

## LICENSEE EVENT REPORT (LER)

(See reverse for required number of  
digits/characters for each block)ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION  
COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED  
INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS  
REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT  
BRANCH (IT-6 F281, U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-  
0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF  
MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

South Texas, Unit 1

DOCKET NUMBER (2)

05000 498

PAGE (3)

1 OF 9

TITLE (4)

Main Steam Safety Valve Setpoints Found Outside Required Tolerance

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	02	97	97	-- 009	-- 01	05	04	98	SOUTH TEXAS, UNIT 2	05000499
									FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)				
POWER LEVEL (10)	100	20.2201(b)	20.2203(a)(2)(v)	X	50.73(a)(2)(i)	50.73(a)(2)(viii)
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vi)	

NAME

Scott M. Head - Senior Consulting Engineer

LICENSEE CONTACT FOR THIS LER (12)

TELEPHONE NUMBER (Include Area Code)

(512) 972-7136

## COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

## SUPPLEMENTAL REPORT EXPECTED (14)

X YES (If yes, complete EXPECTED SUBMISSION DATE).	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			08	01	98

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On September 2, 1997, Unit 1 was in Mode 1 at 100% power. During the performance of the Main Steam Safety Valve Inservice Testing, Main Steam Safety Valves 7430A and 7430B were found with lift settings outside the Technical Specification allowable tolerance of  $\pm 3\%$ . On September 9, 1997, Unit 2 was in Mode 1 at 100% power. In response to the Unit 1 testing results, Unit 2 Main Steam Safety Valves 7430A and 7440, previously evaluated as susceptible to a condition that could adversely affect their lift setting, were tested to verify operability. Main Steam Safety Valve 7440 was found with its lift setting outside the Technical Specification allowable tolerance of  $\pm 3\%$ . On April 1, 1998, Unit 1 was in Mode 1 at 100% power. While lift testing Main Steam Safety Valves 7430A and 7430B as a corrective action to confirm that revised maintenance procedures were effective to preclude a previously observed phenomenon, both safety valves failed to lift within the required lift setting of Table 3.7-2 of Technical Specifications. Previously, the most probable cause of the high initial lift results of the Main Steam Safety Valves was considered to be an alteration of the nozzle and disc oxide layers. As the result of recent testing, the root cause evaluation has been expanded to reevaluate other possible causes of this event. Corrective actions include adjusting the lift settings of the out-of-tolerance valves to within required allowable tolerances, refurbishing Unit 1 Main Steam Safety Valves 7430A and 7430B using revised maintenance procedures, and lift testing susceptible Main Steam Safety Valves in both units at an increased frequency until long term corrective action can be taken in the next refueling outages to correct the valve sticking condition.

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DESCRIPTION OF EVENT

On September 2, 1997, Unit 1 was in Mode 1 at 100% power. During the performance of the Main Steam Safety Valve Inservice Testing, Main Steam Safety Valves 7430A and 7430B were found with lift settings outside the Technical Specification allowable tolerance of  $\pm 3\%$ . The lift settings were adjusted to within their required allowable tolerances. The test sample was expanded to all twenty Unit 1 Main Steam Safety Valves in accordance with ASME requirements. All other Main Steam Safety Valves tested within Technical Specification allowable tolerance. The Nuclear Regulatory Commission was notified of the out-of-tolerance condition of the Main Steam Safety Valves on September 3, 1997, at 0937 hours.

On September 9, 1997, Unit 2 was in Mode 1 at 100% power. In response to the Unit 1 testing results, Unit 2 Main Steam Safety Valves 7430A and 7440, previously evaluated as susceptible to a condition that could adversely affect their lift setting, were tested to verify operability. Main Steam Safety Valve 7440 was found with its lift setting outside the Technical Specification allowable tolerance of  $\pm 3\%$ . The lift setting was adjusted to within its required allowable tolerance. Although Main Steam Safety Valve 7430A tested within allowable tolerance, the validity of the test came into question in that the as-found testing conditions may have been disturbed. This valve was subsequently lifted within Technical Specification allowable tolerance. A conservative decision was made to test the remaining eighteen Unit 2 Main Steam Safety Valves. All other Main Steam Safety Valves tested within Technical Specification allowable tolerance. The Nuclear Regulatory Commission was notified of the out-of-tolerance condition of Unit 2 Main Steam Safety Valve 7440 on September 10, 1997, at 1058 hours.

On April 1, 1998, Unit 1 was in Mode 1 at 100% power. While lift testing Main Steam Safety Valves 7430A and 7430B as a corrective action to confirm that revised maintenance procedures were effective to preclude a previously observed phenomenon attributed to oxide locking, both safety valves failed to lift within the required lift setting of Table 3.7-2 of Technical Specifications. After the initial lift, both valves were retested to verify the valve lift setting was within the one per cent as-left tolerance required by Technical Specifications and the valves were returned to operable status. The Nuclear Regulatory Commission was notified of the out-of-tolerance condition of the Main Steam Safety Valves on April 1, 1998, at 1713 hours.

The augmented testing conducted on April 1, 1998 was not a Code surveillance but conducted as planned maintenance to confirm corrective actions to preclude the previously observed phenomenon attributed to oxide locking. The total valve population at the South Texas Project susceptible to this valve sticking common mode type of failure has been determined to be the six Main Steam Safety Valves where seat repair maintenance has been performed at the South Texas Project. These valves are Main Steam Safety Valves 7430A and 7430B in Unit 1 and 7410A, 7430, 7430A, and 7440 in Unit 2. Increased frequency testing of Unit 2 Main Steam Safety Valves 7430A and 7440 had been successful in assuring that these valves lift within allowable tolerances. Corrective action maintenance had been previously performed on Unit 2 Main Steam Safety Valves 7410A and 7430 and it was determined increased frequency testing of these valves was not required. Since the April 1, 1998 augmented testing did not validate the corrective action, Unit 2 Main Steam Safety Valves 7410A and 7430 were tested on April 2, 1998. The valves lift tested within Technical Specification tolerances.



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DESCRIPTION OF EVENT (CONTINUED):

The as-found setpoints and the percent deviation for all the Main Steam Safety Valves in both units are found in Table 1. In addition, this table provides the as-found setpoints for the Main Steam Safety Valves that were obtained during past refueling outages, during augmented testing conducted in April, 1997 and during augmented testing conducted in April, 1998.

Previous testing of Main Steam Safety Valves at the South Texas Project identified a condition that could adversely affect the ability of susceptible valves to lift within the Technical Specification allowable tolerance. Test results were reported in South Texas Project Unit 1 Licensee Event Report 97-005 and Unit 2 Licensee Event Report 97-001. As previously reported, it was determined that the most probable cause of the high initial lift results of the Main Steam Safety Valves is an alteration of the nozzle and disc oxide layers. Over time, this mechanism tends to promote oxide locking and galling with subsequent bonding between the nozzle and disc. The condition of oxide locking and galling with subsequent bonding between the nozzle and disc materials appears to require a period of time to elapse at normal operating temperatures and pressures.

Also, there appeared to be a greater susceptibility to bonding of the nozzle and disc if these components are refurbished and the refurbishment procedure does not assure that these components are lapped using the same finish. The maintenance procedures that were previously used to refurbish Unit 1 Main Steam Safety Valves 7430A and 7430B and Unit 2 Main Steam Safety Valves 7430A and 7440 resulted in inconsistent lapping of the nozzle and disc.

Three other Main Steam Safety Valves were previously refurbished by lapping the nozzle and disc using the same finish. These three valves have successfully lifted within the Technical Specification allowable tolerance since their refurbishment. Based on the experience of these three valves, Unit 1 Main Steam Safety Valves 7430A and 7430B were refurbished during the Unit 1 Fall 1997 refueling outage using the revised maintenance procedures to correct the condition. Augmented testing performed on April 1, 1998 did not confirm that the revised maintenance procedures corrected the condition that resulted in these valves not meeting lift allowable tolerances.

Unit 2 Main Steam Safety Valves, 7430A and 7440, which had not been refurbished using the revised maintenance procedures have been tested on an increased testing schedule which has been successful in assuring that these valves lift within Technical Specification tolerances.

CAUSE OF EVENT

Prior to the April 1998 testing, the most probable cause of the high initial lift results of the Main Steam Safety Valves was considered an alteration of the nozzle and disc oxide layers. Over time this mechanism is considered to promote oxide locking and galling with subsequent bonding between the valve seat and disc. The most significant contributing cause had been considered to be inadequate guidance in the maintenance procedures for valve refurbishing that resulted in inconsistent lapping of the valve disc and nozzle. Since this probable cause was not confirmed by recent testing, other possible causes such as additional metallurgical bonding mechanisms, material incompatibility and chemistry effects are being reevaluated. The susceptible valve population remains only those six main steam safety valves where seat repair maintenance has been performed at the South Texas Project.

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## ANALYSIS OF EVENT

The discovery of Main Steam Safety Valve setpoints outside the Technical Specification required limit is reportable pursuant to 10CFR50.73(a)(2)(i)(B). After analysis of the out-of-tolerance data obtained during the most recent testing, it was determined that these conditions did not result in a condition that was unanalyzed or outside the design basis of the plant.

The safety function of the Main Steam Safety Valves is to protect the Steam Generators and the piping upstream of the Main Steam Isolation Valves from overpressurization under all modes of operation. During a loss of load/turbine trip or a loss of normal feedwater/loss of offsite power event, operability of the Main Steam Safety Valves ensures that the secondary system pressure will be limited to within 110% (1413.5 psig) of its design pressure of 1285 psig. The operability of the Main Steam Safety Valves also establishes the reactor coolant system conditions for several accident analyses and the maximum steam pressure that the auxiliary feed pumps must overcome to supply minimum flowrate. With 18 of the 20 Main Steam Safety Valves within tolerance and with at least four Main Steam Safety Valves per loop below 1397 psig, the safety analysis remains bounded and all events requiring Main Steam Safety Valve actuation could have been successfully mitigated.

### CORRECTIVE ACTIONS

1. The lift settings of Unit 1 Main Steam Safety Valves 7430A and 7430B and Unit 2 Main Steam Safety Valve 7440 were adjusted within their required allowable tolerances following testing in September, 1997. Unit 2 Main Steam Safety Valve 7430A with questionable as-found lift results in September, 1997 was adjusted within its required allowable tolerance. All other Main Steam Safety Valves were found to be within the required allowable tolerance.
2. Unit 1 Main Steam Safety Valves 7430A and 7430B were disassembled and inspected during the Unit 1 fall 1997 refueling outage. These valves were refurbished using revised maintenance procedures that assure that the valve disc and nozzle are hand lapped using the same finish. Post-maintenance testing conducted during plant restart assured these valves were left within 1% of setpoint.
3. Lift testing of Unit 1 Main Steam Safety Valves 7430A and 7430B was performed on April 1, 1998. When the initial lift tests did not meet Technical Specification tolerances, the valves were retested and verified to lift within their required allowable tolerances.
4. Lift setting testing of Unit 2 Main Steam Safety Valves 7430A and 7440 was performed within approximately 40 days from their last lift setting test conducted on September 9, 1997. These Main Steam Safety Valves have been successfully tested at an increased frequency of approximately every 60 days.
5. Unit 1 and Unit 2 Main Steam Safety Valves susceptible to a valve sticking common mode type of failure will be lift tested at approximately 60 day intervals until the valve's next refueling outage.

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CORRECTIVE ACTIONS (CONTINUED)

6. The root cause investigation for this event will be completed by July 1998.
7. A letter to the Nuclear Regulatory Commission will be submitted at least 90 days prior to Unit 2's fall 1998 refueling outage detailing the planned long term corrective action for performance during each unit's next refueling outage to prevent recurrence of main steam safety valve inoperability due to an observed oxide locking phenomena.
8. The South Texas Project will continue to actively participate with the industry to resolve the safety valve sticking issue.

ADDITIONAL INFORMATION

The condition of oxide locking and galling with subsequent bonding between the valve seat and disc materials appears to require a period of time to elapse at normal operating temperatures and pressures. Experience at Diablo Canyon shows that seat conditioning lifting of Main Steam Safety Valves conducted anytime up to approximately 180 days of plant operation has averted high out-of-tolerance lift results. Recent testing at the South Texas Project did not duplicate the experience at Diablo Canyon. Revised maintenance procedures had resulted in successful lift setting results until the April 1, 1998 testing. As a result, the root cause evaluation has been expanded to reevaluate other possible causes of this event.

The Main Steam Safety Valves are model 6-3707RAX-RT-25-XNC1012 manufactured by Consolidated/Dresser. The Main Steam Safety Valves are spring-loaded with an adjusting nut which increases or decreases the spring force to achieve the relief valve opening.

Unit 1 Voluntary Licensee Event Report 92-018 (Revision 1), Unit 2 Voluntary Licensee Event Report 93-011 (Revision 1), Unit 1 Licensee Event Report 95-003, Unit 2 Licensee Event Report 97-001 and Unit 1 Licensee Event Report 97-005 were submitted to the Nuclear Regulatory Commission documenting Main Steam Safety Valve setpoints outside the required tolerances.



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Table 1

Unit 1 Main Steam Safety Valves  
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TRAIN A	7410	7410A	7410B	7410C	7410D
TRAIN B	7420	7420A	7420B	7420C	7420D
TRAIN C	7430	7430A	7430B	7430C	7430D
TRAIN D	7440	7440A	7440B	7440C	7440D
SETPOINT	1285.0	1295.0	1305.0	1315.0	1325.0

04/01/98

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	--	--	--	--	--
TRAIN B	--	--	--	--	--
TRAIN C		1384.6/+6.9	1412.5/+8.2		
TRAIN D	--	--	--	--	--

1RE07 - 09/02 - 09/03/97

	AS-POUND/% ERR	AS-POUND/% ERR	AS-POUND/% ERR	AS-POUND/% ERR	AS-POUND/% ERR
TRAIN A	1278.4/-0.5	1300.00/+0.4	1311.5/+0.5	1309.4/-0.4	1337.6/+1.0
TRAIN B	1281.9/-0.2	1306.3/+0.9	1294.7/-0.8	1294.2/-1.6	1306.7/-1.4
TRAIN C	1282.1/-0.2	1362.6/+5.2	1358.9/+4.1	1304.4/-0.8	1330.0/+0.4
TRAIN D	1268.3/-1.4	1295.8/+0.1	1305.6/+0.1	1316.5/+0.1	1310.8/-1.1

4/2 - 04/03/97

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1282.6/-0.2	1296.95/+0.2	1310.45/+0.4	1307.5/-0.6	1331.5/+0.5
TRAIN B	1263.7/-1.7	1313.4/+1.4	1299.5/-0.4	1314.4/-0.05	1319.75/-0.4
TRAIN C	1286.9/+0.15	1414.0/+9.2	1393.2/+6.8	1319.6/+0.35	1326.5/+0.1
TRAIN D	1273.2/-0.9	1299.5/+0.35	1307.6/+0.2	1317.25/+0.2	1321.0/-0.3

1RE06 - 05/13/97

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	*	*	*	*	*
TRAIN B	1289.95/+0.07	1300.06/+0.39	1319.04/+1.08	1342.39/+2.08	1316.61/-0.63
TRAIN C	*	1281.03/-1.08	1296.06/-0.69	*	*
TRAIN D	*	*	*	*	*

\* - NOT REQUIRED TO BE TESTED PER TECHNICAL SPECIFICATIONS

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Table 1  
Unit 1 Main Steam Safety Valves  
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## 1RE05 - 02/27/95

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1283.80/-0.09	1296.97/+0.15	1316.30/+0.87	1306.10/-0.68	1330.50/+0.42
TRAIN B	1277.60/-0.58	1294.90/-0.01	1299.98/-0.38	1317.20/+0.17	1317.20/-1.35
TRAIN C	1308.00/+1.79	1293.90/-0.08	1336.50/+2.41	1343.60/+2.17	1331.40/+0.48
TRAIN D	1290.90/+0.46	1310.20/+1.17	1332.50/+2.11	1325.40/-0.79	1350.80/+1.95

## 1RE04 - 09/19/92

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1275.70/-0.72	1293.60/-0.11	*	1304.70/-0.78	*
TRAIN B	*	1293.50/-0.12	*	*	*
TRAIN C	*	*	*	*	*
TRAIN D	*	*	*	*	*

\* - NOT REQUIRED TO BE TESTED PER TECHNICAL SPECIFICATIONS

## 1RE03 - 03/29/91

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1277.40/-0.59	1270.20/-1.92	1283.10/-1.68	1308.60/-0.49	1305.90/-1.44
TRAIN B	1269.10/-1.24	1274.00/-1.62	1278.40/-2.04	1291.40/-1.79	1321.90/-0.23
TRAIN C	1289.70/-0.37	1273.50/-1.66	1281.50/-1.80	1303.30/-0.89	1306.90/-1.37
TRAIN D	1275.90/-0.71	1303.30/+0.64	1338.10/+2.54	1312.90/-0.16	1356.20/+1.52

## 1RE02 - 06/13/90

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	*	*	1313.93/+0.68	*	*
TRAIN B	*	*	*	*	*
TRAIN C	*	*	*	*	*
TRAIN D	*	1280.10/-1.15	1322.70/+1.36		

\* - NOT REQUIRED TO BE TESTED PER TECHNICAL SPECIFICATIONS

## 1RE01 - 08/7/89

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1251.75/-2.59	1282.70/-0.95	1301.50/-0.27	1306.10/-0.68	1316.00/-0.68
TRAIN B	1258.90/-2.03	1283.20/-0.91	1267.00/-2.91	1337.10/+1.68	1295.40/-2.23
TRAIN C	1289.00/+0.31	1270.10/-1.92	1293.40/-0.89	1344.70/+2.26	1314.10/-0.82
TRAIN D	1281.60/-0.26	1275.80/-1.48	1289.20/-1.21	1288.00/-2.05	1286.80/-2.88

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Table 1

## Unit 2 Main Steam Safety Valves

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TRAIN A	7410	7410A	7410B	7410C	7410D
TRAIN B	7420	7420A	7420B	7420C	7420D
TRAIN C	7430	7430A	7430B	7430C	7430D
TRAIN D	7440	7440A	7440B	7440C	7440D
SETPOINT	1285.0	1295.0	1305.0	1315.0	1325.0

04/02/98

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	--	1280.7/-1.1%	--	--	--
TRAIN B	--	--	--	--	--
TRAIN C	1275.6/-0.7%	--	--	--	--
TRAIN D	--	--	--	--	--

09/09 - 09/10/97

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1290.4/+0.4	1294.9/0.0	1296.7/-0.6	1307.5/-0.6	1329.4/+0.3
TRAIN B	1272.5/-1.0	1298.7/+0.3	1304.5/0.0	1312.3/-0.2	1322.5/-0.2
TRAIN C	1287.3/+0.2	*	1312.5/+0.6	1331.0/+1.2	1338.5/+1.0
TRAIN D	1342.2/+4.5	1304.0/+0.7	1303.4/-0.1	1323.5/+0.7	1345.6/+1.6

\* AS-FOUND CONDITIONS DISTURBED, LIFT RESULTS INVALID

4/21 - 4/22/97

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1288.3/+0.3	1311.2/+1.25	1301.2/-0.3	1302.8/-0.9	1332.0/+0.5
TRAIN B	1282.4/-0.2	1306.0/+0.85	1306.1/+0.1	1318.2/+0.2	1340.6/+1.2
TRAIN C	1280.4/-0.4	1377.3/+6.35	1305.3/+0.02	1319.7/+0.4	1331.1/+0.5
TRAIN D	1339.99/+4.28	1316.55/+1.7	1295.6/-0.7	1317.55/+0.2	1345.3/+1.5

2RE05 - 2/3/97

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1298.93/+1.08	1313.75/+1.45	1303.29/-0.13	1302.78/-0.93	1317.20/-0.59
TRAIN B	1276.74/-0.64	1323.13/+2.17	1363.54/+4.49	1338.46/+1.78	1380.59/+4.20
TRAIN C	1325.94/+3.19	1317.72/+1.75	1309.32/+0.33	1329.22/+1.08	1336.02/+0.83
TRAIN D	1380.55/+7.44	1328.98/+2.62	1331.72/+2.05	1351.51/+2.78	1383.19/+4.39



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Table 1

## 2RE04 - 10/2/95

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1281.71/-0.26	1293.90/-0.09	1297.96/-0.54	1295.93/-1.45	1318.26/-0.51
TRAIN B	1288.78/+0.29	1305.02/+0.77	1299.96/-0.39	1320.26/+0.40	1295.90/-2.20
TRAIN C	1328.38/+3.38	1308.08/+1.01	1299.96/-0.39	1320.26/+0.40	1340.57/+1.17
TRAIN D	1320.71/+2.78	1280.68/-1.11	1288.81/-1.24	1278.65/-2.76	1286.78/-2.88

2RE03 - 2/28/93

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1271.50/-1.05	1283.70/-0.87	1303.60/-0.11	1301.60/-1.02	1334.50/+0.72
TRAIN B	1284.80/-0.02	1295.90/+0.07	1304.00/-0.08	1307.60/-0.56	1345.20/+1.52
TRAIN C	1357.00/+5.60**	1294.40/-0.05	1307.50/+0.19	1315.70/+0.05	1295.40/-2.23
TRAIN D	1281.20/-0.30	1287.30/-0.59	1297.40/-0.58	1302.50/-0.95	1321.80/-0.24

\*\* VALVE 7430 DID NOT ACTUATE ON 2/28/93, AND WAS DECLARED INOPERABLE AND HI-FLUX SETPOINT ADJUSTED IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS

2RE02 - 9/14/91

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	*	*	*	*	*
TRAIN B	*	*	*	*	*
TRAIN C	*	*	*	1321.30/+0.48	1320.40/-0.35
TRAIN D	1295.40/+0.81	1274.00/-1.62	*	*	*

\*2RE01 - 10/11/90

	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR	AS-FOUND/% ERR
TRAIN A	1255.10/-2.33	1296.90/+0.15	1298.30/-0.51	1309.10/-0.45	1293.30/-2.39
TRAIN B	1277.60/-0.58	1282.20/-0.99	1283.80/-1.62	1304.70/-0.78	1295.10/-2.26
TRAIN C	1289.40/+0.34	1284.30/-0.83	1281.20/-1.82	1289.50/-1.94	1310.70/-1.08
TRAIN D	1294.70/+0.75	1258.60/-2.81	1306.80/+0.14	1326.30/+0.14	1315.60/-0.71

\* NOT REQUIRED TO BE TESTED PER TECHNICAL SPECIFICATIONS