	2T48-TE N009B	108
O.	F013F	2T48-TE N009D	108

TO RETURN
TO MENULOGGED IN **XXXXXXXXXX**

FIGURE 2.85

	CRT-0	CRT-1	CRT-2
Keyboard 1	5.554	5.554	5.554
Keyboard 2			

HNP-1

COT
8/ 2/84 15:30:58

MAIN STACK RADIATION

SENSOR	TAG NUMBER	DCL/CC	CPS
A. NARROW RANGE STACK RADIATION A	D11-RIS K600A	1.9E-07	
B. NARROW RANGE STACK RADIATION B	D11-RIS K600B	1.9E-07	
C. WIDE RANGE STACK RADIATION	D11- P007		5.0E-03

 TO RETURN
 TO MENU

LOGGED IN **XXXXXXXXXX**

FIGURE 2.86

	CRT-0	CRT-1	CRT-2
Keyboard 1	1.9E-07	1.9E-07	5.0E-03
Keyboard 2			

HMP-1

CDT
8/ 2/84 15:31:14

REACTOR BUILDING VENT RADIATION

SENSOR	TAG NUMBER	DCT/CG	CPM
A. NORMAL RANGE BLDG VENT RADIATION	D11-RIS K619A		2.9E-07
B. NORMAL RANGE BLDG VENT RADIATION	D11-RIS K619B		2.9E-07
C. WIDE RANGE BLDG VENT RADIATION	D11- P601	5.0E-03	
D. NORMAL RANGE BLDG VENT RADIATION	2D11-RIS K636A		2.9E-07
E. NORMAL RANGE BLDG VENT RADIATION	2D11-RIS K636B		2.9E-07
F. WIDE RANGE BLDG VENT RADIATION	2D11- P601	5.0E-03	

TO RETURN
TO MENULOGGED IN **XXXXXXXXXX**

	CRT-0	CRT-1	CRT-2
Keyboard 1	2.9E-07	2.9E-07	5.0E-03
Keyboard 2			5.0E-03

FIGURE 2.87

HNP-1

CDT
8/ 2/84 15:31:59

MAINTENANCE

SET DATE AND TIME		

GRID PATTERN	DOT PATTERN	COLOR SQUARES
ERROR HISTORY	COLOR CHART	

FIGURE 2.88

	CRT-0	CRT-1	CRT-2
Keyboard 1	1000	1.150	1.880
Keyboard 2	100	1.15	1.88

DATE : AUGUST 02, 1984
 TIME : 15:32:02 CENTRAL DAYLIGHT TIME
 UNIT : HNP 1

USE THE FOLLOWING KEYS TO SET THE DATE, TIME, AND UNIT.

C CHANGE THE HIGHLIGHTED ITEM TO THE NEXT VALUE.

[] MOVE TO THE NEXT ITEM.

RETURN SETS THE DATE, TIME, UNIT, THEN RETURNS.

**ESC
SEL** RETURNS WITH NO CHANGES.

FIGURE 2.89

	CRT-0	CRT-1	CRT-2
Keyboard 1	15:32:02	15:32:02	15:32:02
Keyboard 2	15:32:02	15:32:02	15:32:02

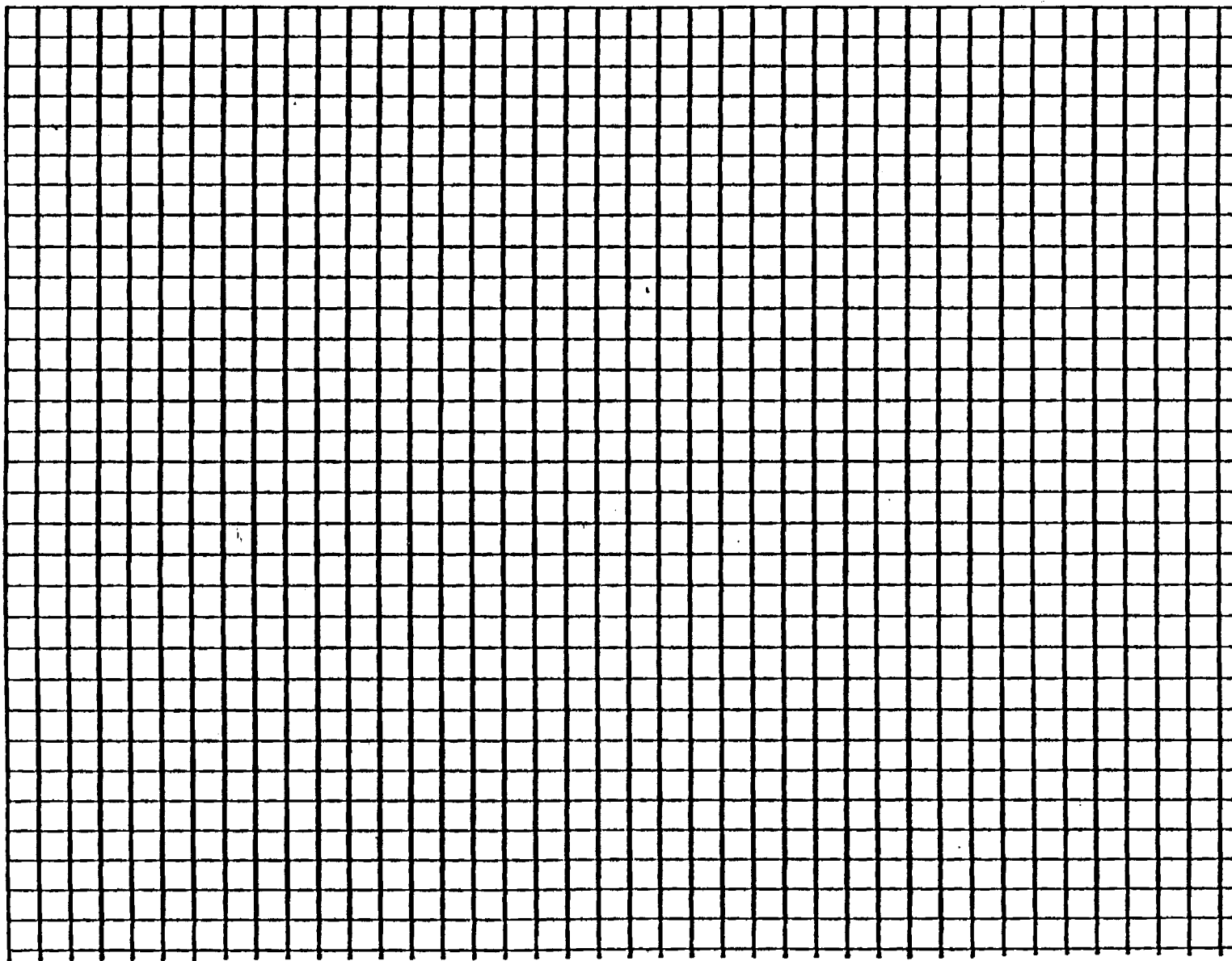


FIGURE 2.90

	CRT-0	CRT-1	CRT-2
Keyboard 1	1.585	1.585	1.585

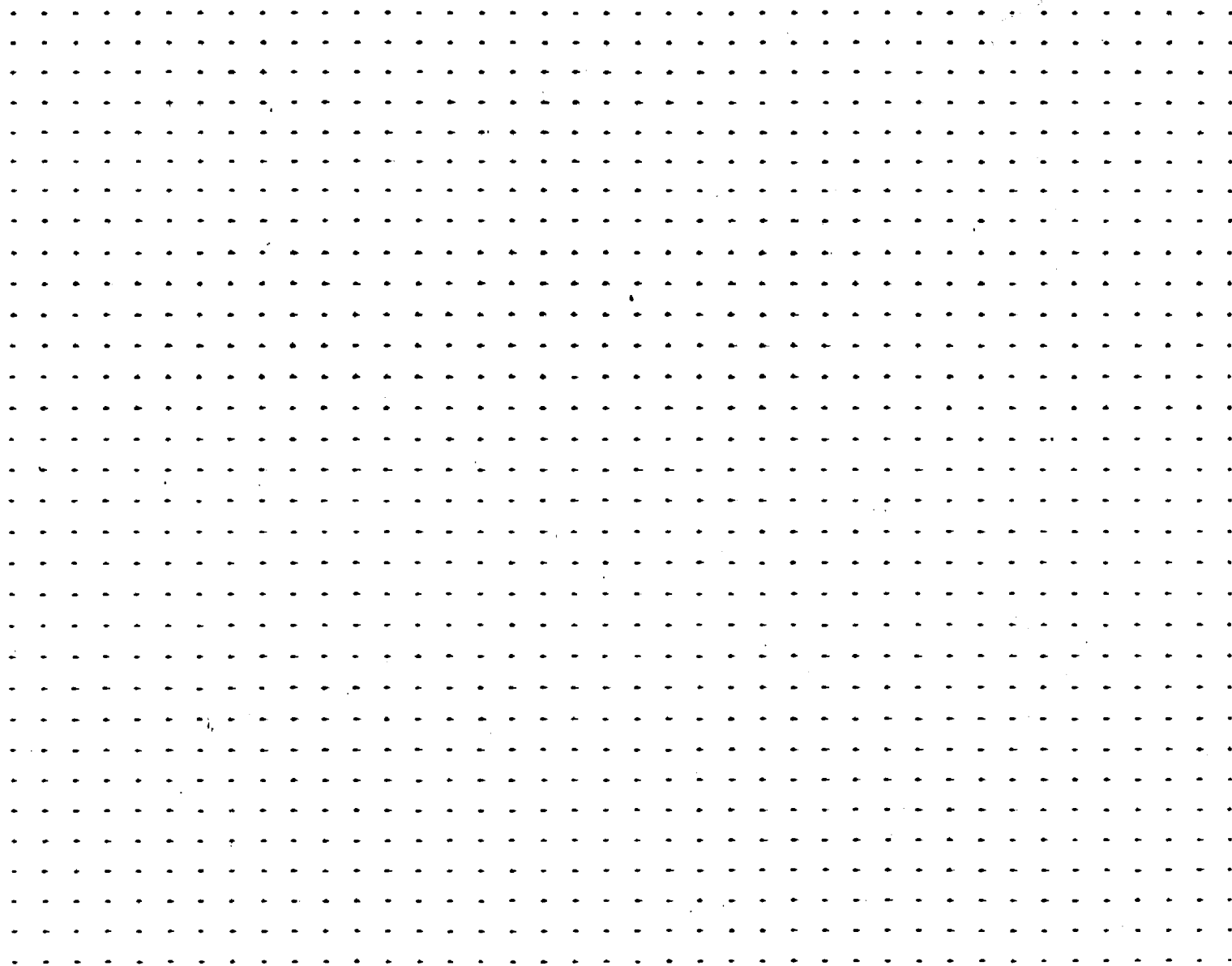


FIGURE 2.91

	CRT-0	CRT-1	CRT-2
Keyboard 1	1 8 0 0	1 8 0 0	1 8 0 0
1 1 1 2	1	1	1 8 0 0

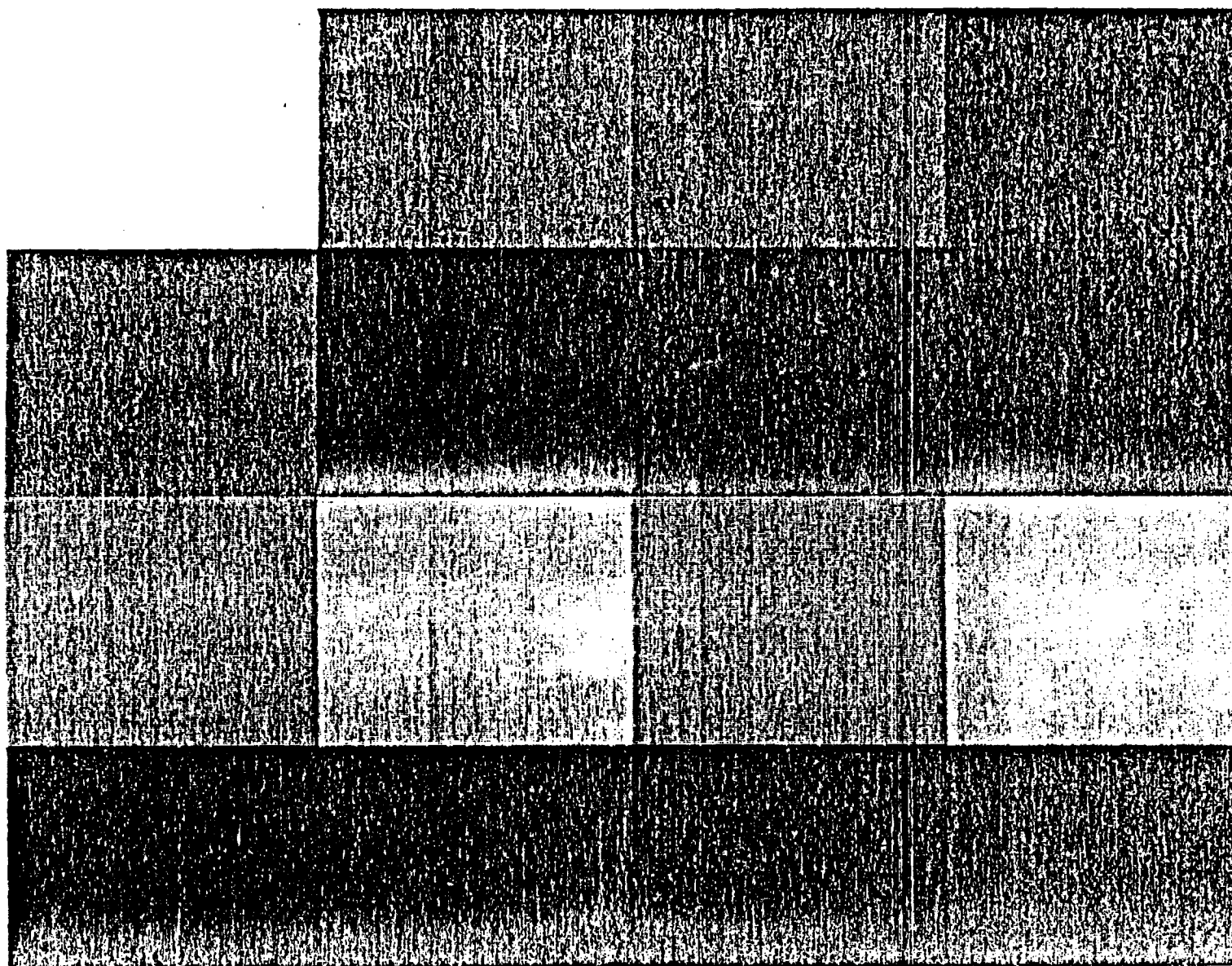


FIGURE 2.92

	CRT-0	CRT-1	CRT-2
Keyboard 1	<i>11 00</i>	<i>11 00</i>	<i>11 00</i>
	<i>11 00</i>	<i>11 00</i>	<i>11 00</i>

HP-1

COT

8/ 2/84 15:35:02

ERROR HISTORY

8/ 2/84 14:45:43	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW
8/ 2/84 14:45:43	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW
8/ 2/84 14:45:14	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW
8/ 2/84 14:44:45	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW
8/ 2/84 14:44:45	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW
8/ 2/84 14:34:58	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW
8/ 2/84 14:34:58	DAC_TEST	-1	CONVERSION	PROCESS	DATA	SKEW



RETURN TO MENU

FIGURE 2.93

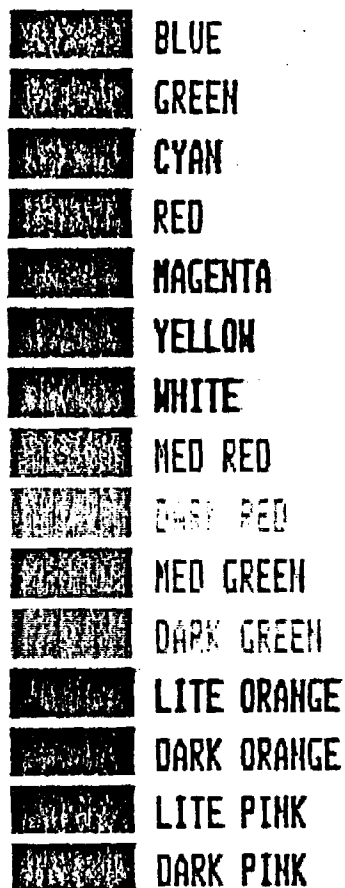
	CRT-0	CRT-1	CRT-2
Keyboard 1	4/8/84	4/8/84	4/8/84
Keyboard 2	4/8/84	4/8/84	4/8/84

HNP-1

COT

8/ 2/84 15:35:08

HARDCOPY COLOR CHART



BLACK ON GREEN

BLACK ON CYAN

BLACK ON YELLOW

YELLOW BLANK

RED BLANK

FIGURE 2.94

	CRT-0	CRT-1	CRT-2
Keyboard 1	10000	10000	10000
Keyboard 2	10000	10000	10000

3. REACTOR PRESSURE

3.1. INPUTS

Two analog signals are used by the SPDS. The input data for the SSPDS is given in Table 3.1.

This series of tests is independent of all other tests.

TABLE 3.1

Signal Description	Entry Type	Channel Number
QB21-PIS N690A	SPDS Analog	80
QB21-PIS N690D	SPDS Analog	127

3.2. PRIMARY AND DIAGNOSTIC DISPLAYS - RPV PRESSURE

- a. Call up the Primary display and the RPV Pressure Diagnostic display.
- b. Call the reference test input data.
- c. For each test in TABLE 3.2 set the input to the specified values.
- d. Simultaneously, check the individual sensor values on the Diagnostic display and the average RPV pressure on the Primary and RPV Pressure Diagnostic displays for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d, and e until all tests are completed or until a test fails.

TABLE 3.2
REACTOR PRESSURE
PRIMARY & DIAGNOSTIC DISPLAY TESTS

TEST NO.	INPUT		OUTPUT (psig)			APPROVAL	
	80	127	N690A	N690D	PRESSURE	DIAGNOSTIC	PRIMARY
1	2730	2730	1000	1000	1000 (G)	<i>4-8-84</i>	<i>4-8-84</i>
2	4095	4095	1500	1500	1500 (R)	<i>4-8-84</i>	<i>4-8-84</i>
3	0	0	0	0	0 (G)	<i>4-8-84</i>	<i>4-8-84</i>
4	2594	2730	950	1000	975 (G)	<i>4-8-84</i>	<i>4-8-84</i>
5	2593	2730	950	1000	1000 (Y)	<i>4-8-84</i>	<i>4-8-84</i>
6	2866	2730	1050	1000	1025 (R)	<i>4-8-84</i>	<i>4-8-84</i>
7	2867	2730	1050	1000	1050 (R)	<i>4-8-84</i>	<i>4-8-84</i>
8	2730	4019	1000	1472	1472 (R)	<i>4-8-84</i>	<i>4-8-84</i>
9	2730	4020	1000	1473	1000 (Y)	<i>4-8-84</i>	<i>4-8-84</i>
10	4019	2730	1472	1000	1472 (R)	<i>4-8-84</i>	<i>4-8-84</i>
11	4020	2730	1473	1000	1000 (Y)	<i>4-8-84</i>	<i>4-8-84</i>
12	2834	2730	1038	1000	1019 (G)	<i>4-8-84</i>	<i>4-8-84</i>
13	2835	2730	1038	1000	1019 (R)	<i>4-8-84</i>	<i>4-8-84</i>
14	2730	2834	1000	1038	1019 (G)	<i>4-8-84</i>	<i>4-8-84</i>
15	2730	2835	1000	1038	1019 (R)	<i>4-8-84</i>	<i>4-8-84</i>
16	70	70	26	26	26 (G)	<i>4-8-84</i>	<i>4-8-84</i>
17	4020	4020	1473	1473	1473 (R)	<i>4-8-84</i>	<i>4-8-84</i>

3.3. OTHER DISPLAYS - REACTOR PRESSURE

- a. Sequentially call up the following displays:
 1. Core Trends display (60 min and 6 min),
 2. RPV Pressure & Saturation Temperature display (60 min & 6 min),
 3. RPV Water Level Diagnostic display,
 4. RPV Saturation Limit display,
 5. Torus Heat Capacity Temperature Limit display,
 6. Torus Heat Capacity Limit display,
 7. RPV Level vs. RPV Pressure display.
- b. For each test in Table 3.3 set the inputs to the specified values.
- c. Check the Core Pressure box for appropriate response.
- d. Record approval in Table 3.4 if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 3.3

REACTOR PRESSURE - OTHER DISPLAYS

TEST NO.	INPUT		OUTPUT (PSIG)	COLOR
	80	127		
1	2730	2730	1000	G
2	4095	4095	1500	R
3	2593	2730	1000	Y

TABLE 3.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Core Trends	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
6-Minute Core Trends	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
60-Minute RPV Pressure Trend	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
6-Minute RPV Pressure Trend	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
RPV Water Level Diagnostic	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
RPV Saturation Limit	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
Torus Heat Capacity Temperature Limit	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
Torus Heat Capacity Limit	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
RPV Level vs. RPV Pressure	<i>to 1-8-81</i>	<i>to 2-8-81</i>	<i>to 3-8-81</i>
	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

4. DRYWELL PRESSURE

4.1. INPUTS

The input data for the SPDS is given in Table 4.1

This series of tests is independent of all other tests.

TABLE 4.1

Signal Description	Entry Type	Channel Number
Drywell Pressure Narrow Range	SPDS Analog	88
Drywell Pressure Narrow Range	SPDS Analog	119
Drywell Pressure Mid-Range	SPDS Analog	96
Drywell Pressure Mid-Range	SPDS Analog	79
Drywell Pressure Wide Range	SPDS Analog	87
Drywell Pressure Wide Range	SPDS Analog	120

4.2. PRIMARY AND DIAGNOSTIC DISPLAYS - DRYWELL PRESSURE

- a. Call up the Primary display and the Drywell Pressure Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 4.2 set the inputs to the specified values.
- d. Simultaneously, check the individual sensor values and average drywell pressure on the Diagnostic display and the Primary display for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d, and e until all tests are completed or until a test fails.

TABLE 4.2

DRYWELL PRESSURE/PRIMARY & DIAGNOSTIC DISPLAYS

TEST NO	INPUT						OUTPUT (psig)							APPROVAL	
	88	119	96	79	87	120	Narrow A	Narrow B	Mid A	Mid B	Wide A	Wide B	AVERAGE	DIAG	PRI
1	2006	2088	0	0	0	0	-0.1	0.1	-10.0	-10.0	.0	.0	- .0 (G)		
2	2292	2088	0	0	0	0	0.6	0.1	-10.0	-10.0	.0	.0	0.3 (G)		
3	2293	2088	0	0	0	0	0.6	0.1	-10.0	-10.0	.0	.0	0.3 (Y)		
4	2088	2755	0	0	0	0	0.1	1.7	-10.0	-10.0	.0	.0	0.9 (Y)		
5	2088	2756	0	0	0	0	0.1	1.7	-10.0	-10.0	.0	.0	0.9 (R)		
6	2088	71	0	0	0	0	0.1	-4.8	-10.0	-10.0	.0	.0	-2.4 (Y)		
7	2088	70	0	0	0	0	0.1	-4.8	-10.0	-10.0	.0	.0	Blank (Y)		
8	4019	2088	0	0	0	0	4.8	0.1	-10.0	-10.0	.0	.0	2.5 (R)		
9	4020	2088	0	0	0	0	4.8	0.1	-10.0	-10.0	.0	.0	Blank (Y)		
10	4020	2088	536	0	0	0	4.8	0.1	3.1	-10.0	.0	.0	0.1 (G)		
11	4020	2088	537	0	0	0	4.8	0.1	3.1	-10.0	.0	.0	Blank (Y)		
12	2088	4020	0	536	0	0	0.1	4.8	-10.0	3.1	.0	.0	0.1 (G)		
13	2088	4020	0	537	0	0	0.1	4.8	-10.0	3.1	.0	.0	Blank (Y)		
14	0	0	410	206	0	0	-5.0	-5.0	.0	- 5.0	.0	.0	-2.5 (G)		
15	0	0	410	205	0	0	-5.0	-5.0	.0	- 5.0	.0	.0	-2.5 (Y)		
16	0	0	480	0	175	0	-5.0	-5.0	1.7	-10.0	10.7	.0	1.7 (G)		
17	0	0	0	481	0	175	-5.0	-5.0	-10.0	1.7	0	10.7	1.7 (R)		
18	0	0	4019	410	0	0	-5.0	-5.0	88.1	.0	.0	.0	44.1 (R)		
19	0	0	4020	410	0	0	-5.0	-5.0	88.2	.0	.0	.0	Blank (Y)		
20	0	0	410	71	0	0	-5.0	-5.0	.0	- 8.3	.0	.0	-4.1 (Y)		

TABLE 4.2 (Continued)

DRYWELL PRESSURE/PRIMARY & DIAGNOSTIC DISPLAYS

TEST NO	INPUT						OUTPUT (psig)							APPROVAL	
	88	119	96	79	87	120	Narrow A	Narrow B	Mid A	Mid B	Wide A	Wide B	AVERAGE	DIAG	PRI
21	0	0	410	70	0	0	- 5.0	- 5.0	.0	- 8.3	.0	.0	Blank (Y)		
22	0	0	955	70	71	0	- 5.0	- 5.0	13.3	- 8.3	4.3	.0	13.3 (R)		
23	0	0	955	70	0	71	- 5.0	- 5.0	13.3	- 8.3	.0	4.3	13.3 (R)		
24	0	0	956	70	71	0	- 5.0	- 5.0	13.3	- 8.3	4.3	.0	4.3 (R)		
25	0	0	956	70	0	71	- 5.0	- 5.0	13.3	- 8.3	.0	4.3	4.3 (R)		
26	0	0	0	0	2000	1796	- 5.0	- 5.0	-10.0	-10.0	122.1	109.6	115.9 (R)		
27	0	0	0	0	1795	2000	- 5.0	- 5.0	-10.0	-10.0	109.6	122.1	115.8 (R)		
28	0	0	0	0	71	2000	- 5.0	- 5.0	-10.0	-10.0	4.3	122.1	63.2 (R)		
29	0	0	0	0	70	2000	- 5.0	- 5.0	-10.0	-10.0	4.3	122.1	122.1 (R)		
30	0	0	0	0	2000	4019	- 5.0	- 5.0	-10.0	-10.0	122.1	245.4	183.7 (R)		
31	0	0	0	0	2000	4020	- 5.0	- 5.0	-10.0	-10.0	122.1	245.4	122.1 (R)		
32	0	0	0	0	4020	70	- 5.0	- 5.0	-10.0	-10.0	245.4	4.3	Blank (Y)		

4.3. OTHER DISPLAYS - DRYWELL PRESSURE

- a. Sequentially call up the following displays:
 1. Drywell Trends display,
 2. Drywell Spray Limit (I) display.
- b. For each test in Table 4.3 set the inputs to the specified values.
- c. Check the Drywell Pressure box for appropriate responses.
- d. Record approval in Table 4.4 if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 4.3

DRYWELL PRESSURE - OTHER DISPLAY

TEST NO.	INPUT						OUTPUT (PSIG)	COLOR
	88	119	96	79	87	120		
1	2006	2088	0	0	0	0	- .0	G
2	0	0	4019	410	0	0	44.1	R
3	0	0	0	0	4020	70	Blank	Y

TABLE 4.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Drywell Trends	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
6-Minute Drywell Trends	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
Drywell Spray Limit	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

5. TORUS PRESSURE

5.1. INPUTS

The input data for the SPDS is given in Table 5.1

This series of tests is independent of all other tests.

TABLE 5.1

Signal Description	Entry Type	Channel Number
Torus Pressure Mid-Range	SPDS Analog	16
Torus Pressure Mid-Range	SPDS Analog	63

5.2. PRIMARY AND DIAGNOSTIC DISPLAYS - TORUS PRESSURE

- a. Call up the Primary and the Torus Pressure Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 5.2 set the inputs to the specified values.
- d. Simultaneously, check the individual sensor values on the Diagnostic display and the average torus pressure boxes on the Diagnostic display and the Primary display for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d, and e until all tests are completed or until a test fails.

TABLE 5.2

TORUS PRESSURE/PRIMARY & DIAGNOSTIC DISPLAYS

TEST NO	INPUT		OUTPUT (psig)			APPROVAL	
	16	63	N008A	N008B	AVERAGE	DIAGNOSTIC	PRIMARY
1	420	420	0.3	0.3	0.3 (G)	✓ 0.3-0.4	✓ 0.3-0.4
2	420	501	0.3	2.2	1.2 (R)	✓ 0.3-0.4	✓ 0.3-0.4
3	420	502	0.3	2.3	2.3 (R)	✓ 0.3-0.4	✓ 0.3-0.4
4	501	420	2.2	0.3	1.2 (R)	✓ 0.3-0.4	✓ 0.3-0.4
5	502	420	2.3	0.3	2.3 (R)	✓ 0.3-0.4	✓ 0.3-0.4
6	71	150	- 8.3	- 6.3	- 7.3 (G)	✓ 0.3-0.4	✓ 0.3-0.4
7	70	150	- 8.3	- 6.3	- 6.3 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
8	4019	420	88.1	0.3	88.1 (R)	✓ 0.3-0.4	✓ 0.3-0.4
9	4020	420	88.2	0.3	0.3 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
10	4020	70	88.2	- 8.3	Blank(Y)	✓ 0.3-0.4	✓ 0.3-0.4
11	4020	4020	88.2	88.2	Blank(R)	✓ 0.3-0.4	✓ 0.3-0.4
12	150	71	- 6.3	- 8.3	- 7.3 (G)	✓ 0.3-0.4	✓ 0.3-0.4
13	150	70	- 6.3	- 8.3	- 6.3 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
14	420	4019	0.3	88.1	88.1 (R)	✓ 0.3-0.4	✓ 0.3-0.4
15	420	4020	0.3	88.2	0.3 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
16	450	491	1.0	2.0	1.5 (R)	✓ 0.3-0.4	✓ 0.3-0.4
17	450	492	1.0	2.0	1.5 (R)	✓ 0.3-0.4	✓ 0.3-0.4
18	470	380	1.5	- 0.7	1.5 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
19	471	380	1.5	- 0.7	1.5 (R)	✓ 0.3-0.4	✓ 0.3-0.4
20	470	0	1.5	-10.0	1.5 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
21	471	0	1.5	-10.0	1.5 (R)	✓ 0.3-0.4	✓ 0.3-0.4
22	0	470	-10.0	1.5	1.5 (Y)	✓ 0.3-0.4	✓ 0.3-0.4
23	0	471	-10.0	1.5	1.5 (R)	✓ 0.3-0.4	✓ 0.3-0.4

5.3. TORUS PRESSURE - OTHER DISPLAYS

- a. Sequentially, call up the following displays:
 1. Torus Trends display (60 min and 6 min),
 2. Torus Pressure Trend display (60 min and 6 min),
 3. Primary Containment Pressure Limit display,
 4. Pressure Suppression Limit display,
 5. Drywell Spray Limit (IIA) display.
- b. For each test in Table 5.3. set the input to the specified values.
- c. Check the torus pressure box for appropriate response.
- d. Record approval in Table 5.4 if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 5.3
TORUS TRENDS TESTS - TORUS PRESSURE

TEST NO	INPUT		OUTPUT (PSIG)	COLOR
	16	63		
1	420	420	.3	G
2	4019	420	88.1	R
3	70	150	- 6.3	Y

TABLE 5.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Torus Trends	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
6-Minute Torus Trends	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
60-Minute Torus Pressure Trend	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
6-Minute Torus Pressure Trend	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
Primary Containment Pressure Limit	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
Pressure Suppression Limit	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
Drywell Spray Limit (IIA)	<i>12-8-81</i>	<i>12-8-81</i>	<i>12-8-81</i>
	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>

6. DRYWELL TEMPERATURE

6.1. INPUTS

The input data for the SPDS is given in Table 6.1. Drywell pressure has to be tested before drywell temperature.

TABLE 6.1

SINGLE DESCRIPTION	ENTRY TYPE	CHANNEL NUMBER
N001B	SPDS Analog	0
N001J	SPDS Analog	47
N001L	SPDS Analog	17
N001M	SPDS Analog	62
N004	SPDS Analog	81
N005	SPDS Analog	38
N007	SPDS Analog	126
N008	SPDS Analog	9
N009	SPDS Analog	65
N003	SPDS Analog	110
N002	SPDS Analog	118
N010	SPDS Analog	89
N001A	SPDS Analog	71
N001K	SPDS Analog	104
N006	SPDS Analog	76
Drywell P/Narrow A	SPDS Analog	88
Drywell P/Narrow B	SPDS Analog	119
Drywell P/Mid A	SDPS Analog	96
Drywell P/Mid B	SDPS Analog	79
Drywell P/Wide A	SDPS Analog	87
Drywell P/Wide B	SPDS Analog	120

6.2. DRYWELL TEMPERATURE/PRIMARY, DIAGNOSTIC & RPV SATURATION LIMIT
DISPLAYS

- a. Call up the Primary display, Drywell Temperature Diagnostic display, and the RPV Saturation Limit display,
- b. Call the reference test input data.
- c. For each test in Table 6.2 set the input to the specified values.
- d. Check the drywell temperature boxes for the appropriate responses.
- e. Record approval if test is successful.
- f. Repeat steps c, d, and e until all tests are completed or until a test fails.

TABLE 6.2

INPUT DATA FOR DRYWELL TEMPERATURE

PRIMARY & DIAGNOSTIC RPV SATURATION LIMIT DISPLAY TESTS

TEST NO	Group B		Group A						Group C						NARROW P		MID P		WIDE P	
	65	110	17	62	81	38	126	9	71	0	118	89	47	104	88	119	96	79	87	120
1	1090	1018	932	932	894	959	942	921	971	921	1008	1008	959	1134	2162	2162	421	421	0	0
2	1090	1018	256	256	256	256	942	921	256	256	1008	1008	959	1134	2162	2162	421	421	0	0
3	1080	1018	256	256	256	256	256	921	256	256	1008	1008	959	1134	2162	2162	421	421	0	0
4	1090	1018	256	256	256	256	256	256	256	256	1008	1008	959	1134	2162	2162	421	421	0	0
5	1090	1018	932	932	894	959	942	921	971	921	1008	1008	959	1134	2162	2162	421	421	0	0
6	256	1018	932	932	894	959	942	921	971	921	1008	1008	959	1134	2162	2162	421	421	0	0
7	256	256	932	932	894	959	942	921	971	921	1008	1008	959	1134	2162	2162	421	421	0	0
8	1090	1018	932	932	894	959	942	921	971	921	256	256	959	1134	2162	2162	421	421	0	0
9	1090	1018	932	932	894	959	942	921	971	921	256	256	256	1134	2162	2162	421	421	0	0
10	1090	1018	932	932	894	959	942	921	971	921	256	256	256	256	2162	2162	421	421	0	0
11	256	256	932	932	894	959	942	921	971	921	256	256	256	256	2162	2162	421	421	0	0
12	1105	1105	1105	1105	1105	1105	1105	1105	1105	1105	1105	1105	1105	1105	2162	2162	421	421	0	0
13	1106	1106	1106	1106	1106	1106	1106	1106	1106	1106	1106	1106	1106	1106	2162	2162	421	421	0	0
14	3215	3215	3215	3215	3215	3215	3215	3215	3215	3215	3215	3215	3215	3215	2162	2162	421	421	0	0
15	4020	4020	3215	3215	3215	3215	3215	3215	4020	4020	4020	4020	4020	4020	2162	2162	421	421	0	0
16	4020	4020	3215	3215	3215	3215	3215	3215	4020	4020	4020	4020	4020	4020	2756	2162	421	421	0	0

OUTPUT FOR DRYWELL TEMPERATURE
PRIMARY & DIAGNOSTIC & RPV SATURATION LIMIT DISPLAY TESTS

TEST NO.	CHANNEL OUTPUTS														AVERAGE	T _{DW}	APPROVAL	
	N001A	N001B	N001L	N001M	N004	N005	N007	N008	N009	N003	N002	N010	N001J	N001K			DIAG	PRI
1	119	112	114	114	109	117	115	112	133	124	123	123	117	138	118 (G)	127		
2	31	31	31	31	31	31	115	112	133	124	123	123	117	138	119 (G)	128		
3	31	31	31	31	31	31	31	112	132	124	123	123	117	138	118 (Y)	127		
4	31	31	31	31	31	31	31	31	133	124	123	123	117	138	127 (Y)	128		
5	119	112	114	114	109	117	115	112	133	124	123	123	117	138	118 (G)	127		
6	119	112	114	114	109	117	115	112	31	124	123	123	117	138	117 (Y)	124		
7	119	112	114	114	109	117	115	112	31	31	123	123	117	138	115 (Y)	115		
8	119	112	114	114	109	117	115	112	133	124	31	31	117	138	118 (G)	127		
9	119	112	114	114	109	117	115	112	133	124	31	31	31	138	118 (G)	127		
10	119	112	114	114	109	117	115	112	133	124	31	31	31	31	117 (G)	125		
			114	114	109	117	115	112	31	31	31	31	31	31	114 (Y)	114		
						135	135	135	135	135	135	135	135	135	135 (G)	135		
									135	135	135	135	135	135	135 (R)	135		
								3	393	393	393	393	393	393	393 (R)	393		
								3	491	491	491	491	491	491	Blank (Y)	Blank		
								3	491	491	491	491	491	491	429 (R)	491		

6.3. OTHER DISPLAYS - DRYWELL TEMPERATURE

- a. Sequentially call up the following displays:
 1. Drywell Trends display,
 2. Torus Heat Capacity Temperature Limit display,
 3. Drywell Spray Limit (I) display.
- b. For each test in Table 6.3 set the inputs to the specified values.
- c. Check the Drywell Temperature box for appropriate response.
- d. Record approval in Table 6.4 if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 6.3

DRYWELL TEMPERATURE / OTHER DISPLAY TESTS

TEST NO	Group B		Group A						Group C						Narrow P		Mid P		Wide P		Average
	65	110	17	62	81	38	126	9	71	0	118	89	47	104	88	119	96	79	87	12	
1	1090	1018	932	932	894	959	942	921	971	921	1008	1008	959	1134	2162	2162	421	421	0	0	118 (G)
2	256	256	932	932	894	959	942	921	971	921	1008	1008	959	1134	2162	2162	421	421	0	0	115 (Y)
3	1106	1106	1106	1106	1106	1106	1106	1106	1107	1106	1106	1106	1106	1106	2162	2162	421	421	0	0	135 (R)

TABLE 6.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Drywell Trends	<i>to</i>	<i>to</i>	<i>to 8-8-84</i>
6-Minute Drywell Trends	<i>to</i>	<i>to</i>	<i>to 8-8-84</i>
Torus Heat Capacity Temperature Limit	<i>to</i>	<i>to</i>	<i>to 8-8-84</i>
Drywell Spray Limit (I)	<i>to</i>	<i>to</i>	<i>to 8-8-84</i>
	<i>N/A</i>	<i>to</i>	<i>to 8-8-84</i>

6.4. TEST OF THE N006 TEMPERATURE SENSOR

- a. Call up the reference input data.
- b. Call up the Drywell Temperature Diagnostic display.
- c. For each test in Table 6.5, set the input to the specified values.
- d. Check the N006 temperature box for appropriate response.
- e. Check the average drywell temperature for no change in value.
- f. Record approval: W. R. E. O. /

TABLE 6.5

TEST NO.	INPUT SPDS ANALOG #76	OUTPUT		APPROVAL
		N006	AVERAGE	
1	0	0	121 (G)	<i>Sw 8-8-84</i>
2	3276	400	121 (G)	<i>Sw 8-8-84</i>
3	819	100	121 (G)	<i>Sw 8-8-84</i>
4	1638	200	121 (G)	<i>Sw 8-8-84</i>
5	2457	300	121 (G)	<i>Sw 8-8-84</i>

7. TORUS WATER TEMPERATURE

7.1. INPUTS

The input data for the SPDS is given in Table 7.1. This series of test is independent of all other tests.

TABLE 7.1

Signal Description	Entry Type	Channel Number
N301A	SPDS Analog	2
N302A	SPDS Analog	83
N303A	SPDS Analog	99
N304A	SPDS Analog	105
N305A	SPDS Analog	20
N306A	SPDS Analog	70
N307A	SPDS Analog	25
N308A	SPDS Analog	13
N309A	SPDS Analog	113
N310A	SPDS Analog	33
N311A	SPDS Analog	46
N009A	SPDS Analog	45
N009B	SPDS Analog	59
N009C	SPDS Analog	54
N009D	SPDS Analog	34

7.2. PRIMARY & DIAGNOSTIC DISPLAY - TORUS WATER TEMPERATURE

- a. Call up the Primary display and the Torus Water Temperature Diagnostic display.
- b. Call reference test input data.
- c. For each test in Table 7.2, set the input to the specified value.
- d. Check the torus water temperature boxes for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test failure occurs.

TABLE 7.2

TORUS WATER TEMPERATURE
INPUT DATA FOR PRIMARY & DIAGNOSTIC DISPLAY TESTS

TEST NO.	GROUP A						GROUP B					GROUP C			
	2	83	113	33	46	45	99	105	20	70	59	25	13	54	34
1	748	748	748	748	748	709	748	748	748	748	709	748	748	709	709
2	70	70	70	70	70	545	70	70	70	70	545	748	748	709	709
3	70	70	70	70	70	545	70	70	70	70	546	748	748	709	709
4	70	70	70	70	70	545	70	70	70	71	545	748	748	709	709
5	70	70	70	70	70	545	748	748	748	748	709	4020	4020	4020	4020
6	70	70	70	70	70	545	748	748	748	748	709	4019	4020	4020	4020
7	748	748	748	748	748	709	4020	4020	4020	4020	4020	70	70	545	545
8	921	921	921	921	921	778	921	921	921	921	778	921	921	778	778
9	922	922	922	922	922	778	922	922	922	922	778	922	922	778	778

TABLE 7.2 (Continued)

TORUS WATER TEMPERATURE TEST OUTPUTS

TEST NO.	N30 - OUTPUT											N009 - OUTPUT				AVERAGE	APPROVAL	
	1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	9A	9B	9C	9D		DIAG	PRI
1	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87 (G)	<i>to</i>	<i>to</i>
2	53	53	53	53	53	53	87	87	53	53	53	67	67	87	87	Blank (Y)	<i>to</i>	<i>to</i>
3	53	53	53	53	53	53	87	87	53	53	53	67	67	87	87	77 (Y)	<i>to</i>	<i>B/K</i>
4	53	53	53	53	53	53	87	87	53	53	53	67	67	87	87	70 (Y)	<i>B/K</i>	<i>B/K</i>
5	53	53	87	87	87	87	246	246	53	53	53	67	87	491	491	Blank (Y)	<i>to</i>	<i>to</i>
6	53	53	87	87	87	87	246	246	53	53	53	67	87	491	491	166 (R)	<i>to</i>	<i>to</i>
7	87	87	246	246	246	246	53	53	87	87	87	87	491	67	67	Blank (Y)	<i>to</i>	<i>to</i>
8	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95 (G)	<i>to</i>	<i>to</i>
9	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95 (R)	<i>to</i>	<i>to</i>

7.3. TORUS WATER TEMPERATURE/OTHER DISPLAYS

- a. Sequentially, call up the following displays.
 1. Torus Trends (60 min and 6 min),
 2. Torus Temperature Trend display (60 min & 6 min),
 3. Torus Heat Capacity Temperature Limit display,
 4. Torus Heat Capacity Limit display,
 5. Drywell Spray Limit (IIA) display.
- b. For each test in Table 7.3, set the torus water temperature to the specified value.
- c. Check the torus water temperature boxes for appropriate response.
- d. Record approval in Table 7.4 if test is successful.
- e. Repeat steps b, c and d for each display until all tests are done or until a test fails.

TABLE 7.3

TORUS WATER TEMPERATURE/OTHER DISPLAYS

TEST NO.	GROUP A						GROUP B					GROUP C				Average
	2	83	113	33	46	45	99	105	20	70	59	25	13	54	34	
1	748	748	748	748	748	709	748	748	748	748	709	741	748	709	709	87 (G)
2	70	70	70	70	70	545	70	70	70	70	545	748	748	709	709	Blank (Y)
3	922	922	922	922	922	778	922	922	922	922	778	922	922	778	778	95 (R)

TABLE 7.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Torus Trends	<i>OK</i>	<i>OK</i>	<i>OK 8-8-84</i>
6-Minute Torus Trends	<i>OK</i>	<i>OK</i>	<i>OK 8-8-84</i>
60-Minute Torus Temperature Trend	<i>OK</i>	<i>OK</i>	<i>OK 8-8-84</i>
6-Minute Torus Temperature Trend	<i>OK</i>	<i>OK</i>	<i>OK 8-8-84</i>
Torus Heat Capacity Limit	<i>OK</i>	<i>OK</i>	<i>OK 8-8-84</i>
Drywell Spray Limit (IIA)	<i>OK</i>	<i>OK</i>	<i>OK 8-8-84</i>
	<i>N/A</i>	<i>N/A</i>	<i>N/A 4/2</i>

8. DRYWELL/TORUS HYDROGEN AND OXYGEN CONCENTRATIONS

8.1. INPUTS

Four analog signals are used by the SPDS, as well as digital signals which indicate:

- a. the analyzer range,
- b. whether the system is analyzing or off,
- c. the isolation valves status.

The input data is listed in Table 8.1.

This series of tests is independent of all other tests.

TABLE 8.1 (1 of 2)

Signal Description	Entry Type	Number
Drywell/Torus H ₂ Concentration	SPDS Analog	6
Drywell/Torus H ₂ Concentration	SPDS Analog	41
Drywell/Torus O ₂ Concentration	SPDS Analog	68
Drywell/Torus O ₂ Concentration	SPDS Analog	107
H ₂ Analyzer "A" Range	ERF Digital	1116 - Low 1117 - High
H ₂ Analyzer "B" Range	ERF Digital	1124 - Low 1125 - High
O ₂ Analyzer "A" Range	ERF Digital	1120 - Low 1121 - High
O ₂ Analyzer "B" Range	ERF Digital	1126 - Low 1127 - High
System "A" Analyzing	ERF Digital	1115
System "B" Analyzing	ERF Digital	1123

TABLE 8.1 (2 of 2)

SIGNAL DESCRIPTION	ENTRY TYPE	GIT ADDRESS	OPEN	CLOSED
F002 Not 100% Closed	ERF Digital	0642	1	0
F002 Not 100% Open	ERF Digital	0643	0	1
F010 Not 100% Closed	ERF Digital	0322	1	0
F010 Not 100% Open	ERF Digital	0323	0	1
F003 Not 100% Closed	ERF Digital	0644	1	0
F003 Not 100% Open	ERF Digital	0645	0	1
F011 Not 100% Closed	ERF Digital	0324	1	0
F011 Not 100% Open	ERF Digital	0325	0	1
F004 Not 100% Closed	ERF Digital	0646	1	0
F004 Not 100% Open	ERF Digital	0647	0	1
F012 Not 100% Closed	ERF Digital	0326	1	0
F012 Not 100% Open	ERF Digital	0327	0	1
F005 Not 100% Closed	ERF Digital	0736	1	0
F005 Not 100% Open	ERF Digital	0737	0	1
F013 Not 100% Closed	ERF Digital	0756	1	0
F013 Not 100% Open	ERF Digital	0757	0	1
F006 Not 100% Closed	ERF Digital	0650	1	0
F006 Not 100% Open	ERF Digital	0651	0	1
F014 Not 100% Closed	ERF Digital	0330	1	0
F014 Not 100% Open	ERF Digital	0331	0	1
F007 Not 100% Closed	ERF Digital	0652	1	0
F007 Not 100% Open	ERF Digital	0653	0	1
F015 Not 100% Closed	ERF Digital	0332	1	0
F015 Not 100% Open	ERF Digital	0333	0	1
			ENER	DE-ENER
F016 Energized	ERF Digital	0633	1	0
F016 De-energized	ERF Digital	0634	0	1
F017 Energized	ERF Digital	0712	1	0
F017 De-energized	ERF Digital	0713	0	1

8.2. PRIMARY DISPLAY AND DIAGNOSTIC DISPLAYS - H_2/O_2

- a. Call up the Primary display and the H_2/O_2 Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 8.2, follow the instructions under the test procedure column.
- d. Set the inputs for the analog data to the specified values.
- e. Check the H_2/O_2 concentration boxes on the Primary display and the diagnostic display for appropriate response as indicated in Table 8.3
- f. Record approval if test is successful.
- g. Repeat steps c, d and e until all tests are completed or until a test fails.

TABLE 8.2 (1 of 3)
H₂/O₂ CONCENTRATIONS

PRIMARY & DIAGNOSTIC TEST INPUT DATA

TEST NO	TEST PROCEDURES (ERF DIGITAL)	SPDS ANALOG INPUT			
		6	41	68	107
1	1.1. Open all valves 1.2. De-energize valves F016 & F017 1.3. Set systems A & B to "Analyzing" 1.4. Set all ranges to "Low". 1.5. Enter the SPDS Analog values	0	0	0	0
2.	2.1. Close valve F007.	0	0	0	0
3.	3.1. Open valve F007 & close valve F002.	0	0	0	0
4.	4.1. Open F002. 4.2. Close F011 & F014	0	0	0	0
5.	5.1. Close F015	0	0	0	0
6.	6.1. Close F010	0	0	0	0
7.	7.1. Open F010 & Close F007	0	0	0	0
8.	8.1. Close F010 & F002	0	0	0	0
9.	9.1. Open F007 & F015 9.2. Open F002 & F010 9.3. Set A to "Not Analyzing"	0	0	0	0
10.	10.1. Set A to "Analyzing" 10.2. Set B to "Not Analyzing"	0	0	0	0
11.	11.1. Enter SPDS Analog values	4019	0	4019	0
12.	12.1. Enter SPDS Analog values	4020	0	4020	0
13. ✓	13.1. Set B to Analyzing" 13.2. Enter SPDS Analog values	4020	4019	4020	4019
14. ✓	14.1. Enter SPDS Analog values	4020	4020	4020	4020
15. ✓	15.1. Energize F016 15.2. Enter SPDS Analog values	0	0	0	0
16. ✓	16.1. Energize F017	0	0	0	0
17.	17.1. Open F011 & F014 17.2. Enter SPDS Analog values	15	27	925	870

TABLE 8.2 (2 of 3)
H₂/O₂ CONCENTRATIONS
PRIMARY & DIAGNOSTIC TEST INPUT DATA

TEST NO.	TEST PROCEDURES (REF. DIGITAL)	SPDS ANALOG INPUT			
		6	41	68	107
18✓	18.1. Enter SPDS Analog Values	4020	27	4020	870
19✓	19.1. Enter SPDS Analog Values	15	4020	925	4020
20✓	20.1. Enter SPDS Analog Values	15	219	925	1129
21✓	21.1. Enter SPDS Analog Values	15	220	925	1130
22✓	22.1. Enter SPDS Analog Values	15	1023	925	1433
23✓	23.1. Enter SPDS Analog Values	15	1024	925	1434
24✓	24.1. Enter SPDS Analog Values	1024	27	1434	870
25✓	25.1. Enter SPDS Analog Values	1024	1024	1434	1434
26✓	26.1. De-energize F016 & F017 26.2. Enter SPDS Analog Values	15	27	925	870
27✓	27.1. Enter SPDS Analog Values	15	220	925	1130
28✓	28.1. Enter SDPS Analog Values	15	1023	925	1023
29✓	29.1. Enter SPDS Analog Values	1024	27	1434	870
30✓	30.1. Enter SPDS Analog Values	1024	1024	1024	1434
31✓	31.1. Energize F016 31.2. Enter SPDS Analog Values	15	27	925	870
32✓	32.1. Enter SDPS Analog Values	1024	27	925	1400
33✓	33.1. De-energize F016 33.2. Energize F017 33.3. Enter SDPS Analog Values	15	27	925	870
34✓	34.1. Enter SDPS Analog Values	1024	27	925	1400
35✓	35.1. Set range A to "High" 35.2. Enter SPDS Analog Values	15	27	925	870
36✓	36.1. Enter SPDS Analog Values	15	689	410	821

TABLE 8.2 (3 of 3)
H₂/O₂ CONCENTRATIONS

PRIMARY & DIAGNOSTIC TEST INPUT DATA

TEST NO.	TEST PROCEDURES (ERF DIGITAL)	SPDS ANALOG INPUT			
		6	41	68	107
37.✓	37.1. Enter SPDS Analog Values	15	690	410	820
38.✓	38.1. Set range A to "Low" 38.2. Set range B to "High" 38.3. Enter SPDS Analog Values	15	27	925	870
39.✓	39.1. Set range A to "High" 39.2. Enter SPDS Analog Values	0	204	204	0
40.✓	40.1. Enter SPDS Analog Values	0	205	205	0

TABLE 8.3 (1 of 2)

 H_2/O_2 CONCENTRATIONS

PRIMARY & DIAGNOSTIC TEST OUTPUT

TEST NO.	DRYWELL				TORUS			
	HYDROGEN		OXYGEN		HYDROGEN		OXYGEN	
1	0.0 (G)	do	0.0 (G)	do	0.0 (G)	do	0.0 (G)	do
2	0.0 (Y)	do	0.0 (Y)	do	Blank (Y)	do	Blank (Y)	do
3	Blank (Y)	do	Blank (Y)	do	0.0 (Y)	do	0.0 (Y)	do
4	0.0 (G)	do	0.0 (G)	do	0.0 (G)	do	0.0 (G)	do
5	0.0 (Y)	do	0.0 (Y)	do	Blank (Y)	do	Blank (Y)	do
6	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do
7	0.0 (Y)	do	0.0 (Y)	do	Blank (Y)	do	Blank (Y)	do
8	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do
9	0.0 (Y)	do	0.0 (Y)	do	Blank (Y)	do	Blank (Y)	do
10	Blank (Y)	do	Blank (Y)	do	0.0 (Y)	do	0.0 (Y)	do
11	Blank (Y)	do	Blank (Y)	do	9.8 (R)	do	9.8 (R)	do
12	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do
13	9.8 (R)	do	9.8 (R)	do	Blank (Y)	do	Blank (Y)	do
14	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do
15	0.0 (Y)	do	0.0 (Y)	do	Blank (Y)	do	Blank (Y)	do
16	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do	Blank (Y)	do
17	0.0 (G)	do	2.3 (G)	do	0.1 (G)	do	2.1 (G)	do
18	Blank (Y)	do	Blank (Y)	do	0.1 (Y)	do	2.1 (Y)	do
19	0.0 (Y)	do	2.3 (Y)	do	Blank (Y)	do	Blank (Y)	do
20	0.0 (G)	do	2.3 (G)	do	0.5 (G)	do	2.8 (G)	do
21	0.0 (Y)	do	2.3 (Y)	do	0.5 (Y)	do	2.8 (Y)	do
22	0.0 (Y)	do	2.3 (Y)	do	2.5 (Y)	do	3.5 (Y)	do
23	0.0 (Y)	do	2.3 (Y)	do	2.5 (R)	do	3.5 (R)	do
24	2.5 (R)	do	3.5 (R)	do	0.1 (Y)	do	2.1 (Y)	do
25	2.5 (R)	do	3.5 (R)	do	2.5 (R)	do	3.5 (R)	do
26	0.1 (G)	do	2.1 (G)	do	0.0 (G)	do	2.3 (G)	do
27	0.5 (Y)	do	2.8 (Y)	do	0.0 (Y)	do	2.3 (Y)	do
28	2.5 (Y)	do	2.5 (G)	do	0.0 (Y)	do	2.3 (G)	do
29	0.1 (Y)	do	2.1 (Y)	do	2.5 (R)	do	3.5 (R)	do
30	2.5 (R)	do	3.5 (R)	do	2.5 (R)	do	2.5 (Y)	do

TABLE 8.3 (2 of 2)

TEST NO.	DRYWELL				TORUS			
	HYDROGEN		OXYGEN		HYDROGEN		OXYGEN	
31	0.1 (G)	to	2.3 (G)	to	Blank (Y)	to	Blank (Y)	to
32	2.5 (R)	to	3.4 (Y)	to	Blank (Y)	to	Blank (Y)	to
33	Blank (Y)	to	Blank (Y)	to	0.1 (G)	to	2.3 (G)	to
34	Blank (Y)	to	Blank (Y)	to	2.5 (R)	to	3.4 (Y)	to
35	Blank (Y)	to	Blank (Y)	to	0.2 (G)	to	6.8 (R)	to
36	Blank (Y)	to	Blank (Y)	to	1.7 (G)	to	3.0 (G)	to
37	Blank (Y)	to	Blank (Y)	to	1.7 (Y)	to	3.0 (Y)	to
38	Blank (Y)	to	Blank (Y)	to	0.3 (G)	to	6.4 (R)	to
39	Blank (Y)	to	Blank (Y)	to	2.5 (C)	to	1.5 (G)	to
40	Blank (Y)	to	Blank (Y)	to	2.5 (R)	to	1.5 (Y)	to

8.3. TRENDS DISPLAY - H₂/O₂ CONCENTRATIONS

- a. Call up the reference test data.
- b. Call up the H₂/O₂ trend displays (60 min & 6 min).
- c. Repeat tests #1, #2 and #3 in Table 8.2
- d. Check the H₂ and O₂ concentration boxes for appropriate response as indicated in Table 8.3.
- e. Record approval in Table 8.4 if test is successful.

TABLE 8.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute H ₂ /O ₂ Trends	<i>sto</i>	<i>sto</i>	<i>sto-0-04</i>
6-Minute H ₂ /O ₂ Trends	<i>sto</i>	<i>sto</i>	<i>sto-0-04</i>

9. TORUS WATER LEVEL

9.1. INPUTS

The input data for these tests is described in Table 9.1

This series of tests must be conducted after the test results for the torus water temperature torus pressure and drywell pressure are approved.

TABLE 9.1

Signal Description	Entry Type	Channel Number
Torus Level Narrow Range	SPDS Analog	95
Torus Level Narrow Range	SPDS Analog	112
Torus Level Wide Range	SPDS Analog	72
Torus Level Wide Range	SPDS Analog	103
Torus Temp (N308A)	SPDS Analog	13 ^(*)

(*)NOTE: Only this signal will be used during this series of tests to change the Torus Water Temperature from "not red" to "red". Enter a value of 4019 to change the temperature to "red". Enter a value of 748 to change it back to "green".

9.2. PRIMARY DISPLAY AND DIAGNOSTIC DISPLAY - TORUS WATER LEVEL

- a. Call up the Primary display and the Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 9.2 set the inputs to the specified values (see footnote of Table 9.1 for setting a "red" or "not red" condition on torus water temperature.
- d. Check the torus water level boxes for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test fails.

TORUS WATER LEVEL

PRIMARY & DIAGNOSTIC DISPLAY TEST

TEST NO.	INPUT					OUTPUT					APPROVAL	
	TORUS TEMP.	95	112	72	103	Narrow A	Narrow B	Wide A	Wide B	Average	DIAG	PRI
1	Not Red	1876	1876	2001	2001	146.7	146.7	146.6	146.6	146.7 (G)	<i>sk</i>	<i>sk</i>
2	Not Red	0	0	0	0	133.0	133.0	0.0	0.0	Blank (Y)	<i>sk</i>	<i>sk</i>
3	Not Red	70	70	0	0	133.5	133.5	0.0	0.0	Blank (Y)	<i>sk</i>	<i>sk</i>
4	Not Red	71	71	0	0	133.5	133.5	0.0	0.0	133.5 (R)	<i>sk</i>	<i>sk</i>
5	Not Red	0	0	71	71	133.0	133.0	5.2	5.2	5.2 (R)	<i>sk</i>	<i>sk</i>
6	Not Red	1774	1774	0	0	146.0	146.0	0.0	0.0	146.0 (R)	<i>sk</i>	<i>sk</i>
7	Not Red	1775	1775	0	0	146.0	146.0	0.0	0.0	146.0 (G)	<i>sk</i>	<i>sk</i>
8	Not Red	0	0	1992	1992	133.0	133.0	145.9	145.9	145.9 (R)	<i>sk</i>	<i>sk</i>
9	Not Red	0	0	1993	1993	133.0	133.0	146.0	146.0	146.0 (G)	<i>sk</i>	<i>sk</i>
10	Not Red	2320	2320	0	0	150.0	150.0	0.0	0.0	150.0 (G)	<i>sk</i>	<i>sk</i>
11	Not Red	2321	2321	0	0	150.0	150.0	0.0	0.0	150.0 (R)	<i>sk</i>	<i>sk</i>
12	Not Red	0	0	2047	2047	133.0	133.0	150.0	150.0	150.0 (G)	<i>sk</i>	<i>sk</i>
13	Not Red	0	0	2048	2048	133.0	133.0	150.0	150.0	150.0 (R)	<i>sk</i>	<i>sk</i>
14	Not Red	4019	4019	0	0	162.4	162.4	0.0	0.0	162.4 (R)	<i>sk</i>	<i>sk</i>
15	Not Red	4020	4020	0	0	162.5	162.5	0.0	0.0	Blank (Y)	<i>sk</i>	<i>sk</i>
16	Not Red	0	0	4019	4019	133.0	133.0	294.4	294.4	294.4 (R)	<i>sk</i>	<i>sk</i>

TORUS WATER LEVEL

PRIMARY & DIAGNOSTIC DISPLAY TEST

NOTE: * Level based on DW & Torus
Diff. Press.

TEST NO.	INPUT					OUTPUT					APPROVAL	
	TORUS TEMP.	95	112	72	103	Narrow A	Narrow B	Wide A	Wide B	Average	DIAG	PRI
17	Not Red	0	0	4020	4020	133.0	133.0	294.5	294.5	Blank (Y)	<i>[Signature]</i>	<i>[Signature]</i>
18	Red	0	0	4020	4020	133.0	133.0	294.5	294.5	294.5 (R)	<i>[Signature]</i>	<i>[Signature]</i>
19	Red	0	0	4095	4095	133.0	133.0	300.0	300.0	414.0*(R)	<i>[Signature]</i>	<i>[Signature]</i>
20	Not Red	1911	2115	0	0	147.0	148.5	0.0	0.0	147.7 (G)	<i>[Signature]</i>	<i>[Signature]</i>
21	Not Red	1911	2116	0	0	147.0	148.5	0.0	0.0	147.8 (Y)	<i>[Signature]</i>	<i>[Signature]</i>
22	Not Red	1911	2321	0	0	147.0	150.0	0.0	0.0	148.5 (R)	<i>[Signature]</i>	<i>[Signature]</i>
23	Not Red	1775	1980	0	0	146.0	147.5	0.0	0.0	146.8 (Y)	<i>[Signature]</i>	<i>[Signature]</i>
24	Not Red	1774	1980	0	0	146.0	147.5	0.0	0.0	146.8 (R)	<i>[Signature]</i>	<i>[Signature]</i>
25	Not Red	1876	0	0	0	146.7	133.0	0.0	0.0	146.7 (Y)	<i>[Signature]</i>	<i>[Signature]</i>
26	Not Red	0	1911	0	0	133.0	147.0	0.0	0.0	147.0 (Y)	<i>[Signature]</i>	<i>[Signature]</i>
27	Not Red	1876	0	2001	0	146.7	133.0	146.6	0.0	146.7 (G)	<i>[Signature]</i>	<i>[Signature]</i>
28	Not Red	0	1876	2112	0	133.0	146.7	154.7	0.0	146.7 (G)	<i>[Signature]</i>	<i>[Signature]</i>
29	Not Red	0	1876	2113	0	133.0	146.7	154.8	0.0	154.8 (R)	<i>[Signature]</i>	<i>[Signature]</i>
30	Not Red	0	1876	0	2112	133.0	146.7	0.0	154.7	146.7 (G)	<i>[Signature]</i>	<i>[Signature]</i>
31	Not Red	0	1876	0	2113	133.0	146.7	0.0	154.8	154.8 (R)	<i>[Signature]</i>	<i>[Signature]</i>
32	Not Red	0	0	2001	2205	133.0	133.0	146.6	161.5	154.1 (R)	<i>[Signature]</i>	<i>[Signature]</i>
33	Not Red	0	0	2001	2206	133.0	133.0	146.6	161.6	154.1 (R)	<i>[Signature]</i>	<i>[Signature]</i>
34	Not Red	0	0	2001	0	133.0	133.0	146.6	0.0	146.6 (Y)	<i>[Signature]</i>	<i>[Signature]</i>
35	Not Red	0	0	0	2100	133.0	133.0	0.0	153.8	153.8 (R)	<i>[Signature]</i>	<i>[Signature]</i>

9.3. PRIMARY CONTAINMENT PRESSURE LIMIT AND PRESSURE SUPPRESSION LIMIT
DISPLAYS - TORUS WATER LEVEL

- a. Call up the following displays.
 1. Primary Containment Pressure Limit (PCPL) display,
 2. Pressure Suppression Limit (PSP) display.
- b. For each test in Table 9.3, set the inputs to the specified values.
- c. Check the Primary Containment water level box for appropriate response.
- d. Record approval if test is successful.
- e. Repeat steps b, c and d until all tests are completed or until a test fails.

TABLE 9.3
TORUS WATER LEVEL

PRIMARY CONTAINMENT PRESSURE LIMIT & PRESSURE SUPPRESSION LIMIT

TEST NO.	INPUT								OUTPUT	APPROVAL	
	TORUS TEMP.	TORUS PRESSURE 16	TORUS PRESSURE 63	DRYWELL PRESSURE 88	DRYWELL PRESSURE 119	95	112	72			103
1	Not Red	420	420	2162	2162	1876	1876	2001	2001	12.2 (G)	408884
2	Not Red	420	420	2162	2162	4020	4020	0	0	Blank (Y)	408884
3	Red	420	420	2162	2162	0	0	4094	4094	25.0 (R)	408884
4	Red	420	420	2162	2162	0	0	4095	4095	34.5 (R)	408884

9.4. TREND DISPLAYS - TORUS WATER LEVEL

- a. Sequentially call up the following displays:
 1. Torus Trends Displays (60 min & 6 min).
 2. Torus Water Level trend display (60 min & 6 min).
- b. For each test in Table 9.4, set the inputs to the specified values.
- c. Check the torus water level box for appropriate response.
- d. Record approval in Table 9.5 if test is successful.
- e. Repeat steps b, c and d for each display until all tests are completed or until a test fails.

TABLE 9.4

TORUS WATER LEVEL/OTHER DISPLAYS

TEST NO.	INPUT					OUTPUT
	TORUS TEMP.	95	112	72	103	
1	Not Red	1876	1876	2001	2001	146.7 (G)
2	Not Red	70	70	0	0	Blank (Y)
3	Red	0	0	4020	4020	249.5 (R)

249.5 - 208.84
VARIANCE 12.3

TABLE 9.5

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Torus Trends	✓	✓	✓
6-Minute Torus Trends	✓	✓	✓
Trend	✓	✓	✓
Trend	✓	✓	✓

TYPO - 249.76294

9.5. EMERGENCY DISPLAYS - TORUS WATER LEVEL

- a. Sequentially call up the following displays:
 1. Torus Heat Capacity Limit display.
 2. Torus Load Limit display.
- b. For each test in Table 9.6, set the inputs to the specified values.
- c. Check the torus water level box for appropriate response.
- d. Record approval in Table 9.7 if test is successful.
- e. Repeat steps b, c and d for each display until all tests are completed or until a test fails.

TABLE 9.6
TORUS WATER LEVEL/OTHER DISPLAYS

TEST NO.	INPUT					OUTPUT
	TORUS TEMP.	95	112	72	103	
1	Not Red	1876	1876	2001	2001	12.2 (G)
2	Not Red	70	70	0	0	Blank (Y)
3	Red	0	0	4020	4020	24.5 (R)

TABLE 9.7

DISPLAY	TEST APPROVAL		
	1	2	3
Torus Heat Capacity Limit	<i>to</i>	<i>to</i>	<i>to</i> 8884
Torus Load Limit	<i>to</i>	<i>to</i>	<i>to</i> 8884

10. REACTOR WATER LEVEL

10.1 INPUT

Table 10.1 describes the input to be used during these tests. Reactor pressure and drywell temperature should be tested prior to the reactor water level. All the tests in this section are to be conducted with a time constant of 1.0. A separate series of tests will be used to check the calculations of the cold and hot leg reference temperatures with a 25 minute time constant.

TABLE 10.1

SIGNAL DESCRIPTION	ENTRY TIME	CHANNEL NUMBER
<u>REACTOR WATER LEVEL:</u>		
QB21-LIS N685A	SPDS Analog	123
QB21-LIS N685B	SPDS Analog	18
QB21-LIS N038A	SPDS Analog	66
QB21-LIS N038B	SPDS Analog	109
QB21-LIS N691A	SPDS Analog	4
QB21-LIS N691B	SPDS Analog	43
QB21-LIS N691C	SPDS Analog	64
QB21-LIS N691D	SPDS Analog	111
QB21-LT N027	SPDS Analog	84
<u>REACTOR PRESSURE</u>		
QB21-PIS N690A	SPDS Analog	80
QB21-PIS N690D	SPDS Analog	127
<u>RECIRCULATION PUMPS</u>		
QB31-C001A	ERF-Digital	1500 (On) 1501 (Off)
QB31-C001B	ERF-Digital	1502 (On) 1503 (Off)
<u>DRYWELL TEMPERATURE</u>		
QT47-TE N001B	SPDS Analog	0
QT47-TE N001J	SPDS Analog	47
QT47-TE N001L	SPDS Analog	17
QT47-TE N001M	SPDS Analog	62
QT47-TE N004	SPDS Analog	81
QT47-TE N005	SPDS Analog	38
QT47-TE N007	SPDS Analog	126
QT47-TE N008	SPDS Analog	9
QT47-TE N009	SPDS Analog	65
QT47-TE N003	SPDS Analog	110
QT47-TE N002	SPDS Analog	118
QT47-TE N010	SPDS Analog	89
QT47-TE N001A	SPDS Analog	71
QT47-TE N001K	SPDS Analog	104

10.2 PRIMARY AND DIAGNOSTIC DISPLAYS - RPV WATER LEVEL

- a. Call up the Primary display and the RPV Water Level Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 10.2 set the inputs to the specified values.
- d. Simultaneously, check the sensor water level boxes on the Diagnostic display and the average level box on both the Primary and Diagnostic displays for appropriate response as indicated in Table 10.3.
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test fails.

TABLE 10.2

REACTOR WATER LEVEL TESTS/INPUT DATA

(1 of 4)

TEST NO.	123	18	66	109	4	43	64	111	84	80	127	1500	1501	1502	1503
1	4095	4095	3884	3884	3715	3715	3715	3715	589	2730	2730	1	0	1	0
2	0	0	0	0	3715	3715	3715	3715	589	240	240	1	0	1	0
3	0	0	0	0	3715	3715	3715	3715	589	240	240	1	0	1	0
4	0	0	0	0	376	376	376	376	0	2730	2730	1	0	1	0
5	0	0	0	0	375	375	375	375	0	2730	2730	1	0	1	0
6	0	0	0	0	375	375	375	375	594	2730	2730	1	0	1	0
7	0	0	0	0	375	375	375	375	593	2730	2730	1	0	1	0
8	0	0	0	0	375	375	375	375	4020	2730	2730	1	0	1	0
9	0	0	0	0	3715	3715	3715	3715	2670	2730	2730	1	0	1	0
10	0	0	0	0	3715	3715	3715	3715	2669	2730	2730	1	0	1	0
11	0	0	0	0	3974	0	0	0	0	2730	2730	1	0	1	0
12	0	0	0	0	0	3973	0	0	0	2730	2730	1	0	1	0
13	0	0	0	0	0	0	3106	0	0	2730	2730	1	0	1	0
14	0	0	0	0	0	0	0	3105	0	2730	2730	1	0	1	0
15	0	0	0	0	3598	3715	3715	3831	0	2730	2730	1	0	1	0

TABLE 10.2

REACTOR WATER LEVEL TESTS / INPUT DATA

(2 of 4)

TEST NO.	65	110	17	62	81	38	126	9	71	0	47	104	118	89
1	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
2	0	2568	0	0	0	0	0	0	0	0	0	0	0	2568
3	0	2569	0	0	0	0	0	0	0	0	0	0	0	2569
4	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
5	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
6	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
7	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
8	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
9	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
10	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
11	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
12	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
13	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
14	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
15	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
16	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152

TABLE 10.2 (Continued)

(3 of 4)

TEST NO.	123	18	66	109	4	43	64	111	84	80	127	1500	1501	1502	1503
16	0	0	0	0	3598	3715	3715	3832	0	2730	2730	1	0	1	0
17	0	0	0	0	3598	3598	3715	3948	0	2730	2730	1	0	1	0
18	0	0	0	0	3000	3000	3233	3233	0	2730	2730	1	0	1	0
19	4000	3950	3163	3163	0	0	0	0	0	2730	2730	0	1	1	0
20	4000	3950	3163	3163	0	0	0	0	0	2730	2730	1	0	0	1
21	3768	3768	2998	2998	0	0	0	0	0	2730	2730	0	1	0	1
22	3769	3769	2999	2999	0	0	0	0	0	2730	2730	0	1	0	1
23	4094	4095	3258	3258	0	0	0	0	788	240	240	0	1	0	1
24	4095	4095	4095	4095	0	0	0	0	789	240	240	0	1	0	1
25	4094	4095	3258	3258	0	0	0	0	789	240	240	0	1	0	1

TABLE 10.2

REACTOR WATER LEVEL TESTS / INPUT DATA

(4 of 4)

TEST NO.	65	110	17	62	81	38	126	9	71	0	47	104	118	89
17	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
18	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
19	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
20	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
21	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
22	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
23	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
24	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712
25	0	2712	0	0	0	0	0	0	0	0	0	0	0	2712

TABLE 10.3

REACTOR WATER LEVEL TESTS/OUTPUT

(1 of 2)

TEST NO.	N685A	N685B	N038A	N038B	N691A	N691B	N691C	N691D	N027	Average	APPROVAL	
											DIAG	PRI
1	- 17.0	- 17.0	40.6	40.6	40.5	40.5	40.5	40.5	40.5	40.1 (G)		
2	-317.0	-317.0	-317.0	-317.0	40.5	40.5	40.5	40.5	40.5	3.4 (R)		
3	-317.0	-317.0	-317.0	-317.0	40.5	40.5	40.5	40.5	40.5	12.1 (Y) "Hot Leg May Boil"		
4	-317.0	-317.0	-317.0	-317.0	-130.7	-130.7	-130.7	-130.7	- 17	-155.0 (R)		
5	-317.0	-317.0	-317.0	-317.0	-130.8	-130.8	-130.8	-130.8	- 17	Blank (Y) "May Miss Trip"		
6	-317.0	-317.0	-317.0	-317.0	-130.8	-130.8	-130.8	-130.8	41.0	- 2.0 (R) "May Miss Trip"		
7	-317.0	-317.0	-317.0	-317.0	-130.8	-130.8	-130.8	-130.8	40.9	Blank (Y) "May Miss Trip"		
8	-317.0	-317.0	-317.0	-317.0	-130.8	-130.8	-130.8	-130.8	* 243.8 375.7	472.7 (R)		
9	-317.0	-317.0	-317.0	-317.0	40.5	40.5	40.5	40.5	243.8	40.5 (G)		
10	-317.0	-317.0	-317.0	-317.0	40.5	40.5	40.5	40.5	243.7	72.1 (R)		
11	-317.0	-317.0	-317.0	-317.0	53.8	-150.0	-150.0	-150.0	- 17.0	53.8 (R)		
12	-317.0	-317.0	-317.0	-317.0	-150.0	53.7	-150.0	-150.0	- 17.0	53.8 (Y)		
13	-317.0	-317.0	-317.0	-317.0	-150.0	-150.0	9.3	-150.0	- 17.0	9.1 (Y)		
14	-317.0	-317.0	-317.0	-317.0	150.0	-150.0	-150.0	9.3	- 17.0	9.1 (R)		
15	-317.0	-317.0	-317.0	-317.0	34.5	40.5	40.5	46.5	- 17.0	42.5 (G)		
16	-317.0	-317.0	-317.0	-317.0	34.5	40.5	40.5	46.5	- 17.0	40.5 (G)		

* VARIANCE #3

Test 8 change value for
N027 to 375.7.

TABLE 10.3 (Continued)

REACTOR WATER LEVEL TESTS/OUTPUT

(2 of 2)

TEST NO.	N685A	N685B	N038A	N038B	N691A	N691B	N691C	N691D	N027	Average	APPROVAL	
											DIAG	PRI
17	-317.0	-317.0	-317.0	-317.0	34.5	34.5	40.5	52.5	- 17.0	40.5 (Y)	<i>1/8/08</i>	<i>1/8/08</i>
18	-317.0	-317.0	-317.0	-317.0	3.8	3.8	15.8	15.8	- 17.0	9.7 (Y)	<i>1/8/08</i>	<i>1/8/08</i>
19	- 24.0	- 27.6	- 25.8	- 25.8	-150.0	-150.0	-150.0	-150.0	- 17.0	Blank (Y)	<i>1/8/08</i>	<i>1/8/08</i>
20	- 24.0	- 27.6	- 25.8	- 25.8	-150.0	-150.0	-150.0	-150.0	- 17.0	Blank (Y)	<i>1/8/08</i>	<i>1/8/08</i>
21	- 41.0	- 41.0	- 41.0	- 41.0	-150.0	-150.0	-150.0	-150.0	- 17.0	63.0 (R)	<i>1/8/08</i>	<i>1/8/08</i>
22	- 40.9	- 40.9	- 40.9	- 40.9	-150.0	-150.0	-150.0	-150.0	- 17.0	Blank (Y)	<i>1/8/08</i>	<i>1/8/08</i>
23	- 17.1	- 17.0	- 17.1	- 17.1	-150.0	-150.0	-150.0	-150.0	60.0	15.2 (Y) "Hot Leg May Boil"	<i>1/8/08</i>	<i>1/8/08</i>
24	- 17.0	- 17.0	60.0	60.0	-150.0	-150.0	-150.0	-150.0	60.1	30.2 (Y) "Hot Leg May Boil"	<i>1/8/08</i>	<i>1/8/08</i>
25	- 17.1	- 17.0	- 17.1	- 17.1	-150.0	-150.0	-150.0	-150.0	60.1	15.3 (Y) "Hot Leg May Boil"	<i>1/8/08</i>	<i>1/8/08</i>

10.3 OTHER DISPLAYS - RPV WATER LEVEL

- a. Sequentially call up the following displays.
 1. Core Trends (60 minutes & 6 minutes),
 2. RPV Water Level Trend (60 minutes & 6 minutes),
 3. RPV Level vs. RPV Pressure,
 4. RPV Level vs. Time.
- b. For each test in Table 10.4 set the inputs to the specified values.
- c. Check the RPV Water Level box for appropriate response as indicated in Table 10.5.
- d. Record approval in Table 10.6 if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 10.4 (Page 1 of 2)

REACTOR WATER LEVEL TESTS / INPUT / OTHER DISPLAYS

TEST NO.	123	18	66	109	4	43	64	111	84	80	127	1500	1501	1502	1503
1	4095	4095	3884	3884	3715	3715	3715	3715	589	2730	2730	1	0	1	0
2	0	0	0	0	3715	3715	3715	3715	589	240	240	1	0	1	0
3	0	0	0	0	3715	3715	3715	3715	589	240	240	1	0	1	0

TABLE 10.4

REACTOR WATER LEVEL TESTS / INPUT DATA

(2 of 2)

TEST NO.	65	110	17	62	81	38	126	9	71	0	47	104	118	89
1	0	1152	0	0	0	0	0	0	0	0	0	0	0	1152
2	0	2568	0	0	0	0	0	0	0	0	0	0	0	2568
3	0	2569	0	0	0	0	0	0	0	0	0	0	0	2569

TABLE 10.5

REACTOR WATER LEVEL TESTS / OUTPUT / OTHER DISPLAYS

TEST NO.	N685A	N685B	N038A	N038B	N691A	N691B	N691C	N691D	N027	Average
1	- 17.0	- 17.0	40.6	40.6	40.5	40.5	40.5	40.5	40.5	40.1 (G)
2	-317.0	-317.0	-317.0	-317.0	40.5	40.5	40.5	40.5	40.5	3.4 (R)
3	-317.0	-317.0	-317.0	-317.0	40.5	40.5	40.5	40.5	40.5	12.1 (Y) "Hot Leg May Boil"

TABLE 10.6

DISPLAY	APPROVAL		
	1	2	3
60-Minute Core Trends	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 8-10-84
6-Minute Core Trends	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 8-10-84
60-Minute RPV Water Level Trend	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 8-10-84
6-Minute RPV Water Level Trend	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 8-10-84
RPV Level vs. RPV Pressure	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 8-10-84
RPV Level Time	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i> 8-10-84

11. SOURCE RANGE MONITORS

11.1 INPUT

Four analog signals and eight digital signals are used for this parameter. The input data are listed in Table 11.1. These tests are independent of all other tests.

TABLE 11.1
SRM TESTS/INPUT DATA

SIGNAL DESCRIPTION	ENTRY TIME	CHANNEL/GIT NUMBER
<u>COUNT RATE</u>		
QC51-RIS K600A	ERF Analog	0
QC51-RIS K600B	ERF Analog	17
QC51-RIS K600C	ERF Analog	47
QC51-RIS K600D	ERF Analog	62
<u>SRM-IN</u>		
QC51C-K9A	ERF Digital	1104
QC51C-K9B	ERF Digital	1105
QC51C-K9C	ERF Digital	1106
QC51C-K9D	ERF Digital	1107
<u>SRM-OUT</u>		
QC51C-K7A	ERF Digital	1100
QC51C-K7B	ERF Digital	1101
QC51C-K7C	ERF Digital	1102
QC51C-K7D	ERF Digital	1103

11.2 PRIMARY DISPLAY AND DIAGNOSTIC DISPLAY - SRM

- a. Call up the Primary display and the SRM Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 11.2 set the inputs to the specified values.
- d. Check the source range monitor box for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test fails.

TABLE 11.2

INPUT

TEST NO	0	17	47	62	1104	1100	1105	1101	1106	1102	1107	1103
1	3718	3718	3718	3718	0	1	0	1	0	1	0	1
2	4095	4095	4095	4095	1	0	1	0	1	0	1	0
3	4095	4095	4095	4095	0	1	1	0	1	0	1	0
4	4095	4095	4095	4095	1	0	0	1	1	0	1	0
5	4095	4095	4095	4095	1	0	1	0	0	1	1	0
6	4095	4095	4095	4095	1	0	1	0	1	0	0	1
7	2000	2100	2040	2060	1	0	1	0	1	0	1	0
8	1000	1100	1200	1300	0	0	0	0	0	0	0	0

TABLE 11.2 (Continued)

OUTPUT

TEST NO.	K600A	K600B	K600C	K600D	AVERAGE	STATUS	APPROVAL	
							DIAG	PRI
1	2.3E 05 (Out)	2.3E 05 (Out)	2.3E 05 (Out)	2.3E 05 (Out)	2.3E 05 (G)	Out (G)	<i>[Signature]</i>	<i>[Signature]</i>
2	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (G)	In (R)	<i>[Signature]</i>	<i>[Signature]</i>
3	1.0E 06 (Out)	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (In)	Blank (Y)	Blank	<i>[Signature]</i>	<i>[Signature]</i>
4	1.0E 06 (In)	1.0E 06 (Out)	1.0E 06 (In)	1.0E 06 (In)	Blank (Y)	Blank	<i>[Signature]</i>	<i>[Signature]</i>
5	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (Out)	1.0E 06 (In)	Blank (Y)	Blank	<i>[Signature]</i>	<i>[Signature]</i>
6	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (In)	1.0E 06 (Out)	Blank (Y)	Blank	<i>[Signature]</i>	<i>[Signature]</i>
7	2.6E 02 (In)	3.9E 02 (In)	3.1E 02 (In)	3.3E 02 (In)	3.2E 02 (G)	In (R)	<i>[Signature]</i>	<i>[Signature]</i>
8	5.1E 00	7.6E 00	1.1E 01	1.7E 01	Blank (Y)	Blank	<i>[Signature]</i>	<i>[Signature]</i>

12. MAIN STACK RADIATION

12.1 INPUT

This parameter uses three analog and two digital signals. The input data are given in Table 12.1. This series of tests is independent of all other tests.

TABLE 12.1
MAIN STACK RADIATION TESTS

SIGNAL DESCRIPTION	ENTRY TYPE	CHANNEL/GIT NUMBER
QD11-RIS K600A	ERF Analog	78
QD11-RIS K600B	ERF Analog	97
QD11-P007	SPDS Analog	92
QD11-KZ12C	ERF Digital	1064
QD11-KZ12D	ERF Digital	1065

12.2 PRIMARY DISPLAY AND DIAGNOSTIC DISPLAY - STACK EFFLUENT RADIATION

- a. Call up the Primary display and the Stack Effluent Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 12.2 set the inputs to the specified values.
- d. Check the main stack radiation boxes for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test fails.

TABLE 12.2

MAIN STACK/PRIMARY & DIAGNOSTIC

TEST NO.	78	97	92	1064	1065	K600A	K600B	P007	AVERAGE	APPROVAL	
										DIAG	PRI
1	304	241	0	0	0	3.3E-1	2.6E-1	5.0E-3	5.5E-7 (G)	✓	✓
2	71	241	0	0	0	1.3E-1	2.6E-1	5.0E-3	3.7E-7 (G)	✓	✓
3	70	241	0	0	0	1.3E-1	2.6E-1	5.0E-3	4.9E-7 (Y)	✓	✓
4	304	4019	0	0	0	3.3E-1	7.4E+5	5.0E-3	7.0E-1 (Y)	✓	✓
5	304	4020	0	0	0	3.3E-1	7.4E+5	5.0E-3	6.2E-7 (Y)	✓	✓
6	4095	0	0	0	0	1.0E+6	1.0E-1	5.0E-3	Blank (Y)	✓	✓
7	304	241	1000	0	0	3.3E-1	2.6E-1	3.0E-1	5.5E-7 (G)	✓	✓
8	304	241	1000	1	0	3.3E-1	2.6E-1	3.0E-1	3.0E-1 (R)	✓	✓
9	304	241	4019	0	1	3.3E-1	2.6E-1	7.3E+4	7.3E+4 (R)	✓	✓
10	304	241	4020	1	1	3.3E-1	2.6E-1	7.3E+4	Blank (Y)	✓	✓
11	304	241	71	1	1	3.3E-1	2.6E-1	6.7E-3	6.7E-3 (R)	✓	✓
12	304	241	70	1	1	3.3E-1	2.6E-1	6.7E-3	Blank (Y)	✓	✓
13	304	241	4095	1	1	3.3E-1	2.6E-1	1.0E+5	Blank (Y)	✓	✓
14	300	999	0	0	0	3.3E-1	5.1E+0	5.0E-3	5.1E-6 (G)	✓	✓
15	300	1000	0	0	0	3.3E-1	5.1E+0	5.0E-3	5.1E-6 (Y)	✓	✓

12.3. MAIN STACK RADIATION/EFFLUENT TRENDS DISPLAY

- a. Call up the Effluent Trends displays (60 minutes and 6 minutes).
- b. For each test in Table 12.3 set the input to the specified values.
- c. Check the main stack radiation box for appropriate response.
- d. Record approval in Table 12.4 if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 12.3
MAIN STACK/TREND DISPLAYS

TEST NO.	78	97	92	1064	1065	K600A	K600B	P007	AVERAGE
1	304	241	0	0	0	3.3E-1	2.6E-1	5.0E-3	5.5E-7 (G)
2	70	241	0	0	0	1.3E-1	2.6E-1	5.0E-3	4.9E-7 (Y)
3	304	241	1000	1	0	3.3E-1	2.6E-1	3.0E-1	3.0E-1 (R)

TABLE 12.4

DISPLAY	TEST APPROVAL		
	1	2	3
60-Minute Effluent Trends	<i>do 8-2-81</i>	<i>do 8-7-81</i>	<i>do 8-9-81</i>
6-Minute Effluent Trends	<i>do 8-9-81</i>	<i>do 8-7-81</i>	<i>do 8-9-81</i>

13. REACTOR BUILDING VENT RADIATION

13.1 INPUT

The SPDS Monitors both Unit 1 and Unit 2 reactor building vent radiation. Each unit provides two normal range and one wide range signals. Digital signals are used for the automatic transfer from normal to wide. The input data for these tests are listed in Table 13.1. This series of tests is independent of all other tests.

TABLE 13.1

REACTOR BUILDING VENT RADIATION

SIGNAL DESCRIPTION	ENTRY TYPE	CHANNEL/GIT NUMBER
<u>UNIT 1 SIGNALS</u>		
QD11-RIS K619A	ERF-Analog	29
QD11-RIS K619B	ERF-Analog	50
QD11-P601	SPDS-Analog	32
QD11-KN020A	ERF-Digital	1066 (Wide)
QD11-KN020B	ERF-Digital	1067 (Wide)
<u>UNIT 2 SIGNALS</u>		
Q2D11-RIS K636A	ERF-Analog	93
Q2D11-RIS K636B	ERF-Analog	114
Q2D11-P601	SPDS-Analog	7
Q2D11-KZ12A	ERF-Digital	1144 (Wide)

13.2 PRIMARY DISPLAY AND DIAGNOSTIC DISPLAY - R/B VENTS RADIATION

- a. Call up the Primary display and the Reactor Building Vents Effluent Diagnostic display.
- b. Call the reference test input data.
- c. For each test in Table 13.2 and Table 13.3 set the inputs to the specified values.
- d. Check the reactor building radiation boxes for appropriate response.
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test fails.

TABLE 13.2

UNIT 1 R/B VENT/PRIMARY & DIAGNOSTIC

TEST NO.	29	50	32	1066	1067	K619A	K619B	P601	AVERAGE	APPROVAL	
										DIAG	PRI
1	476	705	0	0	0	3.8E+1	7.3E+1	5.0E-3	1.6E-6 (G)	4/28/81	4/28/81
2	71	705	0	0	0	1.2E+1	7.3E+1	5.0E-3	1.2E-6 (G)	4/28/81	4/28/81
3	70	705	0	0	0	1.2E+1	7.3E+1	5.0E-3	2.1E-6 (Y)	4/28/81	4/28/81
4	476	4019	0	0	0	3.8E+1	8.1E+5	5.0E-3	1.2E-2 (Y)	4/28/81	4/28/81
5	476	4020	0	0	0	3.8E+1	8.1E+5	5.0E-3	1.1E-6 (Y)	4/28/81	4/28/81
6	4095	0	0	0	0	1.0E+6	1.0E+1	5.0E-3	Blank (Y)	4/28/81	4/28/81
7	476	705	1000	0	0	3.8E+1	7.3E+1	3.0E-1	1.6E-6 (G)	4/28/81	4/28/81
8	476	705	1000	1	0	3.8E+1	7.3E+1	3.0E-1	3.0E-1 (R)	4/28/81	4/28/81
9	476	705	4019	0	1	3.8E+1	7.3E+1	7.3E+4	7.3E+4 (R)	4/28/81	4/28/81
10	476	705	4020	1	1	3.8E+1	7.3E+1	7.3E+4	Blank (Y)	4/28/81	4/28/81
11	476	705	71	1	1	3.8E+1	7.3E+1	6.7E-3	6.7E-3 (R)	4/28/81	4/28/81
12	476	705	70	1	1	3.8E+1	7.3E+1	6.7E-3	Blank (Y)	4/28/81	4/28/81
13	476	705	4095	1	1	3.8E+1	7.3E+1	1.0E+5	Blank (Y)	4/28/81	4/28/81
14	300	999	0	0	0	2.3E+1	1.7E+2	5.0E-3	2.7E-6 (G)	4/28/81	4/28/81
15	300	1000	0	0	0	2.3E+1	1.7E+2	5.0E-3	2.7E-6 (Y)	4/28/81	4/28/81

TABLE 13.3

UNIT 2 R/B VENT/PRIMARY & DIAGNOSTIC

TEST NO.	93	114	7	1144	K636A	K636B	P601	AVERAGE	APPROVAL	
									DIAG	PRI
1	476	705	0	0	3.8E+1	7.3E+1	5.0E-3	1.6E-6 (G)	<i>12-8-84</i>	<i>12-8-84</i>
2	71	705	0	0	1.2E+1	7.3E+1	5.0E-3	1.2E-6 (G)	<i>12-8-84</i>	<i>12-8-84</i>
3	70	705	0	0	1.2E+1	7.3E+1	5.0E-3	2.1E-6 (Y)	<i>12-8-84</i>	<i>12-8-84</i>
4	476	4019	0	0	3.8E+1	8.1E+5	5.0E-3	1.2E-2 (Y)	<i>12-8-84</i>	<i>12-8-84</i>
5	476	4020	0	0	3.8E+1	8.1E+5	5.0E-3	1.1E-6 (Y)	<i>12-8-84</i>	<i>12-8-84</i>
6	4095	0	0	0	1.0E+6	1.0E+1	5.0E-3	Blank (Y)	<i>12-8-84</i>	<i>12-8-84</i>
7	476	705	1000	0	3.8E+1	7.3E+1	3.0E-1	1.6E-6 (G)	<i>12-8-84</i>	<i>12-8-84</i>
8	476	705	1000	1	3.8E+1	7.3E+1	3.0E-1	3.0E-1 (R)	<i>12-8-84</i>	<i>12-8-84</i>
9	476	705	4019	1	3.8E+1	7.3E+1	7.3E+4	7.3E+4 (R)	<i>12-8-84</i>	<i>12-8-84</i>
10	476	705	4020	1	3.8E+1	7.3E+1	7.3E+4	Blank (Y)	<i>12-8-84</i>	<i>12-8-84</i>
11	476	705	71	1	3.8E+1	7.3E+1	6.7E-3	6.7E-3 (R)	<i>12-8-84</i>	<i>12-8-84</i>
12	476	705	70	1	3.8E+1	7.3E+1	6.7E-3	Blank (Y)	<i>12-8-84</i>	<i>12-8-84</i>
13	476	705	4095	1	3.8E+1	7.3E+1	1.0E+5	Blank (Y)	<i>12-8-84</i>	<i>12-8-84</i>
14	300	999	0	0	2.3E+1	1.7E+2	5.0E-3	2.7E-6 (G)	<i>12-8-84</i>	<i>12-8-84</i>
15	300	1000	0	0	2.3E+1	1.7E+2	5.0E-3	2.7E-6 (Y)	<i>12-8-84</i>	<i>12-8-84</i>

* VIKIRK #3

13.3 R/B VENT RADIATION/EFFLUENT TRENDS DISPLAY

- a. Call up the Effluent Trends displays (60 minutes and 6 minutes).
- b. For each test in Table 13.4 and Table 13.5 set the input to the specified values.
- c. Check the reactor building vent radiation boxes for appropriate response.
- d. Record approval if test is successful.
- e. Repeat steps b, c, and d for each display until all tests are completed or until a test fails.

TABLE 13.4(a)

UNIT 1 R/B VENT / OTHER DISPLAYS

TEST NO.	29	50	32	1066	1067	K619A	K619B	P601	AVERAGE
1	476	705	0	0	0	3.8E+1	7.3E+1	5.0E-3	1.6E-6 (G)
2	70	705	0	0	0	1.2E+1	7.3E+1	5.0E-3	2.1E-6 (Y)
3	476	705	1000	1	0	3.8E+1	7.3E+1	3.0E-1	3.0E-1 (R)

TABLE 13.4(b)

DISPLAY	APPROVAL		
	1	2	3
60-Minute Effluent Trends	<i>do not</i>	<i>do not</i>	<i>do not</i>
6-Minute Effluent Trends	<i>do not</i>	<i>do not</i>	<i>do not</i>

TABLE 13.5(a)

UNIT 2 R/B VENT / OTHER DISPLAYS

TEST NO.	93	114	7	1144	K636A	K636B	P601	AVERAGE
1	476	705	0	0	3.8E+1	7.3E+1	5.0E-3	1.6E-6 (G)
2	70	705	0	0	1.2E+1	7.3E+1	5.0E-3	2.1E-6 (Y)
3	476	705	1000	1	3.8E+1	7.3E+1	3.0E-1	3.0E-1 (R)

TABLE 13.5(b)

DISPLAY	APPROVAL		
	1	2	3
60-Minute Effluent Trends	<i>for 7-10, 11-12, 13-14</i>	<i>for 15-16, 17-18, 19-20</i>	<i>for 21-22, 23-24, 25-26</i>
6-Minute Effluent Trends	<i>for 27-28, 29-30, 31-32</i>	<i>for 33-34, 35-36, 37-38</i>	<i>for 39-40, 41-42, 43-44</i>

14. Average Power

14.1 Input

The average power is obtained from the APRMs if the APRM signals are above their out-of-range low set point, and from the SRMs if the APRMs are out-of-range low or are not available. Note that at this point no conversion from SRM readings to % power exists. They are set to 0 for now and the SRM No Calc. flag is set to 1. Therefore until the conversion constants become available, the SRM signals are not used to calculate the average power. Table 14.1 list the data required for this test.

TABLE 14.1

AVERAGE POWER

SIGNAL DESCRIPTION	ENTRY TYPE	CHANNEL/GIT NUMBER
<u>APRM:</u>		
QC51-RIS K605 (Ch.A)	ERF - ANALOG	30
QC51-RIS K605 (Ch.B)	ERF - ANALOG	111
QC51-RIS K605 (Ch.C)	ERF - ANALOG	49
QC51-RIS K605 (Ch.D)	ERF - ANALOG	82
QC51-RIS K605 (Ch.E)	ERF - ANALOG	64
QC51-RIS K605 (Ch.F)	ERF - ANALOG	125
<u>REGRULATION FLOW</u>		
QB31-SQRT K608A	ERF - ANALOG	10
QB31-SQRT K606A	ERF - ANALOG	37
<u>MODE SWITCH</u>		
QC71A-S1	ERF - DIGITAL	1050 (shutdown) 1051 (refuel) 1052 (start/Hot Stby) 1053 (run)

14.2 PRIMARY AND DIAGNOSTIC DISPLAYS

- a. Call up the Primary display and the APRM Diagnostic display.
- b. Call the reference test input data
- c. For each test in Table 14.2, set the inputs to the specified values.
- d. Check the average power and APRM boxes on the Primary display and the diagnostic display for appropriate response. (Note that the displayed value for the recirculation flow should agree only to the first four digits with the value specified in the table.)
- e. Record approval if test is successful.
- f. Repeat steps c, d and e until all tests are completed or until a test fails.

TABLE 14.2

AVERAGE POWER/PRIMARY & DIAGNOSTIC TEST INPUT

TEST NO.	30	111	49	82	64	125	10	37	1050	1051	1052	1053
1	3276	3276	3276	3276	3276	3276	2644	2644	0	0	0	1
2	1170	3276	3276	3276	3276	3276	2644	2644	0	0	0	1
3	1169	3276	3276	3276	3276	3276	2644	2644	0	0	0	1
4	71	71	71	71	71	71	2644	2644	0	0	0	1
5	71	71	71	71	70	70	2644	2644	0	0	0	1
6	3767	3767	3767	3767	3767	3767	2644	2644	0	0	0	1
7	3768	3768	3768	3768	3768	3768	2644	2644	0	0	0	1
8	4019	4019	4019	4019	4019	4019	2644	2644	0	0	0	1
9	4020	4020	4020	4020	4020	4019	2644	2644	0	0	0	1
10	4020	4020	4020	4020	4020	4020	2644	2644	0	0	0	1
11	2752	2752	2752	2752	2752	2752	2644	2644	0	0	0	1
12	Change only ERF-Analog #10. Then wait 38 seconds and observe color change to red on primary.						0	2644	0	0	0	1
13	426	426	426	426	426	426	2644	2644	0	0	0	1
14	426	426	426	426	426	426	2644	2644	1	0	0	0
15	426	426	426	426	426	426	2644	2644	0	0	0	1
16	426	426	426	426	426	426	2644	2644	0	1	0	0
17	426	426	426	426	426	426	2644	2644	0	0	0	1
18	426	426	426	426	426	426	2644	2644	0	0	1	0
19	426	426	426	426	426	426	2644	2644	0	0	0	1
20	426	426	426	426	426	426	2644	2644	0	0	0	0

TABLE 14.3

AVERAGE POWER/PRIMARY & DIAGNOSTIC TEST OUTPUT

TEST NO.	K605A	K605B	K605C	K605D	K605E	K605F	K608A	K606A	AVERAGE	APPROVAL	
										DIAG	PRI
1	100.0	100.0	100.0	100.0	100.0	100.0	45,197	45,197	100.0 (G)	45,197	45,197
2	35.7	100.0	100.0	100.0	100.0	100.0	45,197	45,197	100.0 (G)	45,197	45,197
3	35.7	100.0	100.0	100.0	100.0	100.0	45,197	45,197	Blank (Y)	45,197	45,197
4	2.2	2.2	2.2	2.2	2.2	2.2	45,197	45,197	2.2 (G)	45,197	45,197
5	2.2	2.2	2.2	2.2	2.1	2.1	45,197	45,197	2.2 (Y)	45,197	45,197
6	115.0	115.0	115.0	115.0	115.0	115.0	45,197	45,197	115.0 (G)	45,197	45,197
7	115.0	115.0	115.0	115.0	115.0	115.0	45,197	45,197	115.0 (R)	45,197	45,197
8	122.7	122.7	122.7	122.7	122.7	122.7	45,197	45,197	122.7 (R)	45,197	45,197
9	122.7	122.7	122.7	122.7	122.7	122.7	45,197	45,197	122.7 (R)	45,197	45,197
10	122.7	122.7	122.7	122.7	122.7	122.7	45,197	45,197	Blank (Y)	45,197	45,197
11	84.0	84.0	84.0	84.0	84.0	84.0	45,197	45,197	84.0 (G)	45,197	45,197
12	84.0	84.0	84.0	84.0	84.0	84.0	0	45,197	84.0 (G)	45,197	45,197
13	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (G)	45,197	45,197
14	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (R)	45,197	45,197
15	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (G)	45,197	45,197
16	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (R)	45,197	45,197
17	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (G)	45,197	45,197
18	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (R)	45,197	45,197
19	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (G)	45,197	45,197
20	13.0	13.0	13.0	13.0	13.0	13.0	45,197	45,197	13.0 (R)	45,197	45,197

14.3 AVERAGE POWER / OTHER DISPLAYS

- a. Sequentially call up the following displays:
 1. Core Trends display (60 min and 6 min),
 2. Neutron Trends display (60 min and 6 min).
- b. For each test in Table 14.4, set the inputs to the specified values.
- c. Check the APRM boxes for appropriate response as indicated in Table 14.5. (Note that the displayed value for the recirculation flow should agree only to the first four digits with the value specified in the table.)
- d. Record approval in Table 14.6 if test is successful.
- e. Repeat steps b, c and d for each display until all tests are completed or until a test fails.

TABLE 14.4

AVERAGE POWER / OTHER DISPLAYS INPUT

TEST NO.	30	111	49	82	64	125	10	37	1050	1051	1052	1053
1	3276	3276	3276	3276	3276	3276	2644	2644	0	0	0	1
2	1170	3276	3276	3276	3276	3276	2644	2644	0	0	0	1
3	3768	3768	3768	3768	3768	3768	2644	2644	0	0	0	1

TABLE 14.5

AVERAGE POWER / OTHER DISPLAYS OUTPUT

TEST NO.	K605A	K605B	K605C	K605D	K605E	K605F	K608A	K606A	AVERAGE
1	100.0	100.0	100.0	100.0	100.0	100.0	45,197	45,197	100.0 (G)
2	35.7	100.0	100.0	100.0	100.0	100.0	45,197	45,197	100.0 (G)
3	115.0	115.0	115.0	115.0	115.0	115.0	45,197	45,197	115.0 (R)

TABLE 14.6

DISPLAY	APPROVAL		
	1	2	3
60-Minute Core Trends	<i>YCL</i>	<i>YCL</i>	<i>YCL</i>
6-Minute Core Trends	<i>YCL</i>	<i>YCL</i>	<i>YCL</i>
60-Minute Neutron Trends	<i>YCL</i>	<i>YCL</i>	<i>YCL</i>
6-Minute Neutron Trends	<i>YCL</i>	<i>YCL</i>	<i>YCL</i>

5-7-87

8-9-87

5-7-87

8-9-87

15. MISCELLANEOUS TESTS

This series of tests involves all the miscellaneous displays.

15.1 VALVE STATUS DISPLAYS

- a. Call up the Valve Status Displays.
- b. Call the reference test data.
- c. Set the input to the values specified in Table 15.1
- d. Check for appropriate response.
- e. Record approval.
- f. Repeat steps c, d and e until all valves on the displays are checked or until a test fails.

TABLE 15.1 (1 of 9)
VALVES STATUS (MISC.)

DESCRIPTION	INPUT (ERF DIGITAL)		OUTPUT
QB31-MOV F023A	<u>0550</u>	<u>0551</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QB31-MOV F023B	<u>0350</u>	<u>0351</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QB31-MOV F031A	<u>0000</u>	<u>0001</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QB31-MOV F031B	<u>0200</u>	<u>0201</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QC11-MOV F003	<u>0470</u>	<u>0471</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QC11-MOV F005	<u>0472</u>	<u>0473</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QC41-SQB F004A	<u>0356</u>		
	0		Blank
	1		Ready (O) <u>8-9-8</u>
QC41-SQB F004B	<u>0357</u>		
	0		Blank
	1		Ready (O) <u>8-9-8</u>
QE11-MOV F003A	<u>0040</u>	<u>0041</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QE11-MOV F003B	<u>0250</u>	<u>0251</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QE11-MOV F004A	<u>0026</u>	<u>0027</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>
QE11-MOV F004B	<u>0234</u>	<u>0235</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <u>8-9-8</u>

TABLE 15.1 (2 of 9)

VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QE11-MOV F004C	<u>0030</u>	<u>0031</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F004D	<u>0236</u>	<u>0237</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F006A	<u>0032</u>	<u>0033</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F006B	<u>0240</u>	<u>0241</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F006C	<u>0034</u>	<u>0035</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F006D	<u>0242</u>	<u>0243</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F017A	<u>0020</u>	<u>0021</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F017B	<u>0232</u>	<u>0233</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F047A	<u>0036</u>	<u>0037</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F047B	<u>0246</u>	<u>0247</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F048A	<u>0056</u>	<u>0057</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>
QE11-MOV F048B	<u>0252</u>	<u>0253</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>4-8-9-8</i>

TABLE 15.1 (3 of 9)

VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QE11-AOV F050A	<u>0062</u>	<u>0063</u>	
	0	1	<150 (G)
	1	0	>150 (R) <i>AE 8-8-81</i>
QE11-AOV F050B	<u>0226</u>	<u>0227</u>	
	0	1	<150 (G)
	1	0	>150 (R) <i>AE 8-8-81</i>
QE11-AOV F065A	<u>0022</u>	<u>0023</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-AOV F065B	<u>0222</u>	<u>0223</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-AOV F065C	<u>0024</u>	<u>0025</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-AOV F065D	<u>0224</u>	<u>0225</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-MOV F068A	<u>0042</u>	<u>0043</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-MOV F068B	<u>0220</u>	<u>0221</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-MOV F073A	<u>0002</u>	<u>0003</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-MOV F073B	<u>0216</u>	<u>0217</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-MOV F075A	<u>0044</u>	<u>0045</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>
QE11-MOV F075B	<u>0202</u>	<u>0203</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>AE 8-8-81</i>

TABLE 15.1 (4 of 9)

VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QE11-MOV F091A	<u>0014</u>	<u>0015</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE11-MOV F091B	<u>0214</u>	<u>0215</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE11-MOV F119A	<u>0100</u>	<u>0101</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE11-MOV F119B	<u>0274</u>	<u>0275</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE11-MOV F140A	<u>0016</u>	<u>0017</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE11-MOV F140B	<u>0260</u>	<u>0261</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE21-MOV F001A	<u>0072</u>	<u>0073</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE21-MOV F001B	<u>0272</u>	<u>0273</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE21-MOV F004A	<u>0076</u>	<u>0077</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE21-MOV F004B	<u>0262</u>	<u>0263</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE21-MOV F005A	<u>0074</u>	<u>0075</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>
QE21-MOV F005B	<u>0270</u>	<u>0271</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>12-8-9-8</i>

TABLE 15.1 (5 of 9)

VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QE21-AOV F006A	<u>0066</u>	<u>0067</u>	
	0	1	<150 (G)
	1	0	>150 (R) <i>1-8-84</i>
QE21-AOV F006B	<u>0264</u>	<u>0265</u>	
	0	1	<150 (G)
	1	0	>150 (R) <i>1-8-84</i>
QE21-AOV F019A	<u>0070</u>	<u>0071</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE21-AOV F019B	<u>0266</u>	<u>0267</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE21-AOV F037A	<u>0102</u>		
	0		Closed (G)
	1		Open (R) <i>1-8-84</i>
QE21-AOV F037B	<u>0740</u>		
	0		Closed (G)
	1		Open (R) <i>1-8-84</i>
QE41 Turb. Cont. Vlv.	<u>0424</u>	<u>0425</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE41 Turb. Stop Vlv.	<u>0426</u>	<u>0427</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE41-MOV F001	<u>0416</u>	<u>0417</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE41-MOV F004	<u>0410</u>	<u>0411</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE41-MOV F006	<u>0400</u>	<u>0401</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE41-MOV F007	<u>0412</u>	<u>0413</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>
QE41-MOV F008	<u>0402</u>	<u>0403</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-84</i>

TABLE 15.1 (6 of 9)
VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QE41-MOV F011	<u>0406</u>	<u>0407</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE41-MOV F012	<u>0436</u>	<u>0437</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE41-MOV F041	<u>0404</u>	<u>0405</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE41-MOV F042	<u>0414</u>	<u>0415</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE41-AOV F051	<u>0422</u>	<u>0423</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE51-GOV. VLV.	<u>0464</u>	<u>0465</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE51-Trip & Throttle	<u>0466</u>	<u>0467</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE51-AOV F003	<u>0462</u>	<u>0463</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE51-MOV F010	<u>0446</u>	<u>0447</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE51-MOV F012	<u>0450</u>	<u>0451</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>
QE51-MOV F013	<u>0452</u>	<u>0453</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>to 8-9-84</i>

TABLE 15.1 (7 of 9)
VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QE51-MOV F019	0656	0657	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QE51-MOV F022	0442	0443	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-7-84</i>
QE51-MOV F029	0456	0457	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QE51-MOV F031	0460	0461	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QE51-MOV F045	0454	0455	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QG31-MOV F034	0154	0155	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QG31-MOV F035	0156	0157	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QG31-MOV F042	0552	0553	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QP41-MOV F049	0300	0301	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QP41-MOV F050	0302	0303	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QP42-MOV F051	0304	0305	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>
QP42-MOV F052	0306	0307	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>At 8-9-84</i>

TABLE 15.1 (8 of 9)

VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QP70-SV F004	<u>0654</u>	<u>0655</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QP70-SV F005	<u>0716</u>	<u>0717</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QP70-SV F066	<u>0760</u>	<u>0761</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QP70-SV F067	<u>0762</u>	<u>0763</u>	
	0	1	Closed (G)
	1	0	Open (G)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F113	<u>0120</u>	<u>0121</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F114	<u>0122</u>	<u>0123</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F115	<u>0124</u>	<u>0125</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F116	<u>0126</u>	<u>0127</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F310	<u>0750</u>	<u>0751</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F311	<u>0752</u>	<u>0753</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F321	<u>0700</u>	<u>0701</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>
QT48-AOV F322	<u>0702</u>	<u>0703</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>1-8-9-84</i>

TABLE 15.1 (9 of 9)
VALVES STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QT48-AOV F325	<u>0704</u>	<u>0705</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>10/9/87</i>
QT48-AOV F327	<u>0706</u>	<u>0707</u>	
	0	1	Closed (G)
	1	0	Open (R)
	1	1	Open (R) <i>10/8/87</i>

15.2 PUMP STATUS DISPLAYS

- a. Call up the Pump Status Displays.
- b. Call the reference test data.
- c. Set the input to the valves listed in Table 15.2.
- d. Check for appropriate response.
- e. Record approval.
- f. Repeat steps c, d and e until all pumps on the display are checked or until a test fails.

TABLE 15.2 (1 of 3)

PUMP STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QB31-C001A	<u>1500</u>	<u>1501</u>	
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G) <i>10-8-84</i>
QB31-C001B	<u>1502</u>	<u>1503</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QC11-C001A	<u>1400</u>	<u>1401</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QC11-C001B	<u>1402</u>	<u>1403</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QC41-C001A	<u>0352</u>	<u>0353</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QC41-C001B	<u>0354</u>	<u>0355</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QE11-C001A	<u>1410</u>	<u>1411</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QE11-C001B	<u>1412</u>	<u>1413</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QE11-C001C	<u>1414</u>	<u>1415</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QE11-C001D	<u>1416</u>	<u>1417</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>
QE11-C002A	<u>1420</u>	<u>1421</u>	
	0	1	Off (G)
	1	0	On (R) <i>10-8-84</i>
	0	0	Off (G) <i>10-8-84</i>

TABLE 15.2 (2 of 3)

PUMP STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT	
QE11-C002B	<u>1422</u>	<u>1423</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QE11-C002C	<u>1424</u>	<u>1425</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QE11-C002D	<u>1426</u>	<u>1427</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QE21-C001A	<u>1404</u>	<u>1405</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QE21-C001B	<u>1406</u>	<u>1407</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QG31-C001A	<u>0150</u>	<u>0151</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QG31-C001B	<u>0152</u>	<u>0153</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QN21-C001A	<u>1504</u>	<u>1505</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QN21-C001B	<u>1506</u>	<u>1507</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QN21-C001C	<u>1510</u>	<u>1511</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QN21-C002A	<u>1512</u>	<u>1513</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		
QN21-C002B	<u>1514</u>	<u>1515</u>	Off (G)	
	0	1	On (R)	
	1	0	Off (G)	<u>1-8-9-81</u>
	0	0		

TABLE 15.2 (3 of 3)

PUMP STATUS (MISC.)

DESCRIPTION	INPUT		OUTPUT
QN21-C002C	<u>1516</u>	<u>1517</u>	
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QN21-C005A	<u>0360</u>	<u>0362</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QN21-C005B	<u>0364</u>	<u>0366</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP41-C001A	<u>1430</u>	<u>1431</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP41-C001B	<u>1432</u>	<u>1433</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP41-C001C	<u>1434</u>	<u>1435</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP41-C001D	<u>1436</u>	<u>1437</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP42-C001A	<u>1320</u>	<u>1321</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP42-C001B	<u>1322</u>	<u>1323</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)
QP42-C001C	<u>1324</u>	<u>1325</u>	<u>4-8-9-81</u>
	0	1	Off (G)
	1	0	On (R)
	0	0	Off (G)

15.3. RELAY STATUS DISPLAYS

- a. Call up the Relay Status Displays.
- b. Call the reference test data.
- c. Set the input to the values listed in Table 15.3.
- d. Check for appropriate response.
- e. Record approval.
- f. Repeat steps c, d and e until all relays on the displays are checked or until a test fails.

TABLE 15.3 (1 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
QC11A-K4A	<u>0754</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QC11A-K4B	<u>0755</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QB21C-K5AA	<u>1145</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QB21C-K5BB	<u>1146</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QB21C-K6A	<u>1000</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QB21C-K6B	<u>1001</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QB21C-K7A	<u>1002</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QB21C-K7B	<u>1003</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K341A	<u>1130</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K341B	<u>1136</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K342A	<u>1131</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K342B	<u>1137</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K371A	<u>1132</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K371B	<u>1140</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K372A	<u>1133</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>
QE21A-K372B	<u>1141</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-84</u>

TABLE 15.3 (2 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
QE21A-K610A	<u>1134</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-9-84</u>
QE21A-K610B	<u>1142</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-9-84</u>
QE21A-K614A	<u>1135</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-9-84</u>
QE21A-K614B	<u>1143</u>	
	0	De-Ener
	1	Ener (0) <u>12-8-9-84</u>
QC71A-K14A	<u>1004</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14B	<u>1021</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14C	<u>1005</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14D	<u>1022</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14E	<u>1006</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14F	<u>1023</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14G	<u>1007</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K14H	<u>1024</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K15A	<u>1010</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K15B	<u>1025</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K15C	<u>1011</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>
QC71A-K15D	<u>1026</u>	
	0	Ener
	1	De-Ener (0) <u>12-8-9-84</u>

TABLE 15.3 (3 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
QC71A-S1	<u>1050</u>	
	0	
	1	Shut Down (R) <u>1-8-84</u>
	<u>1051</u>	
	0	
	1	Refuel (R) <u>1-8-84</u>
	<u>1052</u>	
	0	
	1	Start (R) <u>1-8-84</u>
	<u>1053</u>	
QA71B-K7A	0	
	1	Run (R) <u>1-8-84</u>
	<u>1012</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1027</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1013</u>	
	0	Ener
QA71B-K7B	1	De-Ener (O) <u>1-8-84</u>
	<u>1014</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1030</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1014</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
QA71B-K5A	<u>1031</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1031</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1015</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1032</u>	
QA71B-K5B	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1016</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1033</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1017</u>	
	0	Ener
QA71B-K6A	1	De-Ener (O) <u>1-8-84</u>
	<u>1034</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1034</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>
	<u>1034</u>	
	0	Ener
	1	De-Ener (O) <u>1-8-84</u>

TABLE 15.3 (4 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
QE11A-K9A	<u>1036</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE11A-K9B	<u>1040</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE11A-K73A	<u>1037</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE11A-K73B	<u>1041</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE21A-K5A	<u>1042</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE21A-K5B	<u>1045</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE21A-K6A	<u>1043</u>	
	0	Ener
	1	De-Ener (0) <u>1-8-9-84</u>
QE21A-K6B	<u>1046</u>	
	0	Ener
	1	De-Ener (0) <u>1-8-9-84</u>
QE21A-K10A	<u>1044</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE21A-K10B	<u>1047</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE41A-K15	<u>1054</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE41A-K34	<u>1055</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE41A-K44	<u>1056</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE41A-K48	<u>1057</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE51A-K16	<u>1061</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>
QE51-K33	<u>1062</u>	
	0	De-Ener
	1	Ener (0) <u>1-8-9-84</u>

TABLE 15.3 (5 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
QA71B-K26	<u>1060</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QA71B-K27	<u>1063</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51A-Z2A	<u>1070</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51A-Z2B	<u>1071</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51A-Z2C	<u>1072</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51A-Z2D	<u>1073</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC71A-K307A	<u>1164</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC71A-K307B	<u>1165</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC71A-K307C	<u>1166</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC71A-K307D	<u>1167</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2A71B-K5A	<u>1170</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2A71B-K5B	<u>1174</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2A71B-K5C	<u>1171</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2A71B-K5D	<u>1175</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2C71A-K307A	<u>1172</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>

TABLE 15.3 (6 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
Q2C71A-K307B	<u>1173</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2C71A-K307C	<u>1176</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
Q2C71A-K307D	<u>1177</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51C-K7A	<u>1100</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51C-K7B	<u>1101</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51C-K7C	<u>1102</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51C-K7D	<u>1103</u> 0 1	Ener De-Ener (0) <u>1-8-9-84</u>
QC51C-K9A	<u>1104</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QC51C-K9B	<u>1105</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QC51C-K9C	<u>1106</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QC51C-K9D	<u>1107</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QD11-KZ12C	<u>1064</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QD11-KZ12D	<u>1065</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QD11-KN020A	<u>1066</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
QD11-KN020B	<u>1067</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>
Q2D11-KZ12A	<u>1144</u> 0 1	De-Ener Ener (0) <u>1-8-9-84</u>

TABLE 15.3 (7 of 7)

RELAY STATUS (MISC.)

DESCRIPTION	INPUT	OUTPUT
QP33B-K15A	<u>1115</u>	
	0	De-Ener
QP33B-K15B	1	Ener (0) <u>7-8-84</u>
	<u>1123</u>	
QE11A-K58A	0	De-Ener
	1	Ener (0) <u>7-8-84</u>
QE11A-K59A	<u>0344</u>	
	0	De-Ener
QE11A-K59B	1	Ener (0) <u>7-8-84</u>
	<u>0346</u>	
QE11A-K58B	0	De-Ener
	1	Ener (0) <u>7-8-84</u>
QE11A-K59B	<u>0345</u>	
	0	De-Ener
	1	Ener (0) <u>7-8-84</u>
	<u>0347</u>	
	0	De-Ener
	1	Ener (0) <u>7-8-84</u>

15.4 MISCELLANEOUS AREA RADIATION

- STEP 1 Call the Miscellaneous Area Radiation (Pages 1 and 2) display.
- STEP 2 Enter the value 0 for the ERF channel numbers listed in Table 15.4.1.
- STEP 3 Compare the display called up in Step 1 to Table 15.4.2.
- STEP 4 Repeat Steps 2 and 3 for input values of 1024, 2047, 3071 and 4095. Compare display to Tables 15.4.3, 15.4.4, 15.4.5 and 15.4.6, respectively.

TABLE 15.4.1.

AREA RADIATION

<u>SENSOR TAG NUMBER</u>	<u>SCALE</u>	<u>ERF CHANNEL NUMBER</u>
D21-RIS K601A (Ch. # 1)	$10^0/10^4$	31
D21-RIS K601B (Ch. # 2)	$10^0/10^4$	48
D21-RIS K601C (Ch. # 3)	$10^0/10^4$	91
D21-RIS K601D (Ch. # 4)	$10^0/10^4$	1
D21-RIS K601E (Ch. # 5)	$10^0/10^4$	13
D21-RIS K601F (Ch. # 6)	$10^0/10^4$	34
D21-RIS K601G (Ch. # 7)	$10^0/10^4$	19
D21-RIS K601H (Ch. # 8)	$10^0/10^4$	60
D21-RIS K601K (Ch. # 9)	$10^0/10^4$	118
D21-RIS K602L (Ch. #10)	$10^0/10^4$	51
D21-RIS K602M (Ch. #11)	$10^0/10^4$	116
D21-RIS K602N (Ch. #12)	$10^0/10^4$	80
D21-RIS K602P (Ch. #13)	$10^0/10^4$	127
D21-RIS K602R (Ch. #14)	$10^0/10^4$	69
D21-RIS K602S (Ch. #15)	$10^0/10^4$	106
D21-RIS K602T (Ch. #16)	$10^0/10^4$	73
D21-RIS K602U (Ch. #17)	$10^0/10^4$	102
D21-RIS K601V (Ch. #18)	$10^0/10^4$	3
D21-RIS K601W (Ch. #19)	$10^0/10^4$	44
D21-RIS K601X (Ch. #20)	$10^0/10^4$	22
D21-RIS K601Y (Ch. #21)	$10^0/10^4$	57
D21-RIS K600A (Ch. #22)	$10^{-2}/10^2$	94
D21-RIS K600B (Ch. #23)	$10^{-2}/10^2$	109
D21-RIS K600C (Ch. #24)	$10^{-2}/10^2$	66
D21-RIS K600D (Ch. #25)	$10^{-2}/10^2$	8
D21-RIS K600E (Ch. #26)	$10^{-2}/10^2$	39
D21-RIS K600Z (Ch. #27)	$10^{-0}/10^4$	113
D21-RIS K601AA (Ch. #28)	$10^{-0}/10^4$	24
D21-RIS K601AB (Ch. #29)	$10^{-0}/10^4$	55
D21-RIS K601AC (Ch. #30)	$10^{-2}/10^2$	6
D21-RIS K617 (Ch. #31)	$10^{-2}/10^2$	9
D21-RIS K615 (Ch. #32)	$10^{-2}/10^2$	71
D21-RIS K616 (Ch. #33)	$10^{-2}/10^2$	104
D21-RIS K613 (Ch. #34)	$10^{-2}/10^2$	88
D21-RIS K614 (Ch. #35)	$10^{-2}/10^2$	119
D21-RIS K610 (Ch. #36)	$10^{-2}/10^2$	75
D21-RIS K611 (Ch. #37)	$10^{-2}/10^2$	100
D21-RIS K612 (Ch. #38)	$10^{-2}/10^2$	38

TABLE 15.4.2. (Page 1 of 2)

AREA RADIATION

<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
REACTOR		
BUILDING:		
1	Reactor Head Laydown Area	1.0E 00 MR/HR
2	Refueling Floor Stairway	1.0E 00 MR/HR
3	Spent Fuel Pool Demin. Equip.	1.0E 00 MR/HR
4	Refueling Floor	1.0E 00 MR/HR
5	Drywell Shield Plug	1.0E 00 MR/HR
6	Tip Area	1.0E 00 MR/HR
7	130' NE Working Area	1.0E 00 MR/HR
8	130' SW Working Area	1.0E 00 MR/HR
9	158' Working Area	1.0E 00 MR/HR
10	Decant Pump & Equip. Room	1.0E 00 MR/HR
11	Spent Fuel Pool & New Fuel Storage	1.0E 00 MR/HR
12	South CRD Hydraulic Units	1.0E 00 MR/HR
13	NE Core Spray & RHR Area	1.0E 00 MR/HR
14	SE Core Spray & RHR Area	1.0E 00 MR/HR
15	Equip. Access Airlock	1.0E 00 MR/HR
16	HPCI Turbine Area	1.0E 00 MR/HR
17	TIP (Core) Probe Drives Area	1.0E 00 MR/HR
18	RCIC Equip Area SW	1.0E 00 MR/HR
19	CRD Pump Room NW	1.0E 00 MR/HR
20	203' Working Floor	1.0E 00 MR/HR
21	SE Core Spray & RHR Area	1.0E 00 MR/HR

15.4.2-1-84

TABLE 15.4.2 (Page 2 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
TURBINE			
BUILDING:	22	Turbine Standard	1.0E-02 MR/HR
	23	Control Room	1.0E-02 MR/HR
	24	Control Room	1.0E-02 MR/HR
	25	Operation Floor, North End	1.0E-02 MR/HR
	26	Feedwater Area	1.0E-02 MR/HR
	27	Cond. Demin. Area	1.0E 00 MR/HR
RADWASTE			
BUILDING:	28	Radwaste Operating Floor	1.0E 00 MR/HR
	29	Radwaste Conveyor Oper. Aisle	1.0E 00 MR/HR
	30	Radwaste Basement Pump Room	1.0E 00 MR/HR
OTHER:	31	Reac Bldg. Fuel Pool Demin PNL Area	1.0E-02 MR/HR
	32	Recombiner Bldg. Operating Area	1.0E-02 MR/HR
	33	Recombiner Bldg. CCW Heat Exchanger Area	1.0E-02 MR/HR
	34	WGT Bldg. Glycol Unit Area	1.0E-02 MR/HR
	35	WGT Bldg. Operating Area	1.0E-02 MR/HR
	36	RDWST Bldg. RADW Add. Chem. Waste Sample Tank	1.0E-02 MR/HR
	37	RDWST Bldg. RADW Add. Steam Bboiler	1.0E-02 MR/HR
	38	RDWST Bldg. RADW Add HVAC Filter Area	1.0E-02 MR/HR

to 8-9-86

TABLE 15.4.3. (Page 1 of 2)

AREA RADIATION

<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
REACTOR		
BUILDING:		
1	Reactor Head Laydown Area	1.0E 01 MR/HR
2	Refueling Floor Stairway	1.0E 01 MR/HR
3	Spent Fuel Pool Demin. Equip.	1.0E 01 MR/HR
4	Refueling Floor	1.0E 01 MR/HR
5	Drywell Shield Plug	1.0E 01 MR/HR
6	Tip Area	1.0E 01 MR/HR
7	130' NE Working Area	1.0E 01 MR/HR
8	130' SW Working Area	1.0E 01 MR/HR
9	158' Working Area	1.0E 01 MR/HR
10	Decant Pump & Equip. Room	1.0E 01 MR/HR
11	Spent Fuel Pool & New Fuel Storage	1.0E 01 MR/HR
12	South CRD Hydraulic Units	1.0E 01 MR/HR
13	NE Core Spray & RHR Area	1.0E 01 MR/HR
14	SE Core Spray & RHR Area	1.0E 01 MR/HR
15	Equip. Access Airlock	1.0E 01 MR/HR
16	HPCI Turbine Area	1.0E 01 MR/HR
17	TIP (Core) Probe Drives Area	1.0E 01 MR/HR
18	RCIC Equip Area SW	1.0E 01 MR/HR
19	CRD Pump Room NW	1.0E 01 MR/HR
20	203' Working Floor	1.0E 01 MR/HR
21	SE Core Spray & RHR Area	1.0E 01 MR/HR

TABLE 15.4.3 (Page 2 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
TURBINE			
BUILDING:	22	Turbine Standard	1.0E-01 MR/HR
	23	Control Room	1.0E-01 MR/HR
	24	Control Room	1.0E-01 MR/HR
	25	Operation Floor, North End	1.0E-01 MR/HR
	26	Feedwater Area	1.0E-01 MR/HR
	27	Cond. Demin. Area	1.0E 01 MR/HR
RADWASTE			
BUILDING:	28	Radwaste Operating Floor	1.0E 01 MR/HR
	29	Radwaste Conveyor Oper. Aisle	1.0E 01 MR/HR
	30	Radwaste Basement Pump Room	1.0E 01 MR/HR
OTHER:	31	Reac Bldg. Fuel Pool Demin PNL Area	1.0E-01 MR/HR
	32	Recombiner Bldg. Operating Area	1.0E-01 MR/HR
	33	Recombiner Bldg. CCW Heat Exchanger Area	1.0E-01 MR/HR
	34	WGT Bldg. Glycol Unit Area	1.0E-01 MR/HR
	35	WGT Bldg. Operating Area	1.0E-01 MR/HR
	36	RDWST Bldg. RADW Add. Chem. Waste	1.0E-01 MR/HR
		Sample Tank	
	37	RDWST Bldg. RADW Add. Steam Bboiler	1.0E-01 MR/HR
	38	RDWST Bldg. RADW Add HVAC Filter Area	1.0E-01 MR/HR

to E-9-601

TABLE 15.4.4 (Page 1 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
REACTOR BUILDING:	1	Reactor Head Laydown Area	1.0E 02 MR/HR
	2	Refueling Floor Stairway	1.0E 02 MR/HR
	3	Spent Fuel Pool Demin. Equip.	1.0E 02 MR/HR
	4	Refueling Floor	1.0E 02 MR/HR
	5	Drywell Shield Plug	1.0E 02 MR/HR
	6	Tip Area	1.0E 02 MR/HR
	7	130' NE Working Area	1.0E 02 MR/HR
	8	130' SW Working Area	1.0E 02 MR/HR
	9	158' Working Area	1.0E 02 MR/HR
	10	Decant Pump & Equip. Room	1.0E 02 MR/HR
	11	Spent Fuel Pool & New Fuel Storage	1.0E 02 MR/HR
	12	South CRD Hydraulic Units	1.0E 02 MR/HR
	13	NE Core Spray & RHR Area	1.0E 02 MR/HR
	14	SE Core Spray & RHR Area	1.0E 02 MR/HR
	15	Equip. Access Airlock	1.0E 02 MR/HR
	16	HPCI Turbine Area	1.0E 02 MR/HR
	17	TIP (Core) Probe Drives Area	1.0E 02 MR/HR
	18	RCIC Equip Area SW	1.0E 02 MR/HR
	19	CRD Pump Room NW	1.0E 02 MR/HR
	20	202' Working Floor	1.0E 02 MR/HR
	21	SE Core Spray & RHR Area	1.0E 02 MR/HR

Ab 6-9-81

TABLE 15.4.4. (Page 2 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
TURBINE			
BUILDING:	22	Turbine Standard	1.0E 00 MR/HR
	23	Control Room	1.0E 00 MR/HR
	24	Control Room	1.0E 00 MR/HR
	25	Operation Floor, North End	1.0E 00 MR/HR
	26	Feedwater Area	1.0E 00 MR/HR
	27	Cond. Demin. Area	1.0E 02 MR/HR
RADWASTE			
BUILDING:	28	Radwaste Operating Floor	1.0E 02 MR/HR
	29	Radwaste Conveyor Oper. Aisle	1.0E 02 MR/HR
	30	Radwaste Basement Pump Room	1.0E 02 MR/HR
OTHER:	31	Reac Bldg. Fuel Pool Demin PNL Area	1.0E 00 MR/HR
	32	Recombiner Bldg. Operating Area	1.0E 00 MR/HR
	33	Recombiner Bldg. CCW Heat Exchanger Area	1.0E 00 MR/HR
	34	WGT Bldg. Glycol Unit Area	1.0E 00 MR/HR
	35	WGT Bldg. Operating Area	1.0E 00 MR/HR
	36	RDWST Bldg. RADW Add. Chem. Waste Sample Tank	1.0E 00 MR/HR
	37	RDWST Bldg. RADW Add. Steam Bboiler	1.0E 00 MR/HR
	38	RDWST Bldg. RADW Add HVAC Filter Area	1.0E 00 MR/HR

AE 9-84

TABLE 15.4.5 (Page 1 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
REACTOR			
BUILDING:			
	1	Reactor Head Laydown Area	1.0E 03 MR/HR
	2	Refueling Floor Stairway	1.0E 03 MR/HR
	3	Spent Fuel Pool Demin. Equip.	1.0E 03 MR/HR
	4	Refueling Floor	1.0E 03 MR/HR
	5	Drywell Shield Plug	1.0E 03 MR/HR
	6	Tip Area	1.0E 03 MR/HR
	7	130' NE Working Area	1.0E 03 MR/HR
	8	130' SW Working Area	1.0E 03 MR/HR
	9	158' Working Area	1.0E 03 MR/HR
	10	Decant Pump & Equip. Room	1.0E 03 MR/HR
	11	Spent Fuel Pool & New Fuel Storage	1.0E 03 MR/HR
	12	South CRD Hydraulic Units	1.0E 03 MR/HR
	13	NE Core Spray & RHR Area	1.0E 03 MR/HR
	14	SE Core Spray & RHR Area	1.0E 03 MR/HR
	15	Equip. Access Airlock	1.0E 03 MR/HR
	16	HPCI Turbine Area	1.0E 03 MR/HR
	17	TIP (Core) Probe Drives Area	1.0E 03 MR/HR
	18	RCIC Equip Area SW	1.0E 03 MR/HR
	19	CRD Pump Room NW	1.0E 03 MR/HR
	20	203' Working Floor	1.0E 03 MR/HR
	21	SE Core Spray & RHR Area	1.0E 03 MR/HR

8-9-84

TABLE 15.4.5 (Page 2 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
TURBINE			
BUILDING:	22	Turbine Standard	1.0E 01 MR/HR
	23	Control Room	1.0E 01 MR/HR
	24	Control Room	1.0E 01 MR/HR
	25	Operation Floor, North End	1.0E 01 MR/HR
	26	Feedwater Area	1.0E 01 MR/HR
	27	Cond. Demin. Area	1.0E 03 MR/HR
RADWASTE			
BUILDING:	28	Radwaste Operating Floor	1.0E 03 MR/HR
	29	Radwaste Conveyor Oper. Aisle	1.0E 03 MR/HR
	30	Radwaste Basement Pump Room	1.0E 03 MR/HR
OTHER:			
	31	Reac Bldg. Fuel Pool Demin PNL Area	1.0E 01 MR/HR
	32	Recombiner Bldg. Operating Area	1.0E 01 MR/HR
	33	Recombiner Bldg. CCW Heat Exchanger Area	1.0E 01 MR/HR
	34	WGT Bldg. Glycol Unit Area	1.0E 01 MR/HR
	35	WGT Bldg. Operating Area	1.0E 01 MR/HR
	36	RDWST Bldg. RADW Add. Chem. Waste Sample Tank	1.0E 01 MR/HR
	37	RDWST Bldg. RADW Add. Steam Bboiler	1.0E 01 MR/HR
	38	RDWST Bldg. RADW Add HVAC Filter Area	1.0E 01 MR/HR

48954

TABLE 15.4.6 (Page 1 of 2)

AREA RADIATION

<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
REACTOR		
BUILDING:		
1	Reactor Head Laydown Area	1.0E 04 MR/HR
2	Refueling Floor Stairway	1.0E 04 MR/HR
3	Spent Fuel Pool Demin. Equip.	1.0E 04 MR/HR
4	Refueling Floor	1.0E 04 MR/HR
5	Drywell Shield Plug	1.0E 04 MR/HR
6	Tip Area	1.0E 04 MR/HR
7	130' NE Working Area	1.0E 04 MR/HR
8	130' SW Working Area	1.0E 04 MR/HR
9	158' Working Area	1.0E 04 MR/HR
10	Decant Pump & Equip. Room	1.0E 04 MR/HR
11	Spent Fuel Pool & New Fuel Storage	1.0E 04 MR/HR
12	South CRD Hydraulic Units	1.0E 04 MR/HR
13	NE Core Spray & RHR Area	1.0E 04 MR/HR
14	SE Core Spray & RHR Area	1.0E 04 MR/HR
15	Equip. Access Airlock	1.0E 04 MR/HR
16	HPCI Turbine Area	1.0E 04 MR/HR
17	TIP (Core) Probe Drives Area	1.0E 04 MR/HR
18	RCIC Equip Area SW	1.0E 04 MR/HR
19	CRD Pump Room NW	1.0E 04 MR/HR
20	203' Working Floor	1.0E 04 MR/HR
21	SE Core Spray & RHR Area	1.0E 04 MR/HR

BE-9-84

TABLE 15.4.6 (Page 2 of 2)

AREA RADIATION

	<u>CHANNEL #</u>	<u>DESCRIPTION</u>	<u>OUTPUT</u>
TURBINE			
BUILDING:	22	Turbine Standard	1.0E 02 MR/HR
	23	Control Room	1.0E 02 MR/HR
	24	Control Room	1.0E 02 MR/HR
	25	Operation Floor, North End	1.0E 02 MR/HR
	26	Feedwater Area	1.0E 02 MR/HR
	27	Cond. Demin. Area	1.0E 04 MR/HR
RADWASTE			
BUILDING:	28	Radwaste Operating Floor	1.0E 04 MR/HR
	29	Radwaste Conveyor Oper. Aisle	1.0E 04 MR/HR
	30	Radwaste Basement Pump Room	1.0E 04 MR/HR
OTHER:	31	Reac Bldg. Fuel Pool Demin PNL Area	1.0E 02 MR/HR
	32	Recombiner Bldg. Operating Area	1.0E 02 MR/HR
	33	Recombiner Bldg. CCW Heat Exchanger Area	1.0E 02 MR/HR
	34	WGT Bldg. Glycol Unit Area	1.0E 02 MR/HR
	35	WGT Bldg. Operating Area	1.0E 02 MR/HR
	36	RDWST Bldg. RADW Add. Chem. Waste Sample Tank	1.0E 02 MR/HR
	37	RDWST Bldg. RADW Add. Steam Bboiler	1.0E 02 MR/HR
	38	RDWST Bldg. RADW Add HVAC Filter Area	1.0E 02 MR/HR

Ac 5-8-81

15.5 MISCELLANEOUS RADIATION MONITORS

- STEP 1 Call the Miscellaneous Radiation Monitors display.
- STEP 2 Enter the value 0 for the channel numbers listed in Table 15.5.1.
- STEP 3 Compare the display called up in Step 1 to Table 15.5.2.
- STEP 4 Repeat Steps 2 and 3 for input values of 1024, 2047, 3071 and 4095. Compare display to Tables 15.5.3, 15.5.4, 15.5.5 and 15.5.6, respectively.

TABLE 15.5.1

<u>SENSOR TAG NUMBER</u>	<u>SCALE</u>	<u>CHANNEL NUMBER</u>
<u>DRYWELL RADIATION</u>		
QD11-RIS K621A	$10^0/10^7$	SPDS-31
QD11-RIS K621B	$10^0/10^7$	SPDS-48
<u>RADWASTE EFFLUENT RADIATION TO RIVER</u>		
QD11-RIS K604	$10^{-1}/10^6$	ERF 23
<u>PLANT SERVICE WATER EFFLUENT RADIATION TO RIVER</u>		
QD11-RIS K605	$10^{-1}/10^6$	ERF 56
<u>REACTOR BUILDING FILTER DISCHARGE RADIATION</u>		
QD11-RIS K608A	$10^{-2}/10^2$	ERF 65
QD11-RIS K608B	$10^{-2}/10^2$	ERF 110
<u>SGTS FILTER TRAIN RADIATION TO MAIN STACK</u>		
QD11-RIS K613	$10^{-2}/10^2$	ERF 120
<u>CARBON BED VAULT RADIATION (WGTB)</u>		
QD11-RIS K614	$10^0/10^6$	ERF 33
<u>REFUELING FLOOR FILTER DISCHARGE RADIATION</u>		
QD11-RIS K616A	$10^{-2}/10^2$	ERF 103
QD11-RIS K616B	$10^{-2}/10^2$	ERF 72
<u>TURBINE BUILDING FILTER DISCHARGE RADIATION</u>		
QD11-RIS K617A	$10^{-2}/10^2$	ERF 12
QD11-RIS K617B	$10^{-2}/10^2$	ERF 35
<u>RADWASTE BUILDING FILTER DISCHARGE RADIATION</u>		
V41-RIS K002A	$10^{-2}/10^2$	ERF 84
V41-RIS K002B	$10^{-2}/10^2$	ERF 123
<u>FLOOR DRAIN COLLECTOR TANK LEVEL</u>		
QG11-LT N035	0/100	ERF 101
<u>WASTE COLLECTOR TANK LEVEL</u>		
QG11-LT N020	0/100	ERF 92

TABLE 15.5.2

MISCELLANEOUS RADIATION MONITORS

RADIATION

Drywell Area A	1.0E 00 R/HR
Drywell Area B	1.0E 00 R/HR
Radwaste Effluent to River	1.0E-01 CPS
Plant Service Water Effluent to River	1.0E-01 CPS
Reactor Building Filter A Discharge	1.0E-02 MR/HR
Reactor Building Filter B Discharge	1.0E-02 MR/HR
SGTS Filter Train to Main Stack	1.0E-02 MR/HR
Carbon Bed Vault (WGTB)	1.0E 00 MR/HR
Refueling Floor Filter A Discharge	1.0E-02 MR/HR
Refueling Floor Filter B Discharge	1.0E-02 MR/HR
Turbine Building Filter A Discharge	1.0E-02 MR/HR
Turbine Building Filter B Discharge	1.0E-02 MR/HR
Radwaste Building Filter A Discharge	1.0E-02 MR/HR
Radwaste Building Filter B Discharge	1.0E-02 MR/HR

FLOOR DRAIN COLLECTOR TANK LEVEL 0%

WASTE COLLECTOR TANK LEVEL 0%

8 9 84

TABLE 15.5.3

MISCELLANEOUS RADIATION MONITORS

RADIATION

Drywell Area A	5.6E 01 R/HR
Drywell Area B	5.6E 01 R/HR
Radwaste Effluent to River	5.6E 00 CPS
Plant Service Water Effluent to River	5.6E 00 CPS
Reactor Building Filter A Discharge	1.0E-01 MR/HR
Reactor Building Filter B Discharge	1.0E-01 MR/HR
SGTS Filter Train to Main Stack	1.0E-01 MR/HR
Carbon Bed Vault (WGTB)	3.2E 01 MR/HR
Refueling Floor Filter A Discharge	1.0E-01 MR/HR
Refueling Floor Filter B Discharge	1.0E-01 MR/HR
Turbine Building Filter A Discharge	1.0E-01 MR/HR
Turbine Building Filter B Discharge	1.0E-01 MR/HR
Radwaste Building Filter A Discharge	1.0E-01 MR/HR
Radwaste Building Filter B Discharge	1.0E-01 MR/HR

FLOOR DRAIN COLLECTOR TANK LEVEL 25%

WASTE COLLECTOR TANK LEVEL 25%

8.9-8-1

TABLE 15.5.4

MISCELLANEOUS RADIATION MONITORS

RADIATION

Drywell Area A	3.2E 03 R/HR
Drywell Area B	3.2E 03 R/HR
Radwaste Effluent to River	3.2E 02 CPS
Plant Service Water Effluent to River	3.2E 02 CPS
Reactor Building Filter A Discharge	1.0E 00 MR/HR
Reactor Building Filter B Discharge	1.0E 00 MR/HR
SGTS Filter Train to Main Stack	1.0E 00 MR/HR
Carbon Bed Vault (WGTB)	1.0E 03 MR/HR
Refueling Floor Filter A Discharge	1.0E 00 MR/HR
Refueling Floor Filter B Discharge	1.0E 00 MR/HR
Turbine Building Filter A Discharge	1.0E 00 MR/HR
Turbine Building Filter B Discharge	1.0E 00 MR/HR
Radwaste Building Filter A Discharge	1.0E 00 MR/HR
Radwaste Building Filter B Discharge	1.0E 00 MR/HR

FLOOR DRAIN COLLECTOR TANK LEVEL

50Z

WASTE COLLECTOR TANK LEVEL

50Z

at 8-9-81

TABLE 15.5.5

MISCELLANEOUS RADIATION MONITORS

RADIATION

Drywell Area A	1.8E 05 R/HR
Drywell Area B	1.8E 05 R/HR
Radwaste Effluent to River	1.8E 04 CPS
Plant Service Water Effluent to River	1.8E 04 CPS
Reactor Building Filter A Discharge	1.0E 01 MR/HR
Reactor Building Filter B Discharge	1.0E 01 MR/HR
SGTS Filter Train to Main Stack	1.0E 01 MR/HR
Carbon Bed Vault (WGTB)	3.2E 04 MR/HR
Refueling Floor Filter A Discharge	1.0E 01 MR/HR
Refueling Floor Filter B Discharge	1.0E 01 MR/HR
Turbine Building Filter A Discharge	1.0E 01 MR/HR
Turbine Building Filter B Discharge	1.0E 01 MR/HR
Radwaste Building Filter A Discharge	1.0E 01 MR/HR
Radwaste Building Filter B Discharge	1.0E 01 MR/HR

FLOOR DRAIN COLLECTOR TANK LEVEL 75%

WASTE COLLECTOR TANK LEVEL 75%

8-9-84

TABLE 15.5.6.

MISCELLANEOUS RADIATION MONITORS

RADIATION

Drywell Area A	1.0E 07 R/HR
Drywell Area B	1.0E 07 R/HR
Radwaste Effluent to River	1.0E 06 CPS
Plant Service Water Effluent to River	1.0E 06 CPS
Reactor Building Filter A Discharge	1.0E 02 MR/HR
Reactor Building Filter B Discharge	1.0E 02 MR/HR
SGTS Filter Train to Main Stack	1.0E 02 MR/HR
Carbon Bed Vault (WGTB)	1.0E 06 MR/HR
Refueling Floor Filter A Discharge	1.0E 02 MR/HR
Refueling Floor Filter B Discharge	1.0E 02 MR/HR
Turbine Building Filter A Discharge	1.0E 02 MR/HR
Turbine Building Filter B Discharge	1.0E 02 MR/HR
Radwaste Building Filter A Discharge	1.0E 02 MR/HR
Radwaste Building Filter B Discharge	1.0E 02 MR/HR

FLOOR DRAIN COLLECTOR TANK LEVEL 100%

WASTE COLLECTOR TANK LEVEL 100%

L-9-84

15.6 MISCELLANEOUS METEOROLOGICAL DATA

- STEP 1 Call the Miscellaneous Meteorological Data display.
- STEP 2 Enter the value 0 for the ERF channel numbers listed in Table 15.6.1.
- STEP 3 Compare the display called up in Step 1 to Table 15.6.2.
- STEP 4 Repeat Steps 2 and 3 for input values of 1024, 2047, 3071, 4095 and 1024. Compare display to Tables 15.6.3, 15.6.4, 15.6.5, 15.6.6 and 15.6.7 respectively.
- STEP 5 Call the Maintenance menu.
- STEP 6 Call the Set Time and Date display.
- STEP 7 Set the time to 23:58:00.
- STEP 8 Call the Miscellaneous Meteorological Data display.
- STEP 9 Check that the precipitation value resets to .00 at midnight.
- Record approval: _____
- STEP 10 Call the Set Time and Date display and reset the time to its correct value.

TABLE 15.6.1

<u>SENSOR TAG NUMBER</u>	<u>SCALE</u>	<u>CHANNEL NUMBER</u>
<u>WIND DIRECTION</u>		
QY33-POT N004 (100m)	0/540	ERF 52
QY33-POT N005 (60m)	0/540	ERF 27
QY33-POT N006 (10m)	0/540	ERF 5
QY33-POT N048 (23m)	0/540	ERF 42
<u>WIND SPEED</u>		
QY33-PT N001 (100m)	0/100	ERF 36
QY33-PT N002 (60m)	0/100	ERF 11
QY33-PT N003 (10m)	0/100	ERF 18
QY33-PT N047 (23m)	0/100	ERF 61
<u>WIND DIRECTION STANDARD DEVIATION</u>		
QY33-POQ N029 (100m)	0/100	ERF 40
QY33-POQ N030 (60m)	0/100	ERF 7
QY33-POQ N031 (10m)	0/100	ERF 59
QY33-POQ N055 (23m)	0/100	ERF 77
<u>AMBIENT TEMPERATURE</u>		
QY33-TE N013	-30/120	ERF 26
QY33-TE N051 (Back up)	-30/120	ERF 53
<u>DEW POINT TEMPERATURE</u>		
QY33-ME N020	-30/120	ERF 2
<u>DIFFERENTIAL TEMPERATURE</u>		
QY33-TE N014 (60m)	-10/10	ERF 68
QY33-TE N015 (100m)	-10/10	ERF 81
QY33-TE N045 (45m)	-10/10	ERF 21
<u>PRECIPITATION</u>		
QY33-ME N021	0/1	ERF 98
<u>MOTOR ASPIRATOR FLOW STATUS</u>		
Y33-FS N037	0 or 10	ERF 45
Y33-FS N036	0 or 10	ERF 67
Y33-FS N035	0 or 10	ERF 95
Y33-FS N059	0 or 10	ERF 108
Y33-FS N058	0 or 10	ERF 112

TABLE 15.6.2

METEOROLOGICAL DATA

<u>WIND</u>	<u>DIRECTION FROM</u>	<u>STD-DEV</u>	<u>SPEED</u>
10 M Elevation	0 Deg	0 Deg	0 MPH
60 M Elevation	0 Deg	0 Deg	0 MPH
100 M Elevation	0 Deg	0 Deg	0 MPH
23 M Elevation - Backup	0 Deg	0 Deg	0 MPH

TEMPERATURE

10 M Elevation Ambient	-30 Deg F	No Flow
10 M Elevation Ambient - Back up	-30 Deg F	No Flow
10 M Dewpoint	-30 Deg F	
10 M - 60 M Differential	-10 Deg F	No Flow
10 M - 100 M Differential	-10 Deg F	No Flow
10 M - 45 M Differential	-10 Deg F	No Flow

PRECIPITATION

.00 Inches since Midnight

15.9-84

TABLE 15.6.3

METEOROLOGICAL DATA

<u>WIND</u>	<u>DIRECTION FROM</u>	<u>STD-DEV</u>	<u>SPEED</u>
10 M Elevation	135 Deg	25 Deg	25 MPH
60 M Elevation	135 Deg	25 Deg	25 MPH
100 M Elevation	135 Deg	25 Deg	25 MPH
23 M Elevation - Backup	135 Deg	25 Deg	25 MPH

TEMPERATURE

10 M Elevation Ambient	8 Deg F	No Flow
10 M Elevation Ambient - Back up	8 Deg F	No Flow
10 M Dewpoint	8 Deg F	
10 M - 60 M Differential	- 5 Deg F	No Flow
10 M - 100 M Differential	- 5 Deg F	No Flow
10 M - 45 M Differential	- 5 Deg F	No Flow

PRECIPITATION

.25 Inches since Midnight

to 8-9-81

TABLE 15.6.4

METEOROLOGICAL DATA

<u>WIND</u>	<u>DIRECTION FROM</u>	<u>STD-DEV</u>	<u>SPEED</u>
10 M Elevation	270 Deg	50 Deg	50 MPH
60 M Elevation	270 Deg	50 Deg	50 MPH
100 M Elevation	270 Deg	50 Deg	50 MPH
23 M Elevation - Backup	270 Deg	50 Deg	50 MPH

TEMPERATURE

10 M Elevation Ambient	45 Deg F	No Flow
10 M Elevation Ambient - Back up	45 Deg F	No Flow
10 M Dewpoint	45 Deg F	
10 M - 60 M Differential	- 0 Deg F	No Flow
10 M - 100 M Differential	- 0 Deg F	No Flow
10 M - 45 M Differential	- 0 Deg F	No Flow

PRECIPITATION

.50 Inches since Midnight

sk. 8-9-84

TABLE 15.6.5

METEOROLOGICAL DATA

<u>WIND</u>	<u>DIRECTION FROM</u>	<u>STD-DEV</u>	<u>SPEED</u>
10 M Elevation	405 Deg	75 Deg	75 MPH
60 M Elevation	405 Deg	75 Deg	75 MPH
100 M Elevation	405 Deg	75 Deg	75 MPH
23 M Elevation - Backup	405 Deg	75 Deg	75 MPH

TEMPERATURE

10 M Elevation Ambient	82 Deg F	Flow
10 M Elevation Ambient - Back up	82 Deg F	Flow
10 M Dewpoint	82 Deg F	
10 M - 60 M Differential	5 Deg F	Flow
10 M - 100 M Differential	5 Deg F	Flow
10 M - 45 M Differential	5 Deg F	Flow

PRECIPITATION

.75 Inches since Midnight

As 8-9-89

TABLE 15.6.6

METEOROLOGICAL DATA

<u>WIND</u>	<u>DIRECTION FROM</u>	<u>STD-DEV</u>	<u>SPEED</u>
10 M Elevation	540 Deg	100 Deg	100 MPH
60 M Elevation	540 Deg	100 Deg	100 MPH
100 M Elevation	540 Deg	100 Deg	100 MPH
23 M Elevation - Backup	540 Deg	100 Deg	100 MPH

TEMPERATURE

10 M Elevation Ambient	120 Deg F	Flow
10 M Elevation Ambient - Back up	120 Deg F	Flow
10 M Dewpoint	120 Deg F	
10 M - 60 M Differential	10 Deg F	Flow
10 M - 100 M Differential	10 Deg F	Flow
10 M - 45 M Differential	10 Deg F	Flow

PRECIPITATION

1.00 Inches since Midnight

AD 8-7-84

TABLE 15.6.7

METEOROLOGICAL DATA

<u>WIND</u>	<u>DIRECTION FROM</u>	<u>STD-DEV</u>	<u>SPEED</u>
10 M Elevation	135 Deg	25 Deg	25 MPH
60 M Elevation	135 Deg	25 Deg	25 MPH
100 M Elevation	135 Deg	25 Deg	25 MPH
23 M Elevation - Backup	135 Deg	25 Deg	25 MPH

TEMPERATURE

10 M Elevation Ambient	8 Deg F	No Flow
10 M Elevation Ambient - Back up	8 Deg F	No Flow
10 M Dewpoint	8 Deg F	
10 M - 60 M Differential	- 5 Deg F	No Flow
10 M - 100 M Differential	- 5 Deg F	No Flow
10 M - 45 M Differential	- 5 Deg F	No Flow

PRECIPITATION

1.25 Inches since Midnight

To 8-9-84

15.7 PRIMARY COOLANT SYSTEMS DIAGNOSTIC

- STEP 1 Call the Primary Coolant Systems display from the Diagnostic Menu.
- STEP 2 Enter the value 0 for the ERF channel number listed in Table 15.7.1.
- STEP 3 Compare the display called up in Step 1 to Table 15.7.2.
- STEP 4 Repeat Steps 2 and 3 for input values of 1024, 2047, 3071 and 4095. Compare display to Tables 15.7.3, 15.7.4, 15.7.5 and 15.7.6, respectively.

NOTE: In the case of the Vessel Flange Temperature, check that the value appearing on the Primary Coolant Systems display matches the value shown on the Miscellaneous Trend display for this parameter.

TABLE 15.7.1.

<u>SENSOR TAG NUMBER</u>	<u>SCALE</u>	<u>ERF CHANNEL NUMBER</u>
<u>FEEDWATER TEMPERATURE</u>		
QB21-TT N602A	280/430	86
QB21-TT N602B	280/430	121
QB21-TT N602C	280/430	4
QB21-TT N602D	280/430	43
<u>RECIRCULATION PUMP FLOWS</u>		
QB31-SQRT K608A	0/70,000	10
QB31-SQRT K606A	0/70,000	37
<u>VESSEL FLANGE TEMPERATURE</u>		
QB21-TE N030A1	0/600	117
<u>CONDENSER PRESSURE</u>		
QN61-PT N001	0/15	76
QN61-PT N002	0/15	99
<u>CONDENSATE STORAGE TANK LEVEL</u>		
QP11-LT N001	0/40	16
<u>MAIN FEEDWATER FLOW</u>		
QC32-SQRT K619A	0/6 x 10 ⁶	15
QC32-SQRT K619B	0/6 x 10 ⁶	32

TABLE 15.7.2

PRIMARY COOLANT SYSTEMS

Condenser Turb. End Pressure	.0 PSIA
Condenser Gen. End Pressure	.0 PSIA
Condensate Storage Tank Level	.0 FT
Main Feedwater A Flow	0.0 E 00 LBS/HR
Main Feedwater B Flow	0.0 E 00 LBS/HR
Feedwater A Temp	280. DEG. F
Feedwater B Temp	280. DEG. F
Feedwater A Temp	280. DEG. F
Feedwater B Temp	280. DEG. F
Recirculation Pump A Flow	0.0 E 00 GPM
Recirculation Pump B Flow	0.0 E 00 GPM
Vessel Flange Temperature	0. DEG. F

Handwritten signature
8-9-54

TABLE 15.7.3

PRIMARY COOLANT SYSTEMS

Condenser Turb. End Pressure	3.8 PSIA
Condenser Gen. End Pressure	3.8 PSIA
Condensate Storage Tank Level	10.0 FT
Main Feedwater A Flow	1.50E 06 LBS/HR
Main Feedwater B Flow	1.50E 06 LBS/HR
Feedwater A Temp	318. DEG. F
Feedwater B Temp	318. DEG. F
Feedwater A Temp	318. DEG. F
Feedwater B Temp	318. DEG. F
Recirculation Pump A Flow	1.75E 04 GPM
Recirculation Pump B Flow	1.75E 04 GPM
Vessel Flange Temperature	178. DEG. F

As of 8-9-84

TABLE 15.7.4

PRIMARY COOLANT SYSTEMS

Condenser Turb. End Pressure	7.5 PSIA
Condenser Gen. End Pressure	7.5 PSIA
Condensate Storage Tank Level	20.0 FT
Main Feedwater A Flow	3.00E 06 LBS/HR
Main Feedwater B Flow	3.00E 06 LBS/HR
Feedwater A Temp	355. DEG. F
Feedwater B Temp	355. DEG. F
Feedwater A Temp	355. DEG. F
Feedwater B Temp	355. DEG. F
Recirculation Pump A Flow	3.50E 04 GPM
Recirculation Pump B Flow	3.50E 04 GPM
Vessel Flange Temperature	331. DEG. F

8-7-84

TABLE 15.7.5

PRIMARY COOLANT SYSTEMS

Condenser Turb. End Pressure	11.2 PSIA
Condenser Gen. End Pressure	11.2 PSIA
Condensate Storage Tank Level	30.0 FT
Main Feedwater A Flow	4.50E 06 LBS/HR
Main Feedwater B Flow	4.50E 06 LBS/HR
Feedwater A Temp	392. DEG. F
Feedwater B Temp	392. DEG. F
Feedwater A Temp	392. DEG. F
Feedwater B Temp	392. DEG. F
Recirculation Pump A Flow	5.25E 04 GPM
Recirculation Pump B Flow	5.25E 04 GPM
Vessel Flange Temperature	469. DEG. F

As 8-9-81

TABLE 15.7.6

PRIMARY COOLANT SYSTEMS

Condenser Turb. End Pressure	15.0 PSIA
Condenser Gen. End Pressure	15.0 PSIA
Condensate Storage Tank Level	40.0 FT
Main Feedwater A Flow	6.00E 06 LBS/HR
Main Feedwater B Flow	6.00E 06 LBS/HR
Feedwater A Temp	430. DEG. F
Feedwater B Temp	430. DEG. F
Feedwater A Temp	430. DEG. F
Feedwater B Temp	430. DEG. F
Recirculation Pump A Flow	7.00E 04 GPM
Recirculation Pump B Flow	7.00E 04 GPM
Vessel Flange Temperature	600. DEG. F

AK 8-9-64

15.8. EMERGENCY SYSTEMS DIAGNOSTIC

- STEP 1 Call the Emergency Systems display from the Diagnostic Menu.
- STEP 2 Enter the value 0 for the channel number listed in Table 15.8.1.
- STEP 3 Compare the display called up in Step 1 to Table 15.8.2.
- STEP 4 Repeat Steps 2 and 3 for input values of 1024, 2047, 3071 and 4095. Compare display to Tables 15.8.3, 15.8.4, 15.8.5 and 15.8.6, respectively.

TABLE 15.8.1

DIAGNOSTIC/EMERGENCY SYSTEMS

<u>SENSOR TAG NUMBER</u>	<u>SCALE</u>	<u>CHANNEL NUMBER</u>
<u>SLCS PRESSURE</u>		
QC41-PT N004	0/1800	ERF- 87
<u>SLCS STORAGE TANK LEVEL</u>		
QC41-LT N001	0/ 100	ERF- 79
<u>HPCI SYSTEM FLOW</u>		
QE41-FT N008	0/5000	SPDS- 42
<u>RCIC SYSTEM FLOW</u>		
QE51-FT N003	0/ 500	SPDS- 51
<u>CORE SPRAY FLOW</u>		
QE21-FT N003A	0/7000	SPDS- 10
QE21-FT N003B	0/7000	SPDS- 37
<u>RHR SYSTEM FLOW</u>		
QE11-FT N015A	0/25,000	SPDS- 85
QE11-FT N015B	0/25,000	SPDS-122
<u>RHR HEAT EXCHANGER OUTLET TEMPERATURE SHELL SIDE</u>		
QE11-TE N027A	0/ 500	SPDS- 21
QE11-TE N027B	0/ 500	SPDS- 58
<u>RHR SERVICE WATER FLOW</u>		
QE11-FT N007A	0/12,000	SPDS-11
QE11-FT N007B	0/12,000	SPDS-36

TABLE 15.8.2

EMERGENCY SYSTEMS

Standby Liquid Control System (SLCS)	
Discharge Pressure	.0 PSIG
Tank Level	.0 %
High Pressure Coolant Injection (HPCI)	
Flow	0.00E 00 GPM
Reactor Core Isolation Cooling (RCIC)	
Flow	0.00E 00 GPM
Core Spray System (CS)	
A Flow	0.00E 00 GPM
B Flow	0.00E 00 GPM
Residual Heat Removal System (RHR)	
A Flow	0.00E 00 GPM
A Outlet Temperature Shell Side	0. DEG. F
A Service Water Flow	0.00E 00 GPM
B Flow	0.00E 00 GPM
B Outlet Temperature Shell Side	0. DEG. F
B Service Water Flow	0.00E 00 GPM

to 8-7-84

TABLE 15.8.3

EMERGENCY SYSTEMS

Standby Liquid Control System (SLCS)	
Discharge Pressure	450.1 PSIG
Tank Level	25.0 %
High Pressure Coolant Injection (HPCI)	
Flow	2.50E 03 GPM
Reactor Core Isolation Cooling (RCIC)	
Flow	2.50E 02 GPM
Core Spray System (CS)	
A Flow	3.50E 03 GPM
B Flow	3.50E 03 GPM
Residual Heat Removal System (RHR)	
A Flow	1.25E 04 GPM
A Outlet Temperature Shell Side	125. DEG. F
A Service Water Flow	6.00E 03 GPM
B Flow	1.25E 04 GPM
B Outlet Temperature Shell Side	125. DEG. F
B Service Water Flow	6.00E 03 GPM

Am 6-9-84

TABLE 15.8.4

EMERGENCY SYSTEMS

Standby Liquid Control System (SLCS)	
Discharge Pressure	899.8 PSIG
Tank Level	50.0 %
High Pressure Coolant Injection (HPCI)	
Flow	3.53E 03 GPM
Reactor Core Isolation Cooling (RCIC)	
Flow	3.53E 03 GPM
Core Spray System (CS)	
A Flow	4.95E 03 GPM
B Flow	4.95E 03 GPM
Residual Heat Removal System (RHR)	
A Flow	1.77E 04 GPM
A Outlet Temperature Shell Side	250. DEG. F
A Service Water Flow	8.48E 03 GPM
B Flow	1.77E 04 GPM
B Outlet Temperature Shell Side	250. DEG. F
B Service Water Flow	8.48E 03 GPM

As of 7-84

TABLE 15.8.5

EMERGENCY SYSTEMS

Standby Liquid Control System (SLCS)

Discharge Pressure

1349.9 PSIG

Tank Level

75.0 %

High Pressure Coolant Injection (HPCI)

Flow

4.33E 03 GPM

Reactor Core Isolation Cooling (RCIC)

Flow

4.33E 02 GPM

Core Spray System (CS)

A Flow

6.06E 03 GPM

B Flow

6.06E 03 GPM

Residual Heat Removal System (RHR)

A Flow

2.16E 04 GPM

A Outlet Temperature Shell Side

375. DEG. F

A Service Water Flow

1.04E 04 GPM

B Flow

2.16E 04 GPM

B Outlet Temperature Shell Side

375. DEG. F

B Service Water Flow

1.04E 04 GPM

At 8-9-84

TABLE 15.8.6

EMERGENCY SYSTEMS

Standby Liquid Control System (SLCS)	
Discharge Pressure	1800.0 PSIG
Tank Level	100.0 %
High Pressure Coolant Injection (HPCI)	
Flow	5.00 E 03 GPM
Reactor Core Isolation Cooling (RCIC)	
Flow	5.00E 02 GPM
Core Spray System (CS)	
A Flow	7.00E 03 GPM
B Flow	7.00E 03 GPM
Residual Heat Removal System (RHR)	
A Flow	2.50E 04 GPM
A Outlet Temperature Shell Side	500. DEG. F
A Service Water Flow	1.20E 04 GPM
B Flow	2.50E 04 GPM
B Outlet Temperature Shell Side	500. DEG. F
B Service Water Flow	1.20E 04 GPM

At 9-2-84

15.9. SGTS FLOW AND REFUELING FLOOR - OUTSIDE DIFFERENTIAL PRESSURE

- STEP 1: Call the Secondary Isolation display.
- STEP 2: Enter the value 0 for the channel numbers listed in Table 15.9.1.
- STEP 3: Compare the values on the display with the output in Table 15.9.2.
- STEP 4: Repeat steps 2 and 3 for input values of 1024, 2047, 3071 and 4095. Compare the values on the display with those listed in Table 15.9.2.

TABLE 15.9.1

SENSOR TAG
NUMBER

SCALE

CHANNEL NUMBER

SGTS FLOW TO MAIN STACK

QT46-SQRT K001

0/8000

SPDS-74

REFUELING FLOOR TO OUTSIDE DIFFERENTIAL PRESSURE

QT46-DPT N005A

-2.5/2.5

SPDS- 8

QT46-DPT N005D

-2.5/2.5

SPDS-39

TABLE 15.9.2

TEST NO.	74	8	INPUT 39	K001	OUTPUT N005A	N005D
1	0	0	0	0	- 2.5	- 2.5 <i>to 8-9-84</i>
2	1024	1024	1024	2000.5 *	- 1.25 *	- 1.25 * <i>to 8-9-84</i>
3	2047	2047	2047	3999.	- .0	- .0 <i>to 8-9-84</i>
4	3071	3071	3071	6000.5 <i>5742.5</i> *	1.25 *	1.25 * <i>to 8-9-84</i>
5	4095	4095	4095	8000	2.5	2.5 <i>to 8-9-84</i>

*also listed access & access
ready routine #3*

** changes made ready routine
11.5.*



APPLICATION		REVISIONS			
NEXT ASSY	USED ON	SYN	DESCRIPTION	DATE	APPROVED

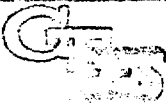
SPDS

FUNCTIONAL TEST RESULTS

FOR GEORGIA POWER COMPANY

E. I. HATCH PLANT
UNIT 1

VOL. 2

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED		CONTRACT NO.		 ENGINEERING EXPERIMENT STATION GEORGIA INSTITUTE OF TECHNOLOGY ATLANTA, GEORGIA	
TOLERANCES 3 PLACE DECIMALS $\pm .005$ 2 PLACE DECIMALS $\pm .02$ 1 PLACE DECIMAL $\pm .1$		DWN		FUNCTIONAL TEST RESULTS	
FRACTIONS $\pm$ ANGLES $\pm 90^\circ$		PROD.		SPDS E. I. HATCH UNIT 1	
MAX SURFACE ROUGHNESS 125/ ALL MACHINED SURFACES EXCEPT AS NOTED BREAK SHARP EDGES AND CORNERS TO MAX		APVD		SIZE A	CODE IDENT NO. 07101
FINISH		APVD		DRAWING NO. 110-AB026-6210 VOL.2	SHEET
SCALE		REV		SHEET	

APPLICATION		REVISIONS			
TEXT ASSY	USED ON	SYM	DESCRIPTION	DATE	APPROVED

SPDS/ERF

FUNCTIONAL TEST PROCEDURES

FOR GEORGIA POWER COMPANY

E.I. HATCH

UNIT 1 (VOL. 2)

ALL DIMENSIONS ARE IN INCHES
UNLESS OTHERWISE SPECIFIED

TOLERANCES
3 PLACE DECIMALS $\pm .005$
2 PLACE DECIMALS $\pm .02$
1 PLACE DECIMAL $\pm .1$

FRACTIONS $\pm$ ANGLES $\pm 0^{\circ}30'$

MAX SURFACE ROUGHNESS 125
ALL MACHINED SURFACES
EXCEPT AS NOTED

BREAK SHARP EDGES
AND CORNERS .010 MAX

FINISH

CONTRACT NO.

A3026

DWG

8-8-84

ENGR

8/8/84

CHECK

Aug 8, 1984

PROG

APVD

Aug 8, 1984

APVD



ENGINEERING EXPERIMENT STATION
OF THE
GEORGIA INSTITUTE OF TECHNOLOGY
ATLANTA, GEORGIA

FUNCTIONAL TEST PROCEDURES,
SPDS/ERF

SIZE

A

CODE IDENT NO.

07101

DRAWING NO.

114-A3026-5100-1

SCALE

REV

SHEET



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9. Torus Water Level	9. 1
10. Reactor Water Level	10. 1
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16. ISOLATION DIAGNOSTIC DISPLAY TESTS

This section tests the logic that governs the primary and secondary containment isolation diagnostic displays.

16.1. GROUP 1 ISOLATION

STEP 1

ACTION:

- a. Call up the PCIS Group 1, 3, 4, 5 Diagnostic display and call the reference test data.
- b. Close all the main steam line valves as shown in the following table.

Table 16.1.1

SIGNAL DESCRIPTION	INPUT		OUTPUT
QB21-AOV F022A	<u>0561</u>	<u>0560</u>	
	1	0	Closed (G)
QB21-AOV F022B	<u>0563</u>	<u>0562</u>	
	1	0	Closed (G)
QB21-AOV F022C	<u>0565</u>	<u>0564</u>	
	1	0	Closed (G)
QB21-AOV F022D	<u>0567</u>	<u>0566</u>	
	1	0	Closed (G)
QB21-AOV F028A	<u>0571</u>	<u>0570</u>	
	1	0	Closed (G)
QB21-AOV F028B	<u>0573</u>	<u>0572</u>	
	1	0	Closed (G)
QB21-AOV F028C	<u>0575</u>	<u>0574</u>	
	1	0	Closed (G)
QB21-AOV F028D	<u>0577</u>	<u>0576</u>	
	1	0	Closed (G)

OUTPUT:

Diagnostic Display

- a. Check that the symbols for the valves in Table 16.1.1 are green.
- b. Check that the valve numbers listed in Table 16.1.1 are white.

APPROVAL:

AS 8.7.84

STEP 2:

ACTION:

Actuate the relays as shown in the following table.

TABLE 16.1.2

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	QA71B-K7A	1012	1
B1	QA71B-K7B	1027	0
A2	QA71B-K7C	1013	0
B2	QA71B-K7D	1030	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 1 block.
- Check that number 1 in the menu block turns orange.
- Check that the orange background on the group number 1 block changes to green after approximately 5 seconds.
- Check that group number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.1.1 turn and remain orange.
- Check that the group number 1 block matches that of the primary display.

APPROVAL:

AS 8-7-94

STEP 3:

ACTION:

De-energize A1 (address 1012), i.e., set bit value to 0.

OUTPUT

Primary Display:

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.1.1 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

As 8-9-84

STEP 4:

ACTION:

- a. Open the F022A valve by setting 0560 to 1.
- b. Energize A1 (address 1012).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 5 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 5 seconds.

Diagnostic Display:

- a. Check that the Group Number 1 block matches that of the Primary display.

ACTION:

- a. Close the F022A valve by setting 0560 to 0.
- b. Set bit values of all relays (A1, B1, A2, B2) to 0.

APPROVAL:

AS 8-9-84

STEP 5:

ACTION:

Actuate the relays as shown in the following table.

TABLE 16.1.3

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	Q2A71B-K7A	1012	0
B1	Q2A71B-K7B	1027	1
B2	Q2A71B-K7D	1030	0
A2	Q2A71B-K7C	1013	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 1 block.
- Check that number 1 in the menu block turns orange.
- Check that the orange background on the group number 1 block changes to green after approximately 5 seconds.
- Check that group number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.1.1 turn and remain orange.
- Check that the group number 1 block matches that of the primary display.

APPROVAL: *A 8-9-84*

STEP 6:

ACTION:

De-energize A2 (address 1013).

OUTPUT:

Primary Display:

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.1.1 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

Am 8-9-84

STEP 7:

ACTION:

- a. Open the F022A valve by setting 0560 to 1.
- b. Energize A2 (address 1013).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 5 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 5 seconds.

Diagnostic Display:

- a. Check that the Group Number 1 block matches that of the Primary display.

ACTION:

- a. Close the F022A valve by setting 0560 to 0.
- b. Set bit values of all relays (A1, B1, A2, B2) to 0.

APPROVAL:

L B-9-84

STEP 8:

ACTION:

Close the valves listed in the following table:

TABLE 16.1.4

SIGNAL DESCRIPTION	INPUT		OUTPUT
QB21-MOV F016		<u>0635</u> 0	Closed (G)
QB31-AOV F019	<u>0524</u> 1	<u>0523</u> 0	Closed (G)

OUTPUT:

Diagnostic Display

- a. Check that the symbols for the valves in Table 16.1.4 are green.
- b. Check that the valve numbers listed in Table 16.1.4 are white.

APPROVAL:

A 8-9-84

STEP 9:

ACTION:

Actuate the relays as shown in the following table.

TABLE 16.1.5

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	QA71B-K7A	1012	1
A2	QA71B-K7C	1013	0
B2	QA71B-K7D	1030	0
B1	QA71B-K7B	1027	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the Group Number 1 block.
- Check that the number 1 in the menu block turns orange.
- Check that the orange background on the Group Number 1 block changes to green after approximately 15 seconds.
- Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.4 turn and remain orange.
- Check that the Group Number 1 block matches that of the primary display.

APPROVAL: *A. E. 9-84*

STEP 10:

ACTION:

De-energize A1 (address 1012), i.e., set bit value to 0.

OUTPUT:

Primary Display

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.1.1 and 16.1.4 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL: *At 8.9.84*

STEP 11:

ACTION:

- a. Open the F016 valve by setting 0635 to 1.
- b. Energize A1 (address 1012).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display:

- a. Check that the group number 1 block matches that of the Primary display.

ACTION:

- a. Close the F016 valve by setting 0635 to 0.
- b. Set bit values of all relays (A1, A2, B1, B2) to 0.

APPROVAL: *8-9-24*

STEP 12:

ACTION:

Actuate the relays as shown in the following table.

TABLE 16.1.6

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	QA71B-K7A	1012	1
A2	QA71B-K7C	1013	1
B2	QA71B-K7D	1030	0
B1	QA71B-K7B	1027	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the Group Number 1 block.
- Check that the number 1 in the menu block turns orange.
- Check that the orange background on the Group Number 1 block changes to green after approximately 15 seconds.
- Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.4 turn and remain orange.
- Check that the Group Number 1 block matches that of the primary display.

APPROVAL:

A 8-9-87

STEP 13:

ACTION:

De-energize B1 (address 1027).

OUTPUT:

Primary Display

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.1.1 and 16.1.4 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

Am 8-9-84

STEP 14:

ACTION:

- a. Open the F016 valve by setting 0635 to 1.
- b. Energize B1 (address 1027).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display: .

- a. Check that the group number 1 block matches that of the Primary display.

ACTION:

- a. Close the F016 valve by setting 0635 to 0.
- b. Set bit values of all relays (A1, A2, B1, B2) to 0.

APPROVAL:

A 8-9-84

STEP 15:

ACTION:

Actuate the relays as shown in the following table.

TABLE 16.1.7

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
B1	QA71B-K7B	1027	1
B2	QA71B-K7D	1030	1
A2	QA71B-K7C	1013	0
A1	QA71B-K7A	1012	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the Group Number 1 block.
- Check that the number 1 in the menu block turns orange.
- Check that the orange background on the Group Number 1 block changes to green after approximately 15 seconds.
- Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.4 turn and remain orange.
- Check that the Group Number 1 block matches that of the primary display.

APPROVAL: *AS 8-9-84*

STEP 16:

ACTION:

De-energize A1 (address 1012).

OUTPUT:

Primary Display

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.1.1 and 16.1.4 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

Am 8-9-84

STEP 17:

ACTION:

- a. Open the F016 valve by setting 0635 to 1.
- b. Energize A1 (address 1012).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display:

- a. Check that the group number 1 block matches that of the Primary display.

ACTION:

- a. Close the F016 valve by setting 0635 to 0.
- b. Set bit values of all relays (A1, A2, B1, B2) to 0.

APPROVAL: *A 8-9-96*

STEP 18:

ACTION:

Close the valves listed in the following table:

TABLE 16.1.8

SIGNAL DESCRIPTION	INPUT		OUTPUT
QB21-MOV F019		<u>0431</u> 0	Closed (G)
QB31-AOV F020	<u>0475</u> 1	<u>0474</u> 0	Closed (G)

OUTPUT:

Diagnostic Display

- a. Check that the symbols for the valves listed in Table 16.1.8 are green.
- b. Check that the valve numbers listed in Table 16.1.8 are white.

APPROVAL: *Aug 9-84*

STEP 19:

ACTION:

Actuate the relays as shown in the following table:

TABLE 16.1.9

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	QA71B-K7A	1012	0
B1	QA71B-K7B	1027	0
A2	QA71B-K7C	1013	1
B2	QA71B-K7D	1030	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 1 block.
- Check that the number 1 in the menu block turns orange.
- Check that the orange background on the Group Number 1 block changes to green after approximately 15 seconds.
- Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.8 turn and remain orange.
- Check that the Group Number 1 block matches that of the primary display.

APPROVAL:

8-7-84

STEP 20:

ACTION:

De-energize A2 (address 1013), i.e., set bit value to 0.

OUTPUT:

Primary Display:

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.8 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

Aw 8-9-84

STEP 21:

ACTION:

- a. Open the F019 valve by setting 0431 to 1.
- b. Energize A2 (address 1013).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display:

- a. Check that the group number 1 block matches that of the Primary display.

ACTION:

- a. Close the F019 valve by setting 0431 to 0.
- b. Set bit values of all relays (A1, B1, A2, B2) to 0.

APPROVAL:

A. B. S-04

STEP 22:

ACTION:

Actuate the relays as shown in the following table:

TABLE 16.1.10

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	QA71B-K7A	1012	1
A2	QA71B-K7C	1013	1
B1	QA71B-K7B	1027	0
B2	QA71B-K7D	1030	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 1 block.
- Check that the number 1 in the menu block turns orange.
- Check that the orange background on the Group Number 1 block changes to green after approximately 15 seconds.
- Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.8 turn and remain orange.
- Check that the Group Number 1 block matches that of the primary display.

APPROVAL:

A. E. G. F.

STEP 23

ACTION:

De-energize B2 (address 1030).

OUTPUT:

Primary Display:

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.8 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

8-9-84

STEP 24:

ACTION:

- a. Open the F019 valve by setting 0431 to 1.
- b. Energize B2 (address 1030).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display:

- a. Check that the group number 1 block matches that of the Primary display.

ACTION:

- a. Close the F019 valve by setting 0431 to 0.
- b. Set bit values of all r (11 12 13 14) to 0

APPROVAL:

[Signature] 8-9-87

STEP 25:

ACTION:

Actuate the relays as shown in the following table:

TABLE 16.1.11

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
B1	QA71B-K7B	1027	1
B2	QA71B-K7D	1030	1
A1	QA71B-K7A	1012	0
A2	QA71B-K7C	1013	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 1 block.
- Check that the number 1 in the menu block turns orange.
- Check that the orange background on the group number 1 block changes to green after approximately 15 seconds.
- Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.8 turn and remain orange.
- Check that the Group Number 1 block matches that of the primary display.

APPROVAL:

8-9-84

STEP 26

ACTION:

De-energize A2 (address 1013).

OUTPUT:

Primary Display

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display

- a. Check that the numbers for the valves listed in Tables 16.1.1 and 16.1.8 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

A 8-9-87

STEP 27:

ACTION:

- a. Open the F019 valve by setting 0431 to 1.
- b. Energize A2 (address 1013).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display:

- a. Check that the group number 1 block matches that of the primary display.

ACTION:

- a. Close the F019 valve by setting 0431 to 0.
- b. Set bit values of all relays (A1, B1, A2, B2) to 0.

APPROVAL:

AC-9-84

STEP 28:

ACTION:

- a. Disable buffer transfer.
- b. Actuate the relays as shown in the following table:
- c. Enable buffer transfer.

TABLE 16.1.12

TRIP CHANNEL	SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
A1	QA71B-K7A	1012	1
A2	QA71B-K7C	1013	1
B1	QA71B-K7B	1027	1
B2	QA71B-K7D	1030	1

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on an orange background on the group number 1 block.
- b. Check that the number 1 in the menu block turns orange.
- c. Check that the orange background on the group number 1 block changes to green after approximately 15 seconds.
- d. Check that the number 1 in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.1.1, 16.1.4 and 16.1.8 turn and remain orange.
- b. Check that the Group Number 1 block matches that of the primary display.

APPROVAL:

L. E. G. 8-9-84

STEP 29:

ACTION:

De-energize A1 and A2 (addresses 1012 and 1013), i.e. set bit values to 0.

OUTPUT:

Primary Display

- a. Check that the number 1 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green blank.

Diagnostic Display

- a. Check that the numbers for the valves listed in Tables 16.1.1, 16.1.4 and 16.1.8 turn white.
- b. Check that the word "PART" disappears from the group number 1 block, leaving a green blank.

APPROVAL:

A 8-9-84

STEP 30:

ACTION:

- a. Open the F019 valve by setting 0431 to 1.
- b. Disable buffer transfer.
- c. Energize A1 and A2 (addresses 1012 and 1013).
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on a red background on the group number 1 block after approximately 15 seconds.
- b. Check that the number 1 in the menu block turns red after approximately 15 seconds.

Diagnostic Display:

- a. Check that the group number 1 block matches that of the primary display.

APPROVAL:

[Signature] 8-9-84

16.2. GROUP 2A ISOLATION - RHR SYSTEM

STEP 1

ACTION:

- a. Call up the PCIS Group 2A Diagnostic display and call the reference test data.
- b. Close the valves listed in the following table.

TABLE 16.2.1

<u>SIGNAL DESCRIPTION</u>	<u>INPUT</u>	<u>OUTPUT</u>
Q2E11-SV F079A	<u>0526</u> 0	Closed (G)
Q2E11-SV F079B	<u>0527</u> 0	Closed (G)
Q2E11-AOV F122A	<u>0112</u> 0	Closed (G)
Q2E11-MOV F040	<u>0525</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.2.1 are green.
- b. Check that the valve numbers listed in Table 16.2.1 are white.

APPROVAL:

A 89-84

STEP 2

ACTION:

Set the relays as shown in the following table.

TABLE 16.2.2

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K6A	1016	0
QA71B-K5C	1015	0
QA71B-K6C	1017	0
QA71B-K6B	1033	0
QA71B-K5D	1032	0
QA71B-K6D	1034	0
QE11-K9A	1036	0
QE11-K9B	1040	0
QE11A-K73A	1037	0
QE11A-K73B	1041	0
QA71B-K5A	1014	1
QA71B-K5B	1031	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks.
- Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- Check that the 2A in the menu block remains orange and that 2B, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.
- Check that the background on the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.2.1 turn orange.
- Check that the word "PART" appears on a red background on the group number 2 block.
- Check that the word "PART" appears on an orange background on the RHR block and that this background turns green after approximately 32 seconds.

APPROVAL:

h 5-9-84

STEP 3

ACTION:

De-energize the K5A relay, i.e., set bit value to 0 (address 1014).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green blanks.

Diagnostic Display:

- a. Check that the valve numbers listed in Table 16.2.1 turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL:

8-9-01

STEP 4

ACTION:

- a. Open the SV-F079A valve by setting 0526 to 1.
- b. Energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation block after approximately 30 seconds.
- b. Check that 2A in the menu block turns red after approximately 32 seconds and that 2B, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the RHR block and that this background turns red after approximately 32 seconds.

ACTION:

- a. Close the SV-F079A valve by setting 0526 to 0.
- b. De-energize the K5A and K5B relays (addresses 1014 and 1031).

APPROVAL:

[Signature] 8-9-84

STEP 5

ACTION:

Close the valves listed in the following table.

TABLE 16.2.3

<u>SIGNAL DESCRIPTION</u>	<u>INPUT</u>	<u>OUTPUT</u>
QE11-AOV F122B	<u>0677</u> 0	Closed (G)
QE11-MOV F049	<u>0430</u> 0	Closed (G)
QE11-SV F080A	<u>0741</u> 0	Closed (G)
QE11-SV F080B	<u>0742</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.2.3 are green.
- b. Check that the valve numbers listed in Table 16.2.3 are white.

APPROVAL:

AL 8-7-81

STEP 6

ACTION:

Energize the K5C and K5D relays (GIT signal addresses 1015 and 1032, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks.
- b. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2A in the menu block remains orange and that 2B, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.
- e. Check that the background on the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block and that this background turns green after approximately 20 seconds.

APPROVAL:

AE-7-84

STEP 7

ACTION:

De-energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that the number 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green blanks.

Diagnostic Display:

- a. Check that the valve numbers listed in Table 16.2.3 turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL:

for 6-9-84

STEP 8

ACTION:

- a. Open the AOV F122B valve by setting 0677 to 1.
- b. Energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2A in the menu block turns red after approximately 20 seconds and that 2B, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the RHR block and that this background turns red after approximately 20 seconds.

ACTION:

- a. Close the AOV F122B valve by setting 0677 to 0.
- b. De-energize the K5C and K5D relays (addresses 1015 and 1032).

APPROVAL: *sto E-G-8-1*

STEP 9

ACTION:

Close the valves listed in the following table.

Table 16.2.4

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE11-MOV F009	<u>0047</u> 1	<u>0046</u> 0	Closed (G)
QE11-MOV F022	<u>0051</u> 1	<u>0050</u> 0	Closed (G)
QE11-MOV F008	<u>0435</u> 1	<u>0434</u> 0	Closed (G)
QE11-MOV F023	<u>0433</u> 1	<u>0432</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.2.4 are green.
- Check that the valve numbers listed in Table 16.2.4 are white.

APPROVAL: 

STEP 10

ACTION:

Energize the K6A and K6B relays (addresses 1016 and 1033).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2A in the menu block remains orange and that 2B, 2C, 2D and 2E turn red within approximately 15 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.1 and the F009 valve, and the F022 valve turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block and that background turns green after approximately 32 seconds.

APPROVAL:

AE 89-84

STEP 11

ACTION:

De-energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.1, the F009 valve, and the F022 valve turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL:

A 8-9-84

STEP 12

ACTION:

- a. Open the F009 valve by setting 0046 to 1.
- b. Energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds.
- b. Check that 2A in the menu block turns red after approximately 24 seconds and that 2B, 2C, 2D and 2E turn red within approximately 15 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the RHR block and that this background turns red after approximately 32 seconds.

ACTION:

- a. Close the F009 valve by setting 0046 to 0.
- b. De-energize the K6A and K6B relays (addresses 1016 and 1033).

APPROVAL:

AS E. G. S. y

STEP 13

ACTION:

Energize the K6C and K6D relays (addresses 1017 and 1034).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2A in the menu block remains orange and that 2B, 2C, 2D and 2E turn red within approximately 15 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.3, the F008 valve, and the F023 valve turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block and that background turns green after approximately 32 seconds.

APPROVAL: *St. S. 7-84*

STEP 14

ACTION:

De-energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.3 and the F008 valve, and the F023 valve turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL:

to 8-9-89

STEP 15

ACTION:

- a. Open the F008 valve by setting 0434 to 1.
- b. Energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds.
- b. Check that 2A in the menu block turns red after approximately 24 seconds and that 2B, 2C, 2D and 2E turn red within approximately 15 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the RHR block and that this background turns red after approximately 24 seconds.

ACTION:

- a. Close the F008 valve by setting 0434 to 0.
- b. De-energize the K6C and K6D relays (addresses 1017 and 1034).

APPROVAL:

AS 89-84

STEP 16

ACTION:

Close the valves listed in the following table.

TABLE 16.2.5

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE11-MOV F016A	<u>0061</u>	<u>0060</u>	
	1	0	Closed (G)
QE11-MOV F028A	<u>0053</u>	<u>0052</u>	
	1	0	Closed (G)
QE11-MOV F021A	<u>0005</u>	<u>0004</u>	
	1	0	Closed (G)
QE11-MOV F024A	<u>0007</u>	<u>0006</u>	
	1	0	Closed (G)
QE11-MOV F027A	<u>0011</u>	<u>0010</u>	
	1	0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.2.5 are green.
- Check that the valve numbers listed in Table 16.2.5 are white.

APPROVAL: *AE 8-9-84*

STEP 17

ACTION:

Energize the K9A relay (GIT signal address 1036).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2A in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 110 seconds.
- d. Check that the number 2A in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.5 turn orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 110 seconds.

APPROVAL:

10-9-84

STEP 18

ACTION:

De-energize the K9A relay (address 1036).

OUTPUT:

Primary Display:

- a. Check that 2A in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves in Table 16.2.5 turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL: *D 8-2-94*

STEP 19

ACTION:

- a. Open the MOV F016A valve by setting 0060 to 1.
- b. Energize the K9A relay (address 1036).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 110 seconds.
- b. Check that the Number 2A in the menu block turns red after approximately 110 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and RHR blocks after approximately 110 seconds.

ACTION:

- a. Close the MOV F016A valve by setting 0060 to 0.
- b. De-energize the K9A relay (address 1036).

APPROVAL:

[Signature] 8-8-84

STEP 20

ACTION:

Close the valves listed in the following table.

TABLE 16.2.6

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE11-MOV F016B	<u>0257</u> 1	<u>0256</u> 0	Closed (G)
QE11-MOV F028B	<u>0255</u> 1	<u>0254</u> 0	Closed (G)
QE11-MOV F021B	<u>0205</u> 1	<u>0204</u> 0	Closed (G)
QE11-MOV F024B	<u>0207</u> 1	<u>0206</u> 0	Closed (G)
QE11-MOV F027B	<u>0211</u> 1	<u>0210</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.2.6 are green.
- Check that the valve numbers listed in Table 16.2.6 are white.

APPROVAL:

EC 8.9.84

STEP 21

ACTION:

Energize the K9B relay (GIT signal address 1040).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2A in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 110 seconds.
- d. Check that the number 2A in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.6 turn orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 110 seconds.

APPROVAL: *AS 8-9-84*

STEP 22

ACTION:

De-energize the K9B relay (address 1040).

OUTPUT:

Primary Display:

- a. Check that 2A in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves in Table 16.2.6 turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL:

[Signature] 8-7-84

STEP 23

ACTION:

- a. Open the MOV F016B valve by setting 0256 to 1.
- b. Energize the K9B relay (address 1040).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 110 seconds.
- b. Check that the Number 2A in the menu block turns red after approximately 110 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and RHR blocks after approximately 110 seconds.

ACTION:

- a. Close the MOV F016B valve by setting 0256 to 0.
- b. De-energize the K9B relay (address 1040).

APPROVAL:

[Signature] 8-9-84

STEP 24

ACTION:

Close the valves listed in the following table.

TABLE 16.2.7

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE11-MOV F011A	<u>0013</u>	<u>0012</u>	Closed (G)
	1	0	
QE11-MOV F026A	<u>0055</u>	<u>0054</u>	Closed (G)
	1	0	

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.2.7 are green.
- Check that the valve numbers listed in Table 16.2.7 are white.

APPROVAL: *12-8-9-01*

STEP 25

ACTION:

Energize the K73A relay (GIT signal address 1037).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2A in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 25 seconds.
- d. Check that the number 2A in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.7 turn orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 25 seconds.

APPROVAL:

128989

STEP 26

ACTION:

De-energize the K73A relay (address 1037).

OUTPUT:

Primary Display:

- a. Check that 2A in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves in Table 16.2.7 turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL: AE 8-7-84

STEP 27

ACTION:

- a. Open the F011A valve by setting 0012 to 1.
- b. Energize the K73A relay (address 1037).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 25 seconds.
- b. Check that the Number 2A in the menu block turns red after approximately 25 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and RHR blocks after approximately 25 seconds.

ACTION:

- a. Close the F011A valve by setting 0012 to 0.
- b. De-energize the K73A relay (address 1037).

APPROVAL:

to 8-9-64

STEP 28

ACTION:

Close the valves listed in the following table.

TABLE 16.2.8.

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE11-MOV F011B	<u>0213</u>	<u>0212</u>	Closed (G)
	1	0	
QE11-MOV F026B	<u>0245</u>	<u>0244</u>	Closed (G)
	1	0	

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.2.8 are green.
- Check that the valve numbers listed in Table 16.2.8 are white.

APPROVAL:

A. P. G. E.

STEP 29

ACTION:

Energize the K73B relay (GIT signal address 1041).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2A in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 25 seconds.
- d. Check that the number 2A in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.2.8 turn orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the RHR block
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 25 seconds.

APPROVAL:

A. E. G.

STEP 30

ACTION:

De-energize the K73B relay (address 1041).

OUTPUT:

Primary Display:

- a. Check that 2A in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves in Table 16.2.8 turn white.
- b. Check that the word "PART" disappears from the group number 2 and RHR blocks, leaving green blanks.

APPROVAL:

A 89.24

STEP 31

ACTION:

- a. Open the F011B valve by setting 0212 to 1.
- b. Energize the K73B relay (address 1041).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 25 seconds.
- b. Check that the Number 2A in the menu block turns red after approximately 25 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and RHR blocks after approximately 25 seconds.

ACTION:

- a. Close the F011B valve by setting 0212 to 0.
- b. De-energize the K73B relay (address 1041).

APPROVAL:

[Signature] 6-9-81

STEP 32

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.2.9

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K5A	1014	1
QA71B-K6A	1016	1
QA71B-K5C	1015	1
QA71B-K6C	1017	1
QA71B-K5B	1031	1
QA71B-K6B	1033	1
QA71B-K5D	1032	1
QA71B-K6D	1034	1
QE11-K9A	1036	1
QE11-K9B	1040	1
QE11A-K73A	1037	1
QE11A-K73B	1041	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 2 secondary isolation block.
- b. Check that the word "ALL" appears on an orange background on the Unit 1 secondary isolation block.
- c. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- d. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- e. Check that 2A in the menu block remains orange and that 2B, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.
- f. Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.2.1, 16.2.3, 16.2.4, 16.2.5, 16.2.6, 16.2.7 and 16.2.8 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an orange background on the RHR block and that this background turns green after approximately 110 seconds.

APPROVAL: *27-8-9-84*

STEP 33

ACTION:

De-energize the relays listed in Table 16.2.9.

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 2 secondary isolation block, leaving green blanks.
- c. Check that the word "ALL" disappears from the Unit 1 secondary isolation block, leaving a green blank.

Diagnostic Display:

- a. Check that the valve numbers listed in Tables 16.2.1, 16.2.3, 16.2.4, 16.2.5, 16.2.6, 16.2.7 and 16.2.8 turn white.
- b. Check that the words "PART" and "ALL" disappear from the group number 2 and RHR blocks, respectively, leaving green blanks.

APPROVAL:

[Signature] 8-9-84

STEP 34

ACTION:

- a. Open the MOV-F011B valve by setting 0212 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.2.9.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and the Unit 2 secondary isolation block after approximately 30 seconds.
- b. Check that the word "ALL" appears on a red background after approximately 30 seconds.
- c. Check that 2A in the menu block turns red after approximately 25 seconds and that 2B, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "ALL" appears on an orange background on the RHR block and that this background turns red after approximately 25 seconds.

APPROVAL:

ct E-9-84

16.3 GROUP 2B ISOLATION - MISC

STEP 1

ACTION:

- a. Call up the PCIS Group 2B Diagnostic display and the reference test data.
- b. Close the valves listed in the following table.

TABLE 16.3.1.

SIGNAL DESCRIPTION	INPUT	OUTPUT
QG11-AOV F003	<u>0103</u> 0	Closed (G)
QG11-AOV F019	<u>0104</u> 0	Closed (G)
QG51-AOV F011	<u>0105</u> 0	Closed (G)
QG51-AOV F021	<u>0505</u> 1	<u>0504</u> 0 Closed (G)

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.3.1 are green.
- b. Check that the valve numbers listed in Table 16.3.1 are white.

APPROVAL:

A. B. 84
** 8-10-84*

** Section 2B Isolation Retest of
control Valve 112 on 8-10-84.*

D. G. L. Frimley
8-10-84

STEP 2

ACTION:

Set the relays as shown in the following table.

TABLE 16.3.2

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K6A	1016	0
QA71B-K5C	1015	0
QA71B-K6C	1017	0
QA71B-K6B	1033	0
QA71B-K5D	1032	0
QA71B-K6D	1034	0
QE21A-K5A	1042	0
QE21A-K5B	1045	0
QE21A-K6A	1043	0
QE21A-K6B	1046	0
QE21A-K10A	1044	0
QE21A-K10B	1047	0
QE41A-K15	1054	0
QE41A-K48	1057	0
QA71B-K5A	1014	1
QA71B-K5B	1031	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks.
- Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- Check that 2B in the menu block remains orange and that 2A, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.
- Check that the background on the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.3.1 turn orange.
- Check that the word "PART" appears on a red background on the group number 2 block.
- Check that the word "PART" appears on an orange background on the MISC block and that this background turns green after approximately 15 seconds.

APPROVAL: *A. E. G. G.*

** 10.94*

STEP 3

ACTION:

De-energize the QA71B-K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green blanks.

Diagnostic Display:

- a. Check that the valve numbers listed in Table 16.3.1 turn white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

St 8-8-84
** St 8-10-84*

STEP 4

ACTION:

- a. Open the F003 valve by setting 0103 to 1.
- b. Energize the QA71B-K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks within approximately 30 seconds.
- b. Check that 2B in the menu block turns red after approximately 15 seconds and that 2A, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the MISC block and that this background turns red after approximately 15 seconds.

ACTION:

- a. Close the F003 valve by setting 0103 to 0.
- b. De-energize the QA71B-K5A and QA71B-K5B relays (addresses 1014 and 1031).

APPROVAL:

[Handwritten signature] 8-9-84
[Handwritten signature] 8-10-84

STEP 5

ACTION:

Energize the K6A and K6B relays (addresses 1016 and 1033).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block changes to red after approximately 5 seconds.
- d. Check that 2B in the menu block remains orange and that 2A, 2C, 2D and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.3.1 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block, and that this background turns green after approximately 15 seconds.

APPROVAL:

Handwritten signatures and dates:
A-89-84
J-8-16-84

STEP 6

ACTION:

De-energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the valve numbers listed in Table 16.3.1 turn white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

AE9-84
1 AE-11-84

STEP 7

ACTION:

- a. Open the F003 valve by setting 0103 to 1.
- b. Energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds.
- b. Check that 2B in the menu block turns red after approximately 15 seconds and that 2A, 2C, 2D and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the MISC block and that this background turns red after approximately 15 seconds.

ACTION:

- a. Close the F003 valve by setting 0103 to 0.
- b. De-energize the K6A and K6B relays (addresses 1016 and 1033).

APPROVAL:

AE-256
** AE-11-84*

STEP 8

ACTION:

Close the valves listed in the following table.

TABLE 16.3.3

SIGNAL DESCRIPTION	INPUT	OUTPUT
QG11-AOV F004	<u>0745</u> 0	Closed (G)
QG11-AOV F020	<u>0746</u> 0	Closed (G)
QG51-AOV F013	<u>0503</u> 1	Closed (G)
QG51-AOV F012	<u>0502</u> 0	Closed (G)
	<u>0334</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.3.3 are green.
- Check that the valve numbers listed in Table 16.3.3 are white.

APPROVAL:

FL 8984
A. J. E. H. E.

STEP 9

ACTION:

Energize the K5C and K5D relays (addresses 1015 and 1032).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks.
- b. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2B in the menu block remains orange and that 2A, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.
- e. Check that the background on the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.3.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block and that this background turns green after approximately 15 seconds.

APPROVAL:

Handwritten signatures and dates:
12-29-84
12-8-10-84

STEP 10

ACTION:

De-energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green blanks.

Diagnostic Display:

- a. Check that the valve numbers listed in Table 16.3.3 turn white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

for 8-9-84
for 8-10-84

STEP 11

ACTION:

- a. Open the F004 valve by setting 0745 to 1.
- b. Energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block within approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks within approximately 30 seconds.
- b. Check that 2B in the menu block turns red within approximately 15 seconds and that 2A, 2C, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the MISC block after approximately 15 seconds.

ACTION:

- a. Close the F004 valve by setting 0745 to 0.
- b. De-energize the K5C and K5D relays (addresses 1015 and 1032).

APPROVAL: *A. 6-9-84*
X 2-8-10-84

STEP 12

ACTION

Energize the K6C and K6D relays (addresses 1017 and 1034).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block changes to red after approximately 5 seconds.
- d. Check that 2B in the menu block remains orange and that 2A, 2C, 2D and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.3.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block, and that this background turns green after approximately 15 seconds.

APPROVAL:

89.84
8-10-84

STEP 13

ACTION:

De-energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the valve numbers listed in Table 16.3.3 turn white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

Dr P. 9-84
** Li E. 10-84*

STEP 14

ACTION:

- a. Open the F004 valve by setting 0745 to 1.
- b. Energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds.
- b. Check that 2B in the menu block turns red after approximately 15 seconds and that 2A, 2C, 2D and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the MISC block and that this background turns red after approximately 15 seconds.

ACTION:

- a. Close the F004 valve by setting 0745 to 0.
- b. De-energize the K6C and K6D relays (addresses 1017 and 1034).

APPROVAL:

8-9-84
** 8-10-84*

STEP 15

ACTION:

Close the valves listed in the following table.

Table 16.3.4

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE51-MOV F104	<u>0116</u> 1	<u>0115</u> 0	Closed (G)
QE51-MOV F105	<u>0744</u> 1	<u>0743</u> 0	Closed (G)
QE41-MOV F104	<u>0114</u> 1	<u>0113</u> 0	Closed (G)
QE41-MOV F111	<u>0715</u> 1	<u>0714</u> 0	Closed (G)
QE21-MOV F015B	<u>0711</u> 1	<u>0710</u> 0	Closed (G)
QE21-MOV F015A	<u>0632</u> 1	<u>0631</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.3.4 are green.
- Check that the valve numbers listed in Table 16.3.4 are white.

APPROVAL:

[Handwritten signature]
[Handwritten signature]

STEP 16

ACTION:

Energize the QE21A-K5A relay (address 1042).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2B in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 25 seconds.
- d. Check that the number 2B in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the QE51-MOV F104 valve listed in Table 16.3.4 turn orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block.
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 25 seconds.

APPROVAL:

A 8-9-81
A 8-10-81

STEP 17

ACTION:

De-energize the QE21A-K5A relay (address 1042).

OUTPUT:

Primary Display:

- a. Check that 2B in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the number for the QE51-MOV F104 valve turns white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

4-8-9-84
+ 4-8-10-84

STEP 18

ACTION:

- a. Open the QE51-MOV F104 valve by setting 0115 to 1.
- b. Energize the QE21A-K5A relay (address 1042).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 25 seconds.
- b. Check that the Number 2B in the menu block turns red after approximately 25 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and MISC blocks after approximately 25 seconds.

ACTION:

- a. Close the QE51-MOV F104 valve by setting 0115 to 0.
- b. De-energize the QE21A-K5A relay (address 1042).

APPROVAL:

Lee 7-84
** Lee 10-84*

STEP 19

ACTION:

Energize the QE21A-K5B relay (GIT signal address 1045).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2B in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 25 seconds.
- d. Check that the number 2B in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F105 valve turns orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block.
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 25 seconds.

APPROVAL:

Handwritten signatures and dates:
8-9-81
8-10-81

STEP 20

ACTION:

De-energize the QE21A-K5B relay (address 1045).

OUTPUT:

Primary Display:

- a. Check that 2B in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the number for the QE51-MOV F105 valve turns white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

8-9-84
** 8-10-84*

STEP 21

ACTION:

- a. Open the F105 valve by setting 0743 to 1.
- b. Energize the QE21A-K5B relay (address 1045).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 25 seconds.
- b. Check that the Number 2B in the menu block turns red after approximately 25 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and MISC blocks after approximately 25 seconds.

ACTION:

- a. Close the F105 valve by setting 0743 to 0.
- b. De-energize the QE21A-K5B relay (address 1045).

APPROVAL:

ALG-9-87
** J E 10-87*

STEP 22

ACTION:

Energize the QE21A-K6A and QE41A-K48 relays (addresses 1043 and 1057).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 and group number 3 blocks.
- b. Check that the Number 2B and the number "3" in the menu block turn orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 16 seconds.
- d. Check that the number 2B in the menu block remains orange.
- e. Check that the background in the group number 3 block and the color of the number "3" changes to red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the number for the QE41-MOV F104 valve turns orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block.
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 16 seconds.

APPROVAL:

** [Signature] 10 87*

STEP 23

ACTION:

De-energize the QE21A-K6A-relay (address 1043).

OUTPUT:

Primary Display:

- a. Check that "2B" and "3" in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and group number 3 block, leaving green blanks.

Diagnostic Display:

- a. Check that the number for the QE41-MOV F104 valve turns white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

STEP 24

ACTION:

- a. Open the QE41-MOV F104 valve by setting 0113 to 1.
- b. Energize the ~~QE21A-K6A~~ relay (address 1043).
QE41 K48 02-10-84 57 to 0-10-84
** VARIANCE #3*

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 16 seconds.
- b. Check that the Number 2B in the menu block turns red after approximately 16 seconds.
- c. Check that the word "PART" appears on a red background on the group number 3 block after approximately 50 seconds.
- d. Check that "3" in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and MISC blocks after approximately 16 seconds.

ACTION:

- a. Close the QE41-MOV F104 valve by setting 0113 to 0.
- b. De-energize the QE21A-K6A and QE41A-K48 relays (addresses 1043 and 1057).

APPROVAL:

** 0-10-84*

STEP 25

ACTION:

Energize the QE21A-K6B and QE41A-K15 relays (addresses 1046 and 1054).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and on the group number 3 block.
- b. Check that the number 2B and number "3" in the menu block turn orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 16 seconds.
- d. Check that the number 2B in the menu block remains orange.
- e. Check that the background in the group number 3 block and the color of the number 3 in the menu block change to red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the number for the F111 valve turns orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block.
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 16 seconds.

APPROVAL:

** J. E. 10-8-1*

STEP 26

ACTION:

De-energize the QE21A-K6B relay (address 1046).

OUTPUT:

Primary Display:

- a. Check that 2B and "3" in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the group number 3 block, leaving green blanks.

Diagnostic Display:

- a. Check that the number for the QE41-MOV F111 valve turns white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

STEP 27

ACTION:

a. Open the F111 valve by setting 0714 to 1.

b. Energize the QE21A-K6B relay (address ~~1046~~)

*GOOD LIFE, Dec 10-84 1057 12-10-84
VARIANCE #3*

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 16 seconds.
- b. Check that the Number 2B in the menu block turns red after approximately 16 seconds.
- c. Check that the word "PART" appears on a red background on the group number 3 block after approximately 50 seconds.
- d. Check that "3" in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and MISC blocks after approximately 16 seconds.

ACTION:

a. Close the F111 valve by setting 0714 to 0.

b. De-energize the QE21A-K6B and QE41A-K15 relays (addresses 1046 and 1054).

APPROVAL:

** [Signature] 8-11-84*

STEP 28

ACTION:

Energize the K10A relay (GIT signal address 1044).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2B in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 57 seconds.
- d. Check that the number 2B in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F015A valve turns orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block.
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 57 seconds.

APPROVAL: ** [Signature] 8-10-94*

STEP 29

ACTION:

De-energize the K10A relay (address 1044).

OUTPUT:

Primary Display:

- a. Check that 2B in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the number for the QE21-MOV F015A valve turns white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

* *[Signature]* 8-10-84

STEP 30

ACTION:

- a. Open the F015A valve by setting 0631 to 1.
- b. Energize the K10A relay (address 1044).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 57 seconds.
- b. Check that the Number 2B in the menu block turns red after approximately 57 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and MISC blocks after approximately 57 seconds.

ACTION:

- a. Close the F015A valve by setting 0631 to 0.
- b. De-energize the K10A relay (address 1044).

APPROVAL:

[Handwritten signature]
12-8-84

STEP 31

ACTION:

Energize the K10B relay (GIT signal address 1047).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that the Number 2B in the menu block turns orange.
- c. Check that the orange background on the group number 2 block changes to green after approximately 57 seconds.
- d. Check that the number 2B in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F015B valve turns orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block.
- d. Check that the orange backgrounds of the blocks in (b) and (c) above turn green after approximately 57 seconds.

APPROVAL:

V. L. E. K. E. Y.

STEP 32

ACTION:

De-energize the K10B relay (address 1047).

OUTPUT:

Primary Display:

- a. Check that 2B in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green blank.

Diagnostic Display:

- a. Check that the number for the QE21-MOV F015B valve turns white.
- b, Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL:

V. J. E-10-E

STEP 33

ACTION:

- a. Open the F015B valve by setting 0710 to 1.
- b. Energize the K10B relay (address 1047).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 57 seconds.
- b. Check that the Number 2B in the menu block turns red after approximately 57 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on both the Group Number 2 and MISC blocks after approximately 57 seconds.

ACTION:

- a. Close the F015B valve by setting 0710 to 0.
- b. De-energize the K10B relay (address 1047).

APPROVAL:

** J E-16-24*

STEP 34

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.3.5

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K5A	1014	1
QA71B-K6A	1016	1
QA71B-K5C	1015	1
QA71B-K6C	1017	1
QA71B-K5B	1031	1
QA71B-K6B	1033	1
QA71B-K5D	1032	1
QA71B-K6D	1034	1
QE21A-K5A	1042	1
QE21A-K5B	1045	1
QE21A-K6A	1043	1
QE21A-K6B	1046	1
QE41A-K15	1054	1
QE41A-K48	1057	1
QE21A-K10A	1044	1
QE21A-K10B	1047	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 and Unit 2 secondary isolation blocks.
- b. Check that the word "ALL" appears on an orange background on the group number 3 block and on the Unit 1 secondary isolation block.
- c. Check that 2A, 2B, 2C, 2D, 2E, 3 and SEC in the menu block turn orange.
- d. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- e. Check that 2B in the menu block remains orange and that 2A, 2C, 2D, 2E, 3 and SEC turn red within approximately 110 seconds.
- f. Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.
- g. Check that the background of the group number 3 block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.3.1, 16.3.3 and 16.3.4 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an orange background on the MISC block and that this background turns green after approximately 57 seconds.

APPROVAL:

STEP 35

ACTION:

De-energize the relays listed in Table 16.3.5.

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E, 3 and SEC in the menu block turn green.
- b. Check that the words "PART" and "ALL" disappear from the group number 2 block and the Unit 2 secondary block, and from the group number 3 block and the Unit 1 secondary isolation block, respectively, leaving green blanks.

Diagnostic Display:

- a. Check that the valve numbers listed in Tables 16.3.1, 16.3.3 and 16.3.4 turn white.
- b. Check that the words "PART" and "ALL" disappear from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL: *T E 10.84*

STEP 36

ACTION:

- a. Open the QE51-MOV F104 valve by setting 0115 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.3.5.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds, and on the Unit 2 secondary isolation block after approximately 30 seconds.
- b. Check that the word "ALL" appears on a red background on the group 3 block after approximately 50 seconds, and on the Unit 1 secondary isolation block after approximately 30 seconds.
- c. Check that 2B in the menu block turns red after approximately 15 seconds and that 2A, 2C, 2D, 2E, 3 and SEC turn red within approximately 110 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "ALL" appears on an orange background on the MISC block and that this background turns red after approximately 15 seconds.

APPROVAL:

[Signature] E.10.89

STEP 34

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.3.5

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K5A	1014	1
QA71B-K6A	1016	1
QA71B-K5C	1015	1
QA71B-K6C	1017	1
QA71B-K5B	1031	1
QA71B-K6B	1033	1
QA71B-K5D	1032	1
QA71B-K6D	1034	1
QE21A-K5A	1042	1
QE21A-K5B	1045	1
QE21A-K6A	1043	1
QE21A-K6B	1046	1
QE41A-K15	1054	1
QE41A-K48	1057	1
QE21A-K10A	1044	1
QE21A-K10B	1047	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 and group number 3 blocks and on the Unit 1 and Unit 2 secondary isolation blocks.
- b. Check that 2A, 2B, 2C, 2D, 2E, 3 and SEC in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2B in the menu block remains orange and that 2A, 2C, 2D, 2E, 3 and SEC turn red within approximately 110 seconds.
- e. Check that the background of the Unit 2 secondary isolation block turns red after approximately 30 seconds.
- f. Check that the background of the group number 3 block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.3.1, 16.3.3 and 16.3.4 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an orange background on the MISC block and that this background turns green after approximately 57 seconds.

APPROVAL:

STEP 35

ACTION:

De-energize the relays listed in Table 16.3.5.

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E, 3 and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, the group number 3 block, the Unit 1 secondary isolation block and the Unit 2 secondary isolation block, leaving green blanks.

Diagnostic Display:

- a. Check that the valve numbers listed in Tables 16.3.1, 16.3.3 and 16.3.4 turn white.
- b. Check that the words "PART" and "ALL" disappear from the group number 2 and MISC blocks, leaving green blanks.

APPROVAL: _____

STEP 36

ACTION:

- a. Open the QE51-MOV F104 valve by setting 0115 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.3.5.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds, on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds, and on the group number 3 block after approximately 50 seconds.
- b. Check that 2B in the menu block turns red after approximately 15 seconds and that 2A, 2C, 2D, 2E, 3 and SEC turn red within approximately 110 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "ALL" appears on an orange background on the MISC block and that this background turns red after approximately 15 seconds.

APPROVAL: _____

16.4 GROUP 2C ISOLATION - N2 SYSTEM

STEP 1

ACTION:

- Call up the PCIS Group 2C Diagnostic display and call the reference test data.
- Close the valves listed in the following table.

TABLE 16.4.1

SIGNAL DESCRIPTION	INPUT	OUTPUT
QT48-SV F118A	<u>0627</u> 0	Closed (G)
QT48-SV F118B	<u>0630</u> 0	Closed (G)
QT48-AOV F307	<u>0623</u> 0	Closed (G)
QT48-AOV F309	<u>0624</u> 0	Closed (G)
QT48-AOV F318	<u>0626</u> 0	Closed (G)
QT48-AOV F319	<u>0625</u> 0	Closed (G)
QT48-AOV F333A	<u>0137</u> 1	Closed (G)
QT48-AOV F333B	<u>0321</u> 1	Closed (G)
QT48-AOV F335A	<u>0133</u> 1	Closed (G)
QT48-AOV F335B	<u>0315</u> 1	Closed (G)
QT48-SV F339	<u>0621</u> 0	Closed (G)
QT48-SV F341	<u>0622</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.4.1 are green.
- Check that the valve numbers listed in Table 16.4.1 are white.

APPROVAL:

Handwritten signature

STEP 2

ACTION:

Set the relays as shown in the following table.

TABLE 16.4.2

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K6A	1016	0
QA71B-K5C	1015	0
QA71B-K6C	1017	0
QA71B-K6B	1033	0
QA71B-K5D	1032	0
QA71B-K6D	1034	0
QA71B-K5A	1014	1
QA71B-K5B	1031	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 1 and Unit 2 secondary isolation blocks.
- Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- Check that 2C in the menu block remains orange and that 2A, 2B, 2D, 2E and SEC turn red within approximately 32 seconds.
- Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.4.1 turn orange.
- Check that the word "PART" appears on a red background on the group number 2 block.
- Check that the word "PART" appears on an orange background on the N2 block and that this background turns green after approximately 15 seconds.
- Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL:

STEP 3

ACTION:

De-energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.1 turn white.
- b. Check that the word "PART" disappears from the group number 2, N2, and SEC blocks, leaving green backgrounds.

APPROVAL: *Th. 8-9-84*

STEP 4

ACTION:

- a. Open the F118A valve by setting 0627 to 1.
- b. Energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2C in the menu block turns red after approximately 10 seconds and that 2A, 2B, 2D, 2E and SEC turn red within approximately 32 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the N2 block and that this background turns red ^{within} after approximately 15 seconds. *8-7-84*
- c. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds. *8-7-84*

VARIANCE #
8-7-84

ACTION:

- a. Close the F118A valve by setting 0627 to 0.
- b. De-energize the K5A and K5B relays (addresses 1014 and 1031).

APPROVAL:

AE-764

STEP 5

ACTION:

Energize the K6A and K6B relays (GIT signal addresses 1016 and 1033, respectively.)

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2C in the menu block remains orange and that 2A, 2B, 2D and 2E turn red within approximately 24 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.1 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the N2 block and that this background turns green after approximately 15 seconds.

with BFE 8-4-84

Variance #3

APPROVAL:

8-9-84

STEP 6

ACTION:

De-energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the "PART" disappears from the group number 2 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.1 turn white.
- b. Check that the word "PART" disappears from the group number 2 and N2 blocks, leaving green backgrounds.

APPROVAL:

LE 287

STEP 7

ACTION:

- a. Open the F118A valve by setting 0627 to 1.
- b. Energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds .
- b. Check that 2C in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2D and 2E turn red within approximately 24 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the N2 block.

ACTION:

- a. Close the F118A valve by setting 0627 to 0.
- b. De-energize the K6A and K6B relays (addresses 1016 and 1033).

APPROVAL:

A. E. S. 84

STEP 8

ACTION:

Close the valves listed in the following table.

Table 16.4.3

SIGNAL DESCRIPTION	INPUT	OUTPUT
QT48-AOV F308	<u>0673</u> 0	Closed (G)
QT48-AOV F320	<u>0676</u> 0	Closed (G)
QT48-AOV F324	<u>0675</u> 0	Closed (G)
QT48-AOV F326	<u>0674</u> 0	Closed (G)
QT48-AOV F332A	<u>0135</u> 1	Closed (G)
QT48-AOV F332B	<u>0317</u> 1	Closed (G)
QT48-AOV F334A	<u>0131</u> 1	Closed (G)
QT48-AOV F334B	<u>0313</u> 1	Closed (G)
QT48-AOV F338	<u>0671</u> 0	Closed (G)
QT48-AOV F340	<u>0672</u> 0	Closed (G)
QT48-AOV F103	<u>0667</u> 0	Closed (G)
QT48-AOV F104	<u>0670</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.4.3 are green.
- Check that the valve numbers listed in Table 16.4.3 are white.

APPROVAL:

8-9-84

STEP 9

ACTION:

Energize the K5C and K5D relays (GIT signal addresses 1015 and 1032, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 1 and Unit 2 secondary isolation blocks.
- b. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2C in the menu block remains orange and that 2A, 2B, 2D, 2E and SEC turn red within approximately 30 seconds.
- e. Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on a green background on the N2 block.
- d. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL:

A. E. 9-84

STEP 10

ACTION:

De-energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.3 turn white.
- b. Check that the word "PART" disappears from the group number 2, N2, and SEC blocks, leaving green backgrounds.

APPROVAL:

AC 8-8-84

STEP 11

ACTION:

- a. Open the F308 valve by setting 0673 to 1.
- b. Energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2C in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the N2 block.
- c. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the F308 valve by setting 0673 to 0.
- b. De-energize the K5C and K5D relays (GIT signal addresses 1015 and 1032, respectively).

APPROVAL:

8-9-84

STEP 12

ACTION:

Energize the K6C and K6D relays (GIT signal address 1017 and 1034, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2C in the menu block remains orange and that 2A, 2B, 2D and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on a green background on the N2 block.

APPROVAL: *1-8-9-88*

STEP 13

ACTION:

De-energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the "PART" disappears from the group number 2 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.4.3 turn white.
- b. Check that the word "PART" disappears from the group number 2 and N2 blocks, leaving green backgrounds.

APPROVAL:

St. E. R. E. C.

STEP 14

ACTION:

- a. Open the F308 valve by setting 0673 to 1.
- b. Energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds .
- b. Check that 2C in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2D and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the N2 block.

ACTION:

- a. Close the F308 valve by setting 0673 to 0.
- b. De-energize the K6C and K6D relays (addresses 1017 and 1034).

APPROVAL:

[Handwritten signature]

STEP 15

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.4.4

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K5A	1014	1
QA71B-K6A	1016	1
QA71B-K5C	1015	1
QA71B-K6C	1017	1
QA71B-K5B	1031	1
QA71B-K6B	1033	1
QA71B-K5D	1032	1
QA71B-K6D	1034	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 2 secondary isolation block.
- b. Check that the word "ALL" appears on an orange background on the Unit 1 secondary isolation block.
- c. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- d. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- e. Check that 2C in the menu block remains orange and that 2A, 2B, 2D, 2E and SEC turn red within approximately 30 seconds.
- f. Check that the background of the Unit 1 and Unit 2 secondary isolation block turns red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.4.1 and 16.4.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an orange background on the N2 block and that this background turns green after approximately 15 seconds. *when the 5-7-8*
- d. Check that the word "ALL" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL: *16.4.4 EY*

VAR 16.4.4 #3

STEP 16

ACTION:

De-energize the relays listed in Table 16.4.4.

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 2 secondary isolation block, leaving green backgrounds.
- c. Check that the word "ALL" disappears from the Unit 1 secondary isolation block, leaving a green blank.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.4.1 and 16.4.3 turn white.
- b. Check that the word "PART", "ALL", and "ALL" disappear from the group number 2, N2, and SEC blocks, respectively, leaving green backgrounds.

APPROVAL: *A 8-9-84*

STEP 17

ACTION:

- a. Open the F308 valve by setting 0673 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.4.4.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 2 secondary isolation block after approximately 30 seconds.
- b. Check that the word "ALL" appears after approximately 30 seconds on a red background on the Unit 1 secondary block.
- c. Check that 2C in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2D, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "ALL" appears on a red background on the N2 block.
- c. Check that the word "ALL" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the F308 valve by setting 0673 to 0.
- b. De-energize the relays listed in Table 16.4.4.

APPROVAL:

8-7-84

STEP 18

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.4.5

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QC51A-Z2A	1070	1
QC51A-Z2C	1072	1
QC51A-Z2B	1071	1
QC51A-Z2D	1073	1
Q2C51A-Z2A	1074	1
Q2C51A-Z2C	1076	1
Q2C51A-Z2B	1075	1
Q2C51A-Z2D	1077	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block. The color changes to red after approximately 5 seconds.
- b. Check that 2C in the menu block turns and remains orange.
- c. Check that 2D, 2E and SEC turn orange and that the color changes to red within approximately 30 seconds.
- d. Check that the word "ALL" appears on an orange background on both Unit 1 and Unit 2 secondary isolation blocks. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.4.1 and 16.4.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an green background on the N2 block after approximately 15 seconds.
- d. Check that the word "ALL" appears on an orange background on the SEC block. The color changes to red after approximately 30 seconds.

APPROVAL: *[Signature]*

STEP 19

ACTION:

De-energize the relays listed in Table 16.4.5.

OUTPUT:

Primary Display:

- a. Check that 2C, 2D, 2E and "SEC" in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green background.
- c. Check that the word "ALL" disappears from the secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.4.1 and 16.4.3 turn white.
- b. Check that the word "PART", "ALL", and "ALL" disappear from the group number 2, N2 and SEC blocks, respectively, leaving green backgrounds.

APPROVAL: *At- 57-84*

STEP 20

ACTION:

- a. Open the F308 valve by setting 0673 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.4.5.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block. The color changes to red after approximately 5 seconds.
- b. Check that 2C, 2D, 2E, and SEC in the menu block turns orange and that the color changes to red within approximately 30 seconds.
- c. Check that the word "ALL" appears on an orange background on both Unit 1 and Unit 2 secondary isolation blocks. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the tag numbers for the valves listed in Table 16.4.1 and 16.4.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on a red background on the N2 block.
- d. Check that the word "ALL" appears on an orange background on the SEC block. The color changes to red after approximately 30 seconds.

APPROVAL:

A. E. G. J.

16.5. GROUP 2D ISOLATION - H₂-O₂ SYSTEM

STEP 1

ACTION:

- a. Call up the PCIS Group 2D Diagnostic display and call the reference test data.
- b. Close the valves listed in the following table.

TABLE 16.5.1

SIGNAL DESCRIPTION	INPUT	OUTPUT	
QP33-AOV F002	<u>0643</u> 1	<u>0642</u> 0	Closed (G)
QP33-AOV F003	<u>0645</u> 0	<u>0644</u> 0	Closed (G)
QP33-AOV F004	<u>0647</u> 1	<u>0646</u> 0	Closed (G)
QP33-SV F005	<u>0737</u> 1	<u>0736</u> 0	Closed (G)
QP33-AOV F006	<u>0651</u> 1	<u>0650</u> 0	Closed (G)
QP33-AOV F007	<u>0653</u> 1	<u>0652</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.5.1 are green.
- b. Check that the valve numbers listed in Table 16.5.1 are white.

APPROVAL: *A. 8-9-84*

STEP 2

ACTION:

Set the relays as shown in the following table.

TABLE 16.5.2

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K6A	1016	0
QA71B-K5C	1015	0
QA71B-K6C	1017	0
QA71B-K6B	1033	0
QA71B-K5D	1032	0
QA71B-K6D	1034	0
QA71B-K5A	1014	1
QA71B-K5B	1031	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 1 and Unit 2 secondary isolation blocks.
- Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- Check that 2D in the menu block remains orange and that 2A, 2B, 2C, 2E and SEC turn red within approximately 32 seconds.
- Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.5.1 turn orange.
- Check that the word "PART" appears on an orange background on the group number 2 block, and that this background turns red after approximately 15 seconds.
- Check that the word "PART" appears on a green background on the H2/O2 block.
- Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL:

1-6-9-84

STEP 3

ACTION:

De-energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.1 turn white.
- b. Check that the word "PART" disappears from the group number 2, H2/O2, and SEC blocks, leaving green backgrounds.

APPROVAL:

A. G. G. /

STEP 4

ACTION:

- a. Open the F002 valve by setting 0642 to 1.
- b. Energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 15 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2D in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C, 2E and SEC turn red within approximately 32 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the H2/O2 block.
- c. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the F002 valve by setting 0642 to 0.
- b. De-energize the K5A and K5B relays (addresses 1014 and 1031).

APPROVAL:

[Handwritten signature]

STEP 5

ACTION:

Energize the K6A and K6B relays (GIT signal addresses 1016 and 1033, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2D in the menu block remains orange and that 2A, 2B, 2C and 2E turn red within approximately 24 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.1 turn orange.
- b. Check that the word "PART" appears on an orange background on the group number 2 block and that this background turns red after approximately 15 seconds. *within 3-9-8*
- c. Check that the word "PART" appears on a green background on the H2/O2 block. *VARIABLE*

APPROVAL:

AB-2-84

STEP 6

ACTION:

De-energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.1 turn white.
- b. Check that the word "PART" disappears from the group number 2 and H2/O2 blocks, leaving green backgrounds.

APPROVAL:

K. E. E.

STEP 7

ACTION:

- a. Open the F002 valve by setting 0642 to 1.
- b. Energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds .
- b. Check that 2D in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C and 2E turn red within approximately 24 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the H2/O2 block.

ACTION:

- a. Close the F002 valve by setting 0642 to 0.
- b. De-energize the K6A and K6B relays (addresses 1016 and 1033).

APPROVAL:

A. E. G. E. y

STEP 8

ACTION:

Close the valves listed in the following table.

Table 16.5.3

SIGNAL DESCRIPTION	INPUT		OUTPUT
QP33-AOV F010	<u>0323</u>	<u>0322</u>	Closed (G)
	1	0	
QP33-AOV F011	<u>0325</u>	<u>0324</u>	Closed (G)
	1	0	
QP33-AOV F012	<u>0327</u>	<u>0326</u>	Closed (G)
	1	0	
QP33-SV F013	<u>0757</u>	<u>0756</u>	Closed (G)
	1	0	
QP33-AOV F014	<u>0331</u>	<u>0330</u>	Closed (G)
	1	0	
QP33-AOV F015	<u>0333</u>	<u>0332</u>	Closed (G)
	1	0	

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.5.3 are green.
- Check that the valve numbers listed in Table 16.5.3 are white.

APPROVAL:

St. E. 2. 5-1

STEP 9

ACTION:

Energize the K5C and K5D relays (GIT signal addresses 1015 and 1032, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and the Unit 1 and Unit 2 secondary isolation status blocks.
- b. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that the orange background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.
- e. Check that 2D in the menu block remains orange and that 2A, 2B, 2C, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on a green background on the H2/O2 block.
- d. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL:

AL-89-84

STEP 10

ACTION:

De-energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation status blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.3 turn white.
- b. Check that the word "PART" disappears from the group number 2, H2/O2, and SEC blocks, leaving green backgrounds.

APPROVAL:

A 8-9-84

STEP 11

ACTION:

- a. Open the F010 valve by setting 0322 to 1.
- b. Energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2D in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the H2/O2 block.
- c. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the F010 valve by setting 0322 to 0.
- b. De-energize the K5C and K5D relays (addresses 1015 and 1032).

APPROVAL:

[Signature] 6-9-84

STEP 12

ACTION:

Energize the K6C and K6D relays (GIT signal address 1017 and 1034, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2D in the menu block remains orange and that 2A, 2B, 2C and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on a green background on the H2/O2 block.

APPROVAL: *Sho E-9-84*

STEP 13

ACTION:

De-energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.5.3 turn white.
- b. Check that the word "PART" disappears from the group number 2 and H2/O2 blocks, leaving green backgrounds.

APPROVAL: *Am 8-9-84*

STEP 14

ACTION:

- a. Open the F010 valve by setting 0322 to 1.
- b. Energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds.
- b. Check that 2D in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C and 2E turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the H2/O2 block.

ACTION:

- a. Close the F010 valve by setting 0322 to 0.
- b. De-energize the K6C and K6D relays (addresses 1017 and 1034).

APPROVAL: *AS 8-9-84*

STEP 15

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.5.4

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K5A	1014	1
QA71B-K6A	1016	1
QA71B-K5C	1015	1
QA71B-K6C	1017	1
QA71B-K5B	1031	1
QA71B-K6B	1033	1
QA71B-K5D	1032	1
QA71B-K6D	1034	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 2 secondary isolation block.
- b. Check that the word "ALL" appears on an orange background on the Unit 1 secondary isolation block.
- c. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- d. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- e. Check that 2D in the menu block remains orange and that 2A, 2B, 2C, 2E and SEC turn red within approximately 30 seconds.
- f. Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.5.1 and 16.5.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on a green background on the H2/O2 block.
- d. Check that the word "ALL" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL: AL-8-9-84

STEP 16

ACTION:

De-Energize the relays listed in Table 16.5.4.

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 2 secondary isolation block, leaving green backgrounds.
- c. Check that the word "ALL" disappears from the Unit 1 secondary isolation block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.5.1 and 16.5.3 turn white.
- b. Check that the words "PART", "ALL" and "ALL" disappear from the group number 2, H2/O2, and SEC blocks, respectively, leaving green backgrounds.

APPROVAL: 89-84

STEP 17

ACTION:

- a. Open the F010 valve by setting 0322 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.5.4.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 2 secondary isolation block after approximately 30 seconds.
- b. Check that the word "ALL" appears on a red background on the Unit 1 secondary isolation block after approximately 30 seconds.
- c. Check that 2D in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C, 2E and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "ALL" appears on a red background on the H2/O2 block.
- c. Check that the word "ALL" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the F010 valve by setting 0322 to 0.
- b. De-energize the relays listed in Table 16.5.4.

APPROVAL:

L. G. G. 84

STEP 18

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.5.5

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QC51A-Z2A	1070	1
QC51A-Z2C	1072	1
QC51A-Z2B	1071	1
QC51A-Z2D	1073	1
Q2C51A-Z2A	1074	1
Q2C51A-Z2C	1076	1
Q2C51A-Z2B	1075	1
Q2C51A-Z2D	1077	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block. The color changes to red after approximately 5 seconds.
- b. Check that 2D in the menu block turns and remains orange.
- c. Check that 2C, 2E and SEC turn orange and that the color changes to red within approximately 30 seconds.
- d. Check that the word "ALL" appears on an orange background on both Unit 1 and Unit 2 secondary isolation blocks. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the tag numbers for the valves listed in Tables 16.5.1 and 16.5.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on a green background on the H2/O2 block.
- d. Check that the word "ALL" appears on an orange background on the SEC block. The color changes to red after approximately 30 seconds.

APPROVAL:

2 0-9-84

STEP 19

ACTION:

De-energize the relays listed in Table 16.5.5.

OUTPUT:

Primary Display:

- a. Check that 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green background.
- c. Check that the word "ALL" disappears from the secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.5.1 and 16.5.3 turn white.
- b. Check that the words "PART", "ALL" and "ALL" disappear from the group number 2, H2/O2 and SEC blocks, respectively, leaving green backgrounds.

APPROVAL: *16-8-9-91*

STEP 20

ACTION:

- a. Open the F010 valve by setting 0322 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.5.5.
- d. Enable buffer transfer.

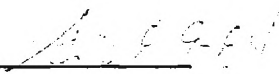
OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block. The color changes to red after approximately 5 seconds.
- b. Check that 2C, 2D, 2E and SEC turn orange and that the color changes to red within approximately 30 seconds.
- c. Check that the word "ALL" appears on an orange background on both Unit 1 and Unit 2 secondary isolation blocks. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the tag numbers for the valves listed in 16.5.1 and 16.5.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on a red background on the H2/02 block.
- d. Check that the word "ALL" appears on an orange background on the SEC block. The color changes to red after approximately 30 seconds.

APPROVAL: 

16.6. GROUP 2E ISOLATION - MISC

STEP 1

ACTION:

- a. Call up the PCIS Group 2E Diagnostic display and call the reference test data.
- b. Close the valves listed in the following table.

TABLE 16.6.1

<u>SIGNAL DESCRIPTION</u>	<u>INPUT</u>		<u>OUTPUT</u>
QB21-SV F111	<u>0141</u> 1	<u>0140</u> 0	Closed (G)
QD11-SV F050	<u>0637</u> 1	<u>0636</u> 0	Closed (G)
QD11-SV F051	<u>0641</u> 1	<u>0640</u> 0	Closed (G)
QE41-SV F122	<u>0111</u> 1	<u>0110</u> 0	Closed (G)
QP70-AOV F002	<u>0107</u> 1	<u>0106</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.6.1 are green.
- b. Check that the valve numbers listed in Table 16.6.1 are white.

APPROVAL: *[Signature]*

STEP 2

ACTION:

Set the relays as shown in the following table.

TABLE 16.6.2

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K6A	1016	0
QA71B-K5C	1015	0
QA71B-K6C	1017	0
QA71B-K6B	1033	0
QA71B-K5D	1032	0
QA71B-K6D	1034	0
QA71B-K5A	1014	1
QA71B-K5B	1031	1

OUTPUT:

Primary Display:

- Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 1 and Unit 2 secondary isolation block.
- Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- Check that 2E in the menu block remains orange and that 2A, 2B, 2C, 2D and SEC turn red within approximately 32 seconds.
- Check that the background of the Unit 1 and Unit 2 secondary isolation status blocks turn red after approximately 30 seconds.

Diagnostic Display:

- Check that the numbers for the valves listed in Table 16.6.1 turn orange.
- Check that the word "PART" appears on a red background on the group number 2 block.
- Check that the word "PART" appears on a green background on the MISC block after approximately 15 seconds.
- Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL: *6-8-84* *16.6.2*

STEP 3

ACTION:

De-energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.1 turn white.
- b. Check that the word "PART" disappears from the group number 2, MISC, and SEC blocks, leaving green backgrounds.

APPROVAL: *A. E. 9. 84*

STEP 4

ACTION:

- a. Open the B21-SV F111 valve by setting 0140 to 1.
- b. Energize the K5A relay (address 1014).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2E in the menu block turns red after approximately 15 seconds and that 2A, 2B, 2C, 2D and SEC turn red within approximately 32 seconds. *8-4-84*

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on an orange background on the MISC block and that this background turns red after approximately 15 seconds. *8-4-84*
- c. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds. *8-4-84*

ACTION:

- a. Close the B21-SV F111 valve by setting 0140 to 0.
- b. De-energize the K5A and K5B relays (addresses 1014 and 1031).

APPROVAL: *8-4-84*

STEP 5

ACTION:

Energize the K6A and K6B relays (GIT signal addresses 1016 and 1033, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2E in the menu block remains orange and that 2A, 2B, 2C and 2D turn red within approximately 24 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.1 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on an orange background on the MISC block and that this background turns green after approximately 15 seconds.

APPROVAL: *A. 29-81*

STEP 6

ACTION:

De-energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.1 turn white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green backgrounds.

APPROVAL: *LS 89-84*

STEP 7

ACTION:

- a. Open the B21-SV F111 valve by setting 0140 to 1.
- b. Energize the K6A relay (address 1016).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds .
- b. Check that 2E in the menu block turns red after approximately 15 5 seconds and that 2A, 2B, 2C and 2D turn red within approximately 24 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a ~~red~~ background on the MISC block and that this background turns red after approximately 15 seconds.

*change
within BAE 8-9-81
VARIABLE #3*

ACTION:

- a. Close the B21-SV F111 valve by setting 0140 to 0.
- b. De-energize the K6A and K6B relays (addresses 1016 and 1033).

APPROVAL:

6-7-81

STEP 8

ACTION:

Close the valves listed in the following table.

Table 16.6.3

SIGNAL DESCRIPTION	INPUT		OUTPUT
QB21-SV F112	<u>0143</u>	<u>0142</u>	
	1	0	Closed (G)
QD11-SV F052	<u>0721</u>	<u>0720</u>	
	1	0	Closed (G)
QD11-SV F053	<u>0723</u>	<u>0722</u>	
	1	0	Closed (G)
QE41-SV F121	<u>0145</u>	<u>0144</u>	
	1	0	Closed (G)
QP70-AOV F003	<u>0311</u>	<u>0310</u>	
	1	0	Closed (G)

OUTPUT:

Diagnostic Display:

- Check that the symbols for the valves listed in Table 16.6.3 are green.
- Check that the valve numbers listed in Table 16.6.3 are white.

APPROVAL:

Handwritten signature and date: 8-9-89

STEP 9

ACTION:

Energize the K5C and K5D relays (GIT signal addresses 1015 and 1032, respectively).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks.
- b. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2E in the menu block remains orange and that 2A, 2B, 2C, 2D and SEC turn red within approximately 30 seconds.
- e. Check that the orange background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on a green background on the MISC block.
- d. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL: *12-87-84*

STEP 10

ACTION:

De-energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.3 turn white.
- b. Check that the word "PART" disappears from the group number 2, MISC, and SEC blocks, leaving green backgrounds.

APPROVAL: *A. E. 9-89*

STEP 11

ACTION:

- a. Open the B21-SV F112 valve by setting 0142 to 1.
- b. Energize the K5C relay (address 1015).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 1 and Unit 2 secondary isolation blocks after approximately 30 seconds.
- b. Check that 2E in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C, 2D and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the MISC block.
- c. Check that the word "PART" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the B21-SV F112 valve by setting 0142 to 0.
- b. De-energize the K5C and K5D relays (addresses 1015 and 1032).

APPROVAL:

A. E. 489

STEP 12

ACTION:

Energize the K6C and K6D relays (GIT signal address 1017 and 1034, respectively).

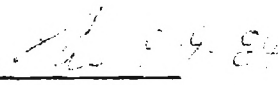
OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block.
- b. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn orange.
- c. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- d. Check that 2E in the menu block remains orange and that 2A, 2B, 2C and 2D turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "PART" appears on a green background on the MISC block.

APPROVAL: 

STEP 13

ACTION:

De-energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D and 2E in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Table 16.6.3 turn white.
- b. Check that the word "PART" disappears from the group number 2 and MISC blocks, leaving green backgrounds.

APPROVAL:

L. E. 7-84

STEP 14

ACTION:

- a. Open The B21-SV F112 valve by setting 0142 to 1.
- b. Energize the K6C relay (address 1017).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds.
- b. Check that 2E in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C and 2D turn red within approximately 20 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "PART" appears on a red background on the MISC block.

ACTION:

- a. Close the B21-SV F112 valve by setting 0142 to 0.
- b. De-energize the K6C and K6D relays (addresses 1017 and 1034).

APPROVAL: 16.8.9.84

STEP 15

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.6.4

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QA71B-K5A	1014	1
QA71B-K6A	1016	1
QA71B-K5C	1015	1
QA71B-K6C	1017	1
QA71B-K5B	1031	1
QA71B-K6B	1033	1
QA71B-K5D	1032	1
QA71B-K6D	1034	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block and on the Unit 2 secondary isolation block.
- b. Check that the word "ALL" appears on an orange background on the Unit 1 secondary isolation block.
- c. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn orange.
- d. Check that the orange background on the group number 2 block turns red after approximately 5 seconds.
- e. Check that 2E in the menu block turns and remains orange and that 2A, 2B, 2C, 2D and SEC turn red within approximately 30 seconds.
- f. Check that the background of the Unit 1 and Unit 2 secondary isolation blocks turn red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.6.1 and 16.6.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an orange background on the MISC block and that this background turns green after approximately 15 seconds.
- d. Check that the word "ALL" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

APPROVAL: *[Signature]*

STEP 16

ACTION:

De-Energize the relays listed in Table 16.6.4.

OUTPUT:

Primary Display:

- a. Check that 2A, 2B, 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block and the Unit 1 and Unit 2 secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.6.1 and 16.6.3 turn white.
- b. Check that the words "PART", "ALL", and "PART" disappear from the group number 2, MISC, and SEC blocks, respectively, leaving green backgrounds.

APPROVAL: *J. E. 267*

STEP 17

ACTION:

- a. Open the B21-SV F112 valve by setting 0142 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.6.4.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block after approximately 5 seconds and on the Unit 2 secondary isolation block after approximately 30 seconds.
- b. Check that the word "ALL" appears on a red background on the Unit 1 secondary isolation block after approximately 30 seconds.
- c. Check that 2E in the menu block turns red after approximately 5 seconds and that 2A, 2B, 2C, 2D and SEC turn red within approximately 30 seconds.

Diagnostic Display:

- a. Check that the word "PART" appears on a red background on the group number 2 block.
- b. Check that the word "ALL" appears on a red background on the MISC block.
- c. Check that the word "ALL" appears on an orange background on the SEC block and that this background turns red after approximately 30 seconds.

ACTION:

- a. Close the B21-SV F112 valve by setting 0142 to 0.
- b. De-energize the relays listed in Table 16.6.4.

APPROVAL: *[Signature]* 8-9-84

STEP 18

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays listed in the following table.
- c. Enable buffer transfer.

TABLE 16.6.5

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QC51A-Z2A	1070	1
QC51A-Z2C	1072	1
QC51A-Z2B	1071	1
QC51A-Z2D	1073	1
Q2C51A-Z2A	1074	1
Q2C51A-Z2C	1076	1
Q2C51A-Z2B	1075	1
Q2C51A-Z2D	1077	1

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block. The color changes to red after approximately 5 seconds.
- b. Check that 2E in the menu block turns and remains orange.
- c. Check that 2C, 2D and SEC turn orange and that the color changes to red within approximately 30 seconds.
- d. Check that the word "ALL" appears on an orange background on both Unit 1 and Unit 2 secondary isolation blocks. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.6.1 and 16.6.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block.
- c. Check that the word "ALL" appears on an orange background on the MISC block and that this background turns green after approximately 15 seconds.
- d. Check that the word "ALL" appears on an orange background on the SEC block. The color changes to red after approximately 30 seconds.

APPROVAL: *[Signature]*

STEP 19

ACTION:

De-energize the relays listed in Table 16.6.5.

OUTPUT:

Primary Display:

- a. Check that 2C, 2D, 2E and SEC in the menu block turn green.
- b. Check that the word "PART" disappears from the group number 2 block leaving a green background.
- c. Check that the word "ALL" disappears from the secondary isolation blocks, leaving green backgrounds.

Diagnostic Display:

- a. Check that the numbers for the valves listed in Tables 16.6.1 and 16.6.3 turn white.
- b. Check that the words "PART", "ALL" and "ALL" disappear from the group number 2, MISC and SEC blocks, respectively, leaving green backgrounds.

APPROVAL: A 5784

STEP 20

ACTION:

- a. Open the B21-SV F112 valve by setting 0142 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.6.5.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 2 block. The color changes to red after approximately 5 seconds. ✓
- b. Check that 2C, 2D, 2E and SEC in the menu block turn orange and that the color changes to red within approximately 30 seconds. ✓
- c. Check that the word "ALL" appears on an orange background on both Unit 1 and Unit 2 secondary isolation blocks. The color changes to red after approximately 30 seconds. ✓

Diagnostic Display:

- a. Check that the tag numbers for the valves listed in Table 16.6.1 and 16.6.3 turn orange.
- b. Check that the word "PART" appears on a red background on the group number 2 block. ✓
- c. Check that the word "ALL" appears on a red background on the MISC block. ✓
- d. Check that the word "ALL" appears on an orange background on the SEC block. The color changes to red after approximately 30 seconds. ✓

APPROVAL: *17. 89-89*

16.7 GROUP 3 ISOLATION

STEP 1

ACTION:

- a. Call up the PCIS Group 1, 3, 4, 5 Diagnostic display and call the reference test data.
- b. Close the outbound HPCI steam line valves as shown in the following table.

TABLE 16.7.1

SIGNAL DESCRIPTION	INPUT		OUTPUT
QE41-MOV F003	<u>0421</u> 1	<u>0420</u> 0	Closed (G)
QE41-MOV F002	<u>0477</u> 1	<u>0476</u> 0	Closed (G)

OUTPUT:

Diagnostic Display

- a. Check that the symbols for the valves in Table 16.7.1 are green. ✓
- b. Check that the valve numbers listed in Table 16.7.1 are white. ✓

APPROVAL: *A. F. 8-87*

STEP 2:

ACTION:

Set the relays as shown in the following table.

TABLE 16.7.2

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QE41A-K15	1054	0
QE41A-K44	1056	0
QE41A-K48	1057	0
QE41A-K34	1055	1

PRIMARY DISPLAY:

- a. Check that the word "PART" appears on an orange background on the group number 3 block. ✓
- b. Check that the number 3 in the menu block turns orange. ✓
- c. Check that the orange background on the Group Number 3 block changes to green after approximately 50 seconds.
- d. Check that the number 3 in the menu block remains orange. ✓

DIAGNOSTIC DISPLAY:

- a. Check that the number for the F003 valve turns and remains orange. ✓
- b. Check that the Group Number 3 block matches that of the primary display. ✓

APPROVAL: *A-0907*

STEP 3.

ACTION:

De-energize the K34 relay (address 1055), i.e., set bit value to 0.

OUTPUT:

Primary Display:

- a. Check that the number 3 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F003 valve turn white.
- b. Check that the word "PART" disappears from the group number 3 block, leaving a green background.

APPROVAL:

AK 8-9-84

STEP 4:

ACTION:

- a. Open the F003 valve by setting 0421 to 0 and 0420 to 1.
- b. Energize the K34 relay (address 1055).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 3 block after approximately 50 seconds.
- b. Check that the number 3 in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the Group Number 3 block matches that of the primary display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize the K34 relay (address 1055).

APPROVAL:

4-89-24

STEP 5:

ACTION:

- a. Energize the QE41A-K15 relay (GIT signal address 1054).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 3 block.
- b. Check that the number 3 in the menu block turns orange.
- c. Check that the orange background on the Group Number 3 block changes to green after approximately 50 seconds.
- d. Check that the number 3 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F003 valve turns and remains orange.
- b. Check that the Group Number 3 block matches that of the primary display.

APPROVAL: *A. F. 9-84*

STEP 6:

ACTION:

De-energize the K15 relay (address 1054).

OUTPUT:

Primary Display

- a. Check that the number 3 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F003 valve turns white.
- b. Check that the word "PART" disappears from the group number 3 block, leaving a green background.

APPROVAL:

2688 84

STEP 7:

ACTION:

- a. Open the F003 valve by setting 0421 to 0 and 0420 to 1.
- b. Energize the K15 relay (address 1054)..

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 3 block after approximately 50 seconds.
- b. Check that the number 3 in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the group number 3 block matches that of the Primary display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize the K15 relay (address 1054).

APPROVAL: *Sh E-984*

STEP 8:

ACTION:

- a. Energize the QE41A-K44 relay (GIT signal address 1056).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 3 block.
- b. Check that the number 3 in the menu block turns orange.
- c. Check that the orange background on the Group Number 3 block changes to green after approximately 50 seconds.
- d. Check that the number 3 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F002 valve turn and remains orange.
- b. Check that the Group Number 3 block matches that of the primary display.

APPROVAL: *SL 5729*

STEP 9:

ACTION:

De-energize the K44 relay (address 1056).

OUTPUT:

Primary Display:

- a. Check that the number 3 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F002 valve turn white.
- b. Check that the word "PART" disappears from the group number 3 block, leaving a green background.

APPROVAL: *ED 87801*

STEP 10:

ACTION:

- a. Open the F002 valve by setting 0477 to 0 and 0476 to 1.
- b. Energize the K44 relay (address 1056).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 3 block after approximately 50 seconds.
- b. Check that the number 3 in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the group number 3 block matches that of the Primary display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize relay K44 (address 1056).

APPROVAL: *[Signature]* F 7-84

STEP 11:

ACTION:

- a. Energize the QE41A-K48 relay (GIT signal address 1057).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 3 block.
- b. Check that the number 3 in the menu block turns orange.
- c. Check that the orange background on the Group Number 3 block changes to green after approximately 50 seconds.
- d. Check that the number 3 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F002 valve turns and remains orange.
- b. Check that the Group Number 3 block matches that of the primary display.

APPROVAL: *[Signature]*

STEP 12:

ACTION:

De-energize the K48 relay (address 1057).

OUTPUT:

Primary Display:

- a. Check that the number 3 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F002 valve turn white.
- b. Check that the word "PART" disappears from the group number 3 block, leaving a green background.

APPROVAL: *AT 8-9 89*

STEP 13:

ACTION:

- a. Open the F002 valve by setting 0477 to 0 and 0476 to 1.
- b. Energize the K48 relay (address 1057).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 3 block after approximately 50 seconds.
- b. Check that the number 3 in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the group number 3 block matches that of the Primary display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize relay K48 (address 1057).

APPROVAL: *at 6:28*

STEP 14:

ACTION:

- a. Disable buffer transfer.
- b. Energize the relays as shown in the following table.
- c. Enable buffer transfer.

TABLE 16.7.3

SIGNAL DESCRIPTION	GIT SIGNAL ADDRESS	INPUT
QE41A-K15	1054	1
QE41A-K34	1055	1
QE41A-K44	1056	1
QE41A-K48	1057	1

PRIMARY DISPLAY:

- a. Check that the word "ALL" appears on an orange background on the group number 3 block.
- b. Check that the number 3 in the menu block turns orange.
- c. Check that the orange background on the Group Number 3 block changes to green after approximately 50 seconds.
- d. Check that the number 3 in the menu block remains orange.

DIAGNOSTIC DISPLAY:

- a. Check that the numbers for the F003 and F002 valves turn and remains orange.
- b. Check that the Group Number 3 block matches that of the primary display.

APPROVAL: 

STEP 15:

ACTION:

De-energize the relays listed in table 16.7.3.

OUTPUT:

Primary Display:

- a. Check that the number 3 in the menu block turns green.
- b. Check that the word "ALL" disappears from the group number block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F002 and F003 valves turn white.
- b. Check that the word "ALL" disappears from the group number 3 block, leaving a green background.

APPROVAL:

10-8-9-81

STEP 16:

ACTION:

- a. Open the F003 valve by setting 0421 to 0 and 0420 to 1.
- b. Disable buffer transfer.
- c. Energize the relays listed in Table 16.7.3.
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on a red background on the group number 3 block after approximately 50 seconds.
- b. Check that the number 3 in the menu block turns red after approximately 50 seconds.

Diagnostic Display:

- a. Check that the Group Number 3 block matches that of the primary display.

APPROVAL:

[Handwritten signature]

16.8 GROUP 4 ISOLATION

STEP 1:

ACTION:

- a. Call the reference test data.
- b. Close the outboard HPCI steam line valves as shown in the following table.

TABLE 16.8.1

<u>SIGNAL DESCRIPTION</u>	<u>INPUT</u>		<u>OUTPUT</u>
QE51-MOV F008	<u>0455</u>	<u>0444</u>	Closed (G)
	1	0	
QE51-MOV F007	<u>0501</u>	<u>0500</u>	Closed (G)
	1	0	

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.8.1 are green.
- b. Check that the valve numbers listed in Table 16.8.1 are white.

APPROVAL: *27-57-89*

STEP 2:

ACTION:

Energize the QE51A-K16 relay (GIT signal address 1061), i.e. set bit value to 1.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange back ground on the Group Number 4 block.
- b. Check that the number 4 in the menu block turns orange.
- c. Check that the orange background on the group number 4 block changes to green after approximately 20 seconds.
- d. Check that the number 4 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F008 valve turns and remains orange.
- b. Check that the Group Number 4 block matches that of the primary display.

APPROVAL: *PL 89-84*

STEP 3:

ACTION:

De-energize the K16 relay (address 1061), i.e., set bit value to 0.

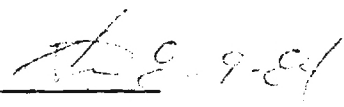
OUTPUT:

Primary Display:

- a. Check that the number 4 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 4 block, leaving a green background.

Diagnostic Display:

- a. Check that the number for the F008 valve turns white.
- b. Check that the word "PART" disappears from the group number 4 block, leaving a green background.

APPROVAL: 

STEP 4:

ACTION:

- a. Open the F008 Valve (set 0445 to 0 and 0444 to 1).
- b. Energize the K16 relay (address 1061).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red back ground on the Group Number 4 block after approximately 20 seconds.
- b. Check that the number 4 in the menu block turns red after approximately 20 seconds.

Diagnostic Display:

- a. Check that the Group Number 4 block matches that of the Primary Display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize the K16 relay (address 1061).

APPROVAL: *[Signature]*

STEP 5:

ACTION:

Energize the Q2E51A-K33 relay (GIT signal address 1062).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the Group Number 4 block.
- b. Check that the number 4 in the menu block turns orange.
- c. Check that the orange background on the group number 4 block changes to green after approximately 20 seconds.
- d. Check that the number 4 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F007 valve turns and remains orange.
- b. Check that the Group Number 4 block matches that of the primary display.

APPROVAL: *[Signature]*

STEP 6:

ACTION:

De-energize the K33 relay (address 1062).

OUTPUT:

Primary Display:

- a. Check that the number 4 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 4 block, leaving a green background.

Diagnostic Display:

- a. Check that the number for the F008 valve turns white.
- b. Check that the word "PART" disappears from the group number 4 block, leaving a green background.

APPROVAL: *the 2-9-84*

STEP 7:

ACTION:

- a. Open the F007 valve (set 0501 to 0 and 0500 to 1).
- b. Energize the K33 relay (address 1062).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the Group Number 4 block after approximately 20 seconds.
- b. Check that the number 4 in the menu block turns red after approximately 20 seconds.

Diagnostic Display:

- a. Check that the Group Number 4 block matches that of the Primary Display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize the K33 relay (address 1062).

APPROVAL:

8-9-84

STEP 8:

ACTION:

- a. Disable buffer transfer.
- b. Energize both the K16 and K33 relays (addresses 1061 and 1062).
- c. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on an orange back ground on the Group Number 4 block.
- b. Check that the number 4 in the menu block turns orange.
- c. Check that the orange background on the group number 4 block changes to green after approximately 20 seconds.
- d. Check that the number 4 in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the F007 and F008 valves turn and remain orange.
- b. Check that the Group Number 4 block matches that of the primary display.

APPROVAL:

A. E. G. 84

STEP 9:

ACTION:

De-energize the K16 and K33 relays (addresses 1061 and 1062).

OUTPUT:

Primary Display:

- a. Check that the number 4 in the menu block turns green.
- b. Check that the word "ALL" disappears from the group number 4 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F007 and F008 valves turn white.
- b. Check that the word "ALL" disappears from the group number 4 block, leaving a green background.

APPROVAL: *A-89-84*

STEP 10:

ACTION:

- a. Open the F008 (set 0445 to 0 and 0444 to 1).
- b. Disable buffer transfer.
- c. Energize the K16 and K33 relays (addresses 1061 and 1062).
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on a red background on the Group Number 4 block after approximately 20 seconds.
- b. Check that the number 4 in the menu block turns red after approximately 20 seconds.

Diagnostic Display:

- a. Check that the Group Number 4 block matches that of the Primary display.

APPROVAL:

A. P. 881

16.9 GROUP 5 ISOLATION

STEP 1:

ACTION:

- a. Call the reference test data.
- b. Close the outbound HPCI steam line valves as shown in the following table.

TABLE 16.9.1

SIGNAL DESCRIPTION	INPUT		OUTPUT
QG31-MOV F001	<u>0507</u> 1	<u>0506</u> 0	Closed (G)
QG31-MOV F004	<u>0441</u> 1	<u>0440</u> 0	Closed (G)

OUTPUT:

Diagnostic Display:

- a. Check that the symbols for the valves listed in Table 16.9.1 are green.
- b. Check that the valve numbers listed in Table 16.9.1 are white.

APPROVAL: *[Signature]* 8-9-89

STEP 2:

ACTION:

Energize the QA71B-K26 relay (GIT Signal address 1060), i.e. set bit value to 1.

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the Group Number 5 block.
- b. Check that the number 5 in the menu block turns orange.
- c. Check that the orange background on the Group Number 5 block changes to green after approximately 30 seconds.
- d. Check that the number 5 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F001 valve turns and remains orange.
- b. Check that the Group Number 5 block matches that of the primary display.

APPROVAL: *AE 7/8/*

STEP 3:

ACTION:

De-energize the K26 relay (address 1060), i.e., set bit value to 0.

OUTPUT:

Primary Display:

- a. Check that the number 5 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 5 block, leaving a green background.

Diagnostic Display:

- a. Check that the number for the F001 valve turns white.
- b. Check that the word "PART" disappears from the group number 5 block, leaving a green background.

APPROVAL: *HA-99-94*

STEP 4:

ACTION:

- a. Open the F001 valve (set 0507 to 0 and 0506 to 1).
- b. Energize the K26 relay (address 1060).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 5 block after approximately 30 seconds.
- b. Check that the number 5 in the menu block turns red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the Group Number 5 block matches that of the Primary display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize the K26 relay (address 1060).

APPROVAL: *W. E. E. E. E.*

STEP 5:

ACTION:

Energize the QA71B-K27 relay (address 1063).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on an orange background on the group number 5 block.
- b. Check that the number 5 in the menu block turns orange.
- c. Check that the orange background on the group number 5 block changes to green after approximately 30 seconds.
- d. Check that the number 5 in the menu block remains orange.

Diagnostic Display:

- a. Check that the number for the F004 valve turns and remains orange.
- b. Check that the group number 5 block matches that of the primary display.

APPROVAL:

10.9-54

STEP 6:

ACTION:

De-energize the K27 relay (address 1063).

OUTPUT:

Primary Display:

- a. Check that the number 5 in the menu block turns green.
- b. Check that the word "PART" disappears from the group number 5 block, leaving a green background.

Diagnostic Display:

- a. Check that the number for the F004 valve turns white.
- b. Check that the word "PART" disappears from the group number 5 block, leaving a green background.

APPROVAL: *10.9.84*

STEP 7:

ACTION:

- a. Open the F004 valve (set 0441 to 0 and 0440 to 1).
- b. Energize the K27 relay (address 1063).

OUTPUT:

Primary Display:

- a. Check that the word "PART" appears on a red background on the group number 5 block after approximately 30 seconds.
- b. Check that the number 5 in the menu block turns red after 30 seconds.

Diagnostic Display:

- a. Check that the group number 5 block matches that of the Primary display.

ACTION:

- a. Close the valve opened at the beginning of this step.
- b. De-energize the K27 relay (address 1063).

APPROVAL: *H. E. 4-64*

STEP 8:

ACTION:

- a. Disable buffer transfer.
- b. Energize both the K26 and K27 relays (addresses 1060 and 1063).
- c. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on an orange background on the group number 5 block.
- b. Check that the number 5 in the menu block turns orange.
- c. Check that the orange background on the group number 5 block changes to green after approximately 30 seconds.
- d. Check that the number 5 in the menu block remains orange.

Diagnostic Display:

- a. Check that the numbers for the F001 and F004 valves turn and remain orange.
- b. Check that the group number 5 block matches that of the primary display.

APPROVAL:

STEP 9:

ACTION:

De-energize the K26 and K27 relays (addresses 1060 and 1063).

OUTPUT:

Primary Display:

- a. Check that the number 5 in the menu block turns green.
- b. Check that the word "ALL" disappears from the group number 5 block, leaving a green background.

Diagnostic Display:

- a. Check that the numbers for the F001 and F004 valves turn white.
- b. Check that the word "ALL" disappears from the group number 5 block, leaving a green background.

APPROVAL: *L.S. 9-89*

STEP 10:

ACTION:

- a. Open the F001 (set 0507 to 0 and 0506 to 1).
- b. Disable buffer transfer.
- c. Energize the K26 and K27 relays (addresses 1060 and 1063).
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. Check that the word "ALL" appears on a red background on the group number 5 block after approximately 30 seconds.
- b. Check that the number 5 in the menu block turns red after approximately 30 seconds.

Diagnostic Display:

- a. Check that the group number 5 block matches that of the Primary display.

APPROVAL: 

16.10 SECONDARY ISOLATION TEST

STEP 1:

ACTION:

- a. Call up the Secondary Isolation Diagnostic display.
- b. Call the reference input data.
- c. Set the input to the values specified in Table 16.10.1.

OUTPUT:

Diagnostic Display:

- a. Verify the Secondary Isolation Diagnostic Display for appropriate response as specified in Table 16.10.1.

APPROVAL:

EL 8984

TABLE 16.10.1

<u>SIGNAL GIT</u> <u>DESCRIPTION</u>	<u>ADDRESS</u>	<u>INPUT</u>	<u>OUTPUT</u>	<u>APPROVAL</u>
QT41-AOV F003A	0604	0	Close (G)	
QT41-AOV F011A	0600	0	Close (G)	
QT41-AOV F023A	0605	0	Close (G)	
QT41-AOV F032A	0603	1	Open (R)	
QT41-AOV F040A	0606	1	Open (R)	
QT41-AOV F043A	0601	0	Close (G)	
QT41-AOV F044A	0602	0	Close (G)	
QT46-AOV F001A	0610	0	Open (R)	
	0607	1		
QT46-AOV F002A	0612	0	Open (R)	
	0611	1		
Q2T41-AOV F003A	0530	0	Close (G)	
Q2T41-AOV F023A	0542 0532	0	Close (G)	
Q2T46-AOV F002A	0537 <i>05-9-84</i>	0	Open (R)	
	0536 <i>VARIANTS</i>	1		
Q2T46-AOV F003A	0541	0	Open (R)	
	0540	1		
QT46-C001A	0620	0	Auto (R)	
	0617	1		
	1151	0		
	1147	0		
	1150	1		
Q2T46-D001A	0542	1	Auto (R)	
	0543	0		
	1155	0		
	1156	1		
	1157	0		
QT46-F003A(*)	0613	1	Open (R)	
	0614	0		
QT46-F004A(*)	0615	1	Open (R)	
	0616	0		

(*) Not part of the secondary isolation logic.

STEP 2:

ACTION:

- a. Initiate relay QC51A-Z2A, i.e., set GIT Address #1070 to 1.

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The upper left "A" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

W. E. 9-84

STEP 3:

ACTION:

- a. Reset relay QC51A-Z2A (GIT address #1070).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The upper left "A" block reverts to a green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: *A. C. C. 8/1*

STEP 4:

ACTION:

- a. Initiate relay QC51A-Z2B, i.e., set GIT Address #1071 to 1.

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The lower left "B" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

[Handwritten signature]

STEP 5:

ACTION:

- a. Reset relay QC51A-Z2B (GIT address #1071).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The words "2C", "2D", "2E" and "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The lower left "B" block reverts to a green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

W. E. 8-8-81

STEP 6:

ACTION:

- a. Initiate relay Q2C51A-Z2A, i.e., set GIT Address #1074 to 1.

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The upper right "A" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL: *[Signature]*

STEP 7:

ACTION:

- a. Reset relay Q2C51A-Z2A (GIT address #1074).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The lower right "A" block reverts to a green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

A. E. 484

STEP 8:

ACTION:

- a. Initiate relay QA71B-K5A (GIT Address #1014).
- b. Initiate relay QA71B-K5B (GIT Address #1031).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The word "PART" appears on an orange background on the group number 2 block. The color of the background changes to red after approximately 5 seconds.
- d. The words "2A", "2B", "2C", "2D" and "2E" turn red within approximately 32 seconds.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

STEP 9:

ACTION:

- a. Reset relay QA71B-K5A (GIT address #1014).
- b. Reset relay QA71B-K5B (GIT address #1031).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers revert to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: A. J. 8-2-80

STEP 10:

ACTION:

- a. Initiate relay QA71B-K5A (GIT Address #1014).
- b. Initiate relay QC71A-K307B (GIT Address #1165).

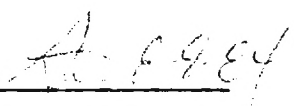
OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL: 

STEP 11:

ACTION:

- a. Reset relay QA71B-K5A (GIT address #1014).
- b. Reset relay QC71A-K307B (GIT Address #1165).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

L 9.84

STEP 12:

ACTION:

- a. Initiate relay QC71A-K307A (GIT Address #1164).
- b. Initiate relay QA71B-K5B (GIT Address #1031).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL: *21-8-87*

STEP 13:

ACTION:

- a. Reset relay QC71A-K307A (GIT address #1164).
- b. Reset relay QA71B-K5B (GIT Address #1031).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: *A 5254*

STEP 14:

ACTION:

- a. Initiate relay QC71A-K307A (GIT Address #1164).
- b. Initiate relay QC71A-K307B (GIT Address #1165).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.1 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.1 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

A 6-84

STEP 15:

ACTION:

- a. Reset relay QC71A-K307A (GIT address #1164).
- b. Reset relay QC71A-K307B (GIT Address #1165).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: A-97-84

STEP 16:

ACTION:

- a. Call the reference input data.
- b. Set the input to the values specified in Table 16.10.2.

OUTPUT:

- a. Verify the Secondary Diagnostic Display for appropriate response.

APPROVAL: _____

TABLE 16.10.2.

<u>SIGNAL GIT</u> <u>DESCRIPTION</u>	<u>ADDRESS</u>	<u>INPUT</u>	<u>OUTPUT</u>	<u>APPROVAL</u>
QT41-AOV F003B	0664	0	Close (G)	
QT41-AOV F011B	0660	0	Close (G)	
QT41-AOV F023B	0665	0	Close (G)	
QT41-AOV F032B	0663	1	Open (R)	
QT41-AOV F040B	0666	1	Open (R)	
QT41-AOV F043B	0661	0	Close (G)	
QT41-AOV F044B	0662	0	Close (G)	
QT46-AOV F001B	0727	0	Open (R)	
	0726	1		
QT46-AOV F002B	0731	0	Open (R)	
	0730	1		
Q2T41-AOV F003B	0544	0	Close (G)	
Q2T41-AOV F023B	0546	0	Close (G)	
Q2T46-AOV F002B	0343	0	Open (R)	
	0342	1		
Q2T46-AOV F003B	0277	0	Open (R)	
	0276	1		
QT46-C001B	0725	0	Auto (R)	
	0724	1		
	1154	0		
	1152	0		
	1153	1		
Q2T46-D001B	0335	1	Auto (R)	
	0336	0		
	1160	0		
	1161	1		
	1162	0		
QT46-F003B(*)	0732	1	Open (R)	
	0733	0		
QT46-F004B(*)	0734	1	Open (R)	
	0735	0		

(*) Not part of the secondary isolation logic.

STEP 17:

ACTION:

- a. Initiate relay QC51A-Z2C, i.e., set GIT Address #1072 to 1.

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The lower left "C" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

[Handwritten signature]

STEP 18:

ACTION:

- a. Reset relay QC51A-Z2C (GIT address #1072).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The words "2C", "2D", "2E" and "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The lower left "C" block reverts to a green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

2-9-84

STEP 19:

ACTION:

- a. Initiate relay QC51A-Z2D, i.e., set GIT Address #1073 to 1.

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The upper left "D" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

At 8-9-84

STEP 20:

ACTION:

- a. Reset relay QC51A-Z2D (GIT address #1073).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The words "2C", "2D", "2E" and "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The upper left "D" block reverts to a green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

At 8-2-84

STEP 21:

ACTION:

- a. Initiate relay QC51A-Z2C, i.e., set GIT Address #1076 to 1.

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

} delete

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The lower right "C" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

SA 6-9-91

STEP 22:

ACTION:

- a. Reset relay Q2C51A-Z2C (GIT address #1076).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The lower right "C" block reverts to a green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

A. E. G. 8/8/84

STEP 21:

ACTION:

- a. Initiate relay QC51A-Z2C, i.e., set GIT Address #1076⁷² to 1.

OUTPUT:

8-9-84 #3

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The group number 2 block shows "PART" on an orange background.. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

} delete

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The lower right "C" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

8-9-84

VIC 8-9-84

STEP 22:

ACTION:

- a. Reset relay Q2C51A-Z2C (GIT address #107⁷²~~6~~).

OUTPUT:

APR-9-84
VARIANCE #3

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
b. The lower right "C" block reverts to a green background.
c. The word "PART" disappears, leaving a green blank.

APPROVAL: _____

VOID APR 8 9 84

STEP 23

ACTION:

- a. Initiate relay QA71B-K5C (GIT Address #1015).
- b. Initiate relay QA71B-K5D (GIT Address #1032).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.
- c. The word "PART" appears on an orange background on the group number 2 block. The color of the background changes to red after approximately 5 seconds.
- d. The words "2A", "2B", "2C", "2D" and "2E" turn red within approximately 20 seconds.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

STEP 24:

ACTION:

- a. Reset relay QA71B-K5C (GIT address #1015).
- b. Reset relay QA71B-K5D (GIT address #1032).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The words "2A", "2B", "2C", "2D", "2E" and "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: *AS 89-20*

STEP 25:

ACTION:

- a. Initiate relay QA71B-K5C (GIT Address #1015).
- b. Initiate relay QC71A-K307D (GIT Address #1167).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

He 8-9-81

STEP 26

ACTION:

- a. Reset relay QA71B-K5C (GIT address #1015).
- b. Reset relay QC71A-K307D (GIT address #1167).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

AW 8-9-84

STEP 27:

ACTION:

- a. Initiate relay QC71A-K307C (GIT Address #1166).
- b. Initiate relay QA71B-K5D (GIT Address #1032).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

AT 8-7-84

STEP 28:

ACTION:

- a. Reset relay QC71A-K307C (GIT address #1166).
- b. Reset relay QA71B-K5D (GIT address #1032).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

John E. F. Euf

STEP 29:

ACTION:

- a. Initiate relay QC71A-K307C (GIT Address #1166).
- b. Initiate relay QC71A-K307D (GIT Address #1167).

OUTPUT:

Primary Display:

- a. The Unit 1 and Unit 2 blocks read "PART" on an orange background for approximately 30 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.2 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.2 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-1 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

A 8-9-84

STEP 30:

ACTION:

- a. Reset relay QC71A-K307C (GIT address #1166).
- b. Reset relay QC71A-K307D (GIT address #1167).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

8-9-84

STEP 31:

ACTION:

- a. Call the reference input data.
- b. Set the input to the valves specified in Table 16.10.3.

OUTPUT:

- a. Verify the Secondary Diagnostic display for appropriate response.

APPROVAL:

A 9-9-84

TABLE 16.10.3.

SIGNAL DESCRIPTION	GIT ADDRESS	INPUT	OUTPUT	APPROVAL
Q2T46-AOV F001A	0534	1	OPEN (R)	
	0535	0		
Q2T41-AOV F011A	0531	0	CLOSE (G)	
Q2T41-AOV F044A	0533	0	CLOSE (G)	
Q2T46-D001A	0542	1	AUTO (R)	
	0543	0		
	1155	0		
	1156	1		
	1157	0		
Q2T46-AOV F002A	0536	1	OPEN (R)	
	0537	0		

STEP 32:

ACTION:

- a. Initiate relay Q2C51A-Z2B (GIT Address #1075).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.3 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.3 that are part of the secondary containment isolation logic, turn orange.
- c. The lower right "B" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

A. 8984

STEP 33:

ACTION:

- a. Reset relay Q2C51A-Z2B (GIT address #1075).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The lower right "B" block reverts to green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: *AK 8-8-84*

STEP 34:

ACTION:

- a. Initiate relay Q2A71B-K5A (GIT Address #1170).
- b. Initiate relay Q2A71B-K5B (GIT Address #1174).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.3 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.3 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

L. E. S. S. /

STEP 35:

ACTION:

- a. Reset relay Q2A71B-K5A (GIT address #1170).
- b. Reset relay Q2A71B-K5B (GIT address #1174).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

A 8-9-84

STEP 36:

ACTION:

- a. Initiate relay Q2A71B-K5A (GIT Address #1170).
- b. Initiate relay Q2C71A-K307B (GIT Address #1173).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.3 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.3 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

Handwritten signature: J. E. 9-84

STEP 37:

ACTION:

- a. Reset relay Q2A71B-K5A (GIT address #1170).
- b. Reset relay Q2C71A-K307B (GIT address #1173).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

A-8-9-84

STEP 38:

ACTION:

- a. Initiate relay Q2A71B-K5B (GIT Address #1174).
- b. Initiate relay Q2C71A-K307A (GIT Address #1172).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.3 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.3 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

[Handwritten signature]

STEP 39:

ACTION:

- a. Reset relay Q2A71B-K5B (GIT address #1174).
- b. Reset relay Q2C71A-K307A (GIT address #1172).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: */ S-9-84*

STEP 40:

ACTION:

- a. Initiate relay Q2C71B-K307A (GIT Address #1172).
- b. Initiate relay Q2C71A-K307B (GIT Address #1173).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.3 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.3 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

AT 8-2-84

STEP 41:

ACTION:

- a. Reset relay Q2C71A-K307A (GIT address #1172).
- b. Reset relay Q2C71A-K307B (GIT address #1173).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

At 6-9-84

TABLE 16.10.4

SIGNAL DESCRIPTION	GIT ADDRESS	INPUT	OUTPUT	APPROVAL
Q2T46-AOV F001B	0340	1	OPEN (R)	
	0341	0		
Q2T41-AOV F011B	0545	0	CLOSE (G)	
Q2T41-AOV F044B	0547	0	CLOSE (G)	
Q2T46-D001B	0335	1	AUTO (R)	
	0336	0		
	1160	0		
	1161	1		
	1162	0		
Q2T46-AOV F002B	0342	1	OPEN (R)	
	0343	0		

STEP 42:

ACTION:

- a. Call the reference input data.
- b. Set the input to the values specified in Table 16.10.4.

OUTPUT:

- a. Verify the Secondary Diagnostic display for appropriate response.

APPROVAL:

ASG

STEP 43:

ACTION:

- a. Initiate relay Q2C51A-Z2D (GIT Address #1077).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.4 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.4 that are part of the secondary containment isolation logic, turn orange.
- c. The upper right "D" block background turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

AD 8-9-84

STEP 44:

ACTION:

- a. Reset relay Q2C51A-Z2D (GIT address #1077).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The upper right "D" block reverts to green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

At 8-8-84

STEP 45:

ACTION:

- a. Initiate relay Q2A71B-K5C (GIT Address #1171).
- b. Initiate relay Q2A71B-K5D (GIT Address #1175).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.4 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.4 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

DE-9.84

STEP 46:

ACTION:

- a. Reset relay Q2A71B-K5C (GIT address #1171).
- b. Reset relay Q2A71B-K5D (GIT address #1175).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

At 6-9-84

STEP 47:

ACTION:

- a. Initiate relay Q2A71B-K5C (GIT Address #1171).
- b. Initiate relay Q2C71A-K307D (GIT Address #1177).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.4 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.4 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

AT 8-7-84

STEP 48:

ACTION:

- a. Reset relay Q2A71B-K5C (GIT address #1171).
- b. Reset relay Q2C71A-K307D (GIT address #1177).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

L-8-9-84

STEP 49:

ACTION:

- a. Initiate relay Q2A71B-K5D (GIT Address #1175).
- b. Initiate relay Q2C71A-K307C (GIT Address #1176).

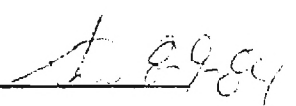
OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.4 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.4 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL: 

STEP 50:

ACTION:

- a. Reset relay Q2A71B-K5D (GIT address #1175).
- b. Reset relay Q2C71A-K307C (GIT address #1176).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: *A. E. G. 84*

STEP 51:

ACTION:

- a. Initiate relay Q2C71A-K307C (GIT Address #1176).
- b. Initiate relay Q2C71A-K307D (GIT Address #1177).

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 33 seconds. The background then turns green.
- b. The word "SEC" in the keypad mimic turns orange.

Diagnostic Display:

- a. The color of the valves and fan in Table 16.10.4 are as listed in that table.
- b. The tag numbers of the valves and fan in Table 16.10.4 that are part of the secondary containment isolation logic, turn orange.
- c. The HNP-2 box turns orange.
- d. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

AT 8-9-84

STEP 52:

ACTION:

- a. Reset relay QC71A-K307C (GIT address #1166). ⁷⁶ 4-8-84
- b. Reset relay QC71A-K307D (GIT address #1167). ⁷⁷ 4-8-84

VARIANCE #3

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green background.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

4-8-84

STEP 53:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relay Q2C51A-Z2A, (GIT Address #1074).
- c. Initiate relay Q2C51A-Z2C (GIT Address #1076).
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 2 block read "PART" and the Unit 1 block reads "ALL" on an orange background for approximately 30 seconds. The background then turns red.
- b. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. The tag numbers of all the valves and fans on the secondary isolation diagnostic display turn orange, except for valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, QT46-F003A, F003B, F004A, and F004B.
- b. The upper right "A" block and lower right "C" block turn orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

St 2981

STEP 54:

ACTION:

- a. Reset relay Q2C51A-Z2A (GIT address #1074).
- b. Reset relay Q2C51A-Z2C (GIT address #1076).

OUTPUT:

Primary Display:

- a. The words "PART" and "ALL" disappear, leaving green blanks.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The upper right "A" block and lower right "C" block revert to a green background.
- c. The word "PART" and "ALL" disappear, leaving green blanks.

APPROVAL:

At 8-9-84

STEP 55:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relay Q2C51A-Z2B, (GIT Address #1075).
- c. Initiate relay Q2C51A-Z2D (GIT Address #1077).
- d. Enable buffer transfer

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 30 seconds. The background then turns red.
- b. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. The tag numbers for valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, F002A, F002B and fans D001A and D001B turn orange..
- b. The lower right "B" block and upper right "D" block turn orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

A. 8-7-84

STEP 56:

ACTION:

- a. Reset relay Q2C51A-Z2B (GIT address #1075).
- b. Reset relay Q2C51A-Z2D (GIT address #1077).

OUTPUT:

Primary Display:

- a. The word "PART" disappears, leaving a green blank.
- b. The word "SEC" reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The lower right "B" block and upper right "D" block revert to green backgrounds.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

L F-984

STEP 57:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relay QC51A-Z2A, (GIT Address #1070).
- c. Initiate relay QC51A-Z2C (GIT Address #1072).
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 1 block reads "ALL" and Unit 2 block reads "PART" on an orange background for approximately 30 seconds. The background then turns red.
- b. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

Diagnostic Display:

- a. The tag numbers of all the valves and fans on the secondary isolation diagnostic display turn orange, except for valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, QT46-F003A, F003B, F004A, and F004B.
- b. The upper left "A" block and lower left "C" block turn orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

A. F. G. S.

STEP 58:

ACTION:

- a. Reset relay QC51A-Z2A (GIT address #1070).
- b. Reset relay QC51A-Z2C (GIT address #1072).

OUTPUT:

Primary Display:

- a. The words "PART" and "ALL" disappear, leaving green blanks.
- b. The words "2C", "2D", "2E" and "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The upper left "A" block and "C" block revert to green backgrounds.
- c. The words "PART" and "ALL" disappear, leaving green blanks.

APPROVAL:

At 8-9-84

STEP 59:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relay QC51A-Z2B, (GIT Address #1071).
- c. Initiate relay QC51A-Z2D (GIT Address #1073).
- d. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 1 block reads "ALL" and the Unit 2 block reads "PART" on an orange background for approximately 30 seconds. The background then turns red.
- b. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.
- c. The group number 2 block shows "PART" on an orange background. The color changes to red after approximately 5 seconds.
- d. The words "2C", "2D", and "2E" turn orange. The color changes to red after approximately 5 seconds.

Diagnostic Display:

- a. The tag numbers of all the valves and fans on the secondary diagnostic display turn orange, except for valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, QT46-F003A, F003B, F004A, and F004B.
- b. The lower left "B" block and upper left "D" block turn orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

[Handwritten signature]

STEP 60:

ACTION:

- a. Reset relays QC51A-Z2B (GIT address #1071, and QC51A-Z2D (GIT address #1073.

OUTPUT:

Primary Display:

- a. The words "ALL" and "PART" disappear, leaving green blanks.
- b. The words "2C", "2D", "2E", and "SEC" revert to green.

Diagnostic Display:

- a. The tag numbers revert to white.
- b. The upper left "D" block and the lower left "B" block revert to a green background.
- c. The words "ALL" and "PART" disappear, leaving green blanks.

APPROVAL:

8-9-84

STEP 61:

- a. Call the reference input data.

STEP 62:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relays QC71A-K307A, (GIT Address #1164), QC71A-K307B (GIT Address #1165), QC71A-K307C (GIT Address #1166), and QC71A-K307D (GIT Address #1167).
- c. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 1 block reads "ALL" on an orange background for approximately 30 seconds. The background then turns red.
- b. The Unit 2 block reads "PART" on an orange background for 30 seconds. The background then turns red.
- c. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. The tag numbers of all the valves and fans on the secondary isolation diagnostic display turn orange, except for valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, QT46-F003A, F003B, F004A, and F004B.
- b. The HNP-1 box turns orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

28-9-84

STEP 63:

ACTION:

- a. Reset relays QC71A-K307A, (GIT Address #1164), QC71A-K307B (GIT Address #1165), QC71A-K307C (GIT Address #1166), and QC71A-K307D (GIT Address #1167).

OUTPUT:

Primary Display:

- a. The words "ALL" and "PART" in the Unit 1 and Unit 2 blocks disappear, leaving green blanks.
- b. The word "SEC" in the keypad mimic reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The words "ALL" and "PART" disappear, leaving green blanks.

APPROVAL:

th 89-84

STEP 64:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relays QA71B-K5A, (GIT Address #1014), QA71B-K5B (GIT Address #1031), QA71B-K5C (GIT Address #1015), and QA71B-K5D (GIT Address #1032).
- c. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 1 block reads "ALL" on an orange background for approximately 30 seconds. The background then turns red.
- b. The Unit 2 block reads "PART" on an orange background for 30 seconds. The background then turns red.
- c. The word "SEC" turns orange. The color changes to red after approximately 30 seconds.
- d. The word "PART" appears on an orange background in the group number 2 block for approximately 5 seconds. The background then turns red.
- e. The words "2A", "2B", "2C", "2D", and "2E" turn orange. The color changes to red within approximately 20 seconds.

Diagnostic Display:

- a. The tag numbers of all the valves and fans on the secondary isolation diagnostic display turn orange, except for valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, QT46-F003A, F003B, F004A, and F004B.
- b. The HNP-1 box turns orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

4-87-84

STEP 65:

ACTION:

- a. Reset relays QA71B-K5A, (GIT Address #1014), QA71B-K5B (GIT Address #1031), QA71B-K5C (GIT Address #1015), and QA71B-K5D (GIT Address #1032).

OUTPUT:

Primary Display:

- a. The words "ALL" and "PART" in the Unit 1 and Unit 2 blocks disappear, leaving green blanks.
- b. The words "2A", "2B", "2C", "2D", "2E" and "SEC" in the keypad mimic revert to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-1 box reverts to green.
- c. The word "ALL" and "PART" disappear, leaving green blanks.

APPROVAL:

AS-84

STEP 66:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relays Q2C71A-K307A, (GIT Address #1172), Q2C71A-K307B (GIT Address #1173), Q2C71A-K307C (GIT Address #1176), and Q2C71A-K307D (GIT Address #1177).
- c. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 30 seconds. The background then turns red.
- b. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. The tag numbers of the valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, F002A, F002B, and fans Q2T46-D001A and D001B turn orange.
- b. The HNP-2 box turns orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

Handwritten signature: K-89-84

STEP 67:

ACTION:

- a. Reset relays Q2C71A-K307A, (GIT Address #1172), Q2C71A-K307B (GIT Address #1173), Q2C71A-K307C (GIT Address #1176), and Q2C71A-K307D (GIT Address #1177).

OUTPUT:

Primary Display:

- a. The word "PART" in the Unit 2 block disappears, leaving a green blank.
- b. The word "SEC" in the keypad mimic reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to green.
- b. The HNP-2 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL: *LEF*

STEP 68:

ACTION:

- a. Disable buffer transfer.
- b. Initiate relays Q2A71B-K5A, (GIT Address #1170), Q2A71B-K5B (GIT Address #1174), Q2A71B-K5C (GIT Address #1171), and Q2A71B-K5D (GIT Address #1175).
- c. Enable buffer transfer.

OUTPUT:

Primary Display:

- a. The Unit 2 block reads "PART" on an orange background for approximately 30 seconds. The background then turns red.
- b. The word "SEC" in the keypad mimic turns orange. The color changes to red after approximately 30 seconds.

Diagnostic Display:

- a. The tag numbers of the valves Q2T41-AOV F011A, F011B, F044A, F044B, Q2T46-AOV F001A, F001B, F002A, F002B, and fans Q2T46-D001A and D001B turn orange.
- b. The HNP-2 box turns orange.
- c. The Unit 1 and Unit 2 blocks match those on the Primary Display.

APPROVAL:

AE-984

STEP 69:

ACTION:

- a. Call the reference test input.

OUTPUT:

Primary Display:

- a. The word "PART" in the Unit 2 block disappears, leaving a green blank.
- b. The word "SEC" in the keypad mimic reverts to green.

Diagnostic Display:

- a. The tag numbers reverts to white.
- b. The HNP-2 box reverts to green.
- c. The word "PART" disappears, leaving a green blank.

APPROVAL:

8-9-84

17. RATE CALCULATION TESTS

Follow the procedure steps given below for each of the analog parameters.

17.1. REACTOR WATER LEVEL RATE CALCULATIONS

- | | | |
|---------|---|---|
| STEP 1 | | Restore the reference data at both ERF and SPDS. |
| STEP 2 | A | Call up the RPV Water Level Log In/Log Out display and log out all the water level sensors except N027. |
| | B | Call up the 6-minute Core Trend display. |
| STEP 3 | A | Command "Function Select" (14) |
| | B | Select Ramp for the function. |
| | C | Enter 20 for the ramp slope. |
| STEP 4 | | Command "Signal Change Enable" (10) |
| STEP 5 | | Enter the value 571 for sensor N027 (SPDS address #84). |
| STEP 6 | A | Command "Global Change Start" (12) |
| | B | Wait approximately 10 seconds for rate to stabilize. |
| | C | Check the appropriate rate for the value 166.4 on the 6-minutes Core Trends display. |
| STEP 7 | | Command "Global Change Stop" (13) to stop ramp. |
| STEP 8 | | Command "Signal Change Disable" (11) |
| STEP 9 | | Enter again the value 571 for SPDS Analog #84 to indicate the signal to be disabled. |
| STEP 10 | | Log in the logged out sensors. |
| STEP 11 | | Record approval: <u> </u> 8-10-84 |

17.2 REACTOR PRESSURE RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.2 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 10 seconds for rate to stabilize.
 C Check the appropriate rate for the value 440 on the 6-minute Core Trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.2 to indicate the signals to be disabled.
- STEP 9 Record approval: B/E 8-10-84

TABLE 17.2

Sensor Tag Number	Scale	Channel Number	Default Value
<u>REACTOR PRESSURE (SPDS ANALOG)</u>			
QB21-PIS N690A	0/1500	80	2740
QB21-PIS N690D	0/1500	127	2740

17.3 APRM RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter data from Table 17.3 to indicate signals to
 be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 10 seconds for rate to stabilize.
 C Check the appropriate rate for the value 37 on the 6-
 minute Core Trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.3 to indicate the
 signals to be disabled.
- STEP 9 Record approval: BAE 8-10-84

TABLE 17.3

Sensor Tag Number	Scale	Channel Number	Default Value
<u>AVERAGE POWER RANGE MONITORS (ERF ANALOG)</u>			
QC51-RIS K605			
APRM A	0/125	30	3276
APRM B	0/125	49	3276
APRM C	0/125	64	3276
APRM D	0/125	111	3276
APRM E	0/125	82	3276
APRM F	0/125	125	3276

17.4 SRM RATE CALCULATIONS

- STEP 1 Restore the reference data at the ERF.
- STEP 2 Call up the 6-minute Neutron Trends display.
- STEP 3 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 4 Command "Signal Change Enable" (10)
- STEP 5 Enter the data from Table 17.4 to indicate the signals to be ramped.
- STEP 6 A Command "Global Change Start" (12)
 B Wait approximately 10 seconds for period to stabilize.
 C Check the appropriate period for the value 13 on the 6-minute Neutron Trends display.
- STEP 7 Command "Global Change Stop" (13) to stop ramp.
- STEP 8 Enter the data from Table 17.4 to indicate the signals to be disabled.
- STEP 9 Command "Signal Change Disable" (11)
- STEP 10 Record approval: BAE 8-10-84

TABLE 17.4

Sensor Tag Number	Scale	Channel Number	Default Value
<u>SOURCE RANGE MONITORS (ERF ANALOG)</u>			
QC51-RIS K600A	$10^{-1}/10^6$	0	3718
QC51-RIS K600B	$10^{-1}/10^6$	17	3718
QC51-RIS K600C	$10^{-1}/10^6$	47	3718
QC51-RIS K600D	$10^{-1}/10^6$	62	3718

17.5 DRYWELL PRESSURE RATE CALCULATIONS

- STEP 1 Restore the reference data at the ERF.
- STEP 2 Call up the 6-minute Drywell Trends display.
- STEP 3 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 4 Command "Signal Change Enable" (10)
- STEP 5 Enter the data from Table 17.5 to indicate the signals to be ramped.
- STEP 6 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 2.93 on the 6-minute Drywell Trends display.
- STEP 7 Command "Global Change Stop" (13) to stop ramp.
- STEP 8 Command "Signal Change Disable" (11)
- STEP 9 Enter the data from Table 17.5 to indicate the signals to be disabled.
- STEP 10 Record approval: *for E-1089*

TABLE 17.5

Sensor Tag Number	Scale	Channel Number	Default Value
<u>DRYWELL PRESSURE (SPDS ANALOG)</u>			
QT48-PT N020A	- 5/+ 5	88	2162
QT48-PT N020B	- 5/+ 5	119	2162
QT48-PT N023A	-10/+90	96	421
QT48-PT N023B	-10/+90	79	421
QT48-PT N003A	0/250	87	0
QT48-PT N003B	0/250	120	0

17.6 DRYWELL TEMPERATURE RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.6 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 147 on the 6-minute drywell trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.6 to indicate the signals to be disabled.
- STEP 9 Record approval: *8-10-84*

TABLE 17.6

Sensor Tag Number	Scale	Channel Number	Default Value
<u>DRYWELL TEMPERATURE (SPDS ANALOG)</u>			
QT47-TE N001A	0/500	71	959
QT47-TE N001B	0/500	0	971
QT47-TE N001L	0/500	17	932
QT47-TE N002	0/500	118	1008
QT47-TE N004	0/500	81	894
QT47-TE N006	0/500	76	0
QT47-TE N008	0/500	9	921
QT47-TE N009	0/500	65	1090
QT47-TE N001J	0/500	47	921
QT47-TE N001K	0/500	104	1134
QT47-TE N001M	0/500	62	932
QT47-TE N003	0/500	110	1018
QT47-TE N005	0/500	38	959
QT47-TE N007	0/500	126	942
QT47-TE N010	0/500	89	1008

17.7 TORUS WATER LEVEL RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 Call up the 6-minute Torus Trends display.
- STEP 3 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 4 Command "Signal Change Enable" (10)
- STEP 5 Enter the data from Table 17.7 to indicate the signals to be ramped.
- STEP 6 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 8.8 on the 6-minute Torus Trends display.
- STEP 7 Command "Global Change Stop" (13) to stop ramp.
- STEP 8 Command "Signal Change Disable" (11)
- STEP 9 Enter the data from Table 17.7 to indicate the signals to be disabled.
- STEP 10 Record approval: AS 8-10-84

TABLE 17.7

Sensor Tag Number	Scale	Channel Number	Default Value
<u>TORUS WATER LEVEL (SPDS ANALOG)</u>			
QT48-LT N021A	133/163	95	1876
QT48-LT N021B	133/163	112	1876
QT48-LT N010A	0/300	72	2001
QT48-LT N010B	0/300	103	2001

17.8 TORUS PRESSURE RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.8 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 29.3 on the 6-minute Torus Trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.8 to indicate the signals to be disabled.
- STEP 9 Record approval: *A 8-10-84*

TABLE 17.8

Sensor Tag Number	Scale	Channel Number	Default Value
<u>TORUS PRESSURE (SPDS ANALOG)</u>			
QT48-PT N008A	-10/+90	16	420
QT48-PT N008B	-10/+90	63	420

17.9 TORUS WATER TEMPERATURE RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 A Call up the Torus Temp Log In/Log Out Display.
B Log out all the wide range instruments as shown in Table 17.9.
- STEP 3 A Command "Function Select" (14)
B Select Ramp for the function.
C Enter 20 for the ramp slope.
- STEP 4 Command "Signal Change Enable" (10)
- STEP 5 Enter the data from Table 17.9 to indicate the signals to be ramped.
- STEP 6 A Command "Global Change Start" (12)
B Wait approximately 30 seconds for rate to stabilize.
C Check the appropriate rate for the value 58.6 on the 6-minute Torus Trends display.
- STEP 7 Command "Global Change Stop" (13) to stop ramp.
- STEP 8 Command "Signal Change Disable" (11)
- STEP 9 Enter the data from Table 17.9 to indicate the signals to be disabled.
- STEP 10 Log in the logged out sensors.
- STEP 11 Record approval: A 8-9-84

TABLE 17.9

Sensor Tag Number	Scale	Channel Number	Default Value
<u>TORUS WATER TEMPERATURE (SPDS ANALOG)</u>			
QT48-TE N301A	50/250	2	748
QT48-TE N302A	50/250	83	748
QT48-TE N303A	50/250	99	748
QT48-TE N304A	50/250	105	748
QT48-TE N305A	50/250	20	748
QT48-TE N306A	50/250	70	748
QT48-TE N307A	50/250	25	748
QT48-TE N308A	50/250	13	748
QT48-TE N309A	50/250	113	748
QT48-TE N310A	50/250	33	748
QT48-TE N311A	50/250	46	748
QT48-TE N009A	0/400	45	Logged out
QT48-TE N009B	0/400	59	Logged out
QT48-TE N009C	0/400	54	Logged out
QT48-TE N009D	0/400	34	Logged out

17.10 DRYWELL/TORUS H₂ RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 Call the 6-minute H₂/O₂ Trends display.
- STEP 3 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 4 Command "Signal Change Enable" (10)
- STEP 5 Enter the data from Table 17.10 to indicate the signals to be ramped.
- STEP 6 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 2.93 on the 6-minute H₂/O₂ Trends display.
- STEP 7 Command "Global Change Stop" (13) to stop ramp.
- STEP 8 Command "Signal Change Disable" (11)
- STEP 9 Enter the data from Table 17.10 to indicate the signals to be disabled.
- STEP 10 Record approval: A 8-10-84

TABLE 17.10

Sensor Tag Number	Scale	Channel Number	Default Value
<u>DRYWELL/TORUS H₂ CONCENTRATION (SPDS ANALOG)</u>			
QP33-P601A	0/10	6	15
QP33-P601B	0/10	41	27

17.11 DRYWELL/TORUS O₂ RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.11 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 2.93 on the 6-minute H₂/O₂ trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.11 to indicate the signals to be disabled.
- STEP 9 Record approval: AS 8-9-04 *to 8-10-04*

TABLE 17.11

Sensor Tag Number	Scale	Channel Number	Default Value
<u>DRYWELL/TORUS O₂ CONCENTRATION (SPDS ANALOG)</u>			
QP33-P601A	0/10	68	925
QP33-P601B	0/10	107	870

17.12 MAIN STACK RADIATION RATE CALCULATIONS

- STEP 1 Restore the reference data at the SPDS.
- STEP 2 Call up the 6-minute Effluent Trends display.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.12 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 2.E 00 on the 6-minute Effluent Trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.12 to indicate the signals to be disabled.
- STEP 9 Record approval: A. 8-10-84

TABLE 17.12

Sensor Tag Number	Scale	Channel Number	Default Value
MAIN STACK RADIATION (NORMAL RANGE) (ERF ANALOG)			
QD11-RIS K600A	$10^{-1}/10^{+6}$	78	304
QD11-RIS K600B	$10^{-1}/10^{+6}$	97	241

17.13 REACTOR BUILDING VENT RADIATION (HNP-2) RATE CALCULATIONS

- STEP 1 Restore the reference data at the ERF.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.13 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 1.E 00 on the 6-minute Effluent Trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.13 to indicate the signals to be disabled.
- STEP 9 Record approval: 8-10-84

TABLE 17.13

Sensor Tag Number	Scale	Channel Number	Default Value
<u>REACTOR BUILDING VENT RADIATION (NORMAL RANGE) (ERF ANALOG)</u>			
Q2D11-RIS K636A	$10^{+1}/10^{+6}$ cpm	93	476
Q2D11-RIS K636B	$10^{+1}/10^{+6}$ cpm	114	705

17.14 REACTOR BUILDING VENT RADIATION (HNP 1) RATE CALCULATIONS

- STEP 1 Restore the reference data at the ERF.
- STEP 2 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope.
- STEP 3 Command "Signal Change Enable" (10)
- STEP 4 Enter the data from Table 17.14 to indicate the signals to be ramped.
- STEP 5 A Command "Global Change Start" (12)
 B Wait approximately 30 seconds for rate to stabilize.
 C Check the appropriate rate for the value 1.E 00 on the 6-minute Effluent Trends display.
- STEP 6 Command "Global Change Stop" (13) to stop ramp.
- STEP 7 Command "Signal Change Disable" (11)
- STEP 8 Enter the data from Table 17.14 to indicate the signals to be disabled.
- STEP 9 Record approval: St E 11-84

TABLE 17.14

Sensor Tag Number	Scale	Channel Number	Default Value
<u>REACTOR BUILDING VENT RADIATION (NORMAL RANGE)(ERF ANALOG)</u>			
QD11-RIS K619A	$10^{+1}/10^{+6}$ cpm	29	476
QD11-RIS K619B	$10^{+1}/10^{+6}$ cpm	50	705

17.15. VESSEL/FLANGE TEMPERATURE RATE CALCULATIONS

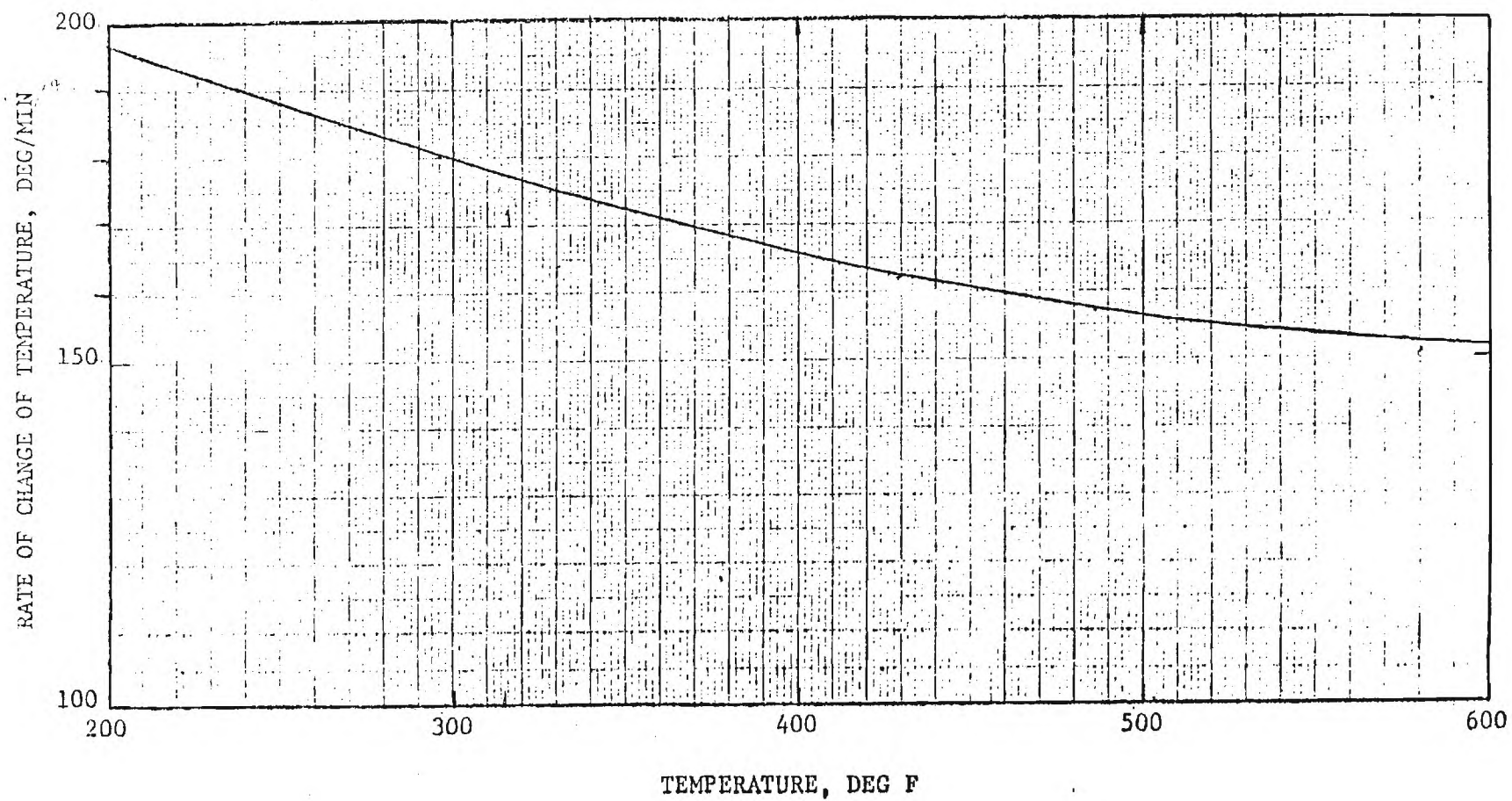
- STEP 1 Restore the reference data at the ERF.
- STEP 2 Call up the Vessel/Flange Temperature Miscellaneous display.
- STEP 3 A Command "Function Select" (14)
 B Select Ramp for the function.
 C Enter 20 for the ramp slope
- STEP 4 Command "Signal Change Enable" (10)
- STEP 5 Enter the data from Table 17.15 to indicate the signals to be ramped.
- STEP 6 A Command "Global Change Start" (12)
 B After the temperature reaches 200°F, record the temperature and rate at 6 different times on Table 17.16. No data is to be recorded after five minutes after the start of the ramp.
 C After completion of the data recording, figure 17.1 is to be used to determine the predicted rate of increase of the vessel flange temperature. All differences between displayed rates and predicted rates are to be less than 0.5°F/min.
- STEP 7 Command "Global Change Stop" (13) to stop ramp.
- STEP 8 Command "Signal Change Disable" (11).
- STEP 9 Enter the data from Table 17.15 to indicate the signals to be disabled.
- STEP 10 Record approval: _____

TABLE 17.15

Sensor Tag Number	Scale	Channel Number	Default Value
<u>VESSEL/FLANGE TEMPERATURE (ERF ANALOG)</u>			
Q2B21-TE N050A	0/600	117	0

TABLE 17.16

TIME	TEMPERATURE	DISPLAYED RATE	PREDICTED RATE	APPROVAL
10:54	227	191.9	192.3	B/E 8-10-84
10:54.30	316.1	177.3	177.5	B/E 8-10-84
10:55.10	425.9	162.8	162.5	B/E 8-10-84
10:55.40	509	156.1	156	B/E 8-10-84
10:56.10	580.1	152.7	153	B/E 8-10-84
10:56.40	8.6 N/A	N/A	N/A	N/A B/E



18. LOG IN/LOG OUT FUNCTION TEST

Follow the procedures below to test the log in/log out function. Record approval.

18.1 REACTOR WATER LEVEL

- a. Call up the reference input data.
- b. Call up the Log in/Log out display for reactor water level.
- c. Call up the RPV Water Level Diagnostic display.
- d. Turn off recirculation pump A by setting ERF Digital signals #1500 to 0, 1501 to 1, 1502 to 0 and 1503 to 1.
- e. Log out all of the instruments.
- f. Check on the Log in/Log out display and on the diagnostic display that the instruments are logged out. The background of the instrument number is red and the average level box is a yellow blank.
- g. Input the values specified in Table 18.1.
- h. Log in one instrument.
- i. Check that the instrument number background changes to black on the Log in/Log out display and on the diagnostic display.
- j. Check that the output on the diagnostic display agrees with Table 18.1.
- k. Log out the instrument.
- l. Repeat steps h through k until all instruments have been checked.

TABLE 18.1

INSTRUMENT #	INPUT		OUTPUT		
	Channel #	Value	Sensor (in)	Corrected Level (in)	Average Level (in)
N685A	SPDS-123	2000	-170.5	-113.0	-113.0 (R)
N685B	SPDS- 18	2000	-170.5	-113.0	-113.0 (R)
N038A	SPDS- 66	2000	-132.9	- 61.7	- 61.7 (R)
N038B	SPDS-109	2000	-132.9	- 61.7	- 61.7 (R)
N691A	SPDS- 4	2000	- 47.4	- 46.3	- 46.3 (R)
N691B	SPDS- 43	2000	- 47.4	- 46.3	- 46.3 (R)
N691C	SPDS- 64	2000	- 47.4	- 46.3	- 46.3 (R)
N691D	SPDS-111	2000	- 47.4	- 46.3	- 46.3 (R)
N027	SPDS- 84	2000	178.4	234.1	234.1 (R)

APPROVAL:

18.2 REACTOR PRESSURE

- a. Call the reference input data.
- b. Call up the Log in/Log out display for reactor pressure.
- c. Call up the RPV Pressure Diagnostic display.
- d. Log out all of the instruments.
- e. Check on the Log in/Log out display and on the diagnostic display that all the instruments are logged out. The background of the instrument number is red and the average pressure box is a yellow blank.
- f. Input the values specified in Table 18.2.
- g. Log in sensor N690A.
- h. Check that the background of that instrument changes to black on the Log in/Log out and diagnostic display.
- i. Check that the output on the RPV diagnostic display agrees with Table 18.2.
- j. Log out this instrument.
- k. Repeat steps g through j with sensor N690D.

TABLE 18.2

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor (psig)	Average (psig)
N690A	SPDS- 80	3000	1099	1099 (R)
N690D	SPDS-127	3000	1099	1099 (R)

APPROVAL: *[Signature]*

18.3 AVERAGE POWER RANGE MONITOR

- a. Call the reference input data.
- b. Call up the Log in/Log out display for average power range monitor.
- c. Call up the APRM Diagnostic display.
- d. Log out all of the sensors.
- e. Check on the Log in/Log out display and on the APRM diagnostic display that the instruments are logged out. The background of the instrument number is red and the average level box is a yellow blank.
- f. Input the values specified in Table 18.3.
- g. Log in sensor A.
- h. Check that the background of that instrument changes to black on the Log in/Log out and diagnostic display.
- i. Check that the output on the diagnostic display agrees with Table 18.3.
- j. Log out this instrument.
- k. Repeat steps g through j with the remaining instruments, B through F, until all instruments are checked.

TABLE 18.3

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor	Average (%)
2C51-RIS K605				
A	ERF- 30	1500	45.8	45.8 (R)
B	ERF-111	1500	45.8	45.8 (R)
C	ERF- 49	1500	45.8	45.8 (R)
D	ERF- 82	1500	45.8	45.8 (R)
E	ERF- 64	1500	45.8	45.8 (R)
F	ERF-125	1500	45.8	45.8 (R)
2B31-SQRT K608A	ERF- 10	2640	45128	YB
2B31-SQRT K606A	ERF- 37	2640	45128	YB

APPROVAL: *[Signature]*

18.4 SOURCE RANGE MONITOR (SRM)

- a. Call the reference input data.
- b. Call up the Log in/Log out display for the source range monitors.
- c. Call up the SRM Diagnostic display.
- d. Log out all of the sensors.
- e. Check that all the sensors are logged out. The background of the instrument number is red and the average SRM box is a yellow blank.
- f. Input the values specified in Table 18.4.
- g. Log in sensor K600A.
- h. Check that the background of that instrument changes to black on the Log in/Log out and diagnostic display.
- i. Check that the output on the diagnostic display agrees with Table 18.4.
- j. Log out this sensor.
- k. Repeat steps g through j until all the instruments have been checked.

TABLE 18.4

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor (cps)	Average (cps)
K600A	ERF- 0	3000	1.3E 04	1.3E 04 (G)
K600B	ERF-17	3000	1.3E 04	1.3E 04 (G)
K600C	ERF-47	3000	1.3E 04	1.3E 04 (G)
K600D	ERF-62	3000	1.3E 04	1.3E 04 (G)

APPROVAL: *A. B. 84*

18.5 DRYWELL PRESSURE

- a. Call the reference input data.
- b. Call up the Log in/Log out display for the drywell pressure.
- c. Call up the Drywell Pressure Diagnostic display.
- d. Log out all of the instruments.
- e. Check that all the instruments are logged out on both the Log in/Log out display and the diagnostic display. The background of the instrument number is red and the average pressure display is a yellow blank.
- f. Input the values specified in Table 18.5.
- g. Log in the two narrow range instruments.
- h. Check that the instrument number background changes to black on the Log in/Log out display and on the diagnostic display.
- i. Check that the output on the diagnostic display agrees with Table 18.5.
- j. Log out these instruments.
- k. Repeat steps g through j with the remaining sensor groups shown in Table 18.5.

TABLE 18.5

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor (psig)	Average (psig)
N020A (narrow)	SPDS- 88	2500	1.1	1.1 (G)
N020A (narrow)	SPDS-119	2500	1.1	
N023A (mid)	SPDS- 96	2500	51.0	51.0 (R)
N023B (mid)	SPDS- 79	2500	51.0	
N003A (wide)	SPDS- 87	2500	152.6	152.6 (R)
N003B (wide)	SPDS-120	2500	152.6	

APPROVAL:

18.6 DRYWELL TEMPERATURE

- a. Call the reference input data.
- b. Call up the Log in/Log out display for drywell temperature.
- c. Call up the Drywell Temperature Diagnostic display.
- d. Log out all of the instruments
- e. On the diagnostic and Log in/Log out display, check that the instruments are logged out. The background of the instrument number is red and the average temperature box is a yellow blank.
- f. Input the values listed in Table 18.6a.
- g. Log in the first instrument combination shown in Table 18.6b.
- h. Check that the instrument number backgrounds change to black on both displays.
- i. Check that the value for the average drywell temperature agrees with the value shown in Table 18.6b.
- j. Log out the instruments.
- k. Repeat steps g through j with each combination, until all have been tested.

APPROVAL: _____

18.6 DRYWELL TEMPERATURE

- a. Call the refernce input data.
- b. Call up the Log in/Log out display for drywell temperature.
- c. Call up the Drywell Temperature Diagnostic display.
- d. Log out all of the instruments
- e. On the diagnostic and Log in/Log out display, check that the instruments are logged out. The background of the instrument number is red and the average temperature box is a yellow blank.
- f. Input the values listed in Table 18.6a.
- g. Log in the first instrument combination shown in Table 18.6b.
- h. Check that the instrument number backgrounds change to black on both displays.
- i. Check that the value for the average drywell temperature agrees with the value shown in Table 18.6b.
- j. Log out the instruments.
- k. Repeat steps g through j with each combination, until all have been tested.

APPROVAL:

L. F. 10-29/

TABLE 18.6a

INSTRUMENT	INPUT		SENSOR OUTPUT
#	Channel	VALUE	(°F)
#			
GROUP A			
N001L	SPDS- 17	800	98
N001M	SPDS- 62	800	98
N004	SPDS- 81	800	98
N005	SPDS- 38	800	98
N007	SPDS-126	800	98
N008	SPDS- 9	800	98
GROUP B			
N009	SPDS- 65	1200	147
N003	SPDS-110	1200	147
GROUP C			
N001B	SPDS- 0	1600	195
N001J	SPDS- 47	1600	195
N002	SPDS-118	1600	195
N010	SPDS- 89	1600	195
N001A	SPDS- 71	1600	195
N001K	SPDS-104	1600	195
N006 (*)	SPDS- 76	1600	195

(*) N006 has no influence on the average.

TABLE 18.6b

INSTRUMENT COMBINATION	AVERAGE T (°F)
Group A + N009	110 (Y)
Group A + N003	110 (Y)
Group A + N002	116 (Y)
Group A + N010	116 (Y)
Group A + N001A	116 (Y)
Group A + N001K	116 (Y)
Group A + N001B	116 (Y)
Group A + N001J	116 (Y)
Group B + N001L	110 (Y)
Group B + N001M	110 (Y)
Group B + N004	110 (Y)
Group B + N005	110 (Y)
Group B + N007	110 (Y)
Group B + N008	110 (Y)
Group B + N002	166 (R)
Group B + N010	166 (R)
Group B + N001A	166 (R)
Group B + N001K	166 (R)
Group B + N001B	166 (R)
Group B + N001J	166 (R)

TABLE 18.6a

INSTRUMENT	INPUT		SENSOR OUTPUT
#	Channel	VALUE	(°F)
#			
GROUP A			
N001L 1	SPDS- 17	800	98
N001M 2	SPDS- 62	800	98
N004 3	SPDS- 81	800	98
N005 4	SPDS- 38	800	98
N007 5	SPDS-126	800	98
N008 6	SPDS- 9	800	98
GROUP B			
N009 11	SPDS- 65	1200	147
N003A 12	SPDS-110	1200	147
GROUP C			
N001B 16	SPDS- 0	1600	195
N001J 17	SPDS- 47	1600	195
N002 18	SPDS-118	1600	195
N010 19	SPDS- 89	1600	195
N001A 20	SPDS- 71	1600	195
N001K 21	SPDS-104	1600	195
N006 (*)	SPDS- 76	1600	195

TABLE 18.6b

INSTRUMENT COMBINATION	AVERAGE T (°F)
Group A + N009	110 (Y)
Group A + N003	110 (Y)
Group A + N002	116 (Y)
Group A + N010	116 (Y)
Group A + N001A	116 (Y)
Group A + N001K	116 (Y)
Group B + N001B	110 (Y)
Group B + N001J	110 (Y)
Group B + N001L	110 (Y)
Group B + N001M	110 (Y)
Group B + N004	110 (Y)
Group B + N005	110 (Y)
Group B + N007	110 (Y)
Group B + N008	110 (Y)
Group B + N002	166 (R)
Group B + N010	166 (R)
Group B + N001A	166 (R)
Group B + N001K	166 (R)

(*) N006 has no influence on the average.

18.7 DRYWELL/TORUS H₂ and O₂ CONCENTRATIONS

PART I - DRYWELL/TORUS H₂

- a. Call the reference input data.
- b. Call up the Log in/Log out display for drywell H₂ and O₂ concentrations.
- c. Call up the diagnostic display for H₂ and O₂ and the primary display.
- d. Log out all sensors.
- e. Check on the Log in/Log out display and on the diagnostic display that the sensors are logged out. The background of the instrument number should be red. The average H₂ and O₂ concentration boxes should be yellow blanks.
- f. Input the values listed in Table 18.7a.
- g. Log in one of the H₂ instruments.
- h. Check that the instrument number background changes to black on the Log in/Log out display.
- i. Check that the output agrees with Table 18.7a.
- j. Log out the instrument.
- k. Repeat steps g through j for the second H₂ instrument.

TABLE 18.7a

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor	Average H ₂
P601A	SPDS- 6	1000	2.4	2.4 (Y) - Torus Blank (Y) - Drywell
P601B	SPDS-41	1000	2.4	2.4 (Y) - Drywell Blank (Y) - Torus

APPROVAL:

PART II - DRYWELL/TORUS O₂

- a. Repeat steps a through k, as stated in Part I, for O₂ concentrations, using input data from Table 18.7b.

TABLE 18.7b

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor	Average O ₂
P601A	SPDS- 68	1500	3.7	3.7 (R) - Torus Blank (Y) - Drywell
P601B	SPDS-107	1500	3.7	3.7 (R) - Drywell Blank (Y) - Torus

APPROVAL:

18.8 TORUS WATER LEVEL

- a. Call the reference input data.
- b. Call up the Log in/Log out display for the torus water level
- c. Call up the Torus Water Diagnostic display.
- d. Log out all of the instruments.
- e. Check that all the instruments are logged out on both the LOG IN/LOG OUT display and the diagnostic display. The background of the instrument number is red and the average pressure display is a yellow blank.
- f. Input the values specified in Table 18.8.
- g. Log in an instrument or one of the specified combinations of instruments.
- h. Check that the instrument number background changes to black on the Log in/Log out display and on the diagnostic display.
- i. Check that the output agrees with Table 18.8.
- j. Log out the instruments.
- k. Repeat steps g through j until all specified instrument combinations are checked.

TABLE 18.8

INSTRUMENT COMBINATION	INPUT		OUTPUT	
	Channel #	Value	Sensor	Average
N021A	SPDS- 95	3000	155.0	155.0 (R)
N021B	SPDS-112	3100	155.7	155.7 (R)
N021A N021B	SPDS- 95 SPDS-112	3000 3100	155.0 155.7	155.3 (R)
N010A N010B	SPDS- 72 SPDS-103	3000 3000	219.8 219.8	219.8 (R)

18.9 TORUS PRESSURE

- a. Call the reference input data.
- b. Call up the Log in/Log out display for the torus pressure.
- c. Call up the Torus Pressure Diagnostic display.
- d. Log out all of the instruments.
- e. Check that all the instruments are logged out on both the Log in/Log out display and the diagnostic display. The background of the instrument number is red and the average pressure display is a yellow blank.
- f. Input the values specified in Table 18.9.
- g. Log in N008A.
- h. Check that the background of that instrument number changes to black on the Log in/Log out and diagnostic display.
- i. Check that the output on the diagnostic display agrees with Table 18.9.
- j. Log out this instrument.
- k. Repeat steps g through j with the instrument N008B.

TABLE 18.9

Instrument #	INPUT		OUTPUT	
	Channel #	Value	Sensor	Average
N008A	SPDS-16	200	-5.1	-5.1 (Y)
N008B	SPDS-63	200	-5.1	-5.1 (Y)

APPROVAL: 222 E 10 84

18.10 TORUS WATER TEMPERATURE

- a. Call the reference input data.
- b. Call up the Log in/Log out display for the torus water temperature.
- c. Call up the Torus Water Temperature Diagnostic display.
- d. Log out all of the instruments
- e. Check on both displays that the instruments are logged out. The background of the instrument number is red, and the average water temperature display box is a yellow blank.
- f. Input the values listed in Table 18.10a and check that the sensor outputs agree with Table 18.10a.
- g. Log in an instrument combination from Table 18.10b.
- h. Check that the instrument number backgrounds change to black on both displays.
- i. Check that the value for the average drywell temperature agrees with the value shown in Table 18.10b.
- j. Log out the instruments combination.
- k. Repeat steps g through j with each specified combination, until all have been tested.

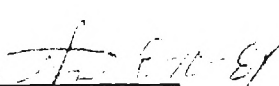
APPROVAL: 

TABLE 18.10a

INSTRUMENT #	INPUT		SENSOR OUTPUT (°F)
	Channel #	VALUE	
<u>GROUP A</u>			
N301A <i>A</i>	SPDS- 2	2006	148
N302A <i>B</i>	SPDS- 83	2006	148
N309A <i>I</i>	SPDS-113	2006	148
N310A <i>J</i>	SPDS- 33	2006	148
N311A <i>K</i>	SPDS- 46	2006	148
N009A <i>L</i>	SPDS- 45	1212	148
<u>GROUP B</u>			
N303A <i>C</i>	SPDS- 99	2191	157
N304A <i>D</i>	SPDS-105	2191	157
N305A <i>E</i>	SPDS- 20	2191	157
N306A <i>F</i>	SPDS- 70	2191	157
N009B <i>N</i>	SPDS- 59	1286	157
<u>GROUP C</u>			
N307A <i>G</i>	SPDS- 25	2006	148
N308A <i>H</i>	SPDS- 13 <i>13.05</i>	2006 <i>20.05</i>	148
N009C <i>A</i>	SPDS- 33 <i>34 *</i>	2006 <i>12.2 *</i>	148
N009D <i>C</i>	SPDS- 34	1212	148

** UNABLE
#3*

* CHANGE
#3

TABLE 18.10b

INSTRUMENT COMBINATION	AVERAGE TEMP (°F)
Groups A & C + N303A	151 (R)
Groups A & C + N304A	151 (R)
Groups A & C + N305A	151 (R)
Groups A & C + N306A	151 (R)
Groups A & C + N009B	151 (R)
Groups A & B + N307A	151 (R)
Groups A & B + N308A	151 (R)
Groups A & B + N009C	151 (R)
Groups A & B + N009D	151 (R)
Groups B & C + N301A	151 (R)
Groups B & C + N301A	151 (R)
Groups B & C + N309A	151 (R)
Groups B & C + N310A	151 (R)
Groups B & C + N311A	151 (R)
Groups B & C + N009A	151 (R)

18.11 MAIN STACK RADIATION

- Change
step 9 & I
Value to 106*
- a. Call the reference input data.
 - b. Call up the Log in/Log out display for the main stack radiation.
 - c. Call up the Stack Effluent Diagnostic display.
 - d. Log out all of the instruments.
 - e. Check that all the instruments are logged out on both the Log in/Log out display and the diagnostic display. The background of the instrument number is red and the average pressure display is a yellow blank.
 - f. Input the values specified in Table 18.11.
 - g. Set ERF Digital signal # 1005 ^{65 for sensor 1} to one.
 - h. Log in sensor P007. ** VARIANCE #3*
 - i. Check that the instrument number background changes to black on the Log in/Log out display and on the diagnostic display.
 - j. Check that the output agrees with Table 18.11.
 - k. Log out the instrument.
 - l. Reset ERF Digital signal #1005 ^{65 for sensor 1} to zero.
 - m. Repeat steps g through k for instruments K600A and K600B.

TABLE 18.11

INSTRUMENT #	INPUT		OUTPUT	
	Channel #	Value	Sensor	Average
P007	SPDS-92	2000	1.8E 01	1.8E 01 (R)
K600A	ERF-78	2000	2.6E 02	4.9E-04 (Y)
K600B	ERF-97	2000	2.6E 02	4.9E-04 (Y)

APPROVAL: _____

18.12 REACTOR BUILDING VENTS RADIATION

- a. Call the reference input data.
- b. Call up the Log in/Log out display for the reactor building vent radiation.
- c. Call up the Reactor Building Vents Effluent Diagnostic display.
- d. Log out all of the instruments.
- e. Check that all the instruments are logged out on both the Log in/Log out display and the diagnostic display. The background of the instrument number is red and the average pressure display is a yellow blank.
- f. Input the values specified in Table 18.12.
- g. Log in an instrument.
- h. Check that the instrument number background changes to black on the Log in/Log out display and on the diagnostic display.
- i. Check that the output agrees with Table 18.12.
- j. Log out the instrument.
- k. Repeat steps g through j until all instruments are checked.

NOTE: The ranges must be set to wide when testing instruments P601 (Unit 1) and P601 (Unit 2). For this, set both ERF Digital signals #1007 and #1000 to one.

TABLE 18.12

INSTRUMENT #	INPUT		OUTPUT		
	Channel #	Value	Sensor	U1 Average	U2 Average
K619A	ERF- 29	2000	2.8E 03	8.0E-05 (Y)	Blank (Y)
K619B	ERF- 50	2000	2.8E 03	8.0E-05 (Y)	Blank (Y)
K636A	ERF- 93	2000	2.8E 03	Blank (Y)	8.0E-05 (Y)
K636B	ERF-114	2000	2.8E 03	Blank (Y)	8.0E-05 (Y)
P601 (U1)	SPDS- 32	2000	1.8E 01	1.8E 01 (R)	Blank (Y)
P601 (U2)	SPDS- 7	2000	1.8E 01	Blank (Y)	1.8E 01 (R)

APPROVAL: _____

NOTE:
Change 1007 TO
1066
1000 TO 1144

* JUNE 11 1994
E-10-2-1
E-10-2-1

* VARIANCE #3

19. REACTOR WATER LEVEL TIME CONSTANT TEST

STEP 1: Enter the actual time constant (0.000667)

STEP 2: Test For A Step Change In Drywell Temperature

- a. Call up the reference input data.
- b. Call up the Primary display.
- c. The average reactor water level should be 38.7 inches and the average drywell temperature should be 121°F.
- d. Input the values listed in Table 19.1.

TABLE 19.1
STEP CHANGE OF DRYWELL TEMPERATURE FROM 116 to 300°F.

DESCRIPTION	ANALOG CHANNEL #	INPUT
Drywell Temp.	SPDS 0	2457
	SPDS 47	2457
	SPDS 17	2457
	SPDS 62	2457
	SPDS 81	2457
	SPDS 38	2457
	SPDS 126	2457
	SPDS 9	2457
	SPDS 65	2457
	SPDS 110	2457
	SPDS 118	2457
	SPDS 89	2457
	SPDS 71	2457
	SPDS 104	2457

- e. Check the average reactor water level approximately 1, 5, 10 and 15 minutes after inputting this data. Compare these values with those listed in Table 19.2.

TABLE 19.2
REACTOR WATER LEVEL FOR A STEP CHANGE IN DRYWELL TEMPERATURE

TIME (MIN)	AVG. REACTOR WATER LEVEL (INCHES)	APPROVAL
1	37.9	<i>Dec 10-84</i>
5	35.2	<i>Dec 10-84</i>
10	32.2	<i>Dec 10-84</i>
15	29.6	<i>Dec 10-84</i>

STEP 3: Restart the system.

STEP 4: Test For A Step Change In Reactor Pressure

- a. Call up the reference input data. Again, wait 90 minutes for the system to stabilize.
- b. Input the values listed in Table 19.3.

TABLE 19.3
STEP CHANGE OF REACTOR PRESSURE FROM 1004 PSIG to 77 PSIG

DESCRIPTION	ANALOG CHANNEL #	INPUT
Reactor Pressure	SPDS 80	211
	SPDS 127	211

- c. Check the average reactor water level approximately 1, 5, 10 and 15 minutes after inputting this data. Compare these values with those listed in Table 4.

TABLE 19.4
REACTOR WATER LEVEL FOR A STEP CHANGE IN REACTOR PRESSURE

TIME (MIN)	AVG. REACTOR WATER LEVEL (INCHES)	APPROVAL
1	4.3	<i>8-10-84</i>
5	6.0	<i>8-10-84</i>
10	7.7	<i>8-10-84</i>
15	9.1	<i>8-10-84</i>

19. REACTOR WATER LEVEL TIME CONSTANT TEST

STEP 1: Enter the actual time constant (0.000667)

STEP 2: Test For A Step Change In Drywell Temperature

- a. Call up the reference input data.
- b. Call up the Primary display.
- c. The average reactor water level should be 39.6 inches and the average drywell temperature should be 116°F.
- d. Input the values listed in Table 19.1.

TABLE 19.1
STEP CHANGE OF DRYWELL TEMPERATURE FROM 116 to 300°F.

DESCRIPTION	ANALOG CHANNEL #	INPUT
Drywell Temp.	SPDS 0	2457
	SPDS 47	2457
	SPDS 17	2457
	SPDS 62	2457
	SPDS 81	2457
	SPDS 38	2457
	SPDS 126	2457
	SPDS 9	2457
	SPDS 65	2457
	SPDS 110	2457
	SPDS 118	2457
	SPDS 89	2457
	SPDS 71	2457
	SPDS 104	2457

- e. Check the average reactor water level approximately 1, 5, 10 and 15 minutes after inputting this data. Compare these values with those listed in Table 19.2.

TABLE 19.2
REACTOR WATER LEVEL FOR A STEP CHANGE IN DRYWELL TEMPERATURE

TIME (MIN)	AVG. REACTOR WATER LEVEL (INCHES)	APPROVAL
1	38.9	
5	36.0	
10	32.9	
15	30.2	

STEP 3: Restart the system.

STEP 4: Test For A Step Change In Reactor Pressure

- a. Call up the reference input data. Again, wait 90 minutes for the system to stabilize.
- b. Input the values listed in Table 19.3.

TABLE 19.3
STEP CHANGE OF REACTOR PRESSURE FROM 1004 PSIG to 77 PSIG

DESCRIPTION	ANALOG CHANNEL #	INPUT
Reactor Pressure	SPDS 80	211
	SPDS 127	211

- c. Check the average reactor water level approximately 1, 5, 10 and 15 minutes after inputting this data. Compare these values with those listed in Table 4.

TABLE 19.4
REACTOR WATER LEVEL FOR A STEP CHANGE IN REACTOR PRESSURE

TIME (MIN)	AVG. REACTOR WATER LEVEL (INCHES)	APPROVAL
1	5.0	
5	6.7	
10	8.4	
15	9.7	

20. KEY OVERRIDE TESTS

STEP 1

- a. Call up the reference data.
- b. Actuate QE11A-K58A by setting ERF GIT address 0344 to 1.
- c. Verify that the key symbols for valves QE11-MOV F024A and QE11-MOV F028A turn orange on the PCIS Group 2A Diagnostic Display.
- d. Reset 0344 to 0.
- e. Record approval: At 8-10-84

STEP 2

- a. Actuate QE11A-K59A by setting ERF GIT address 0346 to 1.
- b. Verify that the key symbols for valves QE11-MOV F016A, QE11-MOV F021A and QE11-MOV F027A turn orange on the PCIS Group 2A Diagnostic Display.
- c. Reset 0346 to 0.
- d. Record approval: At 8-10-84

STEP 3

- a. Actuate QP33D-SOR1 by setting ERF GIT address 0146 to 1.
- b. Verify that the key symbols for valves QB21-SV F111, QD11-SV F050, QD11-SV F051 and QE41-SV F122 turn orange on the PCIS Group 2E Diagnostic Display.
- c. Reset 0146 to 0.
- d. Record approval: At 8-10-84

STEP 4

- a. Actuate QE11A-K58B by setting ERF GIT address 0345 to 1.
- b. Verify that the key symbols for valves QE11-MOV F024B and QE11-MOV F028B turn orange on the PCIS Group 2A Diagnostic Display.
- c. Reset 0345 to 0.
- d. Record approval: AS 8-16-84

STEP 5

- a. Actuate QE11A-K59B by setting ERF GIT address 0347 to 1.
- b. Verify that the key symbols for valves QE11-MOV F016B, QE11-MOV F021B and QE11-MOV F027B turn orange on the PCIS Group 2A Diagnostic Display.
- c. Reset 0347 to 0.
- d. Record approval: AS 8-16-84

STEP 6

- a. Actuate QP33D-SOR2 by setting GIT address 0147 to 1.
- b. Verify that the key symbols for valves QB21-SV F112, QD11-SV F052, QD11-SV F053 and QE41-SV F121 turn orange on the PCIS Group 2E Diagnostic Display.
- c. Reset 0147 to 0.
- d. Record approval: AS 8-16-84

STEP 7

- a. Actuate QT48A-S5AA by setting ERF GIT address 0167 to 0.
- b. Verify that the key symbol for valve QT48-AOV F334A turns orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0167 to 1.
- d. Record approval: At 8-10-84

STEP 8

- a. Actuate QT48A-S5AB by setting ERF GIT address 0166 to 0.
- b. Verify that the key symbol for valve QT48-AOV F334A turns orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0166 to 1.
- d. Record approval: At 8-10-84

STEP 9

- a. Actuate QT48A-S6AA by setting ERF GIT address 0163 to 0.
- b. Verify that the key symbol for valve QT48-AOV F335A turns orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0163 to 1.
- d. Record approval: At 8-10-84

STEP 10

- a. Actuate QT48A-S6AB by setting ERF GIT address 0162 to 0.
- b. Verify that the key symbol for valve QT48-AOV F335A turns orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0162 to 1.
- d. Record approval: *AE-10-84*

STEP 11

- a. Actuate QT48A-S7AA by setting ERF GIT address 0165 to 0.
- b. Verify that the key symbols for valve QT48-AOV F332A turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0165 to 1.
- d. Record approval: *AE-10-84*

STEP 12

- a. Actuate QT48A-S7AB by setting ERF GIT address 0164 to 0.
- b. Verify that the key symbols for valve QT48-AOV F332A turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0164 to 1.
- d. Record approval: *AE-10-84*

STEP 13

- a. Actuate QT48A-S8AA by setting ERF GIT address 0161 to 0.
- b. Verify that the key symbols for valve QT48-AOV F333A turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0161 to 1.
- d. Record approval: A E-16-84

STEP 14

- a. Actuate QT48A-S8AB by setting ERF GIT address 0160 to 0.
- b. Verify that the key symbols for valve QT48-AOV F333A turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0160 to 1.
- d. Record approval: A E-16-84

STEP 15

- a. Actuate QT48A-S5BA by setting ERF GIT address 0377 to 0.
- b. Verify that the key symbols for valve QT48-AOV F334B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0377 to 1.
- d. Record approval: A E-16-84

STEP 16

- a. Actuate QT48A-S5BB by setting ERF GIT address 0376 to 0.
- b. Verify that the key symbols for valve QT48-AOV F334B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0376 to 1.
- d. Record approval: AE-10-84

STEP 17

- a. Actuate QT48A-S6BA by setting ERF GIT address 0373 to 0.
- b. Verify that the key symbols for valve QT48-AOV F335B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0373 to 1.
- d. Record approval: AE-10-84

STEP 18

- a. Actuate QT48A-S6BB by setting ERF GIT address 0372 to 0.
- b. Verify that the key symbols for valve QT48-AOV F335B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0372 to 1.
- d. Record approval: AE-10-84

STEP 19

- a. Actuate QT48A-S7BA by setting ERF GIT address 0375 to 0.
- b. Verify that the key symbols for valve QT48-AOV F332B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0375 to 1.
- d. Record approval: At 8-10-84

STEP 20

- a. Actuate QT48A-S7BB by setting ERF GIT address 0374 to 0.
- b. Verify that the key symbols for valve QT48-AOV F332B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0374 to 1.
- d. Record approval: At 8-10-84

STEP 21

- a. Actuate QT48A-S8BA by setting ERF GIT address 0371 to 0.
- b. Verify that the key symbols for valve QT48-AOV F333B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0371 to 1.
- d. Record approval: At 8-10-84

STEP 22

- a. Actuate QT48A-S8BB by setting ERF GIT address 0370 to 0.
- b. Verify that the key symbols for valve QT48-AOV F333B turn orange on the PCIS Group 2C Diagnostic Display.
- c. Reset 0370 to 1.
- d. Record approval: AE-10-84

STEP 23

- a. Actuate QP33B-S17 by setting ERF GIT address 1112 to 0 and 1113 to 1.
- b. Verify that the status boxes on the PCIS Group 2D diagnostic display and the Drywell/Torus H2/O2 Diagnostic display show the word "OVERRIDE."
- c. Reset 1112 to 1 and 1113 to 0.
- d. Record approval: AE-10-84

STEP 24

- a. Actuate QP33B-S16 by setting ERF GIT address 1110 to 0 and 1111 to 1.
- b. Verify that the status boxes on the PCIS Group 2D diagnostic display and the Drywell/Torus H2/O2 Diagnostic display show the word "OVERRIDE."
- c. Reset 1110 to 1 and 1111 to 0.
- d. Record approval: AE-10-84

21. SAFETY RELIEF VALUES (SRV) TESTS

STEP 1:

- a. Call up the reference input data.
- b. Call up the Primary display.
- c. With the input given in Table 21.1 compare the response for each SRV with that of the primary display.

TABLE 21.1

<u>VALVE #</u>	<u>PRESSURE SW #</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>OUTPUT</u>	<u>APPROVAL</u>
B21-AOV F013A	QB21-PS N301A	0510	1	A (R)	<i>He</i>
			0	A (G)	<i>He</i>
B21-AOV F013B	QB21-PS N301B	0511	1	B (R)	<i>He</i>
			0	B (G)	<i>He</i>
B21-AOV F013C	QB21-PS N301C	0512	1	C (R)	<i>He</i>
			0	C (G)	<i>He</i>
B21-AOV F013D	QB21-PS N301D	0513	1	D (R)	<i>He</i>
			0	D (G)	<i>He</i>
B21-AOV F013E	QB21-PS N301E	0514	1	E (R)	<i>He</i>
			0	E (G)	<i>He</i>
B21-AOV F013F	QB21-PS N301F	0515	1	F (R)	<i>He</i>
			0	F (G)	<i>He</i>
B21-AOV F013G	QB21-PS N301G	0516	1	G (R)	<i>He</i>
			0	G (G)	<i>He</i>
B21-AOV F013H	QB21-PS N301H	0517	1	H (R)	<i>He</i>
			0	H (G)	<i>He</i>
B21-AOV F013J	QB21-PS N301J	0520	1	J (R)	<i>He</i>
			0	J (G)	<i>He</i>
B21-AOV F013K	QB21-PS N301K	0521	1	K (R)	<i>He</i>
			0	K (G)	<i>He</i>
B21-AOV F013L	QB21-PS N301L	0522	1	L (R)	<i>He</i>
			0	L (G)	<i>He</i>

STEP 2:

- a. Set the reactor pressure just below the lowest SRV setpoint by entering the first block of data from Table 21.2.
- b. Check that the reactor pressure box reads 1090 in red.
- c. Check that the SRV box in the middle of the torus mimic is green.
- d. Set the reactor pressure just above the lowest SRV setpoint by entering the second block of data from Table 21.2.
- e. Check that the SRV box in the middle of the torus mimic turns orange.
- f. Record approval: *John E. McGee*

TABLE 21.2

SENSOR TAG NUMBER	SPDS ANALOG CHANNEL NUMBER	VALUE
QB21-PIS N690A	80	2975
QB21-PIS N609D	127	2975
QB21-PIS N690A	80	2976
QB21-PIS N690D	127	2976

22. AUTOMATIC DEPRESSURIZATION SYSTEM (ADS) TESTS

STEP 1

- A. Call up reference data.
- B. Call up the Primary display.
- C. Arm the ADS by actuating QB21C-K5AA (set GIT address 1145 to 1)
- D. Check that the ADS box turns orange.

Approval: AE-10-84

STEP 2

- A. Initiate the system by actuating QB21C-K6A and QB21C-K7A. (Set GIT addresses 1000 and 1002 to 1.)
- B. Check that the ADS box turns red only when both relays are actuated.

Approval: AE-10-84

STEP 3

- A. Open all the ADS valves listed in Table 22.1 (see end of section) by setting the appropriate GIT addresses to 1.
- B. Check that the ADS box reverts to green only after the last ADS valve is open.

Approval: AE-10-84

STEP 4

- A. Close all the valves listed in Table 22.1 and check that upon closing the first ADS valve the ADS box turns red.

Approval: AE-10-84

STEP 5

- A. Deactuate QB21C-K6A and QB21C-K7A and check that the ADS box turns orange.

Approval: AE-10-84

STEP 6

- A. Initiate the system by actuating QB21C-K6B and QB21C-K7B. (Set GIT addresses 1001 and 1003 to 1.)
- B. Check that the ADS box turns red only when both relays are actuated.

Approval: At 8-10-84

STEP 7

- A. Open all the ADS valves listed in Table 22.1 by setting the appropriate GIT addresses to 1.
- B. Check that the ADS box reverts to green only after the last ADS valve is open.

Approval: At 8-10-84

STEP 8

- A. Close all the valves listed in Table 22.1 and check that upon closing the first ADS valve the ADS box turns red.

Approval: At 8-10-84

STEP 9

- A. Deactuate QB21C-K6B and QB21C-K7B and check that the ADS box turns orange.

Approval: At 8-10-84

STEP 10

- A. Verify that initiating QB21C-K6A and QB21C-K7B (GIT addresses 1000 and 1003 to 1) does not result in any change in the Primary display.

At 8-10-84

STEP 11

- A. Deactuate QB2K-K6A and QB2K-K7B.

STEP 12

- A. Verify that initiating QB2K-K6B and QB21C-K7A (GIT addresses 1001 and 1002 to 1) does not result in any change in the Primary display.

AP 8-10-84

STEP 13

Deactuate QB21C-K6B, and QB21C-K7A.

AP 8-10-84

STEP 14

- A. Call up reference data.
B. Arm the ADS by energizing QB21C-K5BB (set GIT Address 1146 to 1)
C. Check that the ADS box turns orange.

Approval: AP 8-10-84

STEP 15

- A. Initiate the system by actuating QB21C-K6A and QB21C-K7A. (Set GIT Addresses 1000 and 1002 to 1.)
B. Check that the ADS box turns red only when both relays are actuated.

Approval: AP 8-10-84

STEP 16

- A. Open all the ADS valves listed in Table 22.1 by setting the appropriate GIT addresses to 1.
B. Check that the ADS box reverts to green only after the last ADS valve is open.

Approval: AP 8-10-84

STEP 17

- A. Close all the valves listed in Table 22.1 and check that upon closing the first ADS valve the ADS box turns red.

Approval: AP 8-10-84

STEP 18

Deactuate QB21C-K6A and QB21C-K7A and check that the ADS box turns orange.

Approval: AE-10-84

STEP 19

- A. Initiate the system by actuating QB21C-K6B and QB21C-K7B. (Set GIT Addresses 1001 and 1003 to 1.)
- B. Check that the ADS box turns red only when both relays are actuated.

Approval: AE-10-84

STEP 20

- A. Open all the ADS valves listed in Table 22.1 by setting the appropriate GIT addresses to 1.
- B. Check that the ADS box reverts to green only after the last ADS valve is open.

Approval: AE-10-84

STEP 21

- A. Close all the valves listed in Table 22.1 and check that upon closing the first ADS valve the ADS box turns red.

Approval: AE-10-84

STEP 22

Deactuate QB21C-K6B and QB21C-K7B and check that the ADS box turns orange.

Approval: AE-10-84

STEP 23

- A. Call up reference data.
- B. Arm the ADS by energizing QB21C-K5AA, K5BB (set GIT Addresses 1145 and 1146 to 1)
- C. Check that the ADS box turns orange.

Approval: AD 8-10-84

STEP 24

- A. Initiate the system by actuating QB21C-K6A and QB21C-K7A. (Set GIT Addresses 1000 and 1002 to 1.)
- B. Check that the ADS box turns red only when both relays are actuated.

Approval: AD 8-10-84

STEP 25

- A. Open all the ADS valves listed in Table 22.1 by setting the appropriate GIT addresses to 1.
- B. Check that the ADS box reverts to green only after the last ADS valve is open.

Approval: AD 8-10-84

STEP 26

- A. Close all the valves listed in Table 22.1 and check that upon closing the first ADS valve the ADS box turns red.

Approval: AD 8-10-84

STEP 27

Deactuate QB21C-K6A and QB21C-K7A and check that the ADS box turns orange.

Approval: AD 8-10-84

STEP 28

- A. Initiate the system by actuating QB21C-K6B and QB21C-K7B. (Set GIT Addresses 1001 and 1003 to 1.)
- B. Check that the ADS box turns red only when both relays are actuated.

Approval: AE-10-84

STEP 29

- A. Open all the ADS valves listed in Table 22.1 by setting the appropriate GIT addresses to 1.
- B. Check that the ADS box reverts to green only after the last ADS valve is open.

Approval: AE-10-84

STEP 30

- A. Close all the valves listed in Table 22.1 and check that upon closing the first ADS valve the ADS box turns red.

Approval: AE-10-84

STEP 31

Deactuate QB21C-K6B and QB21C-K7B and check that the ADS box turns orange.

Approval: AE-10-84

TABLE 22.1

<u>SIGNAL TAG #</u>	<u>PRESSURE SW.#</u>	<u>GIT ADDRESS</u>
Q2B21-AOV F013B	Q2B21-PS N301B	0511
Q2B21-AOV F013D	Q2B21-PS N301D	0513
Q2B21-AOV F013E	Q2B21-PS N301E	0514
Q2B21-AOV F013F	Q2B21-PS N301F	0515
Q2B21-AOV F013J	Q2B21-PS N301J	0520
Q2B21-AOV F013K	Q2B21-PS N301K	0521
Q2B21-AOV F013L	Q2B21-PS N301L	0522

23.

LOW LOW SET LOGIC (LLSL) TESTS

- A. Call up the reference input data.
- B. Call up the Primary Display.
- C. Enter the input from Table 23.1.1.
- D. Verify that the LLSL box does not change until all three relays in a given group are set to 1.
- E. Check that the LLSL box contains the appropriate output and record approval if correct.
- F. Repeat steps A through D for Tables 23.1.2 through 23.1.14.

TABLE 23.1.1

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY # S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	H (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		QE21A-K610B	1142	0	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	0	
		QE21A-K372B	1141	0	
		QE21A-K614B	1143	0	

APPROVAL:

DE-10-84

TABLE 23.1.2

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY # S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	0	A (0)
		QE21A-K342A	1131	0	
		QE21A-K610A	1134	0	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	0	
		QE21A-K372B	1141	0	
		QE21A-K614B	1143	0	

APPROVAL:

 8-10-84

TABLE 23.1.3

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	0	G(O)
		QE21A-K342A	1131	0	
		QE21A-K610A	1134	0	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		QE21A-K610B	1142	0	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		QE21A-K614A	1135	1	
D	C	QE21A-K371B	1140	0	
		QE21A-K372B	1141	0	
		QE21A-K614B	1143	0	

APPROVAL: *for 8-10-84*

TABLE 23.1.4

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	0	C(0)
		QE21A-K342A	1131	0	
		QE21A-K610A	1134	0	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		QE21A-K610B	1142	0	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

TABLE 23.1.5

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	HA (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	0	
		QE21A-K372B	1141	0	
		QE21A-K614B	1143	0	

TABLE 23.1.6

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY # S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	0	GC (O)
		QE21A-K342A	1131	0	
		Q2E21A-K610A	1134	0	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		Q2E21A-K610B	1142	0	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		Q2E21A-K614A	1135	1	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		Q2E21A-K614B	1143	1	

TABLE 23.1.7

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	H C (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		QE21A-K610B	1142	0	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

TABLE 23.1.8

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	H G (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		QE21A-K610B	1142	0	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		QE21A-K614A	1135	1	
D	C	QE21A-K371B	1140	0	
		QE21A-K372B	1141	0	
		QE21A-K614B	1143	0	

TABLE 23.1.9

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	0	A C (O)
		QE21A-K342A	1131	0	
		QE21A-K610A	1134	0	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

TABLE 23.1.10

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	HAG (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		QE21A-K614A	1135	1	
D	C	QE21A-K371B	1140	0	
		QE21A-K372B	1141	0	
		QE21A-K614B	1143	0	

TABLE 23.1.11

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	0	AGC (0)
		QE21A-K342A	1131	0	
		QE21A-K610A	1134	0	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		QE21A-K614A	1135	1	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

TABLE 23.1.12

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	H GC (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	0	
		QE21A-K342B	1137	0	
		QE21A-K610B	1142	0	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		QE21A-K614A	1135	1	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

TABLE 23.1.13

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	HA C (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	0	
		QE21A-K372A	1133	0	
		QE21A-K614A	1135	0	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

TABLE 23.1.14

<u>CHANNEL</u>	<u>VALVE SET</u>	<u>RELAY #'S</u>	<u>GIT ADDRESS</u>	<u>INPUT</u>	<u>LLSL BOX OUTPUT</u>
A	H	QE21A-K341A	1130	1	HAGC (O)
		QE21A-K342A	1131	1	
		QE21A-K610A	1134	1	
B	A	QE21A-K341B	1136	1	
		QE21A-K342B	1137	1	
		QE21A-K610B	1142	1	
C	G	QE21A-K371A	1132	1	
		QE21A-K372A	1133	1	
		QE21A-K614A	1135	1	
D	C	QE21A-K371B	1140	1	
		QE21A-K372B	1141	1	
		QE21A-K614B	1143	1	

24. SCRAM DEMAND/ALL RODS IN STATUS

24.1. INPUTS:

The input data for this series of tests are given in Table 24.1. The procedure steps are in the next section.

TABLE 24.1

<u>SIGNAL DESCRIPTION</u>	<u>ENTRY TYPE</u>	<u>GIT NUMBER</u>
QC11A-K4A	ERF Digital	0754
QC11A-K4B	ERF Digital	0755
QC71A-K14A	ERF Digital	1004
QC71A-K14B	ERF Digital	1021
QC71A-K14C	ERF Digital	1005
QC71A-K14D	ERF Digital	1022
QC71A-K14E	ERF Digital	1006
QC71A-K14F	ERF Digital	1023
QC71A-K14G	ERF Digital	1007
QC71A-K14H	ERF Digital	1024

SCRAM DEMAND TEST PROCEDURE

- a. Load a blank tape and ready the ERF tape drive.
- b. Call the reference input data.
- c. Call up the Primary display.
- d. For each test in Table 24.1, set the inputs to the specified values.
- e. Check the Primary display against the output in Table 24.1 for appropriate response.
- f. Record approval if test is successful.
- g. Repeat steps b, c, d and e until all tests are completed or until a test fails.
- h. Stop data history.

TABLE 24.2

TEST NO.	1004	1021	1005	1022	INPUT		1007	1024	0754	0755	OUTPUT	APPROVAL
1	1	1	0	0	0	0	0	0	0	0	"SCRAM" in orange Turns red after 10 sec. Data History starts	<i>St 8-10-84</i>
2	1	0	0	0	0	1	0	0	1	1	"SCRAM" in orange "ALL RODS IN" in green	<i>St 8-10-84</i>
3	1	0	0	1	0	0	0	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
4	1	0	0	0	0	0	0	1	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
5	0	1	0	0	1	0	0	1	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
6	0	0	0	0	1	1	0	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
7	0	0	0	1	1	0	0	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
8	0	0	0	0	1	0	0	1	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
9	0	1	1	0	0	0	0	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
10	0	0	1	0	0	1	0	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
11	0	0	1	1	0	0	0	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
12	0	0	1	0	0	0	0	1	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
13	0	1	0	0	0	0	1	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
14	0	0	0	0	0	1	1	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
15	0	0	0	1	0	0	1	0	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>
16	0	0	0	0	0	0	1	1	0	0	"SCRAM" in red after 10 sec.	<i>St 8-10-84</i>

25. TEST OF REACTOR MODE SWITCH INFLUENCE ON REACTOR
WATER LEVEL AND POWER CALCULATIONS

STEP 1:

- a. Call up the reference input data.
- b. Call up the Primary display.
- c. Enter the value 4000 for SPDS Analog signals #4, 43, 64 and 111.
- d. Check that the reactor water level indicators are red and that the power indicators are green.
- e. Record approval: AS 6-10-84

STEP 2

- a. Change the reactor mode switch to "Shutdown" by setting ERF digital signals #1050 to 1 and #1053 to 0.
- b. Check that the reactor water level indicators become green and that the power indicators turn red.
- c. Record approval: A E-10-84

STEP 3

- a. Change the reactor mode switch back to "Run" by resetting ERF digital signals #1050 to 0 and #1053 to 1.
- b. Check that the reactor water level indicators become red and that the power indicators turn green.
- c. Record approval: DLG-10-84

STEP 4

- a. Change the reactor mode switch to "Refuel" by setting ERF digital signals #1051 to 1 and #1053 to 0.
- b. Check that the reactor water level indicators become green and that the power indicators turn red.
- c. Record approval: ALB-10-84

STEP 5

- a. Change the reactor mode switch back to "Run" by resetting ERF digital signals #1051 to 0 and #1053 to 1
- b. Check that the reactor water level indicators become red and that the power indicators turn green.
- c. Record approval: 2/6/84

STEP 6

- a. Change the reactor mode switch to "Start/Hot Standby" by setting ERF digital signals #1052 to 1 and #1053 to 0.
- b. Check that the the power indicators turn red.
- c. Record approval: AB-10-84

26. SPDS/ERF NOT AVAILABLE TESTS

This series of tests will demonstrate the effects on the displays of various component failures. The tests will simulate failures of the SPDS A/D converter, ERF A/D Converter, Cutler-Hammer, SPDS computer, ERF computer, and the fiber optic link between SPDS and ERF by forcing an SPDS Analog error, an ERF Analog error, an ERF Digital error, or a combination of these.

STEP 1

- a. Call the reference input data.
- b. Call up the Primary display.
- c. Enter command 7 to force an SPDS analog error.
- d. Check that the following parameter boxes turn yellow blank:
 - Reactor Water level
 - Reactor pressure
 - Drywell pressure
 - Drywell temperature
 - H_2/O_2 Concentrations
 - Torus Water level
 - Torus pressure
 - Torus Water temperature
 - SRV box
- e. Record approval: At: B-K-84

STEP 2

- a. Set the radiation ranges to wide by setting the following ERF digital signals to 1:

QD11-KZ12C	1064
QD11-KZ12D	1065
QD11-KN020A	1066
QD11-KN020B	1067
Q2D11-KZ12A	1144

- b. Check that the Main Stack radiation and the Unit 1 and Unit 2 vent radiation boxes turn yellow blank.

- c. Record approval: 208-10-84

STEP 3

- a. Reset imposed error conditions by entering command 9.
- b. Call up the reference input data.
- c. Check that the Primary display returns to normal, (i.e., all boxes are green).
- d. Record approval: AE 8-10-84

STEP 4:

- a. Call up the Primary display.
- b. Force ERF analog error by entering command 6.
- c. Check that the following parameter boxes turn yellow blank:
 - Power
 - SRM
 - Main Stack radiation
 - Unit 1 reactor building vent radiation
 - Unit 2 reactor building vent radiation
- d. Record approval: the 8-10-84

STEP 5:

- a. Reset imposed error condition by entering command 9.
- b. Call up the reference input data.
- c. Check that the Primary display returns to normal, (i.e., all boxes are green).
- d. Record approval: AE-10-84

STEP 6:

- a. Set ERF digital signals #1051 to 1 and #1053 to 0.
- b. Check that the power indicators turn red.
- c. Record approval: At 8-10-87

STEP 7:

- a. Force ERF digital error by entering command 8.
- b. Check that the following parameter boxes turn yellow blank:
 - SRM
 - H_2/O_2 Concentrations
- c. Check that the power indicators turn green.
- d. Check that the SRV's, SRV box, ADS box, LLSL box and the PCIS and Secondary Isolation blocks turn yellow.
- e. Record approval: *At 8-0-84*

STEP 8:

- a. Check that the valve symbols, fan symbols and tag numbers are yellow on the following diagnostic displays:

- Drywell/Torus H₂/O₂ Concentration diagnostic
- PCIS Diagnostic Group 1, 3, 4, 5
- PCIS Diagnostic Group 2A
- PCIS Diagnostic Group 2B
- PCIS Diagnostic Group 2C
- PCIS Diagnostic Group 2D
- PCIS Diagnostic Group 2E
- Secondary isolation diagnostic

- b. Record approval:

A E 10-84

STEP 9:

- a. Check that the valve, pump, and relay STATUS columns are yellow on the following miscellaneous displays:

- Valve Status (B31-C41)
- Valve Status (E11)
- Valve Status (E21-E41)
- Valve Status (E51-T48)
- Pump Status
- Relay Status (CR, ADS, ...)
- Relay Status (PCIS)
- Relay Status (SEC ISO, SRM)

As 8-10-84

APPENDIX A
SPDS/ERF
FUNCTIONAL TEST VARIANCE REPORT

VARIANCE _____

Name _____ Date _____

Type of Failure: System Test Document

Test Being Performed:

Describe Failure:

Vendor's Response:

Name _____ Date _____

Resolution of Variance:

Vendor: Name _____ Date _____

V&V Engineer: Name _____ Date _____