2

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNIT 2
I & C PROCEDURE NO. 2-1120070
REVISION 1

21

1.0 TITLE:

CONTAINMENT HIGH RANGE RADIATION MONITOR CALIBRATION

2.0 REVIEW AND APPROVAL:

Reviewed by Facility Review Group March 19, 1989

Approved by G. J. Boissy Plant Manager June 5, 1989

Revision 1 Reviewed by FRG 06/13 1991

Approved by G. J. Boissy Plant Manager 07/03 1991

3.0 PURPOSE:

3.1 To satisfy surveillance requirements as per Technical Specification Table 4.3-3.

3.2 To verify the operation and calibration of the containment high range radiation monitors, RIM-26-40 and RIM-26-41.

4.0 PRECAUTIONS AND LIMITS:

4.1 High voltage exists on detector cable #20443 A for RIM-26-40 and 20443 E for RIM-26-41 of approximately 875 vdc.

5.0 RELATED SYSTEM STATUS:

5.1 Due to the location of the detectors, this procedure must be performed while the plant is in mode 4, 5, or 6.

6.0 REFERENCES:

6.1 CWD 2998-B-327 Sheet 443.

6.2 Technical Manual 2998-15891.

S 2 OPS
DATE 940228
DOCT PROCEDURE
DOCN 2-1120070
SYS
COMP COMPLETED
ITM 1

9704090213 970401
PDR FOIA
BINDER96-485 PDR

FOR INFORMATION ONLY
THIS DOCUMENT IS NOT CONTROLLED. BEFORE USE, VERIFY INFORMATION WITH A CONTROLLED DOCUMENT
FLORIDA POWER AND LIGHT CO.
ST. LUCIE PLANT
DATE VERIFIED 2-14-94 INITIAL

NJW

9704090213

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CONTAINMENT HIGH RANGE RADIATION MONITOR CALIBRATION

7.0 RECORDS REQUIRED:

7.1 A copy of this procedure shall be maintained in the plant files in accordance with QI 17-PR/PSL-1, "Quality Assurance Records."

8.0 MATERIALS AND EQUIPMENT REQUIRED:

8.1 Current source, Keithly Model 220 equivalent or better. PSL 658

8.2 Voltmeter, Keithly Model 197 equivalent or better. PSL 452

8.3 Radiation source RT-11. (General Atomics) Located in HP safe.

8.4 All interfacing with the RM-80 under test will be performed with its RM-23 located at the Control Room Radiation Monitoring Panel. (Designated as RC-26-40 or 41).

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9.0 DETAILED PROCEDURE:

9.1 PREPARATION

1. Verify that AC power is on. At the Control Radiation Monitoring Panel, place the NORMAL/SUPERVISOR key switch to the SUPERVISOR position for the Monitor under test.

2. For RIM-26-40, use Data sheets 40A, 40B, and 40C.
   For RIM-26-41, use Data sheets 41A, 41B, and 41C.

   In the procedure the data sheets will be referred to as either A, B, or C.

9.2 ALERT AND HIGH ALARM TESTS

1. Verify/Record the following values on Data sheet A.

   A. Alert alarm setpoint. (CI 010) = 6.40E+00 R/HR

   B. High alarm setpoint. (CI 009) = 8.00E+00 R/HR

   C. Conversion factor. (CI 011) = record value

> NOTE
> For step 9.2.2, the value of 1.00E+03 was arbitrarily chosen to achieve a high and alert condition.

2. Enter a value of 1.00E+03 into channel item 011. With the RM-80 in an alert and high alarm condition, verify the following:

   A Alert alarm LED on RM-23 is lit.

   B. High alarm LED on RM-23 is lit.

3. Return channel item 011 to the value recorded in step 9.2.1.C and verify the alert and high alarms have reset on Data Sheet A.

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9.0 DETAILED PROCEDURE: (continued)

9.3 LOSS OF COUNTS TEST

1. On Data Sheet A, record the following channel items:

   A. Channel item 020

   B. Channel item 024

2. Enter a value of 5.00E+00 in channel item 024.

3. Enter a value of 001 in channel item 020.

4. Verify that in approximately one minute, the following occurs:

   A. Operate LED on the RM-23 extinguishes.

   B. Operate light on the RM-80 extinguishes.

5. Return channel items 020 and 024 to the values recorded in step 9.3.1.A and 9.3.1.B.

6. Verify that the operate light on the RM-23 and RM-80 are back on.

   RIM-26-40 ✓ RIM-26-41 ✓

9.4 LOG/PICO-AMP BOARD CALIBRATION CHECK

1. Disconnect the detector cable from the LOG/PICO AMP board inside the RM-80. Connect the Pico-amp current source to the input connector on the board.

2. Input the current values on Data Sheet C and record the as found values. If all values are within the indicated tolerance proceed to step 9.8. If any value is out of tolerance, proceed with step 9.5.

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9.0 DETAILED PROCEDURE: (continued)

9.4 (continued)

3. Remove the current source from the input connector and reconnect the detector cable.

> NOTE
> The following steps are to be performed if the as found values of the board are out of tolerance. This calibration will be performed in two steps. First the ANALOG CIRCUIT ADJUSTMENTS, and second the DIGITAL CIRCUIT ADJUSTMENTS. It is critical that the ANALOG section is performed first and that the desired values are as close as physically possible. Be patient, some of the ANALOG adjustments are slow and sensitive.

9.5 ANALOG CIRCUIT ADJUSTMENT

1. Disconnect the field cable from the input connector.

2. Place a DVM on TP-1(+) and TP-2(-). (vdc)

3. Short the input connector to ground and adjust balance pot R-15 to the point where the voltage jumps from 6 to 13 volts. This will be approximately 6 volts.

4. Remove the short from the input connector and connect the current source.

5. Place the DVM on TP-3(+) and TP-2(-). (vdc)

> Perform steps 9.5.6 and 9.5.7 until both readings are in tolerance and they will repeat. These adjustments effect each other so it will take several attempts to get the desired values.

6. Input 10E-9 current and adjust zero pot R-19 for a value of 3.283 to 3.383 vdc. (optimum 3.333 vdc.)

/R

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9.0 DETAILED PROCEDURE: (continued)

9.5 (continued)

7. Input 10E-4 current and adjust span pot R-22 for a value of 8.839 to 8.939 vdc. (optimum 8.889 vdc.)

> NOTE
> Make small adjustments on R-15 and move back away from the board. Wait for the reading to settle before adjusting any more. Continue adjusting R-15 until you get 0.000 vdc.

8. Input 10E-12 current and adjust balance pot R-15 for a value of -0.050 to +0.050 vdc. (optimum 0.000 vdc.)

9. Check steps 9.5.6, 9.5.7, and 9.5.8 to verify that the readings are within tolerance and record the values below:

RIM-26-40	RIM-26-41
Step 9.5.6 = 3.37 vdc	Step 9.5.6 = N/A vdc
Step 9.5.7 = 3.87 vdc	Step 9.5.7 = N/A vdc
Step 9.5.8 = 0.03 vdc	Step 9.5.8 = N/A vdc

10. This completes the ANALOG CIRCUIT ADJUSTMENT. Proceed with step 9.6.

9.6 DIGITAL CIRCUIT ADJUSTMENT

1. Input 10E-4 current and verify the voltage at TP-3 is 8.839 to 8.939 vdc. (optimum 8.889)

2. Adjust span pot R-33 to provide a display of 1.00E+08 on the RM-23. (channel item 005)

3. Input 10E-11 current and verify the voltage is approximately 1.11 vdc. (1 to 2 vdc)

/R

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9.0 DETAILED PROCEDURE: (continued)

9.6 (continued)

4. Adjust zero pot R-34 to provide a display of 1.00E+01 on the RM-23. (channel item 005)

5. Perform steps 9.6.1 through 9.6.4 several times to assure repeatability.

6. This completes the DIGITAL CIRCUIT ADJUSTMENT. Disconnect the DVM from TP-3.

7. Decade through the input current values on Data Sheet C to verify linearity and record the as left values.

8. Disconnect the current source and reconnect the detector to the LOG/PICO AMP board.

J. Sorrentino 2/18/94

I.V. D. Harrison 2/18/94

9.7 LOOP CALIBRATION

The next step will place the monitor in the test mode. Entering different values into monitor item #052, the analog outputs can be exercised.

1. Locate Data Sheet B for the monitor under test. Using the RM-23, enter a value of 063 into monitor item #049.

2. Using Data Sheet B, vary the value in monitor item #052 and verify/calibrate the RM-80 output and recorder indications. (RR-26-40 & 41 located on the Rad. Mon. Panel)

3. Upon completion of loop calibration, return monitor item #052 to 255, and monitor item #063 to a value of 061.

RIM-26-40 ✓ RIM-26-41 ✓

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9.0 DETAILED PROCEDURE: (continued)

9.8 SOURCE VERIFICATION

1. Measure and adjust the detector high voltage power supply for a value of 875 vdc. Record on Data Sheet C.

2. At this point the monitor is ready for a source verification check using the General Atomics source RT-11. Request that HP perform the calculations for the RT-11 and enter that desired value into step 9.8.2 on Data Sheet C.

3. Request HP to hang the RT-11 source on the detector of the monitor under test. Record the activity (CI007) on Data Sheet C.

4. Perform this procedure on the remaining monitor and verify that all values on Data Sheet 40C and 41C are within the indicated tolerances.

RIM-26-40 Performed by _____ 2/26/94

RIM-26-41 Performed by _____ 2/26/94

Reviewed by _____ 3/1/94

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DATA SHEET 40A
ALARM VERIFICATION RIM-26-40

ALERT AND HIGH ALARM TEST

STEP 9.2.1	A. Alert alarm setpoint (CI010)	6.40E+0
	B. High alarm setpoint (CI009)	= 8.00E+0
	C. Conversion factor (CI011)	= 1.38E-1
STEP 9.2.2	A. Verify alert alarm (initial)	DG
	B. Verify high alarm (initial)	DG
STEP 9.2.3	Verify alarms have reset	DG

LOSS OF COUNTS TEST

STEP 9.3.1	A. Loss of counts time (CI020)	= 010
	B. Low current alarm (CI024)	= 5.00E-2
STEP 9.3.4	A. RM-23 Operate Light extinguishes	DG
	B. RM-80 Operate Light extinguishes	DG

NOTE

There is not a Unit 2 Technical Specification requirement for alarm setpoints on these monitors. To be consistent with the requirements for Unit 1, the alert and high alarm setpoints will be entered as per the following:

Alert alarm (CI 010) = 6.40E+00 R/HR
High alarm (CI 009) = 8.00E+00 R/HR

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DATA SHEET 40B
LOOP CALIBRATION RIM-26-40

Input			Test Point MADC			Total Tol. .08 MADC	Test Point			Total Tol. +1, -2 x 10^x
		Mon Item	RM-80 J-BOX TB-4, 5 accuracy .5%				RR-26-40 R/hr accuracy .5%			
Pt.	%	052	Desired	As Found	As Left	Error	Desired	As Found	As Left	Error
1	0	0	3.92 - 4.08	4.00	4.00	-	1×10^0	*	1×10^0	-
2	25	64	7.92 - 8.08	6.12	8.01	.01	1×10^2		1×10^2	-
3	50	128	11.92 - 12.08	8.51	12.04	.04	1×10^4		1×10^4	-
4	75	191	15.92 - 16.08	11.75	15.99	.01	1×10^6		1×10^6	-
5	100	255	19.92 - 20.08	13.50	20.01	.01	1×10^8		1×10^8	-
4	75	191	15.92 - 16.08	11.75	15.99	.01	1×10^6		1×10^6	-
3	50	128	11.92 - 12.08	8.51	12.04	.04	1×10^4		1×10^4	-
2	25	64	7.92 - 8.08	6.12	8.01	.01	1×10^2		1×10^2	-
1	0	0	3.92 - 4.08	4.00	4.00	-	1×10^0		1×10^0	-

NOTE

Connect DVM in series with current signal at the J-BOX TB4 4, to obtain test point readings.

COMMENTS: * REPLACED ACTION PACK (4-20ma) FOR THE RECORDER INDICATION

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DATA SHEET 40C
LOG PICO-AMP BOARD/DETECTOR CALIBRATION RIM-26-40

DVM used: PSL-658 Current source used: PSL-452

LOG PICO AMP BOARD CALIBRATION CHECK

INPUT CURRENT	DESIRED CPM	AS FOUND CPM	AS LEFT CPM	ERROR +20% -17%
10E-11	10E+1	1.07E+1	9.70E+0	-.30E+1
10E-10	10E+2	1.07E+2	9.48E+1	-.52E+1
10E-9	10E+3	1.07E+3	9.48E+1	-.52E+2
10E-8	10E+4	1.01E+4	9.97E+2	-.13E+2
10E-7	10E+5	1.01E+5	1.00E+4	+E+1
10E-6	10E+6	1.01E+6	1.00E+5	+E+1
10E-5	10E+7	1.01E+7	1.00E+6	+E+1
10E-4	10E+8	1.05E+7	1.05E+7	—
10E-3	10E+9	1.75E+8	9.97E+8	-.58E+0

Step 9.8.1 Detector high voltage = 875 vdc (865 to 885 vdc)
Step 9.8.2 RT-11 desired value = [illegible] R/hr (high side)
= [illegible] R/hr (low side)

* Step 9.8.3 Actual activity value = [illegible] R/hr (high side)
= [illegible] R/hr (low side)

* Actual activity must equal the desired values recorded in step 9.8.2 ±15%.

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DATA SHEET 41A
ALARM VERIFICATION RIM-26-41

ALERT AND HIGH ALARM TEST

STEP 9.2.1	A. Alert alarm setpoint (CI010)	= 6.40E+0
	B. High alarm setpoint (CI009)	= 8.00E+0
	C. Conversion factor (CI011)	= 1.07E-1
STEP 9.2.2	A. Verify alert alarm (initial)	✓
	B. Verify high alarm (initial)	✓
STEP 9.2.3	Verify alarms have reset	✓

LOSS OF COUNTS TEST

STEP 9.3.1	A. Loss of counts time (CI020)	= 010
	B. Low current alarm (CI024)	= 5.00E-1
STEP 9.3.4	A. RM-23 Operate Light extinguishes	✓
	B. RM-80 Operate Light extinguishes	✓

NOTE

There is not a Unit 2 Technical Specification requirement for alarm setpoints on these monitors. To be consistent with the requirements for Unit 1, the alert and high alarm setpoints will be entered as per the following:

Alert alarm (CI 010) = 6.40E+00 R/HR
High alarm (CI 009) = 8.00E+00 R/HR

Performed by J. Sorrentino Date 2/17/94

Reviewed by [illegible] Date 3/1/94

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DATA SHEET 41B
LOOP CALIBRATION RIM-26-41

Input			Test Point MADC			Total Tol. .08 MADC	Test Point			Total Tol. +1, -2 x 10^n
		Mon Item	RM-80 J-BOX TB-4, 4 & 5 accuracy .5%				RR-26-41 R/hr accuracy .5%			
Pt.	%	052	Desired	As Found	As Left	Error	Desired	As Found	As Left	Error
1	0	0	3.92 - 4.08	4.003			1×10^0	1.5×10^0		—
2	25	64	7.92 - 8.08	8.01			1×10^2	1.0×10^2		—
3	50	128	11.92 - 12.08	12.05			1×10^4	1×10^4		—
4	75	191	15.92 - 16.08	15.99			1×10^6	1×10^6		—
5	100	255	19.92 - 20.08	20.00			1×10^8	1×10^8		—
4	75	191	15.92 - 16.08	16.00			1×10^6	1×10^6		—
3	50	128	11.92 - 12.08	12.06			1×10^4	1×10^4		—
2	25	64	7.92 - 8.08	8.03			1×10^2	1×10^2		—
1	0	0	3.92 - 4.08	4.00			1×10^0	1×10^0		—

Not Found

Not Found

NOTE

Connect DVM in series with current signal at the J-BOX TB4 4, to obtain test point readings.

COMMENTS: _____

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DATA SHEET 41C
LOG PICO-AMP BOARD/DETECTOR CALIBRATION RIM-26-41

Current source used: PSL - 452

DVM used: PSL-658

LOG PICO AMP BOARD CALIBRATION CHECK

INPUT CURRENT	DESIRED CPM	AS FOUND CPM	AS LEFT CPM	ERROR +20% -17%
10E-11	10E+1	9.48 E+0		-.52 E+1
10E-10	10E+2	9.48 E+1	AS	-.52 E+1
10E-9	10E+3	9.48 E+2		-.52 E+1
10E-8	10E+4	9.48 E+3	FOUND	-.52 E+1
10E-7	10E+5	9.48 E+4		-.52 E+1
10E-6	10E+6	9.48 E+5		-.52 E+1
10E-5	10E+7	9.48 E+6		-.52 E+1
10E-4	10E+8	9.48 E+7		-.52 E+1
10E-3	10E+9	9.48 E+8		-.52 E+1

Step 9.8.1 Detector high voltage = 875 vdc (865 to 885 vdc)
Step 9.8.2 RT-11 desired value = [illegible] R/hr (high side)
= [illegible] R/hr (low side)

* Step 9.8.3 Actual activity value = [illegible] R/hr (high side)
= [illegible] R/hr (low side)

* Actual activity must equal the desired values recorded in step 9.8.2 ±15%.

NUCLEAR POWER PLANT REQUISITION ON STORES OR MATERIAL RETURNED MEMO

STOREROOM	
SYMBOL	LOC'N CODE
PSL	972

TRANSMITTAL		BATCH
MO.	NUMBER	NUMBER

ROS [X] 11 MRM [ ] 12

PWO NO. 8085

CWO/PCN NO.

P. O. NO.

RPA NO.

WA. NO.

JOB DESCRIPTION: RIM-26-40

PRINT APPROVAL: James V. Kawa

SUB P.O. NO.

PREPARED BY: D. Garrison

DATE: 2-18-94

APPROVED: James V Kawa

	DESCRIPTION	QUALITY LEVEL	M & S NO. CLASS	M & S NO. ITEM	M & S NO. CD	Unit Of Issue	QUANTITY Ordered	QUANTITY Actual Issue	SLI	SLR	P.O. / ITEM / R.I.R. NUMBER
1.	Action Pack		766	041861		EA	1	1			10-7374E
2.	S/N 15451-005										S/L 12/31/2007
3.											
4.											
5.											
6.											
7.											
8.											
9.											
10.											
11.											
12.											
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23.											
24.											
25.											
26.											
27.											
28.											
29.											
30.											
31.											
32.											

ITEM NO	WORK ORDER VEHICLE RPT AREA	BLK EA	ACCOUNT OR PROJECT NUMBER	LOC'N CODE	TOTALS	QUANTITY
	8085	64	300 00	910		LINE CT.

DATE:

MATERIAL RECEIVED BY: D. Garrison 072

MATERIAL ISSUED BY: PW 2/18/94

Form 219N (Non - Stocked) R

1-19-94

Please use

RD8 (mR/hr) LOW	RD8 (R/hr) HIGH	RD-10 (mR/hr) LOW	RD-10 (R/hr) HIGH	RD-11 (mR/hr) LOW	RD-11 (R/hr) HIGH
NA	0.588	20.693	1.573	21.838	1.725

CROAI- same values.

26-61	β/γ	1.23E5 cpm @	827 VDC
	γ	1.21E5	944
26-62	β/γ	1.26E5	804 VDC
	γ	1.27E5	750
26-65	β/γ	1.22E5	989
	γ	1.26E5	936
26-66	β/γ	1.23E5	909
	γ	1.22E5	919

■ 641 RIM-26-41 DHRM AREA 1.61E+000 R/HR OK NO AAC641

CHANNEL HIGH ALARM LIMIT	0.00E+000	R/HR
CHANNEL ALERT ALARM LIMIT	6.40E+000	R/HR
CHANNEL EU CONVERSION FACTOR ...(NONINTEGRATING)	1.07E-001	
CHANNEL EU CONVERSION FACTOR .....(INTEGRATING)	0.00E+000	
CHANNEL BACKGROUND	0.00E+000	CPM
CHANNEL ALARMS/ CONTROL POINTS DEADBAND	1.00E+001	%
CHANNEL CHECKSOURCE REFERENCE	1.00E+004	CPM
CHANNEL SERVICE STATE REQUEST .....(0=OUT; 1=IN)	1	
DATA SOURCE SELECT .....(0=NON; 1=INTEG)	0	
DYNAMIC BACKGROUND SUBTRACT .....(0=OUT; 1=IN)	0	
LOTS OF COUNTS TIME	10	MIN
BACKGROUND CONVERSION FACTOR	0.00E+000	
ACCEPTED RANGE POINT	0.00E+000	R/HR
PUMP CONTROL POINT	0.00E+000	R/HR
LOW CURRENT ALARM SETPOINT	5.00E-001	R/HR
ASSOCIATED CHANNEL CHECKSOURCE LIMIT	0.00E+000	R/HR
FIRST DECADE ON METER	0	
NUMBER OF DECADES ON METER	0	
CHANNEL AUTO PURGE TIME	0	HH:MM
THRESHOLD LIMIT	0.00E+000	R/HR
PUMP OFF DELAY	0	SEC
SMOOTHING ALGORITHM FACTOR RESPONSE	0.00E+000	

DISP: CHAIT1 ENABLE

02-14-94
01:24:03

S112B ■ RIM-26-41 DHRM AREA
■ POLL STATUS

1.61E+000 R/HR OK NO AAG641

■ 641 RIM-26-41 DHRM AREA

■ NEXT PAGE (PAGE DOWN) ■ PREV PAGE (PAGE UP)

SUBSTITUTE VALUE REQUEST FOR SAMPLE-PROCESS FLOW	0	
PROCESS FLOW RATE ..... LOW ALARM LIMIT	0.00E+000	SCFM
PUMP ON/OFF REQUEST (use monitor pop-up window).		
PURGE ON/OFF REQUEST (use channel pop-up window)	0	HH:MM
CHECKSOURCE TEST SCHEDULE	0.00E+000	SCFM
SAMPLE FLOW RATE 1 ..... LOW ALARM LIMIT	0	HH:MM
FILTER ADVANCE SCHEDULE	0	
FILTER ADVANCE MODE (0=OFF:1=PRGM:2=1/2":3=1")	0	HH:MM
PURGE TIME DURATION	0.00E+000	
SAMPLE PRESSURE ..... LOW ALARM SETPOINT	0.00E+000	
PROCESS FLOW RATE ..... CONVERSION FACTOR - NORM	0.00E+000	
PROCESS PRESSURE ..... CONVERSION FACTOR	0.00E+000	
DUCT TEMPERATURE ..... CONVERSION FACTOR	0.00E+000	
SAMPLE FLOW RATE 1 ..... CONVERSION FACTOR	0.00E+000	
SAMPLE PRESSURE ..... CONVERSION FACTOR	0.00E+000	
SAMPLE FLOW RATE 1 ..... SETPOINT . NORM	0.00E+000	SCFM
SAMPLE FLOW RATE ..... CONTROL DEADBAND	0.00E+000	%
ISOKINETIC FLOW CONTROL RATIO SFLOW1 ..... NORM	0.00E+000	
SAMPLE PRESSURE ..... HIGH ALARM SETPOINT	0.00E+000	
DATA BASE COMPLETE .....(0=NO:1=YES)	1	

DISP: MONIT1 ENABLE

E112B ■ RIM-26-41 DHRM AREA 02-14-94
■ POLL STATUS 01:26:54

■ 641 RIM-26-41 DHRM AREA 1.60E+000 R/HR OK NO AAG641

■ NEXT PAGE (PAGE DOWN) ■ PREV PAGE (PAGE UP)

DUCT TEMPERATURE ..... LOW INSTRUMENT LIMIT 0
PROCESS PRESSURE ..... LOW INSTRUMENT LIMIT 0
PROCESS PRESSURE ..... HIGH INSTRUMENT LIMIT 0
SAMPLE MASS FLOW RATE ..... LOW INSTRUMENT LIMIT 0
SAMPLE MASS FLOW RATE .... HIGH INSTRUMENT LIMIT 0
SAMPLE PRESSURE ..... LOW INSTRUMENT LIMIT 0
SAMPLE PRESSURE ..... HIGH INSTRUMENT LIMIT 0
SAMPLE FLOW .....(readonly)
PROCESS FLOW .....(readonly)
DIFFERENTIAL PRESSURE .....(readonly)
DUCT TEMPERATURE .....(readonly)
EFFLUENT RELEASE.....(readonly)
SAMPLE VACUUM .....(0=YES;1=NO) 0
NOISE REJECTION .....SETPOINT 0.00E+000 SCFM
ISOKINETIC FLOW CONTROL 1
NUMBER OF CHANNELS 0
DUCT TEMPERATURE ..... HIGH INSTRUMENT LIMIT
FAILED INSTRUMENTS .(see addit chnl status disp) 0
PROGRAMMER ACCESS CONTROL .....(0=NO;1=YES)
SPARE .....

DISP: MONIT2 ENABLE

```
E112B
■ POLL STATUS      ■ RIM-26-41 DHRM AREA                                    02-14-94
                                                                            01:29:40

■  641 RIM-26-41 DHRM AREA                    1.60E+000   R/HR    OK    NO    AAC641


■  NEXT PAGE (PAGE DOWN)      ■  PREV PAGE (PAGE UP)

A-D OPTIONS ..................................... 0
SAMPLE FLOWS CONTROL OPT. (0=RCRD;1=SPEC;2=ISOK) 0
SWITCH OPTION ................................... 0
MONITOR STATUS .... (see monitor status display)
RM80 DIAGNOSTIC ................................ 0
FILTER ADVANCE TYPE ........ (0=FIXED; 1=MOVING) 0
TEST PATTERN .................................... 85
PURGE CONTROL OPTION ..............(0=NO;1=YES) 0
TEST NUMBER ..................................... 61
TEST RESULTS .................................... 100
COUNT OF MOVING FILTER CLICKS ................... 0
SCALE DEFLECTION TEST VALUE ..................... 255        %
FIRST DECADE ON METER ........................... 0
NUMBER OF DECADES ON METER ...................... 0
SAMPLE FLOW RATE 1 SETPOINT ........... ACCIDENT 0.00E+000 SCFM
ISOKINETIC FLOW CONTROL RATIO SFLOW1 .. ACCIDENT 0.00E+000
PROCESS FLOW RATE 1 ...... LOW ALARM LIMIT - ACC 0.00E+000 SCFM
SAMPLE FLOW RATE 2 ....... LOW ALARM LIMIT - ACC 0.00E+000 SCFM
PROCESS FLOW RATE SUBSTITUTE VALUE ...... NORMAL 0.00E+000 SCFM
PROCESS FLOW RATE SUBSTITUTE VALUE .... ACCIDENT 0.00E+000 SCFM

                                                DISP: MONIT3          ENABLE
```

02-14-94
01:44:54

S112B ■ RIM-26-40 DHRM AREA

■ POLL STATUS

CHANNEL DESCRIPTION	READING	UNITS	STAT	UNAV	TAG
■ 640 RIM-26-40 DHRM AREA	1.17E+000	R/HR	OK	NO	AAG640

		VALUE	UNITS
01	AAG640 DESCRIPTION	[illegible]	R/HR
09	CHANNEL HIGH ALARM LIMIT	6.40E+000	R/HR
10	CHANNEL ALERT ALARM LIMIT	1.38E-001	
11	CHANNEL EU CONVERSION FACTOR ...(NONINTEGRATING)	0.00E+000	
12	CHANNEL EU CONVERSION FACTOR .....(INTEGRATING)	0.00E+000	CPM
13	CHANNEL BACKGROUND	1.00E+001	%
14	CHANNEL ALARMS/ CONTROL POINTS DEADBAND	1.00E+004	CPM
15	CHANNEL CHECKSOURCE REFERENCE	1	
16	CHANNEL SERVICE STATE REQUEST .....(0=OUT; 1=IN)	0	
17	DATA SOURCE SELECT .....(0=NON; 1=INTEG)	0	
18	DYNAMIC BACKGROUND SUBTRACT .....(0=OUT; 1=IN)	10	MIN
19	LOSS OF COUNTS TIME	0.00E+000	
20	BACKGROUND CONVERSION FACTOR	0.00E+000	R/HR
21	ACCEPTED RANGE POINT	0.00E+000	R/HR
22	PUMP CONTROL POINT	5.00E-002	R/HR
23	LOW CURRENT ALARM SETPOINT	0.00E+000	R/HR
24	ASSOCIATED CHANNEL CHECKSOURCE LIMIT	0	
25	FIRST DECADE ON METER	0	
26	NUMBER OF DECADES ON METER	0	HH:MM
27	CHANNEL AUTO PURGE TIME	0.00E+000	R/HR
28	THRESHOLD LIMIT	0	SEC
29	PUMP OFF DELAY	0.00E+000	
30	SMOOTHING ALGORITHM FACTOR RESPONSE		
31	[illegible]	[illegible]	[illegible]
32	[illegible]	[illegible]	[illegible]

DISP: CHA11 ENABLE

CHANNEL DESCRIPTION	READING	UNITS	STAT	BYPAS	TAG
■ 640 RIM-26-40 DHRM AREA	1.17E+000	R/HR	OK	NO	AAC640

■ NEXT PAGE (PAGE DOWN) ■ PREV PAGE (PAGE UP)

#	DESCRIPTION	VALUE	UNITS
1	SUBSTITUTE VALUE REQUEST FOR SAMPLE-PROCESS FLOW	0	
2	PROCESS FLOW RATE ..... LOW ALARM LIMIT	0.00E+000	SCFM
3	PUMP ON/OFF REQUEST (use monitor pop-up window).		
4	PURGE ON/OFF REQUEST (use channel pop-up window)		
5	CHECKSOURCE TEST SCHEDULE	0	HH:MM
6	SAMPLE FLOW RATE 1 ..... LOW ALARM LIMIT	0.00E+000	SCFM
7	FILTER ADVANCE SCHEDULE	0	HH:MM
8	FILTER ADVANCE MODE (0=OFF;1=PRGM;2=1/2";3=1")	0	
9	PURGE TIME DURATION	0	HH:MM
10	SAMPLE PRESSURE ..... LOW ALARM SETPOINT	0.00E+000	
11	PROCESS FLOW RATE ..... CONVERSION FACTOR - NORM	0.00E+000	
12	PROCESS PRESSURE ..... CONVERSION FACTOR	0.00E+000	
13	DUCT TEMPERATURE ..... CONVERSION FACTOR	0.00E+000	
14	SAMPLE FLOW RATE 1 ..... CONVERSION FACTOR	0.00E+000	
15	SAMPLE PRESSURE ..... CONVERSION FACTOR	0.00E+000	
16	SAMPLE FLOW RATE 1 ..... SETPOINT . NORM	0.00E+000	SCFM
17	SAMPLE FLOW RATE ..... CONTROL DEADBAND	0.00E+000	%
18	ISOKINETIC FLOW CONTROL RATIO SFLOW1 ..... NORM	0.00E+000	
19	SAMPLE PRESSURE ..... HIGH ALARM SETPOINT	0.00E+000	
20	DATA BASE COMPLETE .....(0=NO;1=YES)	1	

[redacted]

DISP: MONIT1 ENABLE

02-14-94
21:30:51

51128 ■ RIM-26-40 DHRM AREA
■ POLL STATUS

CHANNEL DESCRIPTION	READING	UNITS	[illegible]	[illegible]	TAG
■ 640 RIM-26-40 DHRM AREA	1.17E+000	R/HR	OK	NO	AAC640

■ NEXT PAGE (PAGE DOWN) ■ PREV PAGE (PAGE UP)

		VALUE	UNITS
DESCRIPTION			
DUCT TEMPERATURE	LOW INSTRUMENT LIMIT	0	
PROCESS PRESSURE	LOW INSTRUMENT LIMIT	0	
PROCESS PRESSURE	HIGH INSTRUMENT LIMIT	0	
SAMPLE MASS FLOW RATE	LOW INSTRUMENT LIMIT	0	
SAMPLE MASS FLOW RATE	HIGH INSTRUMENT LIMIT	0	
SAMPLE PRESSURE	LOW INSTRUMENT LIMIT	0	
SAMPLE PRESSURE	HIGH INSTRUMENT LIMIT	0	
SAMPLE FLOW	(readonly)		
PROCESS FLOW	(readonly)		
DIFFERENTIAL PRESSURE	(readonly)		
DUCT TEMPERATURE	(readonly)		
EFFLUENT RELEASE.....	(readonly)		
SAMPLE VACUUM	(0=YES;1=NO)	0	
NOISE REJECTION	SETPOINT	0.00E+000	SCFM
ISOKINETIC FLOW CONTROL		1	
NUMBER OF CHANNELS	HIGH INSTRUMENT LIMIT	0	
DUCT TEMPERATURE	(see addit chnl status disp)		
FAILED INSTRUMENTS	(0=NO;1=YES)	0	
PROGRAMMER ACCESS CONTROL			
SPARE			

DISP: MONITZ ENABLE

02-14-94
01:41:42

S11.8 ■ RIM-26-40 DHRM AREA

■ POLL STATUS

CHANNEL DESCRIPTION	READING	UNITS	STAT	CHAN	TAG
■ 440 RIM-26-40 DHRM AREA	1.18E+000	R/HR	OK	NO	AAC640

■ NEXT PAGE (PAGE DOWN) ■ PREV PAGE (PAGE UP)

MI	DESCRIPTION	VALUE	UNITS
41	A-D OPTIONS ..... (0=RCRD;1=SPEC;2=ISOK)	0	
42	SAMPLE FLOWS CONTROL OPT.	0	
43	SWITCH OPTION ..... (see monitor status display)	0	
44	MONITOR STATUS	0	
45	RM80 DIAGNOSTIC ..... (0=FIXED; 1=MOVING)	85	
46	FILTER ADVANCE TYPE	0	
47	TEST PATTERN ..... (0=NO;1=YES)	61	
48	PURGE CONTROL OPTION	100	
49	TEST NUMBER	0	
50	TEST RESULTS	255	%
51	COUNT OF MOVING FILTER CLICKS	0	
52	SCALE DEFLECTION TEST VALUE	8	
53	FIRST DECADE ON METER	0.00E+000	SCFM
54	NUMBER OF DECADES ON METER ..... ACCIDENT	0.00E+000	
55	SAMPLE FLOW RATE 1 SETPOINT ..... ACCIDENT	0.00E+000	SCFM
56	ISOKINETIC FLOW CONTROL RATIO SFLOW1 .. LOW ALARM LIMIT - ACC	0.00E+000	SCFM
57	PROCESS FLOW RATE 1 ..... LOW ALARM LIMIT - ACC	0.00E+000	SCFM
58	SAMPLE FLOW RATE 2 ..... NORMAL	0.00E+000	SCFM
59	PROCESS FLOW RATE SUBSTITUTE VALUE ..... ACCIDENT	0.00E+000	SCFM
60	PROCESS FLOW RATE SUBSTITUTE VALUE		

DISP: MONIT3 ENABLE

PSL #2

Component: Sys: 26 Train:
Associate: Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6
TECH SPEC 4.3.3.1
Location: RCB/VARIOUS(SEE MCL) LMD: 2

Defect/Request: 022FYP8085 CNTMNT HIGH RANGE

TECH SPEC

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg Loc: 910
PAGE 1 of 5

Detailed Explanation:
PM ID: FYP8085
DUE BY DT: 10/01/95 EARLY DT: 05/19/95 LATE DT: 02/13/96

More:

Work Request: Def Tag: Loc:
Trbl/Brkdown: LCO: Unit Cond Req:
NPRDS: N Fail Date: Time: Det: Stat: Symp:
Originator: Date: Dept:
Approve By: Date:

PM

Task Determination Data:

IST Required	: N	NCR/CR	: N/A	Safety Class	: SR
PMT Required	: N	PCM	: N/A	Q Group	: 1E
10 CFR 50.49	: N	EQ Doc Pkg	: N/A	Assign To	: AD 1
Reg Guide 1.97	: Y	Seismic Cat	: I	Est M/H	: 60.00
ASME XI(ISI) Reqd	: N	Scaffold Req	: N	Crew Qty	: 2
Security Clearance	: N	Fire Prot Req	: N	Insul Rem	: N
Clearance Required	: N	Clearance No	:		

RWP Required: Y RWP No: RCA M/H: L1: 30.0 L2: 30.0 L3:

QC Requirements: QC Required : Y
QL-A TS-10.4...

OUTAGE

More:

Work Order Task Description:

SEE PAGE 2 FOR TASK DESCRIPTION.

More: Y

Planned By : MEWOCIT WILLIS M E Date: 07/25/95
Pkg Appr By : PRE-APPR Date: 07/25/95 Time: 16:12
QC Approval : PRE-APPR Date: 07/25/95

OPERATIONS APPROVAL TO START

NPS Start Permission: LCO(Y/N): ___
Start Date/Time : 10-17-95 0945

KK12

NPS Completion Notif:
Compl. Date/Time: 11/19/95 1545
Deficiency Tag Removed (Y/N): ___

Major Failure: ___
Major Action : ___

Component: Sys: 26 Train: Associate: Assign Priority: B3 Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6 TECH SPEC 4.3.3.1 Location: RCB/VARIOUS (SEE MCL) LMD: 2 Defect/Request: 022FYP8085 CNTMNT HIGH RANGE	Fac: PSL Unit: 02 MASTER WORK ORDER TASK 95020580 01 ER/PWO: 64 / 8085 Chg loc: 910 PAGE 2 of 5

Continuation of Task Description:

/\

1. VERIFY THAT YOU ARE WORKING ON THE CORRECT UNIT AND COMPONENT(S):

RIM-26-40 — 11/12/95 — SIGNATURE/DATE

RIM-26-41 — 11/2/95 — SIGNATURE/DATE

/\

2. WITH OPERATIONS' PERMISSION, COMPLETE IC PROCEDURE 2-1120070.
3. IF APPLICABLE, PERFORM FUNTIONAL TESTS OF RM-80 POWER SUPPLIES USING IC 2-1220057.
4. MAKE MINOR REPAIRS/ADJUSTMENTS USING TECH MANUAL 2998-15891. DOCUMENT ALL WORK AND PARTS USED IN JOURNEYMAN'S WORK REPORT.
5. IF OTHER REPAIRS ARE NEEDED, INITIATE A NEW PWO FOR SUCH REPAIRS.
6. PERFORM POST MAINTENANCE TESTS PER QI 11-4, APP. D., IF REQUIRED.

SYSTEM SUPERVISOR: ANDY DELGADO

Component:	Sys: 26 Train:
Associate:	Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITOR TECH SPEC 4.3.3.1	Work Type: 6
Location: RCB/VARIOUS(SEE MCL)	LMD: 2
Defect/Request: 022FYP8085 CNTMNT HIGH RANGE	

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg loc: 910
PAGE 3 of 5

JOURNEYMANS WORK REPORT

Actual Start Date:	Time:	Actual Completion Date:	Time:
10/12/95	8:45 AM	11/19/95	1600

Note: Journeyman shall sign and date text after their entries.

Trouble Found:
This Section is NOT Applicable for PMs or other planned jobs

TEST EQUIP.

P.M.

PSL 824
PSL
PSL 1633
PSL
PSL

Work Performed: Performed 18 month Calibration on RIM-26-40 and RIM-26-41 as per I&C 2-1120070 and post-supply functional I&C 2-1120057 - SAT. Rick Reykendall 11-19-95

Continued on Additional Sheets: Y (N)

Suggestions For Future Planning/Variance Reason:

Supv/Foreman/Chief	Date	Supervisor	Date	QC Inspector	Date
		[illegible]	2-6-95		

Component: Sys: 26 Train:
Associate: Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6
TECH SPEC 4.3.3.1
Location: RCB/VARIOUS(SEE MCL) LMD: 2

Defect/Request: 022FYP8085 CNTMNT HIGH RANGE

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg loc: 910

Continuation of Trouble Found/Work Performed:

Continued on Additional Sheets: Y N

Component: Sys: 26 Train:
Associate: Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6
TECE SPEC 4.3.3.1
Location: RCB/VARIOUS(SEE MCL) LMD: 2

Defect/Request: 022FYP8085 CNTMNT HIGH RANGE

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg loc: 910

Component List:

Comp: RIM-26-40 Assoc: Sys: 26
Name: RADIATION MONITOR FOR CONTAINMENT HIGH RANGE RADIATION (SA)
Loc: RAB/66/S-RA1/E-RAK

Sfty-Cls	Q-Grp	50.49	1.97	FPR	PMT	IST	SEIS	DOC	NCR	PCM	ASME
SR	1E	N	Y			N	I	N/A			

Comm:

Comp: RIM-26-41 Assoc: Sys: 26
Name: RADIATION MONITOR FOR CONTAINMENT HIGH RANGE RADIATION (SB)
Loc: RAB/66/N-RA5/W-RAK

Sfty-Cls	Q-Grp	50.49	1.97	FPR	PMT	IST	SEIS	DOC	NCR	PCM	ASME
SR	1E	N	Y			N	I	N/A			

Comm:

Component: Sys: 26 Train:
Associate: Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6
TECH SPEC 4.3.3.1
Location: RCB/VARIOUS(SEE MCL) LMD: 2

Defect/Request: 022FYP8085 CNTMNT HIGH RANGE

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg Loc:
Page: 1

ATTACHMENT A

TOTAL EQUIPMENT DATA BASE SHEET

Facility: PSL Unit: 02
Component: RIM-26-40 Associate:
Comp Type: IX Comp Sub Type: M2
Equipment Name: RADIATION MONITOR FOR CONTAINMENT HIGH RANGE RADIATION
System: RADIATION MONITORING Code: 26
Location Desc:
Location Code: RAB/66/S-RA1/E-RAK Startup Sys Code: 077
RWP Reqd: Y IST Reqd: N EQ Reqd: N
NPRDS: N Safety Class: SR
GEMS Major Code: LE63 Q-Basis:
GEMS Major Mfgr: GEA Q-Group: 1E
GEMS ID Code: 40 Q-Level:
GEMS Minor Code: SCEW: N/A
GEMS Minor Mfgr: PCM:
Account Code: 532 SPEER: N/A
Equipment Mfgr: GENERAL ATOMIC Surv Maint Note: N/A
Model No: RM-80 Doc Pac: N/A
Engr Data Ref: Seismic Cat: I
Remarks: N/A
EQ Comp Tag: N/A EQ Rev: N/A

Purchase Order (s) :

NY-422609

Drawing (s) :

2998-B-327	443
2998-G-076	
2998-B-327	1668
2998-G-410	8
2998-B-327	1642
2998-13399	

Tech Manual (s) :

3998-15891 DIGITAL HIGH RANGE RADIATI

Procedure (s) :

2-1120070

Component: Sys: 26 Train:
Associate: Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6
TECH SPEC 4.3.3.1
Location: RCB/VARIOUS(SEE MCL) LMD: 2

Defect/Request: 022FYP8085 CNTMNT HIGH RANGE

ATTACHMENT A

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg Loc:
Page: 2

Note (s) : LMD

Note (s) : LMD

Component: Sys: 26 Train:
Associate: Assign Priority: B3
Name: FYP-8085 CONT HI RANGE MONITORS Work Type: 6
TECH SPEC 4.3.3.1
Location: RCB/VARIOUS(SEE MCL) LMD: 2

Defect/Request: 022FYP8085 CNTMNT HIGH RANGE

Fac: PSL Unit: 02
MASTER
WORK ORDER TASK

95020580 01

ER/PWO: 64 / 8085
Chg Loc:
Page: 3

ATTACHMENT A

TOTAL EQUIPMENT DATA BASE SHEET

Facility: PSL Unit: 02
Component: RIM-26-41 Associate:
Comp Type: IX Comp Sub Type: M2
Equipment Name: RADIATION MONITOR FOR CONTAINMENT HIGH RANGE RADIATION
System: RADIATION MONITORING Code: 26
Location Desc:
Location Code: RAB/66/N-RA5/W-RAK Startup Sys Code: 077
RWP Reqd: Y IST Reqd: N EQ Reqd: N
NPRDS: N Safety Class: SR
GEMS Major Code: LE63 Q-Basis:
GEMS Major Mfgr: GEA Q-Group: 1E
GEMS ID Code: 41 Q-Level:
GEMS Minor Code: SCEW: N/A
GEMS Minor Mfgr: PCM:
Account Code: 530 SPEER: N/A
Equipment Mfgr: GENERAL ATOMIC Serv Maint Note: N/A
Model No: RM-80 Doc Pac: N/A
Engr Data Ref: Seismic Cat: I
Remarks: N/A
EQ Comp Tag: N/A EQ Rev: N/A

Purchase Order (s) :

NY-422609

Drawing (s) :

2998-B-327	443
2998-B-327	1642
2998-13399	
2998-G-076	
2998-B-327	1668
2998-G-410	8

Tech Manual (s) :

2998-15891 DIGITAL HIGH RANGE RADIATION M

Procedure (s) :

2-1120060
2-1120070