VOL. 8

FNP-1-IMP-202.8
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Revision 2

FARLEY NUCLEAR PLANT

INSTRUMENT MAINTENANCE PROCEDURE

FNP-1-IMP-202.8

VOLUME CONTROL TANK LEVEL
LT-112

Approved:

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B/1/H

PAGE NO.	REVISION NO. 1										
	0	1	2	3	4	5	6	7	8	9	10
1	X	X									
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11	X										
12	X										
13	X										
Fig.1&2	X	X									
DATA PACKAGE IMP-202.8A											
1	X	X									
2	X										
3	X										
4	X										
5	X										
6	X	X									
7	X										
8	X										

FARLEY NUCLEAR PLANT
UNIT 1
INSTRUMENT MAINTENANCE PROCEDURE IMP-202.8

VOLUME CONTROL TANK LEVEL LT-112

1.0 Purpose

1.1 The purpose of this procedure is to verify and, if required, re-establish the accuracies and control functions of the channel sensor and associated signal processing equipment.

1.2 This procedure is written for normal complete calibration; however, partial performance is also possible. Partial performance is divided into: 1) the sensor, sections 2.0 through 7.1 and 7.10 or 2) signal processing equipment excluding the controller and driver cards, sections 2.0 through 6.0, 7.2 through 7.6, 7.9, 7.10 and 7.11, 3) the driver cards only, sections 2.0 through 6.0 and 7.7, 7.8 and 7.10.

2.0 Acceptance Criteria

2.1 The acceptance criteria for this test is that the process instrumentation provide in-tolerance conversion of the process parameter and perform its as-designed indication and control functions. The setpoints and tolerances to be used are contained in the data package listed as reference 3.1.

3.0 References

3.1 FNP-1-IMP-202.8A Instrument Maintenance Procedure Data Package, "Volume Control Tank Level LT-112".

3.2 U-260930, Barton Model 396 D/P Transmitter Calibration section 6-1-4.4, Maintenance section 6-1-3

3.3 U-1756034, VCT Level schematic diag. 7378D38.

3.4 U-258631 Westinghouse PLS.

3.5 D-177303 Elem. Diag. - VCT Level and Pressure.

3.6 D-175039 sh. 2, CVCS P&ID.

4.0 Test Equipment

4.1 Fluke Digital Multimeter, Model 8120A or equivalent (2).

4.2 Transmation Transmitter Simulator, Model 1040 or equivalent.

4.3 Hewlett Packard 6920B meter calibrator or equivalent (if transmitter calibration is not to be performed).

4.4 Wallace and Tiernan Pneumatic Calibrator, Series 65-120 (0-125 in. WC) or equivalent.

5.0 Precautions and Limitations

5.1 All reference to data sheets by this procedure is to data sheets contained in reference 3.1. All reference to attachments are to the attachments of FNP-0-IMP-443.1.

5.2 Critical procedure sections and steps are listed on page 2 of the data package used with this procedure and are marked with an asterisk (*) within the body of this procedure. As each critical step or section is completed, initial on the space provided on Table 1 of the data package.

5.3 Observe all precautions and limitations listed in FNP-0-IMP-0, General Instrumentation and Controls Precautions and Limitations.

5.4 During the conduct of this test LI-112 (BTRS Chiller Unit Room) will be erratic and unreliable.

5.5 The following valves may actuate in automatic control at the Volume Control Tank Low-Low Level set point (LB-115B, 5% decreasing).

5.5.1 LCV-115B, RWST to charging pump (open).

5.5.2 LCV-115C, VCT outlet isolation (close).

5.5.3 LCV-115D, RWST to charging pump (open).

5.5.4 LCV-115E, VCT outlet isolation (close).

*6.0 Initial Conditions

6.1 Controller LK-112 (Letdown to V.C.T. or H.U.TK.), located on the MCB, is in the manual mode.

6.2 VCT level greater than low-low set-point (5%) as indicated on LI-115 or plant in Mode 5 or 6.

6.3 The Shift Foreman has granted administrative authority to perform this test and is aware of indications, printouts, and alarms that will result.

7.0 Detailed Procedure

*7.1 Calibrate D/P Transmitter LT-112 as follows:

*7.1.1 Open the equalizing valve.

*7.1.2 Have the high pressure root valve, 1-CVC-V-8447A, closed and tagged.

*7.1.3 Have the low pressure root valve, 1-CVC-V-8447B, closed and tagged.

CAUTION: Do not open the vent fittings on the transmitter.

*7.1.4 Vent the high pressure leg by opening the process test connection on the high pressure (upper) bellows isolation housing.

*7.1.5 Open the drain and calibration valve and drain the sensing lines. Collect any fluid in a suitable container.

CAUTION: Observe caution when handling boric acid solutions.

*7.1.6 Connect the test pressure source and test pressure gauge to the drain and calibration connection.

*7.1.7 Close the equalizing valve.

7.1.8 Connect a DVM to the transmitter test jack.

7.1.9 Vary the transmitter input as necessary to obtain a transmitter output equal to 12mA. Verify that the D.C. potential across the transmitter output terminals is 32.5V $\pm$ 5V.

7.1.10 If the voltage is out of tolerance, measure and record on data sheet 1 the "AS FOUND" potential at Cabinet 7, TBA, terminals 19 and 20. Then adjust pot M88-1 on the NLP card in location C7-130 to obtain 32.5V + 0.1V at the above terminals and record the "FINAL" value.

7.1.11 Apply the inputs called for on data sheet 1 and record AS FOUND data.

7.1.12 If AS FOUND data is within tolerance, no further adjustments are required. Proceed to step 7.1.17.

7.1.13 If AS FOUND data is out of tolerance, apply a test pressure equal to 0% of the transmitter SPAN and adjust the transmitter ZERO to obtain the required value shown on data sheet 1.

7.1.14 Apply a test pressure equal to 100% of the transmitter SPAN and adjust the SPAN to obtain the required value shown on data sheet 1.

7.1.15 Repeat step 7.1.13 and 7.1.14 until both ZERO and SPAN meet required values.

7.1.16 Apply the values called for on data sheet 1 and ensure all output values are within tolerances. If transmitter output is non-linear, offset the transmitter ZERO and SPAN within the allowed tolerances to minimize the maximum difference between REQUIRED and FINAL data. If the transmitter cannot be calibrated using these instructions, refer to reference 3.2. Record the FINAL data on data sheet 1.

7.1.17 If field indicator calibration is to be performed at this time, perform section 7.4 prior to returning the transmitter to service.

*7.1.18 Replace the cap on the upper pressure bellows isolation housing.

7.1.19 Close the drain and calibration valve.

7.1.20 Disconnect all test equipment connected to the transmitter and return the transmitter to service as follows:

*7.1.20.1 Open the equalizing valve.

*7.1.20.2 Have the transmitter high pressure root valve opened.

*7.1.20.3 Have the transmitter low pressure root valve opened.

*7.1.20.4 Close the equalizing valve.

*7.1.20.5 Vent the low pressure leg at the low pressure bellows isolation vent.

7.2 Card Calibration Setup

*7.2.1 Pull the NLP card in Location C7-130 far enough forward to de-energize the card.

*7.2.2 Lift the leads from Cabinet 7, TBA 19 and 20 and connect the transmitter simulator to the terminals.

*7.2.3 Reinsert the NLP card.

*7.3 Calibration of Power Supply (NLP) Card LQY-112, Style 2837A12G01, Location C7-130.

7.3.1 Adjust the transmitter simulator for an input of 12mA. Measure and record on data sheet 2 the AS FOUND D.C. potential between cabinet 7, TBA terminals 19 and 20.

7.3.2 Adjust potentiometer M88-1 on the NLP card to obtain a D.C. potential of 32.5 $\pm$ 0.1 VDC.

7.3.3 Record the FINAL D.C. potential on Data Sheet 2.

7.3.4 Connect a DVM to the unisolated OUTPUT and SIG COM jacks.

7.3.5 Apply the inputs called for on data sheet 2 and record AS FOUND data.

7.3.6 If necessary, adjust the NLP card as instructed in Attachment A3.

7.3.7 Record FINAL data and disconnect the DVM.

*7.4 Indicator Calibration, Number LI-112 Location BTRS Chiller Unit Room.

7.4.1 Apply the inputs called for on data sheet 2. If the transmitter is being calibrated, vary the transmitter input. If transmitter calibration is not to be performed, disconnect the appropriate indicator leads and apply the input using the meter calibrator. Record AS FOUND values.

7.4.2 If required adjust the indicator's zero screw to minimize the maximum error.

NOTE: Do not turn zero screw more than 1/4 turn in either direction.

7.4.3 If tolerances cannot be met, replace the indicator and repeat 7.4.1.

7.4.4 Record FINAL data.

7.4.5 Proceed to step 7.1.17 if transmitter calibration is being performed.

*7.5 Calibration of Signal Comparator (NAL) Card, LB-112, Style 2837A13G01, Location C7-133.

7.5.1 Adjust the transmitter simulator so that comparator circuit 1 is reset (OUTPUT LED is on).

7.5.2 Slowly decrease the input from the transmitter simulator and record the AS FOUND value at which the comparator trips (as indicated by the OUTPUT LED turning off).

7.5.3 Slowly increase the input from the transmitter simulator and record the AS FOUND value at which the comparator resets (as indicated by the OUTPUT LED turning on).

7.5.4 If necessary, adjust the NAL card as instructed in Attachment A7.

7.5.5 Record FINAL trip and reset values.

*7.6 Functional Test of AC Controller Card (NAS), LY-112, Style 2837A88G06, location C7-436.

7.6.1 With comparator LB-112 (location C7-133) tripped, verify with a multimeter that 0 VAC exists at Aux. Safeguard Cabinet B, TB-929 terminals 1 and 2.

7.6.2 With comparator LB-112 reset, verify 120 VAC at Aux. Safeguard Cabinet B, TB-929, terminals 1 and 2.

7.6.3 If the controller card malfunctioned, remove the card in accordance with FNP-0-IMP-442.3, 7300 Series NAS Card Removal. Replace the card and repeat 7.6.

7.6.4 Record verification of AC controller card function on data sheet 3 (initial).

*7.7 Calibration of Controller (NCB) Card, LC-112 Style 2838A30G01, Location C7-131

7.7.1 Record the NCB "AS FOUND" card edge switch and potentiometer settings on data sheet 4.

*7.7.2 Remove the NCB card and install it in the Controller/Driver test assembly. Jumper pins 37 and 39 to clamp the output positive.

7.7.3 Measure and record the "AS FOUND" voltage between pins 13(+) and 42(-). If necessary, adjust potentiometer M89-1 to obtain 10.0V + 2.0mV. Record the "FINAL" value.

7.7.4 Connect a DVM to the "COM/OUT" jacks.

7.7.5 Place the test assembly M/A station in manual and depress the "LOWER" button until the low limit light comes on. Record the "AS FOUND" lower limit and, if necessary, adjust the "LIMITS LOW" potentiometer to obtain the "REQUIRED" value. Record the "FINAL" value.

7.7.6 Depress the test assembly M/A station "RAISE" button until the high limit comes on. Record the "AS FOUND" upper limit and, if necessary, adjust the "LIMITS HIGH" potentiometer to obtain the "REQUIRED" value.

7.7.7 Connect a DVM between the "COM" and "SP" jacks. Place the test assembly "SETPOINT TEST SWITCH" in the "TEST" position and record the "AS FOUND" setpoint values. If necessary, adjust potentiometer M80-3 to obtain a setpoint value of 0.0V ± 1.0mV. Record the "FINAL" value. Place the "SETPOINT TEST SWITCH" to the "NORMAL" position and adjust the test assembly M/A station potentiometer for a setpoint of 0.0V as measured between pins 20(+) and 21(-).

7.7.8 Check the controller tracking by placing the test assembly M/A station in manual and applying the Inputs listed on data sheet 4 using the up/down pushbutton. Monitor the input values using a DVM connected between pin 34(+) and pin 36(-). Record the "AS FOUND" controller tracking outputs between pins 38(-) and 39(+).

7.7.9 Lift one end of jumpers JK and JR to defeat derivative and integral action.

7.7.10 Place the test assembly M/A station in automatic and check the controller proportional action by applying the inputs listed on data sheet 4. Record "AS FOUND" static output values for each input after the controller has stabilized.

7.7.11 If "AS FOUND" tracking or proportional values are out of tolerance, adjust the NCB card as instructed in Attachment A4, then reconnect jumpers JK and JR and repeat steps 7.7.8 through 7.7.10 recording final data.

7.7.12 Reconnect jumper JR and connect a recorder set for 10V full scale between the "COM" and "OUT" jacks.

7.7.13 Adjust the controller setpoint and the controller input to +5.00 volts.

7.7.25 Record the FINAL derivative time constant. Attach the initial recorder trace and, if adjustments were made, the final recorder trace to the data package.

7.7.26 Reconnect jumper JR.

7.7.27 If the dynamic card function cannot be calibrated using the above procedure, refer to reference 1.1 of Attachment A4.

7.7.28 Record the FINAL card edge switch and potentiometer settings.

7.7.29 Remove all test connections and if the NCD card is not to be calibrated at this time, reinstall the NCB card.

*7.8 Calibration of Controller Driver (NCD) Card, LCY-112, Style 2838A16G03, Location C7-132.

7.8.1 Remove the NCB card from location C7-132 if not already removed.

7.8.2 Insert a service module (NSM) card (style 2837A20G01) into the NCB card slot.

NOTE: Ensure the MODE switch on the NSM card is in the center-off position during insertion and removal of the NSM card. Ensure that the NSM card has been calibration checked within the last 30 days.

7.8.3 Set the NSM METER switch to the NORMAL position and note the reading.

7.8.4 Set the METER switch to the SERVICE position; using the COARSE and FINE thumbwheel potentiometers, adjust the service output to the reading noted in Step 7.8.3.

7.8.5 Repeat Steps 7.8.3 and 7.8.4 until the meter shows no deflection when switching from NORMAL to SERVICE. Leave the METER switch in the SERVICE position.

7.7.14 Place the test assembly M/A station in manual and obtain a controller output of +1 volts to ensure sufficient chart space and to preclude controller windup.

7.7.15 Place the test assembly M/A station in auto, start the recorder at 5 cm/min and then step the controller input from 5.0 to 5.5 volts.

7.7.16 Determine and record the AS FOUND reset time constant by dividing the slope of the reset portion of the recorder trace (volts/sec) into the cards gain (see figure 1).

7.7.17 If necessary, adjust the reset switches to obtain the REQUIRED reset time constant and repeat steps 7.7.13 through 7.7.16 until no further adjustment is necessary.

7.7.18 Record the FINAL reset time constant value. Attach the initial recorder trace and, if adjustments were made, the final recorder trace to the data package.

7.7.19 Reconnect jumper JK and lift one end of jumper JR.

7.7.20 Adjust the controller setpoint (pins 20(+) and 21(-) to 5 volts and adjust the controller input (pins 23(-) and 24(+) to 5.0 volts and allow the card output to stabilize.

7.7.21 Place the test assembly M/A station in manual and obtain a controller output of 1.0 volts.

7.7.22 Place the test assembly M/A station in auto, start the recorder at 15cm/min and then step the controller input from 5.0 to 5.5 volts.

7.7.23 Determine and record the AS FOUND derivative time constant from the recorder trace by measuring the time for the output trace to decrease from a convenient initial point (after any limiting or clipping) to 63.2% of its total decrease (see figure 2).

7.7.24 If necessary, adjust the rate switches to obtain the REQUIRED derivative time constant and repeat steps 7.7.20 through 7.7.23 until no further adjustment is necessary.

*7.8.6 Notify the Reactor Operator that control of 1-CVS-LCV-115A is being switched to the NSM card and that M/A station LK-112 will be disabled.

7.8.7 Momentarily set the MODE switch to the SERVICE position. The NSM card now controls loop current; the COARSE and FINE thumbwheel potentiometers are use to adjust the loop current.

7.8.8 Remove the NCD card and insert it in the Controller/Driver test assembly.

7.8.9 Place the test assembly M/A station in AUTO.

7.8.10 Connect a 250Ω resistor to pins 19 (+) and 22 (-) and monitor the NCD card current output by connecting a DVM across the resistor.

7.8.11 Connect a voltage source to NCD pins 40 (-) and 41 (+) and apply the inputs called for on data sheet 5. Record "AS FOUND" output values.

7.8.12 If necessary, adjust the NCD card as instructed in Attachment A9.

7.8.13 Record FINAL output values.

7.8.14 Place the test assembly M/A station in MANUAL and depress the LOWER button until the low limit light illuminates.

7.8.15 Connect a recorder across the resistor connected to pins 19 (+) and 22 (-) and set the recorder for 5.0V full scale.

7.8.16 Start the recorder and depress the test assembly M/A station RAISE button until the high limit light illuminates.

7.8.17 Verify that the card ramped smoothly from 1 to 5.0V in approximately 15 seconds.

7.8.18 If the output was not satisfactory, trouble shoot using reference 1.1 of Attachment A9.

7.8.19 Attach the recorder trace to the data package.

7.8.20 Reinsert the NCD card in location C7-132.

7.8.21 Set the NSM METER switch to the SERVICE position and note the reading.

7.8.22 Set the METER switch to the NORMAL position; using the INCREASE/DECREASE switch on the NSM Card, adjust the normal output NCD Card Output) to the reading noted in Step 7.8.21.

7.8.23 Repeat Steps 7.8.21 and 7.8.22 until the meter shows no deflection when switching the METER switch from SERVICE to NORMAL.

*7.8.24 Notify the Reactor Operator that control of 1-CVS -LCV-115A is being switched from the NSM card to M/A station LK-112 and ensure that the M/A station is in manual.

7.8.25 Momentarily set the NSM MODE switch to the NORMAL position. The M/A station now controls the loop current.

7.8.26 Remove the NSM card and insert the NCB card that previously occupied the slot.

*7.9 M/A Station Calibration Check

7.9.1 Connect a DVM between the COM and SP jacks of the NCB card in location C7-131.

7.9.2 Record the setting of the setpoint potentiometer on M/A station LK-112.

7.9.3 Adjust the M/A station setpoint potentiometer to the values listed on data sheet 6 and record the AS FOUND setpoint readings at the NCB card.

7.9.4 Adjust the setpoint potentiometer to the value recorded in step 7.9.2 and remove the DVM connected in step 7.9.1.

7.9.5 Measure the voltage between the OUTPUT +" and SIG COM jacks on the NCD card in location C7-132. Record the voltage on data sheet 6 and record the reading on the meter on M/A station LK-112.

7.10 Card Calibration Restoration

*7.10.1 Pull the NLP card in location C7-130 far enough forward to de-energize the card.

*7.10.2 Disconnect the transmitter simulator from terminals 19 and 20 of TBA of cabinet 7 and reconnect the field leads from the transmitter to terminals 19 and 20 of TBA in PCC cabinet 7.

*7.10.3 Reinsert the NLP card.

*7.11 Notify the Shift Foreman that the test is complete.

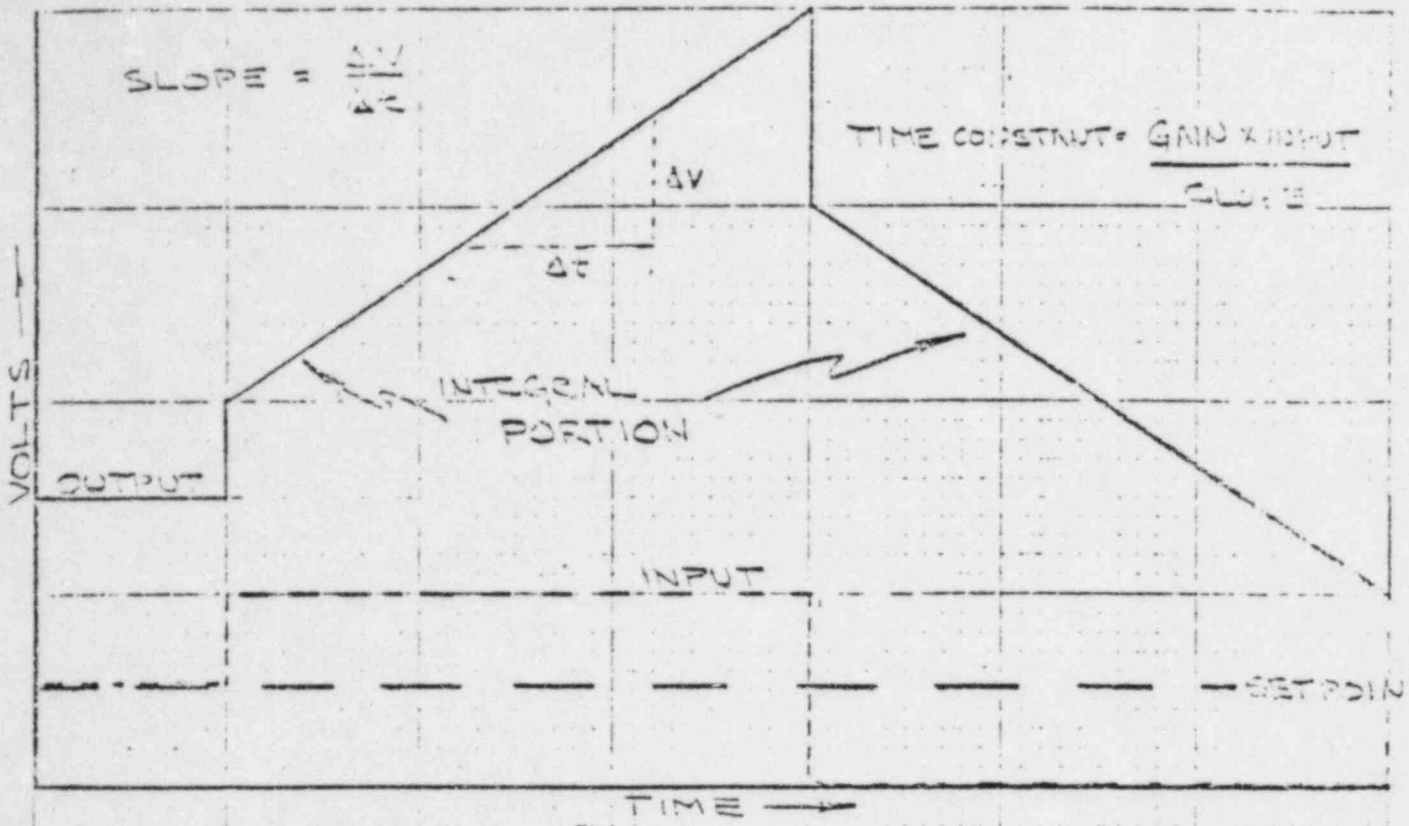

FIGURE 1. TIME CONSTANT

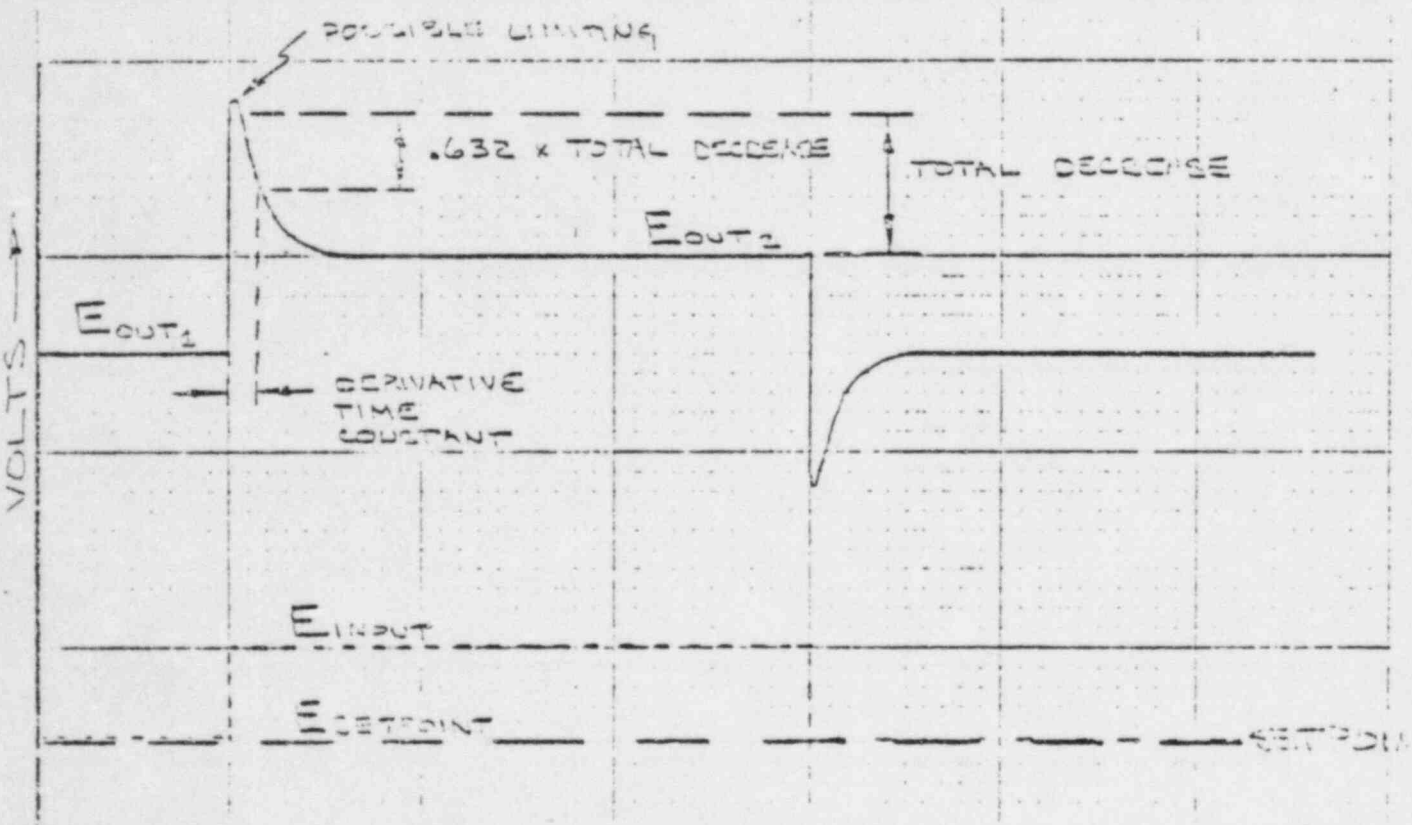

FIGURE 2.

STEP OR SECTION		INITIALS
6.0	Initial Conditions	
7.1	Calibrate Transmitter	
7.1.1	Open Valve	
7.1.2	HP Valve	
7.1.3	LP Valve	
7.1.4	Vent Leg	
7.1.5	Open Drain	
7.1.6	Test Source	
7.1.7	Close Valve	
7.1.18	Replace Cap	
7.1.20.1	Open Valve	
7.1.20.2	HP Valve	
7.1.20.3	LP Valve	
7.1.20.4	Close Valve	
7.1.20.5	Vent Leg	
7.2.1	Pull NLP Card	
7.2.2	Lift Leads	

STEP OR SECTION		INITIALS
7.2.3	Reinsert NLP Card	
7.3	NLP Cal.	
7.4	Indicator Cal.	
7.5	NAL Cal.	
7.6	NAS Cal.	
7.7	NCB Cal.	
7.7.2	Jumper	
7.8	NCD Cal.	
7.9	M/A Cal.	
7.10.1	Pull NLP Card	
7.10.2	Connect Leads	
7.10.3	Reinsert NLP Card	
7.11	Notify Shift Foreman	

TABLE 1. OCEDURE SIGNOFF

DESCRIPTION OF ALTERATION	ALTERED	RESTORED

TABLE 2. TEMPORARY ALTERATION LOG
Rev. 0

VOL. 3
Rev. 0

VCT Level, LT-112

INSTRUMENT DATA SHEET

NUMBER: LT-112 DESCRIPTION: DPT MANUFACTURER: Barton MODEL: 396

TEST EQUIPMENT NUMBER	SPECIAL INSTRUCTIONS

INPUT		OUTPUT				
	UNITS in. WC	UNITS mA	HIGH TOLERANCE +0.08	LOW TOLERANCE -0.08		
%	RANGE	REQUIRED	AS FOUND	ERROR	FINAL	ERROR
0	3.1	4.00				
25	17.81	8.00				
50	32.52	12.00				
75	47.22	16.00				
100	61.93	20.00				
75	47.22	16.00				
50	32.52	12.00				
25	17.81	8.00				
0	3.1	4.00				

SPECIAL CHECKS/REMARKS 7.1.9 AS FOUND VDC
7.1.9 FINAL VDC

SPECIAL INSTRUCTIONS:

SIMULATE:			MONITOR: LQY-112			LOCATION: C7-130	
	UNITS	UNITS mA	UNITS VDC	HIGH TOLERANCE +0.01	LOW TOLERANCE -0.01	TYPE: NLP	
						STYLE: 2837AG01	
%	RANGE	VARIABLE	REQUIRED	AS FOUND	ERROR	FINAL	ERROR
0		4.00	0.00				
25		8.00	2.50				
50		12.00	5.00				
75		16.00	7.50				
100		20.00	10.00				
75		16.00	7.50				
50		12.00	5.00				
25		8.00	2.50				
0		4.00	0.00				

MONITOR: LI-112			LOCATION: BTRS	
UNITS %	HIGH TOLERANCE +2	LOW TOLERANCE -2	TYPE:	
			STYLE:	
REQUIRED	AS FOUND	ERROR	FINAL	ERROR
0				
25				
50				
75				
100				
75				
50				
25				
0				

TEST EQUIPMENT NUMBER

SPECIAL CHECKS/REMARKS

Verified:		Section Initials
AS FOUND	VDC	7.3.1
FINAL	VDC	7.3.3

SPECIAL CHECKS/REMARKS

Verified: Section Initials

VCT Level LT-112

SPECIAL INSTRUCTIONS:

SIMULATE:			MONITOR: LB-112			LOCATION: C7-133		MONITOR:			LOCATION:
	UNITS	UNITS	UNITS	HIGH TOLERANCE	LOW TOLERANCE	TYPE: NAL		UNITS	HIGH TOLERANCE	LOW TOLERANCE	TYPE:
			mA	+0.04	-0.04	STYLE: 2837A13G01					STYLE:
%	RANGE	VARIABLE	REQUIRED	AS FOUND	ERROR	FINAL	ERROR	REQUIRED	AS FOUND	ERROR	FINAL
			TRIP								
5			4.80								
			RESET								
10			5.60								

TEST EQUIPMENT NUMBER	SPECIAL CHECKS/REMARKS		SPECIAL CHECKS/REMARKS
	Verified:	Section Initials:	Verified: Section Initia
	LY/112	7.6.4	

CONTROLLER: LC-112 LOCATION: C7-131 TYPE: NCB STYLE: 2838A30G01

SPECIAL INSTRUCTIONS: Card functions are P&I&D; Gain = 10

SIMULATE:			TRACKING OUTPUT DATA					STATIC OUTPUT DATA				
	UNITS	UNITS VDC	UNITS VDC	HIGH TOLERANCE +0.025	LOW TOLERANCE -0.025			UNITS VDC	HIGH TOLERANCE +0.025	LOW TOLERANCE -0.025		
%	RANGE	VARIABLE	REQUIRED	AS FOUND	ERROR	FINAL	ERROR	REQUIRED	AS FOUND	ERROR	FINAL	ERROR
0		0.00	0.000					---				
25		2.50	2.500					---				
50		5.00	5.000					---				
75		7.50	7.500					---				
100		10.00	10.000					---				
75		7.50	7.500					---				
50		5.00	5.000					---				
25		2.50	2.500					---				
0		0.00	0.000					---				
		0.250	---					0.000				
		0.500	---					2.500				
		0.750	---					5.000				
		1.000	---					7.500				
		0.750	---					10.000				
		0.500	---					7.500				
		0.250	---					5.000				
		0.000	---					2.500				
								0.000				

TEST EQUIPMENT NUMBER

MISCELLANEOUS DATA

FUNCTION	REQUIRED	AS FOUND	ERROR	FINAL	ERROR
LOWER LIMIT	< -10.000				
UPPER LIMIT	> 10.000				
BIAS	N/A				
GAIN	10.0				
RESET TIME CONST	20 sec				
RATE TIME CONST	10 sec				

SWITCH/POTENTIOMETER SETTINGS

SWITCH/POT.	AS FOUND	FINAL
RATE POT.		
GAINX 2 POT		
GAINX.2 POT		
RESETSWITCH		
RESET POT.		

SPECIAL CHECKS/REMARKS: REFERENCE VOLTAGE (pins 13(+) to 42(-)) AS FOUND: FINAL:

SPECIAL INSTRUCTIONS:

SIMULATE:			MONITOR: LCY-112			LOCATION: C7-132		MONITOR:			LOCATION:	
	UNITS	UNITS VDC	UNITS VDC	HIGH TOLERANCE +0.01	LOW TOLERANCE -0.01	TYPE: NCD		UNITS	HIGH TOLERANCE	LOW TOLERANCE	TYPE:	
						STYLE: 2837A16G03					STYLE:	
%	RANGE	VARIABLE	REQUIRED	AS FOUND	ERROR	FINAL	ERROR	REQUIRED	AS FOUND	ERROR	FINAL	ERROR
		0.00	1.00									
		2.50	2.00									
		5.00	3.00									
		7.50	4.00									
		10.00	5.00									
		7.50	4.00									
		5.00	3.00									
		2.50	2.00									
		0.00	1.00									

TEST EQUIPMENT NUMBER	SPECIAL CHECKS/REMARKS		SPECIAL CHECKS/REMARKS	
	Verified:	Section Initials	Verified:	Section Initials
	Card Ramped Smoothly	7.8.17		

FARLEY NUCLEAR PLANT
UNIT 1
INSTRUMENT MAINTENANCE PROCEDURE DATA PACKAGE IMP-202.8A
VOLUME CONTROL TANK LEVEL LT-112

1.0 Purpose

This data package is to be used in conjunction with procedure FNP-1-IMP-202.8 to record calibration data and provide calibration setpoints and tolerances.

2.0 References

2.1 Farley Nuclear Plant Precautions, Limitations, and Setpoints for Nuclear Steam Supply Systems.

2.2 Farley Nuclear Plant Process Instrumentation Accuracy Requirements and Guidelines, E-PCS-8327.

3.0 Procedure Sign-Off Sheet and Alteration Log

3.1 Initial the appropriate space in Table 1 as each step or section is completed in IMP-202.8 .

3.2 Record any temporary alteration directed by attachments to IMP-443.1 on Table 2.

4.0 Test Results

4.1 ☐ Test completed satisfactory

4.2 ☐ Deficiencies occurred (see data sheets for explanation)

4.3 Time required for test_____Procedure Rev. used____

4.4 Test performed by_____Date_____

4.5 Test reviewed by_____Date_____

This data package consists of 8 pages. Rev. 2

SPECIAL INSTRUCTIONS:

SIMULATE:			MONITOR: LK-112			LOCATION: MCB		MONITOR:			LOCATION:	
	UNITS	UNITS Turns	UNITS VDC	HIGH TOLERANCE +0.025	LOW TOLERANCE -0.025	TYPE:		UNITS	HIGH TOLERANCE	LOW TOLERANCE	TYPE:	
						STYLE:					STYLE:	
%	RANGE	VARIABLE	REQUIRED	AS FOUND	ERROR	FINAL	ERROR	REQUIRED	AS FOUND	ERROR	FINAL	ERROR
0		0.00	0.00									
25		2.50	1.25									
50		5.00	2.50									
75		7.50	3.75									
100		10.00	5.00									
75		7.50	3.75									
50		5.00	2.50									
25		2.50	1.25									
0		0.00	0.00									

TEST EQUIPMENT NUMBER

SPECIAL CHECKS/REMARKS

Verified:		Section Initials
SETPOINT		7.9.2
LCY - 112	VDC	7.9.5
LK - 112	%	7.9.5

SPECIAL CHECKS/REMARKS

Verified: Section Initials