

Fort Calhoun Station
Unit No. 1

IC-ST-SI-0008

SURVEILLANCE TEST

Title: CHANNEL CALIBRATION OF SAFETY INJECTION TANK
SI-6A WIDE RANGE LEVEL, LOOP L-2904X

Setpoint/Procedure
Form Number (FC-68): 38343

Reason for Change: Procedure updates to Section 2, 5, 10
and 11.

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ISSUED: 06-05-92 4:00 pm

R1

CHANNEL CALIBRATION OF
SAFETY INJECTION TANK SI-6A
WIDE RANGE LEVEL, LOOP L-2904X

SAFETY RELATED

1.0 PURPOSE

- 1.1 The purpose of this procedure is to provide instructions or channel calibration by verifying and, if required, re-establishing the accuracies of Safety Injection Tank SI-6A Wide Range Level, Loop L-2904X.
- 1.2 This test is performed at least once per plant operating cycle.
- 1.3 This test satisfies, in part, the requirements of Technical Specifications, Section 3.1, Table 3-2, Item 14.b.

2.0 REFERENCES

- 2.1 Technical Specifications
- Sections 2.3(1)d. and 2.3(2)g.
 - Section 3.1, Table 3-2, Item 14.b.
- 2.2 Manual TM G080.1630 for General Electric Model 570 Power Supply
- 2.3 Manual TM S163.0010 for Simpson Model 3623 Indicator
- 2.4 Manual TM G080.1400 for General Electric Model 555 Differential Pressure Transmitter
- 2.5 Drawings
- | | | File No. | Description |
|-----------------|-------|----------|----------------------|
| 161F561 | Sh 99 | 09597 | Interconnection Diag |
| E-23866-210-130 | Sh 2 | 10480 | P&ID |
| 11405-M-15 | | 10583 | Location Drawing |
| 11405-M-111 | | 10653 | Location Drawing |
| 11405-EM-2904 | | 20592 | I&C Equipment List |
| 7.6-1 | | 36563 | Control Room Panels |
| B-4101 | Sh 6 | 37235 | ERF In/Out List |
- 2.6 Standing Order G-23, Surveillance Test Program

3.0 DEFINITIONS

None

4.0 EQUIPMENT LIST

- 4.1 Transmitter simulator, Transmation Model 1040 or equivalent
- 4.2 Digital multimeter (DMM), Fluke Model 8060A or equivalent (3 required)
- 4.3 Pressure source capable of 0 - 168.4 IN WC
- 4.4 Test gauge, or equivalent, with an accuracy of at least $\pm 1\%$ full scale, suitable for 0 - 168.4 IN WC

5.0 PRECAUTIONS AND LIMITATIONS

- 5.1 A Radiation Work Permit (RWP) shall be issued to cover work in radiation controlled areas.
- 5.2 All anomalies and deficiencies shall be reported immediately to immediate Supervisor, Shift Supervisor, and noted on the Comment Sheet/Chronological Log. An immediate check shall be made to verify Limiting Conditions for Operation, per Technical Specifications, have not been exceeded.
- 5.3 An Incident Report shall be initiated, in accordance with SO-R-4, to report any anomalies or deficiencies. The Incident Report number shall be recorded on the Comment Sheet/Chronological Log.
- 5.4 No maintenance shall be conducted within this Surveillance Test, other than that specifically directed by this procedure.
- 5.5 A Maintenance Work Request (MWR) shall be initiated to correct any reported deficiency. The MWR number shall be referenced on the Comment Sheet/Chronological Log.
- 5.6 All steps in this procedure shall be conducted in the sequence written unless otherwise noted.
- 5.7 If satisfactory results cannot be achieved during performance of this procedure, notify immediate Supervisor and proceed as directed.
- 5.8 If the procedure becomes contaminated or damaged, the "Lead Technician" or designee shall ensure that all data, verifications, and other pertinent information is transcribed to another copy of the procedure, which will become the official copy.

- 5.9 All initials/signatures shall be those of the person(s) actually performing the work. The person completing the test shall sign and date the Test Record Package cover sheet.
- 5.10 All personnel participating in the performance of this test shall enter their printed name, signature, and initials on the Surveillance Test Signature Sheet.
- 5.11 Critical procedure steps are indicated by the symbol (\$). As each indicated step is completed, it shall be initialed on Sign-Off Sheet in Test Record Package.
- 5.12 The use of N/A (not applicable) in this procedure shall be in accordance with the requirements listed in Standing Order G-23.
- 5.13 All applicable "As Found" data must be collected and recorded before making adjustments to instruments.
- 5.14 Primary plant process should be considered potentially contaminated. If integrity of piping or components is breached, the opening and the surrounding area must be monitored and controlled in accordance with Radiation Protection procedures.
- 5.15 If this test cannot be completed by the end of shift, and will not be continued by the next shift, the loop must be placed in a condition as directed by the Shift Supervisor. All actions taken for temporarily stopping and for resuming the test shall be documented in detail (including Form FC-66D, "Independent Verification Sheet for Procedure") on the Comment Sheet/Chronological Log.
- 5.16 Performance of this procedure requires a "Lead Technician" qualified to Instrument and Control Category 20.
- 5.17 The following indications and alarms will be erratic during the conduct of this test:
- LI-2904X - LOOP 1B SI TANK 6A LEVEL (AI-30A-ESF)
 - L2904X - SAFETY INJECTION TANK LEVEL SI-6A WIDE RANGE (ERF computer)
- 5.18 This loop may be taken out of service in accordance with the following Limiting Conditions for Operation (LCOs):
- Technical Specifications, Sections 2.3(1)d. and 2.3(2)g.

- 5.19 The System Engineer shall be notified within 24 hours of the completion of this test, of any marginal, unexpected, or unacceptable results.
- 5.20 Alternate methods for "calling up" ERF computer points may be used. Do not "call up" using program names PSD, XYP or SCE.

6.0 INITIAL CONDITIONS

NOTE: Initial conditions need not be performed in numerical sequence.

- 6.1 Compare procedure revision with revision of Master Procedure. On Test Record Package cover sheet, enter Master Procedure revision number, then initial and date.
- (§) 6.2 A prejob briefing has been conducted prior to the start of this test. ALL personnel involved in the performance of this test have read AND understand, to the extent of their involvement, the procedure, and have completed the Surveillance Test Signature Sheet.
- (§) 6.3 Verify certification of calibrated test equipment used for this test has not expired.
- (§) 6.4 Form FC-1012, "M&TE Use Log" has been completed for each piece of test equipment used by this procedure.
- (§) 6.5 The Shift Supervisor has reviewed Limiting Conditions for Operation and concurs that this loop may be removed from service. Shift Supervisor initial Sign-Off Sheet.
- 6.6 The Shift Supervisor has granted approval and released equipment necessary to perform this test. The Shift Supervisor's signature, date, and time must be entered on the Test Record Package cover sheet.

7.0 PROCEDURE

- 7.1 Calibration of Power Supply LQ-2904X
- (§) 7.1.1 Lift field lead at AI-30A-ESF, Terminal T-35, and connect a transmitter simulator, in series with a DMM set for mADC, to Terminals T-36(+) and T-35(-).
- NOTE: Input values are as indicated on the DMM in series with the transmitter simulator.
- 7.1.2 Adjust the input for 50.0 mADC.

NOTE: Values found out of tolerance must be reported immediately to immediate Supervisor per Step 5.2.

7.1.3 Connect a DMM, set for VDC, across power supply (item 276) Terminals 1(+) and 2(-) and record "As Found" power supply voltage on Data Sheet 1.

7.1.4 Change function of DMM connected to power supply terminals from VDC to VAC, and record "As Found" AC ripple on Data Sheet 1.

7.1.5 If "As Found" power supply voltage and AC ripple values are in tolerance, and no improvement in accuracy is warranted, record "As Found" values in "As Left" column on Data Sheet 1 and proceed to Step 7.1.9.

NOTE: The immediate Supervisor may direct the Technician to collect "As Found" loop data prior to the power supply calibration, thus performing the procedure out of sequence.

7.1.6 If either "As Found" value is out of tolerance or an improvement in accuracy is warranted, notify immediate Supervisor.

7.1.7 If necessary to calibrate power supply, proceed as follows:

NOTE: A DMM may be used at the test points to facilitate making adjustments, but all recorded data must be obtained from the DMM connected to the power supply output terminals.

A. Change function of DMM connected to power supply terminals from VAC to VDC.

B. Adjust R-215 of power supply for a value as close as possible to 52.5 VDC, and note power supply voltage value.

C. Change function of DMM connected to power supply terminals from VDC to VAC, and note AC ripple value.

D. If power supply cannot be calibrated to in tolerance values, notify immediate Supervisor and proceed as directed.

7.1.8 If noted power supply voltage and AC ripple values are in tolerance, record values in "As Left" column on Data Sheet 1.

- 7.1.9 Disconnect DMM from power supply (item 276)
Terminals 1 and 2.

7.2 Calibration of Indicator LI-2904X

- (S) 7.2.1 Verify the meter banding is in good condition
and installed over the following ranges. If
the meter banding requires repair, notify
immediate Supervisor and proceed as directed.

- Red - 0 to 67 %
- Amber - 67 to 68 %
- Amber - 73 to 74 %
- Red - 74 to 100 %

NOTE: Input values are as indicated on the DMM in
series with the transmitter simulator.

NOTE: Values found out of tolerance must be reported
immediately to immediate Supervisor per Step 5.2.

- 7.2.2 Using transmitter simulator at AI-30A-ESF,
Terminals T-36 and T-35, apply inputs
specified on Data Sheet 2 and record
"As Found" indicated values.
- 7.2.3 If "As Found" values are in tolerance and no
improvement in accuracy is warranted, record
"As Found" values in "As Left" column on Data
Sheet 2 and proceed to Step 7.3.1.
- 7.2.4 If "As Found" values are out of tolerance or
an improvement in accuracy is warranted,
notify immediate Supervisor and proceed as
directed.

7.3 Calibration of ERF Computer Point L2904X

- 7.3.1 Computer point L2904X may be "called up" as
follows:

NOTE: If, during call-up of computer point, a
key is pressed in error, entry sequence may be
restarted at Step 7.3.1.A.

- A. Press CLR (clear) key on Function Keyboard
if anything is displayed on CRT.
- B. Type PVD (Point Value Display) on CRT
Keyboard.
- C. Press DSP key on Function Keyboard. PVD
will be on CRT screen.

- 7.3.1 D. When cursor automatically positions itself in the field for selecting a point, type in the computer point ID number, L2904X.
- E. Press SEL key on Function Keyboard. In a few seconds the point should be accepted if it is a valid number.
- F. Press HOM key on Function Keyboard. After a few seconds the selected point will be displayed and updated as the point is scanned.

NOTE: Computer displayed values and alarm values may be obtained concurrently.

NOTE: Input values are as indicated on the DMM in series with the transmitter simulator.

NOTE: Values found out of tolerance must be reported immediately to immediate Supervisor per Step 5.2.

- 7.3.2 Using transmitter simulator at AI-30A-ESF, Terminals T-36 and T-35, apply inputs specified on Data Sheet 3 and record "As Found" displayed values. Any value displayed with a "?" is considered out of tolerance.
- 7.3.3 Increase and decrease input as necessary and record "As Found" alarm and reset values on Data Sheet 3.
- 7.3.4 If "As Found" displayed and alarm values are in tolerance and no improvement in accuracy is warranted, record "As Found" values in "As Left" column on Data Sheet 3 and proceed to Step 7.3.6.
- 7.3.5 If "As Found" values are out of tolerance or an improvement in accuracy is warranted, notify immediate Supervisor and proceed as directed.
- 7.3.6 Press CLR (clear) key on Function Keyboard to clear the computer CRT screen.
- (S) 7.3.7 Disconnect transmitter simulator and DMM, and reconnect lifted lead at AI-30A-ESF, Terminal T-35.

7.4 Calibration of Transmitter LT-2904X

- (S) 7.4.1 Lift transmitter negative lead and connect DMM, set for mADC, in series with lifted lead and terminal for monitoring transmitter output.
- (S) 7.4.2 Close transmitter low side isolation valve.
- (S) 7.4.3 Open transmitter equalizing valve.
- (S) 7.4.4 Close transmitter high side isolation valve.

CAUTION

Any trapped fluid released at this point may be contaminated. A suitable container, per Radiation Protection recommendation, shall be used to entrap this fluid. The fluid shall be disposed of in accordance with Radiation Protection procedures.

- (S) 7.4.5 Remove transmitter drain caps, and drain transmitter.
- 7.4.6 Connect pressure source and test gauge to transmitter low side.
- 7.4.7 Close transmitter equalizing valve.

NOTE: Input values are as indicated on the test gauge connected to the transmitter.

NOTE: Values found out of tolerance must be reported immediately to immediate Supervisor per Step 5.2.

- 7.4.8 Using pressure source connected to transmitter, apply inputs specified on Data Sheet 4 and record "As Found" output values.
- 7.4.9 If "As Found" values are in tolerance and no improvement in accuracy is warranted, record "As Found" values in "As Left" column on Data Sheet 4 and proceed to Step 7.4.13.

- 7.4.10 If "As Found" values are out of tolerance or an improvement in accuracy is warranted, proceed as follows:

NOTE: Description and location of adjustments are provided on Figure 1, if necessary.

NOTE: Output values may be rechecked after the initial zero adjustment. If a zero adjustment is sufficient to obtain within tolerance output values, the span adjustment may be omitted.

- A. Apply 168.4 IN WC and adjust zero for an output as close as possible to 10.0 mADC.
- B. Apply 0.0 IN WC and adjust span for an output as close as possible to 50.0 mADC.
- C. Repeat Steps 7.4.10.A and 7.4.10.B as necessary to obtain in tolerance values.
- D. If in tolerance values cannot be obtained, notify immediate Supervisor and proceed as directed.

- 7.4.11 Apply inputs specified on Data Sheet 4 and note output values.

- 7.4.12 If noted values are in tolerance, record values in "As Left" column on Data Sheet 4. If noted values are out of tolerance, notify immediate Supervisor and proceed as directed.

- (S) 7.4.13 Disconnect DMM and reconnect lifted transmitter negative lead.

7.5 Loop Verification

NOTE: Input values are as indicated on the test gauge connected to the transmitter.

- 7.5.1 Using pressure source connected to transmitter, apply inputs specified on Data Sheet 5 and record "Actual" indicated values.
- 7.5.2 If values are in tolerance, proceed to Step 8.1. If values are out of tolerance, notify immediate Supervisor and proceed as directed.

8.0 RESTORATION

8.1 Return transmitter to service as follows:

8.1.1 Ensure pressure source connected to transmitter is at zero IN WC.

CAUTION

Any trapped fluid released at this point may be contaminated. A suitable container, per Radiation Protection recommendation, shall be used to entrap this fluid. The fluid shall be disposed of in accordance with Radiation Protection procedures.

8.1.2 Disconnect pressure source and test gauge from transmitter.

(\$) 8.1.3 Open transmitter equalizing valve.

(\$) 8.1.4 Reinstall transmitter drain caps.

(\$) 8.1.5 Slowly open transmitter high side isolation valve.

(\$) 8.1.6 Carefully vent air from transmitter high and low sides; when done, ensure vent valves are closed.

(\$) 8.1.7 Close transmitter equalizing valve.

(\$) 8.1.8 Open transmitter low side isolation valve.

(\$) 8.1.9 Ensure there is no leakage at all connections, valves, plugs, etc, which were manipulated. If leakage is detected, notify immediate Supervisor and proceed as directed.

(\$) 8.2 Using redundant instrumentation or system condition, verify LI-2904X reflects current process condition. If indication does not reflect current condition, notify immediate Supervisor and proceed as directed.

8.3 The Shift Supervisor has been notified the channel calibration is complete and Safety Injection Tank SI-6A Wide Range Level, Loop L-2904X, is returned to service. The Shift Supervisor's signature, date, and time must be entered on the Test Record Package cover sheet.

- (§) 8.4 The Surveillance Test Signature Sheet contains the printed name, signature, and initials of all persons whose signature or initials appears within the Test Record Package.
- 8.5 Ensure that the identification number, certification date, and calibration due date of test equipment used, are recorded on the appropriate data sheet(s).

9.0 ACCEPTANCE CRITERIA

Acceptance criteria for components, instrument loop, or associated functions are specified on data sheets contained in Test Record Package.

10.0 TEST RECORD

Test Record Package for Calibration of Safety Injection Tank SI-6A Wide Range Level, Loop L-2904X.

11.0 REVIEW

- 11.1 The Supervisor-Maintenance is responsible for ensuring the completed Surveillance Test is reviewed in a timely manner and forwarded in accordance with SO-G-23.
- 11.1.1 The Supervisor-I&C Field Maintenance must review this Surveillance Test.
- 11.2 The System Engineer shall be notified within 24 hours of the completion of this test, of any marginal, unexpected, or unacceptable results.

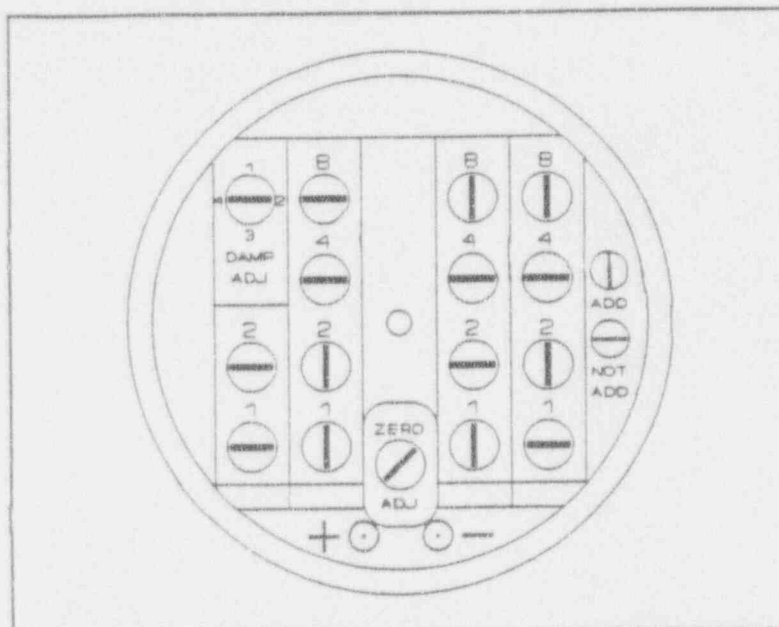


Figure 1 - G.E. MODEL 555 {RS1005.WPG}

SPAN-SWITCH SETTINGS

The setting of the span switches is accomplished by equating a value of inches of water to numerical settings of a combination of fourteen switches and resistors.

The "units" switches are in the far right column, the "tens" switches are the next column to the left, etc. The "thousands" column (on the far left) has only two switches.

The total numerical value of the switches whose adjusting slots are in the ADD (vertical) position indicates the digital value of the column.

In illustration above, the "units" column has its 8 and 2 switches in ADD (vertical position) for a total of 10 inches (10x"one"). The "tens" column has its 8 and 1 switches in ADD for a total of 90 inches (9x"ten"). And the "hundreds" column has its 2 and 1 switches in ADD for a total of 300 inches (3x"hundred"). Adding together the columns, the transmitter is spanned for 400 inches of water.

To change the transmitter output by a small amount, change the switches in the "units" and "tens" column as necessary. To change the output by a large amount, change the switches in the "hundreds" and "thousands" column. Rotating a switch to the ADD position increases the output.

PROCEDURE REV VERIFICATION
REVISION NO. _____
INITIALS _____
DATE _____

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Surveillance Test Record Package for Channel Calibration of Safety
Injection Tank SI-6A Wide Range Level, Loop L-2904X

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6. DATA SHEET 4 (LT-2904X)
7. DATA SHEET 5 (Loop Verification)
8. SURVEILLANCE TEST SIGNATURE SHEET
9. COMMENT SHEET/CHRONOLOGICAL LOG

Start Authorized	_____	Date/Time	_____
	Shift Supervisor Signature		
Notified Complete	_____	Date/Time	_____
	Shift Supervisor Signature		
Test Completed by	_____	Date/Time	_____
	Signature		
Reviewed by	_____	Date/Time	_____
	Supervisor-I&C Field Maintenance Signature		

SIGN-OFF SHEET OF CRITICAL STEPS

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STEP NO.	DESCRIPTION	INITIALS	IND VERIF
6.2	Prejob briefing conducted		N/A
6.3	Test equipment certification current		N/A
6.4	Form FC-1012 completed		N/A
6.5	LCO review and concurrence (Shift Supv init)		N/A
7.1.1	Field lead lifted, AI-30A-ESF, Term T-35		
7.2.1	Indicator color banding verified		N/A
7.3.7	Field lead landed, AI-30A-ESF, Term T-35		
7.4.1	Xmtr negative output lead lifted		
7.4.2	Xmtr low side isolation valve closed		N/A
7.4.3	Xmtr equalizing valve opened		N/A
7.4.4	Xmtr high side isolation valve closed		N/A
7.4.5	Xmtr high side drain cap removed		N/A
	Xmtr low side drain cap removed		N/A
7.4.13	Xmtr negative output lead landed		
8.1.3	Xmtr equalizing valve opened		
8.1.4	Xmtr high side drain cap installed		
	Xmtr low side drain cap installed		
8.1.5	Xmtr high side isolation valve opened		
8.1.6	Xmtr high side vent valve closed		
	Xmtr low side vent valve closed		
8.1.7	Xmtr equalizing valve closed		
8.1.8	Xmtr low side isolation valve opened		
8.1.9	Leak check performed		N/A
8.2	Indicator reflects current condition		N/A
8.4	Surv Test Signature Sheet completed		N/A

DATA SHEET 1

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INSTR. TAG NO. LQ-2904X LOCATION AI-30A-ESF, Room 77*
DESCRIPTION SAFETY INJECTION TANK SI-6A WIDE RANGE LEVEL, POWER SUPPLY
MFR. GENERAL ELECTRIC MODEL NO. 570
RANGE N/A TOLERANCE RIPPLE: Less than 38 mVAC
OUTPUT: $\pm 4.76\%$ = ± 2.5 VDC
HEAD CORRECTION N/A SETPOINT N/A

INPUT POINT: AI-30A-ESF, Terms T-36 (+) & T-35 (-)	OUTPUT POINT: Power Supply, Terms 1 (+) & 2 (-)
---	--

INPUT		OUTPUT			
RANGE	APPL'D	DESIRED	ALLOWED RANGE	AS FOUND	AS LEFT
%	mADC	VDC	VDC	VDC	VDC
100	50.0	52.5	50.0 to 55.0		

INPUT		RIPPLE			
RANGE	APPL'D	DESIRED	ALLOWED RANGE	AS FOUND	AS LEFT
%	mADC	mVAC	mVAC	mVAC	mVAC
100	50.0	0.0	< 38		

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TEST EQUIPMENT			REMARKS
ID NO.	CERT DATE	DUE DATE	
I&C TECHNICIAN _____			* Rm 77 is the Main Control Room (MCR).
DATE CALIBRATED _____			

DATA SHEET 2

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INSTR. TAG NO. LI-2904X LOCATION AI-30A-ESF, Room 77 (MCR)
DESCRIPTION SAFETY INJECTION TANK SI-6A WIDE RANGE LEVEL, INDICATOR
MFR. SIMPSON ELECTRIC MODEL NO. 3623
INPUT: 10.0- 50.0 mADC
RANGE OUTPUT: 0- 100% Scale TOLERANCE ±2% = ±2% Indicated
HEAD CORRECTION N/A SETPOINT N/A

INPUT AI-30A-ESF, Terms T-36 (+) OUTPUT
POINT: & T-35 (-) POINT: Indicator scale

INPUT		OUTPUT			
RANGE	APPL'D	DESIRED	ALLOWED RANGE	AS FOUND	AS LEFT
%	mADC	%	%	%	%
0	10.0	0.0	-2.0 to 2.0		
25	20.0	25.0	23.0 to 27.0		
50	30.0	50.0	48.0 to 52.0		
75	40.0	75.0	73.0 to 77.0		
100	50.0	100.0	98.0 to 102.0		
75	40.0	75.0	73.0 to 77.0		
50	30.0	50.0	48.0 to 52.0		
25	20.0	25.0	23.0 to 27.0		
0	10.0	0.0	-2.0 to 2.0		

TEST EQUIPMENT			REMARKS
ID NO.	CERT DATE	DUE DATE	
I&C TECHNICIAN _____			
DATE CALIBRATED _____			

DATA SHEET 3

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INSTR. TAG NO. L2904X LOCATION ERF Computer Terminal

DESCRIPTION SAFETY INJECTION TANK SI-6A WIDE RANGE LEVEL, CPTR POINT

MFR. N/A MODEL NO. N/A

INPUT: 10.0- 50.0 mADC
RANGE OUTPUT: 0- 100% Displayed TOLERANCE ±2.0% = ±2.0% Displayed

HEAD CORRECTION N/A SETPOINT LOW: 68% HIGH: 73%

INPUT	AI-30A-ESF, Terms T-36 (+)	OUTPUT	Computer display
POINT:	& T-35 (-)	POINT:	

INPUT		OUTPUT			
RANGE	APPL'D	DESIRED	ALLOWED RANGE	AS FOUND	AS LEFT
%	mADC	%	%	%	%
2	10.8	2.0	0.0 to 4.0		
25	20.0	25.0	23.0 to 27.0		
50	30.0	50.0	48.0 to 52.0		
75	40.0	75.0	73.0 to 77.0		
98	49.2	98.0	96.0 to 100.0		
ALARMS		%	%	%	%
LO Setpoint		68.0	66.0 to 70.0		
LO Reset		N/A	N/A		
HI Setpoint		73.0	71.0 to 75.0		
HI Reset		N/A	N/A		

TEST EQUIPMENT			REMARKS
ID NO.	CERT DATE	DUE DATE	
I&C TECHNICIAN _____			
DATE CALIBRATED _____			

DATA SHEET 4

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INSTR. TAG NO. LT-2904X LOCATION Ctmt 1013, 06WDD-10NII
 DESCRIPTION SAFETY INJECTION TANK SI-6A WIDE RANGE LEVEL, TRANSMITTER
 MFR. GENERAL ELECTRIC MODEL NO. 555
 INPUT: 168.4- 0.0 IN WC
 RANGE OUTPUT: 10.0- 50.0 mADC TOLERANCE ±2% = ±0.8 mADC
 HEAD CORRECTION N/A SETPOINT N/A

INPUT Transmitter low side
POINT: (wet reference leg)

OUTPUT DMM, set for mADC, in series
POINT: with transmitter output lead

INPUT		OUTPUT			
RANGE	APPL'D	DESIRED	ALLOWED RANGE	AS FOUND	AS LEFT
%	IN WC	mADC	mADC	mADC	mADC
0	168.4	10.0	9.2 to 10.8		
25	126.3	20.0	19.2 to 20.8		
50	84.2	30.0	29.2 to 30.8		
75	42.1	40.0	39.2 to 40.8		
100	0.0	50.0	49.2 to 50.8		
75	42.1	40.0	39.2 to 40.8		
50	84.2	30.0	29.2 to 30.8		
25	126.3	20.0	19.2 to 20.8		
0	168.4	10.0	9.2 to 10.8		

TEST EQUIPMENT			REMARKS
ID NO.	CERT DATE	DUE DATE	
I&C TECHNICIAN _____			
DATE CALIBRATED _____			

DATA SHEET 5

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LOOP L-2904X

INSTRUMENT		INSTRUMENT			INSTRUMENT		
LT-2904X		LI-2904X (AI-30A-ESF)			L2904X		
INPUT POINT		OUTPUT POINT			OUTPUT POINT		
Low Port		Indicator Scale			ERF Computer Terminal*		
INPUT RANGE	APPLIED	DESIRED	ALLOWED RANGE	ACTUAL	DESIRED	ALLOWED RANGE	ACTUAL
%	IN WC	%	%	%	%	%	%
5	160.0	5	3 to 7		5	3 to 7	
50	84.2	50	48 to 52		50	48 to 52	
95	8.4	95	93 to 97		95	93 to 97	

* If computer is down, read equivalent voltages across dropping resistor at AI-30A-ESF, terms L-54(+) and L-55(-).

5% = 1.20 VDC (1.12 to 1.28 VDC)
50% = 3.00 VDC (2.92 to 3.08 VDC)
95% = 4.80 VDC (4.72 to 4.88 VDC)

TEST EQUIPMENT			REMARKS
ID NO.	CERT DATE	DUE DATE	
I&C TECHNICIAN _____			
DATE CALIBRATED _____			

SURVEILLANCE TEST SIGNATURE SHEET

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All persons participating in the performance of this test shall enter their printed name, signature, and initials below.

NAME (PRINT) _____

SIGNATURE _____

INITIALS

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IC-ST-SI-0008
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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slightly textured appearance and is set against a dark background.